No. CP-SP-1308E

# Network Instrumentation Modules
# Controller Module

## Model NX-D15/25/35

# User's Manual

## for Functions


**Thank you for purchasing this product. This manual contains information for ensuring the safe and correct use of the product.**
**Those designing or maintaining equipment that uses this product should first read and understand this manual. It also provides necessary information for installation, maintenance, and troubleshooting. Be sure to keep this manual nearby for handy reference.**

Azbil Corporation

## NOTICE

Please make sure that this manual is available to the user of the product.

Unauthorized duplication of this user's manual in part or in whole is forbidden. The information and specifications in this manual are subject to change without notice.

Considerable effort has been made to ensure that this manual is complete and accurate, but if you should find an omission or error, please contact us.

In no event is Azbil Corporation liable to anyone for any indirect, special, or consequential damages as a result of using this product.

# Conventions Used in This Manual

- The safety precautions explained below aim to prevent injury to you and others, and to prevent property damage.

| | |
|---|---|
| **WARNING** | Warnings are indicated when mishandling this product may result in death or serious injury. |
| **CAUTION** | Cautions are indicated when mishandling this product may result in minor injury or property damage only. |

- In describing the product, this manual uses the icons and conventions listed below.

| | |
|---|---|
| ⚠ | Indicates that caution is required in handling. |
| ⃠ | The indicated action is prohibited. |
| ❗ | Be sure to follow the indicated instructions. |
| **Handling Precautions** | Information to be aware of when handling. |
| **Note** | Indicates information that may be useful. |
| ☞ | Indicates an item or page to which the user may refer. |
| (1), (2), (3) | Steps in a sequence or parts of a figure, etc. |
| [Project], [OK] | Square brackets indicate a window name, menu, or button shown on the PC screen. |
| [Shift] key | Indicates a key on the PC. |
| >> | Indicates the result of an operation, or the status after the operation. |

"ROM version2.00 [2_0_1]" tells the ROM version*1 and the module version.*2

- 1 (last digit): Module minor version
- 0 (middle digit in brackets): Module major version
- 2 (first digit in brackets): Module-compatible version
- 00: ROM minor version
- 2: ROM major version

*1. ROM version numbers are used for ROM version change management.

*2. Module versions are used to manage parameter compatibility.

- Abbreviations

In this manual, some product names are abbreviated as shown below.

Temperature Controller: TC
Digital input/pulse input module: DX
Digital output module: DY
Supervisor module: SV
Communication adapter: CA
Terminal adapter: TA
Communication box: CB
SLP-NX Smart Loader Package: the loader

## Safety Precautions

The safety precautions explained below aim to ensure safe and correct use of this product in order to prevent injury to you and others, and to prevent property damage. Be sure to observe these safety precautions. Please make sure you understand the safety guidelines before reading the rest of this manual.
Use of this product in a manner not specified by the manufacturer will impair its built-in safety features.

### ⚠WARNING

| | |
|---|---|
| | Before removing, mounting, or wiring this device, be sure to turn off the power to this device and all connected devices. Otherwise, there is a danger of electric shock. |
| | Be sure to check that the device has been correctly wired before turning on the power.<br>Incorrect wiring of this device may cause device failure and also lead to a dangerous accident. |

### ⚠CAUTION

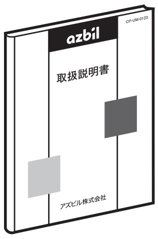
| | |
|---|---|
| | To lock or unlock the DIN rail locking tab, use a tool such as a screwdriver. |
| | Do not disassemble the NX-D15/25/35.<br>There is a danger of device failure. |
| | Do not block the ventilation holes.<br>There is a danger of fire or device failure. |
| | Do not allow wire clippings, metal shavings, water, etc., to enter the case of this device.<br>There is a danger of fire or device failure. |
| | Do not touch live parts such as the power terminals.<br>There is a danger of electric shock. |
| | Before wiring this device, turn off the power except when connecting network cables.<br>Otherwise, there is a danger of device failure. |
| | Wire this device correctly by using the wiring method, power, and installation method specified in this user's manual. Otherwise, there is a danger of fire, electric shock, or device failure. |
| | Make sure that there are no loose connections. Failure to do so may cause overheating or equipment failure. |
| | The total power consumption of all connected modules should be no more than 70 W.<br>Otherwise, there is a danger of fire or device failure. |
| | Do not supply power to a group of connected modules from multiple power sources.<br>There is a danger of fire or device failure. |
| | Do not use unused terminals as relay terminals.<br>There is a danger of fire, electric shock, or device failure. |
| | Do not short out the output section.<br>There is a danger of device failure. |
| | Firmly tighten the terminal screws to the torque listed in the specifications.<br>Insufficient tightening may cause fire. |

## ⚠CAUTION

| | |
|---|---|
| ! | If there is a risk of a power surge caused by lightning, use a surge absorber (surge protector) Otherwise, there is a danger of fire or device failure. |
| ! | Use this device within the operating ranges given in the specifications (for temperature, humidity, voltage, vibration, shock, mounting direction, atmosphere, etc.). Otherwise, there is a danger of fire or device failure. |
| ! | The NX-D15/25/35 does not operate for about 10 seconds after the power has been turned ON, depending on the settings.<br>Be careful if the output from the module is used as an interlock signal. |
| ! | When disposing of this product, please do so appropriately, in compliance with local ordinances for industrial waste. |
| ! | Before wiring the NX-D15/25/35, be sure to disconnect the power. Otherwise, there is a danger of device failure. |
| ⃠ | Do not use screw terminal block models together with screwless terminals, or vice versa, since correct measurement will not be possible. |
| ! | This device should be handled by a specialist with expertise in electrical safety. |
| ! | If this device is used in a manner not specified by the manufacturer, the protective functions of the device may be impaired. |
| ! | To remove dirt from this device, wipe it with a soft dry cloth. |
| ⃠ | When removing dirt from this device, never use an organic solvent such as thinner or benzene, or a detergent. |
| ! | Make sure that devices or equipment connected to this device have reinforced insulation suitable for the maximum voltages of this device’s power supply and input/output components. |

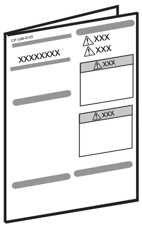
# The Role of This Manual

There are 13 different manuals related to Network Instrumentation Modules. Read them as necessary for your specific requirements.
If you do not have a manual you require, please contact us or one of our dealers.
Alternatively, you can download the necessary manuals from https://www.azbil.com.



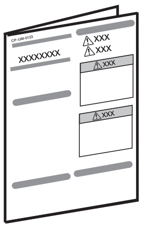

**Network Instrumentation Modules Controller Module Model NX-D15/25/35**
**User's Manual for Functions** **Document No. CP-SP-1308E**

This manual.
Personnel who are using the NX-D15/25/35 for the first time or who are in charge of hardware design and/or maintenance of a control panel containing the NX-D15/25/35 should read this manual thoroughly. This manual describes the hardware, surveys the NX-D15/25/35 and other products used with it, explains installation, wiring, and troubleshooting, and gives hardware specifications.



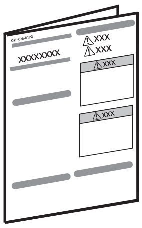
**Network Instrumentation Modules Controller Module Model NX-D15/25/35**
**User's Manual for Installation** **Document No. CP-UM-5561JE**

This manual is supplied with the NX-D15/25/35.
Personnel in charge of design and/or manufacture of a system using the NX-D15/25/35 should thoroughly read this manual. It describes safety precautions, installation, wiring, and primary specifications.



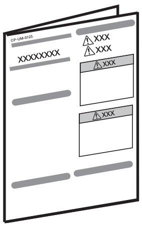
**Network Instrumentation Modules Communication Box Model NX-CB1**
**User's Manual for Installation** **Document No. CP-UM-5558JE**

This manual is supplied with the NX-CB1.
Personnel in charge of design and/or manufacture of a system using the NX-CB1 should read this manual thoroughly. It describes safety precautions, installation, wiring, and primary specifications.



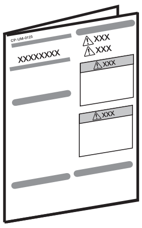
**Network Instrumentation Modules Communication Box Model NX-CB2**
**User's Manual for Installation** **Document No. CP-UM-5715JE**

This manual is supplied with the NX-CB2.
Personnel in charge of design and/or manufacture of a system using the NX-CB2 should read this manual thoroughly. It describes safety precautions, installation, wiring, and primary specifications.



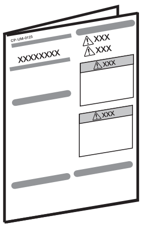
**Network Instrumentation Modules Digital Input/Pulse Input Module Model NX-DX1/2 User's Manual for Installation**
**Document No. CP-UM-5560JE**

This manual is supplied with the NX-DX1/DX2.
Personnel in charge of design and/or manufacture of a system using the NX-DX1/DX2 should read this manual thoroughly. It describes safety precautions, installation, wiring, and primary specifications.



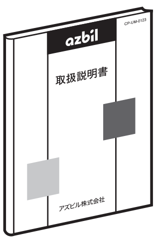
**Network Instrumentation Modules Supervisor Modules Model NX-S11/12/21 User's Manual for Installation** **Document No. CP-UM-5557JE**

This manual is supplied with the NX-S11/12/21.
Personnel in charge of design and/or manufacture of a system using the NX-S11/12/21 should thoroughly read this manual. It describes safety precautions, installation, wiring, and primary specifications.



**Network Instrumentation Modules Digital Output Module Model NX-DY1/2 User's Manual for Installation** **Document No. CP-UM-5564JE**

This manual is supplied with the NX-DY1/2.
Personnel in charge of design and/or manufacture of a system using the NX-DY1/2 must thoroughly read this manual. It describes safety precautions, installation, wiring, and primary specifications.

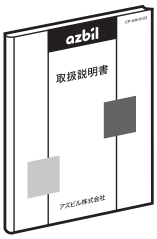



**Network Instrumentation Modules Digital Input/Pulse Input Module Model NX-DX1/2 User's Manual for Functions** **Document No. CP-SP-1323E**

Personnel who are using the NX-DX1/DX2 for the first time or who are in charge of hardware design and/or maintenance of a control panel containing the NX-DX1/DX2 should read this manual thoroughly.
This manual describes the hardware, surveys the NX-DX1/DX2 and other products used with it, explains installation, wiring, and troubleshooting, and gives hardware specifications.

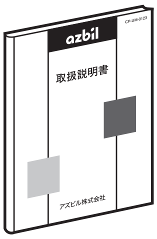

**Network Instrumentation Modules Supervisor Module Model NX-S11/12/21 User's Manual for Functions** **Document No. CP-SP-1324E**

Personnel who are using the NX-S11/12/21 for the first time or who are in charge of hardware design and/or maintenance of a control panel containing the NX-S11/12/21 should read this manual thoroughly. This manual describes the hardware, surveys the NX-S11/12/21 and other products used with it, explains installation, wiring, and troubleshooting, and gives hardware specifications.



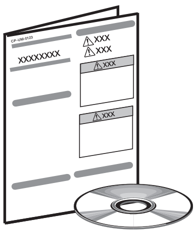

**Network Instrumentation Modules Digital Output Module Model NX-DY1/2**
**User's Manual for Functions** **Document No. CP-SP-1345E**

Personnel who are using the NX-DY1/2 for the first time or who are in charge of hardware design and/or maintenance of a control panel containing the NX-DY1/2 should read this manual thoroughly.
This manual describes the hardware, surveys the NX-DY1/2 and other products used with it, explains installation, wiring, and troubleshooting, and gives hardware specifications.



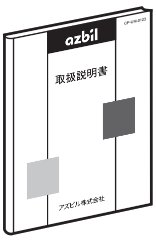

**Network Instrumentation Modules User's Manual for Network Design Version**
**Document No. CP-SP-1313E**

Personnel who are in charge of design of a network using the Network Instrumentation Module should read this manual thoroughly.
It describes how to design a network and gives examples.



**Network Instrumentation Modules Smart Loader Package Model SLP-NX**
**Installation Guide** **Document No. CP-UM-5559JE**

This manual is supplied with the SLP-NX Smart Loader Package
and describes installation of the software on a personal computer.




**Network Instrumentation Modules Smart Loader Package Model SLP-NX**
**User's Manual** **Document No. CP-UM-5636E**

This manual is included in the SLP-NX Smart Loader Package as a PDF file.
Personnel in charge of design or configuration of a system using Network Instrumentation Modules should read this manual thoroughly.
The manual describes the software that is used to configure Network Instrumentation Modules with a computer.
The manual describes installation of the software into a PC, operation of the PC, various functions, and setup procedures.

# Organization of the Manual

This manual is organized as shown below.

**Chapter 1. Overview**

Overview, features, model selection guide, part names, and functions

**Chapter 2. Installation**

Operating environment and installation procedures

**Chapter 3. Wiring**

Wiring procedures and precautions, connection examples

**Chapter 4. Functions Necessary for Control**

Setup of functions critical for operation

**Chapter 5. Operation**

Setup of normally used functions

**Chapter 6. Functions Often Used for Operations Other Than Control**

Setup of functions other than control

**Chapter 7. Functions Used As Required**

Setup of functions for convenient operation

**Chapter 8. CPL Communication Function**

Communication with a host device (PC, PLC, etc.) using Azbil's standard CPL communication and RS-485

**Chapter 9. Modbus Communication Function**

Communication with a host device (PC, PLC, etc.) using Modbus communication and RS-485

**Chapter 10. CPL/TCP Communication Function**

Communication with a host device (PC, PLC, etc.) using CPL/TCP communication and Ethernet

**Chapter 11. Modbus/TCP Communication Function**

Communication with a host device (PC, PLC, etc.) using Modbus/TCP communication and Ethernet

**Chapter 12. List of Communication Data**

Communication data stored in the controller

**Chapter 13. List of Parameter Settings**

List of parameter settings

**Chapter 14. Troubleshooting**

Troubleshooting

**Chapter 15. Maintenance, Inspection, and Disposal**

Maintenance, inspection and disposal

**Chapter 16. Specifications**

General specifications, performance specifications, and dimensions

**Appendix**

Functional block diagrams, standard bits, standard numbers, ROM version history, and explanation of terms used in the manual.

# Contents

# -MEMO-

# Chapter 1. Overview

## 1 - 1 Overview and Features

### ■ Overview

Linked by Ethernet, Network Instrumentation Modules make distributed instrumentation, high-speed communications, less wiring, and less engineering work all possible at the same time. Modules also create value through reduced environmental impact, superior product quality, and higher productivity.
The NX-D15/25/35 is a distributed multi-channel controller that can execute PID control for up to 4 loops.

### ■ Features

#### ● High-speed communication capabilities

- Ethernet communication is standard equipment.
  Each module is equipped for Ethernet communication.
  When Network Instrumentation Modules are not only linked but also distributed, greatly reduced wiring is possible by using a daisy chain configuration.
  Each module also has an RS-485 communication function.
  Network Instrumentation Modules provide high-speed communication with host systems, programmable logic controllers (PLCs), display devices, etc.
  A network equipped with Network Instrumentation Modules can be upgraded to use Azbil's monitoring/control system.
- Provides a true distributed layout.
  With Ethernet connections, there is no difference in function between distributed and contiguous layouts.
- Communication redundancy
  Either ring or non-ring connection is possible on an Ethernet network.

#### ● Hardware

- Compact and highly functional
  Compact body (30 × 100 × 104 mm)
- Simple assembly
  A module consists of a base, a main unit, and a terminal block. Modules can be easily installed and removed without tools.
- Contiguous modules or distributed layout
  Input/output signals can be shared between modules, whether they are physically contiguous or in a distributed layout.
- Stand-alone operation is possible
  Each module contains its own power supply, control, and communication functions. For that reason, using modules is efficient even if not many channels are used. Moreover, the modular design saves space.

## ● Control functions

- One module can execute PID control for up to 4 loops.
- Full multi-range input provides multiple range selections for thermocouple, resistance temperature detector (RTD), DC, and DC voltage.
- Cascade control (NX-D25/35) or heating/cooling control can be selected in control mode.
- Control output can be allotted for the control of multiple devices.
- As an option, 4-channel models can additionally be equipped for current transformer input, digital input, or digital output.
- Network Instrumentation Modules can also provide logical operation processing for digital inputs, digital outputs, internal events, etc.
- Data transfer function allows operation input/output between modules

## ● Engineering Tool

The SLP-NX Smart Loader Package (sold separately) is available.
The SLP-NX allows a PC to access multiple modules simultaneously via Ethernet.
Consequently, control, setup, and monitoring can be executed for multiple modules simultaneously, reducing engineering time.

# 1 - 2 Model Selection Table

## ■ Controller module

| Basic model No. | Type | Ring connection | Wiring method | Channels | Output type | Options | Add'l proc. | Description |
|---|---|---|---|---|---|---|---|---|
| NX- | | | | | | | | Network Instrumentation Modules |
| | D15 | | | | | | | Controller module, ±0.3 % FS, 500 ms sampling*1 |
| | D25 | | | | | | | Controller module, ±0.3 % FS, 200 ms sampling |
| | D35 | | | | | | | Controller module, ±0.1 % FS, 100 ms sampling |
| | | N | | | | | | Non-ring communication |
| | | R | | | | | | Ring communication |
| | | | T | | | | | Screw terminal block |
| | | | S | | | | | Screwless terminal block |
| | | | | 2 | | | | 2 channels*2 |
| | | | | 4 | | | | 4 channels*3 |
| | | | | | T | | | Transistor output |
| | | | | | C | | | Analog current output |
| | | | | | D | | | Analog voltage output |
| | | | | | M | | | Transistor output (for position proportional control)*3 |
| | | | | | S | | | Isolated analog current output (channel-channel and channel-power)*3 |
| | | | | | G | | | Isolated analog voltage output (channel-channel and channel-power )*3 |
| | | | | | | 0 | | None |
| | | | | | | 1 | | 4 current transformer (CT) inputs |
| | | | | | | 2 | | 4 digital outputs |
| | | | | | | 3 | | 4 digital inputs |
| | | | | | | 4 | | 4 digital outputs (for position proportional control)*3 *4 |
| | | | | | | | 0 | None |
| | | | | | | | D | With inspection report |
| | | | | | | | Y | With traceability certificate |
| | | | | | | | T | Tropicalization treatment |
| | | | | | | | K | Anti-sulfuration treatment |
| | | | | | | | B | Tropicalization treatment + inspection report |
| | | | | | | | L | Anti-sulfuration treatment + inspection report |

*1. The NX-D15 cannot be used for multi-loop cooperative control.

*2. 2 channels are not available on the D15/25.

*3. Output types M, S, and G as well as option 4 are not available when there are four channels.

*4. If the output type is T or M, option 4 is not available.

## ■ Communication box

| Basic model No. | Type | Ring connection 1 | Ring connection 2 | Number of ports | Options | Add'l proc. | Description |
|---|---|---|---|---|---|---|---|
| NX- | | | | | | | Network Instrumentation Modules |
| | CB1 | | | | | | 4-port switching hub |
| | CB2 | | | | | | 4-port switching hub (with status output) |
| | | N | | | | | Chain non-ring connection (using side connectors) |
| | | R | | | | | Chain ring connection (using side connectors) |
| | | | N | | | | Non-ring connection between chains (using front ports) |
| | | | R | | | | Ring connection between chains (using front ports) |
| | | | | 04 | | | 4 ports |
| | | | | | 0 | | RJ-45 × 4 |
| | | | | | 1 | | RJ-45 × 3, 2-core LC × 1* |
| | | | | | | O | None |
| | | | | | | D | With inspection report |
| | | | | | | T | Tropicalization treatment |
| | | | | | | K | Anti-sulfuration treatment |
| | | | | | | B | Tropicalization treatment + inspection report |
| | | | | | | L | Anti-sulfuration treatment + inspection report |

* Available for type CB2.

## ■ Communication adapter, terminal adapter

| Basic model No. | Type | Option 1 | Option 2 | Option 3 | Option 4 | Add'l proc. | Description |
|---|---|---|---|---|---|---|---|
| NX- | | | | | | | Network Instrumentation Modules |
| | CL1 | | | | | | Communication adapter for left side* |
| | CR1 | | | | | | Communication adapter for right side* |
| | TL1 | | | | | | Terminal adapter for left side* |
| | TR1 | | | | | | Terminal adapter for right side* |
| | | 0 | | | | | None |
| | | | 0 | | | | None |
| | | | | 00 | | | None |
| | | | | | 0 | | None |
| | | | | | | 0 | None |
| | | | | | | D | With inspection report |
| | | | | | | T | Tropicalization treatment |
| | | | | | | K | Anti-sulfuration treatment |
| | | | | | | B | Tropicalization treatment + inspection report |
| | | | | | | L | Anti-sulfuration treatment + inspection report |

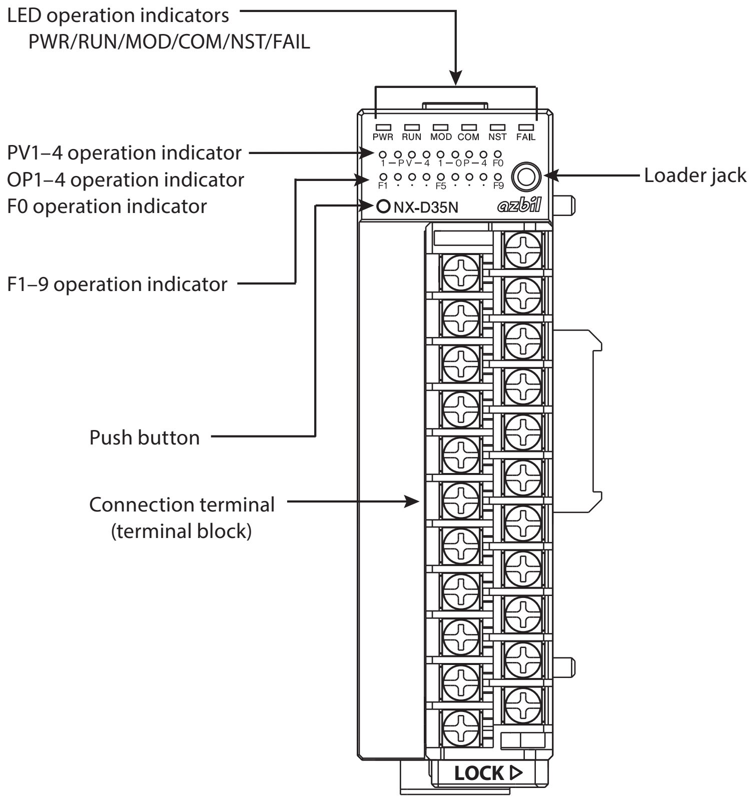
* As viewed from the front after attaching them to the sides.

# 1 - 3 Names and Functions of Parts

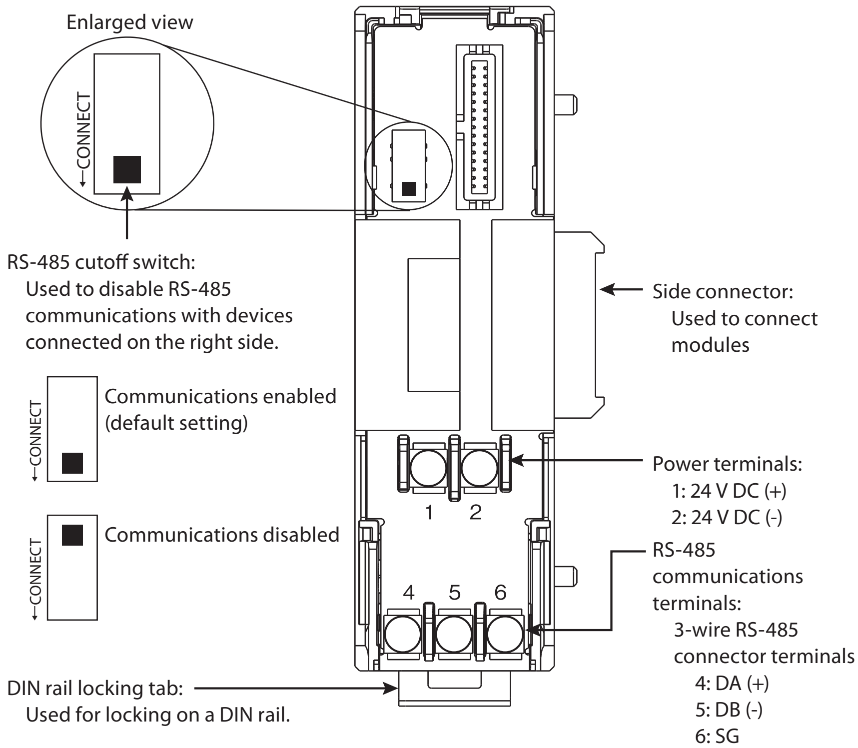
## ■ Controller module

### ● Main unit

Indicators on the main unit vary depending on the model No. (functions).

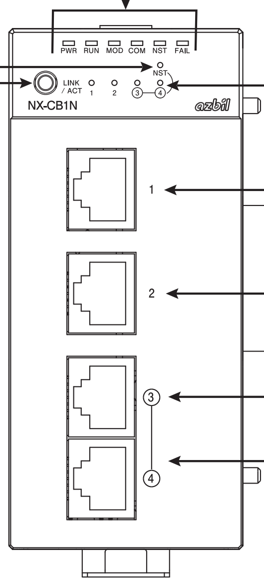



### ● Base



## ■ Communication box

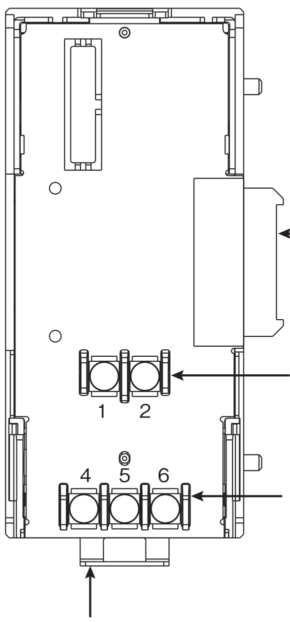
### ● Main unit



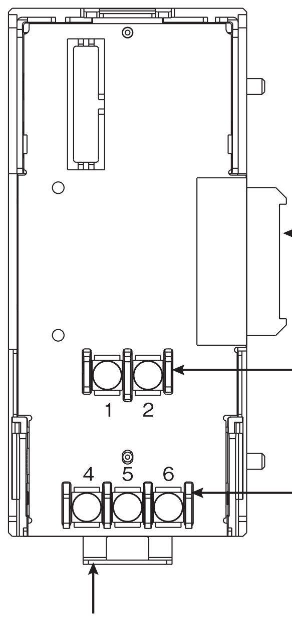

* For internal use at Azbil. It is not possible to change the setting with the loader.

### ● Base

#### ● NX-CB1_ _ _ _ _ _



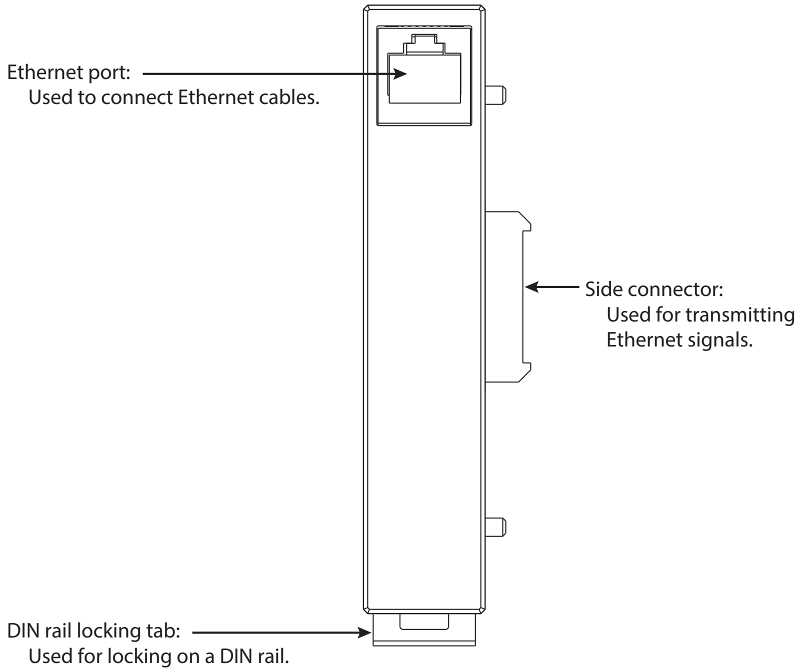

#### ● NX-CB2_ _ _ _ _ _



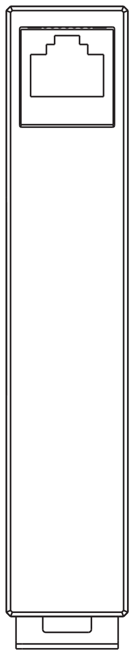

* Only available on the NX-CB2_ R.

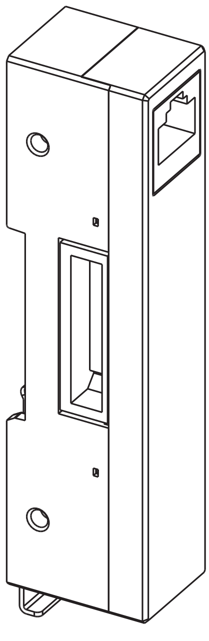
## ■ Communication adapter

### ● For left side



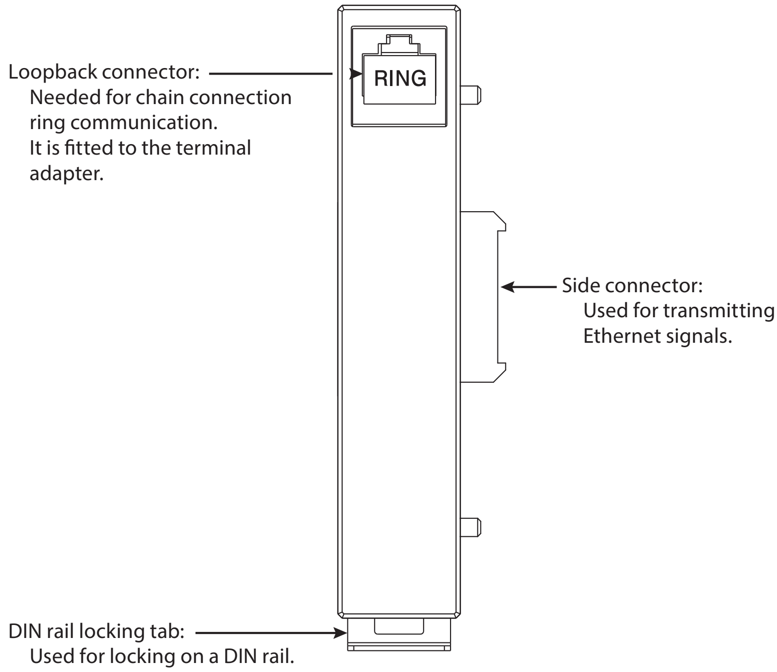

### ● For right side



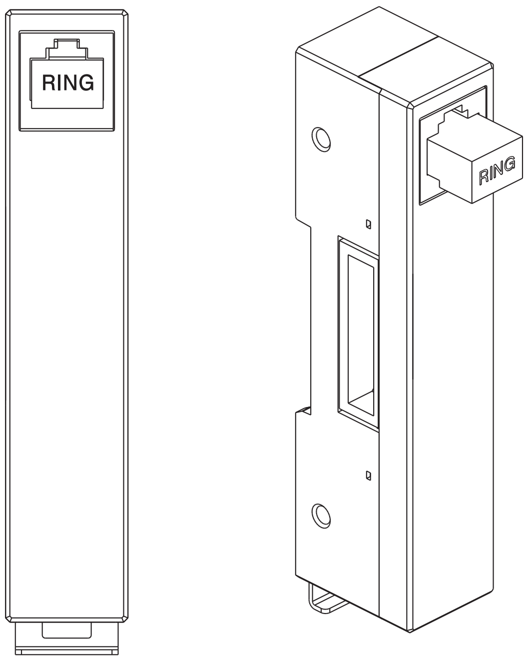


## ■ Terminal adapter

### ● For left side



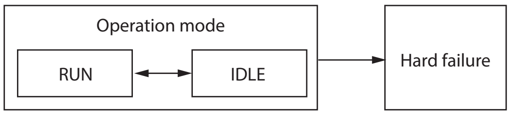

### ● For right side



# 1 - 4 Operation Modes

## ■ Operation modes

The following shows the state transitions in operation mode.




RUN: All module functions are operating.
IDLE: Module control has stopped.
Hard failure: Hard failure of the module. Module control has stopped.

## ■ Input/output of the operation modes

The following table lists the input/output in each operation mode.
(ROM version 3.00 [1_0_3] and later)

| State / Input/output type | During startup, delay at power ON | Device operation mode: RUN | Device operation mode: IDLE | Hard fa.ilure |
|---|---|---|---|---|
| PV input, MFB | No readout | Operation status | Final calculation result retained | Final calculation result retained |
| Digital input | OFF | Operation status | Final calculation result retained | Final calculation result retained |
| Digital output (transistor output) | OFF | Operation status | IDLE/SV communication error operation*1 (default = OFF) | OFF |
| Analog current output<br>Analog voltage output | 0 mA<br>0 V | Operation status | IDLE/SV communication error operation*1*2 (default = 0.0 %) | −10.0 %*3 |

*1. For ROM versions 2.02 [1_0_2] and earlier, the output is the specified default value.

*2. The actually output current or voltage is the value set for the zero side of the output range in the continuous output bank.

*3. The actually output current or voltage is −10.0 % of the output range setting in the continuous output bank. However, the low limit of the actual current output is about 0 mA and the low limit of the actual voltage output is 0 V.

## ■ Communication availability in each operation mode and status

The following table lists communication availability in each operation mode and status.

ROM version 3.00 [1_0_3] and later versions

● Available — Not Available

| Communications type | During startup | Operation modes | | When an error occurs | | | |
|---|---|---|---|---|---|---|---|
| | | RUN | IDLE | Hard failure | AL53*1 (Base/module communication setting mismatch) | AL54*1 (Base/module model No. mismatch) | AL88*1 (Base EEPROM error) |
| Host communications*2 | — | ● | ● | — | ● | — | — |
| Loader communication | | | ● | ●*3 | ● | ● | ● |
| Data transfer function between modules (sending) | | | — | — | — | — | — |
| Data transfer function between modules (receiving) | | | ● | — | ● | — | — |
| Multi-loop cooperative control functions | | | — | — | — | — | — |

*1. Operation mode switches to IDLE mode.

*2. Host communication stops while parameters are being written from the loader.

*3. Depending on the cause of the hard failure, loader communication may not be possible.

## Note

- ☞ 7 - 13, Start Delay at Power ON (page 7-27) (for more details on operation, including communication at power ON)
- Table for ROM versions 2.02 [1_0_2] and earlier

| | During startup | Device operation mode: RUN | Device operation mode: IDLE |
|---|---|---|---|
| Host communications | — | ● | ●*1*2 |
| Loader communication | — | ● | ● |
| Data transfer function between modules | — | ● | — |
| Multi-loop cooperative control | — | ● | — |

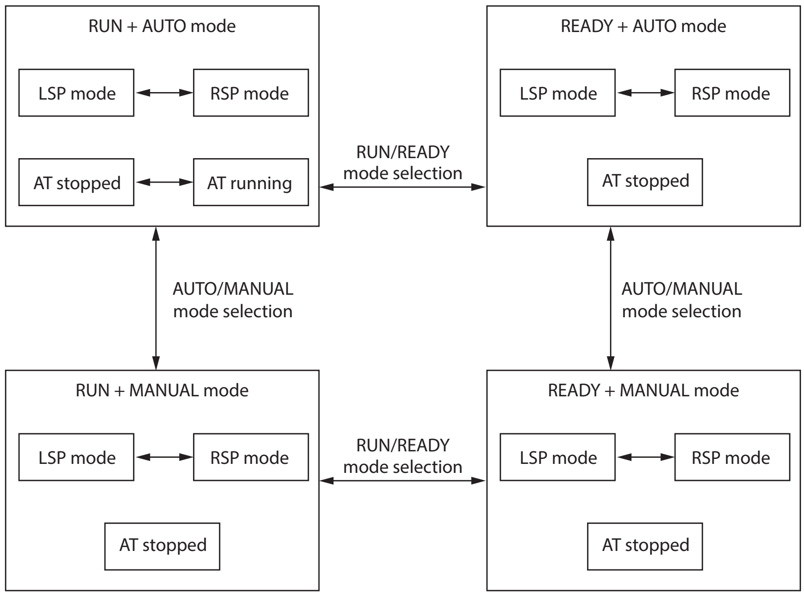
*1. The device operation mode changes to IDLE if a hard failure or AL88 (base EEPROM error) occurs, and host communication stops working.

*2. Device operation mode is IDLE while parameters are being written from the loader, and host communication stops working.

- The IDLE mode function is supported by ROM versions 2.00 [1_0_1] and later.
- If controller modules are executing multi-loop cooperative control with the supervisor module, they are under the control of the supervisor module. (ROM versions 2.00 [1_0_1] and later)
- If the supervisor module is in IDLE mode, the controller modules under its control are also in IDLE mode.
- The mode changes to IDLE in the following cases: AL88 (base EEPROM error), AL53 (base-main unit communication settings mismatch), and AL54 (base-main unit model No. mismatch). (ROM versions 2.00 [1_0_1] and later)
- The mode is IDLE while parameters from the loader are being written. (ROM versions 2.00 [1_0_1] and later)
  However, the module restarts in the following cases.
  - If the cycle period parameter setting in the module is different from that of the project.
  - If the controller comes under the control of the supervisor module or leaves its control.
- ☞ 1 - 4, Operation Modes (page 1-8) (for details on host communication and other operations)
- Versions earlier than ROM version 2.01 [1_0_1] initialize PID calculations in IDLE mode.
- ROM versions 2.02 [1_0_2] and later do not initialize PID calculations in IDLE mode.
- ☞ 7 - 23, IDLE/SV Communication Error Operation (page 7-41)
  * Depending on the type of hard failure, the output may differ from the above.
  ☞ Chapter 14, Troubleshooting

## ■ Loop modes

The following shows the state transitions in loop mode.




| | |
|---|---|
| RUN: | Control status |
| READY: | Control stop status |
| AUTO: | Automatic operation (the MV is automatically determined) |
| MANUAL: | Manual operation (the MV is controlled manually) |
| LSP: | Local SP (control uses the SP stored in the unit) |
| RSP: | Remote SP (the SP is received by analog input from an external device) |
| AT: | Auto tuning (the controller automatically sets the PID constants by generating limit cycles) |

# -MEMO-

# Chapter 2. Installation

## ⚠WARNING

Before removing, mounting, or wiring this device, be sure to turn off the power to this device and all connected devices. Otherwise, there is a danger of electric shock.

## ⚠CAUTION

Use this device within the operating ranges given in the specifications (for temperature, humidity, voltage, vibration, shock, mounting direction, atmosphere, etc.). Otherwise, there is a danger of fire or device failure.

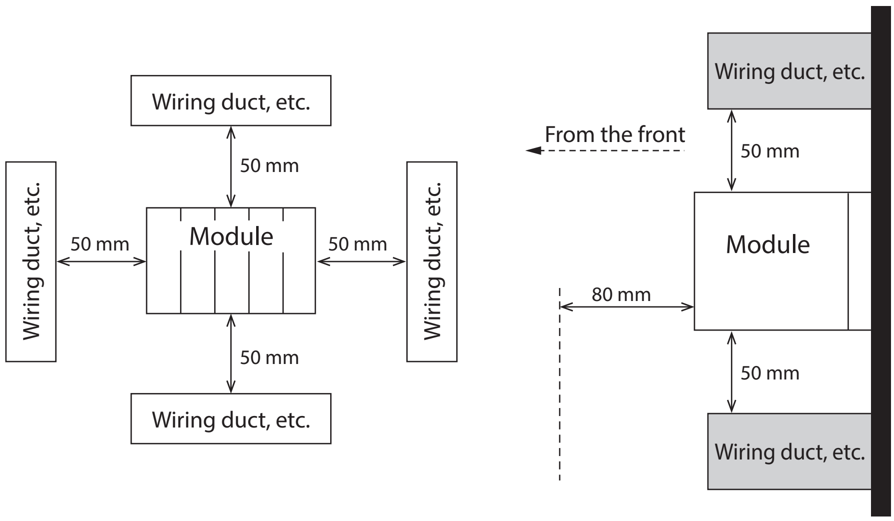
Do not block the ventilation holes.
There is a danger of fire or device failure.

Do not allow wire clippings, metal shavings, water, etc., to enter the case of this device.
There is a danger of fire or device failure.

If this device is used in a manner not specified by the manufacturer, the protective functions of the device may be impaired.

## ■ Installation location

Install this device indoors.
Leave at least 50 mm above and below, and on the left and right of this device, and 80 mm in front of it as space for air intake, removal, wiring, and maintenance.
This device should be at least 100 mm away from other devices or rows of other NX-D15/25/35 devices.
Do not install this device above heat-generating objects such as electric devices.




Note If mounted with other types of devices, check the specifications of the other devices and choose the larger of the recommended space in each direction.

Do not install this product in a place with any of the following characteristics:

- Temperature or humidity outside the specified high and low limits
- Corrosive gases such as sulfide gas
- Dust or soot
- Airflow from a heating/cooling system or a fan
- Direct sunlight, wind, or rain
- Mechanical vibration or shock outside the range of the specifications
- Proximity to high-voltage lines, welding machines, or other sources of electrical noise
- Within 15 m of a high-voltage ignition device for a boiler, etc.
- Strong magnetic fields
- Flammable liquid or gas
- Outdoors
- An I/O common mode voltage to the ground greater than 30 $V_{rms}$, 42.4 V peak, and 60 V DC.

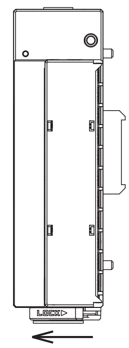
## ■ Terminal block installation and removal

### ! Handling Precautions

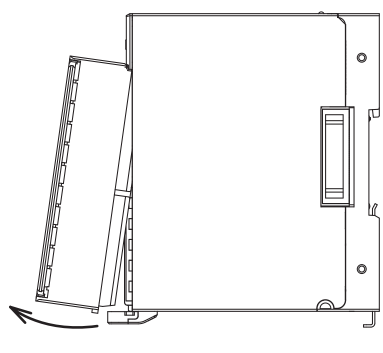
- Do not remove the terminal block other than for work such as initial wiring of the module or maintenance.
- If the terminal block must be replaced, be sure to use exactly the same model.

#### ● Removal method

(1) Slide the lock lever of the terminal block to the left to unlock the terminal block.

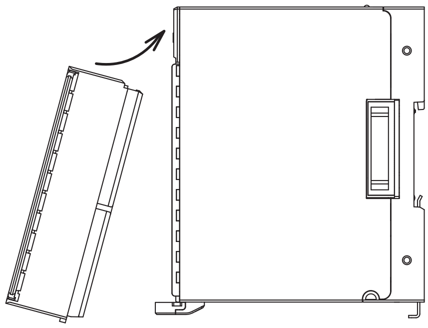


(2) Remove the terminal block by pulling it out towards you from the bottom.

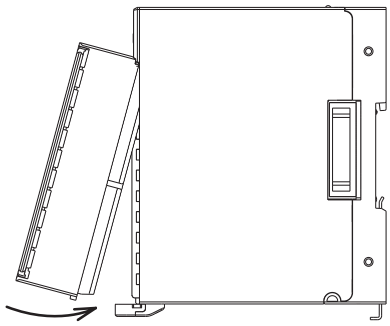


## ● Mounting method

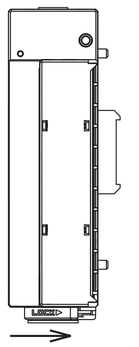
(1) Tilt the terminal block and insert the top of it into the groove in the case.



(2) Next, push in the bottom of the terminal block.



(3) Slide the lock lever to the right to lock the terminal block in place.



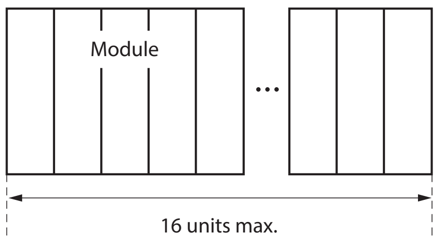
## ■ Module connection

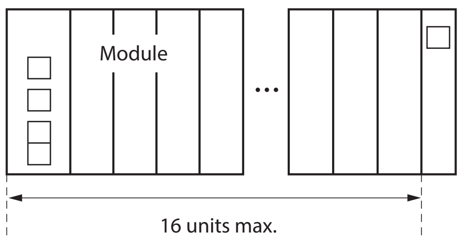
This unit can be connected to other modules with the left and right connectors on the base.
Wiring can be kept to a minimum because connected modules share power and communications. The connection with the module on the right can be disabled using the RS-485 cutoff switch on the base.

Up to 16 modules can be linked.
In a distributed layout, if the horizontal length is too long, or if it is necessary to connect more than 16 modules, divide the modules into two or more groups and connect the groups with communication adapters.

### Handling Precautions

- In counting the number of linked modules, the following are not included.
  - Communication adapter
  - Terminal adapter



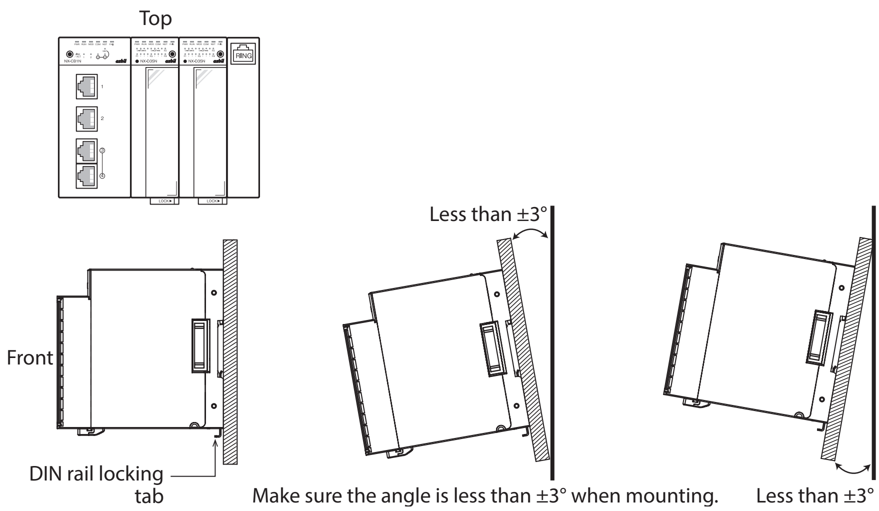



## ■ Mounting method

Modules must be installed on a DIN rail.
After attaching the DIN rail, pull the locking tab out sufficiently and hook the base onto the DIN rail. Next, push the locking tab upwards until it clicks into place.

### ! Handling Precautions

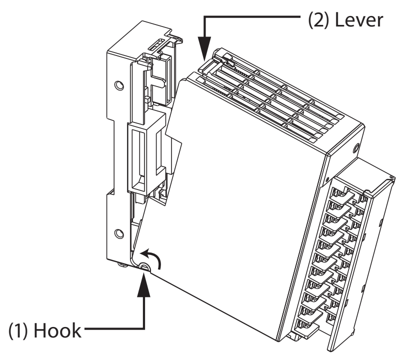
- Link the D15/25/35 to the other modules before mounting it on the DIN rail.
- Mount the module on a vertical surface with the DIN locking tab facing downward.




## ■ Installing the main unit onto the base

(1) Fit the hook on the main unit into the base.

(2) Push the main unit onto the base until the lever clicks.

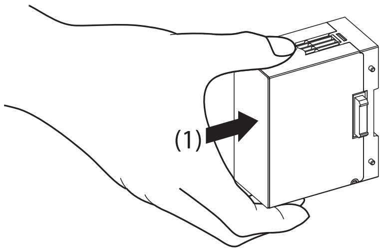



### ! Handling Precautions

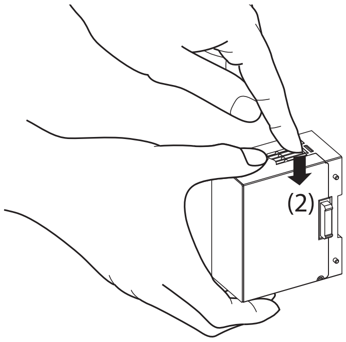
- The included base and main unit must be used as a pair. If an incorrect combination is used, AL53 (base-main unit communication settings mismatch) or AL54 (base-main unit model No. mismatch) will occur. In other cases, the status becomes ☞ ■ LED lighting pattern under special conditions (page 5-4).
- Fit the hook on the main unit into the base first. Failure to do so may damage the hook.

## ■ Removing the main unit from the base

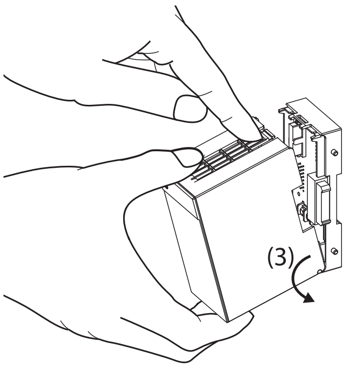
(1) Push the main unit in toward the base.




(2) While pushing, press the tip of the lever on the top of the main unit.

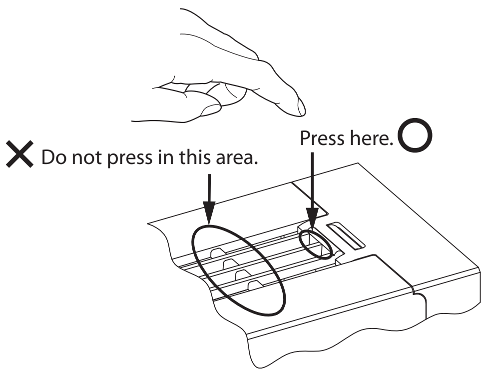



(3) While pressing the tip of the lever, rotate the main unit down to remove it.




### Handling Precautions

- Do not press the tip of the lever down more than 2 mm. Doing so may break the lever.



# Chapter 3. Wiring

## 3 - 1 Wiring Precautions

| WARNING |
|---|
| Before removing, mounting, or wiring this device, be sure to turn off the power to this device and all connected devices. Otherwise, there is a danger of electric shock. |
| Be sure to check that the device has been correctly wired before turning on the power.<br>Incorrect wiring of this device may cause device failure and also lead to a dangerous accident. |

| CAUTION |
|---|
| Do not disassemble the NX-D15/25/35.<br>There is a danger of device failure. |
| Do not allow wire clippings, metal shavings, and water to enter the case of this device.<br>There is a danger of fire or device failure. |
| Do not touch live parts such as the power terminals.<br>There is a danger of electric shock. |
| Before wiring this device, turn off the power except when connecting network cables.<br>Otherwise, there is a danger of device failure. |
| Wire this device correctly by using the wiring method, power, and installation method specified in this user's manual. Otherwise, there is a danger of fire, electric shock, or device failure. |
| Make sure that there are no loose connections.<br>Failure to do so may cause overheating or equipment failure. |
| Do not use unused terminals as relay terminals.<br>There is a danger of fire, electric shock, or device failure. |
| Do not short out the output terminals.<br>There is a danger of device failure. |
| Firmly tighten the terminal screws to the torque listed in the specifications.<br>Insufficient tightening may cause fire. |
| If there is a risk of a power surge caused by lightning, use a surge absorber (surge protector).<br>Otherwise, there is a danger of fire or device failure. |
| The NX-D15/25/35 does not operate for about 10 seconds after the power has been turned ON, depending on the settings.<br>Be careful if the output from the module is used as an interlock signal. |
| This device should be handled by a specialist with expertise in electrical safety. |
| If this device is used in a manner not specified by the manufacturer, the protective functions of the device may be impaired. |
| Make sure that devices or equipment connected to this device have reinforced insulation suitable for the maximum voltages of this device's power supply and input/output components. |

## Wiring precautions

- When wiring this device, observe local electrotechnical standards.
- Do not run wires outdoors. Doing so may damage the device in the event of a lightning strike.
- Use crimp terminal lugs with insulating sleeves for the power terminals.
- Before wiring the unit, verify the device's model No. and terminal Nos. written on the wiring diagram on the side of the main unit.
- For screw terminal connections, use crimp terminal lugs that are the correct size for M3 screws
- Be careful not to allow crimp terminal lugs or ferrules to touch adjacent terminals.
- The signal wires and power wires of this device should be at least 60 cm away from other power wires. Also, do not put these two types of wiring in the same conduit or duct.
- Before connecting this device to other instruments in parallel, check their conditions for connection carefully.
- To ensure stable operation, the NX-D15/25/35 is designed not to operate for about ten seconds after the power is turned ON.
- After wiring, check that there are no wiring mistakes before turning the power on.
- Be sure to use ferrules when wiring the screwless terminal block.
- Use ferrules whose metal section is 12 mm long (for 22 to 16 AWG) or 8 mm long (for 24 AWG).
- If UL certification is necessary, use UL-certified ferrules and crimping tools.
- Do not install the screwless terminal block on a screw terminal block model.

# 3-2 Cables

- For thermocouple input, connect the thermocouple wires to the terminals.
  If the wiring distance is long, or if a thermocouple has terminal connection, use compensating wires to extend the wiring. Be sure to use a compensating lead wire that is shielded.
- For inputs and outputs other than thermocouples, use JCS 4364 cables for low-power instruments or the equivalent (twisted shielded instrument cable).

### Note

Recommended cables

| Function | Cable | Wire diameter | Length*1 | Remarks |
|---|---|---|---|---|
| Power | CVV, IV (IV wire is 600 V PVC-insulated cable, IEC 60227-3) | 1.25 $mm^2$ | 30 m max. | |
| PV (T/C) | JIS C1610 (thermocouple compensating lead wire) | 0.65 mm | — | ☞ ■ PV input (page 16-1) (for wiring resistance effect)*2 |
| PV (RTD) | CVVS 3C, MVVS 3C | 1.25 $mm^2$ | — | |
| DI | CVV, IV, KPEV, IPEV, IPEV-S, KPEV-S, MVVS | 0.5 to 1.25 $mm^2$ | 100 m max. | *2 |
| DO | CVV, IV, KPEV, IPEV, IPEV-S, KPEV-S, MVVS | 0.9 to 1.25 $mm^2$ | 100 m max. | *2 |
| Other signal wires | CVV, IV, KPEV, IPEV, IPEV-S, KPEV-S, MVVS | 0.5 to 1.25 $mm^2$ | 100 m max. | *2 |
| Ethernet | UTP cable (4P)<br>Cat 5e min. (straight)<br>(both ends ANSI/TIA/EIA-568-B) | — | *3 | |
| RS-485 | IPEV-S 2P*4, KPEV-S 2P*4, CVV-S 3C, MVVS 3C | 0.9 $mm^2$<br>1.25 $mm^2$ | 500 m max. | |

*1. The effect of external electrical noise is not taken into consideration.

*2. Use shielded cables in noisy environments

*3. ☞ Refer to chapter 2, "Configuration of Ethernet Communications," in Network Instrumentation Module User's Manual: Network Design Version, CP-SP-1313E.

*4. Connect one pair of wires to the DA and DB terminals. Connecting one or both wires of the other pair to the signal ground (SG) terminal is recommended.

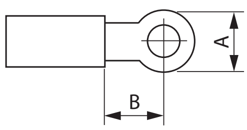
## 3 - 3 Connecting Screw Terminals

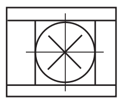
**⚠CAUTION**

| | |
|---|---|
| ! | Firmly tighten the terminal screws to the torque listed in the specifications.<br>Insufficient tightening may cause fire. |
| ⊘ | Do not use unused terminals as relay terminals.<br>There is a danger of fire, electric shock, or device failure. |
| ⊘ | Do not short out the output section.<br>There is a danger of device failure. |

The method of connecting terminals of this device is explained below.

When wiring this device, use crimp terminal lugs compatible with M3 screws.



| Compatible screw | A | B | Recommended crimp terminal lugs (for reference) |
|---|---|---|---|
| M3 | 5.8 mm max. | 5.5 mm min. | J.S.T. Mfg. Co., Ltd.<br>Ring tongue terminal (vinyl-insulated)<br>V1.25-MS3 |

### Handling Precautions

- If this device is installed where there is considerable vibration or shock, be sure to use round crimp terminal lugs to prevent wires from coming off the terminals.
- Be careful not to allow crimp terminal lugs to touch adjacent terminals.
- The terminal screw tightening torque is 0.5 to 0.7 N•m.
- By placing crimp terminal lugs back to back, two terminal lugs can be connected to one terminal block.
- Do not install the screw terminal block on a screwless terminal block model.

# 3 - 4 Connecting Screwless Terminals

**CAUTION**

Do not short out the output terminals.
There is a danger of device failure.

The method of connecting screwless terminals of the module is explained below.

### Handling Precautions

- Do not install the screwless terminal block on a screw terminal block model.
- Be sure to use ferrules when wiring the screwless terminal block.
- Use ferrules whose metal section is 12 mm long (for 22 to 16 AWG) or 8 mm long (for 24 AWG).
- If UL certification is necessary, use UL-certified ferrules and crimping tools.

## ■ Connection using ferrules

### ● Connecting ferrules

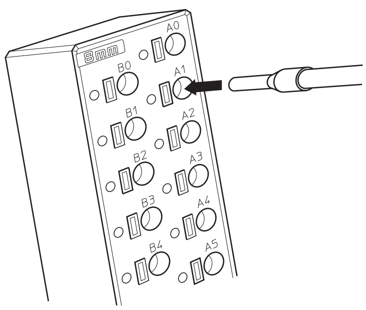
- Check that the ferrules are inserted all the way in, and pull them lightly to check that they do not come off.
- For wiring of the screwless terminal block, use a crimping tool that can crimp all four sides of the metal part of the ferrules.

Recommended crimping tool
Variocrimp 4 (model No.: 206-204), made by WAGO Company of Japan, Ltd.

Recommended ferrules

| Wire size | OSADA Co., Ltd. |
|---|---|
| 16 AWG | E1512 |
| 18 AWG | E1012 |
| 20 AWG | E7512 |
| 22 AWG | E0512 |
| 24 AWG | E0308* |

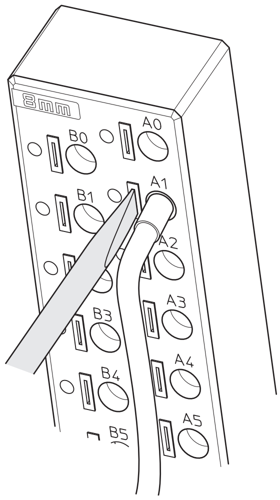
* Press E0308 all the way in until the entire insulation sleeve is under the surface of the screwless terminal block.



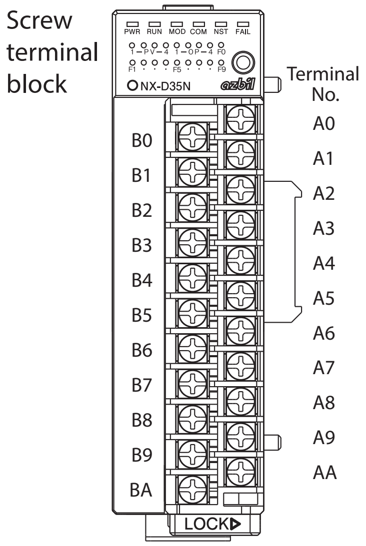
## ● Removing ferrules

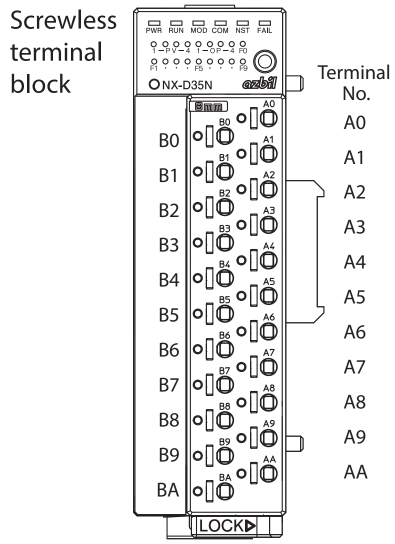
To remove a ferrule, press the button on the side of the hole for the ferrule with a screwdriver, and pull the ferrule out. Use a screwdriver with the following dimensions.

Head width 2.0–3.5 mm, head thickness 0.4–0.6 mm

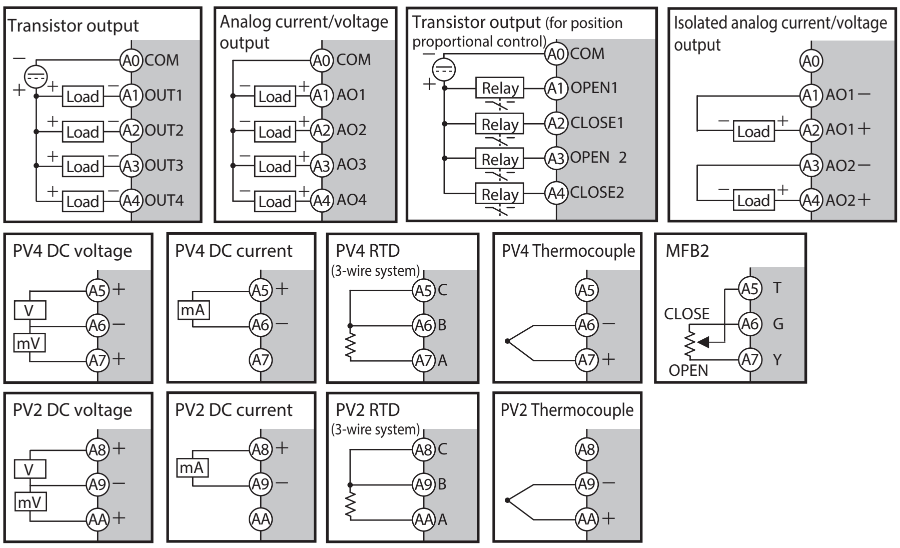


# 3 - 5 Terminal Wiring Diagram

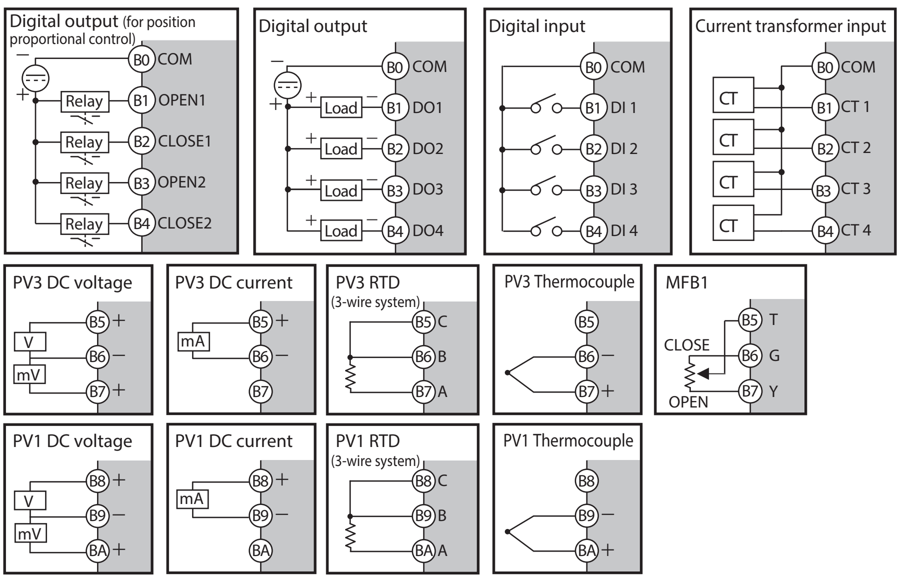



- Terminals A0 to AA




- Terminals B0 to BA



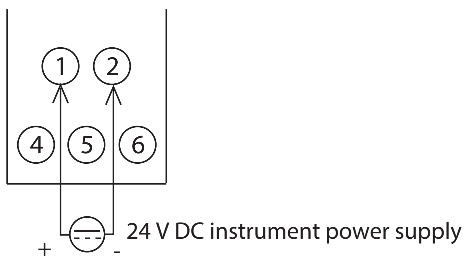
# 3 - 6 Power Wiring

## ■ Power wiring

| WARNING |
|---|
| Before removing, mounting, or wiring this device, be sure to turn off the power to this device and all connected devices. Otherwise, there is a danger of electric shock. |

| CAUTION |
|---|
| The total power consumption of all connected modules should be no more than 70 W. Otherwise, there is a danger of fire or device failure. |
| Do not supply power to a group of connected modules from multiple power sources. There is a danger of fire or device failure. |
| Wire this device correctly by using the wiring method, power, and installation method specified in this user's manual. Otherwise, there is a danger of fire, electric shock, or device failure. |
| Make sure that there are no loose connections. Failure to do so may cause overheating or equipment failure. |
| Make sure that devices or equipment connected to this device have reinforced insulation suitable for the maximum voltages of this device's power supply and input/output components. |

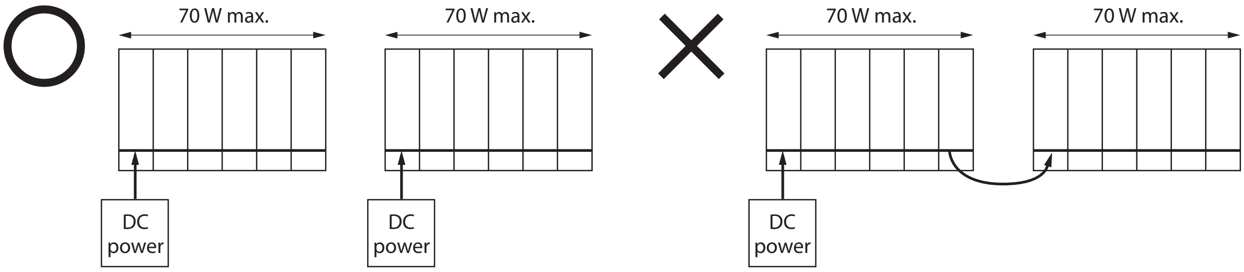
Connect the power supply to the power terminals as shown below.




Use a UL Class 2 power supply.

### Handling Precautions

- Power is passed from module to module when the modules are connected. Supply power to any one of the connected modules.
- I/O wiring to the terminal block or elsewhere should be connected directly to the power supply for I/O, not connected via the base unit.
- Select a power supply that can cover the total power consumption of all linked modules.




Connect one DC power supply to each group of modules.


Be sure to supply power from a single DC power supply.

## ■ Noise countermeasures

Minimize the effect of electrical noise from the power supply.
If there is a large amount of electrical noise from the power supply, use a line filter.
(Azbil Corporation's line filter model No.: 81442557-001)
Use a CR filter for quick-rising noises such as impulse noise.
(Azbil Corporation's CR filter model No.: 81446365-001)

**Handling Precautions**

- Do not bundle primary and secondary power lines of the line filter together, and do not put them in the same conduit or duct.

## ■ Power supply design

The required power supply capacity depends on the system configuration.
For this reason, the required power supply capacity must be calculated and checked.
The procedure for power supply design is shown below.

(1) Calculate the total power consumption of the modules that are used.

(2) Determine the power supply capacity required, considering inrush current and derating.

How to design the power supply is described in detail below.

### ● Calculating the power consumption

Modules are connected to the instrument power supply (24 V DC) via a side connector.
The power consumption for each module is shown in the table below.
Calculate the total power consumption from the number of modules used.

| Module | Type (model No.) | Power consumption (W) | Power-on inrush current | Remarks |
|---|---|---|---|---|
| Controller module | D15, D25, D35 | 4 W max. | 20 A max. | Under operating conditions |
| Digital pulse input module | DX1, DX2 | 4 W max. | 20 A max. | Under operating conditions |
| Digital output module | DY1, DY2 | 4 W max. | 20 A max. | Under operating conditions |
| Supervisor module | S11, S12, S21 | 4 W max. | 12 A max. | Under operating conditions |
| Communication box | CB1, CB2 | 4 W max. | 10 A max. | Under operating conditions |
| Communication adapter | CL1, CR1 | - | - | Power supply not required |
| Terminal adapter | TL1, TR1 | - | - | Power supply not required |

### ● Determining the required power supply capacity

Calculate the required power from the table above, derate the calculation according to the ambient temperature and the load factor, and select the power supply.

**! Handling Precautions**

- Select a power supply that is sufficient for the power-on inrush current (under operating conditions). If derating according to the load reduction factor or ambient temperature is not done, the service life of the power supply may be shortened. For details, contact the manufacturer of your power supply device.

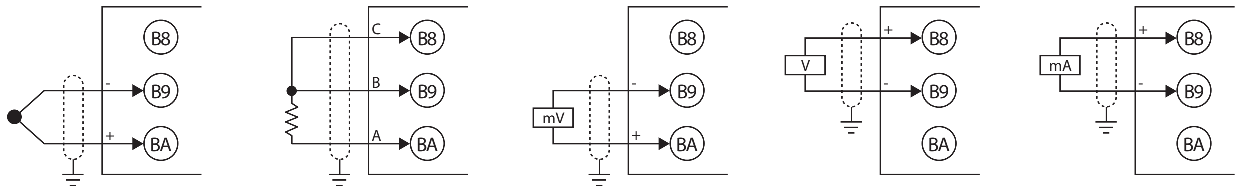
# 3 - 7 PV Input Connections

## Handling Precautions

- Do not apply a voltage exceeding the rated power of this product. Excessive voltage could result in device failure.
- Pay attention to the input polarity when wiring.
- If the RTD has 3 wires labeled A, B, and B, connect wire A to the module's terminal A, one B wire to terminal B, and the other B wire to terminal C.
- If using Zener barriers for the RTD, adjust them before use.
  ☞ 7 - 25, Zener Barrier Adjustment and Wiring Resistance Correction (page 7-45) (for details)
- MFB input is only available for NX-D35 models with output type M ( transistor output for position proportional control) or with option 4 (4 digital output channels for position proportional control).

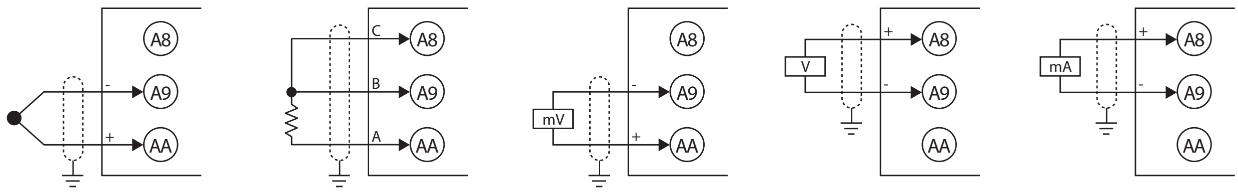
## ■ PV input (PV1)

• Thermocouple • RTD • DC voltage (mV) • DC voltage (V) • DC current (mA)



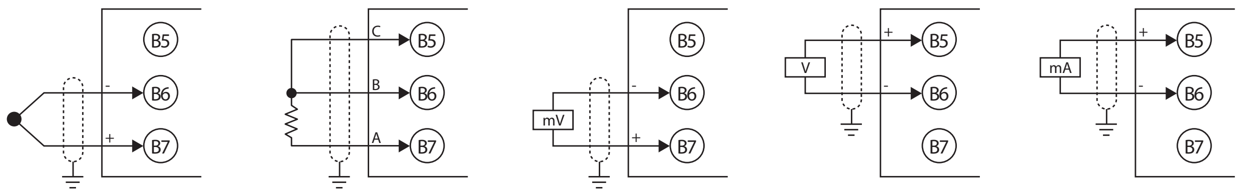

## ■ PV input (PV2)

• Thermocouple • RTD • DC voltage (mV) • DC voltage (V) • DC current (mA)



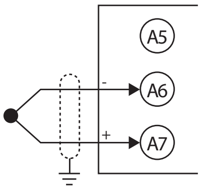

## ■ PV input (PV3)

• Thermocouple • RTD • DC voltage (mV) • DC voltage (V) • DC current (mA)

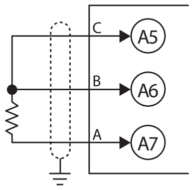


## PV input (PV4)

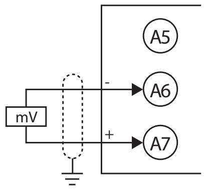
• Thermocouple



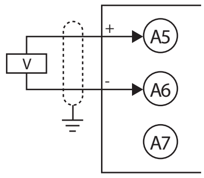

• RTD



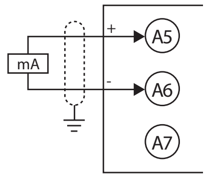

• DC voltage (mV)



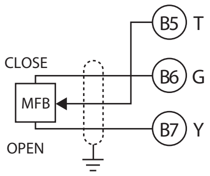

• DC voltage (V)



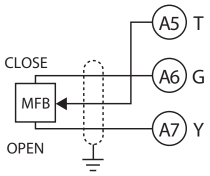

• DC current (mA)




## MFB input (MFB1)




## MFB input (MFB2)

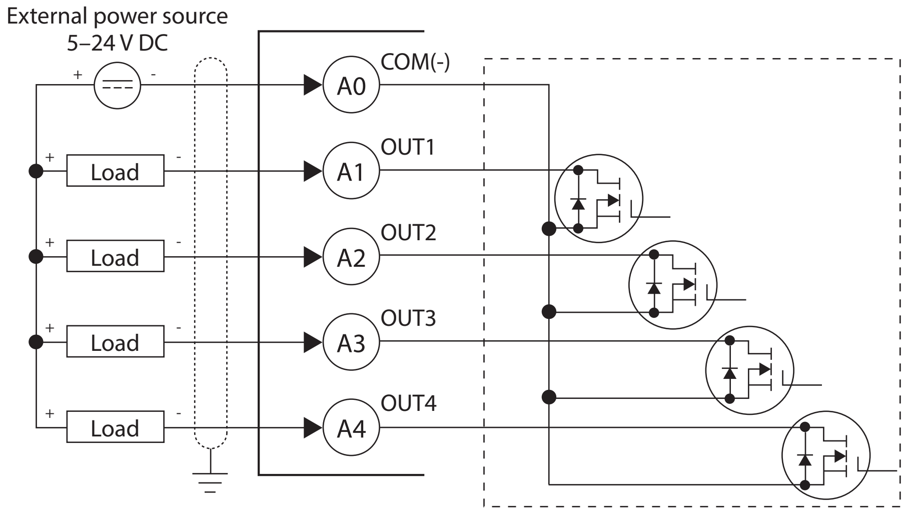


# 3-8 Transistor and Digital Output Connections

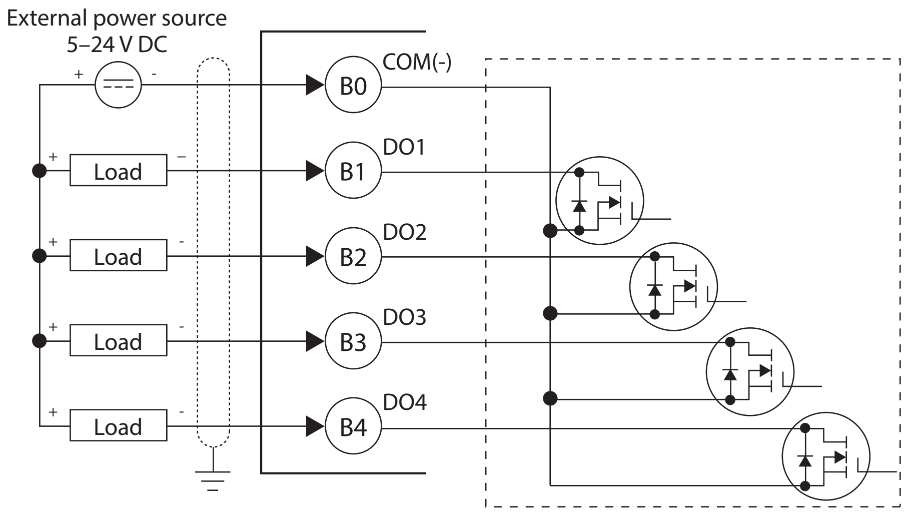
## ! Handling Precautions

- If an inductive load (such as a motor or solenoid valve) is used, consider methods for absorbing surges, such as parallel connection of a diode.
- Pay attention to the external power supply polarity when wiring.
- Do not connect or disconnect a load while power is being supplied to the module.
  Doing so might cause the module or load to fail.

## ■ Transistor output




## ■ Digital output (DO) (optional)



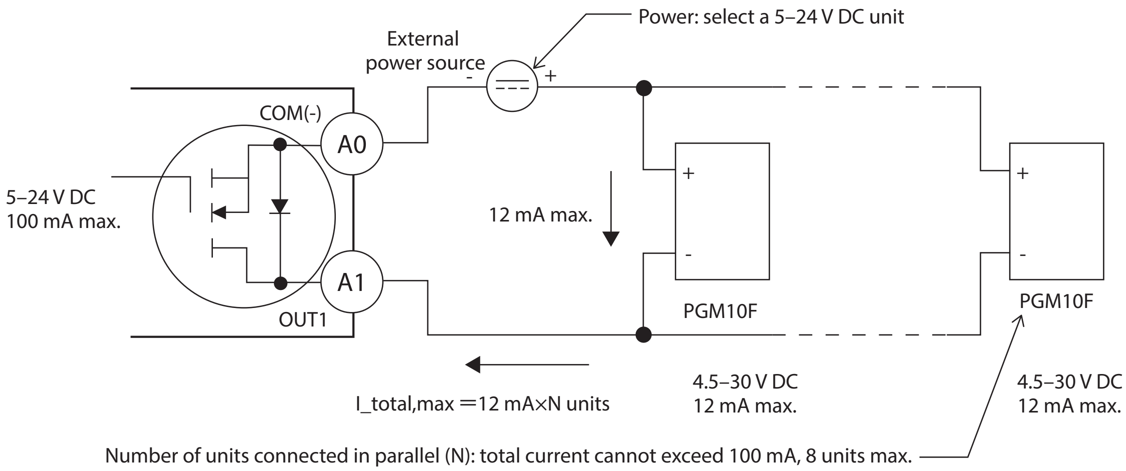
## ■ Connection with a solid-state relay (SSR)

Select a transistor output model or a digital output model of the module. (See the model selection table.)
Use a constant-current SSR.
Use an external power source that has enough amperage to fully drive the SSR.

Check the following concerning the module to be used.

1. Is the current-carrying capacity (ampacity) of the external power source greater than the SSR input currents (max., total) connected in parallel? Also, is the total current within the allowable output current of the module?
2. Is the external power source within the SSR input voltage range and transistor output (digital output) allowable external power source voltage range for the module?

### ● Connection with Azbil Corporation PGM10F series




| SSR | Connection | No. of devices per output | Remarks |
|---|---|---|---|
| Azbil PGM10F | Parallel | 8 max. | If the input current is 12 mA max. |
| Azbil PGM10N | Parallel | 10 units max. | If the input current is 10 mA max. |
| Omron G3PA | Parallel | 14 units max. | If the input current is 7 mA max. |
| Omron G3PE | Parallel | 14 units max. | If the input current is 7 mA max. |

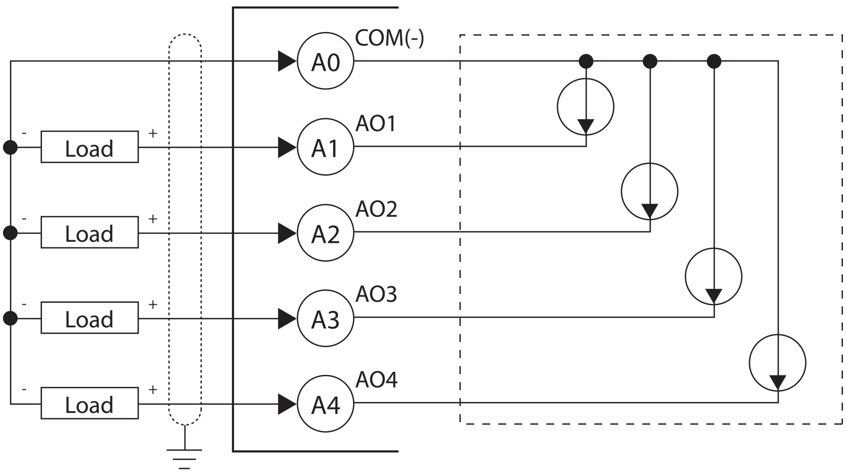
# 3-9 Analog Current Output Connections

## Handling Precautions

- Do not connect or disconnect a load while power is being supplied to the module.
  Doing so might cause the module or load to fail.
- The input impedance and wiring resistance of other modules must be within the allowable load resistance of the module.
- Up to 2 crimp terminal lugs can be connected to the COM terminal of the module.
  To wire 4 channels, use an external terminal block.

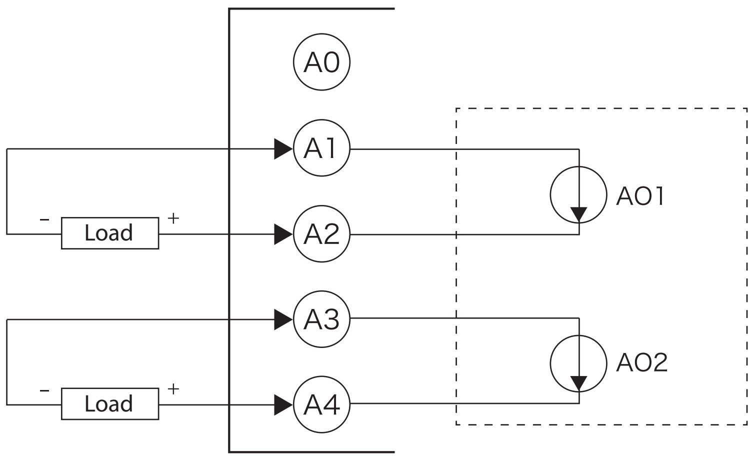
## ■ Analog current output (AOC)

- Output type C




4–20, 0–20 mA DC,
300 Ω max.

- Output type S

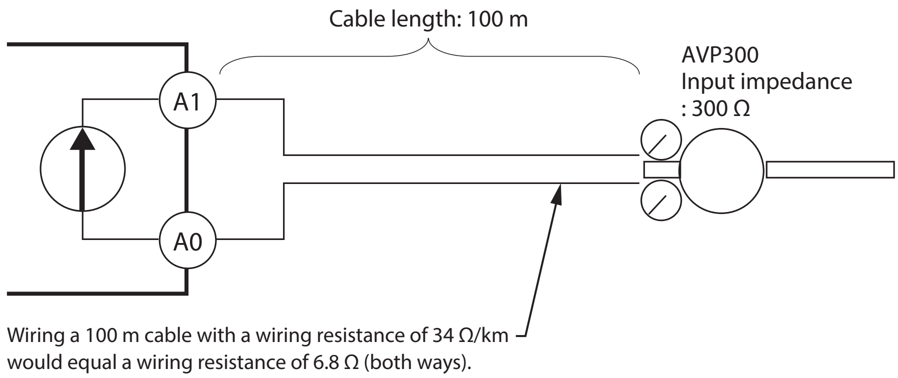



4–20, 0–20 mA DC,
600 Ω max.

## ■ Connection example with the AVP300 (output type C)

The module has an allowable load resistance of 300 Ω, which can guarantee a maximum current of 22 mA.
The module can be connected to the AVP300 (input impedance: 300 Ω) if the following condition is satisfied.
Maximum current × (load resistance + wiring resistance) < 6.6 V
(because 300 Ω × 22 mA = 6.6 V)

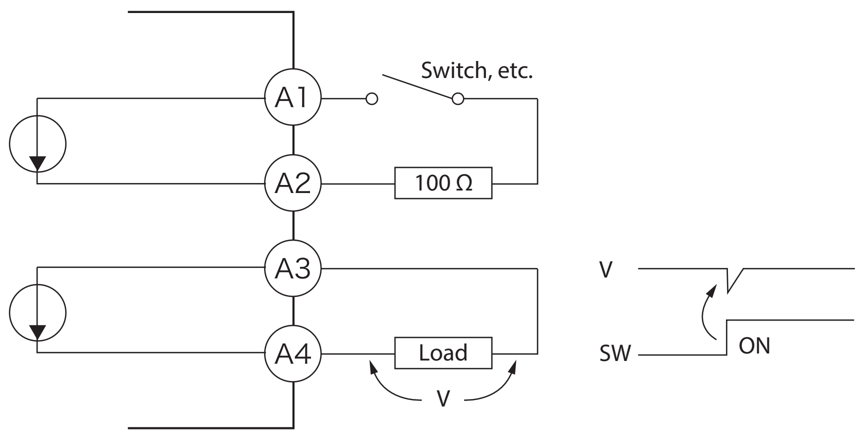
### ● Connection with Azbil Corporation AVP300




If the maximum current < 21.5 mA (i.e., 6.6 V/(300 + 6.8)), connection is possible.

## ■ Live connection (output type S)

When using a 100 Ω or less load resistance, do not connect it in a live state. Doing so would affect other outputs.



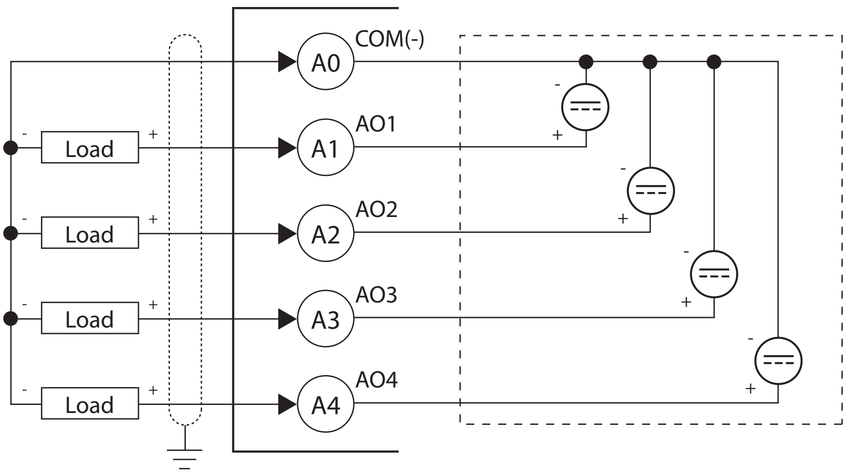
# 3 - 10 Analog Voltage Output Connections

## Handling Precautions

- Do not connect or disconnect a load while power is being supplied to the module.
  Doing so might cause the module or load to fail.
- The input impedance of other modules must be within the allowable load resistance of the module.
- Up to 2 crimp terminal lugs can be connected to the COM terminal of the module.
  To wire 4 channels, use an external terminal block.

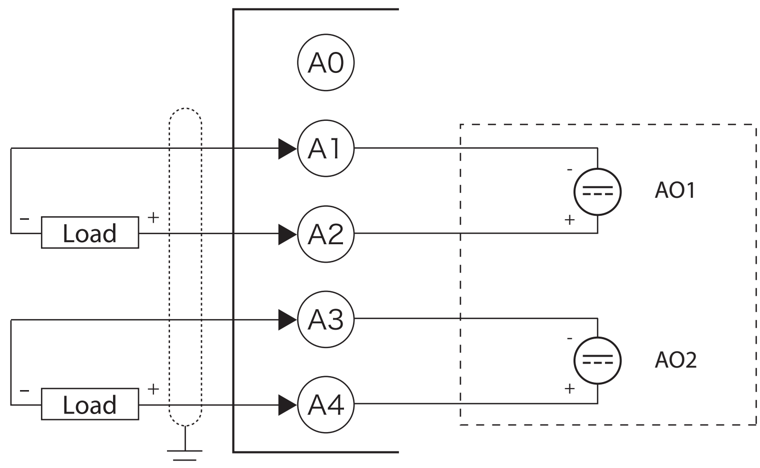
## ■ Analog voltage output (AOV)

- Output type D




0–5, 1–5, 0–10, 2–10 V DC,
4 kΩ min.

- Output type G



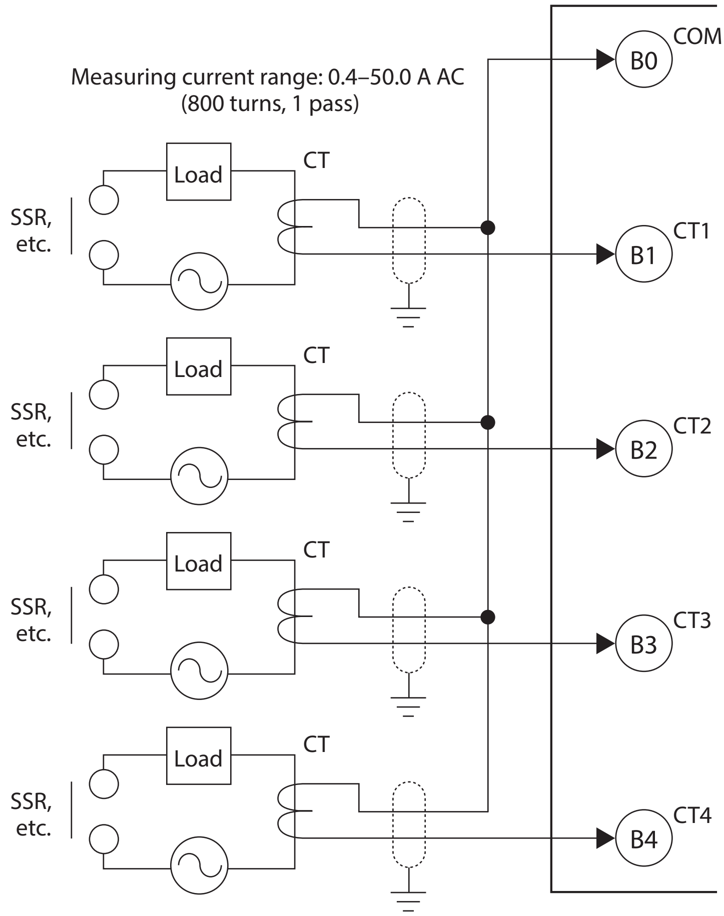

0–5, 1–5, 0–10, 2–10 V DC,
4 kΩ min.

# 3 - 11 Current Transformer Input Connections

## Handling Precautions

- Do not connect or disconnect a load while power is being supplied to the module.
  Doing so might cause the module or load to fail.
- Up to 2 crimp terminal lugs can be connected to the COM terminal of the module.
  To wire 4 channels, use an external terminal block.

## ■ Current transformer input (CT) (optional)

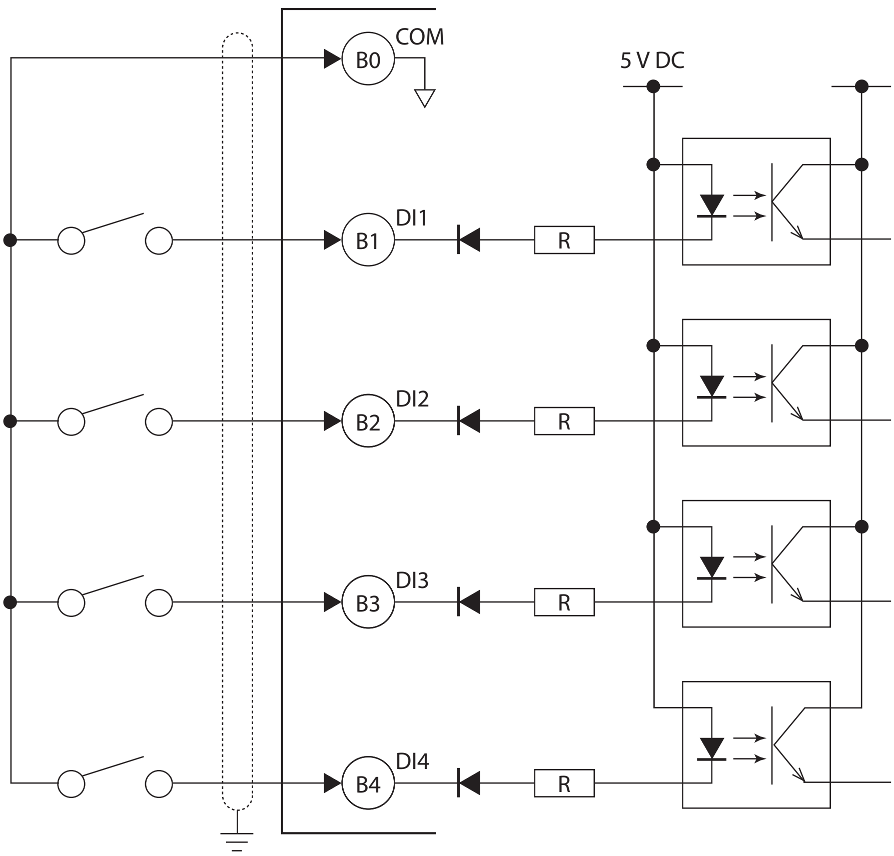


# 3 - 12 Digital Input (DI) Connections

## Handling Precautions

- The module's digital inputs use a built-in power supply. Use dry (non-voltage) contacts for external contacts.
- Use contacts that have sufficient switching capacity for terminal current when shorted and terminal voltage when open.
- Up to 2 crimp terminal lugs can be connected to the COM terminal of the module.
  To wire 4 channels, use an external terminal block.

## ■ Digital input (DI) (optional)

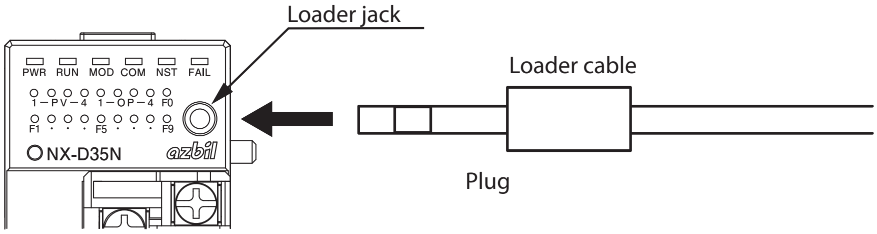



Connection: Dry contact or transistor (sink)
Open terminal voltage: 5 V DC ± 10 %
Terminal current (when shorted): 5.6 mA (typical)

# 3 - 13 Ethernet Communication Connections

☞ Section 1-3, "Explanation of Module Features," and section 2, "Configuration of Ethernet Communications," in Network Instrumentation Module User's Manual: Network Design Version, No. CP-SP-1313E (for Ethernet communication connections)

# 3 - 14 Loader Cable Connections




## Handling Precautions

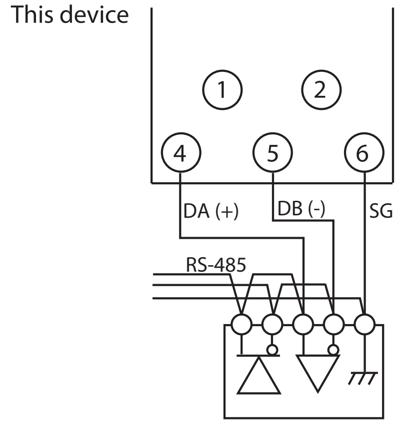
- Use a USB loader cable only.
- Firmly insert the plug into the loader jack.
- When removing or inserting the loader cable, hold the plug, not the cable. Do not pull the cable.
- Do not apply force to the loader cable or plug in any direction while the cable is connected.
  Doing so might damage the loader cable or loader jack, or affect the functions or performance.

## Note

- ☞ Section 2-5, "Configuration With Other Devices," in Network Instrumentation Module User's Manual: Network Design Version, No. CP-SP-1313E (for loader cable connections)

# 3 - 15 RS-485 Communication Connections

Do the wiring for CPL and Modbus RS-485 as shown below.



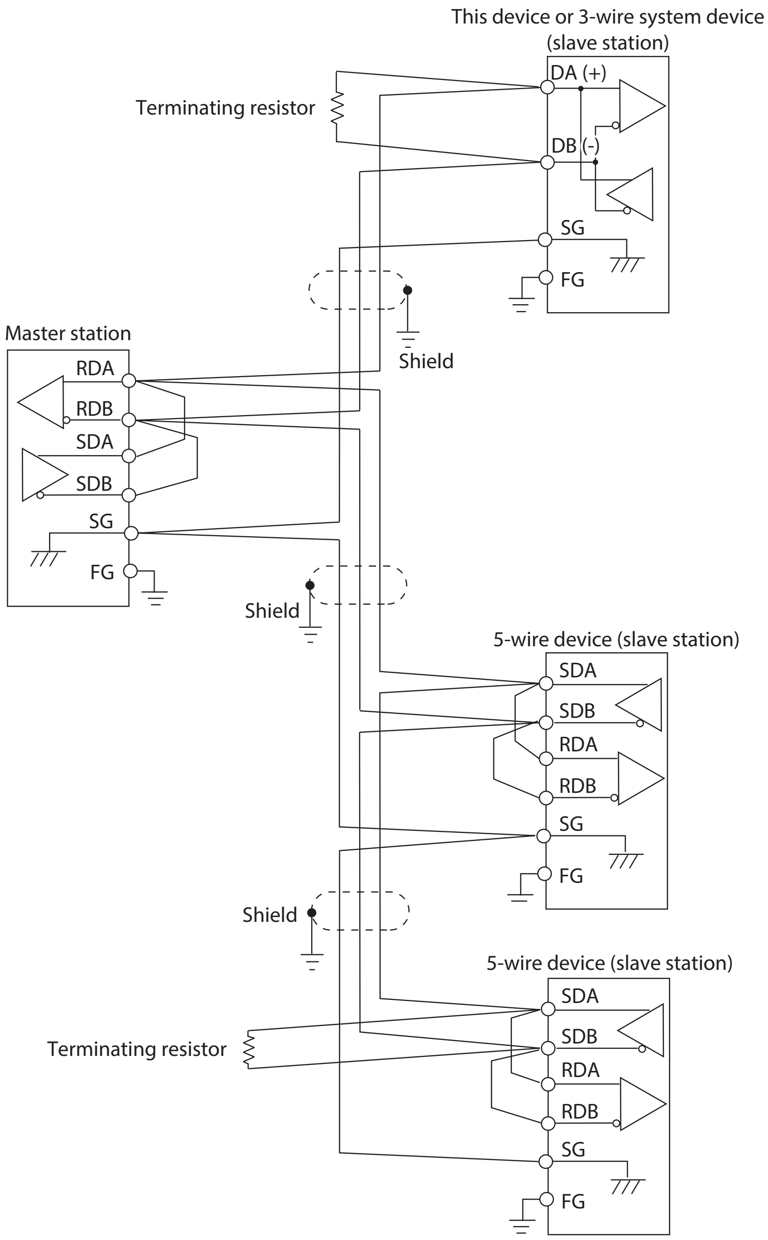

## Handling Precautions

- Attach terminating resistors (150 Ω ±5 %, ½ W min.) to both ends of the transmission line.
  However, if any device that does not allow a terminating resistor is connected to the same communications line, follow the instructions for that device.
- Be sure to connect the SG terminals to each other. Otherwise, communication may be unreliable.
- Use twisted pair cables for communication wiring.

## Note

- ☞ Chapter 3, "Configuration of Serial Communications," in Network Instrumentation Module User's Manual: Network Design Version, No. CP-SP-1313E (for RS-485 communication connections)

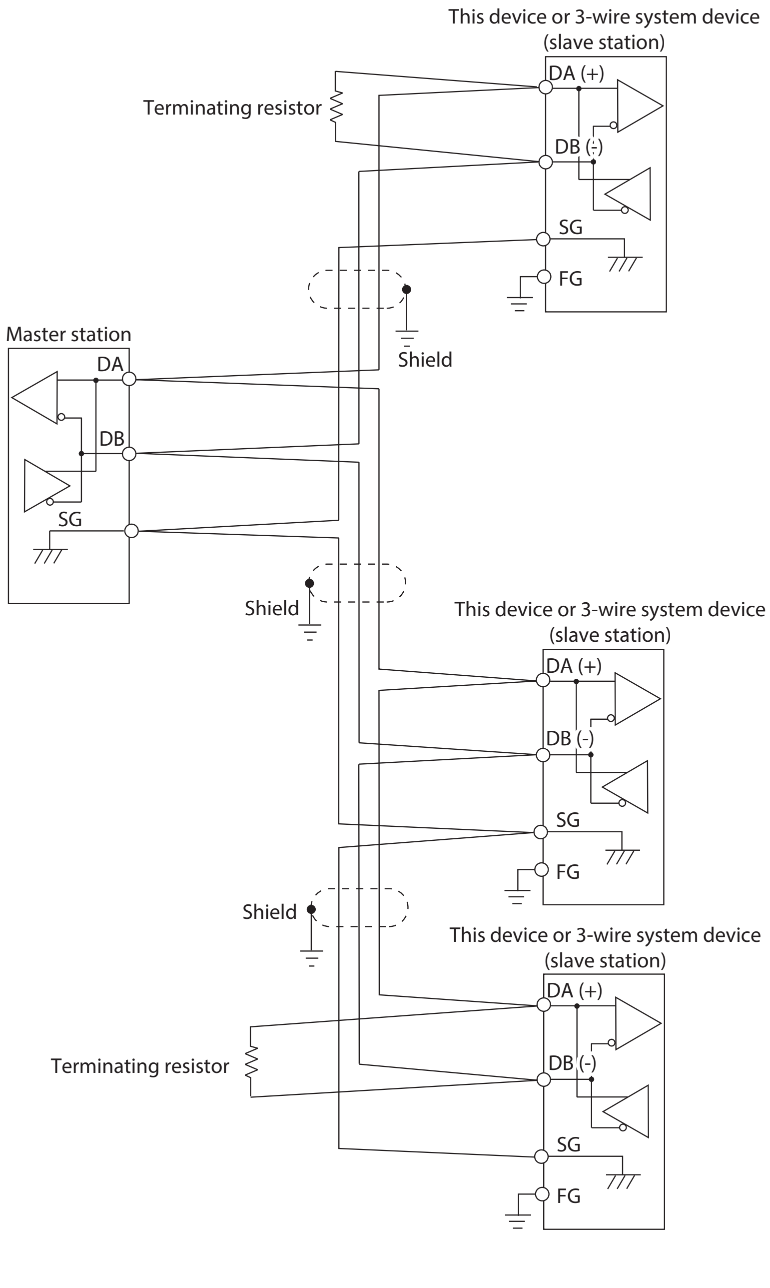
● **Combining with 5-wire system modules**




## Handling Precautions

- If the transmission line includes a device to which terminating resistors should not be connected (Azbil's SDC15/25/26/35/36, DMC10, etc.), do not connect any terminating resistor to the external devices of the NX-D15/25/35 and communication lines.
- This device does not have a frame ground (FG) terminal.

● **3-wire system**




## ! Handling Precautions

- If the transmission line includes a device to which terminating resistors should not be connected (Azbil's SDC15/25/26/35/36, DMC10, etc.), do not connect any terminating resistor to the external devices of the NX-D15/25/35 and communication lines.
- This device does not have a frame ground (FG) terminal.

# 3 - 16 Electrical Noise Sources and Countermeasures

The following are typical sources of electrical noise:

- Relays and contacts
- Solenoid coils and solenoid valves
- Power lines (especially 90 V AC or higher)
- Inductive loads
- Motor commutators
- Phase angle control SCRs
- Radio communication devices
- Welding machines
- High-voltage ignition devices

The following are effective countermeasures for electrical noise.

- CR filter for quick-rising noise
  Recommended CR filter Azbil model: 81446365-001
- Varistor for noise with high peak values
  Recommended varistor: Azbil model: 81446366-001 (for 100 V)
  81446367-001 (for 200 V)

## Handling Precautions

- Noise suppression measures work well when implemented near the source of the noise.
- Take great care when using a varistor because it causes a short circuit if it is faulty.

# 3 - 17 Input/Output Isolation

A solid line indicates isolation from the rest of the circuit.

- Output types other than S and G

<table>
<tr><td colspan="2">Power supply (including the side connectors)*1</td></tr>
<tr><td>Logic circuit<br>Loader jack<br>RS-485 communications,<br>side connector Ethernet communications*1<br>Indicators (LED, switch, etc.)<br>Current transformer inputs (channels 1–4)</td><td rowspan="5">Transistor output (channels 1–4)*2<br>Analog current output (channels 1–4)<br>Analog voltage output (channels 1–4)<br>Digital output (channels 1–4)<br>Digital input (channels 1–4)</td></tr>
<tr><td>PV input (channel 1)</td></tr>
<tr><td>PV input (channel 2)</td></tr>
<tr><td>PV input (channel 3), MFB (channel 1)</td></tr>
<tr><td>PV input (channel 4), MFB (channel 2)</td></tr>
<tr><td colspan="2">Side connector ring communication*1</td></tr>
</table>

*1. Power, side-connector ring communications, and RS-485/side-connector Ethernet communications are isolated from each other.

*2. Position proportional control models are included.

- Output types S and G

<table>
<tr><td colspan="2">Power supply (including side connector)*</td></tr>
<tr><td>Logic circuit<br>Loader jack<br>RS-485 communications,<br>side connector Ethernet communications*<br>Indicators (LED, switch, etc.)<br>Current transformer inputs (channels 1–4)</td><td>Digital output (channels 1–4)<br>Digital input (channels 1–4)</td></tr>
<tr><td>PV input (channel 1)</td><td rowspan="2">Analog current/voltage output (channel 1)</td></tr>
<tr><td>PV input (channel 2)</td></tr>
<tr><td>PV input (channel 3), MFB (channel 1)</td><td rowspan="2">Analog current/voltage output (channel 2)</td></tr>
<tr><td>PV input (channel 4), MFB (channel 2)</td></tr>
<tr><td colspan="2">Ring communications through side connector*</td></tr>
</table>

* Power, side-connector ring communications, and RS-485/side-connector Ethernet communications are isolated from each other.

# Chapter 4. Functions Necessary for Control

## 4 - 1 How to Set the Loop Configuration

First, select the basic loop configuration settings that directly affect PID control.
Configure the following items.

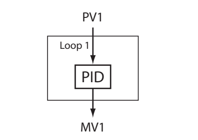
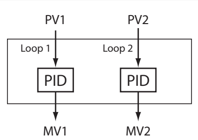
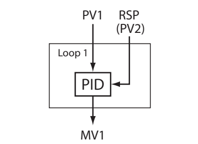
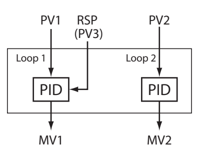
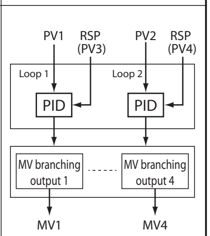
- Number of PID control loops
- RSP (enable or disable)
- MV branching output (enable or disable)

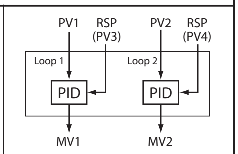
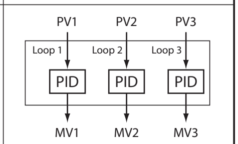
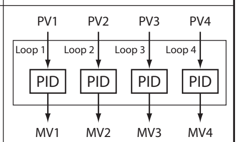
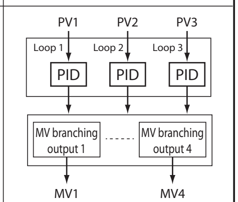
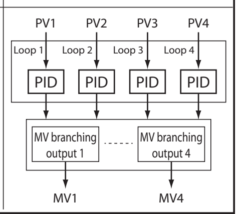
### ■ Settings bank and data fields

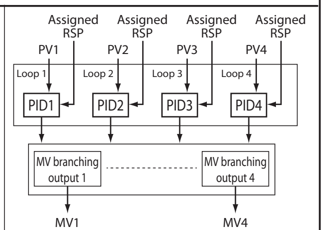
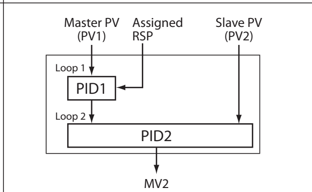
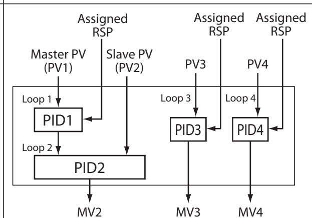
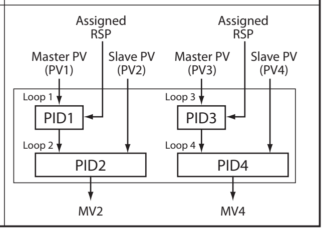
| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | Setup | Loop type | See the tables below | 22: 4 loops (4 channels)<br>1: 2 loops (2 channels) | Standard<br>Multi-function |

### Handling Precautions

- For unused PV inputs (PVs not shown in the tables below), a value set for [PV input] in the Basic bank or [PV] in the Standard numerical code bank can be used.
- The manipulated variable (MV) of the PID is fixed at 0.0 %. Loop functions such as RUN/READY, AUTO/MANUAL, AT will not operate.

| Loop type | |
|---|---|
| 0: 1 loop |  |
| 1: 2 loops |  |
| 2: 1 loop (RSP) |  |
| 5: 2 loops (1 loop with RSP) |  |
| 8: 2 loops (RSP) + MV branching output |  |

| Loop type | |
|---|---|
| 9: 2 loops (RSP) |  |
| 21: 3 loops |  |
| 22: 4 loops |  |
| 23: 3 loops + MV branching output |  |
| 24: 4 loops + MV branching output |  |

| Loop type | |
|---|---|
| 26: 4 loops (RSP) + MV branching output |  |
| 27: 1 loop (internal cascade) |  |
| 28: 1 loop (internal cascade with RSP) + 2 loop |  |
| 29: 2 loops (internal cascade) |  |

**Maximum No. of available functions for each loop type (ROM version 3.00 [1_0_3] and later versions) ("—" means not applicable).**

<table>
<tr><th>Loop type</th><th>Number of loops</th><th>RSP</th><th>Heat/cool control</th><th>Position proportioning</th><th>Cascade control</th><th>MV branching output</th><th>Compatible model No.</th></tr>
<tr><td>0</td><td>1</td><td>—</td><td>1</td><td>—</td><td>—</td><td>—</td><td>NX-D15/25/35</td></tr>
<tr><td>1</td><td>2</td><td>—</td><td>2</td><td>2</td><td rowspan="11">—</td><td rowspan="3">—</td><td rowspan="3">NX-D15/25/35</td></tr>
<tr><td>2</td><td>1</td><td rowspan="2">1</td><td>1</td><td rowspan="2">—</td></tr>
<tr><td>5</td><td rowspan="4">2</td><td rowspan="4">2</td></tr>
<tr><td rowspan="2">8</td><td rowspan="3">2</td><td rowspan="3">2</td><td>4</td><td>NX-D15/25/35</td></tr>
<tr><td>2</td><td>NX-D35</td></tr>
<tr><td>9</td><td>—</td><td>NX-D15/25/35</td></tr>
<tr><td>21</td><td>3</td><td rowspan="4">—</td><td>3</td><td rowspan="8">—</td><td rowspan="5">4</td><td rowspan="5">NX-D15/25/35</td></tr>
<tr><td>22</td><td>4</td><td>4</td></tr>
<tr><td>23</td><td>3</td><td>3</td></tr>
<tr><td>24</td><td rowspan="2">4</td><td rowspan="2">4</td></tr>
<tr><td>26</td><td>4</td></tr>
<tr><td>27</td><td>1</td><td>1</td><td>1</td><td>1</td><td rowspan="3">—</td><td>NX-D25/35</td></tr>
<tr><td>28</td><td>3</td><td>4</td><td>3</td><td>1</td><td rowspan="2">NX-D25/35</td></tr>
<tr><td>29</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
</table>

Note 1: MFB input is available only for NX-D35 models with an output type of M (transistor output for position proportional control) or with option 4 (4 digital outputs for position proportional control).

Note 2: To use position proportional output, settings other than the loop type setting are needed.
☞ 4-8, How to Set Position Proportional Output (page 4-20) (for details)

Note 3: Cascade control is available for NX-D25/35 only.

**Maximum No. of available functions for each loop type (ROM version 2.02 [1_0_2] and earlier versions) ("—" means not applicable).**

<table>
<tr><th>Loop type</th><th>Number of loops</th><th>RSP</th><th>Heat/cool control</th><th>Position proportioning</th><th>Cascade control</th><th>MV branching output</th><th>Compatible model No.</th></tr>
<tr><td>0</td><td>1</td><td>—</td><td>1</td><td rowspan="10">—</td><td rowspan="10">—</td><td rowspan="4">—</td><td rowspan="10">NX-D15/25</td></tr>
<tr><td>1</td><td>2</td><td>—</td><td>2</td></tr>
<tr><td>2</td><td>1</td><td rowspan="2">1</td><td>1</td></tr>
<tr><td>5</td><td rowspan="3">2</td><td rowspan="7">2</td></tr>
<tr><td>8</td><td rowspan="2">2</td><td>4</td></tr>
<tr><td>9</td><td rowspan="3">—</td></tr>
<tr><td>21</td><td>3</td><td rowspan="4">—</td></tr>
<tr><td>22</td><td>4</td></tr>
<tr><td>23</td><td>3</td><td rowspan="2">4</td></tr>
<tr><td>24</td><td>4</td></tr>
</table>

# 4-2 How to Set the PV Input

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | PV input | Range type | See the tables below | Simple<br>Standard<br>Multi-function |
| | | Decimal point position | Thermocouple: 0 to the number of decimal places (corresponding to the resolution)<br>Resistance temperature detector (RTD): 0 to the number of decimal places (corresponding to the resolution)<br>Linear: 0–4 | Simple<br>Standard<br>Multi-function |
| | | Temperature unit | 0: Celsius (°C)<br>1: Do not use<br>2: Kelvin (K) | Simple<br>Standard<br>Multi-function |

## ■ Range types

### ● Thermocouple

| Range type | Sensor Type | Range | | | Resolution | Max. number of decimal places |
|---|---|---|---|---|---|---|
| 1 | K | –200 | to | +1200 °C | 1 °C | 0 |
| 2 | K | 0 | to | 1200 °C | 1 °C | 0 |
| 3 | K | 0.0 | to | 800.0 °C | 0.1 °C | 1 |
| 4 | K | 0.0 | to | 600.0 °C | 0.1 °C | 1 |
| 5 | K | 0.0 | to | 400.0 °C | 0.1 °C | 1 |
| 6 | K | –200.0 | to | +400.0 °C | 0.1 °C | 1 |
| 7 | K | –200.0 | to | +200.0 °C | 0.1 °C | 1 |
| 8 | J | 0 | to | 1200 °C | 1 °C | 0 |
| 9 | J | 0.0 | to | 800.0 °C | 0.1 °C | 1 |
| 10 | J | 0.0 | to | 600.0 °C | 0.1 °C | 1 |
| 11 | J | –200.0 | to | +400.0 °C | 0.1 °C | 1 |
| 12 | E | 0.0 | to | 800.0 °C | 0.1 °C | 1 |
| 13 | E | 0.0 | to | 600.0 °C | 0.1 °C | 1 |
| 14 | T | –200.0 | to | +400.0 °C | 0.1 °C | 1 |
| 15 | R | 0 | to | 1600 °C | 1 °C | 0 |
| 16 | S | 0 | to | 1600 °C | 1 °C | 0 |
| 17 | B* | 0 | to | 1800 °C | 1 °C | 0 |
| 18 | N | 0 | to | 1300 °C | 1 °C | 0 |
| 19 | PL II | 0 | to | 1300 °C | 1 °C | 0 |
| 20 | WRe5-26 | 0 | to | 1400 °C | 1 °C | 0 |
| 21 | WRe5-26 | 0 | to | 2300 °C | 1 °C | 0 |
| 22 | Ni-Ni·Mo | 0 | to | 1300 °C | 1 °C | 0 |
| 23 | PR40-20 | 0 | to | 1900 °C | 1 °C | 0 |
| 24 | DIN U | –200.0 | to | +400.0 °C | 0.1 °C | 1 |
| 25 | DIN L | –100.0 | to | +800.0 °C | 0.1 °C | 1 |
| 26 | Gold/iron-Chromel | 0.1 | to | 360.1 K | 0.1 K | 1 |

* The minimum reading for a B thermocouple is 20 °C.

### ● Resistance temperature detector (RTD)

| Range type | Sensor Type | Range | | | Resolution | Max. number of decimal places |
|---|---|---|---|---|---|---|
| 41 | Pt100 | –200.0 | to | +500.0 °C | 0.1 °C | 1 |
| 42 | JPt100 | –200.0 | to | +500.0 °C | 0.1 °C | 1 |
| 43 | Pt100 | –200.0 | to | +850.0 °C | 0.1 °C | 1 |
| 44 | JPt100 | –200.0 | to | +640.0 °C | 0.1 °C | 1 |
| 45 | Pt100 | –100.0 | to | +300.0 °C | 0.1 °C | 1 |
| 46 | JPt100 | –100.0 | to | +300.0 °C | 0.1 °C | 1 |
| 47 | Pt100 | –100.0 | to | +200.0 °C | 0.1 °C | 1 |
| 48 | JPt100 | –100.0 | to | +200.0 °C | 0.1 °C | 1 |
| 49 | Pt100 | –50.0 | to | +100.0 °C | 0.1 °C | 1 |
| 50 | JPt100 | –50.0 | to | +100.0 °C | 0.1 °C | 1 |
| 51 | Pt100 | –20.00 | to | +60.00 °C | 0.01 °C | 2 |
| 52 | JPt100 | –20.00 | to | +60.00 °C | 0.01 °C | 2 |

### ● Linear

| Range type | Sensor Type | Range | | | Max. number of decimal places |
|---|---|---|---|---|---|
| 81 | DC voltage | 0 | to | 10 mV | 4 |
| 82 | | –10 | to | +10 mV | 4 |
| 83 | | 0 | to | 100 mV | 4 |
| 84 | | 0 | to | 1 V | 4 |
| 85 | | –1 | to | +1 V | 4 |
| 86 | | 1 | to | 5 V | 4 |
| 87 | | 0 | to | 5 V | 4 |
| 88 | | 0 | to | 10 V | 4 |
| 89 | | 2 | to | 10 V | 4 |
| 90 | DC current | 0 | to | 20 mA | 4 |
| 91 | | 4 | to | 20 mA | 4 |

### ● MFB count value

| Range type | Sensor Type | Range | Max. number of decimal places |
|---|---|---|---|
| 75 | MFB | 100–1000 Ω | 0 |
| 76 | MFB | 1000–5000 Ω | 0 |

## ■ Valid range types

| Model No. | Range type | AI1 | AI2 | AI3 | AI4 |
|---|---|---|---|---|---|
| NX-D15<br>NX-D25<br>NX-D35 (4 channels) | 1–26 (thermocouple) | ● | ● | ● | ● |
| | 41–52 (RTD) | ● | ● | ● | ● |
| | 81–91 (linear) | ● | ● | ● | ● |
| | 75–76 (MFB count value) | — | — | — | — |
| NX-D35 (2 channels)<br>Position proportional control model | 1–26 (thermocouple) | ● | ● | — | — |
| | 41–52 (RTD) | ● | ● | — | — |
| | 84–91 (linear) | ● | ● | ● | ● |
| | 75–76 (MFB count value) | — | — | ● | ● |
| NX-D35 (2 channels)<br>Models other than position-proportional control models | 1–26 (thermocouple) | ● | ● | — | — |
| | 41–52 (RTD) | ● | ● | — | — |
| | 84–91 (linear) | ● | ● | ● | ● |
| | 75–76 (MFB count value) | — | — | — | — |

— AI input value is always 0.0.

## ■ Setting method

Set the PV input according to the order shown below (as needed).

(1) Range type

(2) Temperature unit (Celsius/Kelvin)

(3) Decimal point position

(4) High and low limits for the alarm

(5) If PV, RSP, and AI are assigned, check the control range high and low limits for the proportional band, and the SP high and low limits, and change the settings as needed.
☞ 4 - 3, How to Set Range-Related Items (page 4-5) (for control range high and low limits for the proportional band)
☞ 4 - 4, LSP Functions (page 4-11) (for SP high and low limits)

### Note

- The input indication accuracy may vary depending on the sensor type.
☞ ■ PV input (page 16-1) (for details)

### Handling Precautions

- Be sure that the settings are correct for the sensor type. Since incorrect settings cause incorrect PV measurement, an unsafe situation like constant 100 % control output could occur.

# 4 - 3 How to Set Range-Related Items

☞ Configure the settings that are appropriate for the range type that was set in section 4-2, "How to Set the PV Input" (page 4-3).

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Range low limit for proportional band | Range low limit used for PID control | Standard<br>Multi-function |
| | | Range high limit for proportional band | Range high limit used for PID control | |
| Input-output | PV input | Alarm setting low limit | If the PV is below this value, a PV low limit error is detected.<br>−19999 to +32000U (depending on the PV input bank (decimal point position)) | |
| | | Alarm setting high limit | If the PV is over this value, a PV high limit error is detected.<br>−19999 to +32000U (depending on the PV input bank (decimal point position)) | |
| | | Linear scaling low limit | Value when the low limit of the linear signal is input<br>(This item must be set only if linear input is selected.)<br>−19999 to +32000U (depending on the PV input bank (decimal point position)) | Simple<br>Standard<br>Multi-function |
| | | Linear scaling high limit | Value when the high limit of the linear signal is input<br>(This item must be set only if linear input is selected.)<br>−19999 to +32000U (depending on the PV input bank (decimal point position)) | |
| | | Filter | 0.00 to 120.00 s | Simple<br>Standard<br>Multi-function |
| | | Bias | −19999 to +32000U (depending on the PV input bank (decimal point position)) | |
| | | Ratio | 0.001 to 32.000 | |

## ■ How to set the range for proportional band

Range low and high limits for the proportional band are used for PID control.
Set the range low and high limits for the proportional band as needed according to the PV input range used for operation.
Execute PID tuning after setting the range for the proportional band. If the range is changed, tune the PID again.

### ● Setting method

Example: Using the loop 1 PV in a K thermocouple range of 0.0 to 800.0 °C
In the loop control (basic setting) bank, set the following settings.

| Item name | Settings |
|---|---|
| (Loop 1) Range low limit for proportional band | 0.0 |
| (Loop 1) Range high limit for proportional band | 800.0 |

**Note**

- ☞ Aside from setting the range type as shown in 4 - 2, How to Set the PV Input (page 4-3), set range-related items as needed.
  Since settings are initialized automatically as in the examples shown below, re-setting is usually not necessary.
  As shown below, parameters are initialized only if the setting for range type, temperature unit, or decimal point position is changed. Initialization is not executed if the same value is set.
  - If the range type is changed to thermocouple/RTD
    Usually, it is not necessary to change settings other than the range type.
    However, if needed, set the decimal point position, temperature unit, alarm setting high and low limits, range high and low limits for the proportional band.
  - If the range type is changed to linear
    Usually, it is not necessary to change settings other than the linear scaling high and low limits.
    The alarm setting low and high limits are initialized to −19999U and 32000U respectively. In the range set by the user, an alarm occurs if the input is the allowable minimal input or less, or the allowable maximum input or more.
  - If the range type is changed after PV, RSP, and AI assignment settings are specified
    Check the decimal point position, the high and low limit settings for the alarm, the control range high and low limits for the proportional band and the SP high and low limits, and change the settings as needed.

- Parameter initialization when a range type or temperature unit is set

| Settings \ To be initialized | Alarm setting high limit/ low limit | PV input bank (decimal point position) | SP high and low limits*6 | Range high limit/low limit for the proportional band*6 |
|---|---|---|---|---|
| Thermocouple, resistance temperature detector (RTD) | Yes*1 | Yes*2 | Yes*1 | Yes*1 |
| Linear*7 | Yes*3 | 1 digit | No | Yes*4 |
| Initialization condition | *5 | *5 | *6 | *6 |

*1. The default setting differs depending on the range type and temperature unit that were set.

*2. The maximum decimal point position is set for the range type and temperature unit.

*3. The low and high limits are set to −19999U and 32000U respectively.

*4. The current linear scaling high and low limits are set.

*5. Initialized only if the set parameter has a value different from the previous one.

*6. Initialized whenever a value is written to the set parameter.

*7. The linear range is not related to the temperature unit but it is initialized.

## ■ How to set up linear scaling

The linear scaling low limit and high limit are set when the range type is DC voltage or DC current. Set them to suit the output range (engineering range) of the connected module.

### ● Setting method

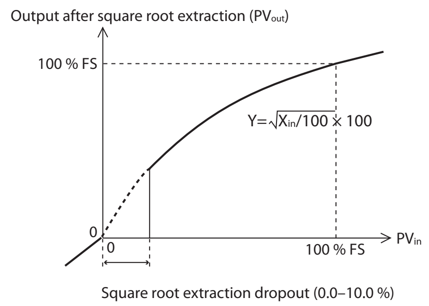
Example: PV1 used with a pressure transmitter connected

| Specifications of transmitter | | Setting of this module | | | |
|---|---|---|---|---|---|
| Output signal | Output range | Folder name | Bank name | Item name | Settings |
| DC 4 mA | 0.0 kPa | Input-output | PV input | Linear scaling low limit (PV1) | 0.0 |
| DC 20 mA | 10.0 kPa | | PV input | Linear scaling high limit (PV1) | 10.0 |

## ■ How to set up square root extraction

Square root extraction is possible when the range type is linear.
Square root extraction of normalized input data (0.0–110.0 %) is executed and the results are used for the linear scaling high and low limits.
To use square root extraction, set the square root extraction dropout to a value other than 0.0.
If not using square root extraction, set the value to 0.0.
The dropout function makes the calculation result 0.0 % if the input is smaller than the set value.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | PV input | PV square root extraction dropout | 0.0 to 10.0 (%)<br>No square root extraction if set to 0.0. | Standard<br>Multi-function |




Formula:
X: $PV_{in}$ (0–100 % FS of the linear range)
Output after square root extraction ($PV_{out}$)
$=\sqrt{X/100} \times 100$

### Note

- If the input is less than 0.0, it is output directly.
  In ROM versions 2.01 [1_0_1] and later, the square root extraction range is 0.0–100.0 % of the normalized input. In a range of 100.0–110.0 %, input values are output as they are. In ROM versions 2.02 [1_0_2] and later, the square root extraction range is 0.0–110.0 % of the normalized input.

## ■ How to set up the PV filter

The PV filter is a first-order lag filter used if the PV fluctuates sharply and repeatedly out of control or if it flutters due to noise, etc. The larger the setting is, the less frequently the PV changes. Under normal circumstances, keep the filter at its initial value of 0.0.

### ● PV filter formula

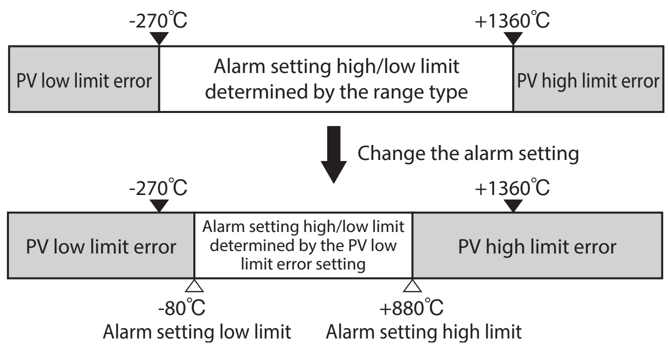
OUT = OUT_1 + (IN − OUT_1)/(T/Ts + 1)

IN: Input to the filter
OUT: Current filter calculation output
OUT_1: Previous filter calculation output
T: Filter setting (s)
Ts: Sampling cycle (according to the controller setting)

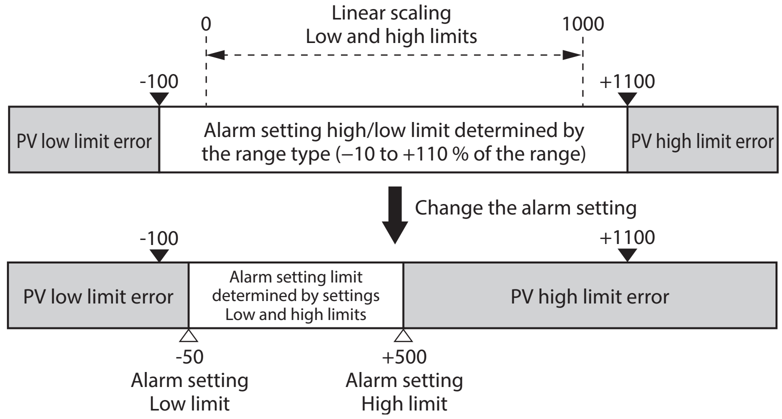
## ■ How to change the alarm setting

The default alarm setting is determined by the range type.
In the module, making the PV input range narrow can change the alarm setting. Alarms that are triggered by a high limit or low limit setting apply to AL01, AL03, AL05, and AL07 (PV high limit error) and AL02, AL04, AL06, AL08 (PV low limit error).
☞ Page 4-9 (for alarm default settings)

### ● Example: Changing the alarm setting with the range type set to type 1 (K thermocouple, −200 to +1200 °C)

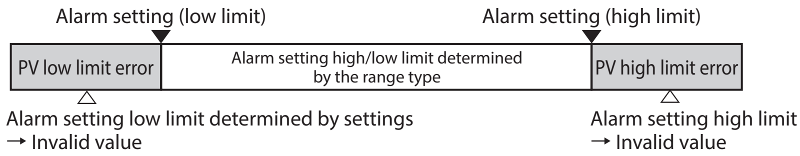



### ● Example: Changing the alarm setting for linear scaling 0 to 1000 with the range type set to 88 (0–10 V DC)



## Handling Precautions

- If an alarm occurs at the alarm setting high/low limit, the target input value is clamped to the alarm setting high/low limit value.
- Even if the alarm setting high and low limits are changed to values outside the alarm setting range that is determined by the range type, the alarm settings are not changed.




- The alarm setting high/low limit determined by the range type is fixed at the default alarm settings as shown below.
- If an alarm occurs, the PV value of the relevant PV input is clamped to the alarm setting high/low limit.

## Note

- Default alarm settings
  - Thermocouple

| Range type | Sensor type | Default alarm settings | |
|---|---|---|---|
| | | Low limit | High limit |
| 1 | K | –270 °C | 1360 °C |
| 2 | K | –120 °C | 1320 °C |
| 3 | K | –80 °C | 880 °C |
| 4 | K | –60.0 °C | 660.0 °C |
| 5 | K | –40.0 °C | 440.0 °C |
| 6 | K | –260.0 °C | 460.0 °C |
| 7 | K | –240.0 °C | 240.0 °C |
| 8 | J | –120 °C | 1320 °C |
| 9 | J | –80.0 °C | 880.0 °C |
| 10 | J | –60.0 °C | 660.0 °C |
| 11 | J | –260.0 °C | 460.0 °C |
| 12 | E | –80.0 °C | 880.0 °C |
| 13 | E | –60.0 °C | 660.0 °C |
| 14 | T | –260.0 °C | 460.0 °C |
| 15 | R | –160 °C | 1760 °C |
| 16 | S | –160 °C | 1760 °C |
| 17 | B | –180 °C* | 1820 °C |
| 18 | N | –130 °C | 1430 °C |
| 19 | PL II | –130 °C | 1430 °C |
| 20 | WRe5-26 | –140 °C | 1540 °C |
| 21 | WRe5-26 | –230 °C | 2530 °C |
| 22 | Ni-Ni·Mo | –130 °C | 1430 °C |
| 23 | PR40-20 | –190 °C | 2090 °C |
| 24 | DIN U | –260.0 °C | 460.0 °C |
| 25 | DIN L | –190.0 °C | 890.0 °C |
| 26 | Gold/iron-Chromel | –273.0 °C | 87.0 °C |

* 0.0 °C for ROM versions 2.02 [1_0_2] and earlier

- Resistance temperature detector (RTD)

| Range type | Sensor type | Default alarm settings | |
|---|---|---|---|
| | | Low limit | High limit |
| 41 | Pt100 | −200.0 °C | 570.0 °C |
| 42 | JPt100 | −200.0 °C | 570.0 °C |
| 43 | Pt100 | −200.0 °C | 955.0 °C |
| 44 | JPt100 | −200.0 °C | 640.0 °C |
| 45 | Pt100 | −140.0 °C | 340.0 °C |
| 46 | JPt100 | −140.0 °C | 340.0 °C |
| 47 | Pt100 | −130.0 °C | 230.0 °C |
| 48 | JPt100 | −130.0 °C | 230.0 °C |
| 49 | Pt100 | −65.00 °C | 115.0 °C |
| 50 | JPt100 | −65.00 °C | 115.0 °C |
| 51 | Pt100 | −28.00 °C | 68.00 °C |
| 52 | JPt100 | −28.00 °C | 68.00 °C |

- Linear

| Range type | Sensor type | Default alarm settings |
|---|---|---|
| 81 | DC voltage | −1999.9 to +3200.0 (Decimal point position = 1) |
| 82 | | |
| 83 | | |
| 84 | | |
| 85 | | |
| 86 | | |
| 87 | | |
| 88 | | |
| 89 | | |
| 90 | DC current | |
| 91 | | |

- MFB count value

| Range type | Sensor type | Default alarm settings |
|---|---|---|
| 75 | MFB | −19999 to +32000 |
| 76 | | |

Note: If the sensor type is MFB, do not change the alarm setting.

## ■ How to set the PV ratio and PV bias

You can compensate for the PV with the PV ratio and PV bias.
When the input is $PV_{in}$, the output is $PV_{out}$, the PV ratio is RA, and the PV bias is BI, the formula is $PV_{out} = (PV_{in} \times RA) + BI$

# 4 - 4 LSP Functions

Up to four SP groups can be selected for each loop.
Additionally, the number of SP groups can be restricted by setting "Number of SP groups" in the setup bank.

## ■ Number of SP groups

Select the number of LSP groups for a loop.

☞ 6 - 4, How to Use Multiple SPs (page 6-17) (for how to use the multi-SP)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Setup | Number of SP groups | 1–4 | Simple<br>Standard<br>Multi-function |

## ■ LSP

Up to 4 LSP groups can be set for a loop.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | LSP | LSP1 | SP low limit to high limit | Simple<br>Standard<br>Multi-function |
| | | LSP2 | | |
| | | LSP3 | | |
| | | LSP4 | | |

## ■ PID group definition

A PID group No. used for LSP/RSP can be set.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | LSP | PID group definition 1 (for LSP) | 1–4 | Simple<br>Standard<br>Multi-function |
| | | PID group definition 2 (for LSP) | | |
| | | PID group definition 3 (for LSP) | | |
| | | PID group definition 4 (for LSP) | | |
| | RSP | PID group definition (for RSP) | 1–4 | Standard<br>Multi-function |

## ■ SP group No.

An LSP group number can be set for each loop.
The SP group selection can be changed for loops having 2 or more SP groups.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | SP group selection | SP group selection | 1–4 | Simple<br>Standard<br>Multi-function |

## ■ SP low and high limits

The SP high and low limits can be set for each loop in order to specify the SP range.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | SP configuration | SP low limit | −19999 to +32000U (Depends on loop PV/SP decimal point position) | Simple Standard Multi-function |
| | | SP high limit | | |

## ■ LSP ramp

It is possible to change the SP with a constant SP ramp.

☞ 6 - 5, How to Change the LSP with a Constant Ramp (page 6-19)

## ■ RSP ramp

When the RSP is changed, the SP can be changed with a constant ramp.

☞ 6 - 6, How to Change the RSP with a Constant Ramp (page 6-20)

### Note

- Local set point (LSP) means a set point stored in the module.
  RSP (remote set point): a set point received from external analog input

# 4-5 How to Set the Decimal Point Position

The decimal point position in items related to the loop PV/SP can be set.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Loop PV/SP decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | Standard<br>Multi-function |

The decimal point position of this setting is applied to the following displays and setup items:

| Folder name | Bank name | Item name | Remarks |
|---|---|---|---|
| Basic | Loop control (basic) | Range low and high limits for proportional band | Even when the decimal point position is changed, the settings are not changed.<br>(Within the settable range)<br>Ex.: 100 ⇒ 100.0<br>(No decimal point ⇒ one digit after the decimal point) |
| Basic | Loop (extended) | Zones 1–3 | |
| Basic | Loop (extended) | Zone hysteresis | |
| Basic | Loop output (cascade) | Output scaling low/high limit | |
| SP | SP configuration | SP low and high limits | |
| PID | PID | Differential 1 to 4 | |
| SP | LSP | LSP1–LSP4 | |
| SP | RSP | RSP | |
| — | Comm. (device) Basic | PV (loop), SP | |
| — | Comm. (operation) | LSP | |

### ! Handling Precautions

- For thermocouples and resistance temperature detectors (RTDs), the number of settable digits for the decimal point position is determined by range type.
  ☞ Refer to the range column of the table in ■ Range types (page 4-3).
  Use a decimal point position that is within the range determined by the range type.

# 4 - 6 How to Set the Loop Control Action

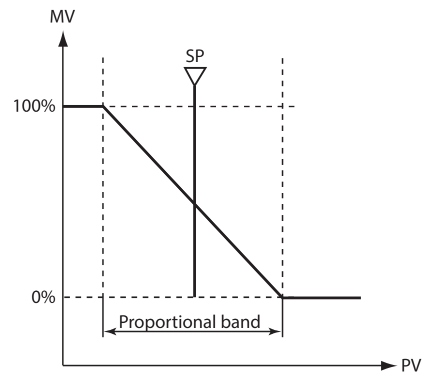
## Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | Simple<br>Standard<br>Multi-function |

The basic operation of the PID control is set.

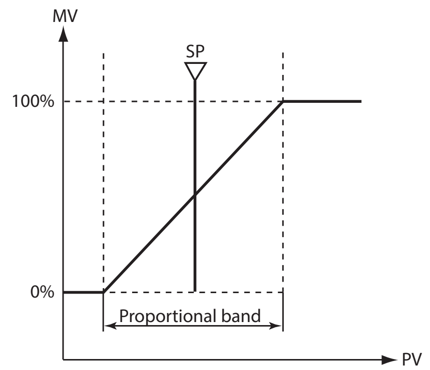
- Reverse (heating)

  MV decreases as the PV increases. Generally, this action is used for heating control.

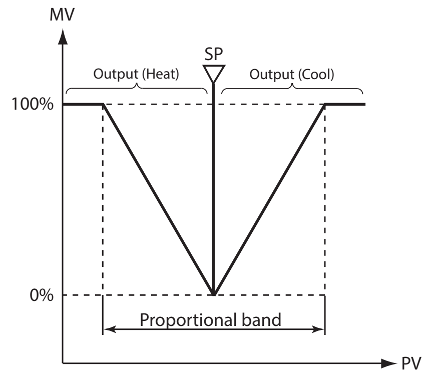



- Direct (cooling)

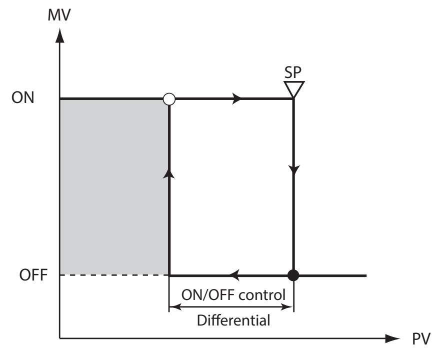
  MV increases as the PV increases. Generally, this action is used for cooling control.



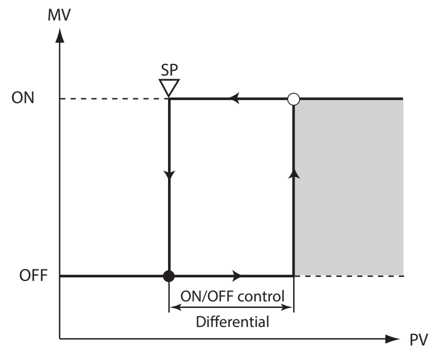

- Heat/Cool action



- Reverse (ON/OFF)




- Direct (ON/OFF)




## ● Example: Heating and cooling MV assigned to output

In this example, heating MV is assigned to analog current output 1 and cooling MV is assigned to analog current output 2 in loop 1 of an analog current output model.

(1) In the loop control (basic setting) bank, set the following settings.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | (Loop 1) Control action | 2: Heating/cooling | Simple<br>Standard<br>Multi-function |
| | | (Loop 1) Heating/cooling control dead zone | 0.0 | Standard<br>Multi-function |

(2) Configure the settings as shown below in the continuous output bank.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | Continuous output | (Continuous output 1) Output type | 0: 4–20 mA | Simple<br>Standard<br>Multi-function |
| | | (Continuous output 1) Output type | 2: Heat MV | |
| | | (Continuous output 1) Loop/channel definition | 1: Loop 1 | |
| | | (Continuous output 1) Output decimal point position | 1: 1 digit after the decimal point | |
| | | (Continuous output 1) Output scaling low limit | 0.0 | |
| | | (Continuous output 1) Output scaling high limit | 100.0 | |
| | | (Continuous output 2) Output range | 0: 4–20 mA | |
| | | (Continuous output 2) Output type | 3: Cool MV | |
| | | (Continuous output 2) Loop/channel definition | 1: Loop 1 | |
| | | (Continuous output 2) Output decimal point position | 1: 1 digit after the decimal point | |
| | | (Continuous output 2) Output scaling low limit | 0.0 | |
| | | (Continuous output 2) Output scaling high limit | 100.0 | |

# 4 - 7 How to Set Outputs (continuous output and time proportional output)

Setup items vary depending on the type of output and operation method.

## ■ Output types and applications

| Output type | Application |
|---|---|
| Transistor | Time proportional output (MV)<br>Digital output (DO) |
| Analog current<br>Analog voltage | Continuous output (MV)<br>Transmission output (PV, SP, etc.) |

## ■ Continuous output settings

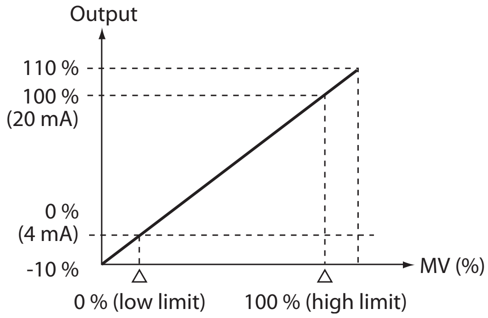
| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | Continuous output | Output range | Analog current output<br>0: 4–20 mA<br>1: 0–20 mA<br>Analog voltage output<br>0: 1–5 V<br>1: 0–5 V<br>2: 0–10 V<br>3: 2–10 V | Simple<br>Standard<br>Multi-function |
| | | Output type | 0: Fixed at 0 %<br>1: MV<br>2: Heat MV (for heating/cooling control)<br>3: Cool MV (for heating/cooling control)<br>4: PV (loop)<br>5: SP<br>6: Deviation (PV – SP)<br>7: PV (input channel)<br>☞ ■ Standard numerical codes (page App.-12)<br>(other types) | |
| | | Loop/channel definition* | 0: Disabled<br>1–4: Loop/channels 1–4 | |
| | | Output decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | |
| | | Output scaling low limit | Value assigned to the low limit of the output<br>–19999 to +32000U (depending on the output decimal point position) | |
| | | Output scaling high limit | Value assigned to the high limit of the output<br>–19999 to +32000U (depending on the output decimal point position) | |
| | | Linearization table group definition | 0: Disabled<br>1: Group 1<br>2: Group 2<br>3: Group 3<br>4: Group 4<br>5: Group 5<br>6: Group 6<br>7: Group 7<br>8: Group 8 | Standard<br>Multi-function |

* With 2 channels, if the Output type setting is any setting from 1 to 6, Loop/channel definition cannot be set to 3 or 4.

Each continuous output channel must be configured.
Select the analog current and analog voltage ranges in Output range.
Set the output type and loop/channel definition.
In Output decimal point position, set the decimal point position for the output scaling low and high limits.

Scaling output of the settings for the output type can be executed with the Output scaling low/high limit.
Reverse scaling is possible if the high limit is set to be lower than the low limit.

The figure below shows an example of MV scaling output for analog current output (4–20 mA).



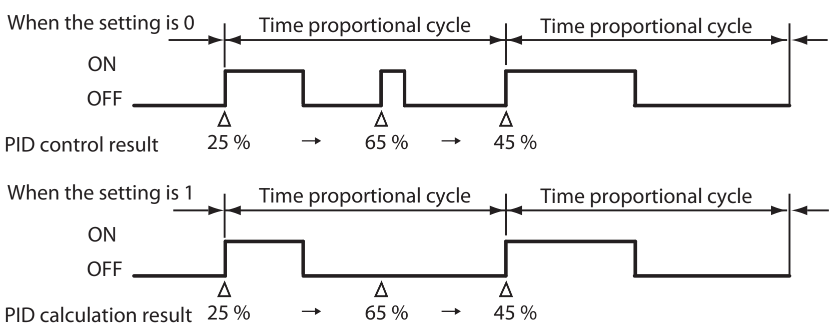

However, if the output range is 0–20 mA, 0–1 V, 0–5 V, or 0–10 V, the output is 0–110 %.

## ■ Time proportional output settings

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | Output type* | 1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heating/cooling control)<br>12: Loop 4 cool MV (for heating/cooling control)<br>☞ ■ Standard numerical codes (page App.-12) (other types) | Simple<br>Standard<br>Multi-function |
| | | Latch | Invalid setting | Standard<br>Multi-function |
| | | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | Simple<br>Standard<br>Multi-function |
| | | Min. ON/OFF time | 0–300 ms | |
| | | Time proportional cycle | 0.1–120.0 s | |
| | | Linearization table group definition | 0: Disabled<br>1: Group 1<br>2: Group 2<br>3: Group 3<br>4: Group 4<br>5: Group 5<br>6: Group 6<br>7: Group 7<br>8: Group 8 | Standard<br>Multi-function |
| | | Phase shift | 0 to 32000 ms<br>☞ 7-6, Phase Shift (page 7-10) | Multi-function |

* With 2 channels, Output type cannot be set to settings 8–12.

If the Output type is set to 1–12, or a standard numerical code, the time proportional output is executed according to the settings of the time proportional cycle.
Depending on the time proportional operation type, the time proportional output is executed as follows.
With setting 0 (Control oriented), the output may be generated twice or more within the time proportional cycle.
With setting 1 (Actuator-life oriented), there is no output or output only once within the time proportional cycle.




ON or OFF operations that are shorter than the minimum ON/OFF time setting are prevented. However, even with a setting of 0, the cycle is 1 ms. The latch is invalid.

## ■ ON/OFF control settings

In the case of MV output for ON/OFF control, set as shown below.
☞ 5 - 13, ON/OFF Control (page 5-25) (for details)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | Output type* | 1: Loop 1 MV<br>4: Loop 2 MV<br>7: Loop 3 MV<br>10: Loop 4 MV | Simple<br>Standard<br>Multi-function |
| | | Latch | Invalid setting | Standard<br>Multi-function |
| | | Time proportional operation type | 0: Priority on controllability | Simple<br>Standard<br>Multi-function |
| | | Min. ON/OFF time | 10 ms (user sets any value) | |
| | | Time proportional cycle | 2.0 s | |
| | | Phase shift | 0 ms | Multi-function |
| PID | PID | Differential | 5.0 (user sets any value) | Simple<br>Standard<br>Multi-function |

* With 2 channels, Output type cannot be set to setting 7 or 10.

## ■ ON/OFF output settings

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | Output type | 0: OFF<br>13: Closing output for position proportional output 1*<br>14: Opening output for position proportional output 1*<br>15: Closing output for position proportional output 2*<br>16: Opening output for position proportional output 2*<br>1024–2047: Standard bits<br>☞ ■ Standard bit codes (page App.-11) | Simple<br>Standard<br>Multi-function |
| | | Latch | 0: No latch<br>1: Latch when ON<br>2: Latch when OFF (except OFF before power ON) | Standard<br>Multi-function |
| | | Time proportional operation type | Invalid setting | Simple<br>Standard<br>Multi-function |
| | | Min. ON/OFF time | 0–300 ms | |
| | | Time proportional cycle | Invalid setting | |
| | | Phase shift | Invalid setting | Multi-function |

* ☞ 4 - 8, How to Set Position Proportional Output (page 4-20) (for details on the position proportional output)

If any of standard bits 1024–2047 is set for Output type, the ON/OFF status of the standard bit is output.

### Note

- Updating of standard bits is executed by cycle period.

# 4 - 8 How to Set Position Proportional Output

### Handling Precautions

- This function is not available on the NX-D15/25.

If either of the following conditions is satisfied, up to 2 outputs for position proportioning can be used.

- The model No. is NX-D35 and M (transistor output for position proportional control) was selected as the Output type when the product was ordered.
- The model No. is NX-D35 and 4 (4 digital outputs for position proportional control) was selected for Option when the product was ordered.

☞ 1 - 2, Model Selection Table (page 1-3) (model Nos.)

This function is available for ROM version 3.00 [1_0_3] and later.

## ■ Loop settings (for position proportioning)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Setup | Loop type | Any of the following can be used. Do not select any of the other settings.<br>If PV3 and PV4 are used for MFB input, they cannot be used as RSP.<br>1: 2 loops<br>8: 2 loops (RSP) + MV branching output<br>9: 2 loops (RSP) | Standard<br>Multi-function |

## ■ Position proportioning settings

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Position proportioning | Output type | 0: Stop time proportional control<br>1: Loop 1 MV<br>2: Loop 1 heat MV<br>3: Loop 1 cool MV<br>4: Loop 2 MV<br>5: Loop 2 heat MV<br>6: Loop 2 cool MV<br>2048–3071: Depending on the desired standard numerical code | Simple<br>Standard<br>Multi-function |
| | | Control method selection | 0: MFB control + estimated position control<br>1: MFB control + close upon line break<br>2: Estimated position control<br>3: Estimated position control + position adjustment at power-on | |
| | | Dead zone | 0.5 to 25.0 % | |
| | | Long life | 0: Control oriented<br>1: Service life oriented | |
| | | Auto-tuning*1 | 0: Stop<br>1: Start | |
| | | Loop definition | 1: Loop 1<br>2: Loop 2 | Standard<br>Multi-function |
| | | Linearization table group definition | 0: Disabled 1: Group 1. 2: Group 2. 3: Group 3.<br>4: Group 4. 5: Group 5. 6: Group 6. 7: Group 7. 8: Group 8. | |
| | | Fully closed FB value*2 | 0–32000 | |
| | | Fully open FB value*2 | 0–32000 | |
| | | Full opening time*2 | 5.0–240.0 s | |

*1. Not displayed on the setup screen of the SLP-NX.
■ Auto-tuning (page 4-27) (for starting and stopping adjustment)

*2. This is data on adjustment for each unit and is subject to the following restrictions on the setup screen of the SLP-NX.
- Although you can read values from the module, you cannot change the settings on the screen.
- You cannot write data to the module.
- You can save data to a configuration file.
- ■ Auto-tuning (page 4-27) (for how to set adjustment values)

## ■ PV channel settings for MFB

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | PV input | Range type | 75: MFB 100–1000 Ω<br>76: MFB 1000–5000 Ω | Simple<br>Standard<br>Multi-function |
| | | Decimal point position | 0 (Do not change the default setting.) | |
| | | Temperature unit | 0: Celsius (°C) (Do not change the default setting.) | |
| | | Alarm setting low limit | –19999 (Do not change the default setting.) | Standard<br>Multi-function |
| | | Alarm setting high limit | 32000 (Do not change the default setting.) | |
| | | Cold junction compensation | Invalid setting | |
| | | Linear scaling low limit | Invalid setting | Simple<br>Standard<br>Multi-function |
| | | Linear scaling high limit | Invalid setting | |
| | | PV square root extraction dropout | Invalid setting | Standard<br>Multi-function |
| | | Filter | 0.00 | Simple<br>Standard<br>Multi-function |
| | | Bias | 0.0 (Use this value under normal circumstances.) | |
| | | Ratio | 1.000 (Use this value under normal circumstances.) | |
| | | Linearization table group definition | 0: Disabled | Standard<br>Multi-function |

## ■ OUT/DO output settings

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | Output type | 13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2 | Simple<br>Standard<br>Multi-function |
| | | Latch | Invalid setting | Standard<br>Multi-function |
| | | Time proportional operation type | 0: Priority on controllability<br>(Do not change the default setting.) | Simple<br>Standard<br>Multi-function |
| | | Min. ON/OFF time | 10 ms (Do not change the default setting.) | |
| | | Time proportional cycle | 2.0 s (Do not change the default setting.) | |
| | | Linearization table group definition | 0: Disabled | Standard<br>Multi-function |
| | | Phase shift | 0 ms (Do not change the default setting.) | Multi-function |

## ■ Default settings for position proportional output models

### ● Default setting for loop configuration

| Folder name | Bank name | Item name | Default |
|---|---|---|---|
| Basic | Setup | Loop type | 1: 2 loops |

### ● Default settings for position proportioning (position proportioning 1 and 2)

| Folder name | Bank name | Item name | Default |
|---|---|---|---|
| Basic | Position proportioning | Output type | Position proportioning 1, 1: Loop 1 MV |
| | | | Position proportioning 2, 4: Loop 2 MV |
| | | Control method selection | 0: MFB control + estimated position control |
| | | Dead zone | 10.0 % |
| | | Long life | 0: Control oriented |
| | | Loop definition | Position proportioning 1, 1: Loop 1<br>Position proportioning 2, 2: Loop 2 |
| | | Linearization table group definition | 0: Disabled |

### ● Default settings for MFB input ranges (for PV 3 and PV 4)

| Folder name | Bank name | Item name | Default |
|---|---|---|---|
| Input-output | PV input | Range type | 75: MFB 100–1000 Ω |
| | | Decimal point position | 0: No decimal point |
| | | Temperature unit | 0: Celsius (°C) |
| | | Alarm setting low limit | –19999 (Do not change the default setting.) |
| | | Alarm setting high limit | 32000 (Do not change the default setting.) |
| | | Cold junction compensation | Invalid setting |
| | | Linear scaling low limit | Invalid setting |
| | | Linear scaling high limit | Invalid setting |
| | | PV square root extraction dropout | Invalid setting |
| | | Filter | 0.00 |
| | | Bias | 0.0 (Do not change the default setting.) |
| | | Ratio | 1.000 (Do not change the default setting.) |
| | | Linearization table group definition | 0: Disabled |

### ● Default setting for loop (input assignment) for PV 3 and PV 4

| Folder name | Bank name | Item name | Default |
|---|---|---|---|
| Basic | Loop (input) | Assigned AI | 0: Default (Do not change the default setting.) |

If using PV 3 and PV 4 as MFB inputs on a position proportional control model, use channels 3 and 4 assigned to AI with the above settings.

### ● Default settings for UFLED

☞ 7 - 12, UFLED (page 7-25)

● **Default settings for the NX-D35_ _ _M_ _(position proportional control model)**

| Folder name | Bank name | Item name | Default |
|---|---|---|---|
| Input-output | OUT/DO output | OUT 1 output type | 14: Opening output for position proportional output 1 |
| | | OUT 2 output type | 13: Closing output for position proportional output 1 |
| | | OUT 3 output type | 16: Opening output for position proportional output 2 |
| | | OUT 4 output type | 15: Closing output for position proportional output 2 |
| | | DO 1 output type | 1088: Event 1 |
| | | DO 2 output type | 1089: Event 2 |
| | | DO 3 output type | 1090: Event 3 |
| | | DO 4 output type | 1091: Event 4 |
| | PV input | PV 3 range type | 75: MFB 100–1000 Ω |
| | | PV 4 range type | 75: MFB 100–1000 Ω |

● **Default settings for the NX-D35_ _ _4_ (position proportional control model)**

| Folder name | Bank name | Item name | Default |
|---|---|---|---|
| Input-output | Continuous output | OUT 1 | Output type 1: MV<br>Loop/channel definition 1: loop 1/channel 1 |
| | | OUT2 | Output type 1: MV<br>Loop/channel definition 2: loop 2/channel 2 |
| | | OUT3 | Output type 0: Fixed at 0.0 % |
| | | OUT4 | Output type 0: Fixed at 0.0 % |
| | OUT/DO output | DO 1 output type | 14: Opening output for position proportional output 1 |
| | | DO 2 output type | 13: Closing output for position proportional output 1 |
| | | DO 3 output type | 16: Opening output for position proportional output 2 |
| | | DO 4 output type | 15: Closing output for position proportional output 2 |
| | PV input | PV 3 range type | 75: MFB 100–1000 Ω |
| | | PV 4 range type | 75: MFB 100–1000 Ω |

## ■ Settings

Do the following.

- If using MFB input, configure the PV input range type corresponding to the motor resistance.
- Execute auto-tuning using the Universal Monitor of the loader after connecting the external device.

If needed, configure other settings. Usually, it is not necessary to change the default settings.

## ■ Control method selection

### ● 0: MFB control + estimated position control

If MFB input is normal, control the motor using the current MFB value.

- If MFB input is abnormal, control the motor using the estimated MFB value. This is called estimated position control. For example, if the motor rotates the feedback potentiometer to a position where there is much wear, the MFB input may change suddenly. The module detects this sudden change as abnormal and estimates the correct MFB position. In addition, the motor is also controlled using the estimated MFB value if an MFB error (AL21/AL23), a PV high limit error (AL05/AL07), or a PV low limit error (AL06/Al08) occurs.
- Under estimated position control, the difference between the actual valve opening and the estimated MFB value increases gradually. Thus, the module corrects errors by opening or closing the valve fully so that closing output and opening output are always ON when MV ≤ 0.0 % and MV ≥ 100.0 %, respectively. However, if the MV setting is limited within a range of 0.1 to 99.9 % for the MV low/high limit or broken line function, or if MV is less than 0.0 % or more than 100.0 %, no correction is made.
- The following factors are thought to be causes of the problem.
  - Valve opening adjustment failure
  - Worn feedback potentiometer or insufficient resolution
  - Incorrect MFB wiring

**Note**

- Whether estimated position control is being used or not can be checked with standard bits (1792–1919): MFB1 estimation in progress, or MFB2 estimation in progress.
- Estimated position control is assigned to UFLED before shipment from the factory.
  ☞ ■ F0 to 9 (page 5-3)

**Handling Precautions**

- If using this function, execute auto-tuning.

### ● 1: MFB control + close upon line break

Stops control by closing the valve if MFB is disconnected.

**Handling Precautions**

- If using this function, execute auto-tuning.

### ● 2: MFB control + estimated position control

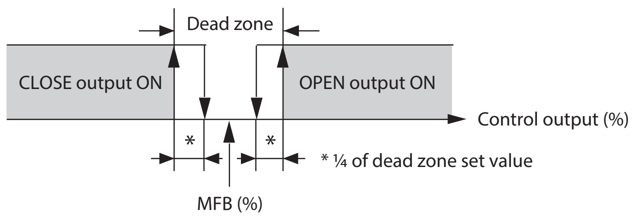
- Estimated position control is always executed. Regardless of MFB wiring, this function controls the motor using the estimated MFB value.
- If using this function, set the full opening time correctly.
- MFB error (AL21/AL23), PV high limit error (AL05/AL07), and PV low limit error (AL06/Al08) do not occur.
- When the MV is 0.0 % or 100.0 %, the module forces the valve to close or open to narrow the difference between the actual valve opening and the estimated MFB value.

### ● 3: Estimated position control + position adjustment at power-on

This function turns on the opening output for the full opening time when the power is turned on so that the estimated MFB (0.0 %) and the valve opening match. Otherwise its operation is the same as that of 2: MFB control + estimated position control. If using this function, set the full opening time correctly.

## ■ Dead zone

If "long life" is set to 1 (Service life oriented), the dead zone can be neither set nor displayed.
It is set as the dead zone between valve opening and closing for position proportional control.
As a setting guideline, the minimum value of the dead zone is a value at which the motor stops hunting while the dead zone is being changed during constant manual output. If the settings have little margin, the motor will be working all the time, resulting in a shorter motor life.
The default setting is 10.0 %. Configure the settings taking the control results and the motor life into account based on the above description.




## ■ Long life

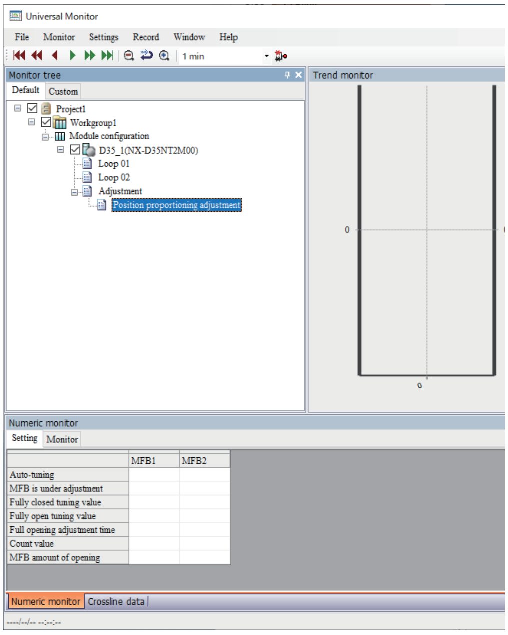
In the case of setting 1 (Service life oriented), the settings for MV increase change limit, MV decrease change limit, and Dead zone are ignored and the optimal value for long service life is used.

### Note

- In the case of setting 1 (for long life), even if the settings for MV increase change limit, MV decrease change limit, and Dead zone are written to the parameters, they are not applied to operation.

## ■ Auto-tuning

If 0 (MFB control + estimated position control) or 1 (MFB control + close upon line break) is selected for Control method selection, be sure to set auto-tuning. Fully closed FB value, Fully open FB value, and Full opening time FB value are adjusted automatically. Adjustment is also supported by the SLP-NX. Select [View] → [Set user level] from the menu on the setup screen and select Multi-function before starting the Universal Monitor. (Change the user level before starting the Universal Monitor.)
When you select the position proportional adjustment screen on the monitor tree screen on the Universal Monitor, the adjustment screen is displayed on the screen on the numeric monitor.




## Handling Precautions

- Only our ECM3000 series control motor has auto-tuning. Auto-tuning may not be available on other motors.
- Do not turn off the power for several seconds after MFB auto-tuning.

### ● How to set the auto-tuning

(1) Set Control method selection to 0 (MFB control + estimated position control) or 1 (MFB control + close upon line break).

(2) Write 1 (start) to the auto-tuning using the Universal Monitor of the loader.

(3) Auto-tuning will start.

- The closing output turns ON.
- The motor begins to close the valve. When the count becomes stable, fully closed tuning is complete and its value is written to Fully closed FB value.
- The open output turns ON.
- The motor begins to open the valve. When the count becomes stable, fully open tuning is complete and its value is written to Fully open FB value.
- The time that was required to fully open a fully closed valve is written as the Fully open FB value. However, if the time exceeds 240.0 s, it is displayed as 240.0 s.

**Note**

- To stop tuning, write 0 (stop) to the auto-tuning using the Universal Monitor of the loader.
- In the case of the following, each adjusted value returns to the previous (unadjusted) state and error AL22 (MFB1 adjustment error) or AL24 (MFB2 adjustment error) is generated. AL22/AL24 is deleted from the display only if the next auto-tuning is completed normally or if the power is reset.
  - The difference between fully open and closed counts is less than 300.
  - The time that is required to fully open the fully closed valve is less than 5 s.
  - MFB1 input error (AL21) or MFB2 input error (AL23) occurs.
  - The time required for a stable MFB count exceeds 300.0 s.
  - Incorrect wiring for the MFB or opening/closing output (but not all incorrect wiring can be detected)
- For the default settings for Fully closed FB value, Fully open FB value, and Full opening adjustment time, see the table below.

| Item name | Default |
|---|---|
| Fully closed FB value | 14200 |
| Fully open FB value | 17300 |
| Full opening time | 39.0 |

**Handling Precautions**

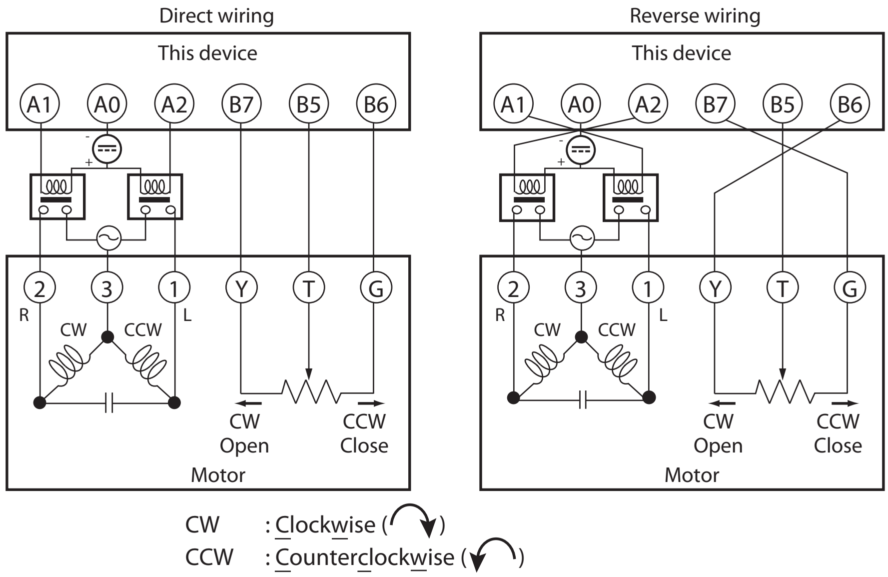
- If the power is turned off during auto-tuning for position proportional control, auto-tuning is not resumed when the power is turned on again.
- Auto-tuning for position proportional control can be executed regardless of whether the mode is AUTO/MANUAL, RUN/READY, or LSP/RSP.

## ■ Motor wiring and operation with auto-tuning

There are 2 methods of wiring between the module and motor: direct and reverse. In direct wiring, the motor rotates clockwise (cw) if control output of the controller increases.
If reverse rotation of the motor is desired for control for cooling, etc., there are the following 2 methods.

- Switching the control direction on the controller with no change in wiring
- Using reverse wiring

The module can switch its control direction (direct/reverse). If the wiring between the module and motor is direct, troubleshooting is easier in both control directions. Thus, it is recommended for users to use direct wiring whenever possible. An example of wiring between ECM3000 and the module is shown below.




The module has a function to detect incorrect wiring of the motor and line breaks or short-circuits in the MFB. (☞ ■ Input errors and line breaks (page 4-32))
Like direct wiring, reverse wiring is regarded as normal and no alarm is activated. Also, if 0 (MFB control + estimated position control) is set for Control method selection, and if MFB is disconnected, operation continues.

The table below shows how MFB1 operation on the NX-D35 with output type M (transistor output for position proportional control) varies depending on wiring if auto-tuning is applied to the motor (the setting is 1: Start).
The motor starts at the fully closed position (all the way counterclockwise).
Conditions are: OUT/DO output is Default, OUT1 is Opening, and OUT2 is Closing.
The PV3 value in the table is an example. An alarm is displayed after the valve is fully open or closed.

The MFB status can be checked as the status of the following items.
An example of MFB1 is shown below.

Each status of position proportioning can be checked with a standard numerical code or standard bit.
☞ ■ Monitoring during operation (page 4-32)

## ● Operation during auto-tuning with normal direct wiring

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Remarks |
|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Becomes stable after decreasing (4000 → 2000) | CCW | If OUT2 terminal is ON and the motor rotates counterclockwise, terminals 1 and 2 on the motor have direct wiring. |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | Becomes stable after increasing (2000 → 4000) | CW | |

## ● Operation during auto-tuning with normal reverse wiring

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Remarks |
|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Becomes stable after decreasing (4000 → 2000) | CW | If OUT2 terminal is ON and the motor rotates clockwise, terminals 1 and 2 on the motor have reverse wiring. |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | Becomes stable after increasing (2000 → 4000) | CCW | |

## ● Alarms due to incorrect wiring and their causes

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Alarm display | Cause |
|---|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Becomes stable after increasing (2000 → 4000) | CCW | AL22 | G ⇔ Y: Reverse connection |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | Becomes stable after decreasing (4000 → 2000) | CW | | |

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Alarm display | Cause |
|---|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Becomes stable after decreasing (4000 → 2000) | CCW | None<br>However, the MFB value and valve opening (motor position) do not match. | T ⇔ G: Reverse connection |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | Becomes stable after increasing (2000 → 4000) | CW | | |

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Alarm display | Cause |
|---|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Decreasing and increasing are uncertain. (The motor rotation direction changes before the valve is fully open or closed.) | CCW | AL22 or none | T ⇔ Y: Reverse connection |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | | CW | | |

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Alarm display | Cause |
|---|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Becomes stable after increasing (2000 → 4000) | CW | AL22 | 1 ⇔ 2: Reverse connection |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | Becomes stable after decreasing (4000 → 2000) | CCW | | |

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Alarm display | Cause |
|---|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Becomes stable after increasing (2000 → 4000) | CW | AL22 | 1 ⇔ 2: Reverse connection and T ⇔ G: Reverse connection |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | Becomes stable after decreasing (4000 → 2000) | CCW | | |

| Operation during auto-tuning | OUT terminal status | PV3 (MFB count value) | Motor rotation direction | Alarm display | Cause |
|---|---|---|---|---|---|
| Closing | OUT1 terminal status (OPEN) = OFF<br>OUT2 terminal status (CLOSE) = ON | Decreasing and increasing are uncertain. (The motor rotation direction changes before the valve is fully open or closed.) | CW | AL22 or none | 1 ⇔ 2: Reverse connection and T ⇔ Y: Reverse connection |
| Opening | OUT1 terminal status (OPEN) = ON<br>OUT2 terminal status (CLOSE) = OFF | | CCW | | |

## ■ Input errors and line breaks

The following alarms are activated if an input error or line break occurs.

| | Input error | G line break, Y line break, T line break, multiline break |
|---|---|---|
| MFB1 error | High limit error: AL21 and AL05<br>Low limit error: AL21 and AL06 | AL21 and AL05 |
| MFB2 error | High limit error: AL23 and AL07<br>Low limit error: AL23 and AL08 | AL23 and AL07 |

## ■ Monitoring during operation

The following values and statuses can be monitored.
☞ Chapter 12, List of Communication Data and ☞ Appendix-2, Standard Bit Codes and Standard Numerical Codes (page App.-11)

Standard numerical codes (folder name: Standard numerical code, bank name: Numbers: 2432–2559)

- MFB1 opening (including estimation), MFB2 opening (including estimation)
- MFB1 opening (actual value), MFB2 opening (actual value)

Standard numerical codes (folder name: Standard numerical code, bank name: Numbers: 2688–2815)

- MV for position proportioning 1
- MV for position proportioning 2

Standard bits (folder name: Standard bit, bank name: Bits: 1792 to 1919)

- MFB1 G line break, MFB2 G line break
- MFB1 Y line break, MFB2 Y line break
- MFB1 T or multiline break, MFB2 T or multiline break
- MFB1 input error (AL21), MFB2 input error (AL23)
- MFB1 in auto-tuning, MFB2 in auto-tuning
- MFB1 estimation in progress, MFB2 estimation in progress
- MFB1 input error (AL22), MFB2 input error (AL24)
- MFB1 Open, MFB2 Open
- MFB1 Closed, MFB2 Closed

## ■ Wiring to a motor

Wire correctly so that the valve starts opening when the terminal that sends signals for opening is energized. (Wire correctly so that the valve starts to close when the terminal that sends signals for closing is energized.)
For details, refer to the user's manual for the motor.

☞ Chapter 3, Wiring (for details on wiring)

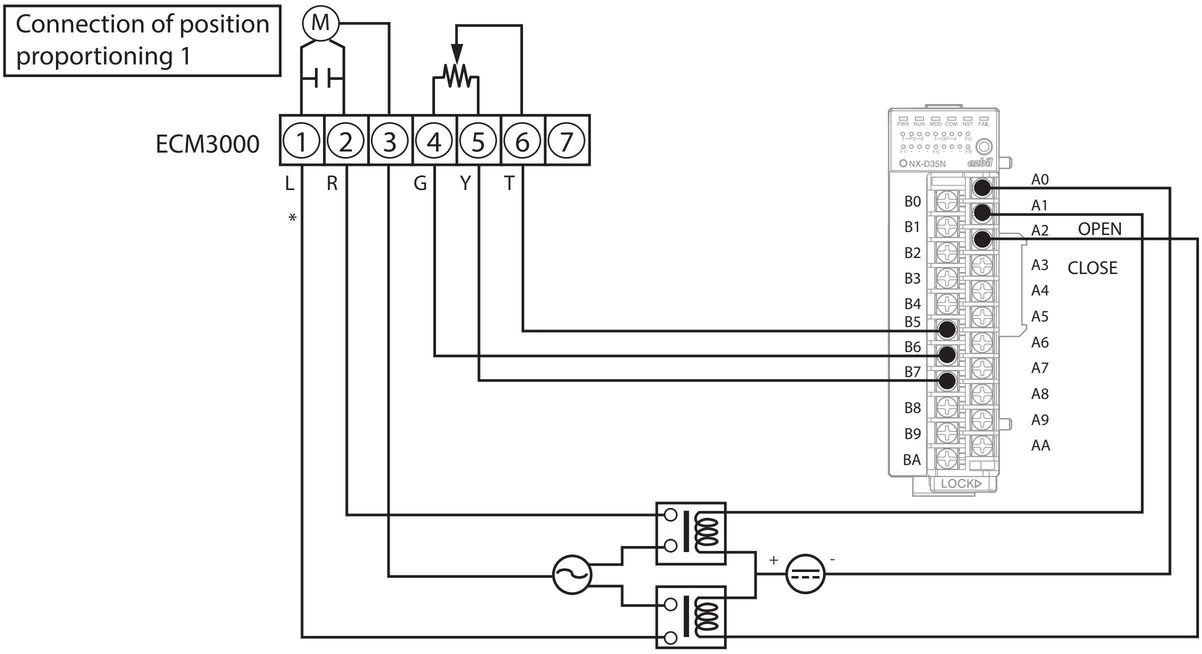
### Handling Precautions

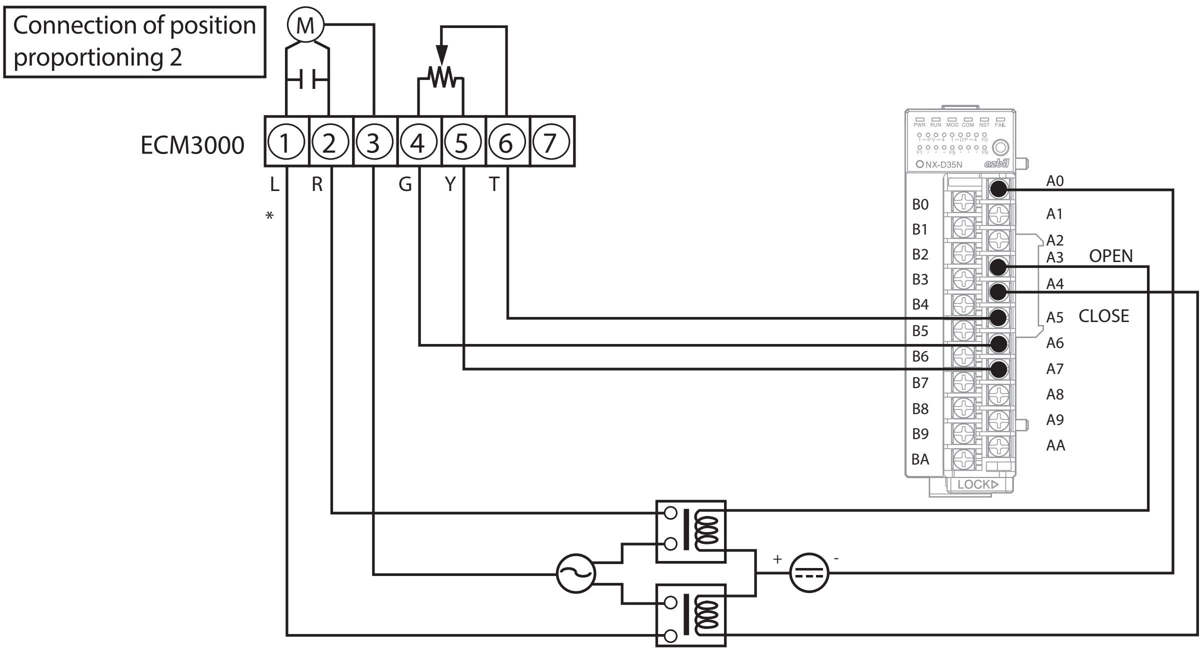
- Do not run motor relay contact wires and MFB input wires through the same conduit or duct. Module malfunction or failure could result due to electrical noise from the motor.

## ■ Connection example with the ECM3000

An example of wiring between ECM3000 and the module is shown below.
If the NX-D35 has the default settings, wiring varies depending on the model number as shown below.
For instrumentation with the ECM3000, be sure to see the user's manual for the ECM3000.

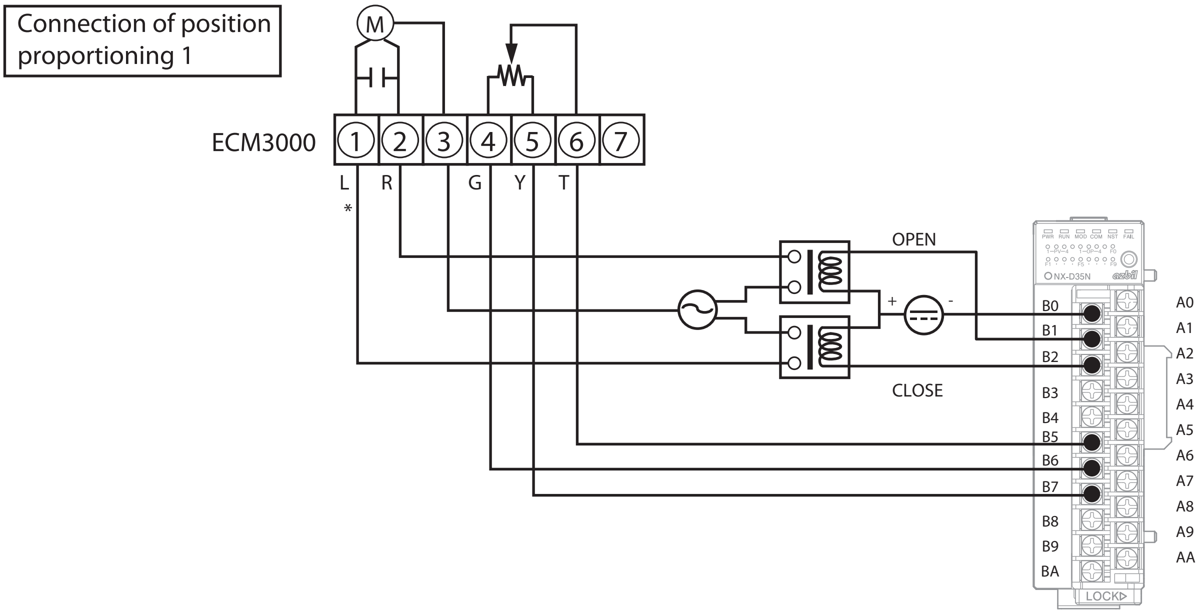
### ● Motor wiring for output type M (transistor output for position proportional control)

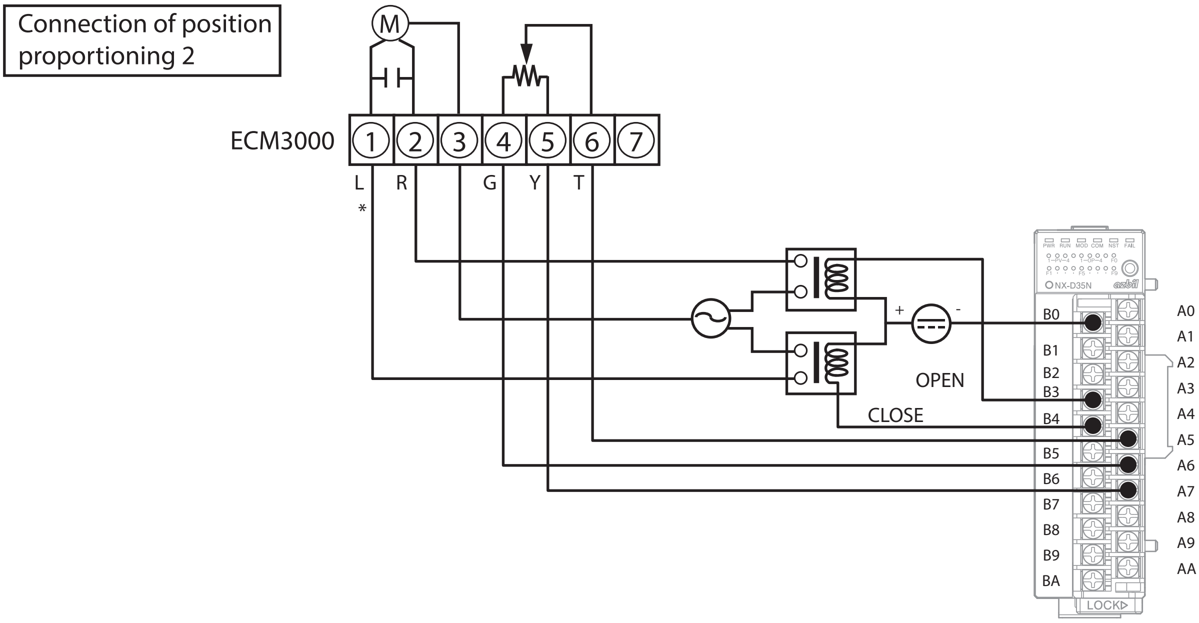



* L is CCW and R is CW in the ECM3000. For details, refer to the user's manual for the ECM3000.

● **Motor wiring for option 4 (4 digital outputs for position proportional control)**




* L is CCW and R is CW in the ECM3000. For details, refer to the user’s manual for the ECM3000.

-MEMO-

# Chapter 5. Operation

## 5 - 1 Operation Settings

There are LED indicators and a button on the front of the main unit.
The LEDs blink in 2 ways: fast blink (0.2 s cycle) and slow blink (1.4 s cycle).

### ■ PWR, RUN, MOD, COM, NST, FAIL

Lighting patterns of the LEDs on the top are shown and described in the table.

| LED name | Color | Lighting status | Description |
|---|---|---|---|
| PWR | Green | Lit | Power-on |
| | | Off | Power is off |
| RUN | Green | Lit | RUN mode (device operation mode) |
| | | Fast blink | Device operation mode is in RUN mode, and the loop mode is READY for 1 loop or more |
| | | Slow blink | IDLE mode (device operation mode) |
| | | Off | Modes other than the above |
| MOD | Orange | Fast blink*2 | Parameters from the loader are being written. |
| | | Off | Normal operation mode |
| COM | Green | Lit | Ethernet packets addressed to this module. |
| | | Off | Ethernet packets not addressed to this module |
| NST*1 | Orange | Lit | Chain connection with non-ring communications. |
| | | Fast blink | Chain connection ring is disconnected (a disconnection somewhere in the ring) |
| | | Slow blink | Chain ring connection disconnected (ring disconnection between the own node and adjacent node) |
| | | Off | Ring communications in chain connection is normal. |
| FAIL | Red | Lit | Hard failure |
| | | Slow blink | Soft failure |
| | | Off | No errors |

*1. Also the ring communications status can be seen via host communications.
☞ Appendix-3, Ring Communication Status (Net Status) (page App.-13) (for details)

*2. If an error occurs in communication with the loader, it may continue to blink fast. If this happens, turn OFF the power to the device for a moment.

### ■ PV 1 to 4

Lighting patterns of LEDs PV 1–4 in the middle row are shown and described in the table below.

| LED name | Color | Lighting status | Description |
|---|---|---|---|
| PV1 | Green | Slow blink | PV1 high or low limit error |
| | | Off | Channel 1 PV input: normal, or not used |
| PV2 | Green | Slow blink | PV2 high or low limit error |
| | | Off | Channel 2 PV input: normal, or not used |
| PV3 | Green | Slow blink | PV3 high or low limit error |
| | | Off | Channel 3 PV input: normal, or not used |
| PV4 | Green | Slow blink | PV4 high or low limit error |
| | | Off | Channel 4 PV input: normal, or not used |

## ■ OP1 to 4

Lighting patterns of LEDs OP1–4 on the middle row are shown and described in the table below.

| LED name | Color | Lighting status | Description |
|---|---|---|---|
| OP1 | Green | Lit | Transistor output channel 1 ON |
| | | Off | Transistor output channel 1 OFF<br>Analog current/voltage output channel 1 |
| OP2 | Green | Lit | Transistor output channel 2 ON |
| | | Off | Transistor output channel 2 OFF<br>Analog current/voltage output channel 2 |
| OP3 | Green | Lit | Transistor output channel 3 ON |
| | | Off | Transistor output channel 3 OFF<br>Analog current/voltage output channel 3 |
| OP4 | Green | Lit | Transistor output channel 4 ON |
| | | Off | Transistor output channel 4 OFF<br>Analog current/voltage output channel 4 |

## ■ F0 to 9

It is possible to set the lighting conditions and pattern only for the normal lighting of LED F0 on the right end of the middle row and LEDs F1–9 on the bottom row. By default, the status of alarms and events is shown.

| LED name | Color | Folder name | Bank name | Item name | Settings | Default (other than position proportional output) | Default (Position proportioning) |
|---|---|---|---|---|---|---|---|
| F0 | Red | Other | UFLED settings | Lighting condition | 1024–2047: Standard bit code | 1792 (Representative of all alarms) | 1792 (Representative of all alarms) |
| | | | UFLED settings | Lighting status | 0: Off<br>1: Lit<br>2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 3 (Fast blink) | 3 (Fast blink) |
| F1 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1088: Event 1 | 1088: Event 1 |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) |
| F2 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1089 (Event 2) | 1900 (MFB1 OPEN) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) |
| F3 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1090 (Event 3) | 1904 (MFB1 CLOSE) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) |
| F4 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1091 (Event 4) | 1901 (MFB2 OPEN) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) |
| F5 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1092 (Event 5) | 1905 (MFB2 CLOSE) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) |
| F6 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1093 (Event 6) | 1888 (MFB1 estimation in progress) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 5 (Slow blink) |
| F7 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1094 (Event 7) | 1889 (MFB2 estimation in progress) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 5 (Slow blink) |
| F8 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1545 (Communicating) | 1545 (Communicating) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 3 (Fast blink) | 3 (Fast blink) |
| F9 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1968 (Parameter error) | 1968 (Parameter error) |
| | | | UFLED settings | Lighting status | 0–6 (Same as F0) | 3 (Fast blink) | 3 (Fast blink) |

## ■ Display when power is turned ON

When the power comes on, LEDs are first lit as shown in the table below. Afterward, they indicate the state of operation.

| Order | Lighting status of LED* | | | | | | | | Status or process |
|---|---|---|---|---|---|---|---|---|---|
| | Top LEDs | | | | | | Middle LEDs | Bottom LEDs | |
| | PWR | RUN | MOD | COM | NST | FAIL | PV1–4 OP1–4 F0 | F1–9 | |
| 1 | — | — | — | — | — | — | — | — | Power OFF |
| 2 | ○ | ○ | ○ | ○ | ○ | ○ | — | — | Shortly after power-on |
| 3 | ○ | — | — | — | — | — | ○ | — | LED lighting test (0.5 s) |
| 4 | ○ | — | — | — | — | — | — | ○ | LED lighting test (0.5 s) |
| 5 | ○ | — | — | — | — | — | — | — | EEPROM read stability |
| 6 | ○ | △ | △ | △ | △ | △ | ◇ | ◇ | Start of operation |
| 7 | ○ | △ | △ | △ | △ | △ | △ | △ | Operation display |

* ○ Lit — Off ◇ Flashing △ Depends on the status

## ■ LED lighting pattern under special conditions

### ● ROM version 3.00 [1_0_3] and later versions

| Lighting status of LED*1 | | | | | | | | Status or process |
|---|---|---|---|---|---|---|---|---|
| Top LEDs | | | | | | Middle LEDs | Bottom LEDs | |
| PWR | RUN | MOD | COM | NST | FAIL | PV1–4 OP1–4 F0 | F1–9 | |
| ○ | ◇ | ◇ | ◇ | ◇ | ◇ | △ | △ | Module LED lighting function<br>If set using the SLP-NX. |
| ○ | ◇ | ◇ | △ | △ | ○ | △ | △ | When one of the below alarms is activated*2<br>AL83: EEPROM not initialized<br>AL84: MAC address error<br>AL85: RAM read/write error<br>AL86: EEPROM read/write error<br>AL87: Base EEPROM read write error<br>AL99: ROM error |
| ○ | ◇ | ◇ | △ | △ | ◇ | △ | △ | When one of the below alarms is activated*2<br>AL88: Base EEPROM error<br>AL97: EEPROM error (parameter area) |
| ○ | ◆ | ◆ | ◆ | ◆ | ◆ | △ | △ | When one of the below alarms is activated*2<br>AL 54: Base-main unit model No. mismatch or there is Ethernet congestion<br>There is Ethernet congestion in the network.<br>If the congestion continues, check for wrong connections in the network. |
| ○ | ◇ | ◇ | △ | △ | — | △ | △ | When one of the below alarms is activated*2<br>AL53: Base-main unit model No. mismatch |

*1. ○ Lit — Off ◇ Slow blink ◆ Fast blink △ Depends on the status

*2. ☞ Chapter 14, Troubleshooting (for how to resolve each of these alarms)

### ● ROM versions 2.02 [1_0_2] and earlier

| Lighting status of LED* | | | | | | | | Status or process |
|---|---|---|---|---|---|---|---|---|
| Top LEDs | | | | | | Middle LEDs | Bottom LEDs | |
| PWR | RUN | MOD | COM | NST | FAIL | PV1–4<br>OP1–4<br>F0 | F1–9 | |
| ○ | ◇ | ◇ | ◇ | ◇ | ◇ | △ | △ | Module LED lighting function<br>If set using the SLP-NX. |
| ○ | ◇ | ◇ | △ | △ | ○ | △ | △ | Base EEPROM read/write error<br>Communication failed between the main unit and base, or the base has fatal damage.<br>Turn the power off and then on again. If the error recurs, replace the module. |
| ○ | ◇ | ◇ | △ | △ | ◇ | △ | △ | Base EEPROM incompatibility<br>The connected base is not supported<br>Turn the power OFF and ON again. If the error recurs, do a base EEPROM restoration using the button. If this is not successful, replace the module. |
| ○ | ◆ | ◆ | ◆ | ◆ | ◆ | △ | △ | Wrong module insertion<br>The model Nos. of the main unit and base do not match.<br>Make sure that the inserted module has the correct model No., and then turn the power OFF and ON. If the error recurs, do a base EEPROM restoration using the button. |
| | | | | | | | | There is Ethernet congestion.<br>There is Ethernet congestion in the network.<br>If the congestion continues, check for wrong connections in the network. |
| ○ | ◇ | ◇ | △ | △ | — | △ | △ | Base EEPROM error<br>Main unit and base parameter information do not match.<br>Turn the power OFF and ON again. If the error recurs, do a base EEPROM restoration using the button. |

* ○ Lit — Off ◇ Slow blink ◆ Fast blink △ Depends on the status

## ■ Restoring base EEPROM using the button

Button operation can restore the base EEPROM and eliminate the mismatch between the main unit and base. At this time, the RS-485 and Ethernet communication settings stored on the base (except for the MAC address) are also set for the main unit. Therefore, if you do a base EEPROM restoration using the button after replacing only the main unit without replacing the base, the module will operate with the RS-485 and Ethernet communication settings prior to the replacement.

| Order | Lighting status of LED* | | | | | | | | Status or process |
|---|---|---|---|---|---|---|---|---|---|
| | Top LEDs | | | | | | Middle LEDs | Bottom LEDs | |
| | PWR | RUN | MOD | COM | NST | FAIL | PV1–4<br>OP1–4<br>F0 | F1–9 | |
| 1 | ○ | △ | △ | △ | △ | △ | △ | △ | Normal operation |
| | | | | | | | | | ↓ (Press the button) |
| 2 | ○ | — | — | — | — | — | △ | △ | All top LEDs are off. |
| | | | | | | | | | ↓ (2 seconds elapsed) |
| 3 | ○ | ○ | ○ | ○ | ○ | ○ | △ | △ | All top LEDs are lit. |
| | | | | | | | | | ↓ (Release the button) |
| 4 | ○ | △ | △ | △ | △ | △ | △ | △ | Normal operation |

* ○ Lit — Off △ Depends on the status

# 5 - 2 Loop Modes

The data settings related to the loop modes are shown in the table.

☞1 - 4, Operation Modes (page 1-8) (for an overview of the loop modes)

## ■ Settings bank and data fields (loop mode switchover)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Monitor | Comm. (device)<br>Comm. (operation)<br>Loop modes | RUN/READY | 0: RUN<br>1: READY | — |
| | | AUTO/MANUAL | 0: AUTO<br>1: MANUAL | |
| | | AT stop/start | 0: AT stopped<br>1: AT running | |
| | | LSP/RSP | 0: LSP<br>1: RSP | |

## ■ Settings bank and data fields (for MANUAL)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (extended) | Output operation at changing AUTO/MANUAL | 0: Bumpless<br>1: Preset | Simple<br>Standard<br>Multi-function |
| | | Preset MANUAL value | −10.0 to +110.0 (%) | |

## ■ Settings bank and data fields (for READY)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop output (MV) | READY MV | −10.0 to +110.0 (%) | Simple<br>Standard<br>Multi-function |
| | | READY MV (Heating) | −10.0 to +110.0 (%) | Standard<br>Multi-function |
| | | Output at READY (Cool) | −10.0 to +110.0 (%) | |

## ■ Settings bank and data fields (for RSP)

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | RSP | RSP | — | Standard<br>Multi-function |
| | | PID group definition (for RSP) | 1–4 (group) | |

# 5 - 3 How to Change the Control Mode and Parameters

To change control modes or parameters, use the SLP-NX (sold separately) or host communications.
This section describes how to change control modes or parameters using the SLP-NX.

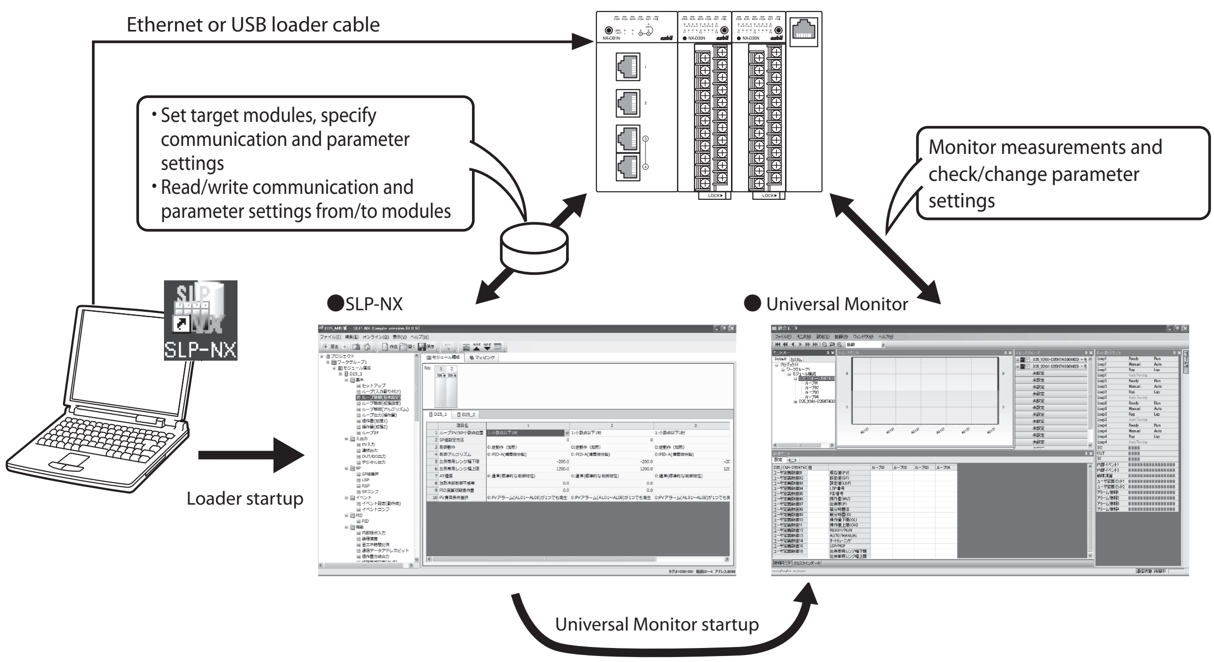
## ■ Functional architecture of the SLP-NX

The SLP-NX has the following functional architecture.

| Function name | Application |
|---|---|
| SLP-NX | Module registration, communication setting and parameter setting for modules.<br>Also, functions are available for reading and writing the module information from each module, communication settings, and parameter settings. |
| Universal Monitor | It is possible to connect communication for each module, and individually check and change the status monitoring for each measured value and the settings for each parameter. |

## ■ How to change parameters

The following shows how to use the Universal Monitor for changing parameters.



## ● How to change settings

Example: switching RUN to READY in PID control

**Note**

- The following method is an example. The same change can be performed with other operation methods.

(1) Activate the SLP-NX.

(2) Open the project stored in the PC as backup.

(3) Connect the PC to the module. (Ethernet)

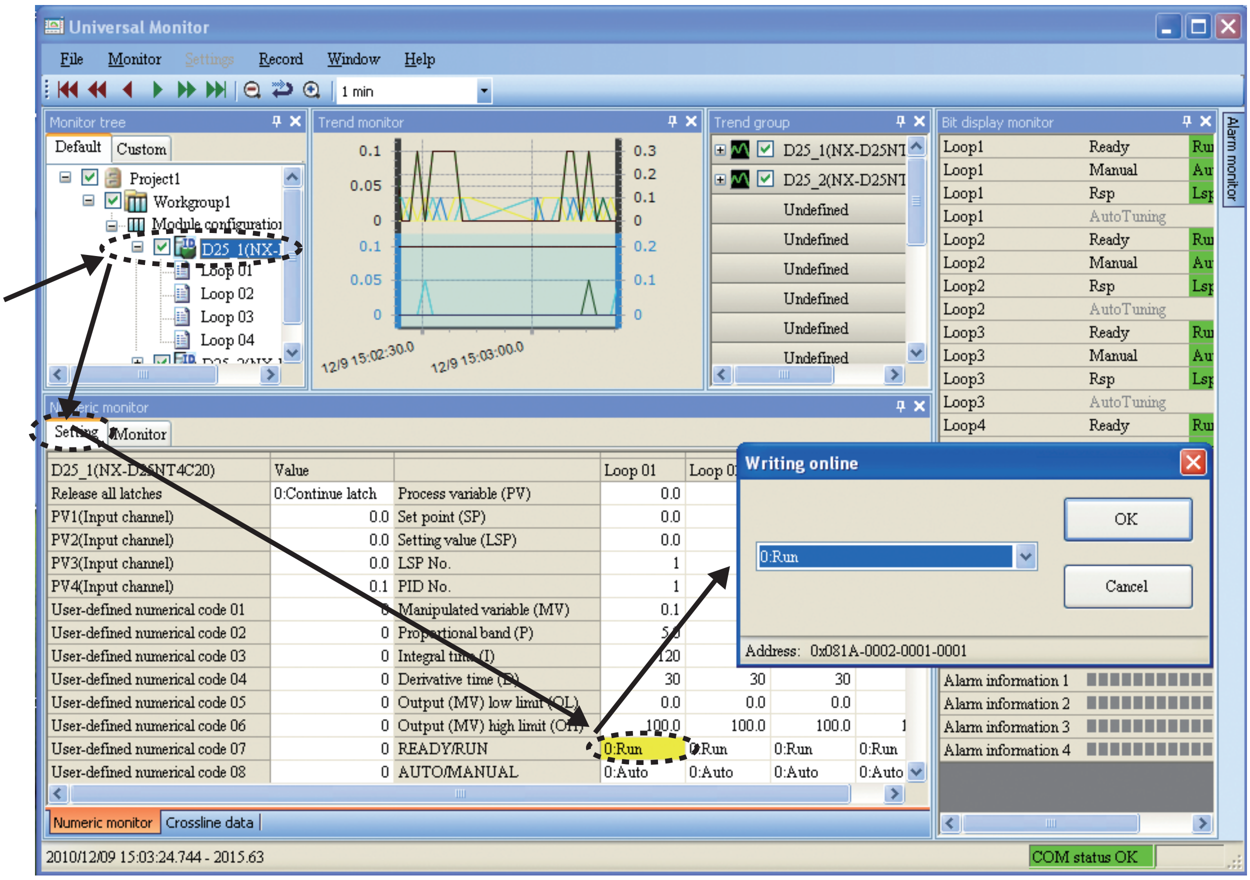
(4) To activate the Universal Monitor, click [Online] → [Monitor].

(5) Click the target module you wish to change in the Monitor tree on the Universal Monitor.

(6) To activate communications, click [Monitor] → [Start].

(7) To display a dialog box, double-click the [READY/RUN] cell for the desired loop on the Numeric monitor [Setting] tab on the Numeric monitor screen of the Universal Monitor.

(8) Change [0: RUN] to [1: READY] in the list box and then click the [OK] button.



# 5 - 4 How to Manually Output the MV (AUTO/MANUAL)

The MV can be manually output to each loop using the Universal Monitor.

The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Switch AUTO to MANUAL in the [Setting] tab of the Numeric monitor.

(3) Change the MV in the Numeric monitor [Setting] tab.

# 5 - 5 How to Change to the Remote SP (RSP/LSP)

For a loop that already has an RSP, it is possible to switch the LSP to RSP or the reverse using the Universal Monitor.

The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Switch LSP to RSP in the [Setting] tab of the Numeric monitor. Or switch RSP to LSP.

# 5 - 6 How to Stop Control by Switching RUN to READY

It is possible to switch RUN to READY or in reverse using the Universal Monitor.

The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Switch RUN to READY in the [Setting] tab of the Numeric monitor. Or switch READY to RUN.

# 5 - 7 How to Operate the Auto Tuning

It is possible to start/stop the auto-tuning (AT) using the Universal Monitor.

The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Make sure that the PV is correct. Make sure that the control function is ready to use in both RUN and AUTO modes.

(3) Start the AT on the [Setting] tab of the Numeric monitor.

(4) AT ends automatically. To stop the AT while it is running, change the AT mode to AT stop.

**Handling Precautions**

- Depending on the status of the module, start and stop may not be possible.
  ☞ 7 - 8, AT (Auto-tuning) (page 7-14)
- Do not turn off the power for several seconds after AT is complete.

# 5 - 8 How to Change the SP

There are several methods of changing the SP of any loop.

## ■ Changing the LSP used

It is possible to change the SP of any loop using the Universal Monitor.
The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Change the LSP in the [Setting] tab of the Numeric monitor.

(3) However, if the SP is in RSP mode, it is not changeable.

## ■ Changing the LSP group selection

The SP group selection can be changed for loops having 2 or more SP groups using the Universal Monitor.
However, if the SP group selection is executed by internal contact input, it cannot be changed.
The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Change the LSP number in the [Setting] tab of the Numeric monitor.

## ■ Changing the RSP used

It is possible to change the SP using the Universal Monitor if RSP is allocated to a user-defined number.
The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Change the user-defined number allocated in the [Setting] tab of the Numeric monitor.

# 5-9 How to Change the PID

There are 2 methods of changing the PID constants: changing the PID settings and executing auto-tuning.

## ■ Changing the PID settings

The PID constants can be changed using the Universal Monitor.

The procedure is as follows.

(1) Display the desired loop using the Universal Monitor.

(2) Change the PID values on the [Setting] tab of the Numeric monitor.

## ■ Executing auto-tuning

☞ 5-7, How to Operate the Auto Tuning (page 5-13)

# 5 - 10 How to Change the Event Action Point

The event action point is changed by using the SLP-NX.
There are 2 event setting types: event main setting and event sub-setting. Some events have event main setting alone, and some have both types.
☞ 6 - 1, How to Use Events (page 6-1) (for details on event types)

The procedure is as follows.

(1) Display the event setting (operating point) bank using the SLP-NX.

(2) Change the event main setting or event sub-setting.

# 5 - 11 PID Control

If the control action is set to 0 (reverse action) or 1 (direct action), control is executed as follows.

- When integral time ≠ 0 and derivative time ≠ 0, PID control is executed.
- When integral time ≠ 0 and derivative time = 0, PI control is executed.
- When integral time = 0 and derivative time ≠ 0, PD control is executed.
- When integral time = 0 and derivative time = 0, P control is executed.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | Simple<br>Standard<br>Multi-function |
| | | Initial output of PID control | −10.0 to +110.0 % | Standard<br>Multi-function |
| | Loop control (extended) | Integral time / derivative time<br>Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point | Standard<br>Multi-function |
| | | PID control initialization | 0: Auto<br>1: No initialization<br>2: Initialize (if a new SP is set) | Simple<br>Standard<br>Multi-function |
| PID | PID | Proportional band 1 (PID group 1) | 0.1 to 3200.0 % | Simple<br>Standard<br>Multi-function |
| | | Integral time 1 (PID group 1) | Integral time (s) 0 to 32000U<br>(Depends on the integral time / derivative time decimal point position) | |
| | | Derivative time 1 (PID group 1) | Derivative time (s) 0 to 32000U<br>(Depends on the integral time / derivative time decimal point position) | |
| | | MV low limit 1 (PID1 group) | −10.0 to +110.0 % | |
| | | MV high limit 1 (PID1 group) | −10.0 to +110.0 % | |
| | | Manual reset 1 (PID group 1) | −10.0 to +110.0 % | |
| | | PID group 2 settings | Same as PID group 1 above | |
| | | PID group 3 settings | | |
| | | PID group 4 settings | | |

## ■ PID control initialization

- If the control method is not ON/OFF control, it can be displayed/set.
- With the change in the PID group as a result of the SP value / SP group change, the manipulated variable (MV) may hover around the lower/upper limit or the PV may not change or overshoot. To prevent this, it is useful to initialize the PID control.
- The initial output of the PID control is determined when the loop mode is changed from READY to RUN or when the power is turned on and the mode is set to RUN.

### Note

- In IDLE mode, the following takes place regardless of the settings.
  Versions earlier than ROM version 2.01 [1_0_1]: the PID values are initialized.
  ROM versions 2.02 [1_0_2] and later: the PID values are not initialized.

### ● Setting 0 (Automatic)

Automatically determines if the PID calculations should be initialized when the SP or SP group is changed, and initializes if needed.

Initialization conditions:

- The absolute value of the deviation is greater than 5 % FS before changing the SP.
- The MV is at the low limit (OL) or high limit (OH) before changing the SP.
- The module is neither executing an SP ramp nor in RSP mode.

### ● Setting 1 (Do not initialize)

The PID is not initialized when the SP or SP group is changed. This setting is useful if the continuity of the MV is important when the SP or SP group is changed.

### ● Setting 2 (Initialize) If a new SP is set

Always initializes the PID when the SP or SP group is changed. This setting is useful if the module needs to quickly handle the PV according to the increase or decrease of the MV when the SP or SP group is changed

Initialization conditions:

- The module is neither executing an SP ramp nor in RSP mode.

# 5 - 12 Heating/Cooling Control

If the control operation is set to 2 (Heating/cooling), heating and cooling are controlled.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | Simple<br>Standard<br>Multi-function |
| | | Heating/cooling control dead zone | −100.0 to +100.0 % | Standard<br>Multi-function |
| | Loop control (extended) | Integral time / derivative time<br>Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point | |
| PID | PID | Proportional band 1 (PID group 1) | 0.1 to 3200.0 % | Simple<br>Standard<br>Multi-function |
| | | Integral time 1 (PID group 1) | Integral time (s) 0 to 32000U<br>(Depends on the integral time / derivative time decimal point position) | |
| | | Derivative time 1 (PID group 1) | Derivative time (s) 0 to 32000U<br>(Depends on the integral time / derivative time decimal point position) | |
| | | MV low limit 1 (PID1 group) | −10.0 to +110.0 % | |
| | | MV high limit 1 (PID1 group) | −10.0 to +110.0 % | |
| | | Manual reset 1 (PID group 1) | −10.0 to +110.0 % | |
| | | Proportional band for cooling 1 (PID group 1) | 0.1 to 3200.0 % | Standard<br>Multi-function |
| | | Integral time for cooling 1 (PID group 1) | Integral time (s) 0 to 32000U<br>(Depends on the integral time / derivative time decimal point position) | |
| | | Derivative time for cooling 1 (PID group 1) | Derivative time (s) 0 to 32000U<br>(Depends on the integral time / derivative time decimal point position) | |
| | | MV low limit for cooling 1 (PID group 1) | −10.0 to +110.0 % | |
| | | MV high limit for cooling 1 (PID group 1) | −10.0 to +110.0 % | |
| | | PID group 2 settings | Same as PID group 1 above | — |
| | | PID group 3 settings | | |
| | | PID group 4 settings | | |

Note 1: The proportional band, integral time, derivative time, MV low limit, and MV high limit parameters are used for heating. To differentiate them from the parameters for cooling, “for heating” is added to the parameter names in the following sections.

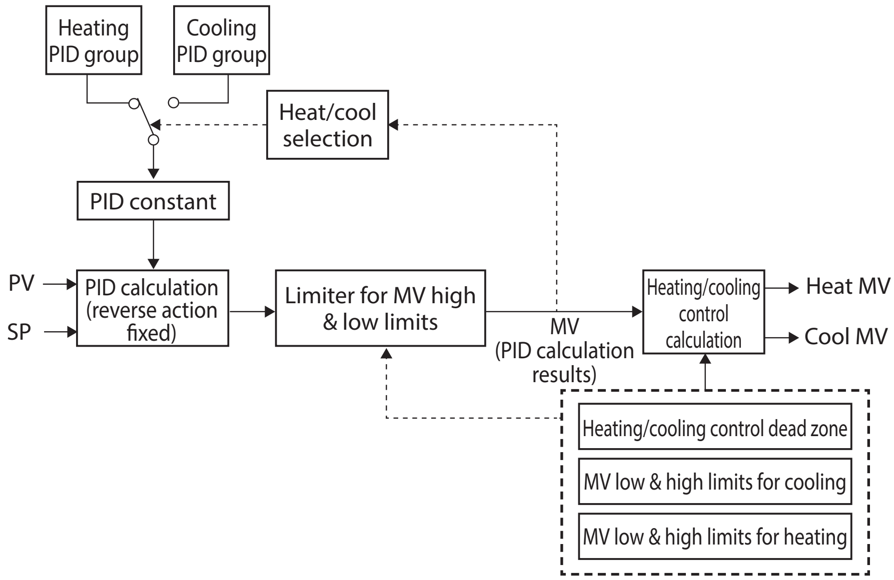
Note 2: The Manual reset parameter is used for both heating and cooling. It is enabled when integral time for heating or cooling is set to 0.

### ! Handling Precautions

- The number of loops that can be used is different with ROM version 2.02 [1_0_2] and earlier (up to two loops).
- 4 - 1, How to Set the Loop Configuration (page 4-1) (for details)
- MV branching output and heat/cool control cannot be used at the same time.

## ■ Heating/cooling control calculation

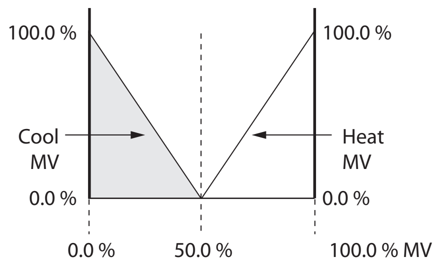
Heat/cool control calculations are as follows.



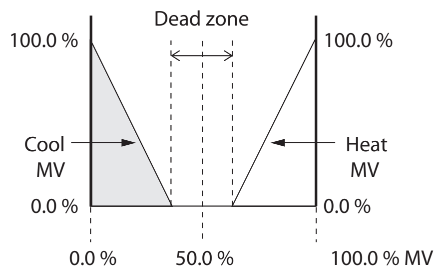

If MV ≥ 50 %, PID groups for heating will be enabled.
If MV < 50 %, PID groups for cooling will be enabled.

## ■ Heating/cooling control dead zone

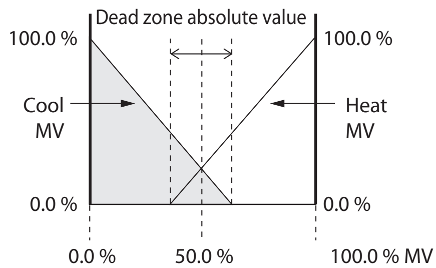
The heating MV and cooling MV are output in accordance with the MV obtained by PID control calculation.
The heating MV and cooling MV shown in the figures below are output in accordance with the setting for "Heating/cooling control dead zone."




When dead zone = 0.0 %



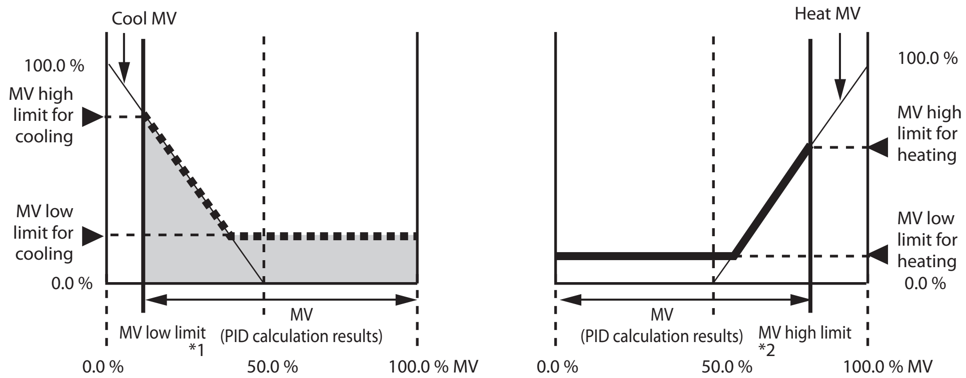

When dead zone > 0.0 %




When dead zone < 0.0 %

## ■ High and low limits for heating MV and cooling MV

The MV high limit for cooling and MV low limit for cooling parameters are high and low limits for cooling output.
The MV high limit for heating and MV low limit for heating parameters are high and low limits for heating output. The following figures are for when the heating/cooling control dead zone = 0.0 %.




*1. The MV (resulting from PID calculation) will not be below the MV low limit.

*2. The MV (resulting from PID calculation) will not exceed the MV high limit.

## Handling Precautions

- When the Heating/cooling control dead zone is less than 0 %, specify the MV high limit for cooling and MV high limit for heating so that the MV low limit is less than 50 % and the MV high limit is 50 % or above. The limits are calculated using the following formulas:

  MV low limit = (100 – MV high limit for cooling) × (100 – Heating/cooling control dead zone) ÷ 200

  MV high limit = (MV high limit for heating – 100) × (100 – Heating/cooling control dead zone) ÷ 200 + 100

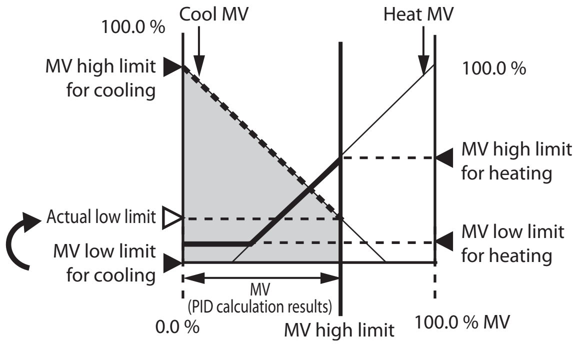
  (If the result of calculation is less than 0.0 % or more than 100.0 %, it is handled as 0.0 % and 100.0 %.)

  Example 1: When dead zone = –25 %, MV high limit for cooling = 80 %,
  MV high limit for heating = 80 %
  MV low limit = (100 – 80) × (100 – (–25)) / 200 = 12.5 % ← OK
  MV high limit = (80 – 100) × (100 – (–25)) / 200 + 100 = 87.5 % ← OK

  Example 2: When dead zone = –75 %, MV high limit for cooling = 80 %,
  MV high limit for heating = 40 %
  MV low limit = (100 – 80) × (100 – (–75)) / 200 = 17.5% ← OK
  MV high limit = (40 – 100) × (100 – (–75)) / 200 + 100 = 47.5 % ← Not allowed

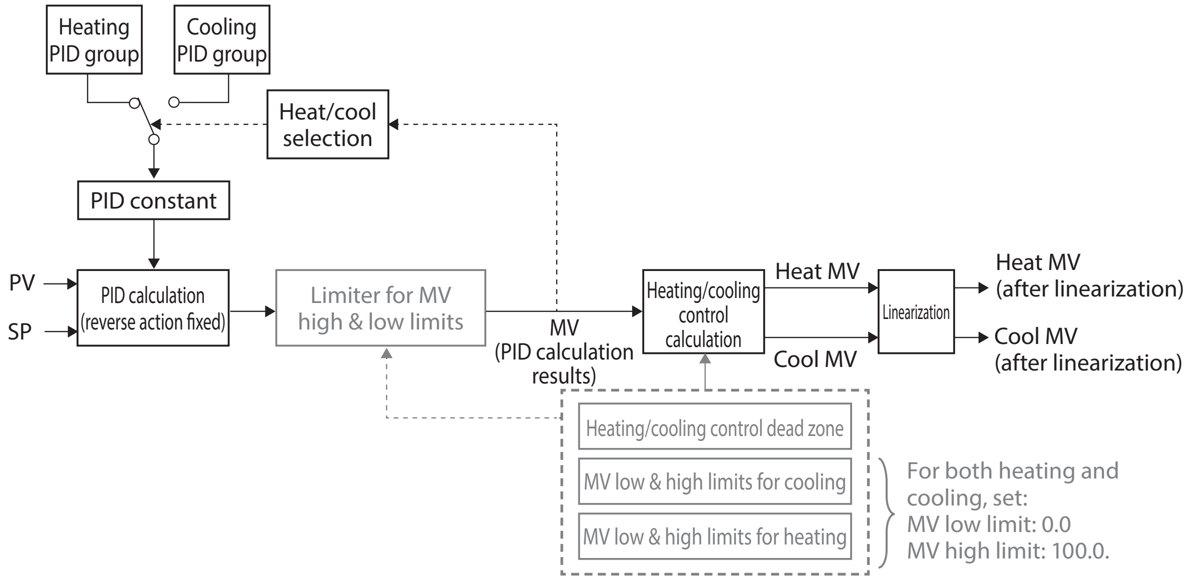
- Note that when the MV low limit and MV high limit are restricted, the actual MV low limits for heating and cooling may be above the specified low limits for heating and cooling. To prevent this from happening, be sure to set the MV high limit for cooling and MV high limit for heating as instructed above.

Example: When the cooling MV does not reach the MV low limit for cooling

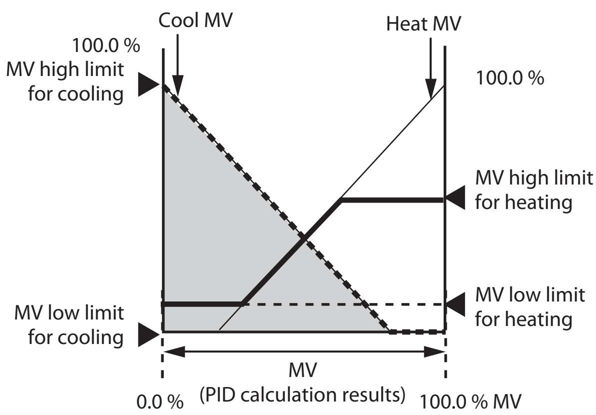


## Note

- To prevent the cooling MV from being limited by the MV high limit, the approximation function in the NX-D25/35 can be used as shown below.




Operation will be as shown below.




### Handling Precautions

- If this method is used, please note the follows:
  - The values output for the MV in Ready mode (for heating/cooling), etc., are all after approximation.
    ☞ ■ PID control process block diagram (heat/cool control) (page App.-6),
    ☞ ■ Continuous output process block diagram (page App.-8),
    ☞ ■ OUT/DO output process block diagram (page App.-9) (for details)
  - The AT results when approximation is used are different from the results when AT is executed without using approximation. This is because the MV high and low limits are different.

Ex.: Use linearization table groups 1 and 2 to set high and low limits for the continuously output heating MV and cooling MV that are controlled by PID 1

| Folder name | Bank name | Item name | Settings |
|---|---|---|---|
| PID | PID | (PID1) MV low limit 1 | 0.0 |
| | | (PID1) MV high limit 1 | 100.0 |
| | | (PID1) MV low limit for cooling 1 | 0.0 |
| | | (PID1) MV high limit for cooling 1 | 100.0 |
| Input-output | Continuous output | (Continuous output 1) Output type | 2: Heat MV (for heating/cooling control) |
| | | (Continuous output 1) Linearization table group definition | 1: Group 1 |
| | | (Continuous output 2) Output type | 3: Cool MV (for heating/cooling control) |
| | | (Continuous output 2) Linearization table group definition | 2: Group 2 |
| Function | Linearization table | (Linearization table group 1) Breakpoint decimal point position | 1: 1 digit after the decimal point |
| | | (Linearization table group 1) Breakpoint A1 | MV low limit for heating |
| | | (Linearization table group 1) Breakpoint A2 | MV high limit for heating |
| | | (Linearization table group 1) Breakpoint A3 to A20 | 0.0 |
| | | (Linearization table group 1) Breakpoint B1 | MV low limit for heating |
| | | (Linearization table group 1) Breakpoint B2 | MV high limit for heating |
| | | (Linearization table group 1) Breakpoints B3 to B20 | 0.0 |
| | | (Linearization table group 2) Breakpoint decimal point position | 1: 1 digit after the decimal point |
| | | (Linearization table group 2) Breakpoint A1 | MV low limit for cooling |
| | | (Linearization table group 2) Breakpoint A2 | MV high limit for cooling |
| | | (Linearization table group 2) Breakpoint A3 to A20 | 0.0 |
| | | (Linearization table group 2) Breakpoint B1 | MV low limit for cooling |
| | | (Linearization table group 2) Breakpoint B2 | MV high limit for cooling |
| | | (Linearization table group 2) Breakpoints B3 to B20 | 0.0 |

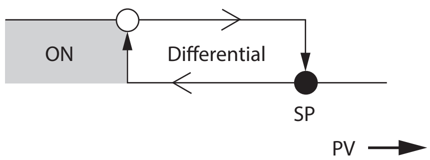
# 5 - 13 ON/OFF Control

ON/OFF control action is set to 4 (reverse action (ON/OFF)) or 5 (direct action (ON/OFF)), ON/OFF control is executed as follows.
The differential can be changed by switching PID groups.

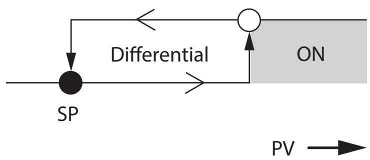
## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | Simple<br>Standard<br>Multi-function |
| PID | PID | Differential 1 (PID 1 group) | 0–32000U<br>(Depends on loop PV/SP decimal point position) | |
| | | Differential 2 (PID2 group) | 0–32000U<br>(Depends on loop PV/SP decimal point position) | |
| | | Differential 3 (PID3 group) | 0–32000U<br>(Depends on loop PV/SP decimal point position) | |
| | | Differential 4 (PID4 group) | 0–32000U<br>(Depends on loop PV/SP decimal point position) | |

The figures below show ON/OFF control.




Heating control (reverse action)




Cooling control (direct action)

-MEMO-

# Chapter 6. Functions Often Used for Operations Other Than Control

## 6 - 1 How to Use Events

The ON/OFF status of the event is determined according to the conditions for each operation type.
The ON/OFF result of the event can be output from the ON/OFF output terminals or digital output terminals.
Additionally, the ON/OFF result status of the event can be used as internal contact input.

### ■ Settings bank and data fields

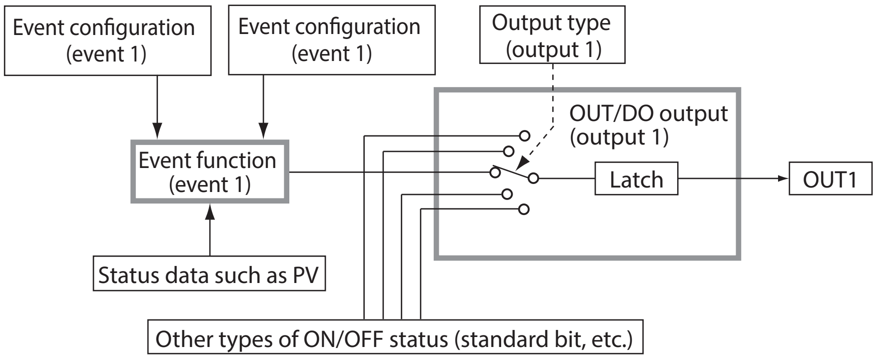
| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Event | Event config. | Operation type | 0–255 | Simple<br>Standard<br>Multi-function |
| | | Loop/channel definition | 1–3071 | |
| | | Direct/reverse action | 0: Direct<br>1: Reverse | |
| | | Standby | 0: No standby<br>1: Standby<br>2: Standby + standby when the SP is modified | |
| | | EVENT state at READY | 0: Continues<br>1: Forced OFF | |
| | | Decimal point position | 0–4 | |
| | | Hysteresis | 0–32000U (determined by the event configuration bank (decimal point position)) | |
| | | ON delay | 0.0–3200.0 s | |
| | | OFF delay | 0.0–3200.0 s | |

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Event | Event setting (operating point) | Event main setting | –19999 to +32000U (determined by the event configuration bank (decimal point position)) | Simple<br>Standard<br>Multi-function |
| | | Event sub-setting | –19999 to +32000U (determined by the event configuration bank (decimal point position)) | |

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | Output type | 0: OFF<br>1024–2047: Standard bit codes<br>☞ ■ Standard bit codes (page App.-11) | Simple<br>Standard<br>Multi-function |
| | | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | Standard<br>Multi-function |
| | | Time proportional operation type | Invalid setting | Simple<br>Standard<br>Multi-function |
| | | Min. ON/OFF time | 0–300 ms | |
| | | Time proportional cycle | Invalid setting | |
| | | Phase shift | Invalid setting | Multi-function |

## ■ Example: PV high limit alarm (activated if an error occurs)

The following is an example where the OUT 1 output is turned ON if the PV of loop 1 exceeds 800 °C.
In this example, the event function and output function are used.




(1) Set the event configuration of event 1. In the event configuration bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Event | Event config. | (Event 1) Operation type | 1: PV high limit | Simple Standard Multi-function |
| | | (Event 1) Loop/channel definition | 1 | |
| | | (Event 1) Direct/Reverse | 0: Direct | |
| | | (Event 1) Standby | 0: No standby | |
| | | (Event 1) EVENT state at READY | 0: Continues | |
| | | (Event 1) Decimal point position | 0: No decimal point | |
| | | (Event 1) Hysteresis | 5 | |
| | | (Event 1) ON delay | 0.0 s | |
| | | (Event 1) OFF delay | 0.0 s | |

(2) Set the operating point for event 1. Configure the settings as shown below in the Operating point bank.

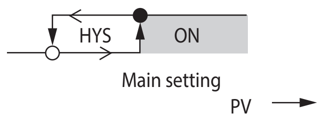
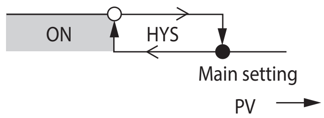
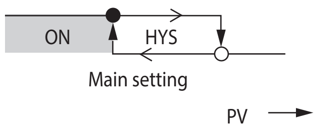
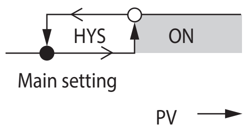
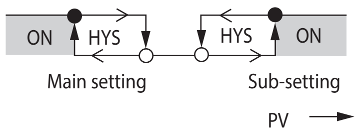
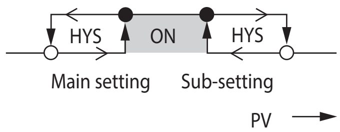
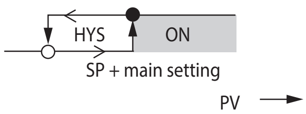
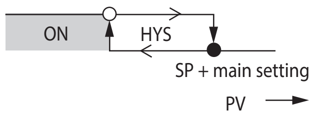
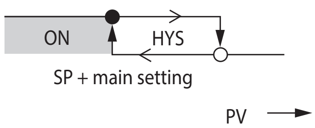
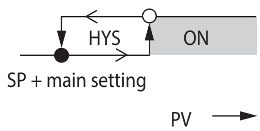
| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Event | Event setting (operating point) | (Event 1) Main setting | 800 | Simple Standard Multi-function |
| | | (Event 1) Sub-setting | Setting cannot be changed. | |

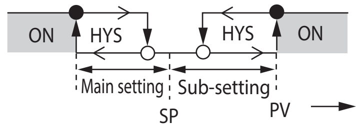
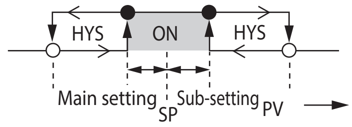
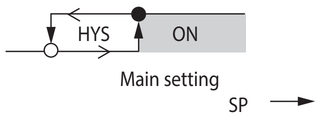
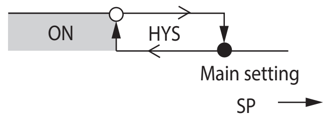
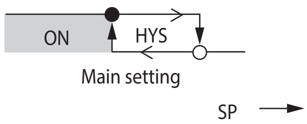
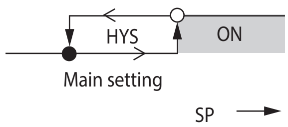
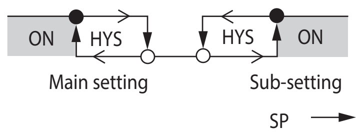
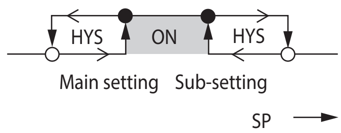
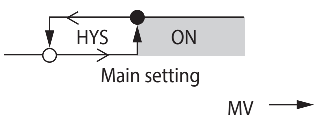
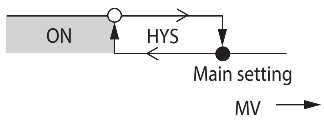
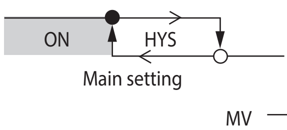
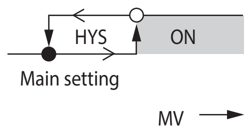
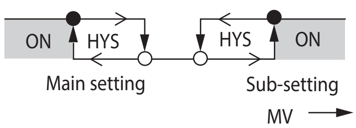
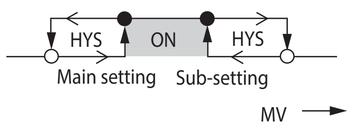
(3) Assign the ON/OFF status of event 1 to output 1. Configure the settings as shown below in the OUT/DO output bank setup.

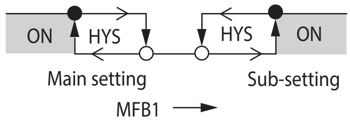
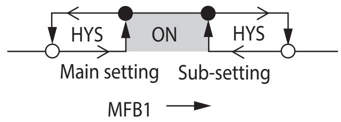
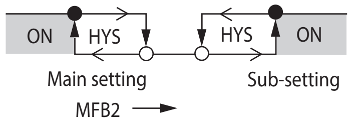
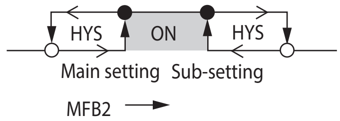
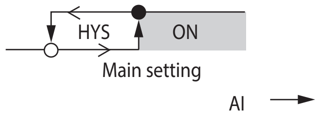
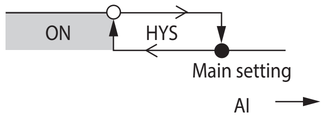
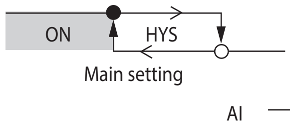
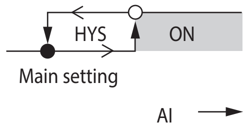
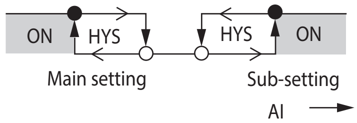
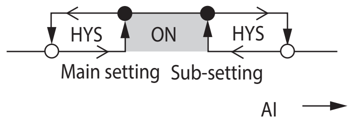
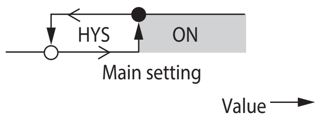
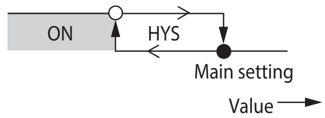
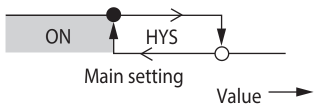
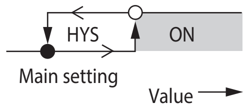
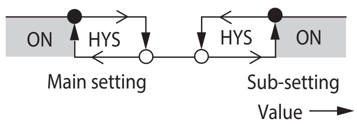
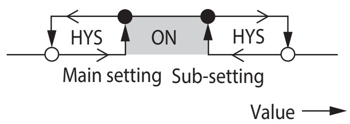
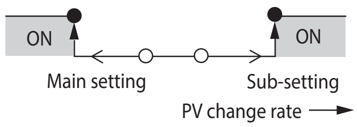
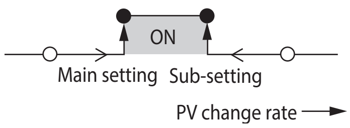
| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | Output type | 1088: Event 1 | Simple<br>Standard<br>Multi-function |
| | | Latch | 0: No latch | Standard<br>Multi-function |
| | | Time proportional operation type | Invalid setting | Simple<br>Standard<br>Multi-function |
| | | Min. ON/OFF time | 10 ms | |
| | | Time proportional cycle | Invalid setting | |
| | | Phase shift | Invalid setting | Multi-function |

## ■ Event operation type, direct/reverse, hysteresis, main setting, and sub-setting

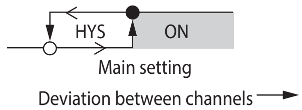
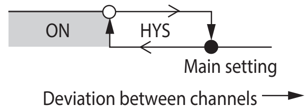
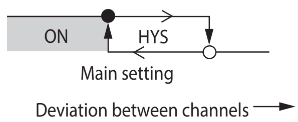
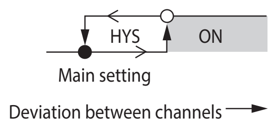
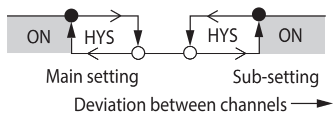
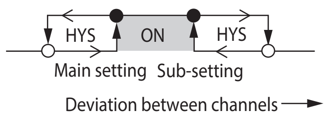
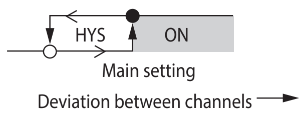
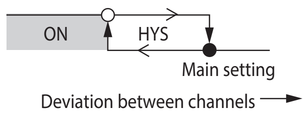
According to the operation type, direct/reverse, main setting, sub-setting, hysteresis, and other settings, the operation of the event is as follows:

| Operation type | Setting | Direct action<br>●: ON/OFF switches at this value<br>○: ON/OFF switches if this value is exceeded | Reverse action<br>●: ON/OFF changes at this value<br>○: ON/OFF switches if this value is exceeded |
|---|---|---|---|
| No event | 0 | Always OFF | Always OFF |
| PV high limit | 1 |  |  |
| PV low limit | 2 |  |  |
| PV high and low limits | 3 |  |  |
| Deviation high limit | 4 |  |  |
| Deviation low limit | 5 |  |  |

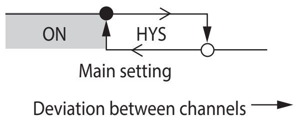
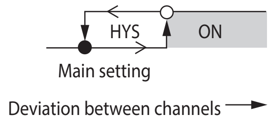
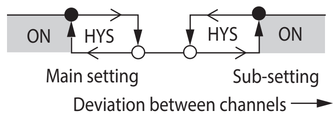
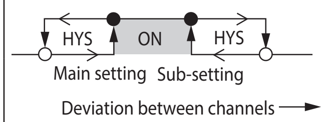
| Operation type | Setting | Direct action<br>●: ON/OFF switches at this value<br>○: ON/OFF switches if this value is exceeded | Reverse action<br>●: ON/OFF changes at this value<br>○: ON/OFF switches if this value is exceeded |
|---|---|---|---|
| Deviation high and low limits | 6 |  |  |
| Deviation high limit<br>(final SP reference) | 7 | When not during an SP ramp: same as the direct action of the deviation high limit.<br>During an SP ramp: the operation is different in that the final SP is used instead of the present SP. | When not during an SP ramp: same as the reverse action of the deviation high limit.<br>During an SP ramp: the operation is different in that the final SP is used instead of the present SP. |
| Deviation low limit<br>(final SP reference) | 8 | When not during an SP ramp: same as the direct action of the deviation low limit.<br>During an SP ramp: the operation is different in that the final SP is used instead of the present SP. | When not during an SP ramp: same as the reverse action of the deviation low limit.<br>During an SP ramp: the operation is different in that the final SP is used instead of the present SP. |
| Deviation high and low limits<br>(final SP reference) | 9 | When not during an SP ramp: same as the direct action of the deviation high and low limits.<br>During an SP ramp: the operation is different in that the final SP is used instead of the present SP. | When not during an SP ramp: same as the reverse action of the deviation high and low limits.<br>During an SP ramp: the operation is different in that the final SP is used instead of the present SP. |
| SP high limit | 10 |  |  |
| SP low limit | 11 |  |  |
| SP high and low limits | 12 |  |  |
| MV high limit | 13 |  |  |
| MV low limit | 14 |  |  |
| MV high and low limits | 15 |  |  |

| Operation type | Setting | Direct action<br>●: ON/OFF switches at this value<br>○: ON/OFF switches if this value is exceeded | Reverse action<br>●: ON/OFF changes at this value<br>○: ON/OFF switches if this value is exceeded |
|---|---|---|---|
| MFB1 opening % high and low limits* | 16 |  |  |
| MFB2 opening % high and low limits* | 17 |  |  |
| AI high limit | 18 |  |  |
| AI low limit | 19 |  |  |
| AI high and low limits | 20 |  |  |
| Standard numerical code high limit | 26 |  |  |
| Standard numerical code low limit | 27 |  |  |
| Standard numerical code high and low limits | 28 |  |  |
| PV change rate | 29 | <br>The change in the PV per cycle (Present PV – Previous PV) is used as a comparative value for events.<br>Always ON if event main setting = event subsetting. | <br>The change in the PV per cycle (Present PV – Previous PV) is used as a comparative value for events.<br>Always ON if event main setting = event subsetting. |

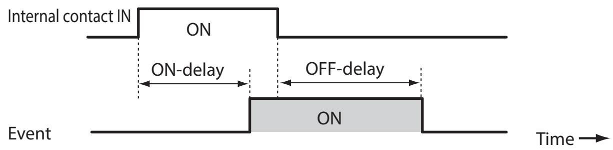
* This function is available for ROM version 3.00 [1_0_3] and later.

| Operation type | Setting | Direct action<br>●: ON/OFF switches at this value<br>○: ON/OFF switches if this value is exceeded | Reverse action<br>●: ON/OFF changes at this value<br>○: ON/OFF switches if this value is exceeded |
|---|---|---|---|
| High limit of deviation between channels (specified by loop 1 PV) | 31 |  |  |
| High limit of deviation between channels (specified by loop 2 PV) | 32 | | |
| High limit of deviation between channels (specified by loop 3 PV) | 33 | | |
| High limit of deviation between channels (specified by loop 4 PV) | 34 | | |
| Low limit of deviation between channels (specified by loop 1 PV) | 35 |  |  |
| Low limit of deviation between channels (specified by loop 2 PV) | 36 | | |
| Low limit of deviation between channels (specified by loop 3 PV) | 37 | | |
| Low limit of deviation between channels (specified by loop 4 PV) | 38 | | |
| High/low limit of deviation between channels (specified by loop 1 PV) | 39 |  |  |
| High/low limit of deviation between channels (specified by loop 2 PV) | 40 | | |
| High/low limit of deviation between channels (specified by loop 3 PV) | 41 | | |
| High/low limit of deviation between channels (specified by loop 4 PV) | 42 | | |
| High limit of deviation between channels (PV1 standard numerical codes)* | 43 |  |  |
| High limit of deviation between channels (PV2 standard numerical codes)* | 44 | | |
| High limit of deviation between channels (PV3 standard numerical codes)* | 45 | | |
| High limit of deviation between channels (PV4 standard numerical codes)* | 46 | | |

* This function is available for ROM version 3.00 [1_0_3] and later.

| Operation type | Setting | Direct action<br>●: ON/OFF switches at this value<br>○: ON/OFF switches if this value is exceeded | Reverse action<br>●: ON/OFF changes at this value<br>○: ON/OFF switches if this value is exceeded |
|---|---|---|---|
| Low limit of deviation between channels (PV1 standard numerical codes)* | 47 |  |  |
| Low limit of deviation between channels (PV2 standard numerical codes)* | 48 | | |
| Low limit of deviation between channels (PV3 standard numerical codes)* | 49 | | |
| Low limit of deviation between channels (PV4 standard numerical codes)* | 50 | | |
| High/low limit of deviation between channels (PV1 standard numerical codes)* | 51 |  |  |
| High/low limit of deviation between channels (PV2 standard numerical codes)* | 52 | | |
| High/low limit of deviation between channels (PV3 standard numerical codes)* | 53 | | |
| High/low limit of deviation between channels (PV4 standard numerical codes)* | 54 | | |
| Alarm (status) | 61 | ON when an alarm (alarm code AL01 to AL99) occurs, OFF otherwise | OFF when an alarm (alarm code AL01 to AL99) occurs, ON otherwise |
| READY (status) | 62 | ON in READY mode<br>OFF in RUN mode | OFF in READY mode<br>ON in RUN mode |
| MANUAL (status) | 63 | ON in MANUAL mode<br>OFF in AUTO mode | OFF in MANUAL mode<br>ON in AUTO mode |
| RSP (status) | 64 | ON in RSP mode<br>OFF in LSP mode | OFF in RSP mode<br>ON in LSP mode |
| AT in execution (status) | 65 | ON when AT is running<br>OFF when AT is stopped | OFF when AT is executed<br>ON when AT is stopped |
| During SP ramp (status) | 66 | ON during SP ramp<br>OFF when there is no SP ramp or it is completed | OFF during SP ramp<br>ON when SP ramp is not used or is completed |
| Control direct action (status) | 67 | ON during direct action (cooling)<br>OFF during reverse action (heating) | OFF during direct action (cooling)<br>ON during reverse action (heating) |

* This function is available for ROM version 3.00 [1_0_3] and later.

<table>
<tr><th>Operation type</th><th>Setting</th><th>Direct action<br>●: ON/OFF switches at this value<br>○: ON/OFF switches if this value is exceeded</th><th>Reverse action<br>●: ON/OFF changes at this value<br>○: ON/OFF switches if this value is exceeded</th></tr>
<tr><td>Timer (status)</td><td>70</td><td colspan="2">The direct and reverse action settings are disabled for the timer event.<br>To use the timer event, it is necessary to set the operation type of the internal contact input to Timer stop/start selection.<br>Additionally, multiple timer events can be controlled from an individual internal contact input by setting an event No. in the loop/channel definition of the internal contact input.<br><br>◆ Configurable items<br>• ON-delay time: A period of time necessary for the event to change from OFF to ON after the internal contact input has been changed from OFF to ON.<br>• OFF-delay time: A period of time necessary for the event change from OFF to ON after the internal contact input has been changed from OFF to ON.<br><br>◆ Operation specifications<br>• The event is turned ON when the internal contact input ON continues for ON-delay time or longer.<br>• The event is turned OFF when the internal contact input OFF continues for OFF-delay time.<br>• Otherwise, the current status continues.<br><br><br>◆ CAUTION<br>The ON- and OFF-delay times are set to 0.0 s when the product is shipped.<br>The default setting of Loop/channel definition for internal contact input is 0. With this setting, all timer events can be stopped or started through one internal contact input.<br>If Loop/channel definition is set to 1 or more, one specified timer event can be stopped or started through internal contact input.</td></tr>
</table>

## ■ Loop/channel definition setup

The details are as follows, depending on the operation type.

| Loop/channel definition | Operation type target number | Operation in READY mode*1 | Standby*2 |
|---|---|---|---|
| Specify the loop number (1–4) of the operation type | 1–20, 29–42 | ○ | ○ |
| | 62–67 | ○ | × |
| Specify the loop No. (1–4) for standby or READY mode | 61, 70 | ○ | × |
| Specify the number (2048–3071) of the standard numerical codes | 26–28, 43–54 | × | × |

*1 ○: Continuation / Forced OFF can be selected. ×: Always Continuation

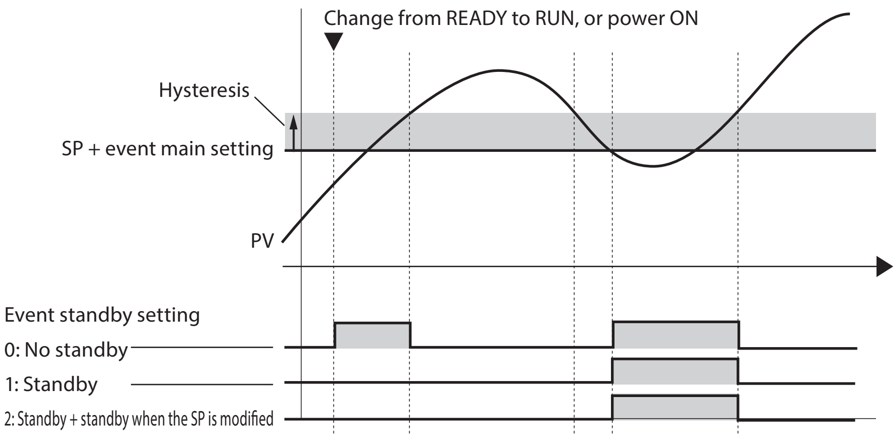
*2 ○: Standby / No standby can be selected. ×: Always No standby

## ■ Event standby and EVENT state at READY

Standby is a function by which, when this unit is turned ON or when READY mode is changed to RUN, the event does not turn ON even though the ON conditions are satisfied. The event turns ON only when the ON conditions are satisfied again after the OFF conditions have been satisfied.
"Standby + Standby at SP change" means that the standby is set again when the SP is changed (LSP and SP group) in addition to the regular standby function. However, when the same LSP value is written or when the SP value is not changed even though the SP group is changed, the unit does not enter standby mode.

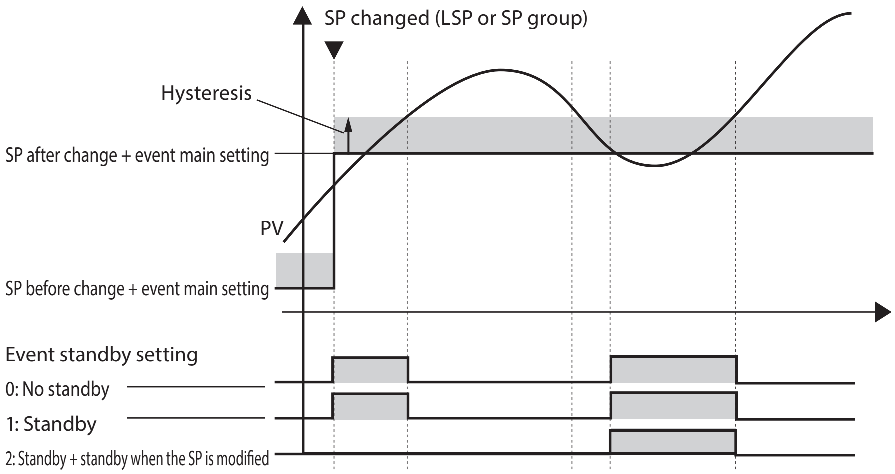
| | READY | | Upon READY → RUN change | | When SP changes | |
|---|---|---|---|---|---|---|
| Event status in READY mode / Standby setting | 0: Continues | 1: Forced OFF | 0: Continues | 1: Forced OFF | 0: Continues | 1: Forced OFF |
| 0: None | Normal operation | OFF | Normal operation | Normal operation | Normal operation | Normal operation |
| 1: Standby | OFF | OFF | OFF (standby status) | OFF (standby status) | Normal operation | Normal operation |
| 2: Standby + Standby at SP change | OFF | OFF | OFF (standby status) | OFF (standby status) | OFF (standby status) | OFF (standby status) |

This is an example for when the event type is set to 5 (Deviation low limit event). The event is turned ON or OFF, as shown in the figure below, based on the event standby settings.




**Handling Precautions**

- Even if event conditions are satisfied, the event is not turned ON before power ON.




**Handling Precautions**

- If used in RSP mode, setting 2 (Standby + standby at SP change) is identical to setting 1 (Standby). For this reason, if the RSP changes when "Standby + standby at SP change" is set, the event may turn on in certain cases.

## ■ Event decimal point

The decimal point position of the main setting and sub-setting of the Event setup (operating point) bank and the hysteresis setting of the Event config. bank can be changed.

## ■ ON delay and OFF delay

ON delay is a function that delays the timing at which the event status changes from OFF to ON. OFF delay is a function that delays the timing at which the event status changes from ON to OFF. However, for the method of operation when the operation type is set to timer event, refer to ■Event operation type, direct/reverse, hysteresis, main setting, and sub-setting"Operation type: Timer (status)" (Page 6-8).

# 6 - 2 How to Use Internal Contact Input

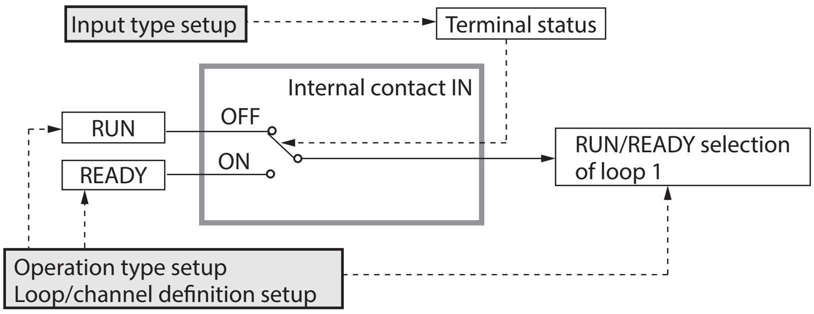
The internal contact input can take in ON/OFF data, such as a digital input (DI) that is specified for Input type, as internal contact input inside the instrument.
Using the ON/OFF data specified for Input type, the switching operation specified for Operation type can be performed.

## ■ Setup data

- Internal contact IN

## ■ Example 1: RUN/READY selection using digital input

The following is an example where the mode of loop 1 is changed to READY when the DI 1 terminal status is ON and changed to RUN when the DI 1 terminal status is OFF.

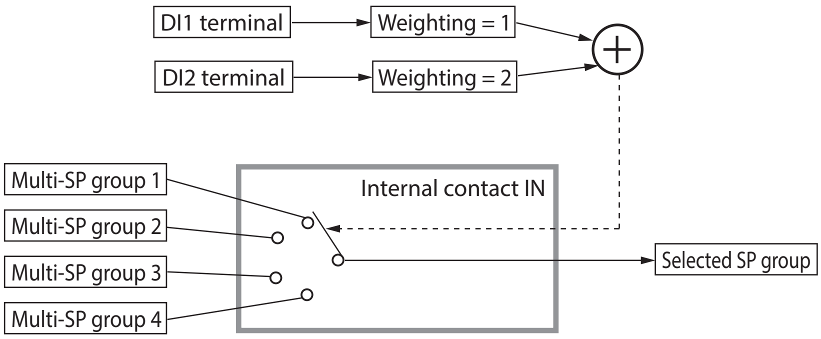



Assign RUN/READY mode selection to internal contact group 1.
Configure the settings as shown below in the Internal contact IN bank setup.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | Internal contact IN | (Internal contact IN group 1) Operation type | 21: RUN/READY mode selection | Simple Standard Multi-function |
| | | (Internal contact IN group 1) Input type | 1152: DI 1 terminal status | |
| | | (Internal contact IN group 1) Loop/channel definition | 1: Loop 1 | |
| | | (Internal contact IN group 1) Weighting | Setting cannot be changed. | |

## ■ Example 2: SP group selection using digital input

The following is an example where the multi-SP group (1–4) of loop 1 is selected using the DI 1 and DI 2 terminals.




| | | | | |
|---|---|---|---|---|
| DI 1 | OFF | ON | OFF | ON |
| DI 2 | OFF | OFF | ON | ON |
| Sum of weights | 0 | 1 | 2 | 3 |
| Selected SP group | SP1 | SP2 | SP3 | SP4 |

(1) Set the number of SP groups. In the Setup bank, change the settings as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Setup | Number of SP groups | 4 | Simple<br>Standard<br>Multi-function |

(2) Assign the SP group selection to internal contact input 1 or 2. In the Internal contact IN bank, configure the two groups of internal contact inputs as described below.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | Internal contact IN | (Internal contact IN group 1) Operation type | 1: SP group selection | Simple<br>Standard<br>Multi-function |
| | | (Internal contact IN group 1) Input type | 1152: DI1 terminal status | |
| | | (Internal contact IN group 1) Loop/channel definition | 1 | |
| | | (Internal contact IN group 1) Weighting | 1 | |
| | | (Internal contact IN group 2) Operation type | 1: SP group selection | |
| | | (Internal contact IN group 2) Input type | 1153: DI 2 terminal status | |
| | | (Internal contact IN group 2) Loop/channel definition | 1 | |
| | | (Internal contact IN group 2) Weighting | 2 | |

## ■ Operation type

Select the operation type to be switched by the internal contact input from the table below.

| Operation type set values and meanings | Loop/channel definition set values and meanings |
|---|---|
| 0: No function | 0–127: Invalid |
| 1: SP group selection | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 2: PID group selection | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 3: Fixed value group selection*4 | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 5: Selection of group using linearization for OUT*1 *2 | 0: Invalid 1: Channel 1<br>2: Channel 2 3: Channel 3<br>4: Channel 4 5: Channel 5<br>6: Channel 6 7: Channel 7<br>8: Channel 8 9–127: Invalid |
| 6: Selection of group using linearization for position proportioning*5 | 0: Invalid 1: Position proportioning 1<br>2: Position proportioning 2<br>3–127: Invalid |
| 9: AI group specification*3 | 0: All channels 1: Channel 1<br>2: Channel 2 3: Channel 3<br>4: Channel 4 |
| 21: RUN/READY switch | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 22: AUTO/MANUAL switch | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 23: LSP/RSP mode selection | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 24: AT stop/start selection | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 41: Control action (direct/reverse) | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 42: SP RAMP enabled/disabled | 0: All loops 1: Loop 1 2: Loop 2<br>3: Loop 3 4: Loop 4<br>5–127: Invalid |
| 46: Timer stop/start selection | 0: All timer events<br>1–24: Event number for timer event<br>25–127: Invalid |
| 47: Release all latches | 0–127: Invalid |

*1. This function is not available on the NX-D15.

*2. This function is compatible with ROM version 2.00 [1_0_1] and later versions of the NX-D25.

*3. This function is compatible with ROM version 2.00 [1_0_1] and later versions of the NX-D15.

*4. This function is compatible with ROM version 3.00 [1_0_3] and later versions of the NX-D25/35.

*5. This function is compatible with ROM version 3.00 [1_0_3] and later versions of the NX-D35.

## ■ Input type

Use this to specify the ON/OFF data that the internal contact input uses as input. This kind of ON/OFF data shows various kinds of instrument status and is called a standard bit.

☞ ■ Standard bit codes (page App.-11) (for details on standard bit codes)

## ■ Loop/channel definition

Use this to specify the target loop or channel for the internal contact input operation. The meaning of the loop/channel definition varies depending on the operation type.

☞ ■ Operation type (page 6-13)

## ■ Weighting

Use this to select a group or number in a specific operation type, such as SP group selection or PID group selection.
If the input is OFF, the value is 0. When the input is ON, the value is the set value.
When the operation type and loop/channel definition use the same internal contact input, the selection is determined by the sum of the weights as shown in the table below.

| Sum of weights / Operation type | 0 | 1 or higher |
|---|---|---|
| SP group selection | Group 1 | Group [1 + sum of weights] is selected. |
| PID group selection | Group 1 | Group [1 + sum of weights] is selected. |
| Selection of group using linearization for OUT | No linearization | Group [sum of the weights] is selected. |
| AI group specification | Group 1 | Group [1 + sum of weights] is selected. |
| Fixed value group selection | No linearization | Group [sum of the weights] is selected. |
| Selection of group using linearization for position proportioning | No linearization | Group [sum of the weights] is selected. |

# 6-3 How to Use Digital Output

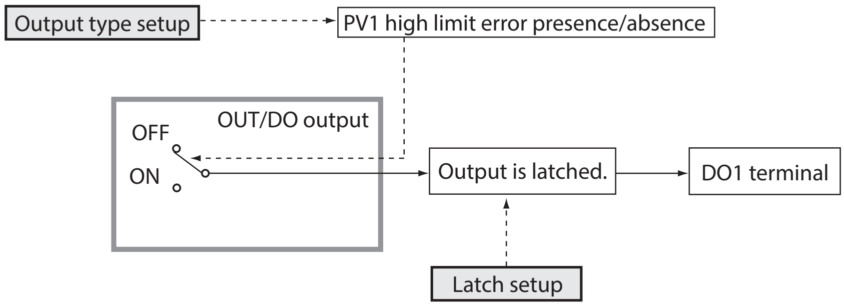
ON/OFF data specified as the output type can be output from the digital output (DO)
In addition, the ON or OFF status of the digital output can be latched.

## ■ Setup data

- PV input
- OUT/DO output

## ■ Example: Turning on DO1 if a PV1 high limit error occurs

In the following example, if PV1 is 1000.0 °C or more, a PV1 high limit alarm is output from terminal DO1 and latched ON.




(1) First, configure the PV1 high limit alarm.
In the PV input bank, set as follows.
Set the PV1 high limit to the alarm setting high limit.

| Item name | Settings |
|---|---|
| Range type | 1: K, −200 to +1200 °C |
| Decimal point position | 1: 1 digit after the decimal point |
| Temperature unit | 0: Celsius (°C) |
| Alarm setting low limit | 0.0 |
| Alarm setting high limit | 1000.0 |
| Cold junction compensation | 0: Use internal compensation |
| Linear scaling low limit | Setting cannot be changed. |
| Linear scaling high limit | Setting cannot be changed. |
| PV square root extraction dropout | Setting cannot be changed. |
| Filter | 0.00 |
| Bias | 0.0 |
| Ratio | 1.000 |
| Linearization table group definition | 0: Disabled |

(2) Set terminal DO1 operation.
Configure the OUT/DO output settings as shown below.

| Item name | Settings |
|---|---|
| Output type | 1824: PV1 high limit error (AL01) |
| Latch | 1: Latch when ON |

## ■ Output type

Specify ON/OFF data to be output from the digital output.
The ON/OFF data shows various instrument states and is called a standard bit.
Set a standard bit code as an output type.

### Note

- ☞ ■ Standard bit codes (page App.-11) (for the standard bit codes)
- For digital output, it is possible to generate time proportional output as well as transistor output.
  ☞ 4 - 7, How to Set Outputs (continuous output and time proportional output) (page 4-16)

## ■ Latch

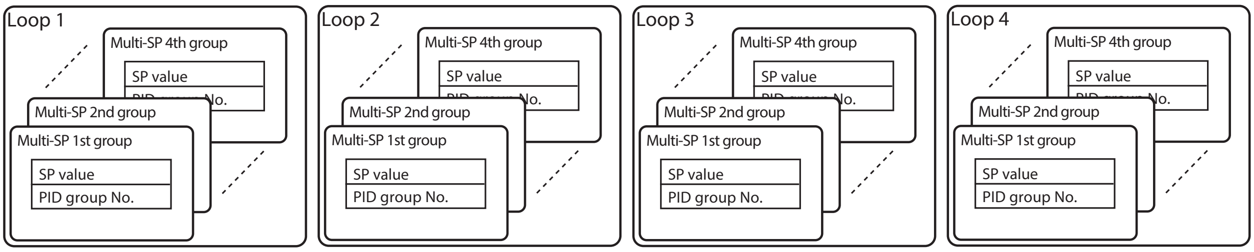
Select the latch behavior for logical operations from the following.
0: No latch
1: Latch when ON
2: Latch when OFF (except OFF before power ON)

To release a latch, use one of the following methods.

- In the Setup bank, set “Release all latches” to 1 (Release latch). This can be done only through loader or host communication.
- Change the latch setting in the OUT/DO output bank to 0 (not latched).
- Turn OFF the power to this unit, and then turn it ON again.

# 6-4 How to Use Multiple SPs

Multiple SPs can be set by combining an LSP value and a PID group definition for an SP group.
Up to 4 SP groups per loop are provided. You can select one of these groups and use it for control.




## ■ Setup data

- Setup bank
- LSP bank
- PID bank
- SP group selection bank

## ■ Features

A PID constant group can be specified for each SP group. When selecting an SP group, the PID constants corresponding to the PID group definition set in the SP group are used for control. To use the same PID constants for multiple SP groups, specify the same PID group.

## ■ Example: Using multiple set points with two LSP groups

In the following example, two LSP groups and the PID constants of two groups are used with two SP groups in loop 1.

(1) Set the number of SP groups to two for multiple set points. In the Setup bank, change the settings as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Setup | Number of SP groups | 2 | Simple<br>Standard<br>Multi-function |

(2) Set data for the SP group. Configure the settings as shown below in the loop 1 LSP bank.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | LSP | (Loop 1) LSP1 | 100.0 | Simple<br>Standard<br>Multi-function |
| | | (Loop 1) PID group definition 1 (for LSP) | 1 | |
| | | (Loop 1) LSP2 | 200.0 | |
| | | (Loop 1) PID group definition 2 (for LSP) | 2 | |

(3) Set data for the PID group. Configure the settings as shown below in the loop 1 PID bank.

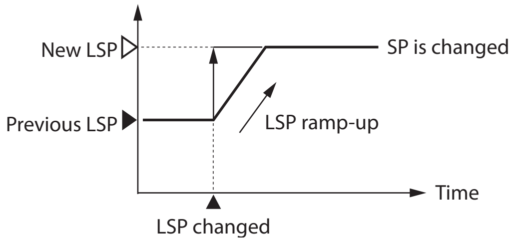
| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| PID | PID | (Loop 1) Proportional band 1 | 5.0 | Simple<br>Standard<br>Multi-function |
| | | (Loop 1) Integral time 1 | 120 | |
| | | (Loop 1) Derivative time 1 | 30 | |
| | | (Loop 1) MV low limit 1 | 0.0 | |
| | | (Loop 1) MV high limit 1 | 100.0 | |
| | | (Omitted) | | |
| | | (Loop 1) Proportional band 2 | 5.0 | |
| | | (Loop 1) Integral time 2 | 100 | |
| | | (Loop 1) Derivative time 2 | 25 | |
| | | (Loop 1) MV low limit 2 | 0.0 | |
| | | (Loop 1) MV high limit 2 | 100.0 | |
| | | (Others omitted) | | |

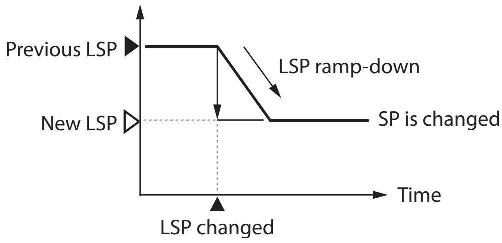
(4) Select an SP group. Select an SP group in the SP group selection bank. To select the SP 2 group, configure the settings as in the table below.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | SP group selection | (Loop 1) SP group selection | 2: Select SP group 2 | Simple<br>Standard<br>Multi-function |

# 6-5 How to Change the LSP with a Constant Ramp

When changing the set value of the LSP or the SP group selection, it is possible to change the SP with a constant SP ramp.




## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | SP configuration | SP ramp unit | 0: No decimal point/s. 1: No decimal point/min. 2: No decimal point/h. 3: 0.1/s. 4: 0.1/min. 5: 0.1/h. 6: 0.01/s. 7: 0.01/min. 8: 0.01/h. 9: 0.001/s. 10: 0.001/min. 11: 0.001/h | Standard Multi-function |
| | | SP ramp-up for LSP | 0U: No ramp<br>1–32000 U (Decimal point position varies depending on the SP ramp unit) | |
| | | SP ramp-down for LSP | 0U: No ramp<br>1–32000 U (Decimal point position varies depending on the SP ramp unit) | |
| | | PV start for LSP | 0: Allow PV start<br>1: Prevent PV start | |

## ■ Conditions for ramp start

- LSP value change
- SP group change
- RSP → LSP mode change

## ■ Conditions for ramp start with PV as the starting point

If any of the following occurs, the ramp starts with the PV as the starting point instead of the previous SP:

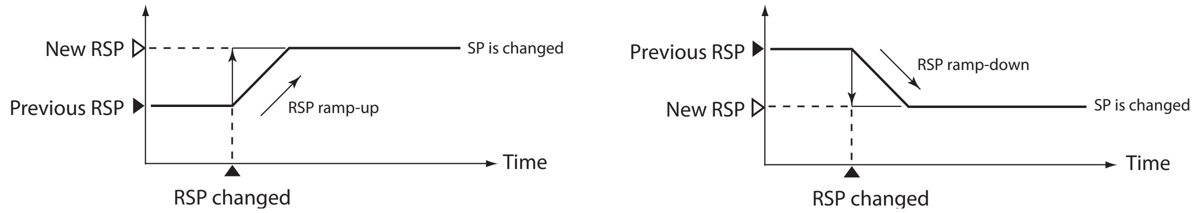
- Power-ON
- MANUAL → AUTO mode change
- READY → RUN mode change
- Change of the Loop type in the Setup bank

### ! Handling Precautions

- In any of the following cases, ramp operation does not start. Additionally, if any of the following occurs during ramp operation, the ramp is canceled.
  - Change to MANUAL mode
  - Change to READY mode
  - Prohibition of ramp operation by the internal contact input
- In the following cases, ramp operation does not start at the PV.
  - When the PV in the target loop experiences a PV high/low limit error
  - When PV start for LSP is set to 1 (Prevent PV start)

# 6 - 6 How to Change the RSP with a Constant Ramp

When the RSP is changed, the SP can be changed with a constant ramp.




## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| SP | SP configuration | SP ramp unit | 0: No decimal point/s.  1: No decimal point/min.<br>2: No decimal point/h.  3: 0.1/s.  4: 0.1/min.  5: 0.1/h.<br>6: 0.01/s.  7: 0.01/min.  8: 0.01/h.  9: 0.001/s.<br>10: 0.001/min.  11: 0.001/h | Standard<br>Multi-function |
| | | SP ramp-up for RSP | 0U: No ramp<br>1–32000 U (Decimal point position varies depending on the SP ramp unit) | |
| | | SP ramp-down for RSP | 0U: No ramp<br>1–32000 U (Decimal point position varies depending on the SP ramp unit) | |
| | | PV start for RSP | 0: Allow PV start<br>1: Prevent PV start | |

## ■ Conditions for ramp start

- Change of RSP value
- Change from LSP to RSP

## ■ Conditions for ramp start with PV as the starting point

If any of the following occurs, the ramp starts with the PV as the starting point instead of the previous SP:

- Power-ON
- MANUAL → AUTO mode change
- READY → RUN mode change
- Change of the Loop type in the Setup bank

### Handling Precautions

- In any of the following cases, ramp operation does not start.
  Additionally, if any of the following occurs during ramp operation, the ramp is canceled.
  - Change to MANUAL mode
  - Change to READY mode
  - Prohibition of ramp operation by the internal contact input
- In the following cases, ramp operation does not start at the PV.
  - When the PV in the target loop experiences a PV high/low limit error
  - When PV start for RSP is set to 1 (Prevent PV start)

# 6 - 7 CT (Current Transformer) Input

A module with the optional current transformer (CT) input can detect the status of a heater or actuator and measure AC.

(1) Heater burnout detection, overcurrent detection, and short-circuit detection

(2) Current measurement using true RMS values (cycle can be set)

Set CT operation for use of either of the above.

Depending on the CT operation setting, the value of the CT input current is as follows.

### ● For continuous current measurement (clamp meter mode)

- Current when the output is ON: Current is measured using true RMS values* in the continuous current measurement cycle.
- Current when the output is OFF: Always –1.0
- Time proportioning current: Always –1.0

* Root mean square values, by which electric waveforms can be correctly measured even if they are distorted by a thyristor.

### ● For detection of heater burnout for OUT terminal

- Current when the output is ON: Current when time proportional output is ON (used for heater burnout detection or overcurrent detection).
- Current when the output is OFF: Current when time proportional output is OFF (used for short-circuit detection).
- Time proportioning current: Converts electric currents to RMS values in the time proportional cycle.

## ■ Current measurement range and monitor data range

The current measurement range and monitor data range vary depending on the set number of CT turns and the set number of CT power line passes.
The current measurement range and the monitor data range are as shown in the table below.
If the current (amperage) exceeds the high limit of the monitor data range, it is limited to the high limit of the monitor data range and a CT input error (AL25 to AL28) occurs.

☞ Chapter 14, Troubleshooting (for the alarm codes)

| Number of turns / Power wire Number of passes | 100 turns | 400 turns | 800 turns | 1600 turns | 4000 turns |
|---|---|---|---|---|---|
| Once | 0.1–6.2 A (0.0–6.8 A) | 0.2–25.0 A (0.0–27.5 A) | 0.4–50.0 A (0.0–55.0 A) | 0.8–100.0 A (0.0–110.0 A) | 2.0–250.0 A (0.0–275.0 A) |
| Twice | 0.1–3.1 A (0.0–3.4 A) | 0.1–12.5 A (0.0–13.7 A) | 0.2–25.0 A (0.0–27.5 A) | 0.4–50.0 A (0.0–55.0 A) | 1.0–125.0 A (0.0–137.5 A) |
| 6 times | 0.1–1.0 A (0.0–1.1 A) | 0.1–4.1 A (0.0–4.5 A) | 0.1–8.3 A (0.0–9.1 A) | 0.2–16.6 A (0.0–18.3 A) | 0.4–41.6 A (0.0–45.8 A) |

Top: Current measurement range. Bottom: (Monitor data range)

## Note

- The current measurement range and the monitor data range are calculated using the formulas below.

  Low limit of the current measurement range (A) = Number of CT turns / (2000 × Number of CT power line passes)
  High limit of the current measurement range (A) = Number of CT turns / (16 × Number of CT power line passes)
  Low limit of the monitor data range (A) = 0.0
  High limit of the monitor data range (A) = Number of CT turns / (16 × Number of CT power line passes) × 1.1

## Handling Precautions

- Do not apply current above the maximum allowable current in the table below determined by the number of turns and the number of power line passes of the CT used. Exceeding the high limit may cause malfunction.

| Number of turns / Power wire Number of passes | 100 turns | 400 turns | 800 turns | 1600 turns | 4000 turns |
|---|---|---|---|---|---|
| Once | 7.5 A (10 A) | 30 A (42 A) | 60 A (85 A) | 120 A (170 A) | 300 A (420 A) |
| Twice | 3.7 A (5.3 A) | 15 A (21 A) | 30 A (42 A) | 60 A (85 A) | 150 A (210 A) |
| 6 times | 1.2 A (1.7 A) | 5.0 A (7.0 A) | 10 A (14 A) | 20 A (28 A) | 50 A (70 A) |

Top: RMS. Bottom: (Peak current)

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | CT input | CT operation | 0: Continuous current measurement (clamp meter mode)<br>1: Detection of heater burnout for terminal OUT1<br>2: Detection of heater burnout for terminal OUT2<br>3: Detection of heater burnout for terminal OUT3<br>4: Detection of heater burnout for terminal OUT4 | Simple<br>Standard<br>Multi-function |
| | | Wait time for CT measurement | 30–300 ms | |
| | | Number of CT turns | 100–4000 turns | Standard<br>Multi-function |
| | | Number of CT power line passes | 1–6 times | |
| | | Threshold current for determining heater burnout | 0.0–550.0 A | |
| | | Threshold current for determining overcurrent | 0.0–550.0 A | |
| | | Threshold current for determining a short circuit | 0.0–550.0 A | |
| | | Hysteresis | 0.0–550.0 A | |
| | | Delay time | 0.0–3200.0 s | |
| | | Condition for restoring status before measurement | 1024–2047: Standard bit code | |
| | | Continuous current measurement cycle | 0.1–3200.0 s | |

## ■ Data items for monitoring

| Folder name | Bank name | Item name |
|---|---|---|
| Monitor | Monitor (CT) | Measured current when output ON |
| | Monitor (CT) | Measured current when output OFF |
| Standard numerical code | Standard numerical code (2688–2815) | Time proportioning current |
| Standard bit code | Bits (1024–1151) | Heater burnout detection |
| | Bits (1024–1151) | Overcurrent detection |
| | Bits (1024–1151) | Short-circuit detection |

## ■ CT operation

### ● 0: Continuous current measurement (clamp meter mode)

This function can detect current high limit errors using overcurrent detection and current low limit errors using heater burnout detection.
Current is measured in the continuous current measurement cycle to update measured current when output ON. Then measured current when output OFF and time proportioning current are displayed as –1.0 (no current measurement).

### ● 1–4: Detection of heater burnout for terminal OUT

This function can detect heater burnout and overcurrent using measured current when output ON, and detect short-circuit detection using measured current when output OFF.
Both measured current when output is ON and measured current when output is OFF are updated every 100 ms according to the terminal OUT ON/OFF status.
In addition, the function updates measured current when output ON as time proportioning current, converting it to an RMS value in time proportional cycle.

**Note**

- The table below shows the detectable errors and measurable current for each CT operation.

| CT operation | Item name | Measurable current | Detectable errors |
|---|---|---|---|
| 0: Continuous current measurement (clamp meter mode) | Measured current when output ON | True RMS current from transistor output | PV high limit error<br>PV low limit error |
| 1–4: Detection of heater burnout for terminal OUT | Measured current when output ON | Measured current when transistor output ON | Heater burnout<br>Overcurrent |
| | Measured current when output OFF | Measured current when transistor output OFF | Short-circuit |
| | Time proportioning current | RMS current from transistor output | |

- Time proportioning current can be calculated with the following formula.
  Time proportioning current = Measured current when output ON × √ (Time proportional output ON time ÷ Time proportional cycle)

This function is available for ROM version 3.00 [1_0_3] and later.

### ! Handling Precautions

- If CT operation is set to one of settings 1–4 (Detection of heater burnout for terminal OUT1–4), heater burnout detection cannot measure time proportioning current at the OUT terminal used for S21 (Peak power suppression control).
- If measuring time proportioning current, set Time proportional operation type to 1 (Actuator-life oriented).
☞ ■ Time proportional output settings (page 4-18)

## ■ Wait time for CT measurement

If CT operation is set to one of settings 1–4 (Detection of heater burnout for terminal OUT1–4), the time from the change in the output ON/OFF status to the start of measurement of the current can be set. After the ON/OFF of the monitored OUT terminal changes, measurement of the current value is started once the measurement wait time has elapsed.

## ■ Number of CT turns

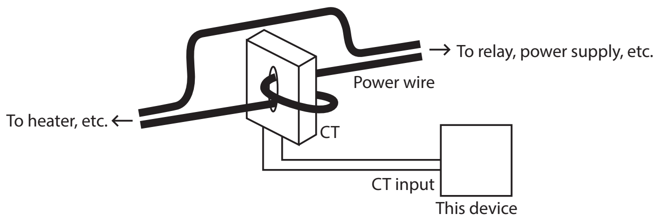
Set the number of CT turns to the No. of turns of the CT connected to the module.

### ! Handling Precautions

- Check the number of turns of the CT to be used.

## ■ Number of CT power line passes

Set the number of times that the power wire passes through the CT hole. For example, if the power wire passes through the CT hole twice as shown in the figure below, set 2.



## ■ Threshold current for determining heater burnout

If the measured current when output ON is below the setting, heater burnout is detected.
If the setting is 0.0, detection is disabled.

**Note**

- If CT operation is set to 0 (Continuous current measurement (clamp meter mode)), current low limit errors can be detected using the threshold current for determining heater burnout as the current low limit.
- As a general guide, the setting should be midway between the normal amount of current and the burnout current. Also, set it so that the difference between the normal current and the burnout current is 5 % FS or more of the current measurement range.
  ☞ ■ Current measurement range and monitor data range (page 6-21) (for the current measurement range)

  $$\text{Setting} = \frac{\text{Normal current} + \text{Burnout current}}{2}$$

## ■ Threshold current for determining overcurrent

If the measured current when output ON exceeds the setting, overcurrent is detected.
If the setting is 0.0, detection is disabled.

**Note**

- If the CT operation setting is 0 (Continuous current measurement (clamp meter mode)), current high limit errors can be detected using this setting.
- As a general guide, the setting should be midway between the normal current value and the overcurrent value. Also, set it so that the difference between the normal current and the burnout current is 5 % FS or more of the current measurement range.
  ☞ ■ Current measurement range and monitor data range (page 6-21) (for the current measurement range)

  $$\text{Setting} = \frac{\text{Overcurrent} + \text{Normal current}}{2}$$

## ■ Threshold current for determining a short circuit

If the measured current when output OFF exceeds the setting, a short-circuit is detected.
If the setting is 0.0, detection is disabled.

**Note**

- If the CT operation is set to 0 (Continuous current measurement (clamp meter mode)), the setting for the threshold current for determining a short circuit is invalid.
- As a general guide, the set value should be midway between the normal amount of current and the amount of the short-circuit current. Also, set it so that the difference between the normal current and the burnout current is 5 % FS or more of the current measurement range.
  ☞ ■ Current measurement range and monitor data range (page 6-21) (for the current measurement range)

  $$\text{Setting} = \frac{\text{Short-circuit current} + \text{Normal current}}{2}$$

## ■ Hysteresis

Set the same hysteresis for heater burnout detection, overcurrent detection, and short-circuit detection.

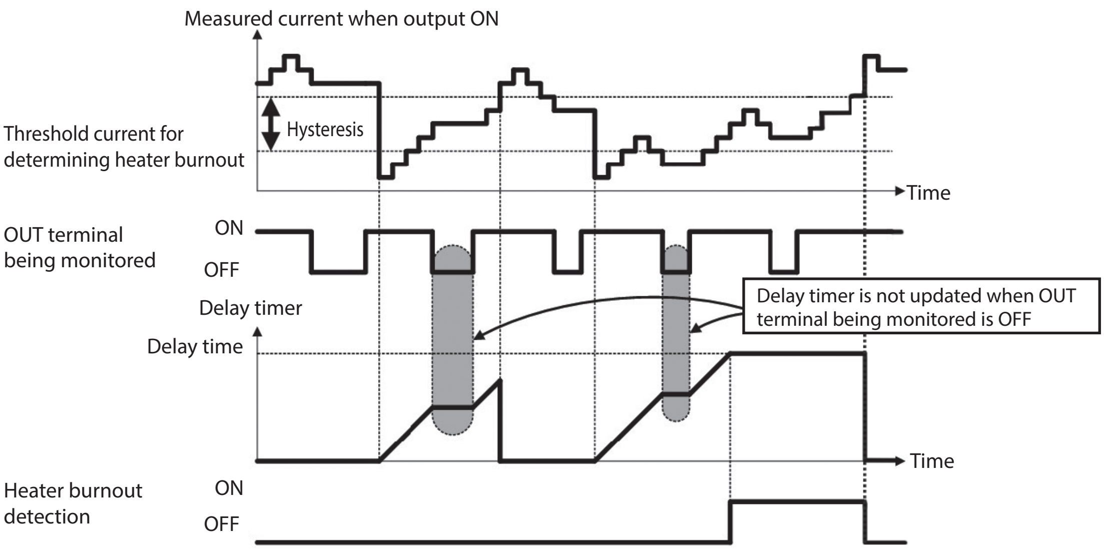
## ■ Delay time

Set the same ON-delay time for heater burnout detection, overcurrent detection, and short-circuit detection. This delay timer is started and reset based on the conditions in the table below.

| Detection type | Start condition | Reset condition |
|---|---|---|
| Heater burnout detection | Current at output ON ≤ Threshold current for determining heater burnout | Current at output ON > Threshold current for determining heater burnout + Hysteresis |
| Overcurrent detection | Current at output ON ≥ Threshold current for determining overcurrent | Current at output ON < Threshold current for determining overcurrent – Hysteresis |
| Short-circuit detection | Current at output OFF ≥ Threshold current for determining a short circuit | Current at output OFF < Threshold current for determining a short circuit – Hysteresis |

### Note

- If CT operation is set to 0 (Continuous current measurement (clamp meter mode)), the delay timer is updated constantly every 1 ms.
- If CT operation is set to a setting from 1 to 4 (Detection of heater burnout for terminal OUT1–4), the delay timer is updated every 1 ms based on the ON/OFF status of the OUT terminal that is being monitored. For heater burnout detection and overcurrent detection, the current at output ON is monitored, so the delay timer is updated only for the period when the output of the OUT terminal being monitored is ON. For short-circuit detection, the current at output OFF is monitored, so the delay timer is updated only for the period when the output of the OUT terminal being monitored is OFF.
  As an example, heater burnout detection uses the operation shown in the diagram below.



## ■ Condition for restoring status before measurement

Set a standard bit code as the condition for restoring the status before current measurement. This function is used to abort burnout detection that continues while control has stopped after burnout is detected.

**Note**

- The condition for restoring the status before measurement is used to disable detection determination until a new CT current is measured so that the heater burnout detection, overcurrent detection, and short-circuit detection are OFF (disabled).
- If the standard bit No. specified for “Condition for restoring status before measurement” is activated, there is no CT current measurement.
- The ON status (detected status) of heater burnout detection, overcurrent detection, and short-circuit detection is not set to OFF (disabled) until the current when the output is ON and the current when the output is OFF are updated to the specified measurement values.
  To forcibly turn OFF (disable) heater burnout detection, overcurrent detection, and short-circuit detection, turn ON the standard bit that is assigned to “Condition for restoring status before measurement.”
  For example, to disable CT 1 measurement when loop 1 is in READY mode, assign bit 1568 (Loop 1 RUN/READY status) to “Condition for restoring status before measurement.” With this setting, the ON (detected) status of heater burnout detection, overcurrent detection, and short-circuit detection will be turned OFF (disabled) when the loop is in READY mode.

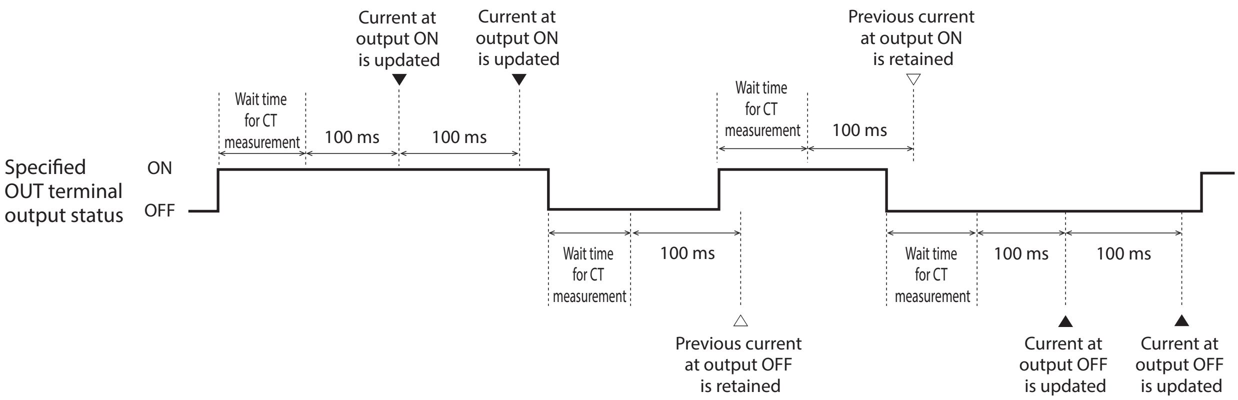
| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | CT input | Condition for restoring status before measurement | 1568 (Loop 1 RUN/READY status) | Multi-function |

## ! Handling Precautions

- The detection status of heater burnout, overcurrent, and short-circuit is reflected in the value of the standard bit.
☞ ■ Standard bit codes (page App.-11)
- In the case of CTs connected to the output terminal (loop) of an analog current output model (Output type C in the model No.) or analog voltage output model (type D), even if CT operation is set for a setting from 1 to 4 (Detection of heater burnout for terminal OUT1–4), heater burnout and short circuit cannot be detected. Therefore "Threshold current for determining heater burnout" and "Threshold current for determining a short circuit" should be set to 0.0.
- Even if the setting for CT operation is changed, the previous setting is retained and heater burnout detection, overcurrent detection, and short-circuit detection continue based on that value until the "Measured current when output is ON" or "Measured current when output is OFF" is updated. To cancel the retained status of the current when the output is ON and the current when the output is OFF and the detected status of heater burnout detection, overcurrent detection, and short-circuit detection, disable the current measurement.
- Heater burnout detection, overcurrent detection and short-circuit detection can only be executed together within the same module.

## ■ Timing for updating CT current measurement

If CT operation is set to 1–4 (Detection of heater burnout for terminal OUT1–4), the current when the output turns ON and OFF is updated as shown below.




When the ON/OFF output status of the OUT terminal has been retained for the waiting time for CT measurement plus 100 ms or longer, the measured current at output ON/OFF is updated. If the retention period of the ON/OFF output status of the OUT terminal is less than the waiting time for CT measurement plus 100 ms, the previously measured current is kept without update.

### Note

- If CT operation is set to 1–4 (Detection of heater burnout for terminal OUT1–4), the update conditions for measured current are not satisfied if the control output is 0.0 % in READY mode or during heating. In this case, the previous value is retained as the current when the output is ON.

## ■ Continuous current measurement cycle

If the CT operation is set to Continuous current measurement (clamp meter mode) (setting 0), set the measurement cycle in increments of 0.1 s (100 ms).

### Handling Precautions

- If CT operation is set to anything other than setting 0 (Continuous current measurement (clamp meter mode)), the measurement cycle is automatically set to 100 ms (fixed).

## ■ How to detect current high/low limit errors

Configure the following for current high/low limit error detection.

- Set CT operation to 0 (Continuous current measurement (clamp meter mode)).
- Set the Number of CT turns.
- Set the Number of CT power line passes.
- For “Minimum current defined as overcurrent,” set the threshold current for determining overcurrent. If 0.0 is set, a current high limit error cannot be detected.
- For “Minimum current defined as short-circuit,” set the threshold current for determining a short circuit. If 0.0 is set, a current low limit error cannot be detected.

If a current high limit error is detected, Overcurrent detection is activated and if a low limit error is detected, Short-circuit detection is activated (detected status).

## ■ How to detect heater burnout

If the measured current when output ON is below the setting, heater burnout is detected. Configure the following for heater burnout detection,

- Set CT operation to a setting from 1 to 4 (Detection of heater burnout for terminal OUT1–4). (Settings 1–4 refer to transistor output channels.)
- Set the Number of CT turns.
- Set the Number of CT power line passes.
- Set the Heater burnout detection current value (the threshold current for determining heater burnout) If 0.0 is set, heater burnout cannot be detected.

If heater burnout is detected, heater burnout detection is activated (detected status).

## ■ How to detect overcurrent

If the “Measured current when output ON” exceeds the setting, heater burnout is detected. Configure the following for overcurrent detection.

- Set CT operation to a setting from 1 to 4 (Detection of heater burnout for terminal OUT1–4). (Settings 1–4 refer to transistor output channels.)
- Set the Number of CT turns.
- Set the Number of CT power line passes.
- Set the Minimum current defined as overcurrent (the threshold current for overcurrent detection). If 0.0 is set, overcurrent cannot be detected.

If overcurrent is detected, Overcurrent detection is activated (detected status).

## ■ How to detect a short circuit

If the “Measured current when output OFF” exceeds the setting, a short circuit is detected. Configure the following for short-circuit detection.

- Set CT operation to a setting from 1 to 4 (Detection of heater burnout for terminal OUT1–4). (Settings 1–4 refer to transistor output channels.)
- Set the Number of CT turns.
- Set the Number of CT power line passes.
- Set the Minimum current defined as short-circuit (the threshold current for short-circuit detection). If 0.0 is set, short circuits cannot be detected.

If a short circuit is detected, Short-circuit detection is activated (detected status).

## ■ How to measure the secondary current of a thyristor power regulator

To measure the secondary current of a thyristor power regulator, configure the following.

- Set CT operation to 0 (Continuous current measurement (clamp meter mode)).
- Set the Number of CT turns.
- Set the Number of CT power line passes.
- Set the Continuous current measurement cycle. The value for current will be updated according to the set cycle.

By monitoring “Measured current when output ON,” true RMS current can be measured.

## ■ How to measure the current of time proportional output of the module using a solid-state relay (SSR)

To measure current of time proportional output of the module using an SSR, configure the following.

- Set CT operation to a setting from 1 to 4 (Detection of heater burnout for terminal OUT1–4). (Settings 1–4 refer to transistor output channels.)
- Set the Number of CT turns.
- Set the Number of CT power line passes.

The current when output is ON can be measured by monitoring “Measured current when output ON.” The time proportional current can be measured by monitoring Time proportioning current.

## ■ How to measure the time proportional output current of a device other than the module using a solid-state relay (SSR)

To measure the current of a time proportional output device other than the module using an SSR, configure as follows.

- Set CT operation to 0 (Continuous current measurement (clamp meter mode)).
- Set the Number of CT turns.
- Set the Number of CT power line passes.
- Set the Continuous current measurement cycle. The value for current will be updated according to the set cycle.

By monitoring “Measured current when output ON,” true RMS current can be measured.

**! Handling Precautions**

- For Continuous current measurement cycle, set the time proportional cycle of the device (other than the module) that you wish to measure.

-MEMO-

# Chapter 7. Functions Used As Required

## 7 - 1 Control Algorithm

### Handling Precautions

- The NX-D15 does not support setting 2 (PID-B (PV derivative type)) for Control algorithm.
- When using the module for cooperative control of the supervisor module, do not set "PID-B (PV derivative type)."

By selecting an appropriate control algorithm, optimum control can be executed. (ROM versions 2.00 [1_0_1] and later)

### ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | Control algorithm | 0: PID-A (deviation-derivative type)<br>1: PID-A (deviation-derivative type PID calculation correction function disabled)<br>2: PID-B (PV derivative type) | Standard<br>Multi-function |

- For PID-A (deviation-derivative type), derivative action works against the deviations, resulting in derivative operations being performed against PV and SP changes.
- For PID-B (PV derivative type), derivative action works against the PV but not against changes of the SP.

# 7 - 2 MV When There Is a PV Error

The MV for PID calculation can be set so that it switches to any desired fixed value if a PV input error occurs when the mode is both RUN and AUTO.

## ■ Setup data

- Loop output (MV)

## ■ Example

The following tells how to configure the MV for PID calculation so that it decreases to 10 % if a PV high limit error or PV low limit error occurs in loop 1 PV.

(1) First, set the output operation if there is a PV error. In the Loop output (MV) bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop output (MV) | (Loop 1) Output MV if PV is abnormal | 1: Output MV if PV is abnormal | Simple<br>Standard<br>Multi-function |

(2) Next, set the value of the MV if there is a PV error. In the Loop output (MV) bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop output (MV) | (Loop 1) Output at PV error | 10.0 | Simple<br>Standard<br>Multi-function |

# 7 - 3 MV Change Limit

### Handling Precautions

- This function is not available on the NX-D15.

The amount of MV change per second can be limited by setting the MV change limit.

## Setup data

- Loop (extended)

## Example

The example below shows how to set the loop 1 MV so that when the MV is increasing its amount of change is limited to 10 %.

(1) First, set the MV increase change limit. In the loop control (extended settings) bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop (extended) | (Loop 1) MV increase change limit | 10.00 | Simple<br>Standard<br>Multi-function |

(2) Next, set the MV decrease change limit. In the loop control (extended settings) bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop (extended) | (Loop 1) MV decrease change limit | 0.00 | Simple<br>Standard<br>Multi-function |

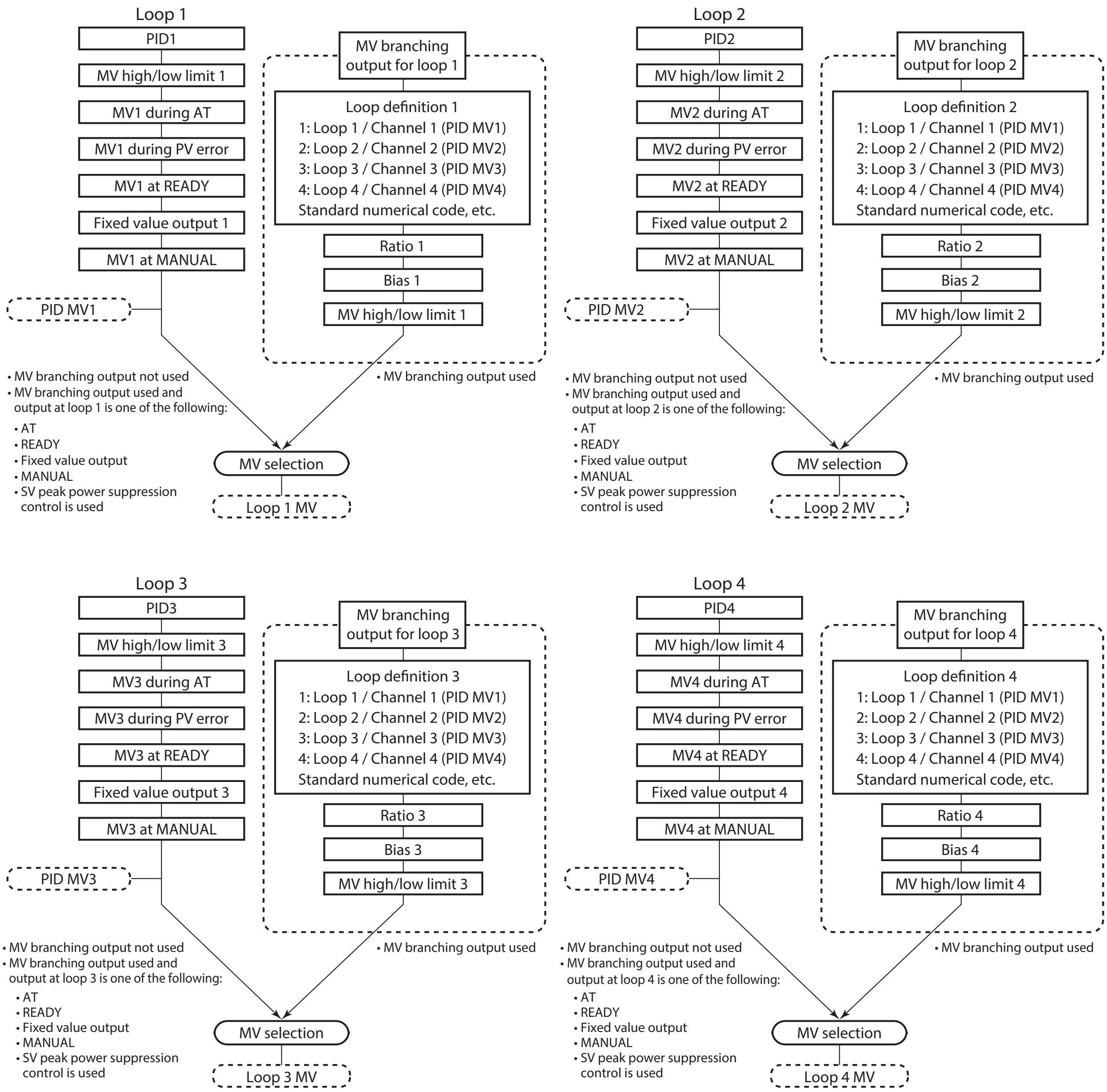
### Handling Precautions

- If an MV change limit is not needed, set to 0.0.

# 7 - 4 MV Branching Output

This function enables output to multiple loops by calculating ratio and bias for the output of the specified PID (the PID MV) and branching the output.

## ■ Loop mode diagram

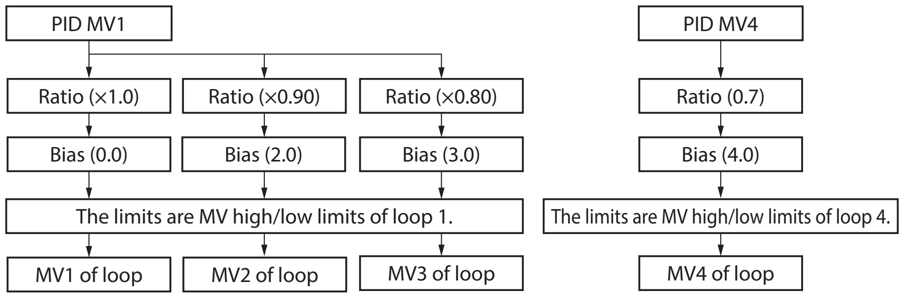


## ■ Setup data

- MV Branching Output

## ■ Example

In the following example, loops 1–3 use ratios of 1.0, 0.9, and 0.8 and biases of 0.0, 2.0, and 3.0 respectively using PID MV1, while loop 4 independently uses a ratio of 0.7 and bias of 4.0 using PID MV4.




(1) Set MV1. In the MV branching output bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | MV Branching Output | (MV branching output 1) Loop assignment | 1: Loop 1 / Channel 1 | Multi-function |
| | | (MV branching output 1) Ratio | 1.00 | |
| | | (MV branching output 1) Loop Bias | 0.00 | |

(2) Set MV2. In the MV branching output bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | MV Branching Output | (MV branching output 2) Loop assignment | 1: Loop 1 / Channel 1 | Multi-function |
| | | (MV branching output 2) Ratio | 0.90 | |
| | | (MV branching output 2) Bias | 2.00 | |

(3) Set MV3. In the MV branching output bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | MV Branching Output | (MV branching output 3) Loop assignment | 1: Loop 1 / Channel 1 | Multi-function |
| | | (MV branching output 3) Ratio | 0.80 | |
| | | (MV branching output 3) Bias | 3.00 | |

(4) Set MV4. In the MV branching output bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | MV Branching Output | (MV branching output 4) Loop assignment | 4: Loop 4 / Channel 4 | Multi-function |
| | | (MV branching output 4) Ratio | 0.70 | |
| | | (MV branching output 4) Bias | 4.00 | |

Example 1: RUN for all loops

| | AT | RUN/ READY | Fixed value output | AUTO/ MANUAL | PID MV | Loop MV | Remarks |
|---|---|---|---|---|---|---|---|
| Loop 1 | Stopped | RUN | Not used | AUTO | 50.0 % | 50.0 % | 50.0 % (PID MV1) × 1.0 + 0.0* |
| Loop 2 | Stopped | RUN | Not used | AUTO | Not used. | 47.0 % | 50.0 % (PID MV1) × 0.9 + 2.0* |
| Loop 3 | Stopped | RUN | Not used | AUTO | Not used. | 43.0 % | 50.0 % (PID MV1) × 0.8 + 3.0* |
| Loop 4 | Stopped | RUN | Not used | AUTO | 80.0 % | 60.0 % | 80.0 % (PID MV4) × 0.7 + 4.0 |

Example 2: When loop 2 becomes READY

| | AT | RUN/ READY | Fixed value output | AUTO/ MANUAL | PID MV | Loop MV | Remarks |
|---|---|---|---|---|---|---|---|
| Loop 1 | Stopped | RUN | Not used | AUTO | 50.0 % | 50.0 % | 50.0 % (PID MV1) × 1.0 + 0.0* |
| Loop 2 | Stopped | READY | Not used | AUTO | Not used. | 20.0 % | When the MV in READY mode for loop 1 is 20.0 %, the MV in READY mode for the independent loop is output. |
| Loop 3 | Stopped | RUN | Not used | AUTO | Not used. | 43.0 % | 50.0 % (PID MV1) × 0.8 + 3.0* |
| Loop 4 | Stopped | RUN | Not used | AUTO | 80.0 % | 60.0 % | 80.0 % (PID MV4) × 0.7 + 4.0 |

Example 3: When loop 3 becomes READY and MANUAL (The MV in MANUAL mode is prioritized over that in READY mode.)

| | AT | RUN/ READY | Fixed value output | AUTO/ MANUAL | PID MV | Loop MV | Remarks |
|---|---|---|---|---|---|---|---|
| Loop 1 | Stopped | RUN | Not used | AUTO | 50.0 % | 50.0 % | 50.0 % (PID MV1) × 1.0 + 0.0* |
| Loop 2 | Stopped | RUN | Not used | AUTO | Not used. | 47.0 % | 50.0 % (PID MV1) × 0.9 + 2.0* |
| Loop 3 | Stopped | READY | Not used | MANUAL | Not used. | 30.0 % | When the MV in MANUAL mode for loop 3 is 30.0 %, the MV in MANUAL mode for the independent loop is output. |
| Loop 4 | Stopped | RUN | Not used | AUTO | 80.0 % | 60.0 % | 80.0 % (PID MV4) × 0.7 + 4.0 |

Example 4: When loop 1 is in READY mode and the MV in READY mode for loop 1 is 50.0 %

| | AT | RUN/ READY | Fixed value output | AUTO/ MANUAL | PID MV | Loop MV | Remarks |
|---|---|---|---|---|---|---|---|
| Loop 1 | Stopped | READY | Not used | AUTO | 50.0 % | 50.0 % | When the MV in READY mode for loop 1 is 50.0 %, the MV in READY mode for the independent loop is output. |
| Loop 2 | Stopped | RUN | Not used | AUTO | Not used. | 47.0 % | 50.0 % (PID MV1) × 0.9 + 2.0* |
| Loop 3 | Stopped | RUN | Not used | AUTO | Not used. | 43.0 % | 50.0 % (PID MV1) × 0.8 + 3.0* |
| Loop 4 | Stopped | RUN | Not used | AUTO | 80.0 % | 60.0 % | 80.0 % (PID MV4) × 0.7 + 4.0 |

* The MV calculated by applying the ratio and bias to the MV for loop 1 is output.

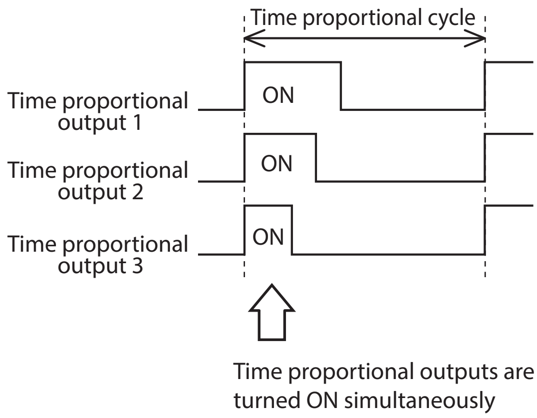
## ! Handling Precautions

- Ratio and bias do not operate if the loop No. or standard numerical code assignment is set for one of the following: Output at PV error, Manual MV, Fixed value output, Output at READY, or AT output.
- The branching output MV of an invalid loop is 0.0 %. Enable the loop of the branching output MV to be used (Loop type in the Setup bank).
- MV branching output and heat/cool control cannot be used at the same time.
- To use MV branching output, it must be set in Loop type.
  ☞ 4 - 1, How to Set the Loop Configuration (page 4-1)

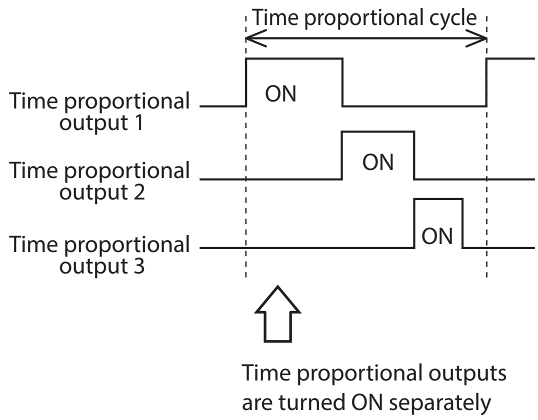
# 7 - 5 Energy-Saving Time Proportioning

The energy-saving time proportional function can prevent multiple time proportional outputs from being generated at the same time.

Example of operation when the energy-saving time proportional function is not used




Example of operation when the energy-saving time proportional function is used




Up to 8 time proportional outputs can be put into an energy-saving time proportioning group. An energy-saving time proportioning group consists of one master output and one or more slave outputs. Time proportional output 1 represents the master output in the figure on the right above.

- The master output turns on at the beginning of the time proportional cycle.
- The first slave output turns on after the master output turns off.
- The second slave output turns on after the first slave output turns off.
- The subsequent slave outputs operate in the same way. Each slave output turns on after the previous one turns off.

### ! Handling Precautions

- Set the same time proportional cycle for each output in the group.
- In this group, set the same value for the minimum ON/OFF time for the master, minimum ON/OFF time for the slaves, energy-saving delay time for the master, and energy-saving delay time for the slaves.
- Set the Time proportional operation type to 1 (Actuator-life-oriented) for each output in the group.

## ■ Setup data

- Energy-Saving Time Proportioning

## ■ Master/slave selection

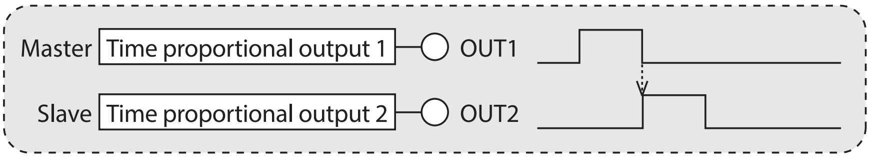
The output whose Master/slave selection is set to Master (setting 0) turns on first in that group's time proportional cycle.
The channel No. of the master must be less than or equal to the setting for the first slave channel, which must be less than or equal to the setting for the second slave channel.

## ■ Time proportional slave channels

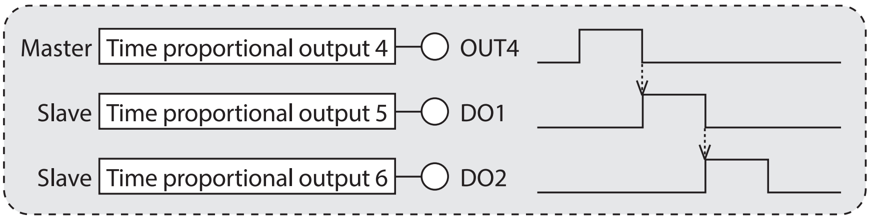
Specify the slave output (the next output channel) for each output.
For the last proportional slave channel in the group, assign its own number as its slave output.

## ■ Example

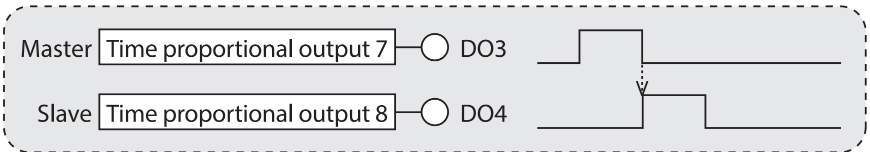
The following tells how to create three energy-saving time proportioning groups and assign outputs 1–2, 4–6, and 7–8 to groups 1, 2, and 3 respectively.




| | 1 | 2 |
|---|---|---|
| Energy conservation time proportional operation | 1: Used | 1: Used |
| Energy conservation delay time | 10 | 10 |
| Master/slave selection | 0: Master | 1: Not master |
| Time proportional slave channels | 2: Time proportioning 2 | 2: Time proportioning 2 |




| | 4 | 5 | 6 |
|---|---|---|---|
| Energy conservation time proportional operation | 1: Used | 1: Used | 1: Used |
| Energy conservation delay time | 10 | 10 | 10 |
| Master/slave selection | 0: Master | 1: Not master | 1: Not master |
| Time proportional slave channels | 5: Time proportioning 5 | 6: Time proportioning 6 | 6: Time proportioning 6 |



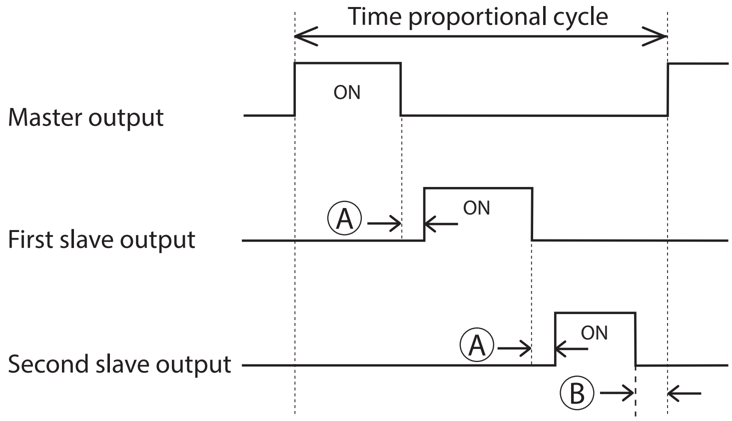

| | 7 | 8 |
|---|---|---|
| Energy conservation time proportional operation | 1: Used | 1: Used |
| Energy conservation delay time | 10 | 10 |
| Master/slave selection | 0: Master | 1: Not master |
| Time proportional slave channels | 8: Time proportioning 8 | 8: Time proportioning 8 |

### Note

- For the last proportional slave channel in the group, assign its own number as its slave output.

## ■ Energy-saving delay time

Set the time after which the target channel starts output after the output from the previous channel is turned OFF. (Ⓐ in the figure)
Use this delay so that the current output does not overlap that from the previous channel due to an operating delay of the actuator.
Output is OFF for the energy-saving delay time on the channel from which data was output the last time before the end of the time proportional cycle. (Ⓑ in the figure)
This is to prevent overlapping of outputs when the output turns ON on the master channel for the next time proportional cycle.




## Handling Precautions

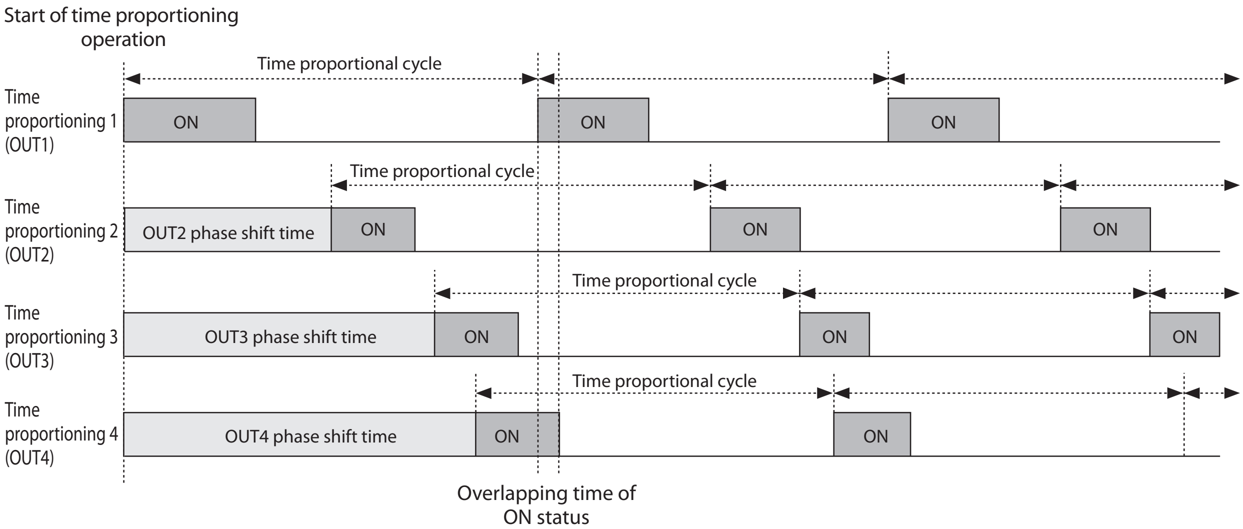
- Before use, be sure to do the following.
  - Set the same time proportional cycle for each output in the group.
  - In this group, set the same value for the minimum ON/OFF time for the master, minimum ON/OFF time for the slaves, energy-saving delay time for the master, and energy-saving delay time for the slaves.
  - Be sure to set Actuator-life-oriented.
  - For slave channels, be sure to set the energy-saving delay time to cover a delay in actuator operation.
- Observe the following limitations on use.
  - If the master channel output is so large that a slave channel output time cannot fall within the time proportional cycle, the slave time proportional output will be aborted at the end of the time proportional cycle. This means that the control calculation results might not be fully output.
  - The energy-saving time proportional output results are prioritized even in MANUAL mode, READY mode, and when the PV alarm operates. Therefore, the set MV may not output depending on the MV by the master channel.
  - For a stable state where PV = SP, the total length of time for control outputs and delay time in each channel must be less than or equal to 100 % of the cycle time. If the total time exceeds the cycle time, the slave channels cannot be controlled by the settings.
  - Controllability may vary significantly depending on whether energy-saving time proportioning is used or not.

# 7 - 6 Phase Shift

This section explains the parameters of the phase shift function in the OUT/DO output bank.

The phase shift function can be used to adjust the output phase for each time proportional output channel.
This function can decrease the chances of simultaneous ON of time proportional outputs.

The beginning of the original time proportional cycle is adjusted by the time specified for the beginning of this device's time proportional cycle. As a result, the ON status will not overlap for the amount of time of the adjustment. However, the longer the ON status is, the more likely an overlap is. In such a case, the MV high limit can be used to limit the MV and prevent overlapping. However, the control result may worsen as a result of the output limit.




## Handling Precautions

- If energy-saving time proportioning is executed, set the same phase shift value for the master and slave time proportional channels. If different values are specified, the function will not operate correctly.
- When the power is turned on, and also when the time proportional cycle is changed, one output cycle only is shortened in order to synchronize the beginning of the time proportional cycles.
- Set the phase shift time for the reference time proportional channel to 0. If the phase shift is used, set the same value for the time proportional cycles of each channel.
- Do not set the phase shift when using the module with the supervisor peak power suppression control model (NX-S21).

# 7 - 7 Approximation by Linearization Table

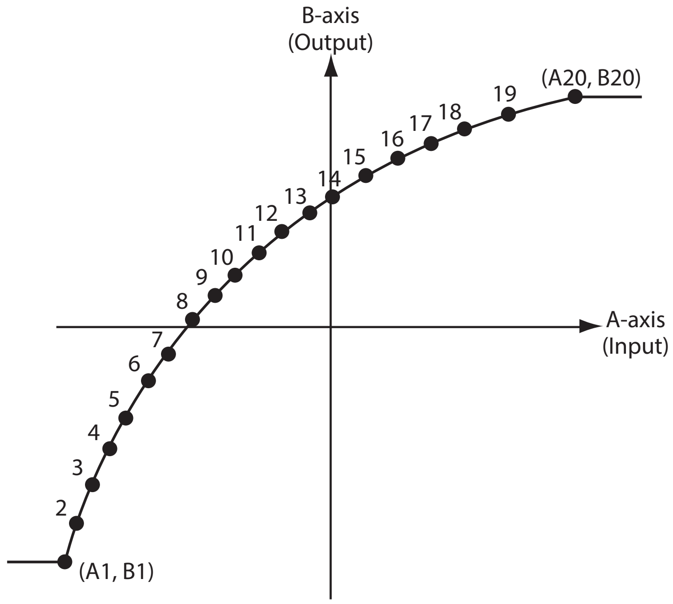
## Handling Precautions

- This function is not available on the NX-D15.

Approximation by linearization can be used for PV inputs and outputs. There are eight linearization groups, each containing 20 points that can be set. (ROM versions 2.00 [1_0_1] and later)

☞ ■ PV input process block diagram (page App.-2),
☞ ■ Continuous output process block diagram (page App.-8),
☞ ■ OUT/DO output process block diagram (page App.-9)
(for details on the process block for the input/outputs)
Settings A1–A20 are input values for the approximation by linearization table while settings B1–B20 are output values for the approximation by linearization table. They are shown as a graph in the figure below.

- When the input is A1 or less, the output is B1.
- If the input is A20 or more, the output is B20.




## ■ Approximation by linearization table of output

To use the approximation by linearization table for output, configure the settings in the OUT/DO output bank or linearization table use group for continuous output. Choose whether to select the linearization group by the set value or by internal contact input.

## ■ Setup data

- PV input
- Continuous output
- OUT/DO output
- Linearization table

## ■ Example

In the following example, linear approximation for the PV1 input is done using linearization table 1.
An input ranging from 0.0–100.0 is converted into 0.0–100.0 with a different characteristic.

(1) Specify a group of the linearization table using the PV input. In the PV input bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | PV input | (PV1 input) Linearization table group definition | 1: Group 1 | Standard Multi-function |

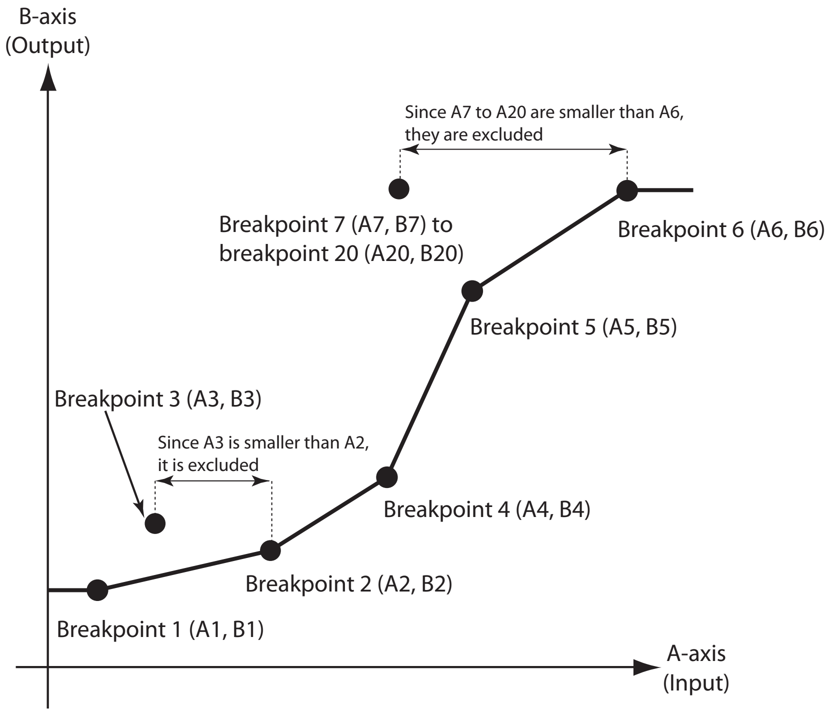
(2) Set the linearization table. Configure the settings in the Linearization table bank as shown below.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | Linearization table | (Linearization table group 1) Breakpoint decimal point position | 1: 1 digit after the decimal point | Standard Multi-function |
| | | (Linearization table group 1) Breakpoint A1 | 0.0 | |
| | | (Linearization table group 1) Breakpoint A2 | 17.4 | |
| | | (Linearization table group 1) Breakpoint A3 | 25.0 | |
| | | (Omitted) | | |
| | | (Linearization table group 1) Breakpoint A18 | 75.0 | |
| | | (Linearization table group 1) Breakpoint A19 | 82.6 | |
| | | (Linearization table group 1) Breakpoint A20 | 100.0 | |
| | | (Linearization table group 1) Breakpoint B1 | 0.0 | |
| | | (Linearization table group 1) Breakpoint B2 | 10.0 | |
| | | (Linearization table group 1) Breakpoint B3 | 15.0 | |
| | | (Omitted) | | |
| | | (Linearization table group 1) Breakpoint B18 | 85.0 | |
| | | (Linearization table group 1) Breakpoint B19 | 90.0 | |
| | | (Linearization table group 1) Breakpoint B20 | 100.0 | |

The Breakpoint decimal point position setting specifies the number of decimal places for breakpoints A1–A20 and B1–B20

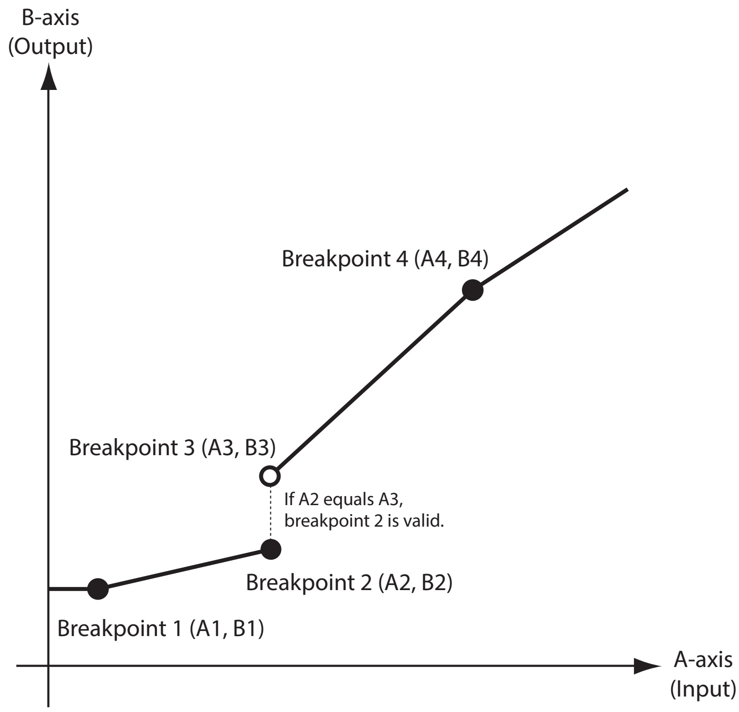
## ■ When the breakpoint A settings are not in numerical order by size

A line is constructed without the deviating points.
It is possible not to use a breakpoint located in the middle. (Breakpoint 3 shown in the figure below.)
It is possible not to use the excess breakpoints. (Breakpoints 7–20 in the figure below.)




## ■ When the A settings include adjacent breakpoints that are the same

The breakpoint with the smaller No. is used as the valid breakpoint. Additionally, these two points are not connected by a line segment.

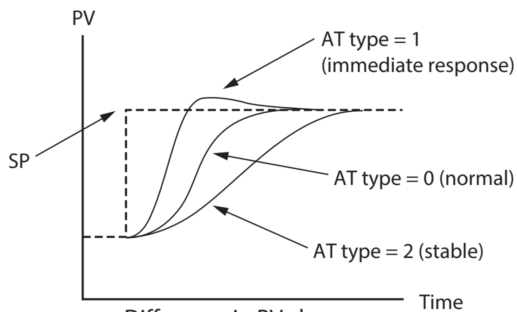


# 7 - 8 AT (Auto-tuning)

When AT is executed, the type of AT can be selected to obtain results appropriate for the target control characteristics.
One of the following three types of AT can be selected.

0: Normal (regular control characteristics)
1: Fast (response to disturbance)
2: Stable (priority on minimal up/down PV fluctuation)

The following graph shows the pattern of differences in the control results that use PID constants calculated with each AT type.




Difference in PV change
when SP is changed

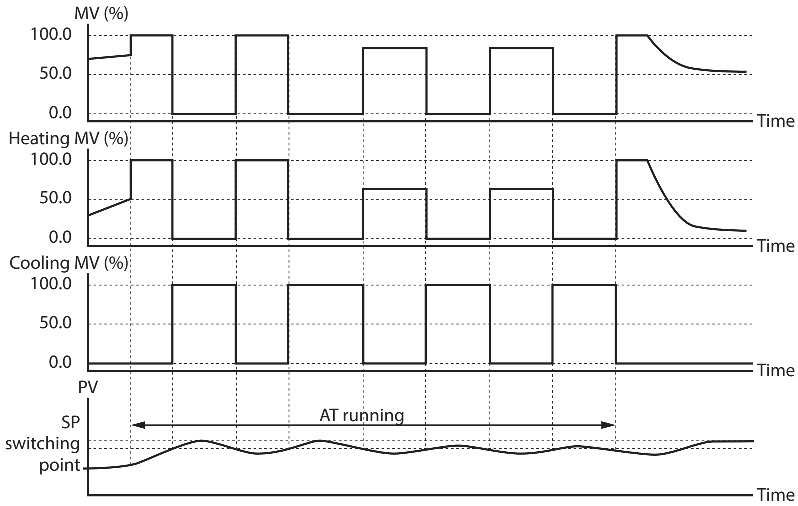
## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | AT type | 0: Normal (regular control characteristics)<br>1: Fast (control characteristics for quick response to disturbances)<br>2: Stable (control characteristics for minimal PV fluctuation) | Simple<br>Standard<br>Multi-function |
| | Loop control (extended) | MV low limit during AT | −10.0 to +110.0 | Standard<br>Multi-function |
| | | MV high limit during AT | −10.0 to +110.0 | |
| | Loop control (algorithm) | AT adjustment factor, proportional band | 0.00–320.00 | |
| | | AT adjustment factor, integral time | 0.00–320.00 | |
| | | AT adjustment factor, derivative time | 0.00–320.00 | |

- The MV can be limited during AT by means of the MV low limit during AT and MV high limit during AT.
  If heat/cool control is not used, the MV low/high limit during AT and the PID constant MV low/high output will be assigned to the MV. If heat/cool control is used:
  - The value of the MV low/high limit during AT will be assigned to the MV.
  - The value of the heating MV is limited by the MV low/high limits for the PID constants.
  - The value of the cooling MV is limited by the MV low/high limits for cooling for the PID constants.

When heat/cool control is used, execute AT with heating MV and cooling MV running.
In the first half, the MV changes with the output low/high limit. In the second half, it changes in a somewhat narrow area.

The following figure illustrates AT with the following settings: Heating/cooling control dead zone = 0.0 %, heat/cool control switchover point = 50.0 %, output low limit = 0.0 %, output high limit = 100.0 %




**Handling Precautions**

- Before starting AT, check that the PV inputs and final control elements (heater power supply, etc.) are connected correctly and that the unit is ready for control.
- If the control method is in ON/OFF control, AT cannot be started. Change the control method to PID.
- In the case of any of the following conditions, AT cannot be either started or stopped. If operation through host communication failed and a warning is returned as the end code of the response message.
  - If the loop is in the following states: MANUAL mode, READY mode, after a PV high/low limit error, during fixed value output, or during MFB adjustment
  - If there is a power failure or if the instrument is in IDLE mode
  - If the AT is activated in a loop used by the master output of the internal cascade control, the slave output is not in RSP mode, the slave output is not fixed value output, or a PV high/low limit error occurs in the master or slave output.
  - If the AT is activated in a loop used by the slave output in internal cascade control, the slave output is not in LSP mode.

- If the loop or the instrument enters any of the following states while the AT is being activated, the AT is stopped with no change in the PID constant.
  - If the loop is in the following states: MANUAL mode, READY mode, after a PV high/low limit error, during fixed value output, or during MFB adjustment
  - If there is a power failure or if the instrument is in IDLE mode, or if the loop type, control type, or control algorithm was changed.
  - If AT is being executed in a loop used by the master output in internal cascade control, the slave output is in LSP mode, the slave output is switched to fixed value output, or a PV high/low limit error occurs in the master or slave output.
  - If the AT is executed in a loop used by the slave output in internal cascade control, the slave output is in RSP mode.

## ■ AT progress

AT progress can be checked by accessing AT progress in the Basic bank of the Monitor folder.
0 : AT stopped
1–8 : AT progress number

- When heat/cool control is not used
  - The number changes from 4 to 3 to 2 to 1, with 0 indicating that AT is complete.
  - The numbers 4, 3, and 2 indicate the progress of AT ON/OFF output. 1 indicates AT stabilization.
- When heat/cool control is used
  - The number changes from 8 to 7 to 6 to 5 to 4 to 3 to 2 to 1, with 0 indicating that AT is complete.
  - The numbers 8, 7, and 6 indicate the progress of AT ON/OFF output for heating. 5 indicates AT stabilization.
  - The numbers 4, 3, and 2 indicate the progress of AT ON/OFF output for cooling. 1 indicates AT stabilization.

## ■ Example 1

The following describes how to set the AT type of loop 1 to Fast response.

Set the AT type. In the Loop control (basic) bank, make the following settings.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (basic) | (Loop 1) AT type | 1: Fast (response to disturbance) | Simple<br>Standard<br>Multi-function |

## ■ Example 2

The following describes how to configure loop 1 auto-tuning so that the AT result for derivative time is always 0.0.
Set the AT adjustment factor. In the Loop (algorithm) bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (algorithm) | (Loop 1) AT adjustment factor, proportional band | 1.00 | Standard Multi-function |
| | | (Loop 1) AT adjustment factor, integral time | 1.00 | |
| | | (Loop 1) AT adjustment factor, derivative time | 0.00 | |

### Note

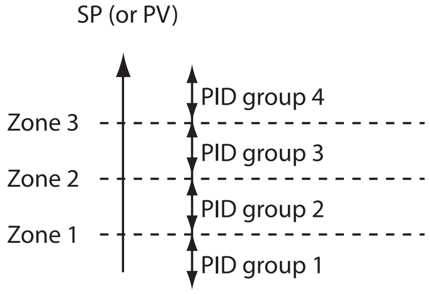
- If an AT adjustment factor is set, the PID constant resulting from AT is multiplied by the adjustment factor and the result is used as the PID constant setting. If you wish to use the PID constants calculated by AT unchanged, the AT adjustment factor does not need to be set. Use the default setting (1.00) unchanged.

# 7 - 9 Zone PID

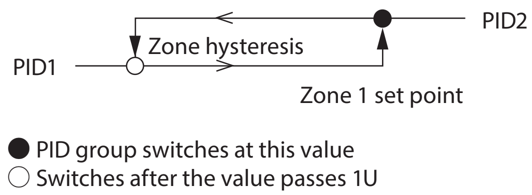
## Handling Precautions

- This function is not available on the NX-D15.

PID control can be performed using the Zone PID function. The zone PID is a function that selects a PID constant group from a group of 1–4 according to the value of the SP or PV. (ROM versions 2.00 [1_0_1] and later)




The zone changes in the following manner. This example illustrates how PID1 and PID2 switch.




## ■ Setup data

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop (extended) | Zone 1 | −19999 to +32000U (Depends on loop PV/SP decimal point position) | Standard Multi-function |
| | | Zone 2 | −19999 to +32000U (Depends on loop PV/SP decimal point position) | |
| | | Zone 3 | −19999 to +32000U (Depends on loop PV/SP decimal point position) | |
| | | Zone hysteresis | −19999 to +32000U (Depends on loop PV/SP decimal point position) | |

## ■ Example

The following example describes the zone PID function used with a PV starting from 100 °C in increments of 100 °C in loop 1.

Configure the zones.
Configure the settings as shown below in the loop (extended) setup.
For zones 1–3, configure so that the values progressively increase.
The hysteresis for the zone is used when moving to the zone with the immediately smaller number. Set a value that is sufficiently smaller than the width of each zone.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop (extended) | (Loop 1) Zone operation selection | 1: PV-based selection | Standard Multi-function |
| | | (Loop 1) Zone 1 | 100.0 | |
| | | (Loop 1) Zone 2 | 200.0 | |
| | | (Loop 1) Zone 3 | 300.0 | |
| | | (Loop 1) Hysteresis for zone | 5.0 | |

# 7 - 10 Cold Junction Compensation

If the range type is thermocouple, the cold junction compensation method can be selected.

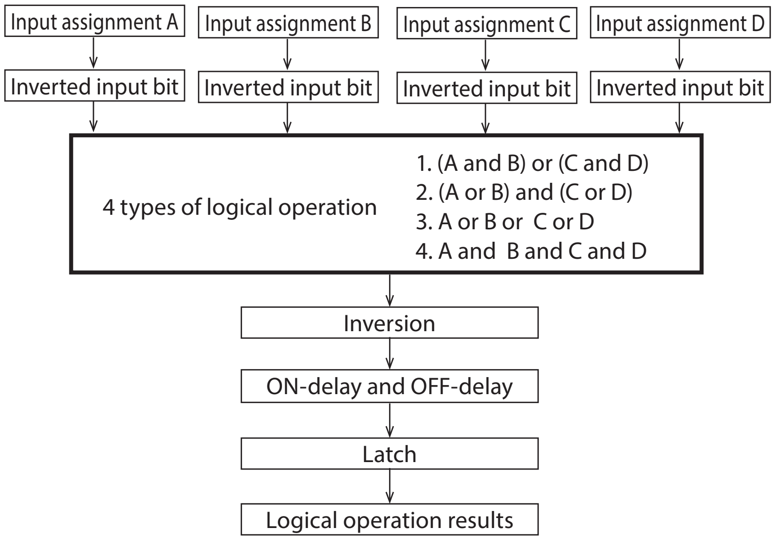
## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | PV input | Cold junction compensation | 0: Use internal compensation<br>1: Do not use internal compensation | Standard<br>Multi-function |

If the cold junction compensation internal input is not within −20 to +80 °C, a CJ error (AL71, AL72, AL73, AL74) will occur.
Cold junction compensation is performed at −20.0 °C when the range is under −20.0 °C and at +80.0 °C when it is over +80.0 °C.

# 7 - 11 Logical Operations

This unit can perform logical operations (0 and 1 Boolean operations) corresponding to various statuses and can use the logical operation results as ON/OFF outputs or internal contact inputs.
16 groups of logical operations are provided. One logical operation group consists of four inputs and one output.
Four kinds of logical operations are provided. Also, the input or output logic can be inverted.




## ■ Processing sequence for logical operations

The results of certain logical operations can be used as input to another logical operation in the same or a different group. Logical operations are performed within each cycle period in the order of the group Nos.
Therefore, the result of a logical operation from a group with a smaller No. can be used within the same cycle period. In the case of the same group No. or a larger group No., the results of a logical operation are used in the next cycle.

**Note**

- Logical operations 1–4 are executed before PID calculation and 5–16 are executed afterwards.
  ☞ ■ Processing procedure (page App.-1)

## Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | Logical Operations | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | Standard Multi-function |
| | | Input assignment A | Standard bit code (1024–2047) | |
| | | Input assignment B | Standard bit code (1024–2047) | |
| | | Input assignment C | Standard bit code (1024–2047) | |
| | | Input assignment D | Standard bit code (1024–2047) | |
| | | Inverted input bit A | 0: Direct 1: Reverse | |
| | | Inverted input bit B | 0: Direct 1: Reverse | |
| | | Inverted input bit C | 0: Direct 1: Reverse | |
| | | Inverted input bit D | 0: Direct 1: Reverse | |
| | | ON-delay time | 0.0–3200.0 s | |
| | | OFF-delay time | 0.0–3200.0 s | |
| | | Reverse | 0: Direct 1: Reverse | |
| | | Latch | 0: No latch<br>1: Latched ON.<br>2: Latched OFF (except OFF before power ON). | |

## Example

In the following example, if any of event 1, event 2, or representative of all alarms is turned ON using logical operation Group 1, digital output 1 turns ON.

(1) Set the logical operation. In the Logical operation bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | Logical Operations | (Logical operation group 1) Calculation type | 3: Calculation 3: (A or B or C or D) | Standard Multi-function |
| | | (Logical operation group 1) Input assignment A | 1088: Event 1 | |
| | | (Logical operation group 1) Input assignment B | 1089: Event 2 | |
| | | (Logical operation group 1) Input assignment C | 1792: Alarm (logical OR of all displayed alarms) | |
| | | (Logical operation group 1) Input assignment D | 1024: OFF | |
| | | (Logical operation group 1) Inverted input bit A | 0: Direct | |
| | | (Logical operation group 1) Inverted input bit B | 0: Direct | |
| | | (Logical operation group 1) Inverted input bit C | 0: Direct | |
| | | (Logical operation group 1) Inverted input bit D | 0: Direct | |
| | | (Logical operation group 1) ON-delay time | 0.0 s | |
| | | (Logical operation group 1) OFF-delay time | 0.0 s | |
| | | (Logical operation group 1) Inversion | 0: Direct | |
| | | (Logical operation group 1) Latch | 0: No latch | |

(2) Assign the results of Logical operation 1 to digital output 1. Configure the settings as shown below in the OUT/DO output bank.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | OUT/DO output | (OUT/DO output 1) Output type | 1440: Logical operation 1 | Simple<br>Standard<br>Multi-function |
| | | (OUT/DO output 1) Latch | 0: No latch | Standard<br>Multi-function |
| | | (OUT/DO output 1) Time proportional operation type | Invalid setting | Simple<br>Standard<br>Multi-function |
| | | (OUT/DO output 1) Min. ON/OFF time | 10 ms | |
| | | (OUT/DO output 1) Time proportional cycle | Invalid setting | |
| | | (OUT/DO output 1) Phase shift | Invalid setting | Multi-function |

## ■ Input assignments A–D

Specify a standard bit code for input assignments A–D.

## ■ Inverted input bits A–D

Specify whether to reverse the status of the standard bit specified in input assignments A–D.

0: Direct
1: Reverse

## ■ Calculation type

The calculation selected from the 4 options is executed. (The results from inverted input bits A–D are used.)

1: Calculation 1: (A and B) or (C and D)
2: Calculation 2: (A or B) and (C or D)
3: Calculation 3: (A or B or C or D)
4: Calculation 4: (A and B and C and D)

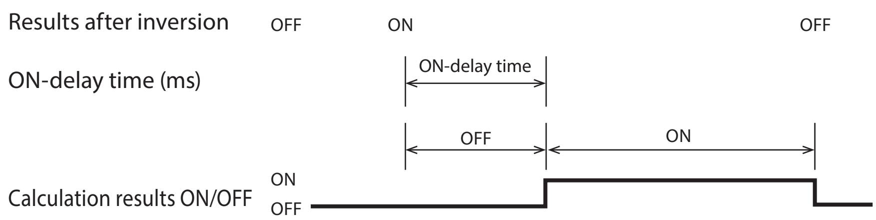
## ■ Reverse

Specify whether to reverse the calculation results specified in the calculation type.

0: Direct
1: Reverse

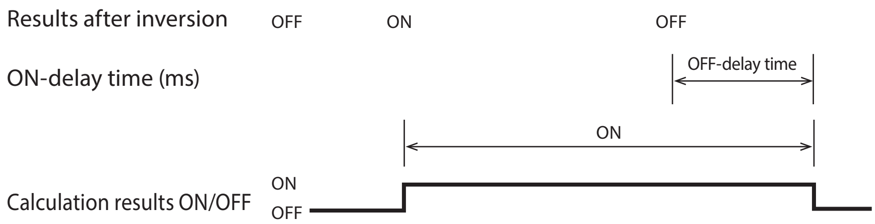
## ■ ON-delay time

Specify whether to use ON delay for the calculation results. (The inverted results are used.)



## ■ OFF-delay time

Specify whether to use OFF delay for the calculation results. (The inverted results are used.)




## ■ Latch

Select the latch operation for logical operations from the following.

0: No latch
1: Latch when ON
2: Latch when OFF (except OFF before power ON)

To release the latch, use one of the following methods.

- In the Setup bank, set Release all latches to 1 (Release latch). (This can be done only through loader or host communication.)
- In the Internal contact IN bank (digital input), set Operation type to 47 (Release all latches)
- In the Logical operation bank, set Latch to 0 (No latch).
- Turn OFF the power to this unit, and then turn it ON again.

# 7 - 12 UFLED

The UFLED function assigns LED conditions (off, lit, blink) to 10 LED operation indicators (F0–F9).
When the bit condition selected from the lighting condition changes to 1, the LED indicator is lit or blinks.

## ■ Settings bank and data fields

The following settings can be applied to the LED operation indicators (F0–F9).

| LED name | Color | Folder name | Bank name | Item name | Settings | Default (other than position proportional output) | Default (Position proportioning) | User level |
|---|---|---|---|---|---|---|---|---|
| F0 | Red | Other | UFLED settings | Lighting condition | 1024–2047: Standard bit code | 1792 (Representative of all alarms) | 1792 (Representative of all alarms) | Standard Multi-function |
| | | | UFLED settings | Lighting status | 0: Off<br>1: Lit<br>2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 3 (Fast blink) | 3 (Fast blink) | |
| F1 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1088: Event 1 | 1088: Event 1 | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) | |
| F2 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1089 (Event 2) | 1900 (MFB1OPEN) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) | |
| F3 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1090 (Event 3) | 1904 (MFB1CLOSE) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) | |
| F4 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1091 (Event 4) | 1901 (MFB2OPEN) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) | |
| F5 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1092 (Event 5) | 1905 (MFB2CLOSE) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 1 (Lit) | |
| F6 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1093 (Event 6) | 1888 (MFB1 estimation in progress) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 5 (Slow blink) | |
| F7 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1094 (Event 7) | 1889 (MFB2 estimation in progress) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 1 (Lit) | 5 (Slow blink) | |
| F8 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1545 (RS-485 status (normal reception of 1 frame)) | 1545 (RS-485 status (normal reception of 1 frame)) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 3 (Fast blink) | 3 (Fast blink) | |
| F9 | Green | Other | UFLED settings | Lighting condition | 1024–2047 (Same as F0) | 1968 (Parameter error) | 1968 (Parameter error) | |
| | | Other | UFLED settings | Lighting status | 0–6 (Same as F0) | 3 (Fast blink) | 3 (Fast blink) | |

## ■ Lighting status

| | |
|---|---|
| 0: Off | Always OFF |
| 1: Lit | Lit when lighting condition is ON. |
| 2: Lit (reverse video) | Lit when lighting condition is OFF. |
| 3: Fast blink | Fast blink when lighting condition is ON. |
| 4: Fast blink (conditional reverse video) | Fast blink when lighting condition is OFF. |
| 5: Slow blink | Slow blink when lighting condition is ON. |
| 6: Slow blink (conditional reverse video) | Slow blink when lighting condition is OFF. |

### ! Handling Precautions

- If time proportional output, etc. are assigned as conditions for lighting up, the LEDs may not be lit if the ON time is 100 ms or less.

# 7 - 13 Start Delay at Power ON

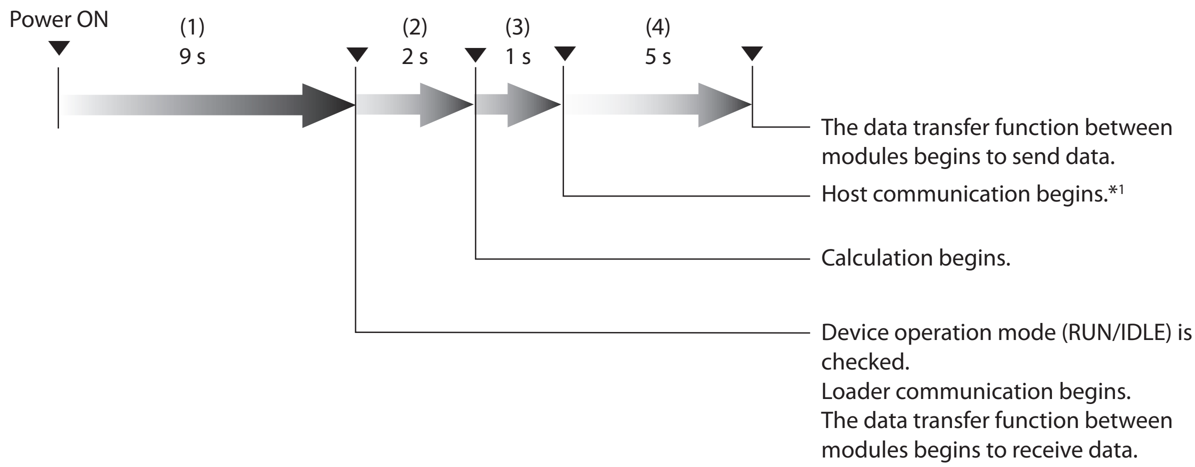
The time between turning the power on and the start of operation can be extended to a maximum of 60 s.
Operation starts once the total of the product-specific startup time required by this product (9 s), and the duration of this setting, has elapsed.
The product-specific startup time requirement cannot be shortened.
The initial setting is 2 s.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | Setup | Start delay at power ON | 0–60 s | 2 | Standard<br>Multi-function |

### Note

- The startup status is as follows: (ROM versions 2.01 [1_0_1] and later)
  During the start delay after the power is turned on, the middle and bottom LED operation indicators blink slowly.




| | |
|---|---|
| (1) Startup: | 9 seconds (fixed) |
| (2) Run delay when turned on: | 2 seconds (initial value). This setting can be changed. |
| (3) Wait time for host communication to begin: | 1 second (fixed) |
| (4) Wait time for data transfer between modules: | 5 seconds (fixed)*2 |

*1. In ROM version 1.00 [1_0_0], host communication starts after the startup status (1).

*2. In ROM versions 2.00 [1_0_1] or earlier, there is a wait for 5 seconds (fixed) before data transfer between modules after the Start delay at power ON (2).

### Handling Precautions

- Start delay at power ON should normally be set to at least 2 s. With a shorter time, the PV value may fluctuate greatly before it stabilizes.
- Use the Start delay at power On to wait for partner devices to start when communicating with other modules.

# 7 - 14 User-Defined Bits

User-defined bits are 32 ON/OFF variables that can be read and written using host or loader communication.

## ■ Example

The following describes the settings required so that when User-defined bit 1 is turned ON or OFF the mode of loop 1 is switched to READY or RUN respectively.

(1) Set RUN/READY mode selection for Internal contact 1. Configure the settings as shown below in the Internal contact IN bank setup.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Function | Internal contact IN | (Internal contact group 1) Operation type | 21: RUN/READY mode selection | Simple<br>Standard<br>Multi-function |
| | | (Internal contact group 1) Input type | 1408: User-defined bit 1 | |
| | | (Internal contact group 1) Loop/ channel definition | 1: Loop 1 | |
| | | (Internal contact group 1) Weighting | Invalid setting | |

(2) The value of user-defined bit 1 is changed from host communication. Input 0 (RUN) or 1 (READY) to the data address of User-defined bit 1 in the user-defined bit bank.

## Note

- User-defined bits are also used by the data transfer function between modules.

# 7 - 15 User-Defined Number

User-defined numbers are 16 numerical variables that can be read and written using host or loader communication.

## ■ Example

The following is an example where the analog value from the host device is received via host communication and is then output. Using User-defined number 1, host device analog values are output from Continuous output 1.

(1) Assign User-defined number 1 to Continuous output 1. In the OUT/DO output bank, set as follows.

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Input-output | Continuous output | (Continuous output 1) Output type | 0: 1–5 V or 4–20 mA | Simple<br>Standard<br>Multi-function |
| | | (Continuous output 1) Output type | 2111: User-defined number 1 | |
| | | (Continuous output 1) Loop/channel definition | Invalid setting | |
| | | (Continuous output 1) Output decimal point position | 1: 1 digit after the decimal point | |
| | | (Continuous output 1) Output scaling low limit | 0.0 | |
| | | (Continuous output 1) Output scaling high limit | 100.0 | |

(2) Change the value of User-defined number 1 from host communication. Multiply the MV from the host device by 10 and input the result into the data address of User-defined number 1 in the User-defined number bank. (If the MV is 50.0 %, input 500 into the address.)

**Note**

- User-defined numbers are also used for data transfer between modules.

# 7 - 16 Data Transfer Function between Modules

### Handling Precautions

- This function is not available on the NX-D15.
- This function is not available in any of the cooperative operation modes in the module to which multi-loop cooperative control is set. Do not set up the data transfer function between modules.
- Inter-module data transfer settings are configured from the loader. Settings for the data transfer function between modules cannot be written or read through host communication.
- If settings are read or written from the loader in the module where the data transfer function between modules operates, AL32 (Transmission timeout between modules) or AL31 (Reception monitoring) may occur.

This function transfers data between modules by setting module parameters.

## ■ Settings bank and data fields

The following data can be transmitted by the data transfer function between modules.

**Cycle period (NX-D25)**

| Folder name | Bank name | Item name | Setting range | Remarks |
|---|---|---|---|---|
| Basic | Cycle settings | Cycle period | 200 or 400 ms | Set either 200 or 400 (ms).<br>Do not set any other value.<br>If a value from 100–200 is set, the cycle period is regarded as 200 ms.<br>If a value from 201–400 is set, the cycle period is regarded as 400 ms. |

Note: ROM versions 2.00 [1_0_1] and later

**Cycle period (NX-D35)**

| Folder name | Bank name | Item name | Setting range | Remarks |
|---|---|---|---|---|
| Basic | Cycle settings | Cycle period | 100, 200, 400 (ms) | Set 100, 200 or 400 (ms).<br>Do not set any other value.<br>If 100 is set, the cycle period is regarded as 100 ms.<br>If a value from 101–200 is set, the cycle period is regarded as 200 ms.<br>If a value from 201–400 is set, the cycle period is regarded as 400 ms. |

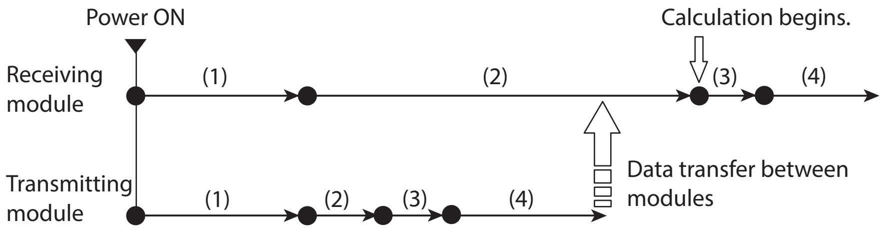
Note: ROM version 3.00 [1_0_3] and later versions

### Handling Precautions

- Set 400 ms for Cycle period if the data transfer function between modules is used for control.
- When using a module that has executed the data transfer function between modules on other instrumentation, clear all parameters using the SLP-NX loader.

## Handling Precautions

- When configuring the data transfer function between modules, be sure to configure both the sending and the receiving module. If it is necessary to stop implementation of the data transfer function between modules on a module set up for its use, in order to use it for another purpose, clear all settings for the function and set an appropriate cycle period. (200 ms for the NX-D25 and 100 ms for the NX-D35 by default)
  Problems such as the following could occur if the settings are left in place.
  - If there is a partner module: The module may unintentionally transfer data between modules and write data to the other module.
  - If there is no partner module: the module may execute connection checks for non-existent partner modules, degrading its normal communication performance.
- If the inter-module data transfer function has been used for a project, do not distribute project files to other projects where the function has not been used. Settings of the data transfer function which are not visible on the loader Setup screen can be written, and unintended operation of the data transfer function between modules can occur.
- With the inter-module data transfer function, even if normal operations cannot be performed due to the status of a partner module, the module will continue to run.
- The function cannot be used under control by the supervisor module.
- When turning on the power, if you wish to start computation after data has been received on the receiving module, set the Start delay at power ON setting on the receiving module so that it is at least seven seconds longer than that Start delay at power ON setting on the sending module. Otherwise, calculations will begin before the data is received.
  For example, be careful if data is sent and received between 2 modules.
  Be sure to fully consider the design for the power supply and start-up before use.




(1) Startup: 9 seconds (fixed)
(2) Run delay when turned on: 2 seconds (initial value)*
(3) Wait time for host communications begin: 1 second (fixed)
(4) Waiting time for data transfer between modules: 5 seconds (fixed)

* After the setup time has elapsed, calculations will begin.

### Note

- ☞ Chapter 5, "Function for Transmitting Data Between Modules," in Network Instrumentation Module User's Manual: Network Design Version, CP-SP-1313E
- ☞ "Setting Up the Inter-Module Data Transfer Function" in section 6-3, "Editing Parameters," in Network Instrumentation Module Smart Loader Package SLP-NX User's Manual, CP-UM-5636E

## ■ Supported functions

Each module to which this function is applicable supports the parameters shown below.

- NX-D25/35

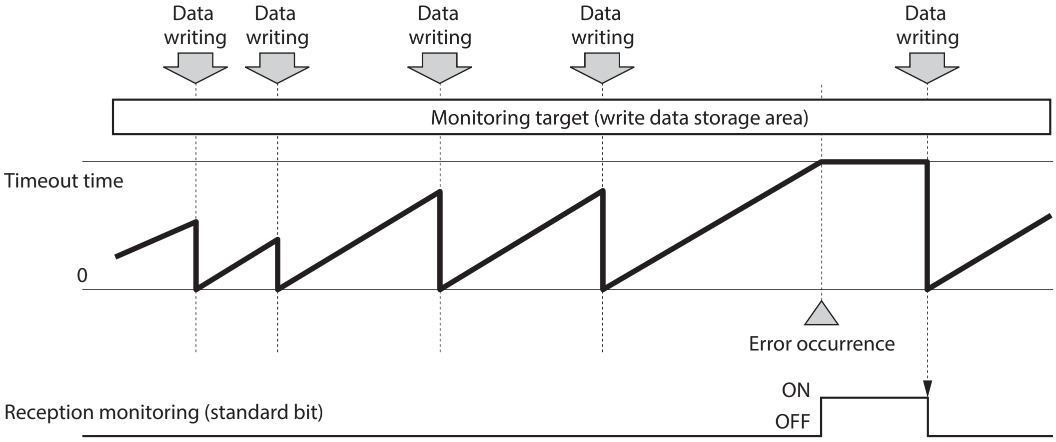
| Folder name | Bank name | Parameter name | Value | Bit |
|---|---|---|---|---|
| Basic | Loop (input) | PV assignment | ✓*2 | — |
| | Loop (input) | RSP assignment | ✓*2 | — |
| | Loop (input) | AI assignment | ✓*2 | — |
| | Position proportioning*1 | Output type | ✓*2 | — |
| Input-output | OUT/DO output | Output type | ✓*2 | ✓*2 |
| | Continuous output | Output type | ✓ | — |
| Event | Event config. | Loop/channel definition (Operation type (standard number)) | ✓ | — |
| Function | Internal contact IN | Input type | — | ✓ |
| | Logical operations | Input assignments A–D | — | ✓ |
| | MV branching output | Loop definition | ✓*2 | — |
| Other | UFLED settings | Lighting condition | — | ✓ |

*1. NX-D35 only

*2. ROM versions 2.00 [1_0_1] and later

# 7 - 17 Reception Monitoring and Communication Timeout

This function monitors whether user-defined bits and user-defined values have been written normally through communications.




## ■ Settings bank and data fields

The following settings are possible for reception monitoring 1–16.

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Function | Reception monitoring | Address | Addresses with write monitoring<br>• Any of user-defined numbers 1–16<br>• Any of user-defined bits 1–32 | 0: Not used | Standard Multi-function |
| | | Timeout | Timeout period (s) | 180 | |
| | | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | |

- Set the user-defined bit or user-defined number to monitor for writing, and then set the time until an alarm occurs. (The address to monitor is any one of the user-defined values 1–16, or any one of the user-defined bits 1–32.)
- If a reception error occurs, the corresponding standard bit (1920–1935) and the representative standard bit (1979) are activated.

**Note**

- Chapter 5, "Function for Transmitting Data Between Modules," in Network Instrumentation Module User's Manual: Network Design Version, CP-SP-1313E

## ■ Transmission timeout between modules

Alarm (AL32) will be activated if there is no response from the other module during communication or a response error (such as a write error) occurs.

Chapter 5, "Function for Transmitting Data Between Modules," in Network Instrumentation Module User's Manual: Network Design Version, CP-SP-1313E

## ■ Signal to supervisor module timeout (standard bit 1982)

This function is activated if there is no notification from the supervisor module that it has received data from the module within the specified time.

# 7 - 18 Cycle Settings

This section describes settings related to the control cycle (ROM versions 2.00 [1_0_1] and later).

## ■ Settings bank and data fields

**For the NX-D15**

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | Cycle settings | Cycle period | 500 ms | 500 ms* | Multi-function |

* Do not set any other value.

**For the NX-D25**

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | Cycle settings | Cycle period | 200: 200 ms<br>400: 400 ms | 200 | Multi-function |

**For the NX-D35**

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | Cycle settings | Cycle period | 100: 100 ms<br>200: 200 ms<br>400: 400 ms | 100 | Multi-function |

### Handling Precautions

- Do not set any values other than those above.
- Always set 400 ms if the data transfer function between modules is used on the NX-D25/35.
  ☞ 7 - 16, Data Transfer Function between Modules (page 7-30) (for details)

# 7 - 19 Input Assignment Function

The input assignment function can be used for tasks such as changing the input channels for the PV (loop) used in loop control.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop (input) | PV assignment | 0: Default<br>1: PV1. 2: PV2. 3: PV3. 4: PV4.<br>2048–3071: Standard numbers | Standard<br>Multi-function |
| | | RSP assignment | 0: Default<br>1: PV1. 2: PV2. 3: PV3. 4: PV4.<br>2048–3071: Standard numbers | |
| | | AI assignment | D15<br>0: Default<br>1*: AI1. 2: AI2. 3: AI3. 4: AI4.<br>For the NX-D25/35<br>0: Default<br>1: AI1. 2: AI2. 3: AI3. 4: AI4.<br>2048–3071: Standard numbers | |

* This function is available in ROM versions 2.00 [1_0_1] and later of the NX-D15.

**Note**

- 0 (Default) means that the same input channel as the loop number is used.
  Ex.: If loop 1 is set to 0 (Default), PV 1 is selected.
- Make the PV assignment as described in
  ☞ ■ PID control process block diagram (direct or reverse action) (page App.-5) or
  ☞ ■ PID control process block diagram (heat/cool control) (page App.-6).
- Make the RSP assignment as described in
  ☞ ■ SP process block diagram (page App.-3).
- Make the AI assignment as described in
  ☞ ■ PV input process block diagram (page App.-2).

### Handling Precautions

- In AI assignment, the PV input processes are performed on ratio, bias, linearization, range high and low limits (high and low limits for alarm issue) and alarms, and also for inputs set by the filter function, and PV inputs (channels) are created.
  ☞ ■ PV input process block diagram (page App.-2)
- If PV input (0–4) for the actual module is specified in PV assignment, PV high/low limit errors are also recognized at the PV in the assigned loop.
- If a standard numerical code (2048–3071) is specified in PV assignment, PV high/low limit errors are not recognized at the PV in the loop to which the PV is assigned.

# 7 - 20 Just-FiTTER

The Just-FiTTER function suppresses overshoot.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (algorithm) | Just-FiTTER overshoot suppression factor | 0–99 | Multi-function |
| | | Just-FiTTER settling band | 0.00–10.00 | |

### ● Function of Just-FiTTER overshoot suppression factor

If the factor is set to 0, the function is disabled.
If the setting is 1 or more, the larger the factor, the more overshoot is suppressed.

### ● Just-FiTTER settling band function

If the absolute value of the deviation (%) for the PV range is larger than this setting, Just-FiTTER goes into action. If it is smaller, Just-FiTTER judges that the PV is stable.

# 7 - 21 SP Lag

SP lag suppresses the amount of MV change when the SP is changed.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop control (algorithm) | SP lag factor | 0.0–3200.0 s | Multi-function |

### ● SP lag function

If the factor is set to 0.0, the SP lag has no effect.
If the setting is 1 or more, the larger the factor, the smaller the amount of MV change when the SP is changed, and the more strongly overshoot is suppressed.

### ● SP lag formula

OUT = OUT_1 + (IN – OUT_1)/(T/Ts + 1)

IN: Input to the SP lag
OUT: SP lag filter calculation output
OUT_1: SP lag filter calculation output (previous)
T: SP lag factor (time constant (s))
Ts: Cycle period (according to the controller setting)

### ● Initialization of SP lag

The SP lag filter calculation output is initialized under the conditions below.

- When the mode changes from READY to RUN, the SP lag is reset to the PV.
- When the mode changes from MANUAL to AUTO, the SP lag is reset to the LSP.
- When the PID is initialized after the SP or SP group is changed, the SP lag is reset to the PV.
  ☞ ■ PID control initialization (page 5-18) (for details on PID initialization)

### Handling Precautions

- During RSP and ramping, SP lag calculation continues. Even if the SP changes, the SP lag filter calculation output is not initialized.

# 7 - 22 Internal Cascade Control

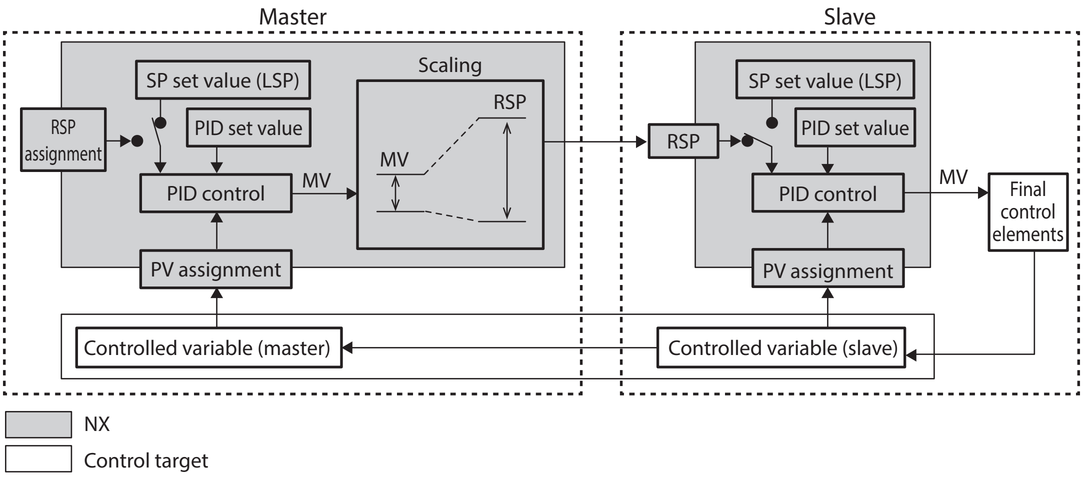
## Handling Precautions

- This function is not available on the NX-D15.
- This function is not available for multi-stage cascade controls that utilize three or more loops.

Two sets of control loops can be used within a module to control master-slave cascades. Cascade control can be used for a maximum of two groups on 4 channels, and one group on 2 channels.
This function is available for ROM version 3.00 [1_0_3] and later.
Internal cascade control function control loops can be constructed from loop 1, loop 2, loop 3, and loop 4 (NX-D25 only). Loops 1 and 3 function as the master side, while loops 2 and 4 function as the slave side.

## ■ Internal cascade control elements

Cascade controls have a double loop configuration consisting of a master-side control loop and a slave-side control loop. Master-side control loops scale the MV setting calculated by the PID control and output it to the slave-side RSP. Slave-side control loops control the slave-side PV setting so that it matches the RSP.




| Model No. | Master | Slave |
|---|---|---|
| 4 channels | Loop 1 | Loop 2 |
| | Loop 3 | Loop 4 |
| 2 channels | Loop 1 | Loop 2 |

## ■ Scaling

This section explains the methods used to scale the master-side control loop MV setting to the slave-side control loop RSP. Scaling is updated for each cycle period according to the following formula.

RSP = (MVm ÷ 100) × (SH − SL) + SL + base value

The following shows the meanings of variables used in the calculation formulas:
RSP: Remote SP
SL: Scaling low limit
SH: Scaling high limit
MVm: MV on master side

The base value depends on the scaling method used.

- For 0: Fixed
  The base value is the fixed value (0.0).
- For 1: SP basis
  The base value is the master-side SP.
- For 2: PV basis
  The base value is the master-side PV.

## ■ Internal cascade control setting methods

Internal cascade controls use one NX-D25/35 module for cascade control. The fields necessary for configuring an internal cascade control are as follows. Only the settings related to internal cascade controls are listed.

**For 4 channels**

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Setup | Loop type | 27: 1 loop (internal cascade)<br>28: 1 loop (internal cascade with RSP) + 2 loop<br>29: loop (internal cascade) | Standard<br>Multi-function |

**For 2 channels**

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Setup | Loop type | 27: 1 loop (internal cascade) | Standard<br>Multi-function |

**For 4 channels and 2 channels**

| Folder name | Bank name | Item name | Settings | User level |
|---|---|---|---|---|
| Basic | Loop output (cascade) | SP scaling method | 0: Fixed 1: SP basis 2: PV basis | Standard<br>Multi-function |
| | | Output scaling low limit | −19999 to +32000U<br>(Depends on loop PV/SP decimal point position) | |
| | | Output scaling high limit | −19999 to +32000U<br>(Depends on loop PV/SP decimal point position) | |
| | | SP output filter | 0.00–120.00 s | |

## ● Setting method

This section explains the method for constructing a single loop internal cascade control on model NX-D25/35. Configure settings in the following order.

(1) Set Loop type to 27 (1 Loop (RSP internal cascade)).

(2) Set the scaling method for loop 1 (master side) in the Loop output (cascade) bank in the Basic folder.
☞ ■ Scaling (page 7-39) (for details)

(3) Set the scaling low and scaling high limit for loop 1 (master side).

(4) Set the SP output filter for loop 1 (master side) if necessary. If the slave-side RSP or slave-side control output oscillates slightly, set the SP output filter.

(5) After completing the above settings, change "LSP/RSP" for loop 2 (slave side) on the Universal Monitor, etc., to "RSP."

**Note**

- If LSP/RSP for the slave-side control loop is changed to LSP, PID control is executed only on the slave-side control loop. When using RSP tracking, the RSP value from immediately beforehand is applied to the slave LSP.
☞ 7 - 26, RSP Tracking (page 7-48) (for details)
- When cascade control starts after the slave-side control loop LSP/RSP has been changed to RSP, the initial value of the RSP is the value of the slave-side control loop LSP.
- When the slave-side control loop is "LSP," auto-tuning can only be done for the slave-side control loop.
- When the slave-side control loop is "RSP," auto-tuning can only be done for the master-side control loop.
- When internal cascade control is active, changing either RUN/READY or AUTO/MANUAL for the master or slave control loop will also be reflected in the other control loop.
- When loop mode is MANUAL, the slave-side MV is applied to the output value for the final control elements. The master-side MV cannot be changed.
- When loop mode is MANUAL and the slave-side control loop is "RSP," the slave-side control loop SP matches the slave-side control loop PV.

# 7 - 23 IDLE/SV Communication Error Operation

"Signal to supervisor module timeout" determines the response to IDLE mode or a supervisor module communication error.
In these two situations, the output terminals execute the set operation.
This function is available for ROM version 3.00 [1_0_3] and later.

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | IDLE/SV com error op | Output type | See the tables below | 1 | Multi-function |
| | | Output (%) | −10.0 to +110.0 % | 0.0 % | |
| | | Output (ON/OFF) | 0: OFF<br>1: ON | 0: OFF | |

• (Separate sheet) Output type setup

| Output type | Operation during IDLE | IDLE/SV err (EV) op |
|---|---|---|
| 0 | Preset | Preset |
| 1 | Preset | Through |
| 2 | Preset | Bumpless |
| 3 | Bumpless | Preset |
| 4 | Bumpless | Through |
| 5 | Bumpless | Bumpless |

### ● Settings

Each output terminal (four terminals for transistor output and serial output, and four terminals for digital output) can be set individually.
It the output terminal is current or voltage output, set an output value of −10.0 to +110.0 %.
If the output terminal is transistor output or digital output and time proportioning output has been assigned to it, set the output to 0.0–100.0 %.
If the output terminal is transistor output or digital output and ON/OFF output has been assigned to it, specify ON/OFF output.

### ● Output type

- If Output type is set to Preset:
  The value set for "Output" is output in advance.
- If Output type is set to Through:
  The results of the assigned output type are output.
- If Output type is set to Bumpless:
  The output immediately prior to the IDLE mode or SV communication error is maintained.
  When control is set to RUN again and the SV communication returns to normal, the assigned output will be output.
  Bumpless output does not occur at recovery.

● **Output**

- For continuous output terminals or terminals where time proportional output is set as the output type, the output can be set in %.
- Terminals for which the ON/OFF output type is set can be set to output ON/OFF.

**Handling Precautions**

- The output type when writing parameters from the loader is the action set previously.
- "SV communication error" refers to a "supervisor module reception timeout" experienced by a module connected to the supervisor module.
  7 - 17, Reception Monitoring and Communication Timeout (page 7-33) (for details on this error)
  SV comm. errors do not occur when not using a supervisor module.
- When using multi-loop cooperative control, be sure to use a setting from 1 to 4 (Preset/Through to Bumpless/Through).
- 1 - 4, Operation Modes (page 1-8) (for details on IDLE)

**Note**

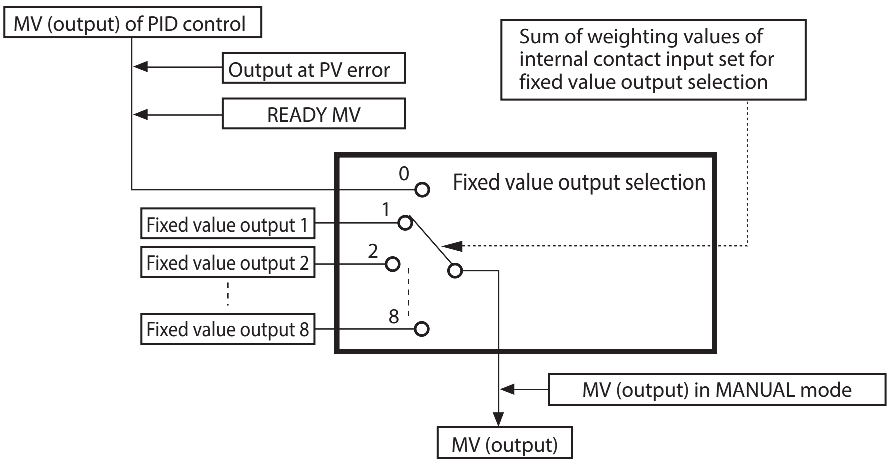
- ■ Continuous output process block diagram (page App.-8) and
  ■ OUT/DO output process block diagram (page App.-9) (for an output process block diagram)

# 7 - 24 Fixed Value Output

## Handling Precautions

- This function is not available on the NX-D15.
- However, when the sum of the internal contact input weightings is 0 or when the fixed value group selection setting is not provided for internal contact input, fixed value output cannot be used.
- Additionally, since there are 8 fixed value output settings, fixed value output 8 is selected if the sum of the internal contact input weight is 9 or more.

This unit can use a fixed value selected by the internal contact input instead of the MV (manipulated variable) of the PID control. There are eight fixed value output settings for each loop.
The priority of fixed value output is higher than the MV of the PID control, Output at PV alarm, Output at READY, Output at READY (heat), Output at READY (cool), but it is lower than the MV in MANUAL mode.
This function is available for ROM version 3.00 [1_0_3] and later.




## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Basic | Loop output (MV) | Fixed value outputs 1–8 | –10.0 to +110.0 | 0.0 | Standard<br>Multi-function |

## ■ Example

In the following example, digital inputs 1–4 are used to select fixed value outputs from 10.0 % to 70.0 % in steps of 10.0 in loop 1.

(1) Set the fixed value output as follows. In the Loop output (MV) bank, set as follows. (In this example, fixed value output 8 is not used.)

| Folder name | Bank name | Item name | Settings |
|---|---|---|---|
| Basic | Loop output (MV) | Fixed value output 1 | 10.0 |
| | | Fixed value output 2 | 20.0 |
| | | Fixed value output 3 | 30.0 |
| | | Fixed value output 4 | 40.0 |
| | | Fixed value output 5 | 50.0 |
| | | Fixed value output 6 | 60.0 |
| | | Fixed value output 7 | 70.0 |
| | | Fixed value output 8 | 0.0 |

(2) In the Internal contact IN bank, configure the settings so that the fixed value group selection uses the digital inputs DI1–DI3. Configure the settings as shown below in the Internal contact IN bank.

| Folder name | Bank name | Item name | Settings |
|---|---|---|---|
| Function | Internal contact IN | (Internal contact group 1) Operation type | 3: Fixed value output selection |
| | | (Internal contact group 1) Input type | 1152 (DI1 terminal status) |
| | | (Internal contact group 1) Loop/channel definition | 1 |
| | | (Internal contact group 1) Weighting | 1 |
| | | (Internal contact group 2) Operation type | 3: Fixed value output selection |
| | | (Internal contact group 2) Input type | 1153 (DI2 terminal status) |
| | | (Internal contact group 2) Loop/channel definition | 1 |
| | | (Internal contact group 2) Weighting | 2 |
| | | (Internal contact group 3) Operation type | 3: Fixed value output selection |
| | | (Internal contact group 3) Input type | 1154 (DI3 terminal status) |
| | | (Internal contact group 3) Loop/channel definition | 1 |
| | | (Internal contact group 3) Weighting | 4 |

### Note

- The correspondence between the state of digital inputs DI1–DI3 and the selected fixed value outputs is as follows.

| Selected fixed value output | DI1 | DI2 | DI3 |
|---|---|---|---|
| Not used | OFF | OFF | OFF |
| Fixed value output 1 | ON | OFF | OFF |
| Fixed value output 2 | OFF | ON | OFF |
| Fixed value output 3 | ON | ON | OFF |
| Fixed value output 4 | OFF | OFF | ON |
| Fixed value output 5 | ON | OFF | ON |
| Fixed value output 6 | OFF | ON | ON |
| Fixed value output 7 | ON | ON | ON |

# 7 - 25 Zener Barrier Adjustment and Wiring Resistance Correction

When using a zener barrier where PV input is a resistance temperature detector, be sure to adjust the zener barrier. This adjustment can be made even when not using a zener barrier, if the resistance of the three wires to the PV input terminals is different. Carry out adjustment for each PV channel.
This adjustment is not necessary and not possible for inputs other than input from a resistance temperature detector (RTD).
This function is available for ROM version 3.00 [1_0_3] and later.

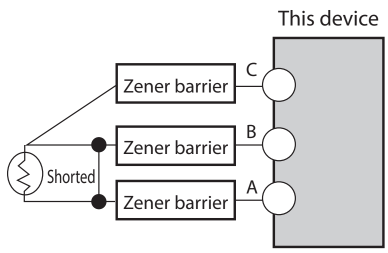
## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| Input-output | Zener barrier adjst. | Command to store adjusted values | 0: Stop adjustment<br>1: Store adjusted values<br>99: Clear adjusted values (reset to 0)<br>Values other than those above are not defined | 0 | Multi-function |
| | | Adjustment factor | –20.00 to +20.00 Ω | 0.00 Ω | |

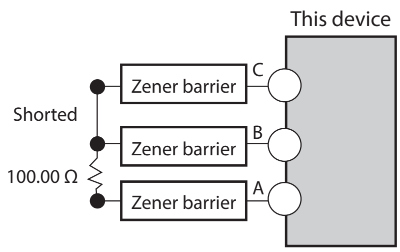
## ■ Wiring during adjustment

Use one of hard wiring statuses 1–3 below to adjust the zener barrier.

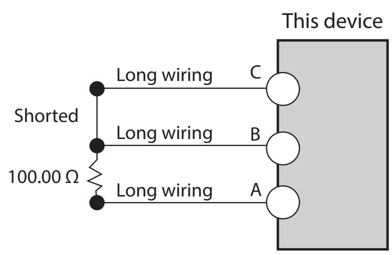
| Hard wiring status | Purpose | Range type | Wiring |
|---|---|---|---|
| 1 | Zener barrier adjustment | 41–48 | Connect A and B in the terminal sections of the resistance temperature detector (RTD) with a jumper wire. |
| 2 | Zener barrier adjustment | 41–52 | Remove the RTD, connect a 100.00 Ω resistor between A and B, and connect B and C with a jumper wire. |
| 3 | Wiring resistance correction | 41–52 | Remove the RTD that is at the end of the long extension wire, connect a 100.00 Ω resistor between A and B, and connect B and C with a jumper wire. |




Hard wiring status 1




Hard wiring status 2




Hard wiring status 3

## ■ Setting adjusted values

(1) For Range type in the PV input bank, set the number of the resistance temperature detector (RTD).

(2) Turn off the power to this device, and wire it in one of hard-wired states 1–3. When adjusting the zener barrier, use either wiring 1 or 2 as appropriate for the range type. Wire as in 3 to correct the wiring resistance.

(3) Monitor “Zener barrier adjustment monitor 1–4,” for example, by using the custom monitor editing function available on the Universal Monitor of the SLP-NX to check if they are stable.

(4) Write 0 to Command to store adjusted values.

(5) Write 1 to Command to store adjusted values. The adjusted value will then be stored.

(6) Turn off the power to this unit and rewire the RTD correctly.

## ■ Clearing the adjusted values

(1) For Range type in the PV input bank, set the number of the RTD. The adjusted values can also be cleared in any of the range types for the RTD.

(2) Write 0 to Command to store adjusted values.

(3) Write 99 to Command to store adjusted values.

(4) Turn off the power to this unit and rewire the RTD correctly.

### ! Handling Precautions

- Zener barrier adjustments can only be performed when the sensor type set in the PV input bank range type is an RTD.
- When a sensor other than an RTD is used, adjusted values cannot be stored even if a save operation is performed through a command to store adjusted values. Additionally, adjusted values cannot be cleared.
- When the value for “Command to store adjusted values” is changed from 0 to 1, the adjusted value is saved. Adjusted values will not be saved if 1 is repeatedly written.
- When the value for “Command to store adjusted values” is changed from 0 to 99, the adjusted value is reset to zero. Adjusted values are not reset if 99 is written repeatedly.
- Use zener barriers that have a resistance of 85 Ω or less, including the resistance of the wire.
- Adjust so that the difference in resistance of the zener barrier and the long extension wire is no more than 20 Ω. At a difference of more than 20 Ω, adjustment is impossible and the value cannot be written.
- After the Zener barrier has been adjusted once, the same amount of adjustment will continue to be used even if the range type is changed to a different RTD. Therefore, if a different range of RTD is used, readjust the zener barrier.

- The value written to "Command to store adjusted values" is not stored in nonvolatile memory. This value is 0 when the power is turned ON.
- When undefined values are written to Command to store adjusted values, the adjusted value will not be stored.

# 7 - 26 RSP Tracking

RSP tracking is a function to write the current RSP as the value of the LSP when RSP mode is switched to LSP mode.
If multiple SP system groups are set, the number currently selected when the mode is changed is written to the LSP.
Also, when the loop type is an internal cascade, the internal RSP is written as the slave LSP.
However, RSP tracking is not performed in the following cases.

- When the loop mode is READY
- When the loop mode is MANUAL
- While fixed value output is being output

## ■ Settings bank and data fields

| Folder name | Bank name | Item name | Settings | Default | User level |
|---|---|---|---|---|---|
| SP | SP configuration | RSP Tracking | 0: Tracking OFF<br>1: Tracking ON | 0 | Multi-function |

# Chapter 8. CPL Communication Function

## 8 - 1 Overview of Communication

Communication with a PC, PLC, or other host device can be done with a user-configured program using RS-485 communication.
CPL (Controller Peripheral Link) communication, which is Azbil Corporation's host communication protocol, or Modbus communication can be selected as the communication protocol.
This chapter describes CPL communication.

### ■ Features

The features of the module's communication function are as follows.

- Up to 31 NX-D15/25/35 units can be connected to a single master station (host device).
- If the communication specification of the host unit is RS-232C, an RS-232C/RS-485 communication converter (sold separately) is needed.
- Almost all of the controller module's parameters can be communicated.
  ☞ Chapter 12, List of Communication Data (page 12-1) (for details on communication data)
- Random access commands are available. Two or more parameters at separated addresses can be read or written by a single command.

### ■ Settings

The settings shown below are necessary for CPL communication.

| Item | Settings | Default |
|---|---|---|
| Communications type | 0: CPL<br>1: Modbus/ASCII<br>2: Modbus/RTU | 0 |
| Station address | 0: No communication<br>1 to 127 | 127 |
| Transmission speed | 0: 4800 bps<br>1: 9600 bps<br>2: 19200 bps<br>3: 38400 bps<br>4: 57600 bps<br>5: 115200 bps | 2 |
| Data format (bit length) | 0: 7 bits<br>1: 8 bits | 1 |
| Data format (parity) | 0: Even parity<br>1: Odd parity<br>2: No parity | 0 |
| Data format (stop bits) | 0: 1 bit<br>1: 2 bits | 0 |
| Communication minimum response time | 1 to 250 ms | 3 |

**! Handling Precautions**

- Configure the settings above according to the characteristics of the host unit and RS-232C/RS-485 communication converter used.
- If the setting of RS-485 communication conditions (transmission speed or data format (bit length, parity, or stop bits) fails, AL33 is generated.
  In that case, write the data again or turn the power off and back on.

## Communication process

The communication process is as follows.

(1) The host device (master station) sends an instruction message to one NX-D15/25/35 unit (slave station).

(2) The slave station receives the instruction message and reads or writes according to the content of the message.

(3) The slave station sends a response message appropriate for the type of processing.

(4) The master station receives the response message.

**Handling Precautions**

- Multiple protocols such as CPL, Modbus ASCII, and Modbus RTU cannot be used together on the same RS-485 transmission line.

# 8-2 Message Structure

## ■ Message structure

The following shows the structure of a message. Messages are broadly classified into two layers: the data link layer and the application layer.

- Data link layer
  This layer contains the basic information required for communication (for example, the destination of the communication message and the information for checking that the message was accurately transmitted).
- Application layer
  Data is read and written in this layer. The content of the layer varies according to the purpose of the message.

Messages comprise parts (1) to (8) as shown in the figure below.
The command (details sent from the master station) and the response (details returned from the slave station) are stored in the application layer.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 02H | | | | | 58H | | | | | | 03H | | | 0DH | 0AH |
| STX | | | | | X | | | | | | ETX | | | CR | LF |
| (1) | (2) | | (3) | | (4) | (5) | | | | | (6) | (7) | | (8) | |
| Data link layer | | | | | | Application layer | | | | | Data link layer | | | | |
| 1 frame | | | | | | | | | | | | | | | |

(1) STX (start of message)
(2) Station address
(3) Sub-address
(4) Device code
(5) Instruction (= command) message, response message
(6) ETX (end of command/response)
(7) Checksum
(8) Delimiter (end of message)

## ■ Data link layer

### ● Overview

The length of the data link layer, the position of each piece of data, and the number of characters of each piece of data are fixed. Note, however, that the positions in the data link layer from ETX onwards shift according to the number of characters in the application layer.

### ● Response start conditions

This device sends a response message only if all the components of the data link layer of the instruction message are correct. If even one item is incorrect, no response message is sent and the device stands by for reception of STX.

## ● Definitions of data in the data link layer

The following list gives definitions of the data in the data link layer.

| Item | Character code | Number of characters | Meaning |
|---|---|---|---|
| STX | 02H | 1 | Start of message |
| Station address | 0 to 7FH are expressed as hexadecimal character codes. | 2 | For identification of the receiving device |
| Sub-address | 00 (30H, 30H) | 2 | No function |
| Device ID code | X (58H) or x (78H) | 1 | Device type |
| ETX | 03H | 1 | End position of the application layer |
| Checksum | 00H to FFH are expressed as 2-digit hexadecimal character codes. | 2 | Checksum of message |
| Delimiter | CR (0DH), LF (0AH) | 2 | End of message |

## ● Description of data items

### ● STX (02H)

When STX is received, the device judges it to be the start of a transmitted message. It follows that, regardless of whether a delimiter ending the previous message has been received, the module judges that STX begins a new message. The purpose of this is to enable recovery of the module's response at the next message from the master station in the event that electrical noise, for example, causes a message error.

### ● Station address

Of the messages received, the module creates a response message only if the address of the intended recipient matches its own address. Station addresses in the messages are expressed as two hexadecimal characters.
The module returns the same station address as that of the received message. However, if the module's station address is set to 00 (30H 30H), the module does not respond.

### ● Sub-address

Two hexadecimal characters can be used for addresses from 00 (30H 30H) to FF (46H 46H). The module returns the same sub-address as that of the received message.

### ● Device ID code

X (58H) or x (78H) can be used. This code is determined for each device series, and other codes cannot be selected. The module returns the same device code as that of the received message. These can be used to distinguish messages. For example, X (58H) can be used for initial messages and x (78H) if a message must be resent.

### ● ETX (03H)

ETX indicates the end of the application layer.

## ● Checksum

This value is for checking whether the message content was normally received without change due to some error (e.g., electrical noise). The checksum is expressed as two hexadecimal characters.

- How to calculate the checksum
  (1) Add the character codes in the message from STX through ETX in single byte units.
  (2) Take two's complement of the low-order one byte of the addition result.
  (3) Convert the obtained two's complement to a two-byte ASCII code.
  The following is a sample checksum calculation for a sample message.
  Message example
  STX: 02H
  0: 30H (first byte of the station address)
  1: 31H (second byte of the station address)
  0: 30H (first byte of the sub-address)
  0: 30H (second byte of the sub-address)
  X: 58H (device code)
  R: 52H (first byte of the command)
  D: 44H (second byte of the command)
  [Omitted characters]
  ETX: 03H

(1) Add the character codes in the message from STX through ETX in single byte units. The byte-by-byte addition operation is as follows: 02H + 30H + 31H + 30H + 30H + 58H + 52H + 44H ... + 03H. Assume that the result is 376H.

(2) The low-order one byte of the addition result 376H is 76H. The two's complement of 76H is 8AH.

(3) Convert the obtained 8AH to a two-byte ASCII code. The result is:
8: 38H
A: 41H
The two bytes 8 (38H) and A (41H) are the checksum.

## ● Delimiter (CR/LF)

This indicates the end of the message. Immediately after LF is received, the device enters a state in which it is allowed to process the received message.

## ■ Application layer

The table below shows the configuration of the application layer.

| Item | Description |
|---|---|
| Command | RS (read decimal format data from consecutive addresses) |
| | WS (write decimal format data to consecutive addresses) |
| | RD (read hexadecimal format data from consecutive addresses) |
| | WD (write hexadecimal format data to consecutive addresses) |
| | RU (read hexadecimal format data from random addresses) |
| | WU (write hexadecimal format data to random addresses) |
| Data delimiter | RS and WS commands: "," (comma)<br>Other commands: None |
| Word address | RS and WS commands: decimal value and "W" (e.g., 501W)<br>Other commands: hexadecimal value (e.g., 01F5) |
| Numeric value to read | RS and WS commands: decimal value (e.g., 1)<br>Other commands: hexadecimal value (e.g., 0001) |
| Numeric value to write | RS and WS commands: decimal value (e.g., 100)<br>Other commands: hexadecimal value (e.g., 0064) |

The number of data items accessible by a single instruction message and response message cycle is as follows.

| Command | RAM | EEPROM |
|---|---|---|
| RD | 28 | 28 |
| WD | 28 | 28 |
| RU | 28 | 28 |
| WU | 16 | 16 |
| RS | 16 | 16 |
| WS | 16 | 16 |

**! Handling Precautions**

- 4 characters are used for the numeric representation in RD, WD, RU, and WU commands.
- If the numeric representation consists of less than 4 characters, add "0" to the left end so that there are 4 characters.

# 8-3 Description of Commands

## ■ Read fixed length continuous data command (RD command)

Data in continuous data addresses is read in hexadecimal format.

### ● Instruction message

Specifies the starting data address and the number of data items. The structure of the application layer in the instruction message is as follows.

| R D | | |
|---|---|---|
| (1) | (2) | (3) |

(1) Command
(2) Starting data address
(3) Number of data items

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning (for reading of a single data item)

| X X | |
|---|---|
| (1) | (2) |

- Normal end or warning (for reading of multiple data items)

| X X | | | |
|---|---|---|---|
| (1) | (2) | (3) | (4) |

- Abnormal end

| X X |
|---|
| (1) |

(1) End code
(2) Data (1st item)
(3) Data (2nd and following items)
(4) Data (final item)

Here, "XX" stands for the end code.
☞ 8-6, End Codes (page 8-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 8-14) (numeric value in hexadecimal notation)
- When a warning occurs, the value at the corresponding data address is read as 0 (zero).

## ■ Write fixed length continuous data command (WD command)

Data is written in hexadecimal format to continuous data addresses.

### ● Instruction message

Specifies the starting data address and at least one data item. The structure of the application layer in the instruction message is as follows.

- Write 1 data item

| W | D | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| (1) | | (2) | | | | (3) | | | |

- Write multiple data items

| W | D | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | | (2) | | | | (3) | | | | (4) | | | | | | (5) | | | |

(1) Command
(2) Starting data address
(3) Data (1st item)
(4) Data (2nd and following items)
(5) Data (final item)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| X | X |
|---|---|
| (1) | |

- Abnormal end

| X | X |
|---|---|
| (1) | |

(1) End code

Here, "XX" stands for the end code.
☞ 8 - 6, End Codes (page 8-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 8-14) (numeric value in hexadecimal notation)
- If a warning occurs, data is not written to that data address.

## ■ Read fixed length random data command (RU command)

Data is read from random (discrete) data addresses in hexadecimal format.

### ● Instruction message

Specifies at least one data address. The structure of the application layer in the instruction message is as follows.

| | | | | |
|---|---|---|---|---|
| R U | 0 0 | | | |
| (1) | (2) | (3) | (4) | (5) |

(1) Command
(2) Sub-command, fixed as 00
(3) Data address (1st item)
(4) Data address (2nd and following items)
(5) Data address (final item)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| | | | |
|---|---|---|---|
| X X | | | |
| (1) | (2) | (3) | (4) |

- Abnormal end

| |
|---|
| X X |
| (1) |

(1) End code
(2) Data (1st item)
(3) Data (2nd and following items)
(4) Data (final item)

Here, "XX" stands for the end code.
☞ 8 - 6, End Codes (page 8-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 8-14) (numeric value in hexadecimal notation)
- When a warning occurs, the value at the corresponding data address is read as 0 (zero).

## ■ Write fixed length random data command (WU command)

Data is written in hexadecimal format to random (discrete) data addresses.

### ● Instruction message

Groups data addresses with data, and specifies at least one set. The structure of the application layer in the instruction message is as follows.

| W U | 0 0 | | | ≈ | | |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |

(1) Command
(2) Sub-command, fixed as 00
(3) Data address (1st group)
(4) Write data (1st group)
(5) Data address, write data (2nd and following groups)
(6) Data address (final group)
(7) Write data (final group)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| X X |
|---|
| (1) |

- Abnormal end

| X X |
|---|
| (1) |

(1) End code

Here, "XX" stands for the end code.
☞ 8 - 6, End Codes (page 8-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 8-14) (numeric value in hexadecimal notation)
- If a warning occurs, data is not written to that data address.

## ■ Read continuous data command (RS command)

Data in continuous data addresses is read in a decimal format.

### ● Instruction message

Specifies the starting data address and the number of data items. The structure of the application layer in the instruction message is as follows.

| R | S | , | 4 | 0 | 9 | 6 | W | , | 1 |
|---|---|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | | | | | (2) | (4) |

(1) Command
(2) Data delimiter
(3) Starting data address ("W" is required)
(4) Number of data items

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning (for reading of a single data item)

| X | X | , | |
|---|---|---|---|
| (1) | | (2) | (3) |

- Normal end or warning (for reading of multiple data items)

| X | X | , | | , | | , | |
|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | (2) | (4) | (2) | (5) |

- Abnormal end

| X | X |
|---|---|
| (1) | |

(1) End code
(2) Data delimiter
(3) Data (1st item)
(4) Data (2nd and following items)
(5) Data (final item)

Here, "XX" stands for the end code.
☞ 8-6, End Codes (page 8-16) (for details on codes)

### Note

- ☞ ■ Decimal (page 8-15) (numeric value in decimal notation)
- When a warning occurs, the value at the corresponding data address is read as 0 (zero).

## ■ Write continuous data command (WS command)

Data is written in decimal format to continuous data addresses.

### ● Instruction message

Specifies the starting address and at least one data item. The structure of the application layer in the instruction message is as follows.

| W | S | , | 4 | 0 | 9 | 6 | W | , | 1 | , | 6 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | | | | | (2) | (4) | (2) | (5) | |

(1) Command
(2) Data delimiter
(3) Starting data address ("W" is required)
(4) Data (1st item)
(5) Data (2nd item)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| X | X |
|---|---|
| (1) | |

- Abnormal end

| X | X |
|---|---|
| (1) | |

(1) End code

Here, "XX" stands for the end code.
☞ 8-6, End Codes (page 8-16) (for details on codes)

### Note

- ☞ ■ Decimal (page 8-15) (numeric value in decimal notation)
- If a warning occurs, data is not written to that data address.

# 8-4 Data Address Definition

## ■ RAM and EEPROM areas of data addresses

Data addresses are categorized as follows.

| Data address | | Item | Remarks |
|---|---|---|---|
| Hexadecimal | Decimal | | |
| 100 to FFF | 256 to 4095 | EEPROM access data address | Data is written to both RAM and EEPROM, but it is read only from RAM.<br>Since data is also written to EEPROM, it is retained even when the power is turned off and back on. |
| 1000 to 4FFF | 4096 to 20479 | RAM access data address | Data at these addresses is both read from RAM and written to RAM.<br>Since data is not written to EEPROM, the values stored in EEPROM are restored when the power is turned off and back on. |
| 5000 to 8FFF | 20480 to 36863 | EEPROM access data address | Data is written to both RAM and EEPROM, but it is read only from RAM.<br>Since data is also written to EEPROM, it is retained even when the power is turned off and back on. |

### ! Handling Precautions

- EEPROM's erase-write cycles are limited.
  Accordingly, it is recommended that very frequently written parameters be written to RAM, which does not have a limitation on cycles.
  Note, however, that data written to the RAM area is overwritten with the EEPROM area data when the power is turned on.

### ● Write data range

If a value to be written exceeds the range determined by parameters, it is not written and an abnormal end code is returned.

### ● Write conditions

An abnormal end code is also returned when writing is not possible due to the conditions.

### ● Reading an undefined address

If the address to be read is undefined, undefined data will be read.

### ● Writing to an undefined address

Do not write data to an undefined address.

# 8 - 5 Numerical Representation in the Application Layer

The numeric values in the application layer include the data address, number of data items, and data values. Depending on the command, hexadecimal or decimal notation is used. This same method of notation is shared by the instruction message and the response message.

## ■ Hexadecimal

The hexadecimal specifications are shown in the table below.
If the message does not follow the specifications, the module does not process the instruction message and instead returns an error response.

| Item | Specifications | Out-of-specification examples |
|---|---|---|
| Supported commands | RD, WD, RU, WU | RS command (hexadecimal is not allowed)<br>WS command (hexadecimal is not allowed) |
| Available characters | 0–9 (30H–39H)<br>A–F (41H–46H) | 1 2 3 a (a is not allowed)<br>- 1 2 3 (- is not allowed)<br>  1 2 3 (Space is not allowed) |
| Number of characters | 4 | 1 2 3 (3 characters)<br>0 1 2 3 4 (5 characters) |
| Expressible numeric values | 8000H to 7FFFH (signed numbers)<br>0000H to FFFFH (unsigned numbers) | |
| Examples of normal character strings | 0 0 0 0<br>1 2 A B<br>0 1 2 3<br>F F F F | |

## Handling Precautions

- 4 characters are used for the numeric representation in RD, WD, RU, and WU commands.
- If the numeric representation consists of less than 4 characters, add “0” to the left end so that there are 4 characters.

## ■ Decimal

The decimal specifications are shown in the table below.
In the data address, a capital letter W (57H) is added immediately after the decimal number.
If the message does not follow the specifications, the module does not process the instruction message and instead returns an error response.

| Item | Specifications | Out-of-specification examples |
|---|---|---|
| Supported commands | RS, WS | RD command (decimal is not allowed)<br>WD command (decimal is not allowed) |
| Available characters | 0–9 (30H–39H)<br>- (2DH) | 1 2 3 A (A is not allowed)<br>+ 1 2 3 (+ is not allowed)<br>  1 2 3 (Space is not allowed) |
| Delimiter character | , (2CH)<br>The delimiter is used between two numeric values | |
| Number of characters | 1–5 (positive numbers)<br>2–6 (negative numbers)<br>1 (numeric value 0) | No characters (nothing between 2 delimiters)<br>1 2 3 4 5 6 (6-digit positive number) |
| Expressible numeric values | −32768 to +32767 (signed numbers)<br>0–65535 (unsigned numbers) | |
| Positive number notation | First digit is 1–9 (31H–39H) | 0 1 (cannot start with 0) |
| Negative number notation | Starts with - (2DH), second character is 1–9 (31H–39H) | - 0 1 (second character cannot be 0) |
| Numeric value 0 notation | 0 | - 0 (- is not allowed)<br>0 0 (Anything other than 1 character is not allowed) |
| Examples of normal character strings | 1<br>3 2 7 6 7<br>- 1 2<br>- 3 2 7 6 8 | |

# 8 - 6 End Codes

The result of the application layer process for the instruction message can be understood from the end code of the response message.
There are two levels of result other than “Normal.” An “Error” occurs when nothing was processed, and a “Warning” occurs when there is a possibility that some kind of processing was done.

## ■ End codes for the read command

| End code | Description | Processing by the module |
|---|---|---|
| 00: Normal | Normal end | Returns the value read |
| 99 (Error) | Undefined command | End code only returned (no data) |
| 10 (Error) | Parameter error* | End code only returned (no data) |
| 40 (Error) | Error in number of data items | End code only returned (no data) |
| 21 (Warning) | Data address error | Returns “0” as the value read at the address |
| 22 (Warning) | Data range error | Returns hex 8000 or 7FFF (decimal -32768 or +32767) as the value read at the address. |
| 23 (Warning) | Not possible due to instrument conditions | Returns “0” as the value read at the address |

* Parameter errors are the following.
  • Illegal numeric representation
  • Illegal instruction message format

## ■ End codes for the write command

| End code | Description | Processing by the module |
|---|---|---|
| 00: Normal | Normal end | All data was written |
| 99 (Error) | Undefined command | No data was written |
| 10 (Error) | Parameter error* | No data was written |
| 40 (Error) | Error in number of data items | No data was written |
| 21 (Warning) | Data address error | Nothing was written at the corresponding data address |
| 22 (Warning) | Data range error | Nothing was written at the corresponding data address |
| 23 (Warning) | Not possible due to instrument conditions | Nothing was written at the corresponding data address |

* Parameter errors are the following.
  • Illegal numeric representation
  • Illegal instruction message format
  • Excess data at the end of the frame

# 8 - 7 Reception and Transmission Timing

## ■ Timing specifications for instruction and response messages

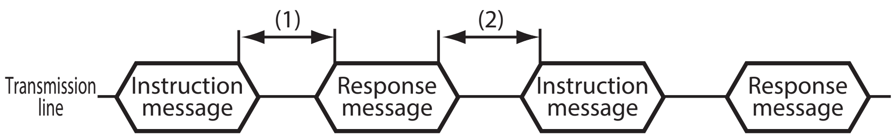
For the timing of instruction message transmission from the master station and response message transmission from the slave station, take the following into account.

### ● Response monitoring time

The maximum time for a response is two seconds (from the end of instruction message transmission by the master station until the master station receives the response from the slave station, the period indicated by (1) in the figure below).
For this reason, set the response monitoring time to two seconds.
Generally, when a response time-out occurs, the instruction message is resent.

### ● Transmission start time

A wait time of 10 ms is required before the master station starts to transmit the next instruction message (to the same slave station or a different slave station) after receiving of the response message ends ((2) in the figure below).

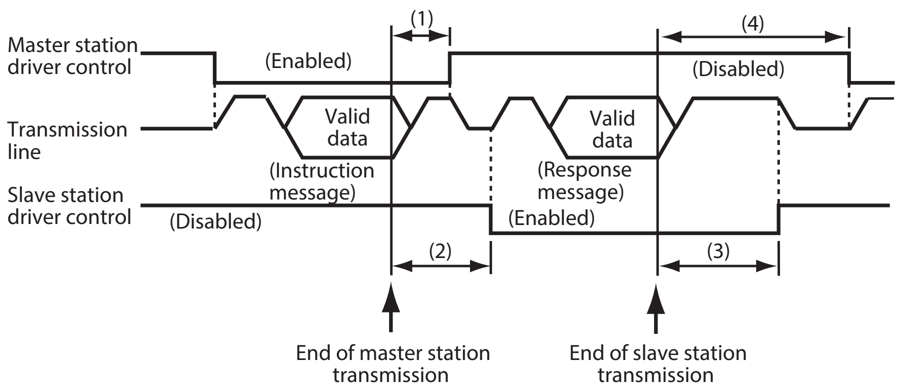



(1) End of transmission by master station – Start of transmission by slave station = 2000 ms max.

(2) End of transmission by slave station – Start of transmission by master station = 10 ms min.

## ■ Specifications of RS-485 driver control timing

When transmission/reception in an RS-485 3-wire system is directly controlled by the master station, care should be paid to the following timing:




(1) End of transmission by master station – Driver disable time = 500 μs max.

(2) End of reception by slave station – Driver enable time = Minimum response time

(3) End of transmission by slave station – Driver disable time = 10 ms max.

(4) End of reception by master station – Driver enable time = 10 ms min.

# -MEMO-

# Chapter 9. Modbus Communication Function

## 9 - 1 Overview of Communication

Communication with a PC, PLC or other host device can be done with a user-configured program using RS-485 communication.
CPL (Controller Peripheral Link) communication, which is Azbil Corporation's host communication protocol, or Modbus communication can be selected as the communication protocol. This chapter describes Modbus communication.

### ■ Features

The features of the module's communication function are as follows:

- Up to 31 NX-D15/25/35 units can be connected to a single master station (host device).
- If the communication specification of the host unit is RS-232C, an RS-232C/RS-485 communication converter (sold separately) is needed.
- Almost all of the controller module's parameters can be communicated.
  ☞ Chapter 12, List of Communication Data (for details on communication parameters)

### [!] Handling Precautions

- In MODBUS communication, the data address of this device that is set in the host device may be reduced by 1 in a communication message during transmission. Be sure to understand the specifications of the host device before using this device.

  Ex.: If the data address is set to 1001 in the host device, it will be 1000 in a transmitted communication message.

## ■ Settings

The settings shown below are necessary for Modbus communication.

| Item | Settings | Default |
|---|---|---|
| Communications type | 0: CPL<br>1: Modbus/ASCII<br>2: Modbus/RTU | 0 |
| Station address | 0: No communication<br>1 to 127 | 127 |
| Transmission speed | 0: 4800 bps<br>1: 9600 bps<br>2: 19200 bps<br>3: 38400 bps<br>4: 57600 bps<br>5: 115200 bps | 2 |
| Data format (bit length) | 0: 7 bits<br>1: 8 bits | 1 |
| Data format (parity) | 0: Even parity<br>1: Odd parity<br>2: No parity | 0 |
| Data format (stop bits) | 0: 1 bit<br>1: 2 bits | 0 |
| Communication minimum response time | 1 to 250 ms | 3 |

When the communications type is set to Modbus RTU, the operation is fixed at 8-bit data regardless of the data format (bit length) setting.

**! Handling Precautions**

- Configure the settings above according to the characteristics of the host unit and RS-232C/RS-485 communication converter used.
- If the setting of RS-485 communication conditions (transmission speed or data format (bit length, parity, or stop bits) fails, AL33 is generated. In that case, write the data again or turn the power off and back on.

## ■ Communication process

The communication process is as follows:

(1) The host device (master station) sends an instruction message to one NX-D15/25/35 unit (slave station).

(2) The slave station receives the instruction message and reads or writes according to the content of the message.

(3) The slave station sends a response message appropriate for the type of processing.

(4) The master station receives the response message.

**! Handling Precautions**

- Multiple protocols such as CPL, Modbus ASCII, and Modbus RTU cannot be used together on the same RS-485 transmission line.

# 9 - 2 Message Structure

## ■ Message structure

The following shows the structure of a message.

### ● Modbus/ASCII

Messages other than the start code and end code all use hexadecimal ASCII codes.
A MODBUS/ASCII message consists of (1) to (5) below.
The command (content sent from the master station) and the response (content returned from the slave station) are stored in (3).
One box below represents one character.

<table>
<tr><td>3AH</td><td></td><td></td><td></td><td></td><td></td><td>--------</td><td></td><td></td><td></td><td></td><td>0DH</td><td>0AH</td></tr>
<tr><td>:</td><td></td><td></td><td></td><td></td><td></td><td>--------</td><td></td><td></td><td></td><td></td><td>CR</td><td>LF</td></tr>
<tr><td>(1)</td><td colspan="2">(2)</td><td colspan="6">(3)</td><td colspan="2">(4)</td><td colspan="2">(5)</td></tr>
<tr><td colspan="13">1 frame</td></tr>
</table>

(1) Start code (1 byte)
(2) Station address (2 bytes)
(3) Send message, response message
(4) Check code (LRC) (2 bytes)
(5) End code (2 bytes)

### ● Start code

The start code is a colon (3AH).
When the start code is received, the module judges it to be the start of a transmitted message. It follows that, regardless of whether an end code for the previous message has been received, the module judges that ":" begins a new message. The purpose of this is to enable recovery of the module's response at the next message from the master station in the event that electrical noise, for example, causes a message error.

### ● Station address

Of the messages received, the module creates a response message only if the address of the intended recipient station matches its own address. Station addresses in the messages are expressed as two hexadecimal characters. However, if the module's station address is set to 00 (30H 30H), the module does not respond.
The unit returns the same station address as that of the received message.

### ● Check code (LRC)

This value is for checking whether the message content was normally received without change due to some error (e.g., electrical noise). The checksum is expressed as two hexadecimal characters. The procedure for calculating the check code is as follows.

(1) Add from the start of the station address to immediately before the check code. Make sure that the added values are not the ASCII character value of the send message, but rather the one-byte binary data that is converted from the two ASCII characters.

(2) Take the two's complement of the sum.

(3) Convert the low-order one byte of the sum to two characters that express the hexadecimal number.

### ● End code (CR/LF)

This indicates the end of the message. Immediately after LF is received, the device enters a state in which it is allowed to process the received message.

**Note**

- The following is an example of the check code (LRC) calculation.

Message example

| | |
|---|---|
| : | 3AH (start of the message) |
| 0 | 30H (first byte of the station address) |
| A | 41H (second byte of the station address) |
| 0 | 30H (first byte of the read command) |
| 3 | 33H (second byte of the read command) |
| 0 | 30H (first byte of the starting data address) |
| 3 | 33H (second byte of the starting data address) |
| E | 45H (third byte of the starting data address) |
| 9 | 39H (fourth byte of the starting data address) |
| 0 | 30H (first byte of the read count) |
| 0 | 30H (second byte of the read count) |
| 0 | 30H (third byte of the read count) |
| 2 | 32H (fourth byte of the read count) |

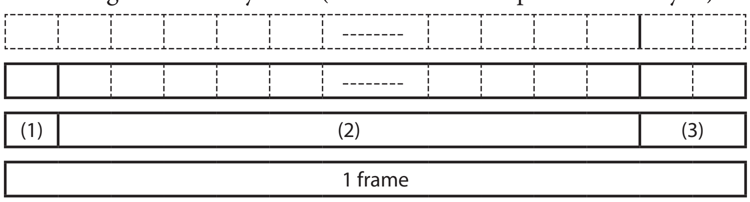
(1) Add from the first byte of the station address to immediately before the check code. The adding calculation is as follows:
0AH + 03H + 03H + E9H + 00H + 02H
The result of this calculation is FBH.

(2) The low-order one byte of the addition result FBH is unchanged at FBH. The two's complement of FBH is 05H.

(3) Convert 05H to a two-byte ASCII code. The result is:
0: 30H
5: 35H
The two bytes 0 (30H) and 5 (35H) are the two-byte check code.

### ● Modbus/RTU

All messages use binary data.
A Modbus RTU message consists of (1) to (3) below.
The command (details sent from the master station) and the response (details returned from the slave station) are stored in (2).
All messages use binary data. (One box below represents one byte.)




(1) Station address (1 byte)
(2) Send message or response message
(3) Check code (2 bytes)

## ● Station address

Of the messages that this controller receives, it responds only to those that mention its station address. Station addresses in the messages are one byte. However, if the station address is set to 0, the module does not respond even if 0 is its station address. The module returns the same sub-address as that of the received message.

## ● Check code (CRC)

This value is for checking whether the message content was normally received without change due to some error (e.g., electrical noise). The check code is two bytes.

The procedure for calculating the check code (CRC) is as follows.

The part from the start of the station address in the message to immediately before the check code is the subject of the calculation. For calculation, the binary data in the message is used without change. The check code is 16-bit data, and can be calculated with the C language function get_crc16() as shown below. In the message, the low-order one byte is first, and the high-order one byte is last. This order is the reverse of the other 16-bit data.

| | |
|---|---|
| [Description] | Calculate the CRC 16 bits |
| [Argument 1] | Character string length (number of bytes) |
| [Argument 2] | Pointer for start of character string |
| [Function value] | Result of calculation |

```
unsigned short get_crc16(signed int len, const unsigned char *p)
{
    unsigned short crc16;
    unsigned short next;
    unsigned short carry;
    signed int i;
    crc16 = 0xffff;
    while (len > 0)
    {
         next = (unsigned short)*p;
         crc16 ^= next;
         for (i = 0; i < 8; i++)
         {
             carry = crc16 & 0x0001;
             crc16 >>= 1;
             if (carry != 0)
             {
                 crc16 ^= 0xa001;
                 }
             }
             p++;
             len--;
         }
         return crc16;
    }
```

### ● Determining the end of one frame

The end of the message (end of 1 frame) is determined when the period of time during which no character is received exceeds the time specified for the transmission speed. If the next character is not received by the timeout time shown below, the frame is determined to have ended.
However, note that there is a variation of ±1 ms in the time-outs shown in the table below.

| Set transmission speed (bps) | Time-out time transmission speed (bps) |
|---|---|
| 4800 | 9 ms min. |
| 9600 | 5 ms min. |
| 19200 | 3 ms min. |
| 38400 | 2 ms min. |
| 57600 | 2 ms min. |
| 115200 | 2 ms min. |

## ■ Command type

The command (send message) types supported by this module are as follows:

| Command type | Description | | Conformance class |
|---|---|---|---|
| | ASCII | RTU | |
| Read multiple data items | 03 (2 bytes) | 03H (1 byte) | class 0 |
| Write multiple data items | 10 (2 bytes) | 10H (1 byte) | class 0 |
| Write 1 data item | 06 (2 bytes) | 06H (1 byte) | class 1* |

* This module does not support class 1 commands other than Write one data item.

## ■ Exception codes

When there is an error in a response, the exception code shown below is added after the function code.

| Error type | Exception code | | Description |
|---|---|---|---|
| | ASCII | RTU | |
| Illegal function code | 01 (2 bytes) | 01H (1 byte) | Function code not supported |
| Illegal data address | 02 (2 bytes) | 02H (1 byte) | Data address that cannot be read/written was included |
| Invalid data | 03 (2 bytes) | 03H (1 byte) | Errors other than the above |

## ■ Number of data items

The number of data items that can be read or written in a one-frame message is as follows.

| Command type (function code) | Number of data items | | | |
|---|---|---|---|---|
| | ASCII | | RTU | |
| | RAM | EEPROM | RAM | EEPROM |
| Read multiple data items (03) | 1–16 | 1–16 | 1–32 | 1–32 |
| Write multiple data items (10) | 1–16 | 1–16 | 1–32 | 1–32 |
| Write 1 data item (06) | 1 | 1 | 1 | 1 |

**Note**

- For details on the specifications for Modbus communication, refer to the following.
  ☞ Modicon Modbus Protocol Reference Guide (PI-MBUS-300 Rev. J) by Modicon, Inc.
  ☞ OPEN Modbus/TCP SPECIFICATION Release 1.0) by Schneider Electric

# 9 - 3 Description of Commands

## ■ Read multiple data items command (03H)

Data in continuous data addresses is read in hexadecimal format.

### ● Instruction message

Specifies the starting data address and the number of data items. The structure of this message is as follows.

Modbus/ASCII

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3AH | 30H | 41H | 30H | 33H | 30H | 33H | 45H | 39H | 30H | 30H | 30H | 32H | 30H | 35H | 0DH | 0AH |
| : | 0 | A | 0 | 3 | 0 | 3 | E | 9 | 0 | 0 | 0 | 2 | 0 | 5 | CR | LF |
| (1) | (2) | | (3) | | (4) | | | | (5) | | | | (6) | | (7) | |

(1) Start code
(2) Station address
(3) Function code
(4) Starting data address
(5) Number of data items
(6) Check code (LRC)
(7) End code

Modbus/RTU

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0AH | 03H | 03H | E9H | 00H | 02H | 14H | C0H |
| (1) | (2) | (3) | | (4) | | (5) | |

(1) Station address
(2) Function code
(3) Starting data address
(4) Number of data items
(5) Check code (CRC)

## ● Response message

The structure of this message is as follows.

Modbus/ASCII

• Normal example

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3AH | 30H 41H | 30H 33H | 30H 34H | 30H 33H 30H 31H | 30H 30H 30H 33H | 45H 38H | 0DH 0AH |
| : | 0 A | 0 3 | 0 4 | 0 3 0 1 | 0 0 0 3 | E 8 | CR LF |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |

(1) Start code
(2) Station address
(3) Function code
(4) Number of data items × 2
(5) Read data 1
(6) Read data 2
(7) Check code (LRC)
(8) End code

• Abnormal termination

| | | | | | |
|---|---|---|---|---|---|
| 3AH | 30H 41H | 38H 34H | 30H 31H | 37H 31H | 0DH 0AH |
| : | 0 A | 8 4 | 0 1 | 7 1 | CR LF |
| (1) | (2) | (3) | (4) | (5) | (6) |

(1) Start code
(2) Station address
(3) Function code (if an error occurs, 1 is set for the most significant bit [MSB] of the send message's function code. In this example, a response of 84 is given for the undefined 04.)
(4) Exception code (☞ Page 9-6)
(5) Check code (LRC)
(6) End code

Modbus/RTU

• Normal example

| | | | | | |
|---|---|---|---|---|---|
| 0AH | 03H | 04H | 03H 01H | 00H 03H | 51H 76H |
| (1) | (2) | (3) | (4) | (5) | (6) |

(1) Station address
(2) Function code
(3) Number of items read × 2 (= number of bytes)
(4) Read data 1
(5) Read data 2
(6) Check code (CRC)

• Abnormal termination

| | | | |
|---|---|---|---|
| 0AH | 84H | 01H | F3H 02H |
| (1) | (2) | (3) | (4) |

(1) Station address
(2) Function code (if an error occurs, 1 is set as the MSB of the send message's function code. In this example, a response of 84 is given for the undefined 04.)
(3) Exception code (☞ Page 9-6)
(4) Check code (CRC)

## ■ Write multiple data items command (10H)

Writing is performed in hexadecimal format to data in continuous data addresses.

### ● Instruction message

Specifies the starting data address and at least one data item. The structure of this message is as follows.

Ex.: The 01A0H and 0E53H values are written in two continuous data addresses from 05DDH.

Modbus/ASCII

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3AH | 30H | 31H | 31H | 30H | 30H | 35H | 44H | 44H | 30H | 30H | 30H | 32H | 30H | 34H | 30H | 31H | 41H | 30H | 30H | 45H | 35H | 33H | 30H | 35H | 0DH | 0AH |
| : | 0 | 1 | 1 | 0 | 0 | 5 | D | D | 0 | 0 | 0 | 2 | 0 | 4 | 0 | 1 | A | 0 | 0 | E | 5 | 3 | 0 | 5 | CR | LF |
| (1) | (2) | | (3) | | (4) | | | | (5) | | | | (6) | | (7) | | | | (8) | | | | (9) | | (10) | |

(1) Start code
(2) Station address
(3) Function code
(4) Write starting data address 1
(5) Write data count
(6) Write data count ×2
(7) Write data 1
(8) Write data 2
(9) Check code (LRC)
(10) End code

Modbus/RTU

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01H | 10H | 05H | DDH | 00H | 02H | 04H | 01H | A0H | 0EH | 53H | 45H | B9H |
| (1) | (2) | (3) | | (4) | | (5) | (6) | | (7) | | (8) | |

(1) Station address
(2) Function code
(3) Write starting data address
(4) Write data count
(5) Write data count ×2
(6) Write data 1
(7) Write data 2
(8) Check code (CRC)

### ● Response message

The structure of this message is as follows.

Modbus/ASCII

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3AH | 30H | 31H | 31H | 30H | 30H | 35H | 44H | 44H | 30H | 30H | 30H | 32H | 30H | 42H | 0DH | 0AH |
| : | 0 | 1 | 1 | 0 | 0 | 5 | D | D | 0 | 0 | 0 | 2 | 0 | B | CR | LF |
| (1) | (2) | | (3) | | (4) | | | | (5) | | | | (6) | | (7) | |

(1) Start code
(2) Station address
(3) Function code
(4) Write starting data address 1
(5) Write data count
(6) Check code (LRC)
(7) End code

Modbus/RTU

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 01H | 10H | 05H | DDH | 00H | 02H | D1H | 3EH |
| (1) | (2) | (3) | | (4) | | (5) | |

(1) Station address
(2) Function code
(3) Write starting data address
(4) Write data count
(5) Check code (CRC)

**Note**

- The response message in the case of an error is the same as for the Read multiple data items command.

## ■ Write 1 data item command (06H)

Data is written to a data address in hexadecimal notation.

### ● Send message

Specifies the starting data address and the number of data items. The structure of this message is as follows.

Example: The value 01A0H is written in the data address 05DDH.

Modbus/ASCII

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3AH | 30H | 31H | 30H | 36H | 30H | 35H | 44H | 44H | 30H | 31H | 41H | 30H | 37H | 36H | 0DH | 0AH |
| : | 0 | 1 | 0 | 6 | 0 | 5 | D | D | 0 | 1 | A | 0 | 7 | 6 | CR | LF |
| (1) | (2) | | (3) | | (4) | | | | (5) | | | | (6) | | (7) | |

(1) Start code
(2) Station address
(3) Function code
(4) Data address
(5) Write data
(6) Check code (LRC)
(7) End code

Modbus/RTU

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 01H | 06H | 05H | DDH | 01H | A0H | 18H | D4H |
| (1) | (2) | (3) | | (4) | | (5) | |

(1) Station address
(2) Function code
(3) Data address
(4) Write data
(5) Check code (CRC)

### ● Response message

The normal response message is the same as the send message.

**Note**

- The response message in the case of an error is the same as for the Read multiple data items command.

# 9 - 4 Numeric Value Expression

Data addresses, the number of data items, and data values are expressed using hexadecimal notation. The numeric representation varies depending on whether the communication type is Modbus ASCII or Modbus RTU. The same notation method is shared by the instruction message and the response message.

## ■ ASCII hexadecimals

The ASCII hexadecimal specifications are shown in the table below. If the message does not match the specifications, the module does not process the instruction message and instead returns an error response.

| Item | Specifications | Out-of-specification examples |
|---|---|---|
| Available characters | 0–9 (30H–39H)<br>A–F (41H–46H) | 1 2 3 a (a is not allowed)<br>- 1 2 3 (- is not allowed)<br>  1 2 3 (Space is not allowed) |
| Number of characters | 4 or 2 | 1 2 3 (3 characters)<br>0 1 2 3 4 (5 characters) |
| Expressible numeric values (4 characters) | 8000H to 7FFFH (signed numbers)<br>0000H to FFFFH (unsigned numbers) | |
| Expressible numeric values (2 characters) | 00H to FFH (signed numbers) | |
| Examples of normal character strings | 0 0 0 0<br>1 2 A B<br>0 1 2 3<br>F F F F<br>0 1<br>1 0 | |

## ■ RTU hexadecimals

The RTU hexadecimal specifications are shown in the table below. If the message does not match the specifications, the module does not process the instruction message and instead returns an error response.

| Item | Specifications | Out-of-specification examples |
|---|---|---|
| Available characters | 00H to FFH (all) | |
| Number of characters | 2 or 1 | 00H 01H 02H (3 characters) |
| Expressible numeric values (2 characters) | 8000H to 7FFFH (signed numbers)<br>0000H to FFFFH (unsigned numbers) | |
| Expressible numeric values | 00H to FFH (signed numbers) | |
| Examples of normal character strings | 00H 00H<br>12H ABH<br>01H 23H<br>FFH FFH<br>10H<br>04H | |

## Handling Precautions

- In Modbus communication, numeric values are expressed in order from the high-order to the low-order bit (big endian).

# 9 - 5 Specifications Common with CPL Communication Function

## ■ RAM and EEPROM areas of data addresses

☞ 8 - 4, Data Address Definition (page 8-13)

## ■ Specifications of RS-485 driver control timing

☞ 8 - 7, Reception and Transmission Timing (page 8-17)

# Chapter 10. CPL/TCP Communication Function

## 10 - 1 Overview of Communication

The module can communicate with a host device using the CPL/TCP protocol, which is compliant with Ethernet TCP/IP.
This function is available for ROM version 3.00 [1_0_3] and later.

### ■ Features

The features of the module's communication function are as follows.

- The module can access all modules in the linked block when a communication adapter or a communication box is attached to the right or left side of the module and a connection is made with an Ethernet cable.
- The host device can communicate via Ethernet when the module's IP address is specified.
- Almost all of the controller module's parameters can be communicated.
  ☞ Chapter 12, List of Communication Data (for details on communication parameters)

### ■ Settings

The following settings are necessary for CPL/TCP communication with the module.

| Item | Default |
|---|---|
| IP address | 192.168.255.254 |
| Netmask | 255.255.255 to 0 |
| Default gateway | None |

- The net mask and default gateway can be set for each chain by selecting the whole [Actual module configuration] window in the SLP-NX (sold separately).
- The port used by CPL/TCP is number 1252. Use 1252 or a number in the 1024–49151 range, depending on your network environment.

## ■ Communication process

With CPL/TCP, the TCP/IP socket interface is used for communications. The TCP/IP socket interface is used in different ways depending on the host device, but this section will explain the method for an ordinary computer.

(1) A TCP/IP socket connection is established from the host device (master station) to one unit (slave station).

(2) The master station sends an instruction message to a slave station.

(3) The slave station receives the instruction message and reads or writes according to the content of the message.

(4) The slave station sends a response message appropriate for the type of processing.

(5) The master station receives the response message.

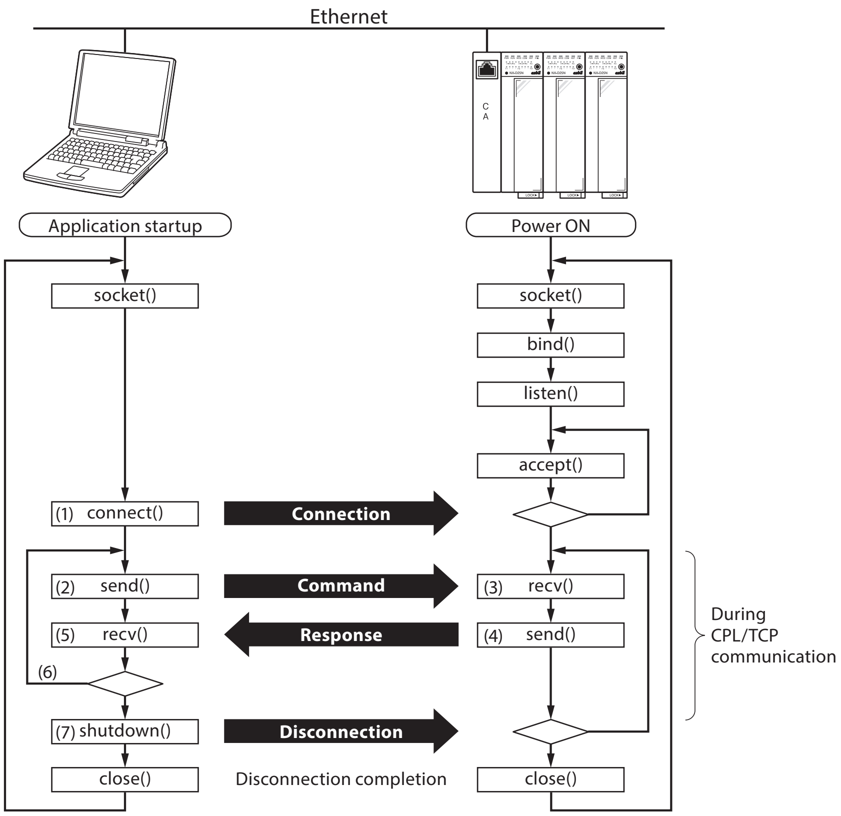
(6) To continue CPL/TCP communications, go back to (2).

(7) To end CPL/TCP communications, the master station performs a TCP/IP socket connection cutoff request process on the slave station.

**Handling Precautions**

- This device can support up to two TCP connections (one if using RS-485 communication) for CPL/TCP.
  ☞ Chapter 4, "Configuration of Serial Communications," in Network Instrumentation Module User's Manual: Network Design Version, CP-SP-1313E

## ■ Communication process for standard TCP/IP sockets



# 10 - 2 Message Structure

## ■ Message structure

The following shows the message structure. Messages are broadly classified into two layers: the data link layer and the application layer.

- Data link layer
  This layer contains the basic information required for communication (for example, the destination of the communication message and the information for checking that the message was accurately transmitted).
- Application layer
  Data is read and written in this layer. The content of the layer varies according to the purpose of the message.

Messages comprise parts (1) to (8) as shown in the figure below.
The command (details sent from the master station) and the response (details returned from the slave station) are stored in the application layer.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 02H | | | | | 58H | | | | | | 03H | | | 0DH | 0AH |
| STX | | | | | X | | | | | | ETX | | | CR | LF |
| (1) | (2) | | (3) | | (4) | (5) | | | | | (6) | (7) | | (8) | |
| Data link layer | | | | | | Application layer | | | | | Data link layer | | | | |
| 1 frame | | | | | | | | | | | | | | | |

(1) STX (start of message)
(2) Station address
(3) Sub-address
(4) Device code
(5) Instruction (= command) message, response message
(6) ETX (end of command/response)
(7) Checksum
(8) Delimiter (end of message)

## ■ Data link layer

### ● Overview

The length of the data link layer, the position of each piece of data, and the number of characters of each piece of data are fixed. Note, however, that the positions in the data link layer from ETX onwards shift according to the number of characters in the application layer.

### ● Response start conditions

This device sends a response message only if all the components of the data link layer of the instruction message are correct. If even one item is incorrect, no response message is sent and the device stands by for reception of STX.

## ● Definitions of data in the data link layer

The following list gives definitions of the data in the data link layer.

| Item | Character code | Number of characters | Meaning |
|---|---|---|---|
| STX | 02H | 1 | Start of message |
| Station address | 0 to 7FH are expressed as hexadecimal character codes. | 2 | For identification of the receiving device |
| Sub-address | 00 (30H, 30H) | 2 | No function |
| Device ID code | X (58H) or x (78H) | 1 | Device type |
| ETX | 03H | 1 | End position of the application layer |
| Checksum | 00H to FFH are expressed as 2-digit hexadecimal character codes. | 2 | Checksum of message |
| Delimiter | CR (0DH), LF (0AH) | 2 | End of message |

## ● Description of data items

### ● STX (02H)

When STX is received, the device judges it to be the start of a transmitted message. It follows that, regardless of whether a delimiter ending the previous message has been received, the module judges that STX begins a new message. The purpose of this is to enable recovery of the module's response at the next message from the master station in the event that electrical noise, for example, causes a message error.

### ● Station address

Two hexadecimal characters can be used for addresses from 00 (30H 30H) to FF (46H 46H). The module returns the same station address as that of the received message.

### ● Sub-address

Two hexadecimal characters can be used for addresses from 00 (30H 30H) to FF (46H 46H). The module returns the same sub-address as that of the received message.

### ● Device ID code

X (58H) or x (78H) can be used. This code is determined for each device series, and other codes cannot be selected. The module returns the same device code as that of the received message. These can be used to distinguish messages. For example, X (58H) can be used for initial messages and x (78H) if a message must be resent.

### ● ETX (03H)

ETX indicates the end of the application layer.

## ● Checksum

This value is for checking whether the message content was normally received without change due to some error (e.g., electrical noise).
The checksum is expressed as two hexadecimal characters.

- How to calculate the checksum

(1) Add the character codes in the message from STX through ETX in single byte units.
(2) Take two's complement of the low-order one byte of the addition result.
(3) Convert the obtained two's complement to a two-byte ASCII code.
The following is a sample checksum calculation for a sample message:

Message example
STX: 02H
0: 30H (first byte of the station address)
1: 31H (second byte of the station address)
0: 30H (first byte of the sub-address)
0: 30H (second byte of the sub-address)
X: 58H (device code)
R: 52H (first byte of the command)
D: 44H (second byte of the command)
[Omitted characters]
ETX: 03H

(1) Add the character codes in the message from STX through ETX in single byte units. The byte-by-byte addition operation is as follows:
02H + 30H + 31H + 30H + 30H + 58H + 52H + 44H ... + 03H.
Assume that the result is 376H.

(2) The low-order one byte of the addition result 376H is 76H. The two's complement of 76H is 8AH.

(3) Convert the obtained 8AH to a two-byte ASCII code. The result is:
8: 38H
A: 41H
The two bytes 8 (38H) and A (41H) are the checksum.

## ● Delimiter (CR/LF)

This indicates the end of the message. Immediately after LF is received, the device enters a state in which it is allowed to process the received message.

## ■ Application layer

The table below shows the configuration of the application layer.

| Item | Description |
|---|---|
| Command | RS (read decimal format data from consecutive addresses) |
| | WS (write decimal format data to consecutive addresses) |
| | RD (read hexadecimal format data from consecutive addresses) |
| | WD (write hexadecimal format data to consecutive addresses) |
| | RU (read hexadecimal format data from random addresses) |
| | WU (write hexadecimal format data to random addresses) |
| Data delimiter | RS, WS command: "," (comma)<br>Other commands: None |
| Word address | RS and WS commands: decimal value and "W" (e.g., 501W)<br>Other commands: hexadecimal value (e.g., 01F5) |
| Numeric value to read | RS and WS commands: decimal value (e.g., 1)<br>Other commands: hexadecimal value (e.g., 0001) |
| Numeric value to write | RS and WS commands: decimal value (e.g., 100)<br>Other commands: hexadecimal value (e.g., 0064) |

The number of data items accessible by a single instruction message and response message cycle is as follows.

| Command | RAM | EEPROM |
|---|---|---|
| RD | 28 | 28 |
| WD | 28 | 28 |
| RU | 28 | 28 |
| WU | 16 | 16 |
| RS | 16 | 16 |
| WS | 16 | 16 |

**! Handling Precautions**

- 4 characters are used for the numeric representation in RD, WD, RU, and WU commands.
- If the numeric representation consists of less than 4 characters, add "0" to the left end so that there are 4 characters.

# 10 - 3 Description of Commands

## ■ Read fixed length continuous data command (RD command)

Data in continuous data addresses is read in hexadecimal format.

### ● Instruction message

Specifies the starting data address and the number of data items. The structure of the application layer in the instruction message is as follows.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R | D | | | | | | | | |
| (1) | | (2) | | | | (3) | | | |

(1) Command
(2) Starting data address
(3) Number of data items

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning (for reading of a single data item)

| | | | | | |
|---|---|---|---|---|---|
| X | X | | | | |
| (1) | | (2) | | | |

- Normal end or warning (for reading of multiple data items)

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | X | | | | | | | | | | | | |
| (1) | | (2) | | | | (3) | | | | (4) | | | |

- Abnormal end

| | |
|---|---|
| X | X |
| (1) | |

(1) End code
(2) Data (1st item)
(3) Data (2nd and following items)
(4) Data (final item)

Here, "XX" stands for the end code.
☞ 10 - 6, (End Codes (page 10-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 10-14) (numeric value in hexadecimal notation)
- When a warning occurs, the value at the corresponding data address is read as 0 (zero).

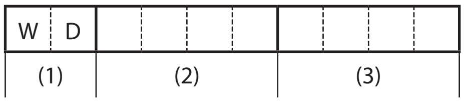
## ■ Write fixed length continuous data command (WD command)

Data is written in hexadecimal format to continuous data addresses.

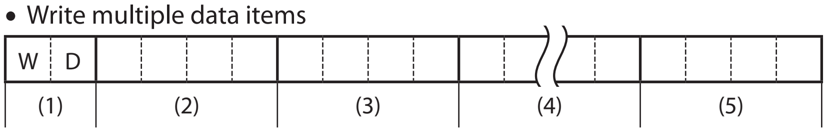
### ● Instruction message

Specifies the starting data address and at least one data item. The structure of the application layer in the instruction message is as follows.

- Write 1 data item




- Write multiple data items

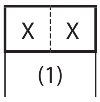



(1) Command
(2) Starting data address
(3) Data (1st item)
(4) Data (2nd and following items)
(5) Data (final item)

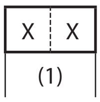
### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning




- Abnormal end




(1) End code

Here, "XX" stands for the end code.
☞ 10-6, (End Codes (page 10-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 10-14) (numeric value in hexadecimal notation)
- If a warning occurs, data is not written to that data address.

## ■ Read fixed length random data command (RU command)

Data is read from random (discrete) data addresses in hexadecimal format.

### ● Instruction message

Specifies at least one data address. The structure of the application layer in the instruction message is as follows.

| R U | 0 0 | | | |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |

(1) Command
(2) Sub-command, fixed as 00
(3) Data address (1st item)
(4) Data address (2nd and following items)
(5) Data address (final item)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| X X | | | |
|---|---|---|---|
| (1) | (2) | (3) | (4) |

- Abnormal end

| X X |
|---|
| (1) |

(1) End code
(2) Data (1st item)
(3) Data (2nd and following items)
(4) Data (final item)

Here, "XX" stands for the end code.
☞ 10-6, (End Codes (page 10-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 10-14) (numeric value in hexadecimal notation)
- When a warning occurs, the value at the corresponding data address is read as 0 (zero).

## ■ Write fixed length random data command (WU command)

Data is written in hexadecimal format to random (discrete) data addresses.

### ● Instruction message

Groups data addresses with data, and specifies at least one set. The structure of the application layer in the instruction message is as follows.

| W U | 0 0 | | | | | |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |

(1) Command
(2) Sub-command, fixed as 00
(3) Data address (1st group)
(4) Write data (1st group)
(5) Data address, write data (2nd and following groups)
(6) Data address (final group)
(7) Write data (final group)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| X X |
|---|
| (1) |

- Abnormal end

| X X |
|---|
| (1) |

(1) End code

Here, "XX" stands for the end code.
☞ 10-6, (End Codes (page 10-16) (for details on codes)

### Note

- ☞ ■ Hexadecimal (page 10-14) (numeric value in hexadecimal notation)
- If a warning occurs, data is not written to that data address.

## ■ Read continuous data command (RS command)

Data in continuous data addresses is read in a decimal format.

### ● Instruction message

Specifies the starting data address and the number of data items. The structure of the application layer in the instruction message is as follows.

| R | S | , | 4 | 0 | 9 | 6 | W | , | 1 |
|---|---|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | | | | | (2) | (4) |

(1) Command
(2) Data delimiter
(3) Starting data address (W is required)
(4) Number of data items

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning (for reading of a single data item)

| X | X | , | |
|---|---|---|---|
| (1) | | (2) | (3) |

- Normal end or warning (for reading of multiple data items)

| X | X | , | | , | | , | |
|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | (2) | (4) | (2) | (5) |

- Abnormal end

| X | X |
|---|---|
| (1) | |

(1) End code
(2) Data delimiter
(3) Data (1st item)
(4) Data (2nd and following items)
(5) Data (final item)

Here, "XX" stands for the end code.
☞ 10-6, (End Codes (page 10-16) (for details on codes)

### Note

- ☞ ■ Decimal (page 10-15) (numeric value in decimal notation)
- When a warning occurs, the value at the corresponding data address is read as 0 (zero).

## ■ Write continuous data command (WS command)

Data is written in decimal format to continuous data addresses.

### ● Instruction message

Specifies the starting address and at least one data item. The structure of the application layer in the instruction message is as follows.

| W | S | , | 4 | 0 | 9 | 6 | W | , | 1 | , | 6 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | | (2) | (3) | | | | | (2) | (4) | (2) | (5) | |

(1) Command
(2) Data delimiter
(3) Starting data address (W is required)
(4) Data (1st item)
(5) Data (2nd item)

### ● Response message

The structure of the application layer in the response message is as follows.

- Normal end or warning

| X | X |
|---|---|
| (1) | |

- Abnormal end

| X | X |
|---|---|
| (1) | |

(1) End code

Here, "XX" stands for the end code.
☞ 10-6, (End Codes (page 10-16) (for details on codes)

### Note

- ☞ ■ Decimal (page 10-15) (numeric value in decimal notation)
- If a warning occurs, data is not written to that data address.

# 10-4 Data Address Definition

## ■ RAM and EEPROM areas of data addresses

Data addresses are categorized as follows.

| Data address | | Item | Remarks |
|---|---|---|---|
| Hexadecimal | Decimal | | |
| 100 to FFF | 256 to 4095 | EEPROM access data address | Data is written to both RAM and EEPROM, but it is read only from RAM.<br>Since data is also written to EEPROM, it is retained even when the power is turned off and back on. |
| 1000 to 4FFF | 4096 to 20479 | RAM access data address | Data at these addresses is both read from RAM and written to RAM.<br>Since data is not written to EEPROM, the values stored in EEPROM are restored when the power is turned off and back on. |
| 5000 to 8FFF | 20480 to 36863 | EEPROM access data address | Data is written to both RAM and EEPROM, but it is read only from RAM.<br>Since data is also written to EEPROM, it is retained even when the power is turned off and back on. |

### ! Handling Precautions

- EEPROM's erase-write cycles are limited. Accordingly, it is recommended that very frequently written parameters be written to RAM, which does not have a limitation on cycles. Note, however, that data written to the RAM area is overwritten with the EEPROM area data when the power is turned on.

### ● Write data range

If a value to be written exceeds the range determined by parameters, it is not written and an abnormal end code is returned.

### ● Write conditions

An abnormal end code is also returned when writing is not possible due to the conditions.

### ● Reading an undefined address

If the address to be read is undefined, undefined data will be read.

### ● Writing to an undefined address

Do not write data to an undefined address.

# 10 - 5 Numerical Representation in the Application Layer

The numeric values in the application layer include the data address, number of data items, and data values. Depending on the command, hexadecimal or decimal notation is used. The same method of notation method is shared by the instruction message and the response message.

## ■ Hexadecimal

The hexadecimal specifications are shown in the table below. If the message does not follow the specifications, the module does not process the instruction message and instead returns an error response.

| Item | Specifications | Out-of-specification examples |
|---|---|---|
| Supported commands | RD, WD, RU, WU | RS command (hexadecimal is not allowed)<br>WS command (hexadecimal is not allowed) |
| Available characters | 0–9 (30H–39H)<br>A–F (41H–46H) | 1 2 3 a (a is not allowed)<br>- 1 2 3 (- is not allowed)<br>  1 2 3 (Space is not allowed) |
| Number of characters | 4 | 1 2 3 (3 characters)<br>0 1 2 3 4 (5 characters) |
| Expressible numeric values | 8000H to 7FFFH (signed numbers)<br>0000H to FFFFH (unsigned numbers) | |
| Examples of normal character strings | 0 0 0 0<br>1 2 A B<br>0 1 2 3<br>F F F F | |

## Handling Precautions

- 4 characters are used for the numeric representation in RD, WD, RU, and WU commands.
- If the numeric representation consists of less than 4 characters, add “0” to the left end so that there are 4 characters.

## ■ Decimal

The decimal specifications are shown in the table below. In the data address, a capital letter W (57H) is added immediately after the decimal number. If the message does not follow the specifications, the module does not process the instruction message and instead returns an error response.

| Item | Specifications | Out-of-specification examples |
|---|---|---|
| Supported commands | RS, WS | RD command (decimal is not allowed)<br>WD command (decimal is not allowed) |
| Available characters | 0–9 (30H–39H)<br>- (2DH) | 1 2 3 A (A is not allowed)<br>+ 1 2 3 (+ is not allowed)<br>1 2 3 (Space is not allowed) |
| Delimiter character | , (2CH)<br>The delimiter character is used between two numeric values | |
| Number of characters | 1–5 (positive numbers)<br>2–6 (negative numbers)<br>1 (numeric value 0) | No characters (nothing between 2 delimiters)<br>1 2 3 4 5 6 (6-digit positive number) |
| Expressible numeric values | −32768 to +32767 (signed numbers)<br>0 to 65535 (unsigned numbers) | |
| Positive number notation | First digit is 1–9 (31H–39H) | 0 1 (cannot start with 0) |
| Negative number notation | Starts with - (2DH), second character is 1–9 (31H–39H) | - 0 1 (second character cannot be 0) |
| Numeric value 0 notation | 0 | - 0 (- is not allowed)<br>0 0 (Anything other than 1 character is not allowed) |
| Examples of normal character strings | 1<br>3 2 7 6 7<br>- 1 2<br>- 3 2 7 6 8 | |

# 10 - 6 End Codes

The result of the application layer process for the instruction message can be understood from the end code of the response message.
There are two levels of result other than "Normal." An "Error" occurs when nothing was processed, and a "Warning" occurs when there is a possibility that some kind of processing was done.

## ■ End codes for the read command

| End code | Description | Processing by the module |
|---|---|---|
| 00: Normal | Normal end | Returns the value read |
| 99 (Error) | Undefined command | End code only returned (no data) |
| 10 (Error) | Parameter error* | End code only returned (no data) |
| 40 (Error) | Error in number of data items | End code only returned (no data) |
| 21 (Warning) | Data address error | Returns "0" as the value read at the data address |
| 22 (Warning) | Data range error | Returns hex 8000 or 7FFF (decimal -32768 or +32767). |
| 23 (Warning) | Not possible due to instrument conditions | Returns "0" as the value read at the address |

* Parameter errors are the following.
- Illegal numeric representation
- Illegal instruction message format

## ■ End codes for the write command

| End code | Description | Processing by the module |
|---|---|---|
| 00: Normal | Normal end | All data was written |
| 99 (Error) | Undefined command | No data was written |
| 10 (Error) | Parameter error* | No data was written |
| 40 (Error) | Error in number of data items | No data was written |
| 21 (Warning) | Data address error | Nothing was written at the corresponding data address |
| 22 (Warning) | Data range error | Nothing was written at the corresponding data address |
| 23 (Warning) | Not possible due to instrument conditions | Nothing was written at the corresponding data address |

* Parameter errors are the following.
- Illegal numeric representation
- Illegal instruction message format
- Excess data at the end of the frame

# Chapter 11. Modbus/TCP Communication Function

## 11 - 1 Overview of Communication

The module can communicate with a host device using the Modbus/TCP protocol, which is compliant with Ethernet TCP/IP.

### ■ Features

The features of the module's communication function are as follows.

- The module can access all modules in the linked block when a communication adapter or a communication box is attached to the right or left side of the module and a connection is made with an Ethernet cable.
- The host device can communicate via Ethernet when the module's IP address is specified.
- Almost all of the controller module's parameters can be communicated.
  ☞ Chapter 12, (List of Communication Data (for details on communication parameters)

### Handling Precautions

- In MODBUS communications, the data address of this device that is set in the host device may be reduced by 1 in a communication message during transmission. Be sure to understand the specifications of the host device before using this device.

  Ex.: If the data address is set to 1001 in the host device, it will be 1000 in a transmitted communication message.

### ■ Settings

The following settings are necessary for Modbus/TCP communication with the module.

| Item | Default |
|---|---|
| IP address | 192.168.255.254 |
| Netmask | 255.255.255 to 0 |
| Default gateway | None |

- The net mask and default gateway can be set for each chain by selecting the whole [Actual module configuration] window in the SLP-NX (sold separately).
- The port used by Modbus/TCP is number 502. Use 502 or a number in the 1024–49151 range, depending on your network environment.

## ■ Communication process

Modbus TCP uses the TCP/IP socket interface for communication. The TCP/IP socket interface is used in different ways depending on the host device, but this section will explain the method for an ordinary computer.

(1) A TCP/IP socket connection is established from the host device (master station) to one unit (slave station).

(2) The master station sends an instruction message to a slave station.

(3) The slave station receives the instruction message and reads or writes according to the content of the message.

(4) The slave station sends a response message appropriate for the type of processing.

(5) The master station receives the response message.

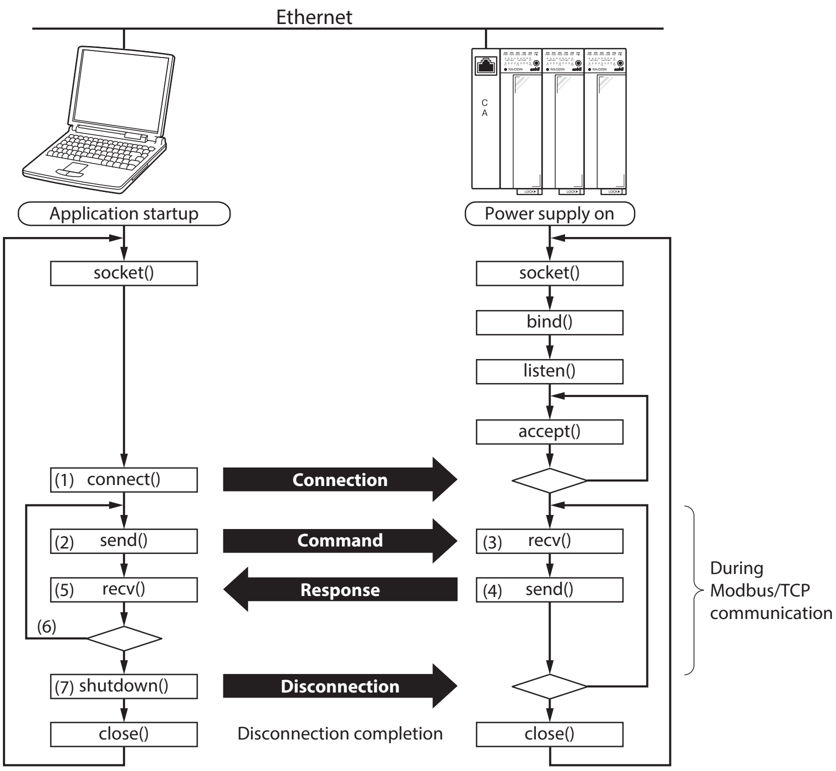
(6) To continue the Modbus/TCP communication, return to (2).

(7) To end Modbus/TCP communications, the master station performs a TCP/IP socket connection cutoff request process on the slave station.

**! Handling Precautions**

- This device can support up to two TCP connections (one if using RS-485 communication) for Modbus/TCP.
  ☞ Chapter 4, "Configuration of Serial Communications," in Network Instrumentation Module User's Manual: Network Design Version, CP-SP-1313E

## ■ Communication process for standard TCP/IP sockets

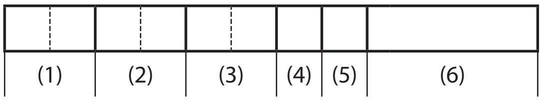


# 11 - 2 Message Structure

## ■ Message structure

A TCP/IP frame is used. A Modbus/TCP message is shown in the TCP data section.

### ● Modbus/TCP




| | |
|---|---|
| (1) Transaction Identifier (2 bytes) | No special definition |
| (2) Protocol Identifier (2 bytes) | 0000H for Modbus protocol |
| (3) Length (2 bytes) | Expresses the number of bytes in (4)–(6). |
| (4) Unit Identifier (1 byte) | Specify FFH or 00H. |
| (5) Function (1 byte) | Specify a function code. |
| (6) Data (n bytes) | A string of data that depends on the function code |

### ● Data details

- Transaction Identifier
  The request and its response have the same value.
  The host station can use the transaction identifier to confirm that the data is the response to the request.
- Protocol Identifier
  Specify 0000H when using the Modbus protocol.
- Length
  Shows the bit length in bytes starting from the unit identifier.
- Unit Identifier
  Specify FFH or 00H.
- Function
  Specifies the function code.
- Data
  Communications data

### ● Frame detection method

A TCP frame is equivalent to one Modbus TCP frame.

### ● Port

The TCP port used by Modbus/TCP is number 502 (the default setting).

### ● Function codes

Function Codes 3 (03H), 16 (10H), and 6 (06H) are supported.

## ■ Exception code

When a response message has an error, the exception code shown below is put after the function code.

| Error type | Exception code | Description |
|---|---|---|
| Illegal function code | 01 (2 bytes) | Function code not supported by this device |
| Illegal data address (02H) | 02 (2 bytes) | Data address that cannot be read/written was included. |
| Invalid data | 03 (2 bytes) | Errors other than the above |

## ■ Number of data items

The number of data items that can be read or written in a one frame message is as follows:

| Command type (function code) | Number of data items | |
|---|---|---|
| | RAM | EEPROM |
| Read multiple data items (03H) | 1–64 | 1–64 |
| Write multiple data items (10H) | 1–32 | 1–32 |
| Write 1 data item (06H) | 1 | 1 |

### Note

- For details on the specifications for Modbus communication, refer to the following.
- ☞ Modicon Modbus Protocol Reference Guide (PI-MBUS-300 Rev. J) by Modicon, Inc.
  ☞ OPEN Modbus/TCP SPECIFICATION Release 1.0) by Schneider Electric

# 11 - 3 Description of Commands

## ■ Application section

The following notation

| |
|---|
| X X |
| (1) |

indicates 1 byte of data in hexadecimal notation (high is nibble on the left).

## ■ Read multiple data items command (03H)

### ● For one data item

- Request

| | | |
|---|---|---|
| 0 3 | | |
| (1) | (2) | (3) |

(1) Function code (Read Holding Registers)
(2) Starting data address
(3) Number of data items (=1)

- Normal response

| | | |
|---|---|---|
| 0 3 | | |
| (1) | (2) | (3) |

(1) Function code (Read Holding Registers)
(2) Number of bytes (= 2)
(3) Data that was read

- Abnormal response

| | |
|---|---|
| 8 3 | |
| (1) | (2) |

(1) Error code (Read Holding Registers)
(2) Exception code (=01H, 02H, 03H, or 06H)

### ● For multiple data items

- Request

| | | |
|---|---|---|
| 0 3 | | |
| (1) | (2) | (3) |

(1) Function code (Read Holding Registers)
(2) Starting data address
(3) Number of data items

- Normal response

| | | | | |
|---|---|---|---|---|
| 0 3 | | | … | |
| (1) | (2) | (3) | | (3) |

(1) Function code (Read Holding Registers)
(2) Number of bytes
(3) Data that was read (all read data is continuous)

- Abnormal response

| | |
|---|---|
| 8 3 | |
| (1) | (2) |

(1) Error code (Read Holding Registers)
(2) Exception code (=01, 02, 03, or 06)

## ■ Write multiple data items command (10H)

### ● For one data item

• Request

| | | | | |
|---|---|---|---|---|
| 1 0 | | | | |
| (1) | (2) | (3) | (4) | (5) |

(1) Function code (Write Multiple Registers)
(2) Starting data address
(3) Number of read records (= 1)
(4) Number of bytes (= number of data items × 2)
(5) Write data

• Normal response

| | | |
|---|---|---|
| 1 0 | | |
| (1) | (2) | (3) |

(1) Function code (Write Multiple Registers)
(2) Starting data address
(3) Number of data items (=1)

• Abnormal response

| | |
|---|---|
| 9 0 | |
| (1) | (2) |

(1) Error code (Write Multiple Registers)
(2) Exception code (=01H, 02H, 03H, or 06H)

### ● For multiple data items

• Request

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 0 | | | | | | |
| (1) | (2) | (3) | (4) | (5) | | (5) |

(1) Function code (Write Multiple Registers)
(2) Starting data address
(3) Number of data items
(4) Number of bytes (= number of data items × 2)
(5) Write data

• Normal response

| | | |
|---|---|---|
| 1 0 | | |
| (1) | (2) | (3) |

(1) Function code (Write Multiple Registers)
(2) Starting data address
(3) Number of data items

• Abnormal response

| | |
|---|---|
| 9 0 | |
| (1) | (2) |

(1) Error code (Write Multiple Registers)
(2) Exception code (=01H, 02H, 03H, or 06H)

## ■ Write 1 data item command (06H)

- Request

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 6 | | | | | | | | |
| (1) | | (2) | | | | (3) | | | |

(1) Function code (Write Single Register)
(2) Write address
(3) Write data

- Normal response

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 6 | | | | | | | | |
| (1) | | (2) | | | | (3) | | | |

(1) Function code (Write Single Register)
(2) Write address
(3) Write data (echoed back)

- Abnormal response

| | | | |
|---|---|---|---|
| 8 | 6 | | |
| (1) | | (2) | |

(1) Error code (Write Single Register)
(2) Exception code (=01H, 02H, 03H, or 06H)

## -MEMO-

# Chapter 12. List of Communication Data

## ■ Comments on the table

### ● The meaning of the symbols in the RAM/EEPROM Read/Write columns is as follows.

No symbol: Possible
×: Not possible

**Handling Precautions**

- When reading the EEPROM address, data in the RAM is read in the same manner as the reading of the RAM address.
- Even if there is no symbol, reading or writing might not be possible depending on the conditions.

### ● Decimal point information

| | | |
|---|---|---|
| – | : | No decimal point |
| 1 to 3 | : | Number of decimal places (in data from communication, the original value is multiplied by 10, 100, or 1000) |
| PID_PV | : | Determined by the settings for loops 1–4 in the Loop control (basic) bank (Loop PV/SP decimal point position), etc.<br>☞ Appendix-4, PID_PV Decimal Point Information (page App.-19) |
| PV | : | Determined by the settings for PV1–4 in the PV input bank (Decimal point position). |
| RAMP | : | Determined by the settings for loops 1–4 in the SP configuration bank (SP ramp unit). |
| OUT | : | Determined by the settings for outputs 1–4 in the Continuous output bank (Output decimal point position). |
| EV | : | Determined by the settings for event Nos. 1–24 in the Event config. bank (Decimal point position). |
| PID | : | Determined by the settings for loops 1–4 in the Loop (extended) bank (Integral time/derivative time decimal point position). |
| TBL | : | Determined by the settings for Linearizations 1–8 in the Linearization table bank (Breakpoint decimal point position). |

### ● Modbus communications

**Handling Precautions**

- In Modbus communications, the data address of this device that is set in the host device may be reduced by 1 in a communication message during transmission. Be sure to understand the specifications of the host device before using this device.

  Ex.: If the data address is set to 1001 in the host device, it will be 1000 in a transmitted communication message.

# Monitor/Communications Profile

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | Comm. (device) | 1 | RUN/READY | 14352 | 3810 | 30736 | 7810 | | × | | × | — | |
| Monitor | Comm. (device) | 1 | AUTO/MANUAL | 14353 | 3811 | 30737 | 7811 | | × | | × | — | |
| Monitor | Comm. (device) | 1 | AT cancel/execute | 14354 | 3812 | 30738 | 7812 | | × | | × | — | *1 |
| Monitor | Comm. (device) | 1 | LSP/RSP | 14355 | 3813 | 30739 | 7813 | | × | | × | — | |
| Monitor | Comm. (device) | 1 | PV (loop) | 14356 | 3814 | 30740 | 7814 | | × | | × | PID_PV | |
| Monitor | Comm. (device) | 1 | SP | 14357 | 3815 | 30741 | 7815 | | × | | × | PID_PV | *2 |
| Monitor | Comm. (device) | 1 | MV | 14358 | 3816 | 30742 | 7816 | | × | | × | 1 | |
| Monitor | Comm. (device) | 2 | RUN/READY | 14360 | 3818 | 30744 | 7818 | | × | | × | — | |
| Monitor | Comm. (device) | 2 | AUTO/MANUAL | 14361 | 3819 | 30745 | 7819 | | × | | × | — | |
| Monitor | Comm. (device) | 2 | AT cancel/execute | 14362 | 381A | 30746 | 781A | | × | | × | — | *1 |
| Monitor | Comm. (device) | 2 | LSP/RSP | 14363 | 381B | 30747 | 781B | | × | | × | — | |
| Monitor | Comm. (device) | 2 | PV (loop) | 14364 | 381C | 30748 | 781C | | × | | × | PID_PV | |
| Monitor | Comm. (device) | 2 | SP | 14365 | 381D | 30749 | 781D | | × | | × | PID_PV | *2 |
| Monitor | Comm. (device) | 2 | MV | 14366 | 381E | 30750 | 781E | | × | | × | 1 | |
| Monitor | Comm. (device) | 3 | RUN/READY | 14368 | 3820 | 30752 | 7820 | | × | | × | — | Not available for 2 channels |
| Monitor | Comm. (device) | 3 | AUTO/MANUAL | 14369 | 3821 | 30753 | 7821 | | × | | × | — | Not available for 2 channels |
| Monitor | Comm. (device) | 3 | AT cancel/execute | 14370 | 3822 | 30754 | 7822 | | × | | × | — | Not available for 2 channels*1 |
| Monitor | Comm. (device) | 3 | LSP/RSP | 14371 | 3823 | 30755 | 7823 | | × | | × | – | Not available for 2 channels |
| Monitor | Comm. (device) | 3 | PV (loop) | 14372 | 3824 | 30756 | 7824 | | × | | × | PID_PV | Not available for 2 channels |
| Monitor | Comm. (device) | 3 | SP | 14373 | 3825 | 30757 | 7825 | | × | | × | PID_PV | Not available for 2 channels*2 |
| Monitor | Comm. (device) | 3 | MV | 14374 | 3826 | 30758 | 7826 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Comm. (device) | 4 | RUN/READY | 14376 | 3828 | 30760 | 7828 | | × | | × | — | Not available for 2 channels |
| Monitor | Comm. (device) | 4 | AUTO/MANUAL | 14377 | 3829 | 30761 | 7829 | | × | | × | — | Not available for 2 channels |
| Monitor | Comm. (device) | 4 | AT cancel/execute | 14378 | 382A | 30762 | 782A | | × | | × | — | Not available for 2 channels*1 |
| Monitor | Comm. (device) | 4 | LSP/RSP | 14379 | 382B | 30763 | 782B | | × | | × | – | Not available for 2 channels |
| Monitor | Comm. (device) | 4 | PV (loop) | 14380 | 382C | 30764 | 782C | | × | | × | PID_PV | Not available for 2 channels |
| Monitor | Comm. (device) | 4 | SP | 14381 | 382D | 30765 | 782D | | × | | × | PID_PV | Not available for 2 channels*2 |
| Monitor | Comm. (device) | 4 | MV | 14382 | 382E | 30766 | 782E | | × | | × | 1 | Not available for 2 channels |
| Monitor | Comm. (operation) | 1 | SP group selection | 14592 | 3900 | 30976 | 7900 | | | | | — | |
| Monitor | Comm. (operation) | 1 | LSP | 14593 | 3901 | 30977 | 7901 | | | | | PID_PV | |
| Monitor | Comm. (operation) | 1 | Manual MV | 14594 | 3902 | 30978 | 7902 | | | | | 1 | *3 |
| Monitor | Comm. (operation) | 1 | RUN/READY | 14595 | 3903 | 30979 | 7903 | | | | | — | |
| Monitor | Comm. (operation) | 1 | AUTO/MANUAL | 14596 | 3904 | 30980 | 7904 | | | | | — | |
| Monitor | Comm. (operation) | 1 | AT cancel/execute | 14597 | 3905 | 30981 | 7905 | | | | | — | *1 |
| Monitor | Comm. (operation) | 1 | LSP/RSP | 14598 | 3906 | 30982 | 7906 | | | | | — | |
| Monitor | Comm. (operation) | 2 | SP group selection | 14600 | 3908 | 30984 | 7908 | | | | | — | |
| Monitor | Comm. (operation) | 2 | LSP | 14601 | 3909 | 30985 | 7909 | | | | | PID_PV | |
| Monitor | Comm. (operation) | 2 | Manual MV | 14602 | 390A | 30986 | 790A | | | | | 1 | *3 |
| Monitor | Comm. (operation) | 2 | RUN/READY | 14603 | 390B | 30987 | 790B | | | | | — | |
| Monitor | Comm. (operation) | 2 | AUTO/MANUAL | 14604 | 390C | 30988 | 790C | | | | | — | |
| Monitor | Comm. (operation) | 2 | AT cancel/execute | 14605 | 390D | 30989 | 790D | | | | | — | *1 |
| Monitor | Comm. (operation) | 2 | LSP/RSP | 14606 | 390E | 30990 | 790E | | | | | — | |
| Monitor | Comm. (operation) | 3 | SP group selection | 14608 | 3910 | 30992 | 7910 | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 3 | LSP | 14609 | 3911 | 30993 | 7911 | | | | | PID_PV | Not available for 2 channels |
| Monitor | Comm. (operation) | 3 | Manual MV | 14610 | 3912 | 30994 | 7912 | | | | | 1 | Not available for 2 channels*3 |
| Monitor | Comm. (operation) | 3 | RUN/READY | 14611 | 3913 | 30995 | 7913 | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 3 | AUTO/MANUAL | 14612 | 3914 | 30996 | 7914 | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 3 | AT cancel/execute | 14613 | 3915 | 30997 | 7915 | | | | | — | Not available for 2 channels*1 |
| Monitor | Comm. (operation) | 3 | LSP/RSP | 14614 | 3916 | 30998 | 7916 | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 4 | SP group selection | 14616 | 3918 | 31000 | 7918 | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 4 | LSP | 14617 | 3919 | 31001 | 7919 | | | | | PID_PV | Not available for 2 channels |
| Monitor | Comm. (operation) | 4 | Manual MV | 14618 | 391A | 31002 | 791A | | | | | 1 | Not available for 2 channels*3 |
| Monitor | Comm. (operation) | 4 | RUN/READY | 14619 | 391B | 31003 | 791B | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 4 | AUTO/MANUAL | 14620 | 391C | 31004 | 791C | | | | | — | Not available for 2 channels |
| Monitor | Comm. (operation) | 4 | AT cancel/execute | 14621 | 391D | 31005 | 791D | | | | | — | Not available for 2 channels*1 |
| Monitor | Comm. (operation) | 4 | LSP/RSP | 14622 | 391E | 31006 | 791E | | | | | — | Not available for 2 channels |

* 1. The communication profile item "AT cancel/execute" is the same as "AT stop/start."

* 2. The SP used in each loop is read. During ramp operation and RSP, the changing value is read.
If the ramp is stopped during MANUAL or READY (etc.), the LSP is read.

* 3. Writing is prohibited in AUTO mode. The current MV is read. In MANUAL, the written value is applied as the manual MV.

# Monitor/Communications Profile

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | Comm. (current PID) | 1 | Current proportional band | 14848 | 3A00 | 31232 | 7A00 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 1 | Current integral time | 14849 | 3A01 | 31233 | 7A01 | | | | | PID | * |
| Monitor | Comm. (current PID) | 1 | Current derivative time | 14850 | 3A02 | 31234 | 7A02 | | | | | PID | * |
| Monitor | Comm. (current PID) | 1 | Current manual reset | 14851 | 3A03 | 31235 | 7A03 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 1 | Current MV low limit | 14852 | 3A04 | 31236 | 7A04 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 1 | Current MV high limit | 14853 | 3A05 | 31237 | 7A05 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 1 | Current proportional band for cooling | 14854 | 3A06 | 31238 | 7A06 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 1 | Current integral time for cooling | 14855 | 3A07 | 31239 | 7A07 | | | | | PID | * |
| Monitor | Comm. (current PID) | 1 | Current derivative time for cooling | 14856 | 3A08 | 31240 | 7A08 | | | | | PID | * |
| Monitor | Comm. (current PID) | 1 | Current MV low limit for cooling | 14858 | 3A0A | 31242 | 7A0A | | | | | 1 | * |
| Monitor | Comm. (current PID) | 1 | Current MV high limit for cooling | 14859 | 3A0B | 31243 | 7A0B | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current proportional band | 14860 | 3A0C | 31244 | 7A0C | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current integral time | 14861 | 3A0D | 31245 | 7A0D | | | | | PID | * |
| Monitor | Comm. (current PID) | 2 | Current derivative time | 14862 | 3A0E | 31246 | 7A0E | | | | | PID | * |
| Monitor | Comm. (current PID) | 2 | Current manual reset | 14863 | 3A0F | 31247 | 7A0F | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current MV low limit | 14864 | 3A10 | 31248 | 7A10 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current MV high limit | 14865 | 3A11 | 31249 | 7A11 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current proportional band for cooling | 14866 | 3A12 | 31250 | 7A12 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current integral time for cooling | 14867 | 3A13 | 31251 | 7A13 | | | | | PID | * |
| Monitor | Comm. (current PID) | 2 | Current derivative time for cooling | 14868 | 3A14 | 31252 | 7A14 | | | | | PID | * |
| Monitor | Comm. (current PID) | 2 | Current MV low limit for cooling | 14870 | 3A16 | 31254 | 7A16 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 2 | Current MV high limit for cooling | 14871 | 3A17 | 31255 | 7A17 | | | | | 1 | * |
| Monitor | Comm. (current PID) | 3 | Current proportional band | 14872 | 3A18 | 31256 | 7A18 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current integral time | 14873 | 3A19 | 31257 | 7A19 | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current derivative time | 14874 | 3A1A | 31258 | 7A1A | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current manual reset | 14875 | 3A1B | 31259 | 7A1B | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current MV low limit | 14876 | 3A1C | 31260 | 7A1C | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current MV high limit | 14877 | 3A1D | 31261 | 7A1D | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current proportional band for cooling | 14878 | 3A1E | 31262 | 7A1E | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current integral time for cooling | 14879 | 3A1F | 31263 | 7A1F | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current derivative time for cooling | 14880 | 3A20 | 31264 | 7A20 | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current MV low limit for cooling | 14882 | 3A22 | 31266 | 7A22 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 3 | Current MV high limit for cooling | 14883 | 3A23 | 31267 | 7A23 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current proportional band | 14884 | 3A24 | 31268 | 7A24 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current integral time | 14885 | 3A25 | 31269 | 7A25 | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current derivative time | 14886 | 3A26 | 31270 | 7A26 | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current manual reset | 14887 | 3A27 | 31271 | 7A27 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current MV low limit | 14888 | 3A28 | 31272 | 7A28 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current MV high limit | 14889 | 3A29 | 31273 | 7A29 | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current proportional band for cooling | 14890 | 3A2A | 31274 | 7A2A | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current integral time for cooling | 14891 | 3A2B | 31275 | 7A2B | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current derivative time for cooling | 14892 | 3A2C | 31276 | 7A2C | | | | | PID | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current MV low limit for cooling | 14894 | 3A2E | 31278 | 7A2E | | | | | 1 | Not available for 2 channels* |
| Monitor | Comm. (current PID) | 4 | Current MV high limit for cooling | 14895 | 3A2F | 31279 | 7A2F | | | | | 1 | Not available for 2 channels* |

* When an item is written to EEPROM, other items with the same code are written to EEPROM at the same time.

## Monitor/Loop Mode

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | Loop mode | 1 | RUN/READY | 6960 | 1B30 | 23344 | 5B30 | | | | | — | |
| Monitor | Loop mode | 1 | AUTO/MANUAL | 6961 | 1B31 | 23345 | 5B31 | | | | | — | |
| Monitor | Loop mode | 1 | AT stop/start | 6962 | 1B32 | 23346 | 5B32 | | | | | — | |
| Monitor | Loop mode | 1 | LSP/RSP | 6963 | 1B33 | 23347 | 5B33 | | | | | — | |
| Monitor | Loop mode | 2 | RUN/READY | 6976 | 1B40 | 23360 | 5B40 | | | | | — | |
| Monitor | Loop mode | 2 | AUTO/MANUAL | 6977 | 1B41 | 23361 | 5B41 | | | | | — | |
| Monitor | Loop mode | 2 | AT stop/start | 6978 | 1B42 | 23362 | 5B42 | | | | | — | |
| Monitor | Loop mode | 2 | LSP/RSP | 6979 | 1B43 | 23363 | 5B43 | | | | | — | |
| Monitor | Loop mode | 3 | RUN/READY | 6992 | 1B50 | 23376 | 5B50 | | | | | — | Not available for 2 channels |
| Monitor | Loop mode | 3 | AUTO/MANUAL | 6993 | 1B51 | 23377 | 5B51 | | | | | — | Not available for 2 channels |
| Monitor | Loop mode | 3 | AT stop/start | 6994 | 1B52 | 23378 | 5B52 | | | | | — | Not available for 2 channels |
| Monitor | Loop mode | 3 | LSP/RSP | 6995 | 1B53 | 23379 | 5B53 | | | | | – | Not available for 2 channels |
| Monitor | Loop mode | 4 | RUN/READY | 7008 | 1B60 | 23392 | 5B60 | | | | | — | Not available for 2 channels |
| Monitor | Loop mode | 4 | AUTO/MANUAL | 7009 | 1B61 | 23393 | 5B61 | | | | | — | Not available for 2 channels |
| Monitor | Loop mode | 4 | AT stop/start | 7010 | 1B62 | 23394 | 5B62 | | | | | — | Not available for 2 channels |
| Monitor | Loop mode | 4 | LSP/RSP | 7011 | 1B63 | 23395 | 5B63 | | | | | – | Not available for 2 channels |

# Monitor/Monitor

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | Alarm | 1 | Alarm information 1 | 10288 | 2830 | 26672 | 6830 | | × | | × | — | ☞ ● Alarm information 1 (page 12-74) |
| Monitor | Alarm | 1 | Alarm information 2 | 10289 | 2831 | 26673 | 6831 | | × | | × | — | ☞ ● Alarm information 2 (page 12-74) |
| Monitor | Alarm | 1 | Alarm information 3 | 10290 | 2832 | 26674 | 6832 | | × | | × | — | ☞ ● Alarm information 3 (page 12-75) |
| Monitor | Alarm | 1 | Alarm information 4 | 10291 | 2833 | 26675 | 6833 | | × | | × | — | ☞ ● Alarm information 4 (page 12-75) |
| Monitor | Basic | 1 | PV (loop) | 10304 | 2840 | 26688 | 6840 | | × | | × | PID_PV | |
| Monitor | Basic | 1 | SP | 10305 | 2841 | 26689 | 6841 | | × | | × | PID_PV | *1 |
| Monitor | Basic | 1 | MV | 10306 | 2842 | 26690 | 6842 | | × | | × | 1 | |
| Monitor | Basic | 1 | Heat MV | 10307 | 2843 | 26691 | 6843 | | × | | × | 1 | |
| Monitor | Basic | 1 | Cool MV | 10308 | 2844 | 26692 | 6844 | | × | | × | 1 | |
| Monitor | Basic | 1 | AT progress | 10309 | 2845 | 26693 | 6845 | | × | | × | — | |
| Monitor | Basic | 1 | SP group selection | 10310 | 2846 | 26694 | 6846 | | × | | × | — | |
| Monitor | Basic | 1 | PID group selection | 10311 | 2847 | 26695 | 6847 | | × | | × | — | |
| Monitor | Basic | 1 | PV (input channel) | 10312 | 2848 | 26696 | 6848 | | × | | × | PV | |
| Monitor | Basic | 2 | PV (loop) | 10320 | 2850 | 26704 | 6850 | | × | | × | PID_PV | |
| Monitor | Basic | 2 | SP | 10321 | 2851 | 26705 | 6851 | | × | | × | PID_PV | *1 |
| Monitor | Basic | 2 | MV | 10322 | 2852 | 26706 | 6852 | | × | | × | 1 | |
| Monitor | Basic | 2 | Heat MV | 10323 | 2853 | 26707 | 6853 | | × | | × | 1 | |
| Monitor | Basic | 2 | Cool MV | 10324 | 2854 | 26708 | 6854 | | × | | × | 1 | |
| Monitor | Basic | 2 | AT progress | 10325 | 2855 | 26709 | 6855 | | × | | × | — | |
| Monitor | Basic | 2 | SP group selection | 10326 | 2856 | 26710 | 6856 | | × | | × | — | |
| Monitor | Basic | 2 | PID group selection | 10327 | 2857 | 26711 | 6857 | | × | | × | — | |
| Monitor | Basic | 2 | PV (input channel) | 10328 | 2858 | 26712 | 6858 | | × | | × | PV | |
| Monitor | Basic | 3 | PV (loop) | 10336 | 2860 | 26720 | 6860 | | × | | × | PID_PV | Not available for 2 channels |
| Monitor | Basic | 3 | SP | 10337 | 2861 | 26721 | 6861 | | × | | × | PID_PV | Not available for 2 channels*1 |
| Monitor | Basic | 3 | MV | 10338 | 2862 | 26722 | 6862 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Basic | 3 | Heat MV | 10339 | 2863 | 26723 | 6863 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Basic | 3 | Cool MV | 10340 | 2864 | 26724 | 6864 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Basic | 3 | AT progress | 10341 | 2865 | 26725 | 6865 | | × | | × | — | Not available for 2 channels |
| Monitor | Basic | 3 | SP group selection | 10342 | 2866 | 26726 | 6866 | | × | | × | — | Not available for 2 channels |
| Monitor | Basic | 3 | PID group selection | 10343 | 2867 | 26727 | 6867 | | × | | × | — | Not available for 2 channels |
| Monitor | Basic | 3 | PV (input channel) | 10344 | 2868 | 26728 | 6868 | | × | | × | PV | |
| Monitor | Basic | 4 | PV (loop) | 10352 | 2870 | 26736 | 6870 | | × | | × | PID_PV | Not available for 2 channels |
| Monitor | Basic | 4 | SP | 10353 | 2871 | 26737 | 6871 | | × | | × | PID_PV | Not available for 2 channels*1 |
| Monitor | Basic | 4 | MV | 10354 | 2872 | 26738 | 6872 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Basic | 4 | Heat MV | 10355 | 2873 | 26739 | 6873 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Basic | 4 | Cool MV | 10356 | 2874 | 26740 | 6874 | | × | | × | 1 | Not available for 2 channels |
| Monitor | Basic | 4 | AT progress | 10357 | 2875 | 26741 | 6875 | | × | | × | — | Not available for 2 channels |
| Monitor | Basic | 4 | SP group selection | 10358 | 2876 | 26742 | 6876 | | × | | × | — | Not available for 2 channels |
| Monitor | Basic | 4 | PID group selection | 10359 | 2877 | 26743 | 6877 | | × | | × | — | Not available for 2 channels |
| Monitor | Basic | 4 | PV (input channel) | 10360 | 2878 | 26744 | 6878 | | × | | × | PV | |
| Monitor | MFB | 1 | MFB opening | 10384 | 2890 | 26768 | 6890 | | × | | × | 1 | Only with NX-D35 (position proportional control)*2 |
| Monitor | MFB | 2 | MFB opening | 10385 | 2891 | 26769 | 6891 | | × | | × | 1 | Only with NX-D35 (position proportional control)*2 |
| Monitor | Monitor (CT) | 1 | CT1 measured current when output ON | 10400 | 28A0 | 26784 | 68A0 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 1 | CT1 measured current when output OFF | 10401 | 28A1 | 26785 | 68A1 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 2 | CT2 measured current when output ON | 10402 | 28A2 | 26786 | 68A2 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 2 | CT2 measured current when output OFF | 10403 | 28A3 | 26787 | 68A3 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 3 | CT3 measured current when output ON | 10404 | 28A4 | 26788 | 68A4 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 3 | CT3 measured current when output OFF | 10405 | 28A5 | 26789 | 68A5 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 4 | CT4 measured current when output ON | 10406 | 28A6 | 26790 | 68A6 | | × | | × | 1 | |
| Monitor | Monitor (CT) | 4 | CT4 measured current when output OFF | 10407 | 28A7 | 26791 | 68A7 | | × | | × | 1 | |
| Monitor | AO percent | 1 | AO percent data | 10448 | 28D0 | 26832 | 68D0 | | × | | × | 1 | |
| Monitor | AO percent | 2 | AO percent data | 10449 | 28D1 | 26833 | 68D1 | | × | | × | 1 | |
| Monitor | AO percent | 3 | AO percent data | 10450 | 28D2 | 26834 | 68D2 | | × | | × | 1 | |
| Monitor | AO percent | 4 | AO percent data | 10451 | 28D3 | 26835 | 68D3 | | × | | × | 1 | |
| Monitor | AO percent | 5 | AO percent data | 10452 | 28D4 | 26836 | 68D4 | | × | | × | 1 | |

## Monitor/Monitor

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | AO percent | 6 | AO percent data | 10453 | 28D5 | 26837 | 68D5 | | × | | × | 1 | |
| Monitor | AO percent | 7 | AO percent data | 10454 | 28D6 | 26838 | 68D6 | | × | | × | 1 | |
| Monitor | AO percent | 8 | AO percent data | 10455 | 28D7 | 26839 | 68D7 | | × | | × | 1 | |
| Monitor | OUT/DO terminal | 1 | OUT/DO terminal, ON/OFF data | 10464 | 28E0 | 26848 | 68E0 | | × | | × | — | |
| Monitor | OUT/DO terminal | 2 | OUT/DO terminal, ON/OFF data | 10465 | 28E1 | 26849 | 68E1 | | × | | × | — | |
| Monitor | OUT/DO terminal | 3 | OUT/DO terminal, ON/OFF data | 10466 | 28E2 | 26850 | 68E2 | | × | | × | — | |
| Monitor | OUT/DO terminal | 4 | OUT/DO terminal, ON/OFF data | 10467 | 28E3 | 26851 | 68E3 | | × | | × | — | |
| Monitor | OUT/DO terminal | 5 | OUT/DO terminal, ON/OFF data | 10468 | 28E4 | 26852 | 68E4 | | × | | × | — | |
| Monitor | OUT/DO terminal | 6 | OUT/DO terminal, ON/OFF data | 10469 | 28E5 | 26853 | 68E5 | | × | | × | — | |
| Monitor | OUT/DO terminal | 7 | OUT/DO terminal, ON/OFF data | 10470 | 28E6 | 26854 | 68E6 | | × | | × | — | |
| Monitor | OUT/DO terminal | 8 | OUT/DO terminal, ON/OFF data | 10471 | 28E7 | 26855 | 68E7 | | × | | × | — | |

* 1. The SP used in each loop is read. During ramp operation and RSP, the changing value is read. If the ramp is stopped during MANUAL or READY (etc.), the LSP is read.

* 2. The MFB amount of opening includes an estimation. It is not a measured value.

# Monitor/Remaining Delay Time

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | Remaining delay time | 1 | Remaining delay time | 10512 | 2910 | 26896 | 6910 | | × | | × | 1 | |
| Monitor | Remaining delay time | 2 | Remaining delay time | 10513 | 2911 | 26897 | 6911 | | × | | × | 1 | |
| Monitor | Remaining delay time | 3 | Remaining delay time | 10514 | 2912 | 26898 | 6912 | | × | | × | 1 | |
| Monitor | Remaining delay time | 4 | Remaining delay time | 10515 | 2913 | 26899 | 6913 | | × | | × | 1 | |
| Monitor | Remaining delay time | 5 | Remaining delay time | 10516 | 2914 | 26900 | 6914 | | × | | × | 1 | |
| Monitor | Remaining delay time | 6 | Remaining delay time | 10517 | 2915 | 26901 | 6915 | | × | | × | 1 | |
| Monitor | Remaining delay time | 7 | Remaining delay time | 10518 | 2916 | 26902 | 6916 | | × | | × | 1 | |
| Monitor | Remaining delay time | 8 | Remaining delay time | 10519 | 2917 | 26903 | 6917 | | × | | × | 1 | |
| Monitor | Remaining delay time | 9 | Remaining delay time | 10520 | 2918 | 26904 | 6918 | | × | | × | 1 | |
| Monitor | Remaining delay time | 10 | Remaining delay time | 10521 | 2919 | 26905 | 6919 | | × | | × | 1 | |
| Monitor | Remaining delay time | 11 | Remaining delay time | 10522 | 291A | 26906 | 691A | | × | | × | 1 | |
| Monitor | Remaining delay time | 12 | Remaining delay time | 10523 | 291B | 26907 | 691B | | × | | × | 1 | |
| Monitor | Remaining delay time | 13 | Remaining delay time | 10524 | 291C | 26908 | 691C | | × | | × | 1 | |
| Monitor | Remaining delay time | 14 | Remaining delay time | 10525 | 291D | 26909 | 691D | | × | | × | 1 | |
| Monitor | Remaining delay time | 15 | Remaining delay time | 10526 | 291E | 26910 | 691E | | × | | × | 1 | |
| Monitor | Remaining delay time | 16 | Remaining delay time | 10527 | 291F | 26911 | 691F | | × | | × | 1 | |
| Monitor | Remaining delay time | 17 | Remaining delay time | 10528 | 2920 | 26912 | 6920 | | × | | × | 1 | |
| Monitor | Remaining delay time | 18 | Remaining delay time | 10529 | 2921 | 26913 | 6921 | | × | | × | 1 | |
| Monitor | Remaining delay time | 19 | Remaining delay time | 10530 | 2922 | 26914 | 6922 | | × | | × | 1 | |
| Monitor | Remaining delay time | 20 | Remaining delay time | 10531 | 2923 | 26915 | 6923 | | × | | × | 1 | |
| Monitor | Remaining delay time | 21 | Remaining delay time | 10532 | 2924 | 26916 | 6924 | | × | | × | 1 | |
| Monitor | Remaining delay time | 22 | Remaining delay time | 10533 | 2925 | 26917 | 6925 | | × | | × | 1 | |
| Monitor | Remaining delay time | 23 | Remaining delay time | 10534 | 2926 | 26918 | 6926 | | × | | × | 1 | |
| Monitor | Remaining delay time | 24 | Remaining delay time | 10535 | 2927 | 26919 | 6927 | | × | | × | 1 | |

# Monitor/Computation Result

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | Computation result | 1 | Instrument internal calculation result 1 (bitmap) | 10608 | 2970 | 26992 | 6970 | | × | | × | — | ☞ ● Internal computation result 1 (page 12-76) |
| Monitor | Computation result | 1 | Instrument internal computation result 2 (bitmap) | 10609 | 2971 | 26993 | 6971 | | × | | × | — | ☞ ● Internal computation result 2 (page 12-76) |
| Monitor | Computation result | 1 | Instrument internal computation result 3 (bitmap) | 10610 | 2972 | 26994 | 6972 | | × | | × | — | ☞ ● Internal computation result 3 (page 12-77) |
| Monitor | Computation result | 1 | Instrument internal computation result 5 (bitmap) | 10612 | 2974 | 26996 | 6974 | | × | | × | — | ☞ ● Internal computation result 5 (page 12-77) |
| Monitor | Computation result | 1 | Instrument internal computation result 13 (bitmap) | 10620 | 297C | 27004 | 697C | | × | | × | — | ☞ ● Internal computation result 13 (page 12-77) |
| Monitor | Computation result | 1 | Instrument internal computation result 21 (bitmap) | 10628 | 2984 | 27012 | 6984 | | × | | × | — | ☞ ● Internal computation result 21 (page 12-78) |
| Monitor | Computation result | 1 | Instrument internal computation result 42 (bitmap) | 10649 | 2999 | 27033 | 6999 | | × | | × | – | ☞ ● Internal computation result 42 (ROM version 3.00 [1_0_3] or later) (page 12-78) |
| Monitor | Computation result | 1 | Instrument internal computation result 43 (bitmap) | 10650 | 299A | 27034 | 699A | | × | | × | – | ☞ ● Internal computation result 43 (ROM version 3.00 [1_0_3] or later) (page 12-79) |
| Monitor | Computation result | 1 | Instrument internal computation result 44 (bitmap) | 10651 | 299B | 27035 | 699B | | × | | × | – | ☞ ● Internal computation result 44 (ROM version 3.00 [1_0_3] or later) (page 12-79) |
| Monitor | Computation result | 1 | Instrument internal computation result 54 (bitmap) | 10661 | 29A5 | 27045 | 69A5 | | × | | × | – | ☞ ● Internal computation result 54 (ROM version 3.00 [1_0_3] or later) (page 12-80) |
| Monitor | Computation result | 1 | Instrument internal computation result 55 (bitmap) | 10662 | 29A6 | 27046 | 69A6 | | × | | × | — | ☞ ● Internal computation result 55 (page 12-80) |

# Monitor/User-defined Bit

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | User-defined bit | 1 | User-defined bits 1 to 16 | 10080 | 2760 | 26464 | 6760 | | | | | — | ☞ ● User-defined bits 1 to 16 (page 12-81) |
| Monitor | User-defined bit | 1 | User-defined bit 1 | 10081 | 2761 | 26465 | 6761 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 2 | 10082 | 2762 | 26466 | 6762 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 3 | 10083 | 2763 | 26467 | 6763 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 4 | 10084 | 2764 | 26468 | 6764 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 5 | 10085 | 2765 | 26469 | 6765 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 6 | 10086 | 2766 | 26470 | 6766 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 7 | 10087 | 2767 | 26471 | 6767 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 8 | 10088 | 2768 | 26472 | 6768 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 9 | 10089 | 2769 | 26473 | 6769 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 10 | 10090 | 276A | 26474 | 676A | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 11 | 10091 | 276B | 26475 | 676B | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 12 | 10092 | 276C | 26476 | 676C | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 13 | 10093 | 276D | 26477 | 676D | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 14 | 10094 | 276E | 26478 | 676E | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 15 | 10095 | 276F | 26479 | 676F | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 16 | 10096 | 2770 | 26480 | 6770 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 17 to 32 | 10097 | 2771 | 26481 | 6771 | | | | | — | ☞ ● User-defined bits 17 to 32 (page 12-81) |
| Monitor | User-defined bit | 1 | User-defined bit 17 | 10098 | 2772 | 26482 | 6772 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 18 | 10099 | 2773 | 26483 | 6773 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 19 | 10100 | 2774 | 26484 | 6774 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 20 | 10101 | 2775 | 26485 | 6775 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 21 | 10102 | 2776 | 26486 | 6776 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 22 | 10103 | 2777 | 26487 | 6777 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 23 | 10104 | 2778 | 26488 | 6778 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 24 | 10105 | 2779 | 26489 | 6779 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 25 | 10106 | 277A | 26490 | 677A | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 26 | 10107 | 277B | 26491 | 677B | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 27 | 10108 | 277C | 26492 | 677C | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 28 | 10109 | 277D | 26493 | 677D | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 29 | 10110 | 277E | 26494 | 677E | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 30 | 10111 | 277F | 26495 | 677F | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 31 | 10112 | 2780 | 26496 | 6780 | | | | | — | |
| Monitor | User-defined bit | 1 | User-defined bit 32 | 10113 | 2781 | 26497 | 6781 | | | | | — | |

## Monitor/User-defined Number

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Monitor | User-defined number | 1 | User-defined number 1 | 12224 | 2FC0 | 28608 | 6FC0 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 2 | 12225 | 2FC1 | 28609 | 6FC1 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 3 | 12226 | 2FC2 | 28610 | 6FC2 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 4 | 12227 | 2FC3 | 28611 | 6FC3 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 5 | 12228 | 2FC4 | 28612 | 6FC4 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 6 | 12229 | 2FC5 | 28613 | 6FC5 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 7 | 12230 | 2FC6 | 28614 | 6FC6 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 8 | 12231 | 2FC7 | 28615 | 6FC7 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 9 | 12232 | 2FC8 | 28616 | 6FC8 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 10 | 12233 | 2FC9 | 28617 | 6FC9 | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 11 | 12234 | 2FCA | 28618 | 6FCA | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 12 | 12235 | 2FCB | 28619 | 6FCB | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 13 | 12236 | 2FCC | 28620 | 6FCC | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 14 | 12237 | 2FCD | 28621 | 6FCD | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 15 | 12238 | 2FCE | 28622 | 6FCE | | | | | — | |
| Monitor | User-defined number | 1 | User-defined number 16 | 12239 | 2FCF | 28623 | 6FCF | | | | | — | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Always 0 (Off) | 17664 | 4500 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Always 1 (On) | 17665 | 4501 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 1 | 17728 | 4540 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 2 | 17729 | 4541 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 3 | 17730 | 4542 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 4 | 17731 | 4543 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 5 | 17732 | 4544 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 6 | 17733 | 4545 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 7 | 17734 | 4546 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 8 | 17735 | 4547 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 9 | 17736 | 4548 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 10 | 17737 | 4549 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 11 | 17738 | 454A | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 12 | 17739 | 454B | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 13 | 17740 | 454C | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 14 | 17741 | 454D | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 15 | 17742 | 454E | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 16 | 17743 | 454F | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 17 | 17744 | 4550 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 18 | 17745 | 4551 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 19 | 17746 | 4552 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 20 | 17747 | 4553 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 21 | 17748 | 4554 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 22 | 17749 | 4555 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 23 | 17750 | 4556 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 24 | 17751 | 4557 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT1 Heater burnout detection | 17760 | 4560 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT2 Heater burnout detection | 17761 | 4561 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT3 Heater burnout detection | 17762 | 4562 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT4 Heater burnout detection | 17763 | 4563 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT1 overcurrent detection | 17764 | 4564 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT2 overcurrent detection | 17765 | 4565 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT3 overcurrent detection | 17766 | 4566 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT4 overcurrent detection | 17767 | 4567 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT1 short-circuit detection | 17768 | 4568 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT2 short-circuit detection | 17769 | 4569 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT3 short-circuit detection | 17770 | 456A | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT4 short-circuit detection | 17771 | 456B | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI1 terminal status | 17792 | 4580 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI2 terminal status | 17793 | 4581 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI3 terminal status | 17794 | 4582 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI4 terminal status | 17795 | 4583 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT1 terminal status | 17920 | 4600 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT2 terminal status | 17921 | 4601 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT3 terminal status | 17922 | 4602 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT4 terminal status | 17923 | 4603 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO1 terminal status | 17924 | 4604 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO2 terminal status | 17925 | 4605 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO3 terminal status | 17926 | 4606 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO4 terminal status | 17927 | 4607 | — | — | | × | × | × | — | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 1 | 18048 | 4680 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 2 | 18049 | 4681 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 3 | 18050 | 4682 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 4 | 18051 | 4683 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 5 | 18052 | 4684 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 6 | 18053 | 4685 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 7 | 18054 | 4686 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 8 | 18055 | 4687 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 9 | 18056 | 4688 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 10 | 18057 | 4689 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 11 | 18058 | 468A | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 12 | 18059 | 468B | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 13 | 18060 | 468C | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 14 | 18061 | 468D | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 15 | 18062 | 468E | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 16 | 18063 | 468F | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 17 | 18064 | 4690 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 18 | 18065 | 4691 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 19 | 18066 | 4692 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 20 | 18067 | 4693 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 21 | 18068 | 4694 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 22 | 18069 | 4695 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 23 | 18070 | 4696 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 24 | 18071 | 4697 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 25 | 18072 | 4698 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 26 | 18073 | 4699 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 27 | 18074 | 469A | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 28 | 18075 | 469B | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 29 | 18076 | 469C | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 30 | 18077 | 469D | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 31 | 18078 | 469E | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 32 | 18079 | 469F | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 1 | 18080 | 46A0 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 2 | 18081 | 46A1 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 3 | 18082 | 46A2 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 4 | 18083 | 46A3 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 5 | 18084 | 46A4 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 6 | 18085 | 46A5 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 7 | 18086 | 46A6 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 8 | 18087 | 46A7 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 9 | 18088 | 46A8 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 10 | 18089 | 46A9 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 11 | 18090 | 46AA | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 12 | 18091 | 46AB | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 13 | 18092 | 46AC | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 14 | 18093 | 46AD | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 15 | 18094 | 46AE | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 16 | 18095 | 46AF | — | — | | × | × | × | — | |

# Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | RS-485 status (normal reception of 1 frame) | 18185 | 4709 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 RUN/READY status | 18208 | 4720 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 RUN/READY status | 18209 | 4721 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 RUN/READY status | 18210 | 4722 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 RUN/READY status | 18211 | 4723 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 AUTO/MANUAL status | 18224 | 4730 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 AUTO/MANUAL status | 18225 | 4731 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 AUTO/MANUAL status | 18226 | 4732 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 AUTO/MANUAL status | 18227 | 4733 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 AT stop/start status | 18240 | 4740 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 AT stop/start status | 18241 | 4741 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 AT stop/start status | 18242 | 4742 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 AT stop/start status | 18243 | 4743 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 LSP/RSP status | 18256 | 4750 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 LSP/RSP status | 18257 | 4751 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 LSP/RSP status | 18258 | 4752 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 LSP/RSP status | 18259 | 4753 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 SP ramp-up in progress | 18288 | 4770 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 SP ramp-up in progress | 18289 | 4771 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 SP ramp-up in progress | 18290 | 4772 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 SP ramp-up in progress | 18291 | 4773 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 1 SP ramp-down in progress | 18304 | 4780 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 2 SP ramp-down in progress | 18305 | 4781 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 3 SP ramp-down in progress | 18306 | 4782 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 4 SP ramp-down in progress | 18307 | 4783 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | Alarm (logical OR of all displayed alarms) | 18432 | 4800 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD1 fault (AL11) | 18448 | 4810 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD2 fault (AL12) | 18449 | 4811 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD3 fault (AL13) | 18450 | 4812 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD4 fault (AL14) | 18451 | 4813 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV1 high limit error (AL01) | 18464 | 4820 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV2 high limit error (AL03) | 18465 | 4821 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV3 high limit error (AL05) | 18466 | 4822 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV4 high limit error (AL07) | 18467 | 4823 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV1 low limit error (AL02) | 18480 | 4830 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV2 low limit error (AL04) | 18481 | 4831 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV3 low limit error (AL06) | 18482 | 4832 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV4 low limit error (AL08) | 18483 | 4833 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ1 error (AL71) | 18496 | 4840 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ2 error (AL72) | 18497 | 4841 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ3 error (AL73) | 18498 | 4842 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ4 error (AL74) | 18499 | 4843 | — | — | | × | × | × | — | Not available for 2 channels |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 G line break | 18508 | 484C | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 G line break | 18509 | 484D | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 Y line break | 18512 | 4850 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 Y line break | 18513 | 4851 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 T/multiline break | 18516 | 4854 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 T/multiline break | 18517 | 4855 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 input error (AL21) | 18520 | 4858 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 input error (AL23) | 18521 | 4859 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 is under adjustment | 18524 | 485C | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 is under adjustment | 18525 | 485D | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 estimation in progress | 18528 | 4860 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 estimation in progress | 18529 | 4861 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 adjustment error (AL22) | 18536 | 4868 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 adjustment error (AL24) | 18537 | 4869 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 OPEN | 18540 | 486C | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 OPEN | 18541 | 486D | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 CLOSE | 18544 | 4870 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 CLOSE | 18545 | 4871 | — | — | | × | × | × | — | Only with NX-D35 (position proportional control) |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 1 | 18560 | 4880 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 2 | 18561 | 4881 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 3 | 18562 | 4882 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 4 | 18563 | 4883 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 5 | 18564 | 4884 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 6 | 18565 | 4885 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 7 | 18566 | 4886 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 8 | 18567 | 4887 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 9 | 18568 | 4888 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 10 | 18569 | 4889 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 11 | 18570 | 488A | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 12 | 18571 | 488B | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 13 | 18572 | 488C | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 14 | 18573 | 488D | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 15 | 18574 | 488E | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 16 | 18575 | 488F | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT1 input error (AL25) | 18592 | 48A0 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT2 input error (AL26) | 18593 | 48A1 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT3 input error (AL27) | 18594 | 48A2 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT4 input error (AL28) | 18595 | 48A3 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Parameter error (AL94/AL97) | 18608 | 48B0 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Adjustment data error (AL95/AL98) | 18609 | 48B1 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | EEPROM not initialized (AL83) | 18610 | 48B2 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | ROM error (AL99) | 18612 | 48B4 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | RAM read/write error (AL85) | 18613 | 48B5 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | EEPROM read/write error (AL86) | 18614 | 48B6 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring (representative of 1–16) (AL31) | 18619 | 48BB | — | — | | × | × | × | — | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Transmission timeout between modules (AL32) | 18620 | 48BC | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Writing to EEPROM | 18621 | 48BD | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Supervisor Module transmission timeout | 18622 | 48BE | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | RS-485 setting error (AL33) | 18623 | 48BF | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Adjacent ring disconnection (AL38) | 18624 | 48C0 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Non-adjacent ring disconnection | 18625 | 48C1 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Base/module communication setting mismatch (AL53) | 18626 | 48C2 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Base-body model No. mismatch (AL 54) | 18627 | 48C3 | — | — | | × | × | × | — | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Base verification error (AL55) | 18628 | 48C4 | — | — | | × | × | × | — | |

## Standard Numerical Code/Standard Numerical Code

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | Always 0.0 | 18688 | 4900 | — | — | | × | × | × | – | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 1 | 18751 | 493F | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 2 | 18752 | 4940 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 3 | 18753 | 4941 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 4 | 18754 | 4942 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 5 | 18755 | 4943 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 6 | 18756 | 4944 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 7 | 18757 | 4945 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 8 | 18758 | 4946 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 9 | 18759 | 4947 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 10 | 18760 | 4948 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 11 | 18761 | 4949 | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 12 | 18762 | 494A | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 13 | 18763 | 494B | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 14 | 18764 | 494C | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 15 | 18765 | 494D | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 16 | 18766 | 494E | — | — | | × | × | × | — | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV1 | 18928 | 49F0 | - | - | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV2 | 18929 | 49F1 | - | - | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV3 | 18930 | 49F2 | - | - | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV4 | 18931 | 49F3 | - | - | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV1 | 18944 | 4A00 | — | — | | × | × | × | PV1 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV2 | 18945 | 4A01 | — | — | | × | × | × | PV2 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV3 | 18946 | 4A02 | — | — | | × | × | × | PV3 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV4 | 18947 | 4A03 | — | — | | × | × | × | PV4 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI1 | 18952 | 4A08 | — | — | | × | × | × | PV1 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI2 | 18953 | 4A09 | — | — | | × | × | × | PV2 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI3 | 18954 | 4A0A | — | — | | × | × | × | PV3 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI4 | 18955 | 4A0B | — | — | | × | × | × | PV4 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 PV | 18960 | 4A10 | — | — | | × | × | × | PID1_PV | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 PV | 18961 | 4A11 | — | — | | × | × | × | PID2_PV | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 PV | 18962 | 4A12 | — | — | | × | × | × | PID3_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 PV | 18963 | 4A13 | — | — | | × | × | × | PID4_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 1 | 18968 | 4A18 | — | — | | × | × | × | 2 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 2 | 18969 | 4A19 | — | — | | × | × | × | 2 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 3 | 18970 | 4A1A | — | — | | × | × | × | 2 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 4 | 18971 | 4A1B | — | — | | × | × | × | 2 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 SP (in use) | 18976 | 4A20 | — | — | | × | × | × | PID1_PV | *1 |

## Standard Numerical Code/Standard Numerical Code

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 SP (in use) | 18977 | 4A21 | — | — | | × | × | × | PID2_PV | *1 |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 SP (in use) | 18978 | 4A22 | — | — | | × | × | × | PID3_PV | *1, Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 SP (in use) | 18979 | 4A23 | — | — | | × | × | × | PID4_PV | *1, Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 SP (final value) | 18992 | 4A30 | — | — | | × | × | × | PID1_PV | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 SP (final value) | 18993 | 4A31 | — | — | | × | × | × | PID2_PV | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 SP (final value) | 18994 | 4A32 | — | — | | × | × | × | PID3_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 SP (final value) | 18995 | 4A33 | — | — | | × | × | × | PID4_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 1 | 19024 | 4A50 | — | — | | × | × | × | PID1_PV | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 2 | 19025 | 4A51 | — | — | | × | × | × | PID2_PV | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 3 | 19026 | 4A52 | — | — | | × | × | × | PID3_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 4 | 19027 | 4A53 | — | — | | × | × | × | PID4_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 MV | 19056 | 4A70 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 MV | 19057 | 4A71 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 MV | 19058 | 4A72 | — | — | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 MV | 19059 | 4A73 | — | — | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 1 MV for heating | 19072 | 4A80 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 2 MV for heating | 19073 | 4A81 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 3 MV for heating | 19074 | 4A82 | — | — | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 4 MV for heating | 19075 | 4A83 | — | — | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 1 MV for cooling | 19088 | 4A90 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 2 MV for cooling | 19089 | 4A91 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 3 MV for cooling | 19090 | 4A92 | — | — | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 4 MV for cooling | 19091 | 4A93 | — | — | | × | × | × | 1 | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB1 amount of opening (estimated) | 19104 | 4AA0 | — | — | | × | × | × | 1 | Only with NX-D35 (position proportional control)*2 |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB2 amount of opening (estimated) | 19105 | 4AA1 | — | — | | × | × | × | 1 | Only with NX-D35 (position proportional control)*2 |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB1 degree of opening (measured value) | 19120 | 4AB0 | — | — | | × | × | × | 1 | Only with NX-D35 (position proportional control) |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB2 degree of opening (measured value) | 19121 | 4AB1 | — | — | | × | × | × | 1 | Only with NX-D35 (position proportional control) |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT1 measured current when output ON | 19136 | 4AC0 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT2 measured current when output ON | 19137 | 4AC1 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT3 measured current when output ON | 19138 | 4AC2 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT4 measured current when output ON | 19139 | 4AC3 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT1 measured current when output OFF | 19152 | 4AD0 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT2 measured current when output OFF | 19153 | 4AD1 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT3 measured current when output OFF | 19154 | 4AD2 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT4 measured current when output OFF | 19155 | 4AD3 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 1 deviation (PV – SP) | 19168 | 4AE0 | — | — | | × | × | × | PID1_PV | |

## Standard Numerical Code/Standard Numerical Code

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 2 deviation (PV - SP) | 19169 | 4AE1 | — | — | | × | × | × | PID2_PV | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 3 deviation (PV - SP) | 19170 | 4AE2 | — | — | | × | × | × | PID3_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 4 deviation (PV - SP) | 19171 | 4AE3 | — | — | | × | × | × | PID4_PV | Not available for 2 channels |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 1 timer remaining time | 19296 | 4B60 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 2 timer remaining time | 19297 | 4B61 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 3 timer remaining time | 19298 | 4B62 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 4 timer remaining time | 19299 | 4B63 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 5 timer remaining time | 19300 | 4B64 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 6 timer remaining time | 19301 | 4B65 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 7 timer remaining time | 19302 | 4B66 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 8 timer remaining time | 19303 | 4B67 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 9 timer remaining time | 19304 | 4B68 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 10 timer remaining time | 19305 | 4B69 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 11 timer remaining time | 19306 | 4B6A | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 12 timer remaining time | 19307 | 4B6B | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 13 timer remaining time | 19308 | 4B6C | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 14 timer remaining time | 19309 | 4B6D | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 15 timer remaining time | 19310 | 4B6E | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 16 timer remaining time | 19311 | 4B6F | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 17 timer remaining time | 19312 | 4B70 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 18 timer remaining time | 19313 | 4B71 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 19 timer remaining time | 19314 | 4B72 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 20 timer remaining time | 19315 | 4B73 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 21 timer remaining time | 19316 | 4B74 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 22 timer remaining time | 19317 | 4B75 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 23 timer remaining time | 19318 | 4B76 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 24 timer remaining time | 19319 | 4B77 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | MV for position proportioning 1 | 19360 | 4BA0 | — | — | | × | × | × | 1 | Only with NX-D35 (position proportional control) |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | MV for position proportioning 2 | 19361 | 4BA1 | — | — | | × | × | × | 1 | Only with NX-D35 (position proportional control) |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT1 Time proportioning current | 19376 | 4BB0 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT2 Time proportioning current | 19377 | 4BB1 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT3 Time proportioning current | 19378 | 4BB2 | — | — | | × | × | × | 1 | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT4 Time proportioning current | 19379 | 4BB3 | — | — | | × | × | × | 1 | |

* 1. The SP used in each loop is read. During ramp operation and RSP, the changing value is read. If the ramp is stopped during MANUAL or READY (etc.), the LSP is read.

* 2. This MFB amount of opening has the same value as "MFB opening" in the Monitor folder, Monitor (MFB) bank.Page 12-6

# Communications/Ethernet Communications

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Communication | Ethernet communications | 1 | MAC address 1 | — | — | 800 | 0320 | × | × | | × | — | |
| Communication | Ethernet communications | 1 | MAC address 2 | — | — | 801 | 0321 | × | × | | × | — | |
| Communication | Ethernet communications | 1 | MAC address 3 | — | — | 802 | 0322 | × | × | | × | — | |
| Communication | Ethernet communications | 1 | MAC address 4 | — | — | 803 | 0323 | × | × | | × | — | |
| Communication | Ethernet communications | 1 | MAC address 5 | — | — | 804 | 0324 | × | × | | × | — | |
| Communication | Ethernet communications | 1 | MAC address 6 | — | — | 805 | 0325 | × | × | | × | — | |
| Communication | Ethernet communications | 1 | IPv4 address 1 | — | — | 817 | 0331 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address 2 | — | — | 818 | 0332 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address 3 | — | — | 819 | 0333 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address 4 | — | — | 820 | 0334 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address net mask 1 | — | — | 821 | 0335 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address net mask 2 | — | — | 822 | 0336 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address net mask 3 | — | — | 823 | 0337 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 address net mask 4 | — | — | 824 | 0338 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 default gateway 1 | — | — | 825 | 0339 | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 default gateway 2 | — | — | 826 | 033A | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 default gateway 3 | — | — | 827 | 033B | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | IPv4 default gateway 4 | — | — | 828 | 033C | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | CPL/TCP port number | — | — | 829 | 033D | × | × | | | — | Changes in settings take effect after powering off and back on |
| Communication | Ethernet communications | 1 | Modbus/TCP port number | — | — | 830 | 033E | × | × | | | — | Changes in settings take effect after powering off and back on |

## Communications/RS-485 Communications

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Communication | RS-485 communication | 1 | Communications type | — | — | 26624 | 6800 | | | | | — | |
| Communication | RS-485 communication | 1 | Station address | — | — | 26625 | 6801 | | | | | — | |
| Communication | RS-485 communication | 1 | Transmission speed | — | — | 26626 | 6802 | | | | | — | |
| Communication | RS-485 communication | 1 | Data format (Data length) | — | — | 26627 | 6803 | | | | | — | |
| Communication | RS-485 communication | 1 | Data format (parity) | — | — | 26628 | 6804 | | | | | — | |
| Communication | RS-485 communication | 1 | Data format (stop bits) | — | — | 26629 | 6805 | | | | | — | |
| Communication | RS-485 communication | 1 | Communication minimum response time | — | — | 26630 | 6806 | | | | | — | |

# Basic/Setup

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Setup | 1 | SP system group | 8818 | 2272 | 25202 | 6272 | | | | | — | |
| Basic | Setup | 1 | Start delay at power ON | 8820 | 2274 | 25204 | 6274 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 1 | 8828 | 227C | 25212 | 627C | | | | | — | |
| Basic | Setup | 1 | Advanced function password 2 | 8829 | 227D | 25213 | 627D | | | | | — | |
| Basic | Setup | 1 | Advanced function password 3 | 8830 | 227E | 25214 | 627E | | | | | — | |
| Basic | Setup | 1 | Advanced function password 4 | 8831 | 227F | 25215 | 627F | | | | | — | |
| Basic | Setup | 1 | Advanced function password 5 | 8832 | 2280 | 25216 | 6280 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 6 | 8833 | 2281 | 25217 | 6281 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 7 | 8834 | 2282 | 25218 | 6282 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 8 | 8835 | 2283 | 25219 | 6283 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 9 | 8836 | 2284 | 25220 | 6284 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 10 | 8837 | 2285 | 25221 | 6285 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 11 | 8838 | 2286 | 25222 | 6286 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 12 | 8839 | 2287 | 25223 | 6287 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 13 | 8840 | 2288 | 25224 | 6288 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 14 | 8841 | 2289 | 25225 | 6289 | | | | | — | |
| Basic | Setup | 1 | Advanced function password 15 | 8842 | 228A | 25226 | 628A | | | | | — | |
| Basic | Setup | 1 | Advanced function password 16 | 8843 | 228B | 25227 | 628B | | | | | — | |
| Basic | Setup | 1 | Loop type | 8880 | 22B0 | 25264 | 62B0 | | | | | — | Changes in settings take effect after powering off and back on |
| Basic | Setup | 1 | Release all latches | 8882 | 22B2 | 25266 | 62B2 | | | | | — | |

# Basic/Loop (Input)

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Loop (input) | 1 | Assigned PV | 10704 | 29D0 | 27088 | 69D0 | | | | | — | |
| Basic | Loop (input) | 1 | Assigned RSP | 10705 | 29D1 | 27089 | 69D1 | | | | | — | |
| Basic | Loop (input) | 1 | Assigned AI | 10707 | 29D3 | 27091 | 69D3 | | | | | — | |
| Basic | Loop (input) | 2 | Assigned PV | 10720 | 29E0 | 27104 | 69E0 | | | | | — | |
| Basic | Loop (input) | 2 | Assigned RSP | 10721 | 29E1 | 27105 | 69E1 | | | | | — | |
| Basic | Loop (input) | 2 | Assigned AI | 10723 | 29E3 | 27107 | 69E3 | | | | | — | |
| Basic | Loop (input) | 3 | Assigned PV | 10736 | 29F0 | 27120 | 69F0 | | | | | — | Not available for 2 channels |
| Basic | Loop (input) | 3 | Assigned RSP | 10737 | 29F1 | 27121 | 69F1 | | | | | — | Not available for 2 channels |
| Basic | Loop (input) | 3 | Assigned AI | 10739 | 29F3 | 27123 | 69F3 | | | | | — | |
| Basic | Loop (input) | 4 | Assigned PV | 10752 | 2A00 | 27136 | 6A00 | | | | | — | Not available for 2 channels |
| Basic | Loop (input) | 4 | Assigned RSP | 10753 | 2A01 | 27137 | 6A01 | | | | | — | Not available for 2 channels |
| Basic | Loop (input) | 4 | Assigned AI | 10755 | 2A03 | 27139 | 6A03 | | | | | — | |

## Basic/Loop

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Loop control (basic) | 1 | Loop PV/SP decimal point position | 8048 | 1F70 | 24432 | 5F70 | | | | | — | |
| Basic | Loop control (basic) | 1 | Control action | 8050 | 1F72 | 24434 | 5F72 | | | | | — | |
| Basic | Loop control (basic) | 1 | Control algorithm | 8051 | 1F73 | 24435 | 5F73 | | | | | — | |
| Basic | Loop control (basic) | 1 | Range low limit for proportional band | 8052 | 1F74 | 24436 | 5F74 | | | | | PID_PV | |
| Basic | Loop control (basic) | 1 | Range high limit for proportional band | 8053 | 1F75 | 24437 | 5F75 | | | | | PID_PV | |
| Basic | Loop control (basic) | 1 | AT type | 8054 | 1F76 | 24438 | 5F76 | | | | | — | |
| Basic | Loop control (basic) | 1 | Heating/Cooling control dead zone | 8055 | 1F77 | 24439 | 5F77 | | | | | 1 | |
| Basic | Loop control (basic) | 1 | Initial output of PID control | 8056 | 1F78 | 24440 | 5F78 | | | | | 1 | |
| Basic | Loop control (basic) | 2 | Loop PV/SP decimal point position | 8064 | 1F80 | 24448 | 5F80 | | | | | — | |
| Basic | Loop control (basic) | 2 | Control action | 8066 | 1F82 | 24450 | 5F82 | | | | | — | |
| Basic | Loop control (basic) | 2 | Control algorithm | 8067 | 1F83 | 24451 | 5F83 | | | | | — | |
| Basic | Loop control (basic) | 2 | Range low limit for proportional band | 8068 | 1F84 | 24452 | 5F84 | | | | | PID_PV | |
| Basic | Loop control (basic) | 2 | Range high limit for proportional band | 8069 | 1F85 | 24453 | 5F85 | | | | | PID_PV | |
| Basic | Loop control (basic) | 2 | AT type | 8070 | 1F86 | 24454 | 5F86 | | | | | — | |
| Basic | Loop control (basic) | 2 | Heating/Cooling control dead zone | 8071 | 1F87 | 24455 | 5F87 | | | | | 1 | |
| Basic | Loop control (basic) | 2 | Initial output of PID control | 8072 | 1F88 | 24456 | 5F88 | | | | | 1 | |
| Basic | Loop control (basic) | 3 | Loop PV/SP decimal point position | 8080 | 1F90 | 24464 | 5F90 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | Control action | 8082 | 1F92 | 24466 | 5F92 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | Control algorithm | 8083 | 1F93 | 24467 | 5F93 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | Range low limit for proportional band | 8084 | 1F94 | 24468 | 5F94 | | | | | PID_PV | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | Range high limit for proportional band | 8085 | 1F95 | 24469 | 5F95 | | | | | PID_PV | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | AT type | 8086 | 1F96 | 24470 | 5F96 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | Heating/Cooling control dead zone | 8087 | 1F97 | 24471 | 5F97 | | | | | 1 | Not available for 2 channels |
| Basic | Loop control (basic) | 3 | Initial output of PID control | 8088 | 1F98 | 24472 | 5F98 | | | | | 1 | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Loop PV/SP decimal point position | 8096 | 1FA0 | 24480 | 5FA0 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Control action | 8098 | 1FA2 | 24482 | 5FA2 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Control algorithm | 8099 | 1FA3 | 24483 | 5FA3 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Range low limit for proportional band | 8100 | 1FA4 | 24484 | 5FA4 | | | | | PID_PV | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Range high limit for proportional band | 8101 | 1FA5 | 24485 | 5FA5 | | | | | PID_PV | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | AT type | 8102 | 1FA6 | 24486 | 5FA6 | | | | | — | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Heating/Cooling control dead zone | 8103 | 1FA7 | 24487 | 5FA7 | | | | | 1 | Not available for 2 channels |
| Basic | Loop control (basic) | 4 | Initial output of PID control | 8104 | 1FA8 | 24488 | 5FA8 | | | | | 1 | Not available for 2 channels |

## Basic/Loop

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Loop (extended) | 1 | PID control initialization | 8112 | 1FB0 | 24496 | 5FB0 | | | | | — | |
| Basic | Loop (extended) | 1 | Integral time and derivative time decimal point position | 8113 | 1FB1 | 24497 | 5FB1 | | | | | — | |
| Basic | Loop (extended) | 1 | Output operation at AUTO/ MANUAL change | 8114 | 1FB2 | 24498 | 5FB2 | | | | | — | |
| Basic | Loop (extended) | 1 | Preset MANUAL value | 8115 | 1FB3 | 24499 | 5FB3 | | | | | 1 | |
| Basic | Loop (extended) | 1 | MV increase change limit | 8116 | 1FB4 | 24500 | 5FB4 | | | | | 2 | Not available on NX-D15 |
| Basic | Loop (extended) | 1 | MV decrease change limit | 8117 | 1FB5 | 24501 | 5FB5 | | | | | 2 | Not available on NX-D15 |
| Basic | Loop (extended) | 1 | MV low limit during AT | 8119 | 1FB7 | 24503 | 5FB7 | | | | | 1 | |
| Basic | Loop (extended) | 1 | MV high limit during AT | 8120 | 1FB8 | 24504 | 5FB8 | | | | | 1 | |
| Basic | Loop (extended) | 1 | Zone action selection | 8123 | 1FBB | 24507 | 5FBB | | | | | — | Not available on NX-D15 |
| Basic | Loop (extended) | 1 | Zone 1 | 8124 | 1FBC | 24508 | 5FBC | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 1 | Zone 2 | 8125 | 1FBD | 24509 | 5FBD | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 1 | Zone 3 | 8126 | 1FBE | 24510 | 5FBE | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 1 | Zone hysteresis | 8131 | 1FC3 | 24515 | 5FC3 | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | PID control initialization | 8144 | 1FD0 | 24528 | 5FD0 | | | | | — | |
| Basic | Loop (extended) | 2 | Integral time and derivative time decimal point position | 8145 | 1FD1 | 24529 | 5FD1 | | | | | — | |
| Basic | Loop (extended) | 2 | Output operation at AUTO/ MANUAL change | 8146 | 1FD2 | 24530 | 5FD2 | | | | | — | |
| Basic | Loop (extended) | 2 | Preset MANUAL value | 8147 | 1FD3 | 24531 | 5FD3 | | | | | 1 | |
| Basic | Loop (extended) | 2 | MV increase change limit | 8148 | 1FD4 | 24532 | 5FD4 | | | | | 2 | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | MV decrease change limit | 8149 | 1FD5 | 24533 | 5FD5 | | | | | 2 | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | MV low limit during AT | 8151 | 1FD7 | 24535 | 5FD7 | | | | | 1 | |
| Basic | Loop (extended) | 2 | MV high limit during AT | 8152 | 1FD8 | 24536 | 5FD8 | | | | | 1 | |
| Basic | Loop (extended) | 2 | Zone action selection | 8155 | 1FDB | 24539 | 5FDB | | | | | — | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | Zone 1 | 8156 | 1FDC | 24540 | 5FDC | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | Zone 2 | 8157 | 1FDD | 24541 | 5FDD | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | Zone 3 | 8158 | 1FDE | 24542 | 5FDE | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 2 | Zone hysteresis | 8163 | 1FE3 | 24547 | 5FE3 | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop (extended) | 3 | PID control initialization | 8176 | 1FF0 | 24560 | 5FF0 | | | | | — | Not available for 2 channels |
| Basic | Loop (extended) | 3 | Integral time and derivative time decimal point position | 8177 | 1FF1 | 24561 | 5FF1 | | | | | — | Not available for 2 channels |
| Basic | Loop (extended) | 3 | Output operation at AUTO/ MANUAL change | 8178 | 1FF2 | 24562 | 5FF2 | | | | | — | Not available for 2 channels |
| Basic | Loop (extended) | 3 | Preset MANUAL value | 8179 | 1FF3 | 24563 | 5FF3 | | | | | 1 | Not available for 2 channels |
| Basic | Loop (extended) | 3 | MV increase change limit | 8180 | 1FF4 | 24564 | 5FF4 | | | | | 2 | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 3 | MV decrease change limit | 8181 | 1FF5 | 24565 | 5FF5 | | | | | 2 | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 3 | MV low limit during AT | 8183 | 1FF7 | 24567 | 5FF7 | | | | | 1 | Not available for 2 channels |
| Basic | Loop (extended) | 3 | MV high limit during AT | 8184 | 1FF8 | 24568 | 5FF8 | | | | | 1 | Not available for 2 channels |
| Basic | Loop (extended) | 3 | Zone action selection | 8187 | 1FFB | 24571 | 5FFB | | | | | — | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 3 | Zone 1 | 8188 | 1FFC | 24572 | 5FFC | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 3 | Zone 2 | 8189 | 1FFD | 24573 | 5FFD | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 3 | Zone 3 | 8190 | 1FFE | 24574 | 5FFE | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 3 | Zone hysteresis | 8195 | 2003 | 24579 | 6003 | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | PID control initialization | 8208 | 2010 | 24592 | 6010 | | | | | — | Not available for 2 channels |
| Basic | Loop (extended) | 4 | Integral time and derivative time decimal point position | 8209 | 2011 | 24593 | 6011 | | | | | — | Not available for 2 channels |
| Basic | Loop (extended) | 4 | Output operation at AUTO/ MANUAL change | 8210 | 2012 | 24594 | 6012 | | | | | — | Not available for 2 channels |
| Basic | Loop (extended) | 4 | Preset MANUAL value | 8211 | 2013 | 24595 | 6013 | | | | | 1 | Not available for 2 channels |
| Basic | Loop (extended) | 4 | MV increase change limit | 8212 | 2014 | 24596 | 6014 | | | | | 2 | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | MV decrease change limit | 8213 | 2015 | 24597 | 6015 | | | | | 2 | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | MV low limit during AT | 8215 | 2017 | 24599 | 6017 | | | | | 1 | Not available for 2 channels |
| Basic | Loop (extended) | 4 | MV high limit during AT | 8216 | 2018 | 24600 | 6018 | | | | | 1 | Not available for 2 channels |
| Basic | Loop (extended) | 4 | Zone action selection | 8219 | 201B | 24603 | 601B | | | | | — | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | Zone 1 | 8220 | 201C | 24604 | 601C | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | Zone 2 | 8221 | 201D | 24605 | 601D | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | Zone 3 | 8222 | 201E | 24606 | 601E | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop (extended) | 4 | Zone hysteresis | 8227 | 2023 | 24611 | 6023 | | | | | PID_PV | Not available on NX-D15 or for 2 channels |

# Basic/Loop

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Loop (algorithm) | 1 | AT adjustment factor, proportional band | 8240 | 2030 | 24624 | 6030 | | | | | 2 | |
| Basic | Loop (algorithm) | 1 | AT adjustment factor, integral time | 8241 | 2031 | 24625 | 6031 | | | | | 2 | |
| Basic | Loop (algorithm) | 1 | AT adjustment factor, derivative time | 8242 | 2032 | 24626 | 6032 | | | | | 2 | |
| Basic | Loop (algorithm) | 1 | Just-FiTTER settling band | 8246 | 2036 | 24630 | 6036 | | | | | 2 | |
| Basic | Loop (algorithm) | 1 | Just-FiTTER overshoot suppression factor | 8247 | 2037 | 24631 | 6037 | | | | | — | |
| Basic | Loop (algorithm) | 1 | SP lag factor | 8250 | 203A | 24634 | 603A | | | | | 1 | |
| Basic | Loop (algorithm) | 2 | AT adjustment factor, proportional band | 8272 | 2050 | 24656 | 6050 | | | | | 2 | |
| Basic | Loop (algorithm) | 2 | AT adjustment factor, integral time | 8273 | 2051 | 24657 | 6051 | | | | | 2 | |
| Basic | Loop (algorithm) | 2 | AT adjustment factor, derivative time | 8274 | 2052 | 24658 | 6052 | | | | | 2 | |
| Basic | Loop (algorithm) | 2 | Just-FiTTER settling band | 8278 | 2056 | 24662 | 6056 | | | | | 2 | |
| Basic | Loop (algorithm) | 2 | Just-FiTTER overshoot suppression factor | 8279 | 2057 | 24663 | 6057 | | | | | — | |
| Basic | Loop (algorithm) | 2 | SP lag factor | 8282 | 205A | 24666 | 605A | | | | | 1 | |
| Basic | Loop (algorithm) | 3 | AT adjustment factor, proportional band | 8304 | 2070 | 24688 | 6070 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 3 | AT adjustment factor, integral time | 8305 | 2071 | 24689 | 6071 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 3 | AT adjustment factor, derivative time | 8306 | 2072 | 24690 | 6072 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 3 | Just-FiTTER settling band | 8310 | 2076 | 24694 | 6076 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 3 | Just-FiTTER overshoot suppression factor | 8311 | 2077 | 24695 | 6077 | | | | | — | Not available for 2 channels |
| Basic | Loop (algorithm) | 3 | SP lag factor | 8314 | 207A | 24698 | 607A | | | | | 1 | Not available for 2 channels |
| Basic | Loop (algorithm) | 4 | AT adjustment factor, proportional band | 8336 | 2090 | 24720 | 6090 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 4 | AT adjustment factor, integral time | 8337 | 2091 | 24721 | 6091 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 4 | AT adjustment factor, derivative time | 8338 | 2092 | 24722 | 6092 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 4 | Just-FiTTER settling band | 8342 | 2096 | 24726 | 6096 | | | | | 2 | Not available for 2 channels |
| Basic | Loop (algorithm) | 4 | Just-FiTTER overshoot suppression factor | 8343 | 2097 | 24727 | 6097 | | | | | — | Not available for 2 channels |
| Basic | Loop (algorithm) | 4 | SP lag factor | 8346 | 209A | 24730 | 609A | | | | | 1 | Not available for 2 channels |

## Basic/Loop Output

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Loop output (MV) | 1 | READY MV | 8368 | 20B0 | 24752 | 60B0 | | | | | 1 | |
| Basic | Loop output (MV) | 1 | READY MV (Heating) | 8369 | 20B1 | 24753 | 60B1 | | | | | 1 | |
| Basic | Loop output (MV) | 1 | READY MV (Cooling) | 8370 | 20B2 | 24754 | 60B2 | | | | | 1 | |
| Basic | Loop output (MV) | 1 | Selection of MV if PV is abnormal | 8371 | 20B3 | 24755 | 60B3 | | | | | — | |
| Basic | Loop output (MV) | 1 | Output at PV error | 8372 | 20B4 | 24756 | 60B4 | | | | | 1 | |
| Basic | Loop output (MV) | 1 | Fixed value output 1 | 8373 | 20B5 | 24757 | 60B5 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 2 | 8374 | 20B6 | 24758 | 60B6 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 3 | 8375 | 20B7 | 24759 | 60B7 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 4 | 8376 | 20B8 | 24760 | 60B8 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 5 | 8377 | 20B9 | 24761 | 60B9 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 6 | 8378 | 20BA | 24762 | 60BA | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 7 | 8379 | 20BB | 24763 | 60BB | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 1 | Fixed value output 8 | 8380 | 20BC | 24764 | 60BC | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | READY MV | 8384 | 20C0 | 24768 | 60C0 | | | | | 1 | |
| Basic | Loop output (MV) | 2 | READY MV (Heating) | 8385 | 20C1 | 24769 | 60C1 | | | | | 1 | |
| Basic | Loop output (MV) | 2 | READY MV (Cooling) | 8386 | 20C2 | 24770 | 60C2 | | | | | 1 | |
| Basic | Loop output (MV) | 2 | Selection of MV if PV is abnormal | 8387 | 20C3 | 24771 | 60C3 | | | | | — | |
| Basic | Loop output (MV) | 2 | Output at PV error | 8388 | 20C4 | 24772 | 60C4 | | | | | 1 | |
| Basic | Loop output (MV) | 2 | Fixed value output 1 | 8389 | 20C5 | 24773 | 60C5 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 2 | 8390 | 20C6 | 24774 | 60C6 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 3 | 8391 | 20C7 | 24775 | 60C7 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 4 | 8392 | 20C8 | 24776 | 60C8 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 5 | 8393 | 20C9 | 24777 | 60C9 | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 6 | 8394 | 20CA | 24778 | 60CA | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 7 | 8395 | 20CB | 24779 | 60CB | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 2 | Fixed value output 8 | 8396 | 20CC | 24780 | 60CC | | | | | 1 | Not available on NX-D15 |
| Basic | Loop output (MV) | 3 | READY MV | 8400 | 20D0 | 24784 | 60D0 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 3 | READY MV (Heating) | 8401 | 20D1 | 24785 | 60D1 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 3 | READY MV (Cooling) | 8402 | 20D2 | 24786 | 60D2 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 3 | Selection of MV if PV is abnormal | 8403 | 20D3 | 24787 | 60D3 | | | | | — | Not available for 2 channels |
| Basic | Loop output (MV) | 3 | Output at PV error | 8404 | 20D4 | 24788 | 60D4 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 1 | 8405 | 20D5 | 24789 | 60D5 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 2 | 8406 | 20D6 | 24790 | 60D6 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 3 | 8407 | 20D7 | 24791 | 60D7 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 4 | 8408 | 20D8 | 24792 | 60D8 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 5 | 8409 | 20D9 | 24793 | 60D9 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 6 | 8410 | 20DA | 24794 | 60DA | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 7 | 8411 | 20DB | 24795 | 60DB | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 3 | Fixed value output 8 | 8412 | 20DC | 24796 | 60DC | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | READY MV | 8416 | 20E0 | 24800 | 60E0 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 4 | READY MV (Heating) | 8417 | 20E1 | 24801 | 60E1 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 4 | READY MV (Cooling) | 8418 | 20E2 | 24802 | 60E2 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 4 | Selection of MV if PV is abnormal | 8419 | 20E3 | 24803 | 60E3 | | | | | — | Not available for 2 channels |
| Basic | Loop output (MV) | 4 | Output at PV error | 8420 | 20E4 | 24804 | 60E4 | | | | | 1 | Not available for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 1 | 8421 | 20E5 | 24805 | 60E5 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 2 | 8422 | 20E6 | 24806 | 60E6 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 3 | 8423 | 20E7 | 24807 | 60E7 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 4 | 8424 | 20E8 | 24808 | 60E8 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 5 | 8425 | 20E9 | 24809 | 60E9 | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 6 | 8426 | 20EA | 24810 | 60EA | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 7 | 8427 | 20EB | 24811 | 60EB | | | | | 1 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (MV) | 4 | Fixed value output 8 | 8428 | 20EC | 24812 | 60EC | | | | | 1 | Not available on NX-D15 or for 2 channels |

# Basic/Loop Output (Cascade)

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Loop output (cascade) | 1 | SP scaling method | 10960 | 2AD0 | 27344 | 6AD0 | | | | | — | Not available on NX-D15 |
| Basic | Loop output (cascade) | 1 | Output scaling low limit | 10961 | 2AD1 | 27345 | 6AD1 | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop output (cascade) | 1 | Output scaling high limit | 10962 | 2AD2 | 27346 | 6AD2 | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop output (cascade) | 1 | SP output filter | 10964 | 2AD4 | 27348 | 6AD4 | | | | | 2 | Not available on NX-D15 |
| Basic | Loop output (cascade) | 2 | SP scaling method | 10968 | 2AD8 | 27352 | 6AD8 | | | | | — | Not available on NX-D15 |
| Basic | Loop output (cascade) | 2 | Output scaling low limit | 10969 | 2AD9 | 27353 | 6AD9 | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop output (cascade) | 2 | Output scaling high limit | 10970 | 2ADA | 27354 | 6ADA | | | | | PID_PV | Not available on NX-D15 |
| Basic | Loop output (cascade) | 2 | SP output filter | 10972 | 2ADC | 27356 | 6ADC | | | | | 2 | Not available on NX-D15 |
| Basic | Loop output (cascade) | 3 | SP scaling method | 10976 | 2AE0 | 27360 | 6AE0 | | | | | — | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 3 | Output scaling low limit | 10977 | 2AE1 | 27361 | 6AE1 | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 3 | Output scaling high limit | 10978 | 2AE2 | 27362 | 6AE2 | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 3 | SP output filter | 10980 | 2AE4 | 27364 | 6AE4 | | | | | 2 | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 4 | SP scaling method | 10984 | 2AE8 | 27368 | 6AE8 | | | | | — | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 4 | Output scaling low limit | 10985 | 2AE9 | 27369 | 6AE9 | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 4 | Output scaling high limit | 10986 | 2AEA | 27370 | 6AEA | | | | | PID_PV | Not available on NX-D15 or for 2 channels |
| Basic | Loop output (cascade) | 4 | SP output filter | 10988 | 2AEC | 27372 | 6AEC | | | | | 2 | Not available on NX-D15 or for 2 channels |

## Basic/IDLE/SV com error op

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | IDLE/SV com error op | 1 | Output type | 12000 | 2EE0 | 28384 | 6EE0 | | | | | — | |
| Basic | IDLE/SV com error op | 1 | Output (%) | 12001 | 2EE1 | 28385 | 6EE1 | | | | | 1 | |
| Basic | IDLE/SV com error op | 1 | Output (ON/OFF) | 12002 | 2EE2 | 28386 | 6EE2 | | | | | — | |
| Basic | IDLE/SV com error op | 2 | Output type | 12004 | 2EE4 | 28388 | 6EE4 | | | | | — | |
| Basic | IDLE/SV com error op | 2 | Output (%) | 12005 | 2EE5 | 28389 | 6EE5 | | | | | 1 | |
| Basic | IDLE/SV com error op | 2 | Output (ON/OFF) | 12006 | 2EE6 | 28390 | 6EE6 | | | | | — | |
| Basic | IDLE/SV com error op | 3 | Output type | 12008 | 2EE8 | 28392 | 6EE8 | | | | | — | |
| Basic | IDLE/SV com error op | 3 | Output (%) | 12009 | 2EE9 | 28393 | 6EE9 | | | | | 1 | |
| Basic | IDLE/SV com error op | 3 | Output (ON/OFF) | 12010 | 2EEA | 28394 | 6EEA | | | | | — | |
| Basic | IDLE/SV com error op | 4 | Output type | 12012 | 2EEC | 28396 | 6EEC | | | | | — | |
| Basic | IDLE/SV com error op | 4 | Output (%) | 12013 | 2EED | 28397 | 6EED | | | | | 1 | |
| Basic | IDLE/SV com error op | 4 | Output (ON/OFF) | 12014 | 2EEE | 28398 | 6EEE | | | | | — | |
| Basic | IDLE/SV com error op | 5 | Output type | 12016 | 2EF0 | 28400 | 6EF0 | | | | | — | |
| Basic | IDLE/SV com error op | 5 | Output (%) | 12017 | 2EF1 | 28401 | 6EF1 | | | | | 1 | |
| Basic | IDLE/SV com error op | 5 | Output (ON/OFF) | 12018 | 2EF2 | 28402 | 6EF2 | | | | | — | |
| Basic | IDLE/SV com error op | 6 | Output type | 12020 | 2EF4 | 28404 | 6EF4 | | | | | — | |
| Basic | IDLE/SV com error op | 6 | Output (%) | 12021 | 2EF5 | 28405 | 6EF5 | | | | | 1 | |
| Basic | IDLE/SV com error op | 6 | Output (ON/OFF) | 12022 | 2EF6 | 28406 | 6EF6 | | | | | — | |
| Basic | IDLE/SV com error op | 7 | Output type | 12024 | 2EF8 | 28408 | 6EF8 | | | | | — | |
| Basic | IDLE/SV com error op | 7 | Output (%) | 12025 | 2EF9 | 28409 | 6EF9 | | | | | 1 | |
| Basic | IDLE/SV com error op | 7 | Output (ON/OFF) | 12026 | 2EFA | 28410 | 6EFA | | | | | — | |
| Basic | IDLE/SV com error op | 8 | Output type | 12028 | 2EFC | 28412 | 6EFC | | | | | — | |
| Basic | IDLE/SV com error op | 8 | Output (%) | 12029 | 2EFD | 28413 | 6EFD | | | | | 1 | |
| Basic | IDLE/SV com error op | 8 | Output (ON/OFF) | 12030 | 2EFE | 28414 | 6EFE | | | | | — | |

## Basic/Position Proportioning

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Position proportioning | 1 | Output type | 12080 | 2F30 | 28464 | 6F30 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 1 | Control method selection | 12081 | 2F31 | 28465 | 6F31 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 1 | Dead zone | 12082 | 2F32 | 28466 | 6F32 | | | | | 1 | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 1 | Long life | 12083 | 2F33 | 28467 | 6F33 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 1 | Loop definition | 12088 | 2F38 | 28472 | 6F38 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 1 | Linearization table group definition | 12089 | 2F39 | 28473 | 6F39 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 2 | Output type | 12096 | 2F40 | 28480 | 6F40 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 2 | Control method selection | 12097 | 2F41 | 28481 | 6F41 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 2 | Dead zone | 12098 | 2F42 | 28482 | 6F42 | | | | | 1 | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 2 | Long life | 12099 | 2F43 | 28483 | 6F43 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 2 | Loop definition | 12104 | 2F48 | 28488 | 6F48 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning | 2 | Linearization table group definition | 12105 | 2F49 | 28489 | 6F49 | | | | | — | Only with NX-D35 (position proportional control) |

# Basic/Position Proportioning Adjustment

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Basic | Position proportioning adjustment | 1 | Auto-tuning | 10816 | 2A40 | 27200 | 6A40 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 1 | Fully closed FB value | 10817 | 2A41 | 27201 | 6A41 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 1 | Fully open FB value | 10818 | 2A42 | 27202 | 6A42 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 1 | Full opening time | 10819 | 2A43 | 27203 | 6A43 | | | | | 1 | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 2 | Auto-tuning | 10824 | 2A48 | 27208 | 6A48 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 2 | Fully closed FB value | 10825 | 2A49 | 27209 | 6A49 | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 2 | Fully open FB value | 10826 | 2A4A | 27210 | 6A4A | | | | | — | Only with NX-D35 (position proportional control) |
| Basic | Position proportioning adjustment | 2 | Full opening time | 10827 | 2A4B | 27211 | 6A4B | | | | | 1 | Only with NX-D35 (position proportional control) |

# Input-output/PV Input

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Input-output | PV input | 1 | Range type | 9024 | 2340 | 25408 | 6340 | | | | | — | |
| Input-output | PV input | 1 | Decimal point position | 9025 | 2341 | 25409 | 6341 | | | | | — | |
| Input-output | PV input | 1 | Temperature unit | 9026 | 2342 | 25410 | 6342 | | | | | — | |
| Input-output | PV input | 1 | Alarm setting low limit | 9027 | 2343 | 25411 | 6343 | | | | | PV | |
| Input-output | PV input | 1 | Alarm setting high limit | 9028 | 2344 | 25412 | 6344 | | | | | PV | |
| Input-output | PV input | 1 | Cold junction compensation | 9029 | 2345 | 25413 | 6345 | | | | | — | |
| Input-output | PV input | 1 | Linear scaling low limit | 9032 | 2348 | 25416 | 6348 | | | | | PV | |
| Input-output | PV input | 1 | Linear scaling high limit | 9033 | 2349 | 25417 | 6349 | | | | | PV | |
| Input-output | PV input | 1 | Square root extraction dropout | 9034 | 234A | 25418 | 634A | | | | | 1 | |
| Input-output | PV input | 1 | Filter | 9035 | 234B | 25419 | 634B | | | | | 2 | |
| Input-output | PV input | 1 | Bias | 9036 | 234C | 25420 | 634C | | | | | PV | |
| Input-output | PV input | 1 | Ratio | 9037 | 234D | 25421 | 634D | | | | | 3 | |
| Input-output | PV input | 1 | Linearization table group definition | 9043 | 2353 | 25427 | 6353 | | | | | — | |
| Input-output | PV input | 2 | Range type | 9056 | 2360 | 25440 | 6360 | | | | | — | |
| Input-output | PV input | 2 | Decimal point position | 9057 | 2361 | 25441 | 6361 | | | | | — | |
| Input-output | PV input | 2 | Temperature unit | 9058 | 2362 | 25442 | 6362 | | | | | — | |
| Input-output | PV input | 2 | Alarm setting low limit | 9059 | 2363 | 25443 | 6363 | | | | | PV | |
| Input-output | PV input | 2 | Alarm setting high limit | 9060 | 2364 | 25444 | 6364 | | | | | PV | |
| Input-output | PV input | 2 | Cold junction compensation | 9061 | 2365 | 25445 | 6365 | | | | | — | |
| Input-output | PV input | 2 | Linear scaling low limit | 9064 | 2368 | 25448 | 6368 | | | | | PV | |
| Input-output | PV input | 2 | Linear scaling high limit | 9065 | 2369 | 25449 | 6369 | | | | | PV | |
| Input-output | PV input | 2 | Square root extraction dropout | 9066 | 236A | 25450 | 636A | | | | | 1 | |
| Input-output | PV input | 2 | Filter | 9067 | 236B | 25451 | 636B | | | | | 2 | |
| Input-output | PV input | 2 | Bias | 9068 | 236C | 25452 | 636C | | | | | PV | |
| Input-output | PV input | 2 | Ratio | 9069 | 236D | 25453 | 636D | | | | | 3 | |
| Input-output | PV input | 2 | Linearization table group definition | 9075 | 2373 | 25459 | 6373 | | | | | — | |
| Input-output | PV input | 3 | Range type | 9088 | 2380 | 25472 | 6380 | | | | | — | |
| Input-output | PV input | 3 | Decimal point position | 9089 | 2381 | 25473 | 6381 | | | | | — | |
| Input-output | PV input | 3 | Temperature unit | 9090 | 2382 | 25474 | 6382 | | | | | — | Not available for 2 channels |
| Input-output | PV input | 3 | Alarm setting low limit | 9091 | 2383 | 25475 | 6383 | | | | | PV | |
| Input-output | PV input | 3 | Alarm setting high limit | 9092 | 2384 | 25476 | 6384 | | | | | PV | |
| Input-output | PV input | 3 | Cold junction compensation | 9093 | 2385 | 25477 | 6385 | | | | | — | Not available for 2 channels |
| Input-output | PV input | 3 | Linear scaling low limit | 9096 | 2388 | 25480 | 6388 | | | | | PV | |
| Input-output | PV input | 3 | Linear scaling high limit | 9097 | 2389 | 25481 | 6389 | | | | | PV | |
| Input-output | PV input | 3 | Square root extraction dropout | 9098 | 238A | 25482 | 638A | | | | | 1 | |
| Input-output | PV input | 3 | Filter | 9099 | 238B | 25483 | 638B | | | | | 2 | |
| Input-output | PV input | 3 | Bias | 9100 | 238C | 25484 | 638C | | | | | PV | |
| Input-output | PV input | 3 | Ratio | 9101 | 238D | 25485 | 638D | | | | | 3 | |
| Input-output | PV input | 3 | Linearization table group definition | 9107 | 2393 | 25491 | 6393 | | | | | — | |
| Input-output | PV input | 4 | Range type | 9120 | 23A0 | 25504 | 63A0 | | | | | — | |
| Input-output | PV input | 4 | Decimal point position | 9121 | 23A1 | 25505 | 63A1 | | | | | — | |
| Input-output | PV input | 4 | Temperature unit | 9122 | 23A2 | 25506 | 63A2 | | | | | — | Not available for 2 channels |
| Input-output | PV input | 4 | Alarm setting low limit | 9123 | 23A3 | 25507 | 63A3 | | | | | PV | |
| Input-output | PV input | 4 | Alarm setting high limit | 9124 | 23A4 | 25508 | 63A4 | | | | | PV | |
| Input-output | PV input | 4 | Cold junction compensation | 9125 | 23A5 | 25509 | 63A5 | | | | | — | Not available for 2 channels |
| Input-output | PV input | 4 | Linear scaling low limit | 9128 | 23A8 | 25512 | 63A8 | | | | | PV | |
| Input-output | PV input | 4 | Linear scaling high limit | 9129 | 23A9 | 25513 | 63A9 | | | | | PV | |
| Input-output | PV input | 4 | Square root extraction dropout | 9130 | 23AA | 25514 | 63AA | | | | | 1 | |
| Input-output | PV input | 4 | Filter | 9131 | 23AB | 25515 | 63AB | | | | | 2 | |
| Input-output | PV input | 4 | Bias | 9132 | 23AC | 25516 | 63AC | | | | | PV | |
| Input-output | PV input | 4 | Ratio | 9133 | 23AD | 25517 | 63AD | | | | | 3 | |
| Input-output | PV input | 4 | Linearization table group definition | 9139 | 23B3 | 25523 | 63B3 | | | | | — | |

# Input-output/Continuous Output

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Input-output | Continuous output | 1 | Output range | 9216 | 2400 | 25600 | 6400 | | | | | — | |
| Input-output | Continuous output | 1 | Output type | 9217 | 2401 | 25601 | 6401 | | | | | — | |
| Input-output | Continuous output | 1 | Loop/channel definition | 9218 | 2402 | 25602 | 6402 | | | | | — | |
| Input-output | Continuous output | 1 | Output decimal point position | 9219 | 2403 | 25603 | 6403 | | | | | — | |
| Input-output | Continuous output | 1 | Output scaling low limit | 9220 | 2404 | 25604 | 6404 | | | | | OUT | |
| Input-output | Continuous output | 1 | Output scaling high limit | 9221 | 2405 | 25605 | 6405 | | | | | OUT | |
| Input-output | Continuous output | 1 | Linearization table group definition | 9222 | 2406 | 25606 | 6406 | | | | | — | |
| Input-output | Continuous output | 2 | Output range | 9232 | 2410 | 25616 | 6410 | | | | | — | |
| Input-output | Continuous output | 2 | Output type | 9233 | 2411 | 25617 | 6411 | | | | | — | |
| Input-output | Continuous output | 2 | Loop/channel definition | 9234 | 2412 | 25618 | 6412 | | | | | — | |
| Input-output | Continuous output | 2 | Output decimal point position | 9235 | 2413 | 25619 | 6413 | | | | | — | |
| Input-output | Continuous output | 2 | Output scaling low limit | 9236 | 2414 | 25620 | 6414 | | | | | OUT | |
| Input-output | Continuous output | 2 | Output scaling high limit | 9237 | 2415 | 25621 | 6415 | | | | | OUT | |
| Input-output | Continuous output | 2 | Linearization table group definition | 9238 | 2416 | 25622 | 6416 | | | | | — | |
| Input-output | Continuous output | 3 | Output range | 9248 | 2420 | 25632 | 6420 | | | | | — | |
| Input-output | Continuous output | 3 | Output type | 9249 | 2421 | 25633 | 6421 | | | | | — | |
| Input-output | Continuous output | 3 | Loop/channel definition | 9250 | 2422 | 25634 | 6422 | | | | | — | |
| Input-output | Continuous output | 3 | Output decimal point position | 9251 | 2423 | 25635 | 6423 | | | | | — | |
| Input-output | Continuous output | 3 | Output scaling low limit | 9252 | 2424 | 25636 | 6424 | | | | | OUT | |
| Input-output | Continuous output | 3 | Output scaling high limit | 9253 | 2425 | 25637 | 6425 | | | | | OUT | |
| Input-output | Continuous output | 3 | Linearization table group definition | 9254 | 2426 | 25638 | 6426 | | | | | — | |
| Input-output | Continuous output | 4 | Output range | 9264 | 2430 | 25648 | 6430 | | | | | — | |
| Input-output | Continuous output | 4 | Output type | 9265 | 2431 | 25649 | 6431 | | | | | — | |
| Input-output | Continuous output | 4 | Loop/channel definition | 9266 | 2432 | 25650 | 6432 | | | | | — | |
| Input-output | Continuous output | 4 | Output decimal point position | 9267 | 2433 | 25651 | 6433 | | | | | — | |
| Input-output | Continuous output | 4 | Output scaling low limit | 9268 | 2434 | 25652 | 6434 | | | | | OUT | |
| Input-output | Continuous output | 4 | Output scaling high limit | 9269 | 2435 | 25653 | 6435 | | | | | OUT | |
| Input-output | Continuous output | 4 | Linearization table group definition | 9270 | 2436 | 25654 | 6436 | | | | | — | |

# Input-output / OUT/DO Output

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Input-output | OUT/DO output | 1 | Output type | 9328 | 2470 | 25712 | 6470 | | | | | — | |
| Input-output | OUT/DO output | 1 | Latch | 9329 | 2471 | 25713 | 6471 | | | | | — | |
| Input-output | OUT/DO output | 1 | Time proportional operation type | 9330 | 2472 | 25714 | 6472 | | | | | — | |
| Input-output | OUT/DO output | 1 | Min. ON/OFF time | 9331 | 2473 | 25715 | 6473 | | | | | — | |
| Input-output | OUT/DO output | 1 | Time proportional cycle | 9332 | 2474 | 25716 | 6474 | | | | | 1 | |
| Input-output | OUT/DO output | 1 | Linearization table group definition | 9333 | 2475 | 25717 | 6475 | | | | | — | |
| Input-output | OUT/DO output | 1 | Phase shift | 9336 | 2478 | 25720 | 6478 | | | | | — | * |
| Input-output | OUT/DO output | 2 | Output type | 9344 | 2480 | 25728 | 6480 | | | | | — | |
| Input-output | OUT/DO output | 2 | Latch | 9345 | 2481 | 25729 | 6481 | | | | | — | |
| Input-output | OUT/DO output | 2 | Time proportional operation type | 9346 | 2482 | 25730 | 6482 | | | | | — | |
| Input-output | OUT/DO output | 2 | Min. ON/OFF time | 9347 | 2483 | 25731 | 6483 | | | | | — | |
| Input-output | OUT/DO output | 2 | Time proportional cycle | 9348 | 2484 | 25732 | 6484 | | | | | 1 | |
| Input-output | OUT/DO output | 2 | Linearization table group definition | 9349 | 2485 | 25733 | 6485 | | | | | — | |
| Input-output | OUT/DO output | 2 | Phase shift | 9352 | 2488 | 25736 | 6488 | | | | | — | * |
| Input-output | OUT/DO output | 3 | Output type | 9360 | 2490 | 25744 | 6490 | | | | | — | |
| Input-output | OUT/DO output | 3 | Latch | 9361 | 2491 | 25745 | 6491 | | | | | — | |
| Input-output | OUT/DO output | 3 | Time proportional operation type | 9362 | 2492 | 25746 | 6492 | | | | | — | |
| Input-output | OUT/DO output | 3 | Min. ON/OFF time | 9363 | 2493 | 25747 | 6493 | | | | | — | |
| Input-output | OUT/DO output | 3 | Time proportional cycle | 9364 | 2494 | 25748 | 6494 | | | | | 1 | |
| Input-output | OUT/DO output | 3 | Linearization table group definition | 9365 | 2495 | 25749 | 6495 | | | | | — | |
| Input-output | OUT/DO output | 3 | Phase shift | 9368 | 2498 | 25752 | 6498 | | | | | — | * |
| Input-output | OUT/DO output | 4 | Output type | 9376 | 24A0 | 25760 | 64A0 | | | | | — | |
| Input-output | OUT/DO output | 4 | Latch | 9377 | 24A1 | 25761 | 64A1 | | | | | — | |
| Input-output | OUT/DO output | 4 | Time proportional operation type | 9378 | 24A2 | 25762 | 64A2 | | | | | — | |
| Input-output | OUT/DO output | 4 | Min. ON/OFF time | 9379 | 24A3 | 25763 | 64A3 | | | | | — | |
| Input-output | OUT/DO output | 4 | Time proportional cycle | 9380 | 24A4 | 25764 | 64A4 | | | | | 1 | |
| Input-output | OUT/DO output | 4 | Linearization table group definition | 9381 | 24A5 | 25765 | 64A5 | | | | | — | |
| Input-output | OUT/DO output | 4 | Phase shift | 9384 | 24A8 | 25768 | 64A8 | | | | | — | * |
| Input-output | OUT/DO output | 5 | Output type | 9392 | 24B0 | 25776 | 64B0 | | | | | — | |
| Input-output | OUT/DO output | 5 | Latch | 9393 | 24B1 | 25777 | 64B1 | | | | | — | |
| Input-output | OUT/DO output | 5 | Time proportional operation type | 9394 | 24B2 | 25778 | 64B2 | | | | | — | |
| Input-output | OUT/DO output | 5 | Min. ON/OFF time | 9395 | 24B3 | 25779 | 64B3 | | | | | — | |
| Input-output | OUT/DO output | 5 | Time proportional cycle | 9396 | 24B4 | 25780 | 64B4 | | | | | 1 | |
| Input-output | OUT/DO output | 5 | Linearization table group definition | 9397 | 24B5 | 25781 | 64B5 | | | | | — | |
| Input-output | OUT/DO output | 5 | Phase shift | 9400 | 24B8 | 25784 | 64B8 | | | | | — | * |
| Input-output | OUT/DO output | 6 | Output type | 9408 | 24C0 | 25792 | 64C0 | | | | | — | |
| Input-output | OUT/DO output | 6 | Latch | 9409 | 24C1 | 25793 | 64C1 | | | | | — | |
| Input-output | OUT/DO output | 6 | Time proportional operation type | 9410 | 24C2 | 25794 | 64C2 | | | | | — | |
| Input-output | OUT/DO output | 6 | Min. ON/OFF time | 9411 | 24C3 | 25795 | 64C3 | | | | | — | |
| Input-output | OUT/DO output | 6 | Time proportional cycle | 9412 | 24C4 | 25796 | 64C4 | | | | | 1 | |
| Input-output | OUT/DO output | 6 | Linearization table group definition | 9413 | 24C5 | 25797 | 64C5 | | | | | — | |
| Input-output | OUT/DO output | 6 | Phase shift | 9416 | 24C8 | 25800 | 64C8 | | | | | — | * |
| Input-output | OUT/DO output | 7 | Output type | 9424 | 24D0 | 25808 | 64D0 | | | | | — | |
| Input-output | OUT/DO output | 7 | Latch | 9425 | 24D1 | 25809 | 64D1 | | | | | — | |
| Input-output | OUT/DO output | 7 | Time proportional operation type | 9426 | 24D2 | 25810 | 64D2 | | | | | — | |
| Input-output | OUT/DO output | 7 | Min. ON/OFF time | 9427 | 24D3 | 25811 | 64D3 | | | | | — | |
| Input-output | OUT/DO output | 7 | Time proportional cycle | 9428 | 24D4 | 25812 | 64D4 | | | | | 1 | |
| Input-output | OUT/DO output | 7 | Linearization table group definition | 9429 | 24D5 | 25813 | 64D5 | | | | | — | |
| Input-output | OUT/DO output | 7 | Phase shift | 9432 | 24D8 | 25816 | 64D8 | | | | | — | * |
| Input-output | OUT/DO output | 8 | Output type | 9440 | 24E0 | 25824 | 64E0 | | | | | — | |
| Input-output | OUT/DO output | 8 | Latch | 9441 | 24E1 | 25825 | 64E1 | | | | | — | |
| Input-output | OUT/DO output | 8 | Time proportional operation type | 9442 | 24E2 | 25826 | 64E2 | | | | | — | |
| Input-output | OUT/DO output | 8 | Min. ON/OFF time | 9443 | 24E3 | 25827 | 64E3 | | | | | — | |
| Input-output | OUT/DO output | 8 | Time proportional cycle | 9444 | 24E4 | 25828 | 64E4 | | | | | 1 | |
| Input-output | OUT/DO output | 8 | Linearization table group definition | 9445 | 24E5 | 25829 | 64E5 | | | | | — | |
| Input-output | OUT/DO output | 8 | Phase shift | 9448 | 24E8 | 25832 | 64E8 | | | | | — | * |

* Cannot be used with NX-S21.

## Input-output/Zener Barrier Adjustment

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Input-output | Zener barrier adjst. | 1 | Command to store adjusted values | 10848 | 2A60 | 27232 | 6A60 | | | | × | — | |
| Input-output | Zener barrier adjst. | 1 | Adjustment factor | 10849 | 2A61 | 27233 | 6A61 | | | | | 2 | |
| Input-output | Zener barrier adjst. | 2 | Command to store adjusted values | 10852 | 2A64 | 27236 | 6A64 | | | | × | — | |
| Input-output | Zener barrier adjst. | 2 | Adjustment factor | 10853 | 2A65 | 27237 | 6A65 | | | | | 2 | |
| Input-output | Zener barrier adjst. | 3 | Command to store adjusted values | 10856 | 2A68 | 27240 | 6A68 | | | | × | — | Not available for 2 channels |
| Input-output | Zener barrier adjst. | 3 | Adjustment factor | 10857 | 2A69 | 27241 | 6A69 | | | | | 2 | Not available for 2 channels |
| Input-output | Zener barrier adjst. | 4 | Command to store adjusted values | 10860 | 2A6C | 27244 | 6A6C | | | | × | — | Not available for 2 channels |
| Input-output | Zener barrier adjst. | 4 | Adjustment factor | 10861 | 2A6D | 27245 | 6A6D | | | | | 2 | Not available for 2 channels |

# Input-output/CT Input

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Input-output | CT input | 1 | CT operation | 11152 | 2B90 | 27536 | 6B90 | | | | | — | |
| Input-output | CT input | 1 | Wait time for CT measurement | 11153 | 2B91 | 27537 | 6B91 | | | | | — | |
| Input-output | CT input | 1 | Number of CT turns | 11154 | 2B92 | 27538 | 6B92 | | | | | — | |
| Input-output | CT input | 1 | Number of CT power line passes | 11155 | 2B93 | 27539 | 6B93 | | | | | — | |
| Input-output | CT input | 1 | Threshold current for determining heater burnout | 11156 | 2B94 | 27540 | 6B94 | | | | | 1 | |
| Input-output | CT input | 1 | Threshold current for determining overcurrent | 11157 | 2B95 | 27541 | 6B95 | | | | | 1 | |
| Input-output | CT input | 1 | Threshold current for determining a short circuit | 11158 | 2B96 | 27542 | 6B96 | | | | | 1 | |
| Input-output | CT input | 1 | Hysteresis | 11159 | 2B97 | 27543 | 6B97 | | | | | 1 | |
| Input-output | CT input | 1 | Delay time | 11160 | 2B98 | 27544 | 6B98 | | | | | 1 | |
| Input-output | CT input | 1 | Condition for restoring status before measurement | 11161 | 2B99 | 27545 | 6B99 | | | | | — | |
| Input-output | CT input | 2 | CT operation | 11168 | 2BA0 | 27552 | 6BA0 | | | | | — | |
| Input-output | CT input | 2 | Wait time for CT measurement | 11169 | 2BA1 | 27553 | 6BA1 | | | | | — | |
| Input-output | CT input | 2 | Number of CT turns | 11170 | 2BA2 | 27554 | 6BA2 | | | | | — | |
| Input-output | CT input | 2 | Number of CT power line passes | 11171 | 2BA3 | 27555 | 6BA3 | | | | | — | |
| Input-output | CT input | 2 | Threshold current for determining heater burnout | 11172 | 2BA4 | 27556 | 6BA4 | | | | | 1 | |
| Input-output | CT input | 2 | Threshold current for determining overcurrent | 11173 | 2BA5 | 27557 | 6BA5 | | | | | 1 | |
| Input-output | CT input | 2 | Threshold current for determining a short circuit | 11174 | 2BA6 | 27558 | 6BA6 | | | | | 1 | |
| Input-output | CT input | 2 | Hysteresis | 11175 | 2BA7 | 27559 | 6BA7 | | | | | 1 | |
| Input-output | CT input | 2 | Delay time | 11176 | 2BA8 | 27560 | 6BA8 | | | | | 1 | |
| Input-output | CT input | 2 | Condition for restoring status before measurement | 11177 | 2BA9 | 27561 | 6BA9 | | | | | — | |
| Input-output | CT input | 3 | CT operation | 11184 | 2BB0 | 27568 | 6BB0 | | | | | — | |
| Input-output | CT input | 3 | Wait time for CT measurement | 11185 | 2BB1 | 27569 | 6BB1 | | | | | — | |
| Input-output | CT input | 3 | Number of CT turns | 11186 | 2BB2 | 27570 | 6BB2 | | | | | — | |
| Input-output | CT input | 3 | Number of CT power line passes | 11187 | 2BB3 | 27571 | 6BB3 | | | | | — | |
| Input-output | CT input | 3 | Threshold current for determining heater burnout | 11188 | 2BB4 | 27572 | 6BB4 | | | | | 1 | |
| Input-output | CT input | 3 | Threshold current for determining overcurrent | 11189 | 2BB5 | 27573 | 6BB5 | | | | | 1 | |
| Input-output | CT input | 3 | Threshold current for determining a short circuit | 11190 | 2BB6 | 27574 | 6BB6 | | | | | 1 | |
| Input-output | CT input | 3 | Hysteresis | 11191 | 2BB7 | 27575 | 6BB7 | | | | | 1 | |
| Input-output | CT input | 3 | Delay time | 11192 | 2BB8 | 27576 | 6BB8 | | | | | 1 | |
| Input-output | CT input | 3 | Condition for restoring status before measurement | 11193 | 2BB9 | 27577 | 6BB9 | | | | | — | |
| Input-output | CT input | 4 | CT operation | 11200 | 2BC0 | 27584 | 6BC0 | | | | | — | |
| Input-output | CT input | 4 | Wait time for CT measurement | 11201 | 2BC1 | 27585 | 6BC1 | | | | | — | |
| Input-output | CT input | 4 | Number of CT turns | 11202 | 2BC2 | 27586 | 6BC2 | | | | | — | |
| Input-output | CT input | 4 | Number of CT power line passes | 11203 | 2BC3 | 27587 | 6BC3 | | | | | — | |
| Input-output | CT input | 4 | Threshold current for determining heater burnout | 11204 | 2BC4 | 27588 | 6BC4 | | | | | 1 | |
| Input-output | CT input | 4 | Threshold current for determining overcurrent | 11205 | 2BC5 | 27589 | 6BC5 | | | | | 1 | |
| Input-output | CT input | 4 | Threshold current for determining a short circuit | 11206 | 2BC6 | 27590 | 6BC6 | | | | | 1 | |
| Input-output | CT input | 4 | Hysteresis | 11207 | 2BC7 | 27591 | 6BC7 | | | | | 1 | |
| Input-output | CT input | 4 | Delay time | 11208 | 2BC8 | 27592 | 6BC8 | | | | | 1 | |
| Input-output | CT input | 4 | Condition for restoring status before measurement | 11209 | 2BC9 | 27593 | 6BC9 | | | | | — | |
| Input-output | CT input | 1 | Continuous current measurement cycle | 11216 | 2BD0 | 27600 | 6BD0 | | | | | 1 | |
| Input-output | CT input | 2 | Continuous current measurement cycle | 11232 | 2BE0 | 27616 | 6BE0 | | | | | 1 | |
| Input-output | CT input | 3 | Continuous current measurement cycle | 11248 | 2BF0 | 27632 | 6BF0 | | | | | 1 | |
| Input-output | CT input | 4 | Continuous current measurement cycle | 11264 | 2C00 | 27648 | 6C00 | | | | | 1 | |

## SP/SP Group Selection

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| SP | SP group selection | 1 | SP group selection | 4096 | 1000 | 20480 | 5000 | | | | | — | |
| SP | SP group selection | 2 | SP group selection | 4100 | 1004 | 20484 | 5004 | | | | | — | |
| SP | SP group selection | 3 | SP group selection | 4104 | 1008 | 20488 | 5008 | | | | | — | Not available for 2 channels |
| SP | SP group selection | 4 | SP group selection | 4108 | 100C | 20492 | 500C | | | | | — | Not available for 2 channels |

# SP/LSP

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| SP | LSP | 1 | LSP1 | 4112 | 1010 | 20496 | 5010 | | | | | PID_PV | |
| SP | LSP | 1 | PID group definition 1 (for LSP) | 4113 | 1011 | 20497 | 5011 | | | | | — | |
| SP | LSP | 1 | LSP2 | 4114 | 1012 | 20498 | 5012 | | | | | PID_PV | |
| SP | LSP | 1 | PID group definition 2 (for LSP) | 4115 | 1013 | 20499 | 5013 | | | | | — | |
| SP | LSP | 1 | LSP3 | 4116 | 1014 | 20500 | 5014 | | | | | PID_PV | |
| SP | LSP | 1 | PID group definition 3 (for LSP) | 4117 | 1015 | 20501 | 5015 | | | | | — | |
| SP | LSP | 1 | LSP4 | 4118 | 1016 | 20502 | 5016 | | | | | PID_PV | |
| SP | LSP | 1 | PID group definition 4 (for LSP) | 4119 | 1017 | 20503 | 5017 | | | | | — | |
| SP | LSP | 2 | LSP1 | 4144 | 1030 | 20528 | 5030 | | | | | PID_PV | |
| SP | LSP | 2 | PID group definition 1 (for LSP) | 4145 | 1031 | 20529 | 5031 | | | | | — | |
| SP | LSP | 2 | LSP2 | 4146 | 1032 | 20530 | 5032 | | | | | PID_PV | |
| SP | LSP | 2 | PID group definition 2 (for LSP) | 4147 | 1033 | 20531 | 5033 | | | | | — | |
| SP | LSP | 2 | LSP3 | 4148 | 1034 | 20532 | 5034 | | | | | PID_PV | |
| SP | LSP | 2 | PID group definition 3 (for LSP) | 4149 | 1035 | 20533 | 5035 | | | | | — | |
| SP | LSP | 2 | LSP4 | 4150 | 1036 | 20534 | 5036 | | | | | PID_PV | |
| SP | LSP | 2 | PID group definition 4 (for LSP) | 4151 | 1037 | 20535 | 5037 | | | | | — | |
| SP | LSP | 3 | LSP1 | 4176 | 1050 | 20560 | 5050 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 3 | PID group definition 1 (for LSP) | 4177 | 1051 | 20561 | 5051 | | | | | — | Not available for 2 channels |
| SP | LSP | 3 | LSP2 | 4178 | 1052 | 20562 | 5052 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 3 | PID group definition 2 (for LSP) | 4179 | 1053 | 20563 | 5053 | | | | | — | Not available for 2 channels |
| SP | LSP | 3 | LSP3 | 4180 | 1054 | 20564 | 5054 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 3 | PID group definition 3 (for LSP) | 4181 | 1055 | 20565 | 5055 | | | | | — | Not available for 2 channels |
| SP | LSP | 3 | LSP4 | 4182 | 1056 | 20566 | 5056 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 3 | PID group definition 4 (for LSP) | 4183 | 1057 | 20567 | 5057 | | | | | — | Not available for 2 channels |
| SP | LSP | 4 | LSP1 | 4208 | 1070 | 20592 | 5070 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 4 | PID group definition 1 (for LSP) | 4209 | 1071 | 20593 | 5071 | | | | | — | Not available for 2 channels |
| SP | LSP | 4 | LSP2 | 4210 | 1072 | 20594 | 5072 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 4 | PID group definition 2 (for LSP) | 4211 | 1073 | 20595 | 5073 | | | | | — | Not available for 2 channels |
| SP | LSP | 4 | LSP3 | 4212 | 1074 | 20596 | 5074 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 4 | PID group definition 3 (for LSP) | 4213 | 1075 | 20597 | 5075 | | | | | — | Not available for 2 channels |
| SP | LSP | 4 | LSP4 | 4214 | 1076 | 20598 | 5076 | | | | | PID_PV | Not available for 2 channels |
| SP | LSP | 4 | PID group definition 4 (for LSP) | 4215 | 1077 | 20599 | 5077 | | | | | — | Not available for 2 channels |

## SP/RSP

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| SP | RSP | 1 | RSP | 4240 | 1090 | 20624 | 5090 | | × | | × | PID_PV | |
| SP | RSP | 1 | PID group definition (for RSP) | 4241 | 1091 | 20625 | 5091 | | | | | – | |
| SP | RSP | 2 | RSP | 4244 | 1094 | 20628 | 5094 | | × | | × | PID_PV | |
| SP | RSP | 2 | PID group definition (for RSP) | 4245 | 1095 | 20629 | 5095 | | | | | – | |
| SP | RSP | 3 | RSP | 4248 | 1098 | 20632 | 5098 | | × | | × | PID_PV | Not available for 2 channels |
| SP | RSP | 3 | PID group definition (for RSP) | 4249 | 1099 | 20633 | 5099 | | | | | – | Not available for 2 channels |
| SP | RSP | 4 | RSP | 4252 | 109C | 20636 | 509C | | × | | × | PID_PV | Not available for 2 channels |
| SP | RSP | 4 | PID group definition (for RSP) | 4253 | 109D | 20637 | 509D | | | | | – | Not available for 2 channels |

# SP/SP Configuration

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| SP | SP configuration | 1 | SP low limit | 4256 | 10A0 | 20640 | 50A0 | | | | | PID_PV | |
| SP | SP configuration | 1 | SP high limit | 4257 | 10A1 | 20641 | 50A1 | | | | | PID_PV | |
| SP | SP configuration | 2 | SP low limit | 4260 | 10A4 | 20644 | 50A4 | | | | | PID_PV | |
| SP | SP configuration | 2 | SP high limit | 4261 | 10A5 | 20645 | 50A5 | | | | | PID_PV | |
| SP | SP configuration | 3 | SP low limit | 4264 | 10A8 | 20648 | 50A8 | | | | | PID_PV | Not available for 2 channels |
| SP | SP configuration | 3 | SP high limit | 4265 | 10A9 | 20649 | 50A9 | | | | | PID_PV | Not available for 2 channels |
| SP | SP configuration | 4 | SP low limit | 4268 | 10AC | 20652 | 50AC | | | | | PID_PV | Not available for 2 channels |
| SP | SP configuration | 4 | SP high limit | 4269 | 10AD | 20653 | 50AD | | | | | PID_PV | Not available for 2 channels |
| SP | SP configuration | 1 | SP ramp unit | 4272 | 10B0 | 20656 | 50B0 | | | | | — | |
| SP | SP configuration | 1 | SP ramp-up for LSP | 4273 | 10B1 | 20657 | 50B1 | | | | | RAMP | |
| SP | SP configuration | 1 | SP ramp-down for LSP | 4274 | 10B2 | 20658 | 50B2 | | | | | RAMP | |
| SP | SP configuration | 1 | RSP tracking | 4275 | 10B3 | 20659 | 50B3 | | | | | — | |
| SP | SP configuration | 1 | SP ramp-up for RSP | 4276 | 10B4 | 20660 | 50B4 | | | | | RAMP | |
| SP | SP configuration | 1 | SP ramp-down for RSP | 4277 | 10B5 | 20661 | 50B5 | | | | | RAMP | |
| SP | SP configuration | 1 | PV start for LSP | 4280 | 10B8 | 20664 | 50B8 | | | | | — | |
| SP | SP configuration | 1 | PV start for RSP | 4281 | 10B9 | 20665 | 50B9 | | | | | — | |
| SP | SP configuration | 2 | SP ramp unit | 4288 | 10C0 | 20672 | 50C0 | | | | | — | |
| SP | SP configuration | 2 | SP ramp-up for LSP | 4289 | 10C1 | 20673 | 50C1 | | | | | RAMP | |
| SP | SP configuration | 2 | SP ramp-down for LSP | 4290 | 10C2 | 20674 | 50C2 | | | | | RAMP | |
| SP | SP configuration | 2 | RSP tracking | 4291 | 10C3 | 20675 | 50C3 | | | | | — | |
| SP | SP configuration | 2 | SP ramp-up for RSP | 4292 | 10C4 | 20676 | 50C4 | | | | | RAMP | |
| SP | SP configuration | 2 | SP ramp-down for RSP | 4293 | 10C5 | 20677 | 50C5 | | | | | RAMP | |
| SP | SP configuration | 2 | PV start for LSP | 4296 | 10C8 | 20680 | 50C8 | | | | | — | |
| SP | SP configuration | 2 | PV start for RSP | 4297 | 10C9 | 20681 | 50C9 | | | | | — | |
| SP | SP configuration | 3 | SP ramp unit | 4304 | 10D0 | 20688 | 50D0 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 3 | SP ramp-up for LSP | 4305 | 10D1 | 20689 | 50D1 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 3 | SP ramp-down for LSP | 4306 | 10D2 | 20690 | 50D2 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 3 | RSP tracking | 4307 | 10D3 | 20691 | 50D3 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 3 | SP ramp-up for RSP | 4308 | 10D4 | 20692 | 50D4 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 3 | SP ramp-down for RSP | 4309 | 10D5 | 20693 | 50D5 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 3 | PV start for LSP | 4312 | 10D8 | 20696 | 50D8 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 3 | PV start for RSP | 4313 | 10D9 | 20697 | 50D9 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 4 | SP ramp unit | 4320 | 10E0 | 20704 | 50E0 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 4 | SP ramp-up for LSP | 4321 | 10E1 | 20705 | 50E1 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 4 | SP ramp-down for LSP | 4322 | 10E2 | 20706 | 50E2 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 4 | RSP tracking | 4323 | 10E3 | 20707 | 50E3 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 4 | SP ramp-up for RSP | 4324 | 10E4 | 20708 | 50E4 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 4 | SP ramp-down for RSP | 4325 | 10E5 | 20709 | 50E5 | | | | | RAMP | Not available for 2 channels |
| SP | SP configuration | 4 | PV start for LSP | 4328 | 10E8 | 20712 | 50E8 | | | | | — | Not available for 2 channels |
| SP | SP configuration | 4 | PV start for RSP | 4329 | 10E9 | 20713 | 50E9 | | | | | — | Not available for 2 channels |

# Event/Event Settings (Operating Points)

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Event | Event setting (operating point) | 1 | Event main setting | 4336 | 10F0 | 20720 | 50F0 | | | | | EV | |
| Event | Event setting (operating point) | 1 | Event sub-setting | 4337 | 10F1 | 20721 | 50F1 | | | | | EV | |
| Event | Event setting (operating point) | 2 | Event main setting | 4338 | 10F2 | 20722 | 50F2 | | | | | EV | |
| Event | Event setting (operating point) | 2 | Event sub-setting | 4339 | 10F3 | 20723 | 50F3 | | | | | EV | |
| Event | Event setting (operating point) | 3 | Event main setting | 4340 | 10F4 | 20724 | 50F4 | | | | | EV | |
| Event | Event setting (operating point) | 3 | Event sub-setting | 4341 | 10F5 | 20725 | 50F5 | | | | | EV | |
| Event | Event setting (operating point) | 4 | Event main setting | 4342 | 10F6 | 20726 | 50F6 | | | | | EV | |
| Event | Event setting (operating point) | 4 | Event sub-setting | 4343 | 10F7 | 20727 | 50F7 | | | | | EV | |
| Event | Event setting (operating point) | 5 | Event main setting | 4344 | 10F8 | 20728 | 50F8 | | | | | EV | |
| Event | Event setting (operating point) | 5 | Event sub-setting | 4345 | 10F9 | 20729 | 50F9 | | | | | EV | |
| Event | Event setting (operating point) | 6 | Event main setting | 4346 | 10FA | 20730 | 50FA | | | | | EV | |
| Event | Event setting (operating point) | 6 | Event sub-setting | 4347 | 10FB | 20731 | 50FB | | | | | EV | |
| Event | Event setting (operating point) | 7 | Event main setting | 4348 | 10FC | 20732 | 50FC | | | | | EV | |
| Event | Event setting (operating point) | 7 | Event sub-setting | 4349 | 10FD | 20733 | 50FD | | | | | EV | |
| Event | Event setting (operating point) | 8 | Event main setting | 4350 | 10FE | 20734 | 50FE | | | | | EV | |
| Event | Event setting (operating point) | 8 | Event sub-setting | 4351 | 10FF | 20735 | 50FF | | | | | EV | |
| Event | Event setting (operating point) | 9 | Event main setting | 4352 | 1100 | 20736 | 5100 | | | | | EV | |
| Event | Event setting (operating point) | 9 | Event sub-setting | 4353 | 1101 | 20737 | 5101 | | | | | EV | |
| Event | Event setting (operating point) | 10 | Event main setting | 4354 | 1102 | 20738 | 5102 | | | | | EV | |
| Event | Event setting (operating point) | 10 | Event sub-setting | 4355 | 1103 | 20739 | 5103 | | | | | EV | |
| Event | Event setting (operating point) | 11 | Event main setting | 4356 | 1104 | 20740 | 5104 | | | | | EV | |
| Event | Event setting (operating point) | 11 | Event sub-setting | 4357 | 1105 | 20741 | 5105 | | | | | EV | |
| Event | Event setting (operating point) | 12 | Event main setting | 4358 | 1106 | 20742 | 5106 | | | | | EV | |
| Event | Event setting (operating point) | 12 | Event sub-setting | 4359 | 1107 | 20743 | 5107 | | | | | EV | |
| Event | Event setting (operating point) | 13 | Event main setting | 4360 | 1108 | 20744 | 5108 | | | | | EV | |
| Event | Event setting (operating point) | 13 | Event sub-setting | 4361 | 1109 | 20745 | 5109 | | | | | EV | |
| Event | Event setting (operating point) | 14 | Event main setting | 4362 | 110A | 20746 | 510A | | | | | EV | |
| Event | Event setting (operating point) | 14 | Event sub-setting | 4363 | 110B | 20747 | 510B | | | | | EV | |
| Event | Event setting (operating point) | 15 | Event main setting | 4364 | 110C | 20748 | 510C | | | | | EV | |
| Event | Event setting (operating point) | 15 | Event sub-setting | 4365 | 110D | 20749 | 510D | | | | | EV | |
| Event | Event setting (operating point) | 16 | Event main setting | 4366 | 110E | 20750 | 510E | | | | | EV | |
| Event | Event setting (operating point) | 16 | Event sub-setting | 4367 | 110F | 20751 | 510F | | | | | EV | |
| Event | Event setting (operating point) | 17 | Event main setting | 4368 | 1110 | 20752 | 5110 | | | | | EV | |
| Event | Event setting (operating point) | 17 | Event sub-setting | 4369 | 1111 | 20753 | 5111 | | | | | EV | |
| Event | Event setting (operating point) | 18 | Event main setting | 4370 | 1112 | 20754 | 5112 | | | | | EV | |
| Event | Event setting (operating point) | 18 | Event sub-setting | 4371 | 1113 | 20755 | 5113 | | | | | EV | |
| Event | Event setting (operating point) | 19 | Event main setting | 4372 | 1114 | 20756 | 5114 | | | | | EV | |
| Event | Event setting (operating point) | 19 | Event sub-setting | 4373 | 1115 | 20757 | 5115 | | | | | EV | |
| Event | Event setting (operating point) | 20 | Event main setting | 4374 | 1116 | 20758 | 5116 | | | | | EV | |
| Event | Event setting (operating point) | 20 | Event sub-setting | 4375 | 1117 | 20759 | 5117 | | | | | EV | |
| Event | Event setting (operating point) | 21 | Event main setting | 4376 | 1118 | 20760 | 5118 | | | | | EV | |
| Event | Event setting (operating point) | 21 | Event sub-setting | 4377 | 1119 | 20761 | 5119 | | | | | EV | |
| Event | Event setting (operating point) | 22 | Event main setting | 4378 | 111A | 20762 | 511A | | | | | EV | |
| Event | Event setting (operating point) | 22 | Event sub-setting | 4379 | 111B | 20763 | 511B | | | | | EV | |
| Event | Event setting (operating point) | 23 | Event main setting | 4380 | 111C | 20764 | 511C | | | | | EV | |
| Event | Event setting (operating point) | 23 | Event sub-setting | 4381 | 111D | 20765 | 511D | | | | | EV | |
| Event | Event setting (operating point) | 24 | Event main setting | 4382 | 111E | 20766 | 511E | | | | | EV | |
| Event | Event setting (operating point) | 24 | Event sub-setting | 4383 | 111F | 20767 | 511F | | | | | EV | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Event | Event config. | 1 | Operation type | 4400 | 1130 | 20784 | 5130 | | | | | — | |
| Event | Event config. | 1 | Loop/channel definition | 4401 | 1131 | 20785 | 5131 | | | | | — | |
| Event | Event config. | 1 | Direct/Reverse | 4402 | 1132 | 20786 | 5132 | | | | | — | |
| Event | Event config. | 1 | Standby | 4403 | 1133 | 20787 | 5133 | | | | | — | |
| Event | Event config. | 1 | Event state at READY | 4404 | 1134 | 20788 | 5134 | | | | | — | |
| Event | Event config. | 1 | Decimal point position | 4405 | 1135 | 20789 | 5135 | | | | | — | |
| Event | Event config. | 1 | Hysteresis | 4406 | 1136 | 20790 | 5136 | | | | | EV | |
| Event | Event config. | 1 | ON delay time | 4407 | 1137 | 20791 | 5137 | | | | | 1 | |
| Event | Event config. | 1 | OFF delay | 4408 | 1138 | 20792 | 5138 | | | | | 1 | |
| Event | Event config. | 2 | Operation type | 4416 | 1140 | 20800 | 5140 | | | | | — | |
| Event | Event config. | 2 | Loop/channel definition | 4417 | 1141 | 20801 | 5141 | | | | | — | |
| Event | Event config. | 2 | Direct/Reverse | 4418 | 1142 | 20802 | 5142 | | | | | — | |
| Event | Event config. | 2 | Standby | 4419 | 1143 | 20803 | 5143 | | | | | — | |
| Event | Event config. | 2 | Event state at READY | 4420 | 1144 | 20804 | 5144 | | | | | — | |
| Event | Event config. | 2 | Decimal point position | 4421 | 1145 | 20805 | 5145 | | | | | — | |
| Event | Event config. | 2 | Hysteresis | 4422 | 1146 | 20806 | 5146 | | | | | EV | |
| Event | Event config. | 2 | ON delay time | 4423 | 1147 | 20807 | 5147 | | | | | 1 | |
| Event | Event config. | 2 | OFF delay | 4424 | 1148 | 20808 | 5148 | | | | | 1 | |
| Event | Event config. | 3 | Operation type | 4432 | 1150 | 20816 | 5150 | | | | | — | |
| Event | Event config. | 3 | Loop/channel definition | 4433 | 1151 | 20817 | 5151 | | | | | — | |
| Event | Event config. | 3 | Direct/Reverse | 4434 | 1152 | 20818 | 5152 | | | | | — | |
| Event | Event config. | 3 | Standby | 4435 | 1153 | 20819 | 5153 | | | | | — | |
| Event | Event config. | 3 | Event state at READY | 4436 | 1154 | 20820 | 5154 | | | | | — | |
| Event | Event config. | 3 | Decimal point position | 4437 | 1155 | 20821 | 5155 | | | | | — | |
| Event | Event config. | 3 | Hysteresis | 4438 | 1156 | 20822 | 5156 | | | | | EV | |
| Event | Event config. | 3 | ON delay time | 4439 | 1157 | 20823 | 5157 | | | | | 1 | |
| Event | Event config. | 3 | OFF delay | 4440 | 1158 | 20824 | 5158 | | | | | 1 | |
| Event | Event config. | 4 | Operation type | 4448 | 1160 | 20832 | 5160 | | | | | — | |
| Event | Event config. | 4 | Loop/channel definition | 4449 | 1161 | 20833 | 5161 | | | | | — | |
| Event | Event config. | 4 | Direct/Reverse | 4450 | 1162 | 20834 | 5162 | | | | | — | |
| Event | Event config. | 4 | Standby | 4451 | 1163 | 20835 | 5163 | | | | | — | |
| Event | Event config. | 4 | Event state at READY | 4452 | 1164 | 20836 | 5164 | | | | | — | |
| Event | Event config. | 4 | Decimal point position | 4453 | 1165 | 20837 | 5165 | | | | | — | |
| Event | Event config. | 4 | Hysteresis | 4454 | 1166 | 20838 | 5166 | | | | | EV | |
| Event | Event config. | 4 | ON delay time | 4455 | 1167 | 20839 | 5167 | | | | | 1 | |
| Event | Event config. | 4 | OFF delay | 4456 | 1168 | 20840 | 5168 | | | | | 1 | |
| Event | Event config. | 5 | Operation type | 4464 | 1170 | 20848 | 5170 | | | | | — | |
| Event | Event config. | 5 | Loop/channel definition | 4465 | 1171 | 20849 | 5171 | | | | | — | |
| Event | Event config. | 5 | Direct/Reverse | 4466 | 1172 | 20850 | 5172 | | | | | — | |
| Event | Event config. | 5 | Standby | 4467 | 1173 | 20851 | 5173 | | | | | — | |
| Event | Event config. | 5 | Event state at READY | 4468 | 1174 | 20852 | 5174 | | | | | — | |
| Event | Event config. | 5 | Decimal point position | 4469 | 1175 | 20853 | 5175 | | | | | — | |
| Event | Event config. | 5 | Hysteresis | 4470 | 1176 | 20854 | 5176 | | | | | EV | |
| Event | Event config. | 5 | ON delay time | 4471 | 1177 | 20855 | 5177 | | | | | 1 | |
| Event | Event config. | 5 | OFF delay | 4472 | 1178 | 20856 | 5178 | | | | | 1 | |
| Event | Event config. | 6 | Operation type | 4480 | 1180 | 20864 | 5180 | | | | | — | |
| Event | Event config. | 6 | Loop/channel definition | 4481 | 1181 | 20865 | 5181 | | | | | — | |
| Event | Event config. | 6 | Direct/Reverse | 4482 | 1182 | 20866 | 5182 | | | | | — | |
| Event | Event config. | 6 | Standby | 4483 | 1183 | 20867 | 5183 | | | | | — | |
| Event | Event config. | 6 | Event state at READY | 4484 | 1184 | 20868 | 5184 | | | | | — | |
| Event | Event config. | 6 | Decimal point position | 4485 | 1185 | 20869 | 5185 | | | | | — | |
| Event | Event config. | 6 | Hysteresis | 4486 | 1186 | 20870 | 5186 | | | | | EV | |
| Event | Event config. | 6 | ON delay time | 4487 | 1187 | 20871 | 5187 | | | | | 1 | |
| Event | Event config. | 6 | OFF delay | 4488 | 1188 | 20872 | 5188 | | | | | 1 | |

## Event/Event Configuration

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Event | Event config. | 7 | Operation type | 4496 | 1190 | 20880 | 5190 | | | | | — | |
| Event | Event config. | 7 | Loop/channel definition | 4497 | 1191 | 20881 | 5191 | | | | | — | |
| Event | Event config. | 7 | Direct/Reverse | 4498 | 1192 | 20882 | 5192 | | | | | — | |
| Event | Event config. | 7 | Standby | 4499 | 1193 | 20883 | 5193 | | | | | — | |
| Event | Event config. | 7 | Event state at READY | 4500 | 1194 | 20884 | 5194 | | | | | — | |
| Event | Event config. | 7 | Decimal point position | 4501 | 1195 | 20885 | 5195 | | | | | — | |
| Event | Event config. | 7 | Hysteresis | 4502 | 1196 | 20886 | 5196 | | | | | EV | |
| Event | Event config. | 7 | ON delay time | 4503 | 1197 | 20887 | 5197 | | | | | 1 | |
| Event | Event config. | 7 | OFF delay | 4504 | 1198 | 20888 | 5198 | | | | | 1 | |
| Event | Event config. | 8 | Operation type | 4512 | 11A0 | 20896 | 51A0 | | | | | — | |
| Event | Event config. | 8 | Loop/channel definition | 4513 | 11A1 | 20897 | 51A1 | | | | | — | |
| Event | Event config. | 8 | Direct/Reverse | 4514 | 11A2 | 20898 | 51A2 | | | | | — | |
| Event | Event config. | 8 | Standby | 4515 | 11A3 | 20899 | 51A3 | | | | | — | |
| Event | Event config. | 8 | Event state at READY | 4516 | 11A4 | 20900 | 51A4 | | | | | — | |
| Event | Event config. | 8 | Decimal point position | 4517 | 11A5 | 20901 | 51A5 | | | | | — | |
| Event | Event config. | 8 | Hysteresis | 4518 | 11A6 | 20902 | 51A6 | | | | | EV | |
| Event | Event config. | 8 | ON delay time | 4519 | 11A7 | 20903 | 51A7 | | | | | 1 | |
| Event | Event config. | 8 | OFF delay | 4520 | 11A8 | 20904 | 51A8 | | | | | 1 | |
| Event | Event config. | 9 | Operation type | 4528 | 11B0 | 20912 | 51B0 | | | | | — | |
| Event | Event config. | 9 | Loop/channel definition | 4529 | 11B1 | 20913 | 51B1 | | | | | — | |
| Event | Event config. | 9 | Direct/Reverse | 4530 | 11B2 | 20914 | 51B2 | | | | | — | |
| Event | Event config. | 9 | Standby | 4531 | 11B3 | 20915 | 51B3 | | | | | — | |
| Event | Event config. | 9 | Event state at READY | 4532 | 11B4 | 20916 | 51B4 | | | | | — | |
| Event | Event config. | 9 | Decimal point position | 4533 | 11B5 | 20917 | 51B5 | | | | | — | |
| Event | Event config. | 9 | Hysteresis | 4534 | 11B6 | 20918 | 51B6 | | | | | EV | |
| Event | Event config. | 9 | ON delay time | 4535 | 11B7 | 20919 | 51B7 | | | | | 1 | |
| Event | Event config. | 9 | OFF delay | 4536 | 11B8 | 20920 | 51B8 | | | | | 1 | |
| Event | Event config. | 10 | Operation type | 4544 | 11C0 | 20928 | 51C0 | | | | | — | |
| Event | Event config. | 10 | Loop/channel definition | 4545 | 11C1 | 20929 | 51C1 | | | | | — | |
| Event | Event config. | 10 | Direct/Reverse | 4546 | 11C2 | 20930 | 51C2 | | | | | — | |
| Event | Event config. | 10 | Standby | 4547 | 11C3 | 20931 | 51C3 | | | | | — | |
| Event | Event config. | 10 | Event state at READY | 4548 | 11C4 | 20932 | 51C4 | | | | | — | |
| Event | Event config. | 10 | Decimal point position | 4549 | 11C5 | 20933 | 51C5 | | | | | — | |
| Event | Event config. | 10 | Hysteresis | 4550 | 11C6 | 20934 | 51C6 | | | | | EV | |
| Event | Event config. | 10 | ON delay time | 4551 | 11C7 | 20935 | 51C7 | | | | | 1 | |
| Event | Event config. | 10 | OFF delay | 4552 | 11C8 | 20936 | 51C8 | | | | | 1 | |
| Event | Event config. | 11 | Operation type | 4560 | 11D0 | 20944 | 51D0 | | | | | — | |
| Event | Event config. | 11 | Loop/channel definition | 4561 | 11D1 | 20945 | 51D1 | | | | | — | |
| Event | Event config. | 11 | Direct/Reverse | 4562 | 11D2 | 20946 | 51D2 | | | | | — | |
| Event | Event config. | 11 | Standby | 4563 | 11D3 | 20947 | 51D3 | | | | | — | |
| Event | Event config. | 11 | Event state at READY | 4564 | 11D4 | 20948 | 51D4 | | | | | — | |
| Event | Event config. | 11 | Decimal point position | 4565 | 11D5 | 20949 | 51D5 | | | | | — | |
| Event | Event config. | 11 | Hysteresis | 4566 | 11D6 | 20950 | 51D6 | | | | | EV | |
| Event | Event config. | 11 | ON delay time | 4567 | 11D7 | 20951 | 51D7 | | | | | 1 | |
| Event | Event config. | 11 | OFF delay | 4568 | 11D8 | 20952 | 51D8 | | | | | 1 | |
| Event | Event config. | 12 | Operation type | 4576 | 11E0 | 20960 | 51E0 | | | | | — | |
| Event | Event config. | 12 | Loop/channel definition | 4577 | 11E1 | 20961 | 51E1 | | | | | — | |
| Event | Event config. | 12 | Direct/Reverse | 4578 | 11E2 | 20962 | 51E2 | | | | | — | |
| Event | Event config. | 12 | Standby | 4579 | 11E3 | 20963 | 51E3 | | | | | — | |
| Event | Event config. | 12 | Event state at READY | 4580 | 11E4 | 20964 | 51E4 | | | | | — | |
| Event | Event config. | 12 | Decimal point position | 4581 | 11E5 | 20965 | 51E5 | | | | | — | |
| Event | Event config. | 12 | Hysteresis | 4582 | 11E6 | 20966 | 51E6 | | | | | EV | |
| Event | Event config. | 12 | ON delay time | 4583 | 11E7 | 20967 | 51E7 | | | | | 1 | |
| Event | Event config. | 12 | OFF delay | 4584 | 11E8 | 20968 | 51E8 | | | | | 1 | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Event | Event config. | 13 | Operation type | 4592 | 11F0 | 20976 | 51F0 | | | | | — | |
| Event | Event config. | 13 | Loop/channel definition | 4593 | 11F1 | 20977 | 51F1 | | | | | — | |
| Event | Event config. | 13 | Direct/Reverse | 4594 | 11F2 | 20978 | 51F2 | | | | | — | |
| Event | Event config. | 13 | Standby | 4595 | 11F3 | 20979 | 51F3 | | | | | — | |
| Event | Event config. | 13 | Event state at READY | 4596 | 11F4 | 20980 | 51F4 | | | | | — | |
| Event | Event config. | 13 | Decimal point position | 4597 | 11F5 | 20981 | 51F5 | | | | | — | |
| Event | Event config. | 13 | Hysteresis | 4598 | 11F6 | 20982 | 51F6 | | | | | EV | |
| Event | Event config. | 13 | ON delay time | 4599 | 11F7 | 20983 | 51F7 | | | | | 1 | |
| Event | Event config. | 13 | OFF delay | 4600 | 11F8 | 20984 | 51F8 | | | | | 1 | |
| Event | Event config. | 14 | Operation type | 4608 | 1200 | 20992 | 5200 | | | | | — | |
| Event | Event config. | 14 | Loop/channel definition | 4609 | 1201 | 20993 | 5201 | | | | | — | |
| Event | Event config. | 14 | Direct/Reverse | 4610 | 1202 | 20994 | 5202 | | | | | — | |
| Event | Event config. | 14 | Standby | 4611 | 1203 | 20995 | 5203 | | | | | — | |
| Event | Event config. | 14 | Event state at READY | 4612 | 1204 | 20996 | 5204 | | | | | — | |
| Event | Event config. | 14 | Decimal point position | 4613 | 1205 | 20997 | 5205 | | | | | — | |
| Event | Event config. | 14 | Hysteresis | 4614 | 1206 | 20998 | 5206 | | | | | EV | |
| Event | Event config. | 14 | ON delay time | 4615 | 1207 | 20999 | 5207 | | | | | 1 | |
| Event | Event config. | 14 | OFF delay | 4616 | 1208 | 21000 | 5208 | | | | | 1 | |
| Event | Event config. | 15 | Operation type | 4624 | 1210 | 21008 | 5210 | | | | | — | |
| Event | Event config. | 15 | Loop/channel definition | 4625 | 1211 | 21009 | 5211 | | | | | — | |
| Event | Event config. | 15 | Direct/Reverse | 4626 | 1212 | 21010 | 5212 | | | | | — | |
| Event | Event config. | 15 | Standby | 4627 | 1213 | 21011 | 5213 | | | | | — | |
| Event | Event config. | 15 | Event state at READY | 4628 | 1214 | 21012 | 5214 | | | | | — | |
| Event | Event config. | 15 | Decimal point position | 4629 | 1215 | 21013 | 5215 | | | | | — | |
| Event | Event config. | 15 | Hysteresis | 4630 | 1216 | 21014 | 5216 | | | | | EV | |
| Event | Event config. | 15 | ON delay time | 4631 | 1217 | 21015 | 5217 | | | | | 1 | |
| Event | Event config. | 15 | OFF delay | 4632 | 1218 | 21016 | 5218 | | | | | 1 | |
| Event | Event config. | 16 | Operation type | 4640 | 1220 | 21024 | 5220 | | | | | — | |
| Event | Event config. | 16 | Loop/channel definition | 4641 | 1221 | 21025 | 5221 | | | | | — | |
| Event | Event config. | 16 | Direct/Reverse | 4642 | 1222 | 21026 | 5222 | | | | | — | |
| Event | Event config. | 16 | Standby | 4643 | 1223 | 21027 | 5223 | | | | | — | |
| Event | Event config. | 16 | Event state at READY | 4644 | 1224 | 21028 | 5224 | | | | | — | |
| Event | Event config. | 16 | Decimal point position | 4645 | 1225 | 21029 | 5225 | | | | | — | |
| Event | Event config. | 16 | Hysteresis | 4646 | 1226 | 21030 | 5226 | | | | | EV | |
| Event | Event config. | 16 | ON delay time | 4647 | 1227 | 21031 | 5227 | | | | | 1 | |
| Event | Event config. | 16 | OFF delay | 4648 | 1228 | 21032 | 5228 | | | | | 1 | |
| Event | Event config. | 17 | Operation type | 4656 | 1230 | 21040 | 5230 | | | | | — | |
| Event | Event config. | 17 | Loop/channel definition | 4657 | 1231 | 21041 | 5231 | | | | | — | |
| Event | Event config. | 17 | Direct/Reverse | 4658 | 1232 | 21042 | 5232 | | | | | — | |
| Event | Event config. | 17 | Standby | 4659 | 1233 | 21043 | 5233 | | | | | — | |
| Event | Event config. | 17 | Event state at READY | 4660 | 1234 | 21044 | 5234 | | | | | — | |
| Event | Event config. | 17 | Decimal point position | 4661 | 1235 | 21045 | 5235 | | | | | — | |
| Event | Event config. | 17 | Hysteresis | 4662 | 1236 | 21046 | 5236 | | | | | EV | |
| Event | Event config. | 17 | ON delay time | 4663 | 1237 | 21047 | 5237 | | | | | 1 | |
| Event | Event config. | 17 | OFF delay | 4664 | 1238 | 21048 | 5238 | | | | | 1 | |
| Event | Event config. | 18 | Operation type | 4672 | 1240 | 21056 | 5240 | | | | | — | |
| Event | Event config. | 18 | Loop/channel definition | 4673 | 1241 | 21057 | 5241 | | | | | — | |
| Event | Event config. | 18 | Direct/Reverse | 4674 | 1242 | 21058 | 5242 | | | | | — | |
| Event | Event config. | 18 | Standby | 4675 | 1243 | 21059 | 5243 | | | | | — | |
| Event | Event config. | 18 | Event state at READY | 4676 | 1244 | 21060 | 5244 | | | | | — | |
| Event | Event config. | 18 | Decimal point position | 4677 | 1245 | 21061 | 5245 | | | | | — | |
| Event | Event config. | 18 | Hysteresis | 4678 | 1246 | 21062 | 5246 | | | | | EV | |
| Event | Event config. | 18 | ON delay time | 4679 | 1247 | 21063 | 5247 | | | | | 1 | |
| Event | Event config. | 18 | OFF delay | 4680 | 1248 | 21064 | 5248 | | | | | 1 | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Event | Event config. | 19 | Operation type | 4688 | 1250 | 21072 | 5250 | | | | | — | |
| Event | Event config. | 19 | Loop/channel definition | 4689 | 1251 | 21073 | 5251 | | | | | — | |
| Event | Event config. | 19 | Direct/Reverse | 4690 | 1252 | 21074 | 5252 | | | | | — | |
| Event | Event config. | 19 | Standby | 4691 | 1253 | 21075 | 5253 | | | | | — | |
| Event | Event config. | 19 | Event state at READY | 4692 | 1254 | 21076 | 5254 | | | | | — | |
| Event | Event config. | 19 | Decimal point position | 4693 | 1255 | 21077 | 5255 | | | | | — | |
| Event | Event config. | 19 | Hysteresis | 4694 | 1256 | 21078 | 5256 | | | | | EV | |
| Event | Event config. | 19 | ON delay time | 4695 | 1257 | 21079 | 5257 | | | | | 1 | |
| Event | Event config. | 19 | OFF delay | 4696 | 1258 | 21080 | 5258 | | | | | 1 | |
| Event | Event config. | 20 | Operation type | 4704 | 1260 | 21088 | 5260 | | | | | — | |
| Event | Event config. | 20 | Loop/channel definition | 4705 | 1261 | 21089 | 5261 | | | | | — | |
| Event | Event config. | 20 | Direct/Reverse | 4706 | 1262 | 21090 | 5262 | | | | | — | |
| Event | Event config. | 20 | Standby | 4707 | 1263 | 21091 | 5263 | | | | | — | |
| Event | Event config. | 20 | Event state at READY | 4708 | 1264 | 21092 | 5264 | | | | | — | |
| Event | Event config. | 20 | Decimal point position | 4709 | 1265 | 21093 | 5265 | | | | | — | |
| Event | Event config. | 20 | Hysteresis | 4710 | 1266 | 21094 | 5266 | | | | | EV | |
| Event | Event config. | 20 | ON delay time | 4711 | 1267 | 21095 | 5267 | | | | | 1 | |
| Event | Event config. | 20 | OFF delay | 4712 | 1268 | 21096 | 5268 | | | | | 1 | |
| Event | Event config. | 21 | Operation type | 4720 | 1270 | 21104 | 5270 | | | | | — | |
| Event | Event config. | 21 | Loop/channel definition | 4721 | 1271 | 21105 | 5271 | | | | | — | |
| Event | Event config. | 21 | Direct/Reverse | 4722 | 1272 | 21106 | 5272 | | | | | — | |
| Event | Event config. | 21 | Standby | 4723 | 1273 | 21107 | 5273 | | | | | — | |
| Event | Event config. | 21 | Event state at READY | 4724 | 1274 | 21108 | 5274 | | | | | — | |
| Event | Event config. | 21 | Decimal point position | 4725 | 1275 | 21109 | 5275 | | | | | — | |
| Event | Event config. | 21 | Hysteresis | 4726 | 1276 | 21110 | 5276 | | | | | EV | |
| Event | Event config. | 21 | ON delay time | 4727 | 1277 | 21111 | 5277 | | | | | 1 | |
| Event | Event config. | 21 | OFF delay | 4728 | 1278 | 21112 | 5278 | | | | | 1 | |
| Event | Event config. | 22 | Operation type | 4736 | 1280 | 21120 | 5280 | | | | | — | |
| Event | Event config. | 22 | Loop/channel definition | 4737 | 1281 | 21121 | 5281 | | | | | — | |
| Event | Event config. | 22 | Direct/Reverse | 4738 | 1282 | 21122 | 5282 | | | | | — | |
| Event | Event config. | 22 | Standby | 4739 | 1283 | 21123 | 5283 | | | | | — | |
| Event | Event config. | 22 | Event state at READY | 4740 | 1284 | 21124 | 5284 | | | | | — | |
| Event | Event config. | 22 | Decimal point position | 4741 | 1285 | 21125 | 5285 | | | | | — | |
| Event | Event config. | 22 | Hysteresis | 4742 | 1286 | 21126 | 5286 | | | | | EV | |
| Event | Event config. | 22 | ON delay time | 4743 | 1287 | 21127 | 5287 | | | | | 1 | |
| Event | Event config. | 22 | OFF delay | 4744 | 1288 | 21128 | 5288 | | | | | 1 | |
| Event | Event config. | 23 | Operation type | 4752 | 1290 | 21136 | 5290 | | | | | — | |
| Event | Event config. | 23 | Loop/channel definition | 4753 | 1291 | 21137 | 5291 | | | | | — | |
| Event | Event config. | 23 | Direct/Reverse | 4754 | 1292 | 21138 | 5292 | | | | | — | |
| Event | Event config. | 23 | Standby | 4755 | 1293 | 21139 | 5293 | | | | | — | |
| Event | Event config. | 23 | Event state at READY | 4756 | 1294 | 21140 | 5294 | | | | | — | |
| Event | Event config. | 23 | Decimal point position | 4757 | 1295 | 21141 | 5295 | | | | | — | |
| Event | Event config. | 23 | Hysteresis | 4758 | 1296 | 21142 | 5296 | | | | | EV | |
| Event | Event config. | 23 | ON delay time | 4759 | 1297 | 21143 | 5297 | | | | | 1 | |
| Event | Event config. | 23 | OFF delay | 4760 | 1298 | 21144 | 5298 | | | | | 1 | |
| Event | Event config. | 24 | Operation type | 4768 | 12A0 | 21152 | 52A0 | | | | | — | |
| Event | Event config. | 24 | Loop/channel definition | 4769 | 12A1 | 21153 | 52A1 | | | | | — | |
| Event | Event config. | 24 | Direct/Reverse | 4770 | 12A2 | 21154 | 52A2 | | | | | — | |
| Event | Event config. | 24 | Standby | 4771 | 12A3 | 21155 | 52A3 | | | | | — | |
| Event | Event config. | 24 | Event state at READY | 4772 | 12A4 | 21156 | 52A4 | | | | | — | |
| Event | Event config. | 24 | Decimal point position | 4773 | 12A5 | 21157 | 52A5 | | | | | — | |
| Event | Event config. | 24 | Hysteresis | 4774 | 12A6 | 21158 | 52A6 | | | | | EV | |
| Event | Event config. | 24 | ON delay time | 4775 | 12A7 | 21159 | 52A7 | | | | | 1 | |
| Event | Event config. | 24 | OFF delay | 4776 | 12A8 | 21160 | 52A8 | | | | | 1 | |

## PID/PID

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| PID | PID | 1 | Proportional band 1 | 7024 | 1B70 | 23408 | 5B70 | | | | | 1 | |
| PID | PID | 1 | Integral time 1 | 7025 | 1B71 | 23409 | 5B71 | | | | | PID | |
| PID | PID | 1 | Derivative time 1 | 7026 | 1B72 | 23410 | 5B72 | | | | | PID | |
| PID | PID | 1 | MV low limit 1 | 7027 | 1B73 | 23411 | 5B73 | | | | | 1 | |
| PID | PID | 1 | MV high limit 1 | 7028 | 1B74 | 23412 | 5B74 | | | | | 1 | |
| PID | PID | 1 | Manual reset 1 | 7029 | 1B75 | 23413 | 5B75 | | | | | 1 | |
| PID | PID | 1 | Proportional band for cooling 1 | 7030 | 1B76 | 23414 | 5B76 | | | | | 1 | |
| PID | PID | 1 | Integral time for cooling 1 | 7031 | 1B77 | 23415 | 5B77 | | | | | PID | |
| PID | PID | 1 | Derivative time for cooling 1 | 7032 | 1B78 | 23416 | 5B78 | | | | | PID | |
| PID | PID | 1 | Output low limit for cooling 1 | 7033 | 1B79 | 23417 | 5B79 | | | | | 1 | |
| PID | PID | 1 | Output high limit for cooling 1 | 7034 | 1B7A | 23418 | 5B7A | | | | | 1 | |
| PID | PID | 1 | Differential 1 | 7035 | 1B7B | 23419 | 5B7B | | | | | PID_PV | |
| PID | PID | 1 | Proportional band 2 | 7040 | 1B80 | 23424 | 5B80 | | | | | 1 | |
| PID | PID | 1 | Integral time 2 | 7041 | 1B81 | 23425 | 5B81 | | | | | PID | |
| PID | PID | 1 | Derivative time 2 | 7042 | 1B82 | 23426 | 5B82 | | | | | PID | |
| PID | PID | 1 | Output (MV) low limit 2 | 7043 | 1B83 | 23427 | 5B83 | | | | | 1 | |
| PID | PID | 1 | Output (MV) high limit 2 | 7044 | 1B84 | 23428 | 5B84 | | | | | 1 | |
| PID | PID | 1 | Manual reset 2 | 7045 | 1B85 | 23429 | 5B85 | | | | | 1 | |
| PID | PID | 1 | Proportional band for cooling 2 | 7046 | 1B86 | 23430 | 5B86 | | | | | 1 | |
| PID | PID | 1 | Integral time for cooling 2 | 7047 | 1B87 | 23431 | 5B87 | | | | | PID | |
| PID | PID | 1 | Derivative time for cooling 2 | 7048 | 1B88 | 23432 | 5B88 | | | | | PID | |
| PID | PID | 1 | Cool-side MV low limit 2 | 7049 | 1B89 | 23433 | 5B89 | | | | | 1 | |
| PID | PID | 1 | Cool-side MV high limit 2 | 7050 | 1B8A | 23434 | 5B8A | | | | | 1 | |
| PID | PID | 1 | Differential 2 | 7051 | 1B8B | 23435 | 5B8B | | | | | PID_PV | |
| PID | PID | 1 | Proportional band 3 | 7056 | 1B90 | 23440 | 5B90 | | | | | 1 | |
| PID | PID | 1 | Integral time 3 | 7057 | 1B91 | 23441 | 5B91 | | | | | PID | |
| PID | PID | 1 | Derivative time 3 | 7058 | 1B92 | 23442 | 5B92 | | | | | PID | |
| PID | PID | 1 | Output (MV) low limit 3 | 7059 | 1B93 | 23443 | 5B93 | | | | | 1 | |
| PID | PID | 1 | Output (MV) high limit 3 | 7060 | 1B94 | 23444 | 5B94 | | | | | 1 | |
| PID | PID | 1 | Manual reset 3 | 7061 | 1B95 | 23445 | 5B95 | | | | | 1 | |
| PID | PID | 1 | Proportional band for cooling 3 | 7062 | 1B96 | 23446 | 5B96 | | | | | 1 | |
| PID | PID | 1 | Integral time for cooling 3 | 7063 | 1B97 | 23447 | 5B97 | | | | | PID | |
| PID | PID | 1 | Derivative time for cooling 3 | 7064 | 1B98 | 23448 | 5B98 | | | | | PID | |
| PID | PID | 1 | Cool-side MV low limit 3 | 7065 | 1B99 | 23449 | 5B99 | | | | | 1 | |
| PID | PID | 1 | Cool-side MV high limit 3 | 7066 | 1B9A | 23450 | 5B9A | | | | | 1 | |
| PID | PID | 1 | Differential 3 | 7067 | 1B9B | 23451 | 5B9B | | | | | PID_PV | |
| PID | PID | 1 | Proportional band 4 | 7072 | 1BA0 | 23456 | 5BA0 | | | | | 1 | |
| PID | PID | 1 | Integral time 4 | 7073 | 1BA1 | 23457 | 5BA1 | | | | | PID | |
| PID | PID | 1 | Derivative time 4 | 7074 | 1BA2 | 23458 | 5BA2 | | | | | PID | |
| PID | PID | 1 | Output (MV) low limit 4 | 7075 | 1BA3 | 23459 | 5BA3 | | | | | 1 | |
| PID | PID | 1 | Output (MV) high limit 4 | 7076 | 1BA4 | 23460 | 5BA4 | | | | | 1 | |
| PID | PID | 1 | Manual reset 4 | 7077 | 1BA5 | 23461 | 5BA5 | | | | | 1 | |
| PID | PID | 1 | Proportional band for cooling 4 | 7078 | 1BA6 | 23462 | 5BA6 | | | | | 1 | |
| PID | PID | 1 | Integral time for cooling 4 | 7079 | 1BA7 | 23463 | 5BA7 | | | | | PID | |
| PID | PID | 1 | Derivative time for cooling 4 | 7080 | 1BA8 | 23464 | 5BA8 | | | | | PID | |
| PID | PID | 1 | Cool-side MV low limit 4 | 7081 | 1BA9 | 23465 | 5BA9 | | | | | 1 | |
| PID | PID | 1 | Cool-side MV high limit 4 | 7082 | 1BAA | 23466 | 5BAA | | | | | 1 | |
| PID | PID | 1 | Differential 4 | 7083 | 1BAB | 23467 | 5BAB | | | | | PID_PV | |

## PID/PID

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| PID | PID | 2 | Proportional band 1 | 7280 | 1C70 | 23664 | 5C70 | | | | | 1 | |
| PID | PID | 2 | Integral time 1 | 7281 | 1C71 | 23665 | 5C71 | | | | | PID | |
| PID | PID | 2 | Derivative time 1 | 7282 | 1C72 | 23666 | 5C72 | | | | | PID | |
| PID | PID | 2 | Output (MV) low limit 1 | 7283 | 1C73 | 23667 | 5C73 | | | | | 1 | |
| PID | PID | 2 | Output (MV) high limit 1 | 7284 | 1C74 | 23668 | 5C74 | | | | | 1 | |
| PID | PID | 2 | Manual reset 1 | 7285 | 1C75 | 23669 | 5C75 | | | | | 1 | |
| PID | PID | 2 | Proportional band for cooling 1 | 7286 | 1C76 | 23670 | 5C76 | | | | | 1 | |
| PID | PID | 2 | Integral time for cooling 1 | 7287 | 1C77 | 23671 | 5C77 | | | | | PID | |
| PID | PID | 2 | Derivative time for cooling 1 | 7288 | 1C78 | 23672 | 5C78 | | | | | PID | |
| PID | PID | 2 | Output low limit for cooling 1 | 7289 | 1C79 | 23673 | 5C79 | | | | | 1 | |
| PID | PID | 2 | Output high limit for cooling 1 | 7290 | 1C7A | 23674 | 5C7A | | | | | 1 | |
| PID | PID | 2 | Differential 1 | 7291 | 1C7B | 23675 | 5C7B | | | | | PID_PV | |
| PID | PID | 2 | Proportional band 2 | 7296 | 1C80 | 23680 | 5C80 | | | | | 1 | |
| PID | PID | 2 | Integral time 2 | 7297 | 1C81 | 23681 | 5C81 | | | | | PID | |
| PID | PID | 2 | Derivative time 2 | 7298 | 1C82 | 23682 | 5C82 | | | | | PID | |
| PID | PID | 2 | Output (MV) low limit 2 | 7299 | 1C83 | 23683 | 5C83 | | | | | 1 | |
| PID | PID | 2 | Output (MV) high limit 2 | 7300 | 1C84 | 23684 | 5C84 | | | | | 1 | |
| PID | PID | 2 | Manual reset 2 | 7301 | 1C85 | 23685 | 5C85 | | | | | 1 | |
| PID | PID | 2 | Proportional band for cooling 2 | 7302 | 1C86 | 23686 | 5C86 | | | | | 1 | |
| PID | PID | 2 | Integral time for cooling 2 | 7303 | 1C87 | 23687 | 5C87 | | | | | PID | |
| PID | PID | 2 | Derivative time for cooling 2 | 7304 | 1C88 | 23688 | 5C88 | | | | | PID | |
| PID | PID | 2 | Cool-side MV low limit 2 | 7305 | 1C89 | 23689 | 5C89 | | | | | 1 | |
| PID | PID | 2 | Cool-side MV high limit 2 | 7306 | 1C8A | 23690 | 5C8A | | | | | 1 | |
| PID | PID | 2 | Differential 2 | 7307 | 1C8B | 23691 | 5C8B | | | | | PID_PV | |
| PID | PID | 2 | Proportional band 3 | 7312 | 1C90 | 23696 | 5C90 | | | | | 1 | |
| PID | PID | 2 | Integral time 3 | 7313 | 1C91 | 23697 | 5C91 | | | | | PID | |
| PID | PID | 2 | Derivative time 3 | 7314 | 1C92 | 23698 | 5C92 | | | | | PID | |
| PID | PID | 2 | Output (MV) low limit 3 | 7315 | 1C93 | 23699 | 5C93 | | | | | 1 | |
| PID | PID | 2 | Output (MV) high limit 3 | 7316 | 1C94 | 23700 | 5C94 | | | | | 1 | |
| PID | PID | 2 | Manual reset 3 | 7317 | 1C95 | 23701 | 5C95 | | | | | 1 | |
| PID | PID | 2 | Proportional band for cooling 3 | 7318 | 1C96 | 23702 | 5C96 | | | | | 1 | |
| PID | PID | 2 | Integral time for cooling 3 | 7319 | 1C97 | 23703 | 5C97 | | | | | PID | |
| PID | PID | 2 | Derivative time for cooling 3 | 7320 | 1C98 | 23704 | 5C98 | | | | | PID | |
| PID | PID | 2 | Cool-side MV low limit 3 | 7321 | 1C99 | 23705 | 5C99 | | | | | 1 | |
| PID | PID | 2 | Cool-side MV high limit 3 | 7322 | 1C9A | 23706 | 5C9A | | | | | 1 | |
| PID | PID | 2 | Differential 3 | 7323 | 1C9B | 23707 | 5C9B | | | | | PID_PV | |
| PID | PID | 2 | Proportional band 4 | 7328 | 1CA0 | 23712 | 5CA0 | | | | | 1 | |
| PID | PID | 2 | Integral time 4 | 7329 | 1CA1 | 23713 | 5CA1 | | | | | PID | |
| PID | PID | 2 | Derivative time 4 | 7330 | 1CA2 | 23714 | 5CA2 | | | | | PID | |
| PID | PID | 2 | Output (MV) low limit 4 | 7331 | 1CA3 | 23715 | 5CA3 | | | | | 1 | |
| PID | PID | 2 | Output (MV) high limit 4 | 7332 | 1CA4 | 23716 | 5CA4 | | | | | 1 | |
| PID | PID | 2 | Manual reset 4 | 7333 | 1CA5 | 23717 | 5CA5 | | | | | 1 | |
| PID | PID | 2 | Proportional band for cooling 4 | 7334 | 1CA6 | 23718 | 5CA6 | | | | | 1 | |
| PID | PID | 2 | Integral time for cooling 4 | 7335 | 1CA7 | 23719 | 5CA7 | | | | | PID | |
| PID | PID | 2 | Derivative time for cooling 4 | 7336 | 1CA8 | 23720 | 5CA8 | | | | | PID | |
| PID | PID | 2 | Cool-side MV low limit 4 | 7337 | 1CA9 | 23721 | 5CA9 | | | | | 1 | |
| PID | PID | 2 | Cool-side MV high limit 4 | 7338 | 1CAA | 23722 | 5CAA | | | | | 1 | |
| PID | PID | 2 | Differential 4 | 7339 | 1CAB | 23723 | 5CAB | | | | | PID_PV | |

# PID/PID

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| PID | PID | 3 | Proportional band 1 | 7536 | 1D70 | 23920 | 5D70 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time 1 | 7537 | 1D71 | 23921 | 5D71 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time 1 | 7538 | 1D72 | 23922 | 5D72 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Output (MV) low limit 1 | 7539 | 1D73 | 23923 | 5D73 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Output (MV) high limit 1 | 7540 | 1D74 | 23924 | 5D74 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Manual reset 1 | 7541 | 1D75 | 23925 | 5D75 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Proportional band for cooling 1 | 7542 | 1D76 | 23926 | 5D76 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time for cooling 1 | 7543 | 1D77 | 23927 | 5D77 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time for cooling 1 | 7544 | 1D78 | 23928 | 5D78 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Output low limit for cooling 1 | 7545 | 1D79 | 23929 | 5D79 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Output high limit for cooling 1 | 7546 | 1D7A | 23930 | 5D7A | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Differential 1 | 7547 | 1D7B | 23931 | 5D7B | | | | | PID_PV | Not available for 2 channels |
| PID | PID | 3 | Proportional band 2 | 7552 | 1D80 | 23936 | 5D80 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time 2 | 7553 | 1D81 | 23937 | 5D81 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time 2 | 7554 | 1D82 | 23938 | 5D82 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Output (MV) low limit 2 | 7555 | 1D83 | 23939 | 5D83 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Output (MV) high limit 2 | 7556 | 1D84 | 23940 | 5D84 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Manual reset 2 | 7557 | 1D85 | 23941 | 5D85 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Proportional band for cooling 2 | 7558 | 1D86 | 23942 | 5D86 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time for cooling 2 | 7559 | 1D87 | 23943 | 5D87 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time for cooling 2 | 7560 | 1D88 | 23944 | 5D88 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Cool-side MV low limit 2 | 7561 | 1D89 | 23945 | 5D89 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Cool-side MV high limit 2 | 7562 | 1D8A | 23946 | 5D8A | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Differential 2 | 7563 | 1D8B | 23947 | 5D8B | | | | | PID_PV | Not available for 2 channels |
| PID | PID | 3 | Proportional band 3 | 7568 | 1D90 | 23952 | 5D90 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time 3 | 7569 | 1D91 | 23953 | 5D91 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time 3 | 7570 | 1D92 | 23954 | 5D92 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Output (MV) low limit 3 | 7571 | 1D93 | 23955 | 5D93 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Output (MV) high limit 3 | 7572 | 1D94 | 23956 | 5D94 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Manual reset 3 | 7573 | 1D95 | 23957 | 5D95 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Proportional band for cooling 3 | 7574 | 1D96 | 23958 | 5D96 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time for cooling 3 | 7575 | 1D97 | 23959 | 5D97 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time for cooling 3 | 7576 | 1D98 | 23960 | 5D98 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Cool-side MV low limit 3 | 7577 | 1D99 | 23961 | 5D99 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Cool-side MV high limit 3 | 7578 | 1D9A | 23962 | 5D9A | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Differential 3 | 7579 | 1D9B | 23963 | 5D9B | | | | | PID_PV | Not available for 2 channels |
| PID | PID | 3 | Proportional band 4 | 7584 | 1DA0 | 23968 | 5DA0 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time 4 | 7585 | 1DA1 | 23969 | 5DA1 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time 4 | 7586 | 1DA2 | 23970 | 5DA2 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Output (MV) low limit 4 | 7587 | 1DA3 | 23971 | 5DA3 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Output (MV) high limit 4 | 7588 | 1DA4 | 23972 | 5DA4 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Manual reset 4 | 7589 | 1DA5 | 23973 | 5DA5 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Proportional band for cooling 4 | 7590 | 1DA6 | 23974 | 5DA6 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Integral time for cooling 4 | 7591 | 1DA7 | 23975 | 5DA7 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Derivative time for cooling 4 | 7592 | 1DA8 | 23976 | 5DA8 | | | | | PID | Not available for 2 channels |
| PID | PID | 3 | Cool-side MV low limit 4 | 7593 | 1DA9 | 23977 | 5DA9 | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Cool-side MV high limit 4 | 7594 | 1DAA | 23978 | 5DAA | | | | | 1 | Not available for 2 channels |
| PID | PID | 3 | Differential 4 | 7595 | 1DAB | 23979 | 5DAB | | | | | PID_PV | Not available for 2 channels |

## PID/PID

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| PID | PID | 4 | Proportional band 1 | 7792 | 1E70 | 24176 | 5E70 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time 1 | 7793 | 1E71 | 24177 | 5E71 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time 1 | 7794 | 1E72 | 24178 | 5E72 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Output (MV) low limit 1 | 7795 | 1E73 | 24179 | 5E73 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Output (MV) high limit 1 | 7796 | 1E74 | 24180 | 5E74 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Manual reset 1 | 7797 | 1E75 | 24181 | 5E75 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Proportional band for cooling 1 | 7798 | 1E76 | 24182 | 5E76 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time for cooling 1 | 7799 | 1E77 | 24183 | 5E77 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time for cooling 1 | 7800 | 1E78 | 24184 | 5E78 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Output low limit for cooling 1 | 7801 | 1E79 | 24185 | 5E79 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Output high limit for cooling 1 | 7802 | 1E7A | 24186 | 5E7A | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Differential 1 | 7803 | 1E7B | 24187 | 5E7B | | | | | PID_PV | Not available for 2 channels |
| PID | PID | 4 | Proportional band 2 | 7808 | 1E80 | 24192 | 5E80 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time 2 | 7809 | 1E81 | 24193 | 5E81 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time 2 | 7810 | 1E82 | 24194 | 5E82 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Output (MV) low limit 2 | 7811 | 1E83 | 24195 | 5E83 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Output (MV) high limit 2 | 7812 | 1E84 | 24196 | 5E84 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Manual reset 2 | 7813 | 1E85 | 24197 | 5E85 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Proportional band for cooling 2 | 7814 | 1E86 | 24198 | 5E86 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time for cooling 2 | 7815 | 1E87 | 24199 | 5E87 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time for cooling 2 | 7816 | 1E88 | 24200 | 5E88 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Cool-side MV low limit 2 | 7817 | 1E89 | 24201 | 5E89 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Cool-side MV high limit 2 | 7818 | 1E8A | 24202 | 5E8A | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Differential 2 | 7819 | 1E8B | 24203 | 5E8B | | | | | PID_PV | Not available for 2 channels |
| PID | PID | 4 | Proportional band 3 | 7824 | 1E90 | 24208 | 5E90 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time 3 | 7825 | 1E91 | 24209 | 5E91 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time 3 | 7826 | 1E92 | 24210 | 5E92 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Output (MV) low limit 3 | 7827 | 1E93 | 24211 | 5E93 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Output (MV) high limit 3 | 7828 | 1E94 | 24212 | 5E94 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Manual reset 3 | 7829 | 1E95 | 24213 | 5E95 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Proportional band for cooling 3 | 7830 | 1E96 | 24214 | 5E96 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time for cooling 3 | 7831 | 1E97 | 24215 | 5E97 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time for cooling 3 | 7832 | 1E98 | 24216 | 5E98 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Cool-side MV low limit 3 | 7833 | 1E99 | 24217 | 5E99 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Cool-side MV high limit 3 | 7834 | 1E9A | 24218 | 5E9A | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Differential 3 | 7835 | 1E9B | 24219 | 5E9B | | | | | PID_PV | Not available for 2 channels |
| PID | PID | 4 | Proportional band 4 | 7840 | 1EA0 | 24224 | 5EA0 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time 4 | 7841 | 1EA1 | 24225 | 5EA1 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time 4 | 7842 | 1EA2 | 24226 | 5EA2 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Output (MV) low limit 4 | 7843 | 1EA3 | 24227 | 5EA3 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Output (MV) high limit 4 | 7844 | 1EA4 | 24228 | 5EA4 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Manual reset 4 | 7845 | 1EA5 | 24229 | 5EA5 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Proportional band for cooling 4 | 7846 | 1EA6 | 24230 | 5EA6 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Integral time for cooling 4 | 7847 | 1EA7 | 24231 | 5EA7 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Derivative time for cooling 4 | 7848 | 1EA8 | 24232 | 5EA8 | | | | | PID | Not available for 2 channels |
| PID | PID | 4 | Cool-side MV low limit 4 | 7849 | 1EA9 | 24233 | 5EA9 | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Cool-side MV high limit 4 | 7850 | 1EAA | 24234 | 5EAA | | | | | 1 | Not available for 2 channels |
| PID | PID | 4 | Differential 4 | 7851 | 1EAB | 24235 | 5EAB | | | | | PID_PV | Not available for 2 channels |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 1 | Breakpoint decimal point position | 8432 | 20F0 | 24816 | 60F0 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A1 | 8433 | 20F1 | 24817 | 60F1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A2 | 8434 | 20F2 | 24818 | 60F2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A3 | 8435 | 20F3 | 24819 | 60F3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A4 | 8436 | 20F4 | 24820 | 60F4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A5 | 8437 | 20F5 | 24821 | 60F5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A6 | 8438 | 20F6 | 24822 | 60F6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A7 | 8439 | 20F7 | 24823 | 60F7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A8 | 8440 | 20F8 | 24824 | 60F8 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A9 | 8441 | 20F9 | 24825 | 60F9 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A10 | 8442 | 20FA | 24826 | 60FA | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A11 | 8443 | 20FB | 24827 | 60FB | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A12 | 8444 | 20FC | 24828 | 60FC | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A13 | 8445 | 20FD | 24829 | 60FD | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A14 | 8446 | 20FE | 24830 | 60FE | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A15 | 8447 | 20FF | 24831 | 60FF | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A16 | 8448 | 2100 | 24832 | 6100 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A17 | 8449 | 2101 | 24833 | 6101 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A18 | 8450 | 2102 | 24834 | 6102 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A19 | 8451 | 2103 | 24835 | 6103 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint A20 | 8452 | 2104 | 24836 | 6104 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B1 | 8453 | 2105 | 24837 | 6105 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B2 | 8454 | 2106 | 24838 | 6106 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B3 | 8455 | 2107 | 24839 | 6107 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B4 | 8456 | 2108 | 24840 | 6108 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B5 | 8457 | 2109 | 24841 | 6109 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B6 | 8458 | 210A | 24842 | 610A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B7 | 8459 | 210B | 24843 | 610B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B8 | 8460 | 210C | 24844 | 610C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B9 | 8461 | 210D | 24845 | 610D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B10 | 8462 | 210E | 24846 | 610E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B11 | 8463 | 210F | 24847 | 610F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B12 | 8464 | 2110 | 24848 | 6110 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B13 | 8465 | 2111 | 24849 | 6111 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B14 | 8466 | 2112 | 24850 | 6112 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B15 | 8467 | 2113 | 24851 | 6113 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B16 | 8468 | 2114 | 24852 | 6114 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B17 | 8469 | 2115 | 24853 | 6115 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B18 | 8470 | 2116 | 24854 | 6116 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B19 | 8471 | 2117 | 24855 | 6117 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 1 | Breakpoint B20 | 8472 | 2118 | 24856 | 6118 | | | | | TBL | Not available on NX-D15 |

## Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 2 | Breakpoint decimal point position | 8480 | 2120 | 24864 | 6120 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A1 | 8481 | 2121 | 24865 | 6121 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A2 | 8482 | 2122 | 24866 | 6122 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A3 | 8483 | 2123 | 24867 | 6123 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A4 | 8484 | 2124 | 24868 | 6124 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A5 | 8485 | 2125 | 24869 | 6125 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A6 | 8486 | 2126 | 24870 | 6126 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A7 | 8487 | 2127 | 24871 | 6127 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A8 | 8488 | 2128 | 24872 | 6128 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A9 | 8489 | 2129 | 24873 | 6129 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A10 | 8490 | 212A | 24874 | 612A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A11 | 8491 | 212B | 24875 | 612B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A12 | 8492 | 212C | 24876 | 612C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A13 | 8493 | 212D | 24877 | 612D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A14 | 8494 | 212E | 24878 | 612E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A15 | 8495 | 212F | 24879 | 612F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A16 | 8496 | 2130 | 24880 | 6130 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A17 | 8497 | 2131 | 24881 | 6131 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A18 | 8498 | 2132 | 24882 | 6132 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A19 | 8499 | 2133 | 24883 | 6133 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint A20 | 8500 | 2134 | 24884 | 6134 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B1 | 8501 | 2135 | 24885 | 6135 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B2 | 8502 | 2136 | 24886 | 6136 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B3 | 8503 | 2137 | 24887 | 6137 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B4 | 8504 | 2138 | 24888 | 6138 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B5 | 8505 | 2139 | 24889 | 6139 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B6 | 8506 | 213A | 24890 | 613A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B7 | 8507 | 213B | 24891 | 613B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B8 | 8508 | 213C | 24892 | 613C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B9 | 8509 | 213D | 24893 | 613D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B10 | 8510 | 213E | 24894 | 613E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B11 | 8511 | 213F | 24895 | 613F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B12 | 8512 | 2140 | 24896 | 6140 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B13 | 8513 | 2141 | 24897 | 6141 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B14 | 8514 | 2142 | 24898 | 6142 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B15 | 8515 | 2143 | 24899 | 6143 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B16 | 8516 | 2144 | 24900 | 6144 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B17 | 8517 | 2145 | 24901 | 6145 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B18 | 8518 | 2146 | 24902 | 6146 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B19 | 8519 | 2147 | 24903 | 6147 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 2 | Breakpoint B20 | 8520 | 2148 | 24904 | 6148 | | | | | TBL | Not available on NX-D15 |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 3 | Breakpoint decimal point position | 8528 | 2150 | 24912 | 6150 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A1 | 8529 | 2151 | 24913 | 6151 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A2 | 8530 | 2152 | 24914 | 6152 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A3 | 8531 | 2153 | 24915 | 6153 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A4 | 8532 | 2154 | 24916 | 6154 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A5 | 8533 | 2155 | 24917 | 6155 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A6 | 8534 | 2156 | 24918 | 6156 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A7 | 8535 | 2157 | 24919 | 6157 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A8 | 8536 | 2158 | 24920 | 6158 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A9 | 8537 | 2159 | 24921 | 6159 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A10 | 8538 | 215A | 24922 | 615A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A11 | 8539 | 215B | 24923 | 615B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A12 | 8540 | 215C | 24924 | 615C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A13 | 8541 | 215D | 24925 | 615D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A14 | 8542 | 215E | 24926 | 615E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A15 | 8543 | 215F | 24927 | 615F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A16 | 8544 | 2160 | 24928 | 6160 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A17 | 8545 | 2161 | 24929 | 6161 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A18 | 8546 | 2162 | 24930 | 6162 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A19 | 8547 | 2163 | 24931 | 6163 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint A20 | 8548 | 2164 | 24932 | 6164 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B1 | 8549 | 2165 | 24933 | 6165 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B2 | 8550 | 2166 | 24934 | 6166 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B3 | 8551 | 2167 | 24935 | 6167 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B4 | 8552 | 2168 | 24936 | 6168 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B5 | 8553 | 2169 | 24937 | 6169 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B6 | 8554 | 216A | 24938 | 616A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B7 | 8555 | 216B | 24939 | 616B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B8 | 8556 | 216C | 24940 | 616C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B9 | 8557 | 216D | 24941 | 616D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B10 | 8558 | 216E | 24942 | 616E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B11 | 8559 | 216F | 24943 | 616F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B12 | 8560 | 2170 | 24944 | 6170 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B13 | 8561 | 2171 | 24945 | 6171 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B14 | 8562 | 2172 | 24946 | 6172 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B15 | 8563 | 2173 | 24947 | 6173 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B16 | 8564 | 2174 | 24948 | 6174 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B17 | 8565 | 2175 | 24949 | 6175 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B18 | 8566 | 2176 | 24950 | 6176 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B19 | 8567 | 2177 | 24951 | 6177 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 3 | Breakpoint B20 | 8568 | 2178 | 24952 | 6178 | | | | | TBL | Not available on NX-D15 |

## Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 4 | Breakpoint decimal point position | 8576 | 2180 | 24960 | 6180 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A1 | 8577 | 2181 | 24961 | 6181 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A2 | 8578 | 2182 | 24962 | 6182 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A3 | 8579 | 2183 | 24963 | 6183 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A4 | 8580 | 2184 | 24964 | 6184 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A5 | 8581 | 2185 | 24965 | 6185 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A6 | 8582 | 2186 | 24966 | 6186 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A7 | 8583 | 2187 | 24967 | 6187 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A8 | 8584 | 2188 | 24968 | 6188 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A9 | 8585 | 2189 | 24969 | 6189 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A10 | 8586 | 218A | 24970 | 618A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A11 | 8587 | 218B | 24971 | 618B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A12 | 8588 | 218C | 24972 | 618C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A13 | 8589 | 218D | 24973 | 618D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A14 | 8590 | 218E | 24974 | 618E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A15 | 8591 | 218F | 24975 | 618F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A16 | 8592 | 2190 | 24976 | 6190 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A17 | 8593 | 2191 | 24977 | 6191 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A18 | 8594 | 2192 | 24978 | 6192 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A19 | 8595 | 2193 | 24979 | 6193 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint A20 | 8596 | 2194 | 24980 | 6194 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B1 | 8597 | 2195 | 24981 | 6195 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B2 | 8598 | 2196 | 24982 | 6196 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B3 | 8599 | 2197 | 24983 | 6197 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B4 | 8600 | 2198 | 24984 | 6198 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B5 | 8601 | 2199 | 24985 | 6199 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B6 | 8602 | 219A | 24986 | 619A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B7 | 8603 | 219B | 24987 | 619B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B8 | 8604 | 219C | 24988 | 619C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B9 | 8605 | 219D | 24989 | 619D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B10 | 8606 | 219E | 24990 | 619E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B11 | 8607 | 219F | 24991 | 619F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B12 | 8608 | 21A0 | 24992 | 61A0 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B13 | 8609 | 21A1 | 24993 | 61A1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B14 | 8610 | 21A2 | 24994 | 61A2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B15 | 8611 | 21A3 | 24995 | 61A3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B16 | 8612 | 21A4 | 24996 | 61A4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B17 | 8613 | 21A5 | 24997 | 61A5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B18 | 8614 | 21A6 | 24998 | 61A6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B19 | 8615 | 21A7 | 24999 | 61A7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 4 | Breakpoint B20 | 8616 | 21A8 | 25000 | 61A8 | | | | | TBL | Not available on NX-D15 |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 5 | Breakpoint decimal point position | 8624 | 21B0 | 25008 | 61B0 | | | | | – | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A1 | 8625 | 21B1 | 25009 | 61B1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A2 | 8626 | 21B2 | 25010 | 61B2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A3 | 8627 | 21B3 | 25011 | 61B3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A4 | 8628 | 21B4 | 25012 | 61B4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A5 | 8629 | 21B5 | 25013 | 61B5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A6 | 8630 | 21B6 | 25014 | 61B6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A7 | 8631 | 21B7 | 25015 | 61B7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A8 | 8632 | 21B8 | 25016 | 61B8 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A9 | 8633 | 21B9 | 25017 | 61B9 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A10 | 8634 | 21BA | 25018 | 61BA | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A11 | 8635 | 21BB | 25019 | 61BB | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A12 | 8636 | 21BC | 25020 | 61BC | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A13 | 8637 | 21BD | 25021 | 61BD | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A14 | 8638 | 21BE | 25022 | 61BE | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A15 | 8639 | 21BF | 25023 | 61BF | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A16 | 8640 | 21C0 | 25024 | 61C0 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A17 | 8641 | 21C1 | 25025 | 61C1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A18 | 8642 | 21C2 | 25026 | 61C2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A19 | 8643 | 21C3 | 25027 | 61C3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint A20 | 8644 | 21C4 | 25028 | 61C4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B1 | 8645 | 21C5 | 25029 | 61C5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B2 | 8646 | 21C6 | 25030 | 61C6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B3 | 8647 | 21C7 | 25031 | 61C7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B4 | 8648 | 21C8 | 25032 | 61C8 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B5 | 8649 | 21C9 | 25033 | 61C9 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B6 | 8650 | 21CA | 25034 | 61CA | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B7 | 8651 | 21CB | 25035 | 61CB | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B8 | 8652 | 21CC | 25036 | 61CC | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B9 | 8653 | 21CD | 25037 | 61CD | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B10 | 8654 | 21CE | 25038 | 61CE | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B11 | 8655 | 21CF | 25039 | 61CF | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B12 | 8656 | 21D0 | 25040 | 61D0 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B13 | 8657 | 21D1 | 25041 | 61D1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B14 | 8658 | 21D2 | 25042 | 61D2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B15 | 8659 | 21D3 | 25043 | 61D3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B16 | 8660 | 21D4 | 25044 | 61D4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B17 | 8661 | 21D5 | 25045 | 61D5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B18 | 8662 | 21D6 | 25046 | 61D6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B19 | 8663 | 21D7 | 25047 | 61D7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 5 | Breakpoint B20 | 8664 | 21D8 | 25048 | 61D8 | | | | | TBL | Not available on NX-D15 |

## Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 6 | Breakpoint decimal point position | 8672 | 21E0 | 25056 | 61E0 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A1 | 8673 | 21E1 | 25057 | 61E1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A2 | 8674 | 21E2 | 25058 | 61E2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A3 | 8675 | 21E3 | 25059 | 61E3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A4 | 8676 | 21E4 | 25060 | 61E4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A5 | 8677 | 21E5 | 25061 | 61E5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A6 | 8678 | 21E6 | 25062 | 61E6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A7 | 8679 | 21E7 | 25063 | 61E7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A8 | 8680 | 21E8 | 25064 | 61E8 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A9 | 8681 | 21E9 | 25065 | 61E9 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A10 | 8682 | 21EA | 25066 | 61EA | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A11 | 8683 | 21EB | 25067 | 61EB | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A12 | 8684 | 21EC | 25068 | 61EC | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A13 | 8685 | 21ED | 25069 | 61ED | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A14 | 8686 | 21EE | 25070 | 61EE | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A15 | 8687 | 21EF | 25071 | 61EF | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A16 | 8688 | 21F0 | 25072 | 61F0 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A17 | 8689 | 21F1 | 25073 | 61F1 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A18 | 8690 | 21F2 | 25074 | 61F2 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A19 | 8691 | 21F3 | 25075 | 61F3 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint A20 | 8692 | 21F4 | 25076 | 61F4 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B1 | 8693 | 21F5 | 25077 | 61F5 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B2 | 8694 | 21F6 | 25078 | 61F6 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B3 | 8695 | 21F7 | 25079 | 61F7 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B4 | 8696 | 21F8 | 25080 | 61F8 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B5 | 8697 | 21F9 | 25081 | 61F9 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B6 | 8698 | 21FA | 25082 | 61FA | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B7 | 8699 | 21FB | 25083 | 61FB | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B8 | 8700 | 21FC | 25084 | 61FC | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B9 | 8701 | 21FD | 25085 | 61FD | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B10 | 8702 | 21FE | 25086 | 61FE | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B11 | 8703 | 21FF | 25087 | 61FF | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B12 | 8704 | 2200 | 25088 | 6200 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B13 | 8705 | 2201 | 25089 | 6201 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B14 | 8706 | 2202 | 25090 | 6202 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B15 | 8707 | 2203 | 25091 | 6203 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B16 | 8708 | 2204 | 25092 | 6204 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B17 | 8709 | 2205 | 25093 | 6205 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B18 | 8710 | 2206 | 25094 | 6206 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B19 | 8711 | 2207 | 25095 | 6207 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 6 | Breakpoint B20 | 8712 | 2208 | 25096 | 6208 | | | | | TBL | Not available on NX-D15 |

## Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 7 | Breakpoint decimal point position | 8720 | 2210 | 25104 | 6210 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A1 | 8721 | 2211 | 25105 | 6211 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A2 | 8722 | 2212 | 25106 | 6212 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A3 | 8723 | 2213 | 25107 | 6213 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A4 | 8724 | 2214 | 25108 | 6214 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A5 | 8725 | 2215 | 25109 | 6215 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A6 | 8726 | 2216 | 25110 | 6216 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A7 | 8727 | 2217 | 25111 | 6217 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A8 | 8728 | 2218 | 25112 | 6218 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A9 | 8729 | 2219 | 25113 | 6219 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A10 | 8730 | 221A | 25114 | 621A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A11 | 8731 | 221B | 25115 | 621B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A12 | 8732 | 221C | 25116 | 621C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A13 | 8733 | 221D | 25117 | 621D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A14 | 8734 | 221E | 25118 | 621E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A15 | 8735 | 221F | 25119 | 621F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A16 | 8736 | 2220 | 25120 | 6220 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A17 | 8737 | 2221 | 25121 | 6221 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A18 | 8738 | 2222 | 25122 | 6222 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A19 | 8739 | 2223 | 25123 | 6223 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint A20 | 8740 | 2224 | 25124 | 6224 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B1 | 8741 | 2225 | 25125 | 6225 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B2 | 8742 | 2226 | 25126 | 6226 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B3 | 8743 | 2227 | 25127 | 6227 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B4 | 8744 | 2228 | 25128 | 6228 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B5 | 8745 | 2229 | 25129 | 6229 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B6 | 8746 | 222A | 25130 | 622A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B7 | 8747 | 222B | 25131 | 622B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B8 | 8748 | 222C | 25132 | 622C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B9 | 8749 | 222D | 25133 | 622D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B10 | 8750 | 222E | 25134 | 622E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B11 | 8751 | 222F | 25135 | 622F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B12 | 8752 | 2230 | 25136 | 6230 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B13 | 8753 | 2231 | 25137 | 6231 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B14 | 8754 | 2232 | 25138 | 6232 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B15 | 8755 | 2233 | 25139 | 6233 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B16 | 8756 | 2234 | 25140 | 6234 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B17 | 8757 | 2235 | 25141 | 6235 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B18 | 8758 | 2236 | 25142 | 6236 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B19 | 8759 | 2237 | 25143 | 6237 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 7 | Breakpoint B20 | 8760 | 2238 | 25144 | 6238 | | | | | TBL | Not available on NX-D15 |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Linearization table | 8 | Breakpoint decimal point position | 8768 | 2240 | 25152 | 6240 | | | | | — | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A1 | 8769 | 2241 | 25153 | 6241 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A2 | 8770 | 2242 | 25154 | 6242 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A3 | 8771 | 2243 | 25155 | 6243 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A4 | 8772 | 2244 | 25156 | 6244 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A5 | 8773 | 2245 | 25157 | 6245 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A6 | 8774 | 2246 | 25158 | 6246 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A7 | 8775 | 2247 | 25159 | 6247 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A8 | 8776 | 2248 | 25160 | 6248 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A9 | 8777 | 2249 | 25161 | 6249 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A10 | 8778 | 224A | 25162 | 624A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A11 | 8779 | 224B | 25163 | 624B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A12 | 8780 | 224C | 25164 | 624C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A13 | 8781 | 224D | 25165 | 624D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A14 | 8782 | 224E | 25166 | 624E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A15 | 8783 | 224F | 25167 | 624F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A16 | 8784 | 2250 | 25168 | 6250 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A17 | 8785 | 2251 | 25169 | 6251 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A18 | 8786 | 2252 | 25170 | 6252 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A19 | 8787 | 2253 | 25171 | 6253 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint A20 | 8788 | 2254 | 25172 | 6254 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B1 | 8789 | 2255 | 25173 | 6255 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B2 | 8790 | 2256 | 25174 | 6256 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B3 | 8791 | 2257 | 25175 | 6257 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B4 | 8792 | 2258 | 25176 | 6258 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B5 | 8793 | 2259 | 25177 | 6259 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B6 | 8794 | 225A | 25178 | 625A | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B7 | 8795 | 225B | 25179 | 625B | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B8 | 8796 | 225C | 25180 | 625C | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B9 | 8797 | 225D | 25181 | 625D | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B10 | 8798 | 225E | 25182 | 625E | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B11 | 8799 | 225F | 25183 | 625F | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B12 | 8800 | 2260 | 25184 | 6260 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B13 | 8801 | 2261 | 25185 | 6261 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B14 | 8802 | 2262 | 25186 | 6262 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B15 | 8803 | 2263 | 25187 | 6263 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B16 | 8804 | 2264 | 25188 | 6264 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B17 | 8805 | 2265 | 25189 | 6265 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B18 | 8806 | 2266 | 25190 | 6266 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B19 | 8807 | 2267 | 25191 | 6267 | | | | | TBL | Not available on NX-D15 |
| Function | Linearization table | 8 | Breakpoint B20 | 8808 | 2268 | 25192 | 6268 | | | | | TBL | Not available on NX-D15 |

# Function/Internal Contact IN

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Internal contact IN | 1 | Operation type | 9472 | 2500 | 25856 | 6500 | | | | | — | |
| Function | Internal contact IN | 1 | Input type | 9473 | 2501 | 25857 | 6501 | | | | | — | |
| Function | Internal contact IN | 1 | Loop/channel definition | 9474 | 2502 | 25858 | 6502 | | | | | — | |
| Function | Internal contact IN | 1 | Weighting | 9475 | 2503 | 25859 | 6503 | | | | | — | |
| Function | Internal contact IN | 2 | Operation type | 9480 | 2508 | 25864 | 6508 | | | | | — | |
| Function | Internal contact IN | 2 | Input type | 9481 | 2509 | 25865 | 6509 | | | | | — | |
| Function | Internal contact IN | 2 | Loop/channel definition | 9482 | 250A | 25866 | 650A | | | | | — | |
| Function | Internal contact IN | 2 | Weighting | 9483 | 250B | 25867 | 650B | | | | | — | |
| Function | Internal contact IN | 3 | Operation type | 9488 | 2510 | 25872 | 6510 | | | | | — | |
| Function | Internal contact IN | 3 | Input type | 9489 | 2511 | 25873 | 6511 | | | | | — | |
| Function | Internal contact IN | 3 | Loop/channel definition | 9490 | 2512 | 25874 | 6512 | | | | | — | |
| Function | Internal contact IN | 3 | Weighting | 9491 | 2513 | 25875 | 6513 | | | | | — | |
| Function | Internal contact IN | 4 | Operation type | 9496 | 2518 | 25880 | 6518 | | | | | — | |
| Function | Internal contact IN | 4 | Input type | 9497 | 2519 | 25881 | 6519 | | | | | — | |
| Function | Internal contact IN | 4 | Loop/channel definition | 9498 | 251A | 25882 | 651A | | | | | — | |
| Function | Internal contact IN | 4 | Weighting | 9499 | 251B | 25883 | 651B | | | | | — | |
| Function | Internal contact IN | 5 | Operation type | 9504 | 2520 | 25888 | 6520 | | | | | — | |
| Function | Internal contact IN | 5 | Input type | 9505 | 2521 | 25889 | 6521 | | | | | — | |
| Function | Internal contact IN | 5 | Loop/channel definition | 9506 | 2522 | 25890 | 6522 | | | | | — | |
| Function | Internal contact IN | 5 | Weighting | 9507 | 2523 | 25891 | 6523 | | | | | — | |
| Function | Internal contact IN | 6 | Operation type | 9512 | 2528 | 25896 | 6528 | | | | | — | |
| Function | Internal contact IN | 6 | Input type | 9513 | 2529 | 25897 | 6529 | | | | | — | |
| Function | Internal contact IN | 6 | Loop/channel definition | 9514 | 252A | 25898 | 652A | | | | | — | |
| Function | Internal contact IN | 6 | Weighting | 9515 | 252B | 25899 | 652B | | | | | — | |
| Function | Internal contact IN | 7 | Operation type | 9520 | 2530 | 25904 | 6530 | | | | | — | |
| Function | Internal contact IN | 7 | Input type | 9521 | 2531 | 25905 | 6531 | | | | | — | |
| Function | Internal contact IN | 7 | Loop/channel definition | 9522 | 2532 | 25906 | 6532 | | | | | — | |
| Function | Internal contact IN | 7 | Weighting | 9523 | 2533 | 25907 | 6533 | | | | | — | |
| Function | Internal contact IN | 8 | Operation type | 9528 | 2538 | 25912 | 6538 | | | | | — | |
| Function | Internal contact IN | 8 | Input type | 9529 | 2539 | 25913 | 6539 | | | | | — | |
| Function | Internal contact IN | 8 | Loop/channel definition | 9530 | 253A | 25914 | 653A | | | | | — | |
| Function | Internal contact IN | 8 | Weighting | 9531 | 253B | 25915 | 653B | | | | | — | |
| Function | Internal contact IN | 9 | Operation type | 9536 | 2540 | 25920 | 6540 | | | | | — | |
| Function | Internal contact IN | 9 | Input type | 9537 | 2541 | 25921 | 6541 | | | | | — | |
| Function | Internal contact IN | 9 | Loop/channel definition | 9538 | 2542 | 25922 | 6542 | | | | | — | |
| Function | Internal contact IN | 9 | Weighting | 9539 | 2543 | 25923 | 6543 | | | | | — | |
| Function | Internal contact IN | 10 | Operation type | 9544 | 2548 | 25928 | 6548 | | | | | — | |
| Function | Internal contact IN | 10 | Input type | 9545 | 2549 | 25929 | 6549 | | | | | — | |
| Function | Internal contact IN | 10 | Loop/channel definition | 9546 | 254A | 25930 | 654A | | | | | — | |
| Function | Internal contact IN | 10 | Weighting | 9547 | 254B | 25931 | 654B | | | | | — | |
| Function | Internal contact IN | 11 | Operation type | 9552 | 2550 | 25936 | 6550 | | | | | — | |
| Function | Internal contact IN | 11 | Input type | 9553 | 2551 | 25937 | 6551 | | | | | — | |
| Function | Internal contact IN | 11 | Loop/channel definition | 9554 | 2552 | 25938 | 6552 | | | | | — | |
| Function | Internal contact IN | 11 | Weighting | 9555 | 2553 | 25939 | 6553 | | | | | — | |
| Function | Internal contact IN | 12 | Operation type | 9560 | 2558 | 25944 | 6558 | | | | | — | |
| Function | Internal contact IN | 12 | Input type | 9561 | 2559 | 25945 | 6559 | | | | | — | |
| Function | Internal contact IN | 12 | Loop/channel definition | 9562 | 255A | 25946 | 655A | | | | | — | |
| Function | Internal contact IN | 12 | Weighting | 9563 | 255B | 25947 | 655B | | | | | — | |
| Function | Internal contact IN | 13 | Operation type | 9568 | 2560 | 25952 | 6560 | | | | | — | |
| Function | Internal contact IN | 13 | Input type | 9569 | 2561 | 25953 | 6561 | | | | | — | |
| Function | Internal contact IN | 13 | Loop/channel definition | 9570 | 2562 | 25954 | 6562 | | | | | — | |
| Function | Internal contact IN | 13 | Weighting | 9571 | 2563 | 25955 | 6563 | | | | | — | |
| Function | Internal contact IN | 14 | Operation type | 9576 | 2568 | 25960 | 6568 | | | | | — | |
| Function | Internal contact IN | 14 | Input type | 9577 | 2569 | 25961 | 6569 | | | | | — | |
| Function | Internal contact IN | 14 | Loop/channel definition | 9578 | 256A | 25962 | 656A | | | | | — | |
| Function | Internal contact IN | 14 | Weighting | 9579 | 256B | 25963 | 656B | | | | | — | |
| Function | Internal contact IN | 15 | Operation type | 9584 | 2570 | 25968 | 6570 | | | | | — | |
| Function | Internal contact IN | 15 | Input type | 9585 | 2571 | 25969 | 6571 | | | | | — | |
| Function | Internal contact IN | 15 | Loop/channel definition | 9586 | 2572 | 25970 | 6572 | | | | | — | |
| Function | Internal contact IN | 15 | Weighting | 9587 | 2573 | 25971 | 6573 | | | | | — | |
| Function | Internal contact IN | 16 | Operation type | 9592 | 2578 | 25976 | 6578 | | | | | — | |
| Function | Internal contact IN | 16 | Input type | 9593 | 2579 | 25977 | 6579 | | | | | — | |
| Function | Internal contact IN | 16 | Loop/channel definition | 9594 | 257A | 25978 | 657A | | | | | — | |
| Function | Internal contact IN | 16 | Weighting | 9595 | 257B | 25979 | 657B | | | | | — | |

## Function/Logical Operation

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Logical operation | 1 | Calculation type | 9824 | 2660 | 26208 | 6660 | | | | | — | |
| Function | Logical operation | 1 | Input assignment A | 9825 | 2661 | 26209 | 6661 | | | | | — | |
| Function | Logical operation | 1 | Input assignment B | 9826 | 2662 | 26210 | 6662 | | | | | — | |
| Function | Logical operation | 1 | Input assignment C | 9827 | 2663 | 26211 | 6663 | | | | | — | |
| Function | Logical operation | 1 | Input assignment D | 9828 | 2664 | 26212 | 6664 | | | | | — | |
| Function | Logical operation | 1 | Inverted input bit A | 9829 | 2665 | 26213 | 6665 | | | | | — | |
| Function | Logical operation | 1 | Inverted input bit B | 9830 | 2666 | 26214 | 6666 | | | | | — | |
| Function | Logical operation | 1 | Inverted input bit C | 9831 | 2667 | 26215 | 6667 | | | | | — | |
| Function | Logical operation | 1 | Inverted input bit D | 9832 | 2668 | 26216 | 6668 | | | | | — | |
| Function | Logical operation | 1 | ON delay time | 9833 | 2669 | 26217 | 6669 | | | | | 1 | |
| Function | Logical operation | 1 | OFF delay time | 9834 | 266A | 26218 | 666A | | | | | 1 | |
| Function | Logical operation | 1 | Inversion | 9835 | 266B | 26219 | 666B | | | | | — | |
| Function | Logical operation | 1 | Latch | 9836 | 266C | 26220 | 666C | | | | | — | |
| Function | Logical operation | 2 | Calculation type | 9840 | 2670 | 26224 | 6670 | | | | | — | |
| Function | Logical operation | 2 | Input assignment A | 9841 | 2671 | 26225 | 6671 | | | | | — | |
| Function | Logical operation | 2 | Input assignment B | 9842 | 2672 | 26226 | 6672 | | | | | — | |
| Function | Logical operation | 2 | Input assignment C | 9843 | 2673 | 26227 | 6673 | | | | | — | |
| Function | Logical operation | 2 | Input assignment D | 9844 | 2674 | 26228 | 6674 | | | | | — | |
| Function | Logical operation | 2 | Inverted input bit A | 9845 | 2675 | 26229 | 6675 | | | | | — | |
| Function | Logical operation | 2 | Inverted input bit B | 9846 | 2676 | 26230 | 6676 | | | | | — | |
| Function | Logical operation | 2 | Inverted input bit C | 9847 | 2677 | 26231 | 6677 | | | | | — | |
| Function | Logical operation | 2 | Inverted input bit D | 9848 | 2678 | 26232 | 6678 | | | | | — | |
| Function | Logical operation | 2 | ON delay time | 9849 | 2679 | 26233 | 6679 | | | | | 1 | |
| Function | Logical operation | 2 | OFF delay time | 9850 | 267A | 26234 | 667A | | | | | 1 | |
| Function | Logical operation | 2 | Inversion | 9851 | 267B | 26235 | 667B | | | | | — | |
| Function | Logical operation | 2 | Latch | 9852 | 267C | 26236 | 667C | | | | | — | |
| Function | Logical operation | 3 | Calculation type | 9856 | 2680 | 26240 | 6680 | | | | | — | |
| Function | Logical operation | 3 | Input assignment A | 9857 | 2681 | 26241 | 6681 | | | | | — | |
| Function | Logical operation | 3 | Input assignment B | 9858 | 2682 | 26242 | 6682 | | | | | — | |
| Function | Logical operation | 3 | Input assignment C | 9859 | 2683 | 26243 | 6683 | | | | | — | |
| Function | Logical operation | 3 | Input assignment D | 9860 | 2684 | 26244 | 6684 | | | | | — | |
| Function | Logical operation | 3 | Inverted input bit A | 9861 | 2685 | 26245 | 6685 | | | | | — | |
| Function | Logical operation | 3 | Inverted input bit B | 9862 | 2686 | 26246 | 6686 | | | | | — | |
| Function | Logical operation | 3 | Inverted input bit C | 9863 | 2687 | 26247 | 6687 | | | | | — | |
| Function | Logical operation | 3 | Inverted input bit D | 9864 | 2688 | 26248 | 6688 | | | | | — | |
| Function | Logical operation | 3 | ON delay time | 9865 | 2689 | 26249 | 6689 | | | | | 1 | |
| Function | Logical operation | 3 | OFF delay time | 9866 | 268A | 26250 | 668A | | | | | 1 | |
| Function | Logical operation | 3 | Inversion | 9867 | 268B | 26251 | 668B | | | | | — | |
| Function | Logical operation | 3 | Latch | 9868 | 268C | 26252 | 668C | | | | | — | |
| Function | Logical operation | 4 | Calculation type | 9872 | 2690 | 26256 | 6690 | | | | | — | |
| Function | Logical operation | 4 | Input assignment A | 9873 | 2691 | 26257 | 6691 | | | | | — | |
| Function | Logical operation | 4 | Input assignment B | 9874 | 2692 | 26258 | 6692 | | | | | — | |
| Function | Logical operation | 4 | Input assignment C | 9875 | 2693 | 26259 | 6693 | | | | | — | |
| Function | Logical operation | 4 | Input assignment D | 9876 | 2694 | 26260 | 6694 | | | | | — | |
| Function | Logical operation | 4 | Inverted input bit A | 9877 | 2695 | 26261 | 6695 | | | | | — | |
| Function | Logical operation | 4 | Inverted input bit B | 9878 | 2696 | 26262 | 6696 | | | | | — | |
| Function | Logical operation | 4 | Inverted input bit C | 9879 | 2697 | 26263 | 6697 | | | | | — | |
| Function | Logical operation | 4 | Inverted input bit D | 9880 | 2698 | 26264 | 6698 | | | | | — | |
| Function | Logical operation | 4 | ON delay time | 9881 | 2699 | 26265 | 6699 | | | | | 1 | |
| Function | Logical operation | 4 | OFF delay time | 9882 | 269A | 26266 | 669A | | | | | 1 | |
| Function | Logical operation | 4 | Inversion | 9883 | 269B | 26267 | 669B | | | | | — | |
| Function | Logical operation | 4 | Latch | 9884 | 269C | 26268 | 669C | | | | | — | |

## Function/Logical Operation

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Logical operation | 5 | Calculation type | 9888 | 26A0 | 26272 | 66A0 | | | | | — | |
| Function | Logical operation | 5 | Input assignment A | 9889 | 26A1 | 26273 | 66A1 | | | | | — | |
| Function | Logical operation | 5 | Input assignment B | 9890 | 26A2 | 26274 | 66A2 | | | | | — | |
| Function | Logical operation | 5 | Input assignment C | 9891 | 26A3 | 26275 | 66A3 | | | | | — | |
| Function | Logical operation | 5 | Input assignment D | 9892 | 26A4 | 26276 | 66A4 | | | | | — | |
| Function | Logical operation | 5 | Inverted input bit A | 9893 | 26A5 | 26277 | 66A5 | | | | | — | |
| Function | Logical operation | 5 | Inverted input bit B | 9894 | 26A6 | 26278 | 66A6 | | | | | — | |
| Function | Logical operation | 5 | Inverted input bit C | 9895 | 26A7 | 26279 | 66A7 | | | | | — | |
| Function | Logical operation | 5 | Inverted input bit D | 9896 | 26A8 | 26280 | 66A8 | | | | | — | |
| Function | Logical operation | 5 | ON delay time | 9897 | 26A9 | 26281 | 66A9 | | | | | 1 | |
| Function | Logical operation | 5 | OFF delay time | 9898 | 26AA | 26282 | 66AA | | | | | 1 | |
| Function | Logical operation | 5 | Inversion | 9899 | 26AB | 26283 | 66AB | | | | | — | |
| Function | Logical operation | 5 | Latch | 9900 | 26AC | 26284 | 66AC | | | | | — | |
| Function | Logical operation | 6 | Calculation type | 9904 | 26B0 | 26288 | 66B0 | | | | | — | |
| Function | Logical operation | 6 | Input assignment A | 9905 | 26B1 | 26289 | 66B1 | | | | | — | |
| Function | Logical operation | 6 | Input assignment B | 9906 | 26B2 | 26290 | 66B2 | | | | | — | |
| Function | Logical operation | 6 | Input assignment C | 9907 | 26B3 | 26291 | 66B3 | | | | | — | |
| Function | Logical operation | 6 | Input assignment D | 9908 | 26B4 | 26292 | 66B4 | | | | | — | |
| Function | Logical operation | 6 | Inverted input bit A | 9909 | 26B5 | 26293 | 66B5 | | | | | — | |
| Function | Logical operation | 6 | Inverted input bit B | 9910 | 26B6 | 26294 | 66B6 | | | | | — | |
| Function | Logical operation | 6 | Inverted input bit C | 9911 | 26B7 | 26295 | 66B7 | | | | | — | |
| Function | Logical operation | 6 | Inverted input bit D | 9912 | 26B8 | 26296 | 66B8 | | | | | — | |
| Function | Logical operation | 6 | ON delay time | 9913 | 26B9 | 26297 | 66B9 | | | | | 1 | |
| Function | Logical operation | 6 | OFF delay time | 9914 | 26BA | 26298 | 66BA | | | | | 1 | |
| Function | Logical operation | 6 | Inversion | 9915 | 26BB | 26299 | 66BB | | | | | — | |
| Function | Logical operation | 6 | Latch | 9916 | 26BC | 26300 | 66BC | | | | | — | |
| Function | Logical operation | 7 | Calculation type | 9920 | 26C0 | 26304 | 66C0 | | | | | — | |
| Function | Logical operation | 7 | Input assignment A | 9921 | 26C1 | 26305 | 66C1 | | | | | — | |
| Function | Logical operation | 7 | Input assignment B | 9922 | 26C2 | 26306 | 66C2 | | | | | — | |
| Function | Logical operation | 7 | Input assignment C | 9923 | 26C3 | 26307 | 66C3 | | | | | — | |
| Function | Logical operation | 7 | Input assignment D | 9924 | 26C4 | 26308 | 66C4 | | | | | — | |
| Function | Logical operation | 7 | Inverted input bit A | 9925 | 26C5 | 26309 | 66C5 | | | | | — | |
| Function | Logical operation | 7 | Inverted input bit B | 9926 | 26C6 | 26310 | 66C6 | | | | | — | |
| Function | Logical operation | 7 | Inverted input bit C | 9927 | 26C7 | 26311 | 66C7 | | | | | — | |
| Function | Logical operation | 7 | Inverted input bit D | 9928 | 26C8 | 26312 | 66C8 | | | | | — | |
| Function | Logical operation | 7 | ON delay time | 9929 | 26C9 | 26313 | 66C9 | | | | | 1 | |
| Function | Logical operation | 7 | OFF delay time | 9930 | 26CA | 26314 | 66CA | | | | | 1 | |
| Function | Logical operation | 7 | Inversion | 9931 | 26CB | 26315 | 66CB | | | | | — | |
| Function | Logical operation | 7 | Latch | 9932 | 26CC | 26316 | 66CC | | | | | — | |
| Function | Logical operation | 8 | Calculation type | 9936 | 26D0 | 26320 | 66D0 | | | | | — | |
| Function | Logical operation | 8 | Input assignment A | 9937 | 26D1 | 26321 | 66D1 | | | | | — | |
| Function | Logical operation | 8 | Input assignment B | 9938 | 26D2 | 26322 | 66D2 | | | | | — | |
| Function | Logical operation | 8 | Input assignment C | 9939 | 26D3 | 26323 | 66D3 | | | | | — | |
| Function | Logical operation | 8 | Input assignment D | 9940 | 26D4 | 26324 | 66D4 | | | | | — | |
| Function | Logical operation | 8 | Inverted input bit A | 9941 | 26D5 | 26325 | 66D5 | | | | | — | |
| Function | Logical operation | 8 | Inverted input bit B | 9942 | 26D6 | 26326 | 66D6 | | | | | — | |
| Function | Logical operation | 8 | Inverted input bit C | 9943 | 26D7 | 26327 | 66D7 | | | | | — | |
| Function | Logical operation | 8 | Inverted input bit D | 9944 | 26D8 | 26328 | 66D8 | | | | | — | |
| Function | Logical operation | 8 | ON delay time | 9945 | 26D9 | 26329 | 66D9 | | | | | 1 | |
| Function | Logical operation | 8 | OFF delay time | 9946 | 26DA | 26330 | 66DA | | | | | 1 | |
| Function | Logical operation | 8 | Inversion | 9947 | 26DB | 26331 | 66DB | | | | | — | |
| Function | Logical operation | 8 | Latch | 9948 | 26DC | 26332 | 66DC | | | | | — | |

# Function/Logical Operation

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Logical operation | 9 | Calculation type | 9952 | 26E0 | 26336 | 66E0 | | | | | — | |
| Function | Logical operation | 9 | Input assignment A | 9953 | 26E1 | 26337 | 66E1 | | | | | — | |
| Function | Logical operation | 9 | Input assignment B | 9954 | 26E2 | 26338 | 66E2 | | | | | — | |
| Function | Logical operation | 9 | Input assignment C | 9955 | 26E3 | 26339 | 66E3 | | | | | — | |
| Function | Logical operation | 9 | Input assignment D | 9956 | 26E4 | 26340 | 66E4 | | | | | — | |
| Function | Logical operation | 9 | Inverted input bit A | 9957 | 26E5 | 26341 | 66E5 | | | | | — | |
| Function | Logical operation | 9 | Inverted input bit B | 9958 | 26E6 | 26342 | 66E6 | | | | | — | |
| Function | Logical operation | 9 | Inverted input bit C | 9959 | 26E7 | 26343 | 66E7 | | | | | — | |
| Function | Logical operation | 9 | Inverted input bit D | 9960 | 26E8 | 26344 | 66E8 | | | | | — | |
| Function | Logical operation | 9 | ON delay time | 9961 | 26E9 | 26345 | 66E9 | | | | | 1 | |
| Function | Logical operation | 9 | OFF delay time | 9962 | 26EA | 26346 | 66EA | | | | | 1 | |
| Function | Logical operation | 9 | Inversion | 9963 | 26EB | 26347 | 66EB | | | | | — | |
| Function | Logical operation | 9 | Latch | 9964 | 26EC | 26348 | 66EC | | | | | — | |
| Function | Logical operation | 10 | Calculation type | 9968 | 26F0 | 26352 | 66F0 | | | | | — | |
| Function | Logical operation | 10 | Input assignment A | 9969 | 26F1 | 26353 | 66F1 | | | | | — | |
| Function | Logical operation | 10 | Input assignment B | 9970 | 26F2 | 26354 | 66F2 | | | | | — | |
| Function | Logical operation | 10 | Input assignment C | 9971 | 26F3 | 26355 | 66F3 | | | | | — | |
| Function | Logical operation | 10 | Input assignment D | 9972 | 26F4 | 26356 | 66F4 | | | | | — | |
| Function | Logical operation | 10 | Inverted input bit A | 9973 | 26F5 | 26357 | 66F5 | | | | | — | |
| Function | Logical operation | 10 | Inverted input bit B | 9974 | 26F6 | 26358 | 66F6 | | | | | — | |
| Function | Logical operation | 10 | Inverted input bit C | 9975 | 26F7 | 26359 | 66F7 | | | | | — | |
| Function | Logical operation | 10 | Inverted input bit D | 9976 | 26F8 | 26360 | 66F8 | | | | | — | |
| Function | Logical operation | 10 | ON delay time | 9977 | 26F9 | 26361 | 66F9 | | | | | 1 | |
| Function | Logical operation | 10 | OFF delay time | 9978 | 26FA | 26362 | 66FA | | | | | 1 | |
| Function | Logical operation | 10 | Inversion | 9979 | 26FB | 26363 | 66FB | | | | | — | |
| Function | Logical operation | 10 | Latch | 9980 | 26FC | 26364 | 66FC | | | | | — | |
| Function | Logical operation | 11 | Calculation type | 9984 | 2700 | 26368 | 6700 | | | | | — | |
| Function | Logical operation | 11 | Input assignment A | 9985 | 2701 | 26369 | 6701 | | | | | — | |
| Function | Logical operation | 11 | Input assignment B | 9986 | 2702 | 26370 | 6702 | | | | | — | |
| Function | Logical operation | 11 | Input assignment C | 9987 | 2703 | 26371 | 6703 | | | | | — | |
| Function | Logical operation | 11 | Input assignment D | 9988 | 2704 | 26372 | 6704 | | | | | — | |
| Function | Logical operation | 11 | Inverted input bit A | 9989 | 2705 | 26373 | 6705 | | | | | — | |
| Function | Logical operation | 11 | Inverted input bit B | 9990 | 2706 | 26374 | 6706 | | | | | — | |
| Function | Logical operation | 11 | Inverted input bit C | 9991 | 2707 | 26375 | 6707 | | | | | — | |
| Function | Logical operation | 11 | Inverted input bit D | 9992 | 2708 | 26376 | 6708 | | | | | — | |
| Function | Logical operation | 11 | ON delay time | 9993 | 2709 | 26377 | 6709 | | | | | 1 | |
| Function | Logical operation | 11 | OFF delay time | 9994 | 270A | 26378 | 670A | | | | | 1 | |
| Function | Logical operation | 11 | Inversion | 9995 | 270B | 26379 | 670B | | | | | — | |
| Function | Logical operation | 11 | Latch | 9996 | 270C | 26380 | 670C | | | | | — | |
| Function | Logical operation | 12 | Calculation type | 10000 | 2710 | 26384 | 6710 | | | | | — | |
| Function | Logical operation | 12 | Input assignment A | 10001 | 2711 | 26385 | 6711 | | | | | — | |
| Function | Logical operation | 12 | Input assignment B | 10002 | 2712 | 26386 | 6712 | | | | | — | |
| Function | Logical operation | 12 | Input assignment C | 10003 | 2713 | 26387 | 6713 | | | | | — | |
| Function | Logical operation | 12 | Input assignment D | 10004 | 2714 | 26388 | 6714 | | | | | — | |
| Function | Logical operation | 12 | Inverted input bit A | 10005 | 2715 | 26389 | 6715 | | | | | — | |
| Function | Logical operation | 12 | Inverted input bit B | 10006 | 2716 | 26390 | 6716 | | | | | — | |
| Function | Logical operation | 12 | Inverted input bit C | 10007 | 2717 | 26391 | 6717 | | | | | — | |
| Function | Logical operation | 12 | Inverted input bit D | 10008 | 2718 | 26392 | 6718 | | | | | — | |
| Function | Logical operation | 12 | ON delay time | 10009 | 2719 | 26393 | 6719 | | | | | 1 | |
| Function | Logical operation | 12 | OFF delay time | 10010 | 271A | 26394 | 671A | | | | | 1 | |
| Function | Logical operation | 12 | Inversion | 10011 | 271B | 26395 | 671B | | | | | — | |
| Function | Logical operation | 12 | Latch | 10012 | 271C | 26396 | 671C | | | | | — | |

# Function/Logical Operation

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Logical operation | 13 | Calculation type | 10016 | 2720 | 26400 | 6720 | | | | | — | |
| Function | Logical operation | 13 | Input assignment A | 10017 | 2721 | 26401 | 6721 | | | | | — | |
| Function | Logical operation | 13 | Input assignment B | 10018 | 2722 | 26402 | 6722 | | | | | — | |
| Function | Logical operation | 13 | Input assignment C | 10019 | 2723 | 26403 | 6723 | | | | | — | |
| Function | Logical operation | 13 | Input assignment D | 10020 | 2724 | 26404 | 6724 | | | | | — | |
| Function | Logical operation | 13 | Inverted input bit A | 10021 | 2725 | 26405 | 6725 | | | | | — | |
| Function | Logical operation | 13 | Inverted input bit B | 10022 | 2726 | 26406 | 6726 | | | | | — | |
| Function | Logical operation | 13 | Inverted input bit C | 10023 | 2727 | 26407 | 6727 | | | | | — | |
| Function | Logical operation | 13 | Inverted input bit D | 10024 | 2728 | 26408 | 6728 | | | | | — | |
| Function | Logical operation | 13 | ON delay time | 10025 | 2729 | 26409 | 6729 | | | | | 1 | |
| Function | Logical operation | 13 | OFF delay time | 10026 | 272A | 26410 | 672A | | | | | 1 | |
| Function | Logical operation | 13 | Inversion | 10027 | 272B | 26411 | 672B | | | | | — | |
| Function | Logical operation | 13 | Latch | 10028 | 272C | 26412 | 672C | | | | | — | |
| Function | Logical operation | 14 | Calculation type | 10032 | 2730 | 26416 | 6730 | | | | | — | |
| Function | Logical operation | 14 | Input assignment A | 10033 | 2731 | 26417 | 6731 | | | | | — | |
| Function | Logical operation | 14 | Input assignment B | 10034 | 2732 | 26418 | 6732 | | | | | — | |
| Function | Logical operation | 14 | Input assignment C | 10035 | 2733 | 26419 | 6733 | | | | | — | |
| Function | Logical operation | 14 | Input assignment D | 10036 | 2734 | 26420 | 6734 | | | | | — | |
| Function | Logical operation | 14 | Inverted input bit A | 10037 | 2735 | 26421 | 6735 | | | | | — | |
| Function | Logical operation | 14 | Inverted input bit B | 10038 | 2736 | 26422 | 6736 | | | | | — | |
| Function | Logical operation | 14 | Inverted input bit C | 10039 | 2737 | 26423 | 6737 | | | | | — | |
| Function | Logical operation | 14 | Inverted input bit D | 10040 | 2738 | 26424 | 6738 | | | | | — | |
| Function | Logical operation | 14 | ON delay time | 10041 | 2739 | 26425 | 6739 | | | | | 1 | |
| Function | Logical operation | 14 | OFF delay time | 10042 | 273A | 26426 | 673A | | | | | 1 | |
| Function | Logical operation | 14 | Inversion | 10043 | 273B | 26427 | 673B | | | | | — | |
| Function | Logical operation | 14 | Latch | 10044 | 273C | 26428 | 673C | | | | | — | |
| Function | Logical operation | 15 | Calculation type | 10048 | 2740 | 26432 | 6740 | | | | | — | |
| Function | Logical operation | 15 | Input assignment A | 10049 | 2741 | 26433 | 6741 | | | | | — | |
| Function | Logical operation | 15 | Input assignment B | 10050 | 2742 | 26434 | 6742 | | | | | — | |
| Function | Logical operation | 15 | Input assignment C | 10051 | 2743 | 26435 | 6743 | | | | | — | |
| Function | Logical operation | 15 | Input assignment D | 10052 | 2744 | 26436 | 6744 | | | | | — | |
| Function | Logical operation | 15 | Inverted input bit A | 10053 | 2745 | 26437 | 6745 | | | | | — | |
| Function | Logical operation | 15 | Inverted input bit B | 10054 | 2746 | 26438 | 6746 | | | | | — | |
| Function | Logical operation | 15 | Inverted input bit C | 10055 | 2747 | 26439 | 6747 | | | | | — | |
| Function | Logical operation | 15 | Inverted input bit D | 10056 | 2748 | 26440 | 6748 | | | | | — | |
| Function | Logical operation | 15 | ON delay time | 10057 | 2749 | 26441 | 6749 | | | | | 1 | |
| Function | Logical operation | 15 | OFF delay time | 10058 | 274A | 26442 | 674A | | | | | 1 | |
| Function | Logical operation | 15 | Inversion | 10059 | 274B | 26443 | 674B | | | | | — | |
| Function | Logical operation | 15 | Latch | 10060 | 274C | 26444 | 674C | | | | | — | |
| Function | Logical operation | 16 | Calculation type | 10064 | 2750 | 26448 | 6750 | | | | | — | |
| Function | Logical operation | 16 | Input assignment A | 10065 | 2751 | 26449 | 6751 | | | | | — | |
| Function | Logical operation | 16 | Input assignment B | 10066 | 2752 | 26450 | 6752 | | | | | — | |
| Function | Logical operation | 16 | Input assignment C | 10067 | 2753 | 26451 | 6753 | | | | | — | |
| Function | Logical operation | 16 | Input assignment D | 10068 | 2754 | 26452 | 6754 | | | | | — | |
| Function | Logical operation | 16 | Inverted input bit A | 10069 | 2755 | 26453 | 6755 | | | | | — | |
| Function | Logical operation | 16 | Inverted input bit B | 10070 | 2756 | 26454 | 6756 | | | | | — | |
| Function | Logical operation | 16 | Inverted input bit C | 10071 | 2757 | 26455 | 6757 | | | | | — | |
| Function | Logical operation | 16 | Inverted input bit D | 10072 | 2758 | 26456 | 6758 | | | | | — | |
| Function | Logical operation | 16 | ON delay time | 10073 | 2759 | 26457 | 6759 | | | | | 1 | |
| Function | Logical operation | 16 | OFF delay time | 10074 | 275A | 26458 | 675A | | | | | 1 | |
| Function | Logical operation | 16 | Inversion | 10075 | 275B | 26459 | 675B | | | | | — | |
| Function | Logical operation | 16 | Latch | 10076 | 275C | 26460 | 675C | | | | | — | |

# Function/Energy Conservation

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Energy conservation time proportioning | 1 | Energy conservation time proportional operation | 11536 | 2D10 | 27920 | 6D10 | | | | | — | |
| Function | Energy conservation time proportioning | 1 | Energy conservation delay time | 11537 | 2D11 | 27921 | 6D11 | | | | | — | |
| Function | Energy conservation time proportioning | 1 | Master/slave selection | 11538 | 2D12 | 27922 | 6D12 | | | | | — | |
| Function | Energy conservation time proportioning | 1 | Time proportional slave channels | 11540 | 2D14 | 27924 | 6D14 | | | | | — | |
| Function | Energy conservation time proportioning | 2 | Energy conservation time proportional operation | 11544 | 2D18 | 27928 | 6D18 | | | | | — | |
| Function | Energy conservation time proportioning | 2 | Energy conservation delay time | 11545 | 2D19 | 27929 | 6D19 | | | | | — | |
| Function | Energy conservation time proportioning | 2 | Master/slave selection | 11546 | 2D1A | 27930 | 6D1A | | | | | — | |
| Function | Energy conservation time proportioning | 2 | Time proportional slave channels | 11548 | 2D1C | 27932 | 6D1C | | | | | — | |
| Function | Energy conservation time proportioning | 3 | Energy conservation time proportional operation | 11552 | 2D20 | 27936 | 6D20 | | | | | — | |
| Function | Energy conservation time proportioning | 3 | Energy conservation delay time | 11553 | 2D21 | 27937 | 6D21 | | | | | — | |
| Function | Energy conservation time proportioning | 3 | Master/slave selection | 11554 | 2D22 | 27938 | 6D22 | | | | | — | |
| Function | Energy conservation time proportioning | 3 | Time proportional slave channels | 11556 | 2D24 | 27940 | 6D24 | | | | | — | |
| Function | Energy conservation time proportioning | 4 | Energy conservation time proportional operation | 11560 | 2D28 | 27944 | 6D28 | | | | | — | |
| Function | Energy conservation time proportioning | 4 | Energy conservation delay time | 11561 | 2D29 | 27945 | 6D29 | | | | | — | |
| Function | Energy conservation time proportioning | 4 | Master/slave selection | 11562 | 2D2A | 27946 | 6D2A | | | | | — | |
| Function | Energy conservation time proportioning | 4 | Time proportional slave channels | 11564 | 2D2C | 27948 | 6D2C | | | | | — | |
| Function | Energy conservation time proportioning | 5 | Energy conservation time proportional operation | 11568 | 2D30 | 27952 | 6D30 | | | | | — | |
| Function | Energy conservation time proportioning | 5 | Energy conservation delay time | 11569 | 2D31 | 27953 | 6D31 | | | | | — | |
| Function | Energy conservation time proportioning | 5 | Master/slave selection | 11570 | 2D32 | 27954 | 6D32 | | | | | — | |
| Function | Energy conservation time proportioning | 5 | Time proportional slave channels | 11572 | 2D34 | 27956 | 6D34 | | | | | — | |
| Function | Energy conservation time proportioning | 6 | Energy conservation time proportional operation | 11576 | 2D38 | 27960 | 6D38 | | | | | — | |
| Function | Energy conservation time proportioning | 6 | Energy conservation delay time | 11577 | 2D39 | 27961 | 6D39 | | | | | — | |
| Function | Energy conservation time proportioning | 6 | Master/slave selection | 11578 | 2D3A | 27962 | 6D3A | | | | | — | |
| Function | Energy conservation time proportioning | 6 | Time proportional slave channels | 11580 | 2D3C | 27964 | 6D3C | | | | | — | |
| Function | Energy conservation time proportioning | 7 | Energy conservation time proportional operation | 11584 | 2D40 | 27968 | 6D40 | | | | | — | |
| Function | Energy conservation time proportioning | 7 | Energy conservation delay time | 11585 | 2D41 | 27969 | 6D41 | | | | | — | |
| Function | Energy conservation time proportioning | 7 | Master/slave selection | 11586 | 2D42 | 27970 | 6D42 | | | | | — | |
| Function | Energy conservation time proportioning | 7 | Time proportional slave channels | 11588 | 2D44 | 27972 | 6D44 | | | | | — | |
| Function | Energy conservation time proportioning | 8 | Energy conservation time proportional operation | 11592 | 2D48 | 27976 | 6D48 | | | | | — | |
| Function | Energy conservation time proportioning | 8 | Energy conservation delay time | 11593 | 2D49 | 27977 | 6D49 | | | | | — | |
| Function | Energy conservation time proportioning | 8 | Master/slave selection | 11594 | 2D4A | 27978 | 6D4A | | | | | — | |
| Function | Energy conservation time proportioning | 8 | Time proportional slave channels | 11596 | 2D4C | 27980 | 6D4C | | | | | — | |

# Function/MV Branching Output

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | MV branching output | 1 | Loop definition | 11776 | 2E00 | 28160 | 6E00 | | | | | — | |
| Function | MV branching output | 1 | Ratio | 11777 | 2E01 | 28161 | 6E01 | | | | | 2 | |
| Function | MV branching output | 1 | Bias | 11778 | 2E02 | 28162 | 6E02 | | | | | 2 | |
| Function | MV branching output | 2 | Loop definition | 11780 | 2E04 | 28164 | 6E04 | | | | | — | |
| Function | MV branching output | 2 | Ratio | 11781 | 2E05 | 28165 | 6E05 | | | | | 2 | |
| Function | MV branching output | 2 | Bias | 11782 | 2E06 | 28166 | 6E06 | | | | | 2 | |
| Function | MV branching output | 3 | Loop definition | 11784 | 2E08 | 28168 | 6E08 | | | | | — | Not available for 2 channels |
| Function | MV branching output | 3 | Ratio | 11785 | 2E09 | 28169 | 6E09 | | | | | 2 | Not available for 2 channels |
| Function | MV branching output | 3 | Bias | 11786 | 2E0A | 28170 | 6E0A | | | | | 2 | Not available for 2 channels |
| Function | MV branching output | 4 | Loop definition | 11788 | 2E0C | 28172 | 6E0C | | | | | — | Not available for 2 channels |
| Function | MV branching output | 4 | Ratio | 11789 | 2E0D | 28173 | 6E0D | | | | | 2 | Not available for 2 channels |
| Function | MV branching output | 4 | Bias | 11790 | 2E0E | 28174 | 6E0E | | | | | 2 | Not available for 2 channels |

## Function/Reception Monitoring

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Reception monitoring | 1 | Address (l) | — | — | 3840 | 0F00 | × | × | | | — | |
| Function | Reception monitoring | 1 | Address (h) | — | — | 3841 | 0F01 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 1 | Time-out (l) | — | — | 3842 | 0F02 | × | × | | | — | |
| Function | Reception monitoring | 1 | Time-out (h) | — | — | 3843 | 0F03 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 1 | Mode | — | — | 3844 | 0F04 | × | × | | | — | |
| Function | Reception monitoring | 2 | Address (l) | — | — | 3848 | 0F08 | × | × | | | — | |
| Function | Reception monitoring | 2 | Address (h) | — | — | 3849 | 0F09 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 2 | Time-out (l) | — | — | 3850 | 0F0A | × | × | | | — | |
| Function | Reception monitoring | 2 | Time-out (h) | — | — | 3851 | 0F0B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 2 | Mode | — | — | 3852 | 0F0C | × | × | | | — | |
| Function | Reception monitoring | 3 | Address (l) | — | — | 3856 | 0F10 | × | × | | | — | |
| Function | Reception monitoring | 3 | Address (h) | — | — | 3857 | 0F11 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 3 | Time-out (l) | — | — | 3858 | 0F12 | × | × | | | — | |
| Function | Reception monitoring | 3 | Time-out (h) | — | — | 3859 | 0F13 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 3 | Mode | — | — | 3860 | 0F14 | × | × | | | — | |
| Function | Reception monitoring | 4 | Address (l) | — | — | 3864 | 0F18 | × | × | | | — | |
| Function | Reception monitoring | 4 | Address (h) | — | — | 3865 | 0F19 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 4 | Time-out (l) | — | — | 3866 | 0F1A | × | × | | | — | |
| Function | Reception monitoring | 4 | Time-out (h) | — | — | 3867 | 0F1B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 4 | Mode | — | — | 3868 | 0F1C | × | × | | | — | |
| Function | Reception monitoring | 5 | Address (l) | — | — | 3872 | 0F20 | × | × | | | — | |
| Function | Reception monitoring | 5 | Address (h) | — | — | 3873 | 0F21 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 5 | Time-out (l) | — | — | 3874 | 0F22 | × | × | | | — | |
| Function | Reception monitoring | 5 | Time-out (h) | — | — | 3875 | 0F23 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 5 | Mode | — | — | 3876 | 0F24 | × | × | | | — | |
| Function | Reception monitoring | 6 | Address (l) | — | — | 3880 | 0F28 | × | × | | | — | |
| Function | Reception monitoring | 6 | Address (h) | — | — | 3881 | 0F29 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 6 | Time-out (l) | — | — | 3882 | 0F2A | × | × | | | — | |
| Function | Reception monitoring | 6 | Time-out (h) | — | — | 3883 | 0F2B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 6 | Mode | — | — | 3884 | 0F2C | × | × | | | — | |

# Function/Reception Monitoring

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Reception monitoring | 7 | Address (l) | — | — | 3888 | 0F30 | × | × | | | — | |
| Function | Reception monitoring | 7 | Address (h) | — | — | 3889 | 0F31 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 7 | Time-out (l) | — | — | 3890 | 0F32 | × | × | | | — | |
| Function | Reception monitoring | 7 | Time-out (h) | — | — | 3891 | 0F33 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 7 | Mode | — | — | 3892 | 0F34 | × | × | | | — | |
| Function | Reception monitoring | 8 | Address (l) | — | — | 3896 | 0F38 | × | × | | | — | |
| Function | Reception monitoring | 8 | Address (h) | — | — | 3897 | 0F39 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 8 | Time-out (l) | — | — | 3898 | 0F3A | × | × | | | — | |
| Function | Reception monitoring | 8 | Time-out (h) | — | — | 3899 | 0F3B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 8 | Mode | — | — | 3900 | 0F3C | × | × | | | — | |
| Function | Reception monitoring | 9 | Address (l) | — | — | 3904 | 0F40 | × | × | | | — | |
| Function | Reception monitoring | 9 | Address (h) | — | — | 3905 | 0F41 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 9 | Time-out (l) | — | — | 3906 | 0F42 | × | × | | | — | |
| Function | Reception monitoring | 9 | Time-out (h) | — | — | 3907 | 0F43 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 9 | Mode | — | — | 3908 | 0F44 | × | × | | | — | |
| Function | Reception monitoring | 10 | Address (l) | — | — | 3912 | 0F48 | × | × | | | — | |
| Function | Reception monitoring | 10 | Address (h) | — | — | 3913 | 0F49 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 10 | Time-out (l) | — | — | 3914 | 0F4A | × | × | | | — | |
| Function | Reception monitoring | 10 | Time-out (h) | — | — | 3915 | 0F4B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 10 | Mode | — | — | 3916 | 0F4C | × | × | | | — | |
| Function | Reception monitoring | 11 | Address (l) | — | — | 3920 | 0F50 | × | × | | | — | |
| Function | Reception monitoring | 11 | Address (h) | — | — | 3921 | 0F51 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 11 | Time-out (l) | — | — | 3922 | 0F52 | × | × | | | — | |
| Function | Reception monitoring | 11 | Time-out (h) | — | — | 3923 | 0F53 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 11 | Mode | — | — | 3924 | 0F54 | × | × | | | — | |
| Function | Reception monitoring | 12 | Address (l) | — | — | 3928 | 0F58 | × | × | | | — | |
| Function | Reception monitoring | 12 | Address (h) | — | — | 3929 | 0F59 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 12 | Time-out (l) | — | — | 3930 | 0F5A | × | × | | | — | |
| Function | Reception monitoring | 12 | Time-out (h) | — | — | 3931 | 0F5B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 12 | Mode | — | — | 3932 | 0F5C | × | × | | | — | |

## Function/Reception Monitoring

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Function | Reception monitoring | 13 | Address (l) | — | — | 3936 | 0F60 | × | × | | | — | |
| Function | Reception monitoring | 13 | Address (h) | — | — | 3937 | 0F61 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 13 | Time-out (l) | — | — | 3938 | 0F62 | × | × | | | — | |
| Function | Reception monitoring | 13 | Time-out (h) | — | — | 3939 | 0F63 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 13 | Mode | — | — | 3940 | 0F64 | × | × | | | — | |
| Function | Reception monitoring | 14 | Address (l) | — | — | 3944 | 0F68 | × | × | | | — | |
| Function | Reception monitoring | 14 | Address (h) | — | — | 3945 | 0F69 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 14 | Time-out (l) | — | — | 3946 | 0F6A | × | × | | | — | |
| Function | Reception monitoring | 14 | Time-out (h) | — | — | 3947 | 0F6B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 14 | Mode | — | — | 3948 | 0F6C | × | × | | | — | |
| Function | Reception monitoring | 15 | Address (l) | — | — | 3952 | 0F70 | × | × | | | — | |
| Function | Reception monitoring | 15 | Address (h) | — | — | 3953 | 0F71 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 15 | Time-out (l) | — | — | 3954 | 0F72 | × | × | | | — | |
| Function | Reception monitoring | 15 | Time-out (h) | — | — | 3955 | 0F73 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 15 | Mode | — | — | 3956 | 0F74 | × | × | | | — | |
| Function | Reception monitoring | 16 | Address (l) | — | — | 3960 | 0F78 | × | × | | | — | |
| Function | Reception monitoring | 16 | Address (h) | — | — | 3961 | 0F79 | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 16 | Time-out (l) | — | — | 3962 | 0F7A | × | × | | | — | |
| Function | Reception monitoring | 16 | Time-out (h) | — | — | 3963 | 0F7B | × | × | | | — | When writing, write 0 |
| Function | Reception monitoring | 16 | Mode | — | — | 3964 | 0F7C | × | × | | | — | |

# Other/UFLED Settings

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Other | UFLED settings | 1 | Lighting condition | 10160 | 27B0 | 26544 | 67B0 | | | | | — | F0 |
| Other | UFLED settings | 1 | Lighting status | 10161 | 27B1 | 26545 | 67B1 | | | | | — | F0 |
| Other | UFLED settings | 2 | Lighting condition | 10164 | 27B4 | 26548 | 67B4 | | | | | — | F1 |
| Other | UFLED settings | 2 | Lighting status | 10165 | 27B5 | 26549 | 67B5 | | | | | — | F1 |
| Other | UFLED settings | 3 | Lighting condition | 10168 | 27B8 | 26552 | 67B8 | | | | | — | F2 |
| Other | UFLED settings | 3 | Lighting status | 10169 | 27B9 | 26553 | 67B9 | | | | | — | F2 |
| Other | UFLED settings | 4 | Lighting condition | 10172 | 27BC | 26556 | 67BC | | | | | — | F3 |
| Other | UFLED settings | 4 | Lighting status | 10173 | 27BD | 26557 | 67BD | | | | | — | F3 |
| Other | UFLED settings | 5 | Lighting condition | 10176 | 27C0 | 26560 | 67C0 | | | | | — | F4 |
| Other | UFLED settings | 5 | Lighting status | 10177 | 27C1 | 26561 | 67C1 | | | | | — | F4 |
| Other | UFLED settings | 6 | Lighting condition | 10180 | 27C4 | 26564 | 67C4 | | | | | — | F5 |
| Other | UFLED settings | 6 | Lighting status | 10181 | 27C5 | 26565 | 67C5 | | | | | — | F5 |
| Other | UFLED settings | 7 | Lighting condition | 10184 | 27C8 | 26568 | 67C8 | | | | | — | F6 |
| Other | UFLED settings | 7 | Lighting status | 10185 | 27C9 | 26569 | 67C9 | | | | | — | F6 |
| Other | UFLED settings | 8 | Lighting condition | 10188 | 27CC | 26572 | 67CC | | | | | — | F7 |
| Other | UFLED settings | 8 | Lighting status | 10189 | 27CD | 26573 | 67CD | | | | | — | F7 |
| Other | UFLED settings | 9 | Lighting condition | 10192 | 27D0 | 26576 | 67D0 | | | | | — | F8 |
| Other | UFLED settings | 9 | Lighting status | 10193 | 27D1 | 26577 | 67D1 | | | | | — | F8 |
| Other | UFLED settings | 10 | Lighting condition | 10196 | 27D4 | 26580 | 67D4 | | | | | — | F9 |
| Other | UFLED settings | 10 | Lighting status | 10197 | 27D5 | 26581 | 67D5 | | | | | — | F9 |

# Other/Instrument Information

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Other | Instrument info. | 1 | F/W ROM ID | 10768 | 2A10 | 27152 | 6A10 | | × | | × | — | |
| Other | Instrument info. | 1 | F/W ROM version 1 | 10769 | 2A11 | 27153 | 6A11 | | × | | × | — | |
| Other | Instrument info. | 1 | F/W ROM version 2 | 10770 | 2A12 | 27154 | 6A12 | | × | | × | — | |
| Other | Instrument info. | 1 | Module interchange version Version | 10771 | 2A13 | 27155 | 6A13 | | × | | × | — | |
| Other | Instrument info. | 1 | Module version (major, minor) | 10773 | 2A15 | 27157 | 6A15 | | × | | × | — | |

# Other/PV Tag Name

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Other | PV tag name | 1 | Tag name 1 | 6640 | 19F0 | 23024 | 59F0 | | | | | — | |
| Other | PV tag name | 1 | Tag name 2 | 6641 | 19F1 | 23025 | 59F1 | | | | | — | |
| Other | PV tag name | 1 | Tag name 3 | 6642 | 19F2 | 23026 | 59F2 | | | | | — | |
| Other | PV tag name | 1 | Tag name 4 | 6643 | 19F3 | 23027 | 59F3 | | | | | — | |
| Other | PV tag name | 1 | Tag name 5 | 6644 | 19F4 | 23028 | 59F4 | | | | | — | |
| Other | PV tag name | 1 | Tag name 6 | 6645 | 19F5 | 23029 | 59F5 | | | | | — | |
| Other | PV tag name | 1 | Tag name 7 | 6646 | 19F6 | 23030 | 59F6 | | | | | — | |
| Other | PV tag name | 1 | Tag name 8 | 6647 | 19F7 | 23031 | 59F7 | | | | | — | |
| Other | PV tag name | 2 | Tag name 1 | 6656 | 1A00 | 23040 | 5A00 | | | | | — | |
| Other | PV tag name | 2 | Tag name 2 | 6657 | 1A01 | 23041 | 5A01 | | | | | — | |
| Other | PV tag name | 2 | Tag name 3 | 6658 | 1A02 | 23042 | 5A02 | | | | | — | |
| Other | PV tag name | 2 | Tag name 4 | 6659 | 1A03 | 23043 | 5A03 | | | | | — | |
| Other | PV tag name | 2 | Tag name 5 | 6660 | 1A04 | 23044 | 5A04 | | | | | — | |
| Other | PV tag name | 2 | Tag name 6 | 6661 | 1A05 | 23045 | 5A05 | | | | | — | |
| Other | PV tag name | 2 | Tag name 7 | 6662 | 1A06 | 23046 | 5A06 | | | | | — | |
| Other | PV tag name | 2 | Tag name 8 | 6663 | 1A07 | 23047 | 5A07 | | | | | — | |
| Other | PV tag name | 3 | Tag name 1 | 6672 | 1A10 | 23056 | 5A10 | | | | | — | |
| Other | PV tag name | 3 | Tag name 2 | 6673 | 1A11 | 23057 | 5A11 | | | | | — | |
| Other | PV tag name | 3 | Tag name 3 | 6674 | 1A12 | 23058 | 5A12 | | | | | — | |
| Other | PV tag name | 3 | Tag name 4 | 6675 | 1A13 | 23059 | 5A13 | | | | | — | |
| Other | PV tag name | 3 | Tag name 5 | 6676 | 1A14 | 23060 | 5A14 | | | | | — | |
| Other | PV tag name | 3 | Tag name 6 | 6677 | 1A15 | 23061 | 5A15 | | | | | — | |
| Other | PV tag name | 3 | Tag name 7 | 6678 | 1A16 | 23062 | 5A16 | | | | | — | |
| Other | PV tag name | 3 | Tag name 8 | 6679 | 1A17 | 23063 | 5A17 | | | | | — | |
| Other | PV tag name | 4 | Tag name 1 | 6688 | 1A20 | 23072 | 5A20 | | | | | — | |
| Other | PV tag name | 4 | Tag name 2 | 6689 | 1A21 | 23073 | 5A21 | | | | | — | |
| Other | PV tag name | 4 | Tag name 3 | 6690 | 1A22 | 23074 | 5A22 | | | | | — | |
| Other | PV tag name | 4 | Tag name 4 | 6691 | 1A23 | 23075 | 5A23 | | | | | — | |
| Other | PV tag name | 4 | Tag name 5 | 6692 | 1A24 | 23076 | 5A24 | | | | | — | |
| Other | PV tag name | 4 | Tag name 6 | 6693 | 1A25 | 23077 | 5A25 | | | | | — | |
| Other | PV tag name | 4 | Tag name 7 | 6694 | 1A26 | 23078 | 5A26 | | | | | — | |
| Other | PV tag name | 4 | Tag name 8 | 6695 | 1A27 | 23079 | 5A27 | | | | | — | |

# Other/OUT Tag Name

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Other | OUT tag name | 1 | Tag name 1 | 6704 | 1A30 | 23088 | 5A30 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 2 | 6705 | 1A31 | 23089 | 5A31 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 3 | 6706 | 1A32 | 23090 | 5A32 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 4 | 6707 | 1A33 | 23091 | 5A33 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 5 | 6708 | 1A34 | 23092 | 5A34 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 6 | 6709 | 1A35 | 23093 | 5A35 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 7 | 6710 | 1A36 | 23094 | 5A36 | | | | | — | |
| Other | OUT tag name | 1 | Tag name 8 | 6711 | 1A37 | 23095 | 5A37 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 1 | 6720 | 1A40 | 23104 | 5A40 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 2 | 6721 | 1A41 | 23105 | 5A41 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 3 | 6722 | 1A42 | 23106 | 5A42 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 4 | 6723 | 1A43 | 23107 | 5A43 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 5 | 6724 | 1A44 | 23108 | 5A44 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 6 | 6725 | 1A45 | 23109 | 5A45 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 7 | 6726 | 1A46 | 23110 | 5A46 | | | | | — | |
| Other | OUT tag name | 2 | Tag name 8 | 6727 | 1A47 | 23111 | 5A47 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 1 | 6736 | 1A50 | 23120 | 5A50 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 2 | 6737 | 1A51 | 23121 | 5A51 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 3 | 6738 | 1A52 | 23122 | 5A52 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 4 | 6739 | 1A53 | 23123 | 5A53 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 5 | 6740 | 1A54 | 23124 | 5A54 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 6 | 6741 | 1A55 | 23125 | 5A55 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 7 | 6742 | 1A56 | 23126 | 5A56 | | | | | — | |
| Other | OUT tag name | 3 | Tag name 8 | 6743 | 1A57 | 23127 | 5A57 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 1 | 6752 | 1A60 | 23136 | 5A60 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 2 | 6753 | 1A61 | 23137 | 5A61 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 3 | 6754 | 1A62 | 23138 | 5A62 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 4 | 6755 | 1A63 | 23139 | 5A63 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 5 | 6756 | 1A64 | 23140 | 5A64 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 6 | 6757 | 1A65 | 23141 | 5A65 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 7 | 6758 | 1A66 | 23142 | 5A66 | | | | | — | |
| Other | OUT tag name | 4 | Tag name 8 | 6759 | 1A67 | 23143 | 5A67 | | | | | — | |

## Other/Option Tag Name

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Other | Option tag name | 1 | Tag name 1 | 6768 | 1A70 | 23152 | 5A70 | | | | | — | |
| Other | Option tag name | 1 | Tag name 2 | 6769 | 1A71 | 23153 | 5A71 | | | | | — | |
| Other | Option tag name | 1 | Tag name 3 | 6770 | 1A72 | 23154 | 5A72 | | | | | — | |
| Other | Option tag name | 1 | Tag name 4 | 6771 | 1A73 | 23155 | 5A73 | | | | | — | |
| Other | Option tag name | 1 | Tag name 5 | 6772 | 1A74 | 23156 | 5A74 | | | | | — | |
| Other | Option tag name | 1 | Tag name 6 | 6773 | 1A75 | 23157 | 5A75 | | | | | — | |
| Other | Option tag name | 1 | Tag name 7 | 6774 | 1A76 | 23158 | 5A76 | | | | | — | |
| Other | Option tag name | 1 | Tag name 8 | 6775 | 1A77 | 23159 | 5A77 | | | | | — | |
| Other | Option tag name | 2 | Tag name 1 | 6784 | 1A80 | 23168 | 5A80 | | | | | — | |
| Other | Option tag name | 2 | Tag name 2 | 6785 | 1A81 | 23169 | 5A81 | | | | | — | |
| Other | Option tag name | 2 | Tag name 3 | 6786 | 1A82 | 23170 | 5A82 | | | | | — | |
| Other | Option tag name | 2 | Tag name 4 | 6787 | 1A83 | 23171 | 5A83 | | | | | — | |
| Other | Option tag name | 2 | Tag name 5 | 6788 | 1A84 | 23172 | 5A84 | | | | | — | |
| Other | Option tag name | 2 | Tag name 6 | 6789 | 1A85 | 23173 | 5A85 | | | | | — | |
| Other | Option tag name | 2 | Tag name 7 | 6790 | 1A86 | 23174 | 5A86 | | | | | — | |
| Other | Option tag name | 2 | Tag name 8 | 6791 | 1A87 | 23175 | 5A87 | | | | | — | |
| Other | Option tag name | 3 | Tag name 1 | 6800 | 1A90 | 23184 | 5A90 | | | | | — | |
| Other | Option tag name | 3 | Tag name 2 | 6801 | 1A91 | 23185 | 5A91 | | | | | — | |
| Other | Option tag name | 3 | Tag name 3 | 6802 | 1A92 | 23186 | 5A92 | | | | | — | |
| Other | Option tag name | 3 | Tag name 4 | 6803 | 1A93 | 23187 | 5A93 | | | | | — | |
| Other | Option tag name | 3 | Tag name 5 | 6804 | 1A94 | 23188 | 5A94 | | | | | — | |
| Other | Option tag name | 3 | Tag name 6 | 6805 | 1A95 | 23189 | 5A95 | | | | | — | |
| Other | Option tag name | 3 | Tag name 7 | 6806 | 1A96 | 23190 | 5A96 | | | | | — | |
| Other | Option tag name | 3 | Tag name 8 | 6807 | 1A97 | 23191 | 5A97 | | | | | — | |
| Other | Option tag name | 4 | Tag name 1 | 6816 | 1AA0 | 23200 | 5AA0 | | | | | — | |
| Other | Option tag name | 4 | Tag name 2 | 6817 | 1AA1 | 23201 | 5AA1 | | | | | — | |
| Other | Option tag name | 4 | Tag name 3 | 6818 | 1AA2 | 23202 | 5AA2 | | | | | — | |
| Other | Option tag name | 4 | Tag name 4 | 6819 | 1AA3 | 23203 | 5AA3 | | | | | — | |
| Other | Option tag name | 4 | Tag name 5 | 6820 | 1AA4 | 23204 | 5AA4 | | | | | — | |
| Other | Option tag name | 4 | Tag name 6 | 6821 | 1AA5 | 23205 | 5AA5 | | | | | — | |
| Other | Option tag name | 4 | Tag name 7 | 6822 | 1AA6 | 23206 | 5AA6 | | | | | — | |
| Other | Option tag name | 4 | Tag name 8 | 6823 | 1AA7 | 23207 | 5AA7 | | | | | — | |

## Other/Tag for All Loops

| Folder name | Bank name | Code | Item | RAM address | | EEPROM address | | RAM | | EEPROM | | Decimal point info. | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Decimal | Hex | Decimal | Hex | Read | Write | Read | Write | | |
| Other | Tag for all loops | 1 | Tag name 1 | 6832 | 1AB0 | 23216 | 5AB0 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 2 | 6833 | 1AB1 | 23217 | 5AB1 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 3 | 6834 | 1AB2 | 23218 | 5AB2 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 4 | 6835 | 1AB3 | 23219 | 5AB3 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 5 | 6836 | 1AB4 | 23220 | 5AB4 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 6 | 6837 | 1AB5 | 23221 | 5AB5 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 7 | 6838 | 1AB6 | 23222 | 5AB6 | | | | | — | |
| Other | Tag for all loops | 1 | Tag name 8 | 6839 | 1AB7 | 23223 | 5AB7 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 1 | 6848 | 1AC0 | 23232 | 5AC0 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 2 | 6849 | 1AC1 | 23233 | 5AC1 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 3 | 6850 | 1AC2 | 23234 | 5AC2 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 4 | 6851 | 1AC3 | 23235 | 5AC3 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 5 | 6852 | 1AC4 | 23236 | 5AC4 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 6 | 6853 | 1AC5 | 23237 | 5AC5 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 7 | 6854 | 1AC6 | 23238 | 5AC6 | | | | | — | |
| Other | Tag for all loops | 2 | Tag name 8 | 6855 | 1AC7 | 23239 | 5AC7 | | | | | — | |
| Other | Tag for all loops | 3 | Tag name 1 | 6864 | 1AD0 | 23248 | 5AD0 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 2 | 6865 | 1AD1 | 23249 | 5AD1 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 3 | 6866 | 1AD2 | 23250 | 5AD2 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 4 | 6867 | 1AD3 | 23251 | 5AD3 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 5 | 6868 | 1AD4 | 23252 | 5AD4 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 6 | 6869 | 1AD5 | 23253 | 5AD5 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 7 | 6870 | 1AD6 | 23254 | 5AD6 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 3 | Tag name 8 | 6871 | 1AD7 | 23255 | 5AD7 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 1 | 6880 | 1AE0 | 23264 | 5AE0 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 2 | 6881 | 1AE1 | 23265 | 5AE1 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 3 | 6882 | 1AE2 | 23266 | 5AE2 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 4 | 6883 | 1AE3 | 23267 | 5AE3 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 5 | 6884 | 1AE4 | 23268 | 5AE4 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 6 | 6885 | 1AE5 | 23269 | 5AE5 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 7 | 6886 | 1AE6 | 23270 | 5AE6 | | | | | — | Not available for 2 channels |
| Other | Tag for all loops | 4 | Tag name 8 | 6887 | 1AE7 | 23271 | 5AE7 | | | | | — | Not available for 2 channels |

## Bitmap assignment

### ■ Alarm information

#### ● Alarm information 1

RAM address: 10288 (2830H)
EEPROM address: 26672 (6830H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | |
|---|---|---|
| 1: | PV1 high limit error (Soft failure) | AL01 |
| 2: | PV1 low limit error (Soft failure) | AL02 |
| 3: | PV2 high limit error (Soft failure) | AL03 |
| 4: | PV2 low limit error (Soft failure) | AL04 |
| 5: | PV3 high limit error (Soft failure) | AL05 |
| 6: | PV3 low limit error (Soft failure) | AL06 |
| 7: | PV4 high limit error (Soft failure) | AL07 |
| 8: | PV4 low limit error (Soft failure) | AL08 |
| 9: | AD1 failure (Soft failure) | AL11 |
| 10: | AD2 failure (Soft failure) | AL12 |
| 11: | AD3 failure (Soft failure) | AL13 |
| 12: | AD4 failure (Soft failure) | AL14 |
| 13 to 16: | Undefined | |

#### ● Alarm information 2

RAM address: 10289 (2831H)
EEPROM address: 26673 (6831H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | |
|---|---|---|
| 1: | MFB1 input error (Soft failure) | AL21 |
| 2: | MFB1 adjustment error (Soft failure) | AL22 |
| 3: | MFB2 input error (Soft failure) | AL23 |
| 4: | MFB2 adjustment error (Soft failure) | AL24 |
| 5: | CT1 input error (Soft failure) | AL25 |
| 6: | CT2 input error (Soft failure) | AL26 |
| 7: | CT3 input error (Soft failure) | AL27 |
| 8: | CT4 input error (Soft failure) | AL28 |
| 9: | Reception monitors 1–16 | AL31 |
| 10: | Transmission timeout between modules | AL32 |
| 11: | RS-485 setting error (Soft failure) | AL33 |
| 12: | Communication setting error between modules | AL34 |
| 13 to 15: | Undefined | |
| 16: | Adjacent ring disconnection (Soft failure) | AL38 |

## ● Alarm information 3

RAM address: 10290 (2832H)
EEPROM address: 26674 (6832H)

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ LSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | |
|---|---|---|
| 1: | Base EEPROM read write error (Hard failure) | AL87 |
| 2: | Base EEPROM error (Soft failure) | AL88 |
| 3: | Base/module communication setting mismatch (Soft failure) | AL53 |
| 4: | Base/module No. mismatch (Soft failure) | AL54 |
| 5: | Base verification error (Hard failure) | AL55 |
| 6 to 16: | Undefined | |

## ● Alarm information 4

RAM address: 10291 (2833H)
EEPROM address: 26675 (6833H)

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ LSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| | | |
|---|---|---|
| 1: | CJ1 error (Soft failure) | AL71 |
| 2: | CJ2 error (Soft failure) | AL72 |
| 3: | CJ3 error (Soft failure) | AL73 |
| 4: | CJ4 error (Soft failure) | AL74 |
| 5: | Undefined | |
| 6: | Undefined | |
| 7: | EEPROM not initialized (Hard failure) | AL83 |
| 8: | MAC address error (Hard failure) | AL84 |
| 9: | RAM read write error (Hard failure) | AL85 |
| 10: | EEPROM read write error (Hard failure) | AL86 |
| 11: | RAM error (parameter data) (Soft failure) | AL94 |
| 12: | RAM error (adjustment data) (Soft failure) | AL95 |
| 13: | Undefined | |
| 14: | EEPROM error (parameter data) (Soft failure) | AL97 |
| 15: | EEPROM error (adjustment data) (Soft failure) | AL98 |
| 16: | ROM error (Hard failure) | AL99 |

## ■ Instrument internal computation result

### ● Internal computation result 1

RAM address: 10608 (2970H)
EEPROM address: 26992 (6970H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Internal event status 1 EV01
2: Internal event status 2 EV02
3: Internal event status 3 EV03
4: Internal event status 4 EV04
5: Internal event status 5 EV05
6: Internal event status 6 EV06
7: Internal event status 7 EV07
8: Internal event status 8 EV08
9: Internal event status 9 EV09
10: Internal event status 10 EV10
11: Internal event status 11 EV11
12: Internal event status 12 EV12
13: Internal event status 13 EV13
14: Internal event status 14 EV14
15: Internal event status 15 EV15
16: Internal event status 16 EV16

### ● Internal computation result 2

RAM address: 10609 (2971H)
EEPROM address: 26993 (6971H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Internal event status 17 EV17
2: Internal event status 18 EV18
3: Internal event status 19 EV19
4: Internal event status 20 EV20
5: Internal event status 21 EV21
6: Internal event status 22 EV22
7: Internal event status 23 EV23
8: Internal event status 24 EV24
9 to 16: Undefined

● **Internal computation result 3**

RAM address: 10610 (2972H)
EEPROM address: 26994 (6972H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Heater burnout detection CT1
2: Heater burnout detection CT2
3: Heater burnout detection CT3
4: Heater burnout detection CT4
5: Overcurrent detection CT1
6: Overcurrent detection CT2
7: Overcurrent detection CT3
8: Overcurrent detection CT4
9: Short-circuit detection CT1
10: Short-circuit detection CT2
11: Short-circuit detection CT3
12: Short-circuit detection CT4
13 to 16: undefined

● **Internal computation result 5**

RAM address: 10612 (2974H)
EEPROM address: 26996 (6974H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Terminal status DI1
2: Terminal status DI2
3: Terminal status DI3
4: Terminal status DI4
5 to 16: Undefined

● **Internal computation result 13**

RAM address: 10620 (297CH)
EEPROM address: 27004 (697CH)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Terminal status OUT1
2: Terminal status OUT2
3: Terminal status OUT3
4: Terminal status OUT4
5: Terminal status DO1
6: Terminal status DO2
7: Terminal status DO3
8: Terminal status DO4
9 to 16: Undefined

● **Internal computation result 21**

RAM address: 10628 (2984H)
EEPROM address: 27012 (6984H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Result of logical operation 1
2: Result of logical operation 2
3: Result of logical operation 3
4: Result of logical operation 4
5: Result of logical operation 5
6: Result of logical operation 6
7: Result of logical operation 7
8: Result of logical operation 8
9: Result of logical operation 9
10: Result of logical operation 10
11: Result of logical operation 11
12: Result of logical operation 12
13: Result of logical operation 13
14: Result of logical operation 14
15: Result of logical operation 15
16: Result of logical operation 16

● **Internal computation result 42 (ROM version 3.00 [1_0_3] or later)**

RAM address: 10649 (2999H)
EEPROM address: 27033 (6999H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: MFB1 G line break
2: MFB2 G line break
3: Undefined
4: Undefined
5: MFB1 Y line break
6: MFB2 Y line break
7: Undefined
8: Undefined
9: MFB1 T/multiline break
10: MFB2 T/multiline break
11: Undefined
12: Undefined
13: MFB1 input error AL21
14: MFB2 input error AL23
15: Undefined
16: Undefined

- **Internal computation result 43 (ROM version 3.00 [1_0_3] or later)**

RAM address: 10650 (299AH)
EEPROM address: 27034 (699AH)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: MFB1 is under adjustment
2: MFB2 is under adjustment
3: Undefined
4: Undefined
5: MFB1 estimation in progress
6: MFB2 estimation in progress
7: Undefined
8: Undefined
9: Undefined
10: Undefined
11: Undefined
12: Undefined
13: MFB1 adjustment error AL22
14: MFB2 adjustment error AL24
15: Undefined
16: Undefined

- **Internal computation result 44 (ROM version 3.00 [1_0_3] or later)**

RAM address: 10651 (299BH)
EEPROM address: 27035 (699BH)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: MFB1 OPEN
2: MFB2 OPEN
3: Undefined
4: Undefined
5: MFB1 CLOSE
6: MFB2 CLOSE
7: Undefined
8: Undefined
9: Undefined
10: Undefined
11: Undefined
12: Undefined
13: Undefined
14: Undefined
15: Undefined
16: Undefined

## ● Internal computation result 54 (ROM version 3.00 [1_0_3] or later)

RAM address: 10661 (29A5H)
EEPROM address: 27045 (69A5H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Undefined
2: Undefined
3: Adjacent ring disconnection AL38
4: Non-adjacent ring disconnection
5: Undefined
6: Undefined
7: Undefined
8: Undefined
9: Undefined
10: Undefined
11: Undefined
12: Undefined
13: Undefined
14: Undefined
15: Undefined
16: Undefined

## ● Internal computation result 55

RAM address: 10662 (29A6H)
EEPROM address: 27046 (69A6H)

LSB

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: Result of reception monitoring 1
2: Result of reception monitoring 2
3: Result of reception monitoring 3
4: Result of reception monitoring 4
5: Result of reception monitoring 5
6: Result of reception monitoring 6
7: Result of reception monitoring 7
8: Result of reception monitoring 8
9: Result of reception monitoring 9
10: Result of reception monitoring 10
11: Result of reception monitoring 11
12: Result of reception monitoring 12
13: Result of reception monitoring 13
14: Result of reception monitoring 14
15: Result of reception monitoring 15
16: Result of reception monitoring 16

## ■ User-defined bit

### ● User-defined bits 1 to 16

RAM address: 10080 (2760H)
EEPROM address: 26464 (6760H)

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ (LSB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: User-defined bit 1
2: User-defined bit 2
3: User-defined bit 3
4: User-defined bit 4
5: User-defined bit 5
6: User-defined bit 6
7: User-defined bit 7
8: User-defined bit 8
9: User-defined bit 9
10: User-defined bit 10
11: User-defined bit 11
12: User-defined bit 12
13: User-defined bit 13
14: User-defined bit 14
15: User-defined bit 15
16: User-defined bit 16

### ● User-defined bits 17 to 32

RAM address: 10097 (2771H)
EEPROM address: 26481 (6771H)

| $b^{15}$ | $b^{14}$ | $b^{13}$ | $b^{12}$ | $b^{11}$ | $b^{10}$ | $b^{9}$ | $b^{8}$ | $b^{7}$ | $b^{6}$ | $b^{5}$ | $b^{4}$ | $b^{3}$ | $b^{2}$ | $b^{1}$ | $b^{0}$ (LSB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

1: User-defined bit 17
2: User-defined bit 18
3: User-defined bit 19
4: User-defined bit 20
5: User-defined bit 21
6: User-defined bit 22
7: User-defined bit 23
8: User-defined bit 24
9: User-defined bit 25
10: User-defined bit 26
11: User-defined bit 27
12: User-defined bit 28
13: User-defined bit 29
14: User-defined bit 30
15: User-defined bit 31
16: User-defined bit 32

-MEMO-

# Chapter 13. List of Parameter Settings

## Comments on the table

### Meaning of user levels

0: Displayed on simple, standard, and multi-function levels

1: Displayed on standard and multi-function levels

2: Displayed on multi-function level

### NX-D15, NX-D25, NX-D35

No symbol: Available on some models

×: Not available

### Meaning of the decimal point position (DPP) notation in the Notes field

PID_PV: DPP is determined by the settings for loops 1–4 in the Loop control (basic) bank (Loop PV/SP decimal point position).

PV: DPP is determined by the settings for PV1–4 in the PV input bank (Decimal point position).

RAMP: DPP is determined by the settings for loops 1–4 in the SP configuration bank (SP ramp unit).

OUT: DPP is determined by the settings for outputs 1–4 in the Continuous output bank (Output decimal point position).

EV: DPP is determined by the settings for event Nos. 1–24 in the Event configuration bank (Decimal point position).

PID: DPP is determined by the settings for loops 1–4 in the Loop (extended) bank (Integral time/derivative time decimal point position).

TBL: DPP is determined by the settings for Linearizations 1–8 in the Linearization table bank (Breakpoint decimal point position).

## Monitor/Communications Profile

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Comm. (device) | 1 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 1 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 1 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (device) | 1 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 1 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 1 | SP | | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 1 | MV | | — | % | 0 | | | | |
| Monitor | Comm. (device) | 2 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 2 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 2 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (device) | 2 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 2 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 2 | SP | | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 2 | MV | | — | % | 0 | | | | |
| Monitor | Comm. (device) | 3 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 3 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 3 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (device) | 3 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 3 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 3 | SP | | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 3 | MV | | — | % | 0 | | | | |
| Monitor | Comm. (device) | 4 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 4 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 4 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (device) | 4 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (device) | 4 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 4 | SP | | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (device) | 4 | MV | | — | % | 0 | | | | |
| Monitor | Comm. (operation) | 1 | SP group selection | 1 to Number of SP groups (4 max.) | 1 | | 0 | | | | |
| Monitor | Comm. (operation) | 1 | LSP | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (operation) | 1 | Manual MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (operation) | 1 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 1 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 1 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (operation) | 1 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 2 | SP group selection | 1 to Number of SP groups (4 max.) | 1 | | 0 | | | | |
| Monitor | Comm. (operation) | 2 | LSP | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (operation) | 2 | Manual MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (operation) | 2 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 2 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 2 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (operation) | 2 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 3 | SP group selection | 1 to Number of SP groups (4 max.) | 1 | | 0 | | | | |
| Monitor | Comm. (operation) | 3 | LSP | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (operation) | 3 | Manual MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (operation) | 3 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 3 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 3 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (operation) | 3 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 4 | SP group selection | 1 to Number of SP groups (4 max.) | 1 | | 0 | | | | |
| Monitor | Comm. (operation) | 4 | LSP | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| Monitor | Comm. (operation) | 4 | Manual MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (operation) | 4 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 4 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Comm. (operation) | 4 | AT cancel/execute | 0: AT stopped 1: AT running | 0 | | 0 | * | | | |
| Monitor | Comm. (operation) | 4 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |

* "AT cancel/execute" in the Comm. (device) bank is the same as "AT stop/start."

# Monitor/Communications Profile

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Comm. (current PID) | 1 | Current proportional band | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 1 | Current integral time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 1 | Current derivative time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 1 | Current manual reset | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 1 | Current output low limit | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 1 | Current output high limit | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 1 | Current proportional band for cooling | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 1 | Current integral time for cooling | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 1 | Current derivative time for cooling | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 1 | Current MV low limit for cooling | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 1 | Current MV high limit for cooling | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current proportional band | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current integral time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 2 | Current derivative time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 2 | Current manual reset | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current output low limit | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current output high limit | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current proportional band for cooling | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current integral time for cooling | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 2 | Current derivative time for cooling | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 2 | Current MV low limit for cooling | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 2 | Current MV high limit for cooling | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |

## Monitor/Communications Profile

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Comm. (current PID) | 3 | Current proportional band | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 3 | Current integral time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 3 | Current derivative time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 3 | Current manual reset | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 3 | Current output low limit | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 3 | Current output high limit | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 3 | Current proportional band for cooling | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 3 | Current integral time for cooling | 0 –32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 3 | Current derivative time for cooling | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 3 | Current MV low limit for cooling | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 3 | Current MV high limit for cooling | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current proportional band | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current integral time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 4 | Current derivative time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 4 | Current manual reset | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current output low limit | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current output high limit | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current MV Proportional band | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current MV Integral time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 4 | Current MV Derivative time | 0–32000 s, 0.0–3200.0 s or 0.00–320.00 s (no derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| Monitor | Comm. (current PID) | 4 | Current MV MV low limit | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Monitor | Comm. (current PID) | 4 | Current MV MV high limit | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |

# Monitor/Loop Mode

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Loop mode | 1 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Loop mode | 1 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Loop mode | 1 | AT stop/start | 0: AT stopped 1: AT running | 0 | | 0 | | | | |
| Monitor | Loop mode | 1 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Loop mode | 2 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Loop mode | 2 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Loop mode | 2 | AT stop/start | 0: AT stopped 1: AT running | 0 | | 0 | | | | |
| Monitor | Loop mode | 2 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Loop mode | 3 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Loop mode | 3 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Loop mode | 3 | AT stop/start | 0: AT stopped 1: AT running | 0 | | 0 | | | | |
| Monitor | Loop mode | 3 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |
| Monitor | Loop mode | 4 | RUN/READY | 0: RUN 1: READY | 0 | | 0 | | | | |
| Monitor | Loop mode | 4 | AUTO/MANUAL | 0: AUTO 1: MANUAL | 0 | | 0 | | | | |
| Monitor | Loop mode | 4 | AT stop/start | 0: AT stopped 1: AT running | 0 | | 0 | | | | |
| Monitor | Loop mode | 4 | LSP/RSP | 0: LSP 1: RSP | 0 | | 0 | | | | |

## Monitor/Monitor

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Alarm | 1 | Alarm information 1 | | — | | 0 | ☞ ● Alarm information 1 (page 12-74) | | | |
| Monitor | Alarm | 1 | Alarm information 2 | | — | | 0 | ☞ ● Alarm information 2 (page 12-74) | | | |
| Monitor | Alarm | 1 | Alarm information 3 | | — | | 0 | ☞ ● Alarm information 3 (page 12-75) | | | |
| Monitor | Alarm | 1 | Alarm information 4 | | — | | 0 | ☞ ● Alarm information 4 (page 12-75) | | | |
| Monitor | Basic | 1 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 1 | SP | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 1 | MV | | — | | 0 | | | | |
| Monitor | Basic | 1 | Heat MV | | — | | 0 | | | | |
| Monitor | Basic | 1 | Cool MV | | — | | 0 | | | | |
| Monitor | Basic | 1 | AT progress | 0: Stopped. 1–8: AT progress number | — | | 0 | | | | |
| Monitor | Basic | 1 | SP group selection | | — | | 0 | | | | |
| Monitor | Basic | 1 | PID group selection | | — | | 0 | | | | |
| Monitor | Basic | 1 | PV (input channel) | | — | | 0 | DPP = PV | | | |
| Monitor | Basic | 2 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 2 | SP | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 2 | MV | | — | | 0 | | | | |
| Monitor | Basic | 2 | Heat MV | | — | | 0 | | | | |
| Monitor | Basic | 2 | Cool MV | | — | | 0 | | | | |
| Monitor | Basic | 2 | AT progress | 0: Stopped. 1–8: AT progress number | — | | 0 | | | | |
| Monitor | Basic | 2 | SP group selection | | — | | 0 | | | | |
| Monitor | Basic | 2 | PID group selection | | — | | 0 | | | | |
| Monitor | Basic | 2 | PV (input channel) | | — | | 0 | DPP = PV | | | |
| Monitor | Basic | 3 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 3 | SP | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 3 | MV | | — | | 0 | | | | |
| Monitor | Basic | 3 | Heat MV | | — | | 0 | | | | |
| Monitor | Basic | 3 | Cool MV | | — | | 0 | | | | |
| Monitor | Basic | 3 | AT progress | 0: Stopped. 1–8: AT progress number | — | | 0 | | | | |
| Monitor | Basic | 3 | SP group selection | | — | | 0 | | | | |
| Monitor | Basic | 3 | PID group selection | | — | | 0 | | | | |
| Monitor | Basic | 3 | PV (input channel) | | — | | 0 | DPP = PV | | | |
| Monitor | Basic | 4 | PV (loop) | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 4 | SP | | — | | 0 | DPP = PID_PV | | | |
| Monitor | Basic | 4 | MV | | — | | 0 | | | | |
| Monitor | Basic | 4 | Heat MV | | — | | 0 | | | | |
| Monitor | Basic | 4 | Cool MV | | — | | 0 | | | | |
| Monitor | Basic | 4 | AT progress | 0: Stopped. 1–8: AT progress number | — | | 0 | | | | |
| Monitor | Basic | 4 | SP group selection | | — | | 0 | | | | |
| Monitor | Basic | 4 | PID group selection | | — | | 0 | | | | |
| Monitor | Basic | 4 | PV (input channel) | | — | | 0 | DPP = PV | | | |
| Monitor | MFB | 1 | MFB opening | | — | % | 0 | | × | × | |
| Monitor | MFB | 2 | MFB opening | | — | % | 0 | | × | × | |

# Monitor/Monitor

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Monitor (CT) | 1 | CT1 measured current when output ON | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 1 | CT1 measured current when output OFF | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 2 | CT2 measured current when output ON | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 2 | CT2 measured current when output OFF | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 3 | CT3 measured current when output ON | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 3 | CT3 measured current when output OFF | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 4 | CT4 measured current when output ON | | — | A | 0 | | | | |
| Monitor | Monitor (CT) | 4 | CT4 measured current when output OFF | | — | A | 0 | | | | |
| Monitor | AO percent | 1 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 2 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 3 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 4 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 5 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 6 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 7 | AO percent data | | — | % | 0 | | | | |
| Monitor | AO percent | 8 | AO percent data | | — | % | 0 | | | | |
| Monitor | OUT/DO terminal | 1 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 2 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 3 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 4 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 5 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 6 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 7 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |
| Monitor | OUT/DO terminal | 8 | OUT/DO terminal, ON/OFF data | | — | | 0 | | | | |

## Monitor/Remaining Delay Time

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Remaining delay time | 1 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 2 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 3 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 4 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 5 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 6 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 7 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 8 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 9 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 10 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 11 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 12 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 13 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 14 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 15 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 16 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 17 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 18 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 19 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 20 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 21 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 22 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 23 | Remaining delay time | | — | s | 0 | | | | |
| Monitor | Remaining delay time | 24 | Remaining delay time | | — | s | 0 | | | | |

# Monitor/Computation Result

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | Computation result | 1 | Instrument internal computation result 1 (bitmap) | | — | | 0 | ☞ ● Internal computation result 1 (page 12-76) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 2 (bitmap) | | — | | 0 | ☞ ● Internal computation result 2 (page 12-76) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 3 (bitmap) | | — | | 0 | ☞ ● Internal computation result 3 (page 12-77) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 5 (bitmap) | | — | | 0 | ☞ ● Internal computation result 5 (page 12-77) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 13 (bitmap) | | — | | 0 | ☞ ● Internal computation result 13 (page 12-77) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 21 (bitmap) | | — | | 0 | ☞ ● Internal computation result 21 (page 12-78) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 42 (bitmap) | | — | | 0 | ☞ ● Internal computation result 42 (ROM version 3.00 [1_0_3] or later) (page 12-78) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 43 (bitmap) | | — | | 0 | ☞ ● Internal computation result 43 (ROM version 3.00 [1_0_3] or later) (page 12-79) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 44 (bitmap) | | — | | 0 | ☞ ● Internal computation result 44 (ROM version 3.00 [1_0_3] or later) (page 12-79) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 54 (bitmap) | | — | | 0 | ☞ ● Internal computation result 54 (ROM version 3.00 [1_0_3] or later) (page 12-80) | | | |
| Monitor | Computation result | 1 | Instrument internal computation result 55 (bitmap) | | — | | 0 | ☞ ● Internal computation result 55 (page 12-80) | | | |

## Monitor/User-defined Bit

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | User-defined bit | 1 | User-defined bits 1 to 16 | | 0 | | 0 | ☞ ● User-defined bits 1 to 16 (page 12-81) | | | |
| Monitor | User-defined bit | 1 | User-defined bit 1 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 2 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 3 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 4 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 5 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 6 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 7 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 8 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 9 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 10 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 11 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 12 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 13 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 14 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 15 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 16 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 17 to 32 | | 0 | | 0 | ☞ ● User-defined bits 17 to 32 (page 12-81) | | | |
| Monitor | User-defined bit | 1 | User-defined bit 17 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 18 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 19 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 20 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 21 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 22 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 23 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 24 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 25 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 26 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 27 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 28 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 29 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 30 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 31 | 0: OFF 1: ON | 0 | | 0 | | | | |
| Monitor | User-defined bit | 1 | User-defined bit 32 | 0: OFF 1: ON | 0 | | 0 | | | | |

## Monitor/User-defined Number

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitor | User-defined number | 1 | User-defined number 1 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 2 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 3 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 4 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 5 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 6 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 7 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 8 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 9 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 10 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 11 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 12 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 13 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 14 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 15 | Single-precision floating-point range | 0 | | 0 | | | | |
| Monitor | User-defined number | 1 | User-defined number 16 | Single-precision floating-point range | 0 | | 0 | | | | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item name | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Always 0 (OFF) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Always 1 (ON) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 1 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 2 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 3 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 4 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 5 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 6 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 7 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 8 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 9 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 10 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 11 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 12 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 13 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 14 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 15 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 16 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 17 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 18 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 19 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 20 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 21 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 22 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 23 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | Event 24 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT1 Heater burnout detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT2 Heater burnout detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT3 Heater burnout detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT4 Heater burnout detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT1 overcurrent detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT2 overcurrent detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT3 overcurrent detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT4 overcurrent detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT1 short-circuit detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT2 short-circuit detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT3 short-circuit detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1024 to 1151) | 1 | CT4 short-circuit detection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI1 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI2 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI3 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1152 to 1279) | 1 | DI4 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT1 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT2 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT3 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | OUT4 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO1 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO2 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO3 terminal status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1280 to 1407) | 1 | DO4 terminal status | | — | | 0 | | | | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 1 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 2 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 3 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 4 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 5 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 6 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 7 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 8 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 9 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 10 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 11 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 12 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 13 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 14 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 15 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 16 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 17 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 18 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 19 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 20 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 21 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 22 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 23 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 24 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 25 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 26 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 27 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 28 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 29 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 30 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 31 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | User-defined bit 32 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 1 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 2 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 3 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 4 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 5 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 6 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 7 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 8 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 9 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 10 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 11 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 12 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 13 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 14 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 15 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1408 to 1535) | 1 | Result of logical operation 16 | | — | | 0 | | | | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard bit code | Standard bit code (1536 to 1663) | 1 | RS-485 status (normal reception of 1 frame) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 RUN/READY status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 RUN/READY status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 RUN/READY status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 RUN/READY status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 AUTO/MANUAL status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 AUTO/MANUAL status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 AUTO/MANUAL status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 AUTO/MANUAL status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 AT stop/start status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 AT stop/start status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 AT stop/start status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 AT stop/start status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 LSP/RSP status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 LSP/RSP status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 LSP/RSP status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 LSP/RSP status | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 1 SP ramp-up in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 2 SP ramp-up in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 3 SP ramp-up in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1536 to 1663) | 1 | Loop 4 SP ramp-up in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 1 SP ramp-down in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 2 SP ramp-down in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 3 SP ramp-down in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1664 to 1791) | 1 | Loop 4 SP ramp-down in progress | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | Alarm (logical OR of all displayed alarms) | | — | | 0 | | | | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD1 fault (AL11) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD2 fault (AL12) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD3 fault (AL13) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | AD4 fault (AL14) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV1 high limit error (AL01) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV2 high limit error (AL03) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV3 high limit error (AL05) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV4 high limit error (AL07) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV1 low limit error (AL02) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV2 low limit error (AL04) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV3 low limit error (AL06) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | PV4 low limit error (AL08) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ1 error (AL71) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ2 error (AL72) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ3 error (AL73) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | CJ4 error (AL74) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 G line break | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 G line break | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 Y line break | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 Y line break | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 T/multiline break | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 T/multiline break | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 input error (AL21) | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 input error (AL23) | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 is under adjustment | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 is under adjustment | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 estimation in progress | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 estimation in progress | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 adjustment error (AL22) | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 adjustment error (AL24) | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 OPEN | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 OPEN | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB1 CLOSE | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1792 to 1919) | 1 | MFB2 CLOSE | | — | | 0 | | × | × | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 1 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 2 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 3 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 4 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 5 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 6 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 7 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 8 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 9 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 10 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 11 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 12 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 13 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 14 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 15 | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring 16 | | — | | 0 | | | | |

## Standard Bit/Standard Bit

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT1 input error (AL25) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT2 input error (AL26) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT3 input error (AL27) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | CT4 input error (AL28) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Parameter error (AL94/AL97) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Adjustment data error (AL95/AL98) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | EEPROM not initialized (AL83) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | ROM error (AL99) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | RAM read/write error (AL85) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | EEPROM read/write error (AL86) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Reception monitoring (representative of 1–16) (AL31) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Transmission timeout between modules (AL32) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Writing to EEPROM | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Supervisor module reception timeout | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | RS-485 setting error (AL33) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Adjacent ring disconnection (AL38) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Non-adjacent ring disconnection | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Base/main unit communication setting mismatch (AL53) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Base/main unit model No. mismatch (AL 54) | | — | | 0 | | | | |
| Standard bit code | Standard bit code (1920 to 2047) | 1 | Base verification error (AL55) | | — | | 0 | | | | |

## Standard Numerical Code/Standard Numerical Code

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | Always 0.0 | | 0.0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 1 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 2 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 3 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 4 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 5 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 6 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 7 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 8 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 9 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 10 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 11 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 12 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 13 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 14 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 15 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2048 to 2175) | 1 | User-defined number 16 | | 0 | | 0 | | | | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV1 | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV2 | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV3 | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2176 to 2303) | 1 | PID MV4 | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV1 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV2 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV3 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | PV4 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI1 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI2 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI3 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | AI4 | | — | | 0 | DPP = PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 PV | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 PV | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 PV | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 PV | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 1 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 2 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 3 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Zener barrier adjustment monitor 4 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 SP (in use) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 SP (in use) | | — | | 0 | DPP = PID_PV | | | |

## Standard Numerical Code/Standard Numerical Code

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 SP (in use) | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 SP (in use) | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 SP (final value) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 SP (final value) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 SP (final value) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 SP (final value) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 1 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 2 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 3 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | SP output of loop 4 | | — | | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 1 MV | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 2 MV | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 3 MV | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2304 to 2431) | 1 | Loop 4 MV | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 1 MV for heating | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 2 MV for heating | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 3 MV for heating | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 4 MV for heating | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 1 MV for cooling | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 2 MV for cooling | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 3 MV for cooling | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 4 MV for cooling | | 0.0 | % | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB1 amount of opening (estimated) | | — | % | 0 | | × | × | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB2 amount of opening (estimated) | | — | % | 0 | | × | × | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB1 degree of opening (measured value) | | — | % | 0 | | × | × | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | MFB2 degree of opening (measured value) | | — | % | 0 | | × | × | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT1 measured current when output ON | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT2 measured current when output ON | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT3 measured current when output ON | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT4 measured current when output ON | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT1 measured current when output OFF | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT2 measured current when output OFF | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT3 measured current when output OFF | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | CT4 measured current when output OFF | | –1.0 | A | 0 | | | | |

## Standard Numerical Code/Standard Numerical Code

| Folder name | Bank name | code | Item name | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 1 deviation (PV - SP) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 2 deviation (PV - SP) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 3 deviation (PV - SP) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2432 to 2559) | 1 | Loop 4 deviation (PV - SP) | | — | | 0 | DPP = PID_PV | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 1 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 2 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 3 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 4 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 5 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 6 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 7 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 8 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 9 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 10 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 11 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 12 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 13 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 14 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 15 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 16 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 17 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 18 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 19 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 20 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 21 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 22 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 23 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2560 to 2687) | 1 | Event 24 timer remaining time | | — | s | 0 | | | | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | MV for position proportioning 1 | | 0.0 | % | 0 | | × | × | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | MV for position proportioning 2 | | 0.0 | % | 0 | | × | × | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT1 time proportioning current | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT2 time proportioning current | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT3 time proportioning current | | –1.0 | A | 0 | | | | |
| Standard numerical code | Standard numerical code (2688 to 2815) | 1 | CT4 time proportioning current | | –1.0 | A | 0 | | | | |

## Communications/Ethernet Communications

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Communication | Ethernet communications | 1 | MAC address 1 | 0 to 255 | — | | 0 | | | | |
| Communication | Ethernet communications | 1 | MAC address 2 | 0 to 255 | — | | 0 | | | | |
| Communication | Ethernet communications | 1 | MAC address 3 | 0 to 255 | — | | 0 | | | | |
| Communication | Ethernet communications | 1 | MAC address 4 | 0 to 255 | — | | 0 | | | | |
| Communication | Ethernet communications | 1 | MAC address 5 | 0 to 255 | — | | 0 | | | | |
| Communication | Ethernet communications | 1 | MAC address 6 | 0 to 255 | — | | 0 | | | | |
| Communication | Ethernet communications | 1 | IPv4 address 1 | 0 to 255 | 192 | | 0 | Changes in settings take effect after powering off and back on*1 | | | |
| Communication | Ethernet communications | 1 | IPv4 address 2 | 0 to 255 | 168 | | 0 | Changes in settings take effect after powering off and back on*1 | | | |
| Communication | Ethernet communications | 1 | IPv4 address 3 | 0 to 255 | 255 | | 0 | Changes in settings take effect after powering off and back on*1 | | | |
| Communication | Ethernet communications | 1 | IPv4 address 4 | 0 to 255 | 254 | | 0 | Changes in settings take effect after powering off and back on*1 | | | |
| Communication | Ethernet communications | 1 | IPv4 address net mask 1 | 0 to 255 | 255 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 address net mask 2 | 0 to 255 | 255 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 address net mask 3 | 0 to 255 | 255 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 address net mask 4 | 0 to 255 | 0 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 default gateway 1 | 0 to 255 | 0 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 default gateway 2 | 0 to 255 | 0 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 default gateway 3 | 0 to 255 | 0 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | IPv4 default gateway 4 | 0 to 255 | 0 | | 0 | Changes in settings take effect after powering off and back on | | | |
| Communication | Ethernet communications | 1 | CPL/TCP port number | 1024 to 49151 | 1252 | | 0 | Changes in settings take effect after powering off and back on<br>Do not use the same port number that is used for Modbus/TCP.*2 | | | |
| Communication | Ethernet communications | 1 | Modbus/TCP port number | 502<br>1024 to 49151 | 502 | | 0 | Changes in settings take effect after powering off and back on<br>Do not use the same port number that is used for CPL/TCP.*2 | | | |

*1. Set valid addresses to classes A to C.
*2. If the port numbers are the same, neither CPL/TCP nor Modbus/TCP communication will be possible.

## Communications/RS-485 Communications

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Communication | RS-485 communication | 1 | Communications type | 0: CPL<br>1: Modbus/ASCII<br>2: Modbus/RTU | 0 | | 0 | | | | |
| Communication | RS-485 communication | 1 | Station address | 0 to 127 | 127 | | 0 | 0: Communication function disabled | | | |
| Communication | RS-485 communication | 1 | Transmission speed | 0: 4800 bps<br>1: 9600 bps<br>2: 19200 bps<br>3: 38400 bps<br>4: 57600 bps<br>5: 115200 bps | 2 | | 0 | | | | |
| Communication | RS-485 communication | 1 | Data format (data length) | 0: 7 bits<br>1: 8 bits | 1 | | 0 | | | | |
| Communication | RS-485 communication | 1 | Data format (parity) | 0: Even parity<br>1: Odd parity<br>2: No parity | 0 | | 0 | | | | |
| Communication | RS-485 communication | 1 | Data format (stop bit) | 0: 1 bit<br>1: 2 bits | 0 | | 0 | | | | |
| Communication | RS-485 communication | 1 | Communication minimum response time | 1 to 250 ms | 3 | ms | 0 | | | | |

## Basic/Setup

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Setup | 1 | Number of SP groups | 1 to 4 | 1 | | 0 | | | | |
| Basic | Setup | 1 | Start delay at power ON | 0 to 60 s | 2 | s | 1 | | | | |
| Basic | Setup | 1 | Advanced function password 1 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 2 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 3 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 4 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 5 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 6 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 7 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 8 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 9 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 10 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 11 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 12 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 13 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 14 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 15 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Advanced function password 16 | 0 to 65535 | 0 | | 2 | | | | |
| Basic | Setup | 1 | Loop type | 0: 1 loop<br>1: 2 loops<br>2: 1 loop (RSP)<br>5: 2 loops (1 loop with RSP)<br>8: 2 loops (RSP) + MV branching output<br>9: 2 loops (RSP)<br>21: 3 loops<br>22: 4 loops<br>23: 3 loops + MV branching output<br>24: 4 loops + MV branching output<br>26: 4 loops (RSP) + MV branching output<br>27: 1 loop (internal cascade)<br>28: 1 loop (internal cascade with RSP) + 2 loop<br>29: 2 loops (internal cascade) | * | | 1 | Changes in settings take effect after powering off and back on | | | |
| Basic | Setup | 1 | Release all latches | 0: Continue latch<br>1: Release latch | 0 | | 1 | | | | |

* 4 channels = 22. 2 channels = 1

## Basic/Loop (Input)

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop (input) | 1 | Assigned PV | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 1 | Assigned RSP | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 1 | Assigned AI | For NX-D15<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>For NX-D25/35:<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 2 | Assigned PV | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 2 | Assigned RSP | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 2 | Assigned AI | For NX-D15<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>For NX-D25/35:<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 3 | Assigned PV | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 3 | Assigned RSP | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 3 | Assigned AI | For NX-D15<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>For NX-D25/35:<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 4 | Assigned PV | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |
| Basic | Loop (input) | 4 | Assigned RSP | 0: Default. 1: PV1. 2: PV2. 3: PV3.<br>4: PV4.<br>2048 to 3071: Standard numerical codes | 0 | | 1 | | | | |
| Basic | Loop (input) | 4 | Assigned AI | For NX-D15<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>For NX-D25/35:<br>0: Default. 1: AI1. 2: AI2. 3: AI3.<br>4: AI4.<br>2048 to 3071: Standard number | 0 | | 1 | | | | |

## Basic/Loop

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop control (basic) | 1 | Loop PV/SP decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 1 | | | | |
| Basic | Loop control (basic) | 1 | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 1 | Control algorithm | 0: PID-A (deviation-derivative type)<br>1: PID-A (deviation-derivative type, PID calculation correction function disabled)<br>2: PID-B (PV derivative type) | 0 | | 1 | 2: PID-B (PV derivative type) cannot be set on the NX-D15. | | | |
| Basic | Loop control (basic) | 1 | Range low limit for proportional band | −19999 to +32000U | 0.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 1 | Range high limit for proportional band | −19999 to +32000U | 1000.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 1 | AT type | 0: Normal (regular control characteristics)<br>1: Fast (control characteristics for quick response to disturbances)<br>2: Stable (control characteristics for minimal PV fluctuation) | 0 | | 1 | | | | |
| Basic | Loop control (basic) | 1 | Heat/Cool control dead zone | −100.0 to +100.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop control (basic) | 1 | Initial output of PID control | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop control (basic) | 2 | Loop PV/SP decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 1 | | | | |
| Basic | Loop control (basic) | 2 | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 2 | Control algorithm | 0: PID-A (deviation-derivative type)<br>1: PID-A (deviation-derivative type PID calculation correction function disabled)<br>2: PID-B (PV derivative type) | 0 | | 1 | 2: PID-B (PV derivative type) cannot be set on the NX-D15. | | | |
| Basic | Loop control (basic) | 2 | Range low limit for proportional band | −19999 to +32000U | 0.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 2 | Range high limit for proportional band | −19999 to +32000U | 1000.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 2 | AT type | 0: Normal (regular control characteristics)<br>1: Fast (control characteristics for quick response to disturbances)<br>2: Stable (control characteristics for minimal PV fluctuation) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 2 | Heat/Cool control dead zone | −100.0 to +100.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop control (basic) | 2 | Initial output of PID control | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |

# Basic/Loop

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop control (basic) | 3 | Loop PV/SP decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 1 | | | | |
| Basic | Loop control (basic) | 3 | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 3 | Control algorithm | 0: PID-A (deviation-derivative type)<br>1: PID-A (deviation-derivative type, PID calculation correction function disabled)<br>2: PID-B (PV derivative type) | 0 | | 1 | 2: PID-B (PV derivative type) cannot be set on the NX-D15. | | | |
| Basic | Loop control (basic) | 3 | Range low limit for proportional band | −19999 to +32000U | 0.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 3 | Range high limit for proportional band | −19999 to +32000U | 1000.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 3 | AT type | 0: Normal (regular control characteristics)<br>1: Fast (control characteristics for quick response to disturbances)<br>2: Stable (control characteristics for minimal PV fluctuation) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 3 | Heat/Cool control dead zone | −100.0 to +100.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop control (basic) | 3 | Initial output of PID control | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop control (basic) | 4 | Loop PV/SP decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 1 | | | | |
| Basic | Loop control (basic) | 4 | Control action | 0: Reverse (heating)<br>1: Direct (cooling)<br>2: Heating/cooling<br>4: Reverse (ON/OFF)<br>5: Direct (ON/OFF) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 4 | Control algorithm | 0: PID-A (deviation-derivative type)<br>1: PID-A (deviation-derivative type, PID calculation correction function disabled)<br>2: PID-B (PV derivative type) | 0 | | 1 | 2: PID-B (PV derivative type) cannot be set on the NX-D15. | | | |
| Basic | Loop control (basic) | 4 | Range low limit for proportional band | −19999 to +32000U | 0.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 4 | Range high limit for proportional band | −19999 to +32000U | 1000.0 | | 1 | DPP = PID_PV | | | |
| Basic | Loop control (basic) | 4 | AT type | 0: Normal (regular control characteristics)<br>1: Fast (control characteristics for quick response to disturbances)<br>2: Stable (control characteristics for minimal PV fluctuation) | 0 | | 0 | | | | |
| Basic | Loop control (basic) | 4 | Heat/Cool control dead zone | −100.0 to +100.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop control (basic) | 4 | Initial output of PID control | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |

## Basic/Loop

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop (extended) | 1 | PID control initialization | 0: Auto<br>1: No initialization<br>2: Initialize (if a new SP is set) | 0 | | 0 | | | | |
| Basic | Loop (extended) | 1 | Integral time and derivative time decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point | 0 | | 1 | | | | |
| Basic | Loop (extended) | 1 | Output operation at changing AUTO/MANUAL | 0: Bumpless<br>1: Preset | 0 | | 0 | | | | |
| Basic | Loop (extended) | 1 | Preset MANUAL value | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop (extended) | 1 | MV increase change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 1 | MV decrease change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 1 | MV low limit during AT | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop (extended) | 1 | MV high limit during AT | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| Basic | Loop (extended) | 1 | Zone action selection | 0: Disabled<br>1: Select depending on the SP time<br>2: Select depending on the PV time | 0 | | 1 | | × | | |
| Basic | Loop (extended) | 1 | Zone 1 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 1 | Zone 2 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 1 | Zone 3 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 1 | Zone hysteresis | −19999 to +32000U | *2 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 2 | PID control initialization | 0: Auto<br>1: No initialization<br>2: Initialize (if a new SP is set) | 0 | | 0 | | | | |
| Basic | Loop (extended) | 2 | Integral time and derivative time decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point | 0 | | 1 | | | | |
| Basic | Loop (extended) | 2 | Output operation at AUTO/MANUAL change | 0: Bumpless<br>1: Preset | 0 | | 0 | | | | |
| Basic | Loop (extended) | 2 | Preset MANUAL value | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop (extended) | 2 | MV increase change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 2 | MV decrease change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 2 | MV low limit during AT | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop (extended) | 2 | MV high limit during AT | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| Basic | Loop (extended) | 2 | Zone action selection | 0: Disabled<br>1: Select depending on the SP time<br>2: Select depending on the PV time | 0 | | 1 | | × | | |
| Basic | Loop (extended) | 2 | Zone 1 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 2 | Zone 2 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 2 | Zone 3 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 2 | Zone hysteresis | −19999 to +32000U | *2 | | 1 | DPP = PID_PV | × | | |

*1. 0.0 for NX-D15 and 3200.0 for NX-D25/35.
*2. 0.0 for NX-D15 and 5.0 for NX-D25/35.

# Basic/Loop

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop (extended) | 3 | PID control initialization | 0: Auto<br>1: No initialization<br>2: Initialize (if a new SP is set) | 0 | | 0 | | | | |
| Basic | Loop (extended) | 3 | Integral time and derivative time decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point | 0 | | 1 | | | | |
| Basic | Loop (extended) | 3 | Output operation at changing AUTO/ MANUAL | 0: Bumpless<br>1: Preset | 0 | | 0 | | | | |
| Basic | Loop (extended) | 3 | Preset MANUAL value | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop (extended) | 3 | MV increase change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 3 | MV decrease change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 3 | MV low limit during AT | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop (extended) | 3 | MV high limit during AT | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| Basic | Loop (extended) | 3 | Zone action selection | 0: Disabled<br>1: Select depending on the SP time<br>2: Select depending on the PV time | 0 | | 1 | | × | | |
| Basic | Loop (extended) | 3 | Zone 1 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 3 | Zone 2 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 3 | Zone 3 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 3 | Zone hysteresis | −19999 to +32000U | *2 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 4 | PID control initialization | 0: Auto<br>1: No initialization<br>2: Initialize (if a new SP is set) | 0 | | 0 | | | | |
| Basic | Loop (extended) | 4 | Integral time and derivative time decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point | 0 | | 1 | | | | |
| Basic | Loop (extended) | 4 | Output operation at changing AUTO/ MANUAL | 0: Bumpless<br>1: Preset | 0 | | 0 | | | | |
| Basic | Loop (extended) | 4 | Preset MANUAL value | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop (extended) | 4 | MV increase change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 4 | MV decrease change limit | 0.00: No limit<br>0.01 to 320.00 %/s | 0.00 | %/s | 0 | | × | | |
| Basic | Loop (extended) | 4 | MV low limit during AT | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop (extended) | 4 | MV high limit during AT | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| Basic | Loop (extended) | 4 | Zone action selection | 0: Disabled<br>1: Select depending on the SP time<br>2: Select depending on the PV time | 0 | | 1 | | × | | |
| Basic | Loop (extended) | 4 | Zone 1 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 4 | Zone 2 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 4 | Zone 3 | −19999 to +32000U | *1 | | 1 | DPP = PID_PV | × | | |
| Basic | Loop (extended) | 4 | Zone hysteresis | −19999 to +32000U | *2 | | 1 | DPP = PID_PV | × | | |

*1. 0.0 for NX-D15 and 3200.0 for NX-D25/35.
*2. 0.0 for NX-D15 and 5.0 for NX-D25/35.

## Basic/Loop

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop (algorithm) | 1 | AT adjustment factor, proportional band | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 1 | AT adjustment factor, integral time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 1 | AT adjustment factor, derivative time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 1 | Just-FiTTER settling band | 0.00 to 10.00 | 0.30 | | 2 | | | | |
| Basic | Loop (algorithm) | 1 | Just-FiTTER overshoot suppression factor | 0 to 99 | 0 | | 2 | | | | |
| Basic | Loop (algorithm) | 1 | SP lag factor | 0.0 to 3200.0 | 0.0 | | 1 | | | | |
| Basic | Loop (algorithm) | 2 | AT adjustment factor, proportional band | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 2 | AT adjustment factor, integral time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 2 | AT adjustment factor, derivative time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 2 | Just-FiTTER settling band | 0.00 to 10.00 | 0.30 | | 2 | | | | |
| Basic | Loop (algorithm) | 2 | Just-FiTTER overshoot suppression factor | 0 to 99 | 0 | | 2 | | | | |
| Basic | Loop (algorithm) | 2 | SP lag factor | 0.0 to 3200.0 | 0.0 | | 1 | | | | |
| Basic | Loop (algorithm) | 3 | AT adjustment factor, proportional band | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 3 | AT adjustment factor, integral time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 3 | AT adjustment factor, derivative time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 3 | Just-FiTTER settling band | 0.00 to 10.00 | 0.30 | | 2 | | | | |
| Basic | Loop (algorithm) | 3 | Just-FiTTER overshoot suppression factor | 0 to 99 | 0 | | 2 | | | | |
| Basic | Loop (algorithm) | 3 | SP lag factor | 0.0 to 3200.0 | 0.0 | | 1 | | | | |
| Basic | Loop (algorithm) | 4 | AT adjustment factor, proportional band | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 4 | AT adjustment factor, integral time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 4 | AT adjustment factor, derivative time | 0.00 to 320.00 | 1.00 | | 1 | | | | |
| Basic | Loop (algorithm) | 4 | Just-FiTTER settling band | 0.00 to 10.00 | 0.30 | | 2 | | | | |
| Basic | Loop (algorithm) | 4 | Just-FiTTER overshoot suppression factor | 0 to 99 | 0 | | 2 | | | | |
| Basic | Loop (algorithm) | 4 | SP lag factor | 0.0 to 3200.0 | 0.0 | | 1 | | | | |

# Basic/Loop Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop output (MV) | 1 | READY MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 1 | READY MV (Heating) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 1 | READY MV (Cooling) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 1 | Selection of MV if PV is abnormal | 0: Continue the control calculation<br>1: Output the value set for "Output at PV error" | 0 | | 0 | | | | |
| Basic | Loop output (MV) | 1 | Output at PV error | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 1 | Fixed value output 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 5 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 6 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 7 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 1 | Fixed value output 8 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | READY MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 2 | READY MV (Heating) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 2 | READY MV (Cooling) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 2 | Selection of MV if PV is abnormal | 0: Continue the control calculation<br>1: Output the value set for "Output at PV alarm" | 0 | | 0 | | | | |
| Basic | Loop output (MV) | 2 | Output at PV error | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 2 | Fixed value output 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 5 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 6 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 7 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 2 | Fixed value output 8 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | READY MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 3 | READY MV (Heating) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 3 | READY MV (Cooling) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 3 | Selection of MV if PV is abnormal | 0: Continue the control calculation<br>1: Output the value set for "Output at PV alarm" | 0 | | 0 | | | | |
| Basic | Loop output (MV) | 3 | Output at PV error | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 3 | Fixed value output 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 5 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 6 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 7 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 3 | Fixed value output 8 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | READY MV | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 4 | READY MV (Heating) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 4 | READY MV (Cooling) | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| Basic | Loop output (MV) | 4 | Selection of MV if PV is abnormal | 0: Continue the control calculation<br>1: Output the value set for "Output at PV alarm" | 0 | | 0 | | | | |
| Basic | Loop output (MV) | 4 | Output at PV error | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| Basic | Loop output (MV) | 4 | Fixed value output 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 5 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 6 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 7 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |
| Basic | Loop output (MV) | 4 | Fixed value output 8 | −10.0 to +110.0 % | 0.0 | % | 1 | | × | | |

## Basic/Loop Output (Cascade)

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Loop output (cascade) | 1 | SP scaling method | 0: Fixed<br>1: SP basis<br>2: PV basis | 0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 1 | SP scaling low limit | −1999.9 to +3200.0 | 0.0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 1 | SP scaling high limit | −1999.9 to +3200.0 | * | | 2 | | × | | |
| Basic | Loop output (cascade) | 1 | SP output filter | 0.0 to 120.0 s | 0.0 | s | 2 | | × | | |
| Basic | Loop output (cascade) | 2 | SP scaling method | 0: Fixed<br>1: SP basis<br>2: PV basis | 0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 2 | SP scaling low limit | −1999.9 to +3200.0 | 0.0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 2 | SP scaling high limit | −1999.9 to +3200.0 | * | | 2 | | × | | |
| Basic | Loop output (cascade) | 2 | SP output filter | 0.0 to 120.0 s | 0.0 | s | 2 | | × | | |
| Basic | Loop output (cascade) | 3 | SP scaling method | 0: Fixed<br>1: SP basis<br>2: PV basis | 0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 3 | SP scaling low limit | −1999.9 to +3200.0 | 0.0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 3 | SP scaling high limit | −1999.9 to +3200.0 | * | | 2 | | × | | |
| Basic | Loop output (cascade) | 3 | SP output filter | 0.0 to 120.0 s | 0.0 | s | 2 | | × | | |
| Basic | Loop output (cascade) | 4 | SP scaling method | 0: Fixed<br>1: SP basis<br>2: PV basis | 0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 4 | SP scaling low limit | −1999.9 to +3200.0 | 0.0 | | 2 | | × | | |
| Basic | Loop output (cascade) | 4 | SP scaling high limit | −1999.9 to +3200.0 | * | | 2 | | × | | |
| Basic | Loop output (cascade) | 4 | SP output filter | 0.0 to 120.0 s | 0.0 | s | 2 | | × | | |

* 0.0 for NX-D15 and 100.0 for NX-D25/35.

# Basic/IDLE/SV com error op

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | IDLE/SV com error op | 1 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 1 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 1 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |
| Basic | IDLE/SV com error op | 2 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 2 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 2 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |
| Basic | IDLE/SV com error op | 3 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 3 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 3 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |
| Basic | IDLE/SV com error op | 4 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 4 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 4 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |
| Basic | IDLE/SV com error op | 5 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 5 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 5 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |

## Basic/IDLE/SV com error op

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | IDLE/SV com error op | 6 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 6 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 6 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |
| Basic | IDLE/SV com error op | 7 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 7 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 7 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |
| Basic | IDLE/SV com error op | 8 | Output type | 0: Preset (operation during IDLE)/ Preset (communication error operation)<br>1: Preset (operation during IDLE)/ Through (communication error operation)<br>2: Preset (operation during IDLE)/ Bumpless (communication error operation)<br>3: Bumpless (operation during IDLE)/ Preset (communication error operation)<br>4: Bumpless (operation during IDLE)/ Through (communication error operation)<br>5: Bumpless (operation during IDLE)/ Bumpless (communication error operation) | 1 | | 2 | | | | |
| Basic | IDLE/SV com error op | 8 | Output (%) | −10.0 to +110.0 % | 0 | % | 2 | | | | |
| Basic | IDLE/SV com error op | 8 | Output (ON/OFF) | 0: OFF<br>1: ON | 0 | | 2 | | | | |

## Basic/Position Proportioning

| Folder name | Bank name | code | Item name | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Position proportioning | 1 | Output type | 0: Stop time proportional control<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/ cooling control)<br>3: Loop 1 cool MV (for heating/ cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/ cooling control)<br>6: Loop 2 cool MV (for heating/ cooling control)<br>7 to 2047: Undefined<br>2048 to 3071: Depending on the desired standard numerical code | 0 | | 0 | | × | × | |
| Basic | Position proportioning | 1 | Control method selection | 0: MFB control + estimated position control<br>1: MFB control + close upon line break<br>2: Estimated position control<br>3: Estimated position control + position adjustment at power-on | 0 | | 0 | | × | × | |
| Basic | Position proportioning | 1 | Dead zone | 0.5 to 25.0 % | 10 | % | 0 | | × | × | |
| Basic | Position proportioning | 1 | Long life | 0: Control oriented<br>1: Service life oriented | 0 | | 0 | | × | × | |
| Basic | Position proportioning | 1 | Loop definition | 1: Loop 1<br>2: Loop 2 | 1 | | 1 | | × | × | |
| Basic | Position proportioning | 1 | Linearization table group definition | 0: Disabled<br>1 to 8: Group number | 0 | | 1 | | × | × | |
| Basic | Position proportioning | 2 | Output type | 0: Stop time proportional control<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/ cooling control)<br>3: Loop 1 cool MV (for heating/ cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/ cooling control)<br>6: Loop 2 cool MV (for heating/ cooling control)<br>7 to 2047: Undefined<br>2048 to 3071: Depending the standard numerical code | 0 | | 0 | | × | × | |
| Basic | Position proportioning | 2 | Control method selection | 0: MFB control + estimated position control<br>1: MFB control + close upon line break<br>2: Estimated position control<br>3: Estimated position control + position adjustment at power-on | 0 | | 0 | | × | × | |
| Basic | Position proportioning | 2 | Dead zone | 0.5 to 25.0 % | 10 | % | 0 | | × | × | |
| Basic | Position proportioning | 2 | Long life | 0: Control oriented<br>1: Service life oriented | 0 | | 0 | | × | × | |
| Basic | Position proportioning | 2 | Loop definition | 1: Loop 1<br>2: Loop 2 | 1 | | 1 | | × | × | |
| Basic | Position proportioning | 2 | Linearization table group definition | 0: Disabled<br>1 to 8: Group number | 0 | | 1 | | × | × | |

## Basic/Position Proportioning Adjustment

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic | Position proportioning adjustment | 1 | Auto-tuning | 0: Stop<br>1: Start | 0 | | 0 | | × | × | |
| Basic | Position proportioning adjustment | 1 | Fully closed FB value | 0 to 32000 | 0 | | 1 | | × | × | |
| Basic | Position proportioning adjustment | 1 | Fully open FB value | 0 to 32000 | 0 | | 1 | | × | × | |
| Basic | Position proportioning adjustment | 1 | Full opening time | 5.0 to 240.0 s | 0 | s | 1 | | × | × | |
| Basic | Position proportioning adjustment | 2 | Auto-tuning | 0: Stop<br>1: Start | 0 | | 0 | | × | × | |
| Basic | Position proportioning adjustment | 2 | Fully closed FB value | 0 to 32000 | 0 | | 1 | | × | × | |
| Basic | Position proportioning adjustment | 2 | Fully open FB value | 0 to 32000 | 0 | | 1 | | × | × | |
| Basic | Position proportioning adjustment | 2 | Full opening time | 5.0 to 240.0 s | 0 | s | 1 | | × | × | |

# Input-output/PV Input

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | PV input | 1 | Range type | See the range table | 88 | | 0 | ☞4 - 2, How to Set the PV Input (page 4-3) | | | |
| Input-output | PV input | 1 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | PV input | 1 | Temperature unit | 0: Celsius (°C)<br>1: Do not use<br>2: Kelvin (K) | 0 | | 0 | | | | |
| Input-output | PV input | 1 | Alarm setting low limit | −19999 to +32000U | −1999.9 | | 1 | DPP = PV | | | |
| Input-output | PV input | 1 | Alarm setting high limit | −19999 to +32000U | 3200.0 | | 1 | DPP = PV | | | |
| Input-output | PV input | 1 | Cold junction compensation | 0: Use internal compensation<br>1: Do not use internal compensation | 0 | | 1 | | | | |
| Input-output | PV input | 1 | Linear scaling low limit | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 1 | Linear scaling high limit | −19999 to +32000U | 1000.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 1 | PV square root extraction dropout | 0.0 to 10.0 % | 0.0 | % | 1 | | | | |
| Input-output | PV input | 1 | Filter | 0.00 to 120.00 s | 0.00 | s | 0 | | | | |
| Input-output | PV input | 1 | Bias | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 1 | Ratio | 0.001 to 32.000 | 1.000 | | 0 | | | | |
| Input-output | PV input | 1 | Linearization table group definition | 0: Disabled<br>1: Group 1<br>2: Group 2<br>3: Group 3<br>4: Group 4<br>5: Group 5<br>6: Group 6<br>7: Group 7<br>8: Group 8 | 0 | | 1 | | × | | |
| Input-output | PV input | 2 | Range type | See the range table | 88 | | 0 | ☞4 - 2, How to Set the PV Input (page 4-3) | | | |
| Input-output | PV input | 2 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | PV input | 2 | Temperature unit | 0: Celsius (°C)<br>1: Do not use<br>2: Kelvin (K) | 0 | | 0 | | | | |
| Input-output | PV input | 2 | Alarm setting low limit | −19999 to +32000U | −1999.9 | | 1 | DPP = PV | | | |
| Input-output | PV input | 2 | Alarm setting high limit | −19999 to +32000U | 3200.0 | | 1 | DPP = PV | | | |
| Input-output | PV input | 2 | Cold junction compensation | 0: Use internal compensation<br>1: Do not use internal compensation | 0 | | 1 | | | | |
| Input-output | PV input | 2 | Linear scaling low limit | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 2 | Linear scaling high limit | −19999 to +32000U | 1000.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 2 | PV square root extraction dropout | 0.0 to 10.0 % | 0.0 | % | 1 | | | | |
| Input-output | PV input | 2 | Filter | 0.00 to 120.00 s | 0.00 | s | 0 | | | | |
| Input-output | PV input | 2 | Bias | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 2 | Ratio | 0.001 to 32.000 | 1.000 | | 0 | | | | |
| Input-output | PV input | 2 | Linearization table group definition | 0: Disabled<br>1: Group 1<br>2: Group 2<br>3: Group 3<br>4: Group 4<br>5: Group 5<br>6: Group 6<br>7: Group 7<br>8: Group 8 | 0 | | 1 | | × | | |

## Input-output/PV Input

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | PV input | 3 | Range type | See the range table | * | | 0 | ☞ 4 - 2, How to Set the PV Input (page 4-3) | | | |
| Input-output | PV input | 3 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | PV input | 3 | Temperature unit | 0: Celsius (°C)<br>1: Do not use<br>2: Kelvin (K) | 0 | | 0 | | | | |
| Input-output | PV input | 3 | Alarm setting low limit | −19999 to +32000U | −1999.9 | | 1 | DPP = PV | | | |
| Input-output | PV input | 3 | Alarm setting high limit | −19999 to +32000U | 3200.0 | | 1 | DPP = PV | | | |
| Input-output | PV input | 3 | Cold junction compensation | 0: Use internal compensation<br>1: Do not use internal compensation | 0 | | 1 | | | | |
| Input-output | PV input | 3 | Linear scaling low limit | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 3 | Linear scaling high limit | −19999 to +32000U | 1000.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 3 | PV square root extraction dropout | 0.0 to 10.0 % | 0.0 | % | 1 | | | | |
| Input-output | PV input | 3 | Filter | 0.00 to 120.00 s | 0.00 | s | 0 | | | | |
| Input-output | PV input | 3 | Bias | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 3 | Ratio | 0.001 to 32.000 | 1.000 | | 0 | | | | |
| Input-output | PV input | 3 | Linearization table group definition | 0: Disabled<br>1: Group 1<br>2: Group 2<br>3: Group 3<br>4: Group 4<br>5: Group 5<br>6: Group 6<br>7: Group 7<br>8: Group 8 | 0 | | 1 | | × | | |
| Input-output | PV input | 4 | Range type | See the range table | * | | 0 | ☞ 4 - 2, How to Set the PV Input (page 4-3) | | | |
| Input-output | PV input | 4 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | PV input | 4 | Temperature unit | 0: Celsius (°C)<br>1: Do not use<br>2: Kelvin (K) | 0 | | 0 | | | | |
| Input-output | PV input | 4 | Alarm setting low limit | −19999 to +32000U | −1999.9 | | 1 | DPP = PV | | | |
| Input-output | PV input | 4 | Alarm setting high limit | −19999 to +32000U | 3200.0 | | 1 | DPP = PV | | | |
| Input-output | PV input | 4 | Cold junction compensation | 0: Use internal compensation<br>1: Do not use internal compensation | 0 | | 1 | | | | |
| Input-output | PV input | 4 | Linear scaling low limit | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 4 | Linear scaling high limit | −19999 to +32000U | 1000.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 4 | PV square root extraction dropout | 0.0 to 10.0 % | 0.0 | % | 1 | | | | |
| Input-output | PV input | 4 | Filter | 0.00 to 120.00 s | 0.00 | s | 0 | | | | |
| Input-output | PV input | 4 | Bias | −19999 to +32000U | 0.0 | | 0 | DPP = PV | | | |
| Input-output | PV input | 4 | Ratio | 0.001 to 32.000 | 1.000 | | 0 | | | | |
| Input-output | PV input | 4 | Linearization table group definition | 0: Disabled<br>1: Group 1<br>2: Group 2<br>3: Group 3<br>4: Group 4<br>5: Group 5<br>6: Group 6<br>7: Group 7<br>8: Group 8 | 0 | | 1 | | × | | |

* 88 for non-position proportional control models, 75 for position proportional control models

# Input-output/Continuous Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | Continuous output | 1 | Output range | Analog current output<br>0: 4 to 20 mA<br>1: 0 to 20 mA<br>Analog voltage output<br>0: 1 to 5 V<br>1: 0 to 5 V<br>2: 0 to 10 V<br>3: 2 to 10 V | 0 | | 0 | | | | |
| Input-output | Continuous output | 1 | Output type | 0: Fixed at 0 %<br>1: MV<br>2: Heat MV (for heating/cooling control)<br>3: Cool MV (for heating/cooling control)<br>4: PV (loop)<br>5: SP<br>6: Deviation (PV – SP)<br>7: PV (input channel)<br>2048 to 3071: Standard numerical codes | 1 | | 0 | | | | |
| Input-output | Continuous output | 1 | Loop/channel definition | 0: Disabled<br>1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4 | 1 | | 0 | | | | |
| Input-output | Continuous output | 1 | Output decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | Continuous output | 1 | Output scaling low limit | –19999 to +32000U | 0.0 | | 0 | DPP = OUT | | | |
| Input-output | Continuous output | 1 | Output scaling high limit | –19999 to +32000U | 100.0 | | 0 | DPP = OUT | | | |
| Input-output | Continuous output | 2 | Output range | Analog current output<br>0: 4 to 20 mA<br>1: 0 to 20 mA<br>Analog voltage output<br>0: 1 to 5 V<br>1: 0 to 5 V<br>2: 0 to 10 V<br>3: 2 to 10 V | 0 | | 0 | | | | |
| Input-output | Continuous output | 2 | Output type | 0: Fixed at 0 %<br>1: MV<br>2: Heat MV (for heating/cooling control)<br>3: Cool MV (for heating/cooling control)<br>4: PV (loop)<br>5: SP<br>6: Deviation (PV – SP)<br>7: PV (input channel)<br>2048 to 3071: Standard numerical codes | 1 | | 0 | | | | |
| Input-output | Continuous output | 2 | Loop/channel definition | 0: Disabled<br>1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4 | 2 | | 0 | | | | |
| Input-output | Continuous output | 2 | Output decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | Continuous output | 2 | Output scaling low limit | –19999 to +32000U | 0.0 | | 0 | DPP = OUT | | | |
| Input-output | Continuous output | 2 | Output scaling high limit | –19999 to +32000U | 100.0 | | 0 | DPP = OUT | | | |

## Input-output/Continuous Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | Continuous output | 3 | Output range | Analog current output<br>0: 4 to 20 mA<br>1: 0 to 20 mA<br>Analog voltage output<br>0: 1 to 5 V<br>1: 0 to 5 V<br>2: 0 to 10 V<br>3: 2 to 10 V | 0 | | 0 | | | | |
| Input-output | Continuous output | 3 | Output type | 0: Fixed at 0 %<br>1: MV<br>2: Heat MV (for heating/cooling control)<br>3: Cool MV (for heating/cooling control)<br>4: PV (loop)<br>5: SP<br>6: Deviation (PV – SP)<br>7: PV (input channel)<br>2048 to 3071: Standard numerical codes | *1 | | 0 | | | | |
| Input-output | Continuous output | 3 | Loop/channel definition | 0: Disabled<br>1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4 | *2 | | 0 | | | | |
| Input-output | Continuous output | 3 | Output decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | Continuous output | 3 | Output scaling low limit | −19999 to +32000U | 0.0 | | 0 | DPP = OUT | | | |
| Input-output | Continuous output | 3 | Output scaling high limit | −19999 to +32000U | 100.0 | | 0 | DPP = OUT | | | |
| Input-output | Continuous output | 4 | Output range | Analog current output<br>0: 4 to 20 mA<br>1: 0 to 20 mA<br>Analog voltage output<br>0: 1 to 5 V<br>1: 0 to 5 V<br>2: 0 to 10 V<br>3: 2 to 10 V | 0 | | 0 | | | | |
| Input-output | Continuous output | 4 | Output type | 0: Fixed at 0 %<br>1: MV<br>2: Heat MV (for heating/cooling control)<br>3: Cool MV (for heating/cooling control)<br>4: PV (loop)<br>5: SP<br>6: Deviation (PV – SP)<br>7: PV (input channel)<br>2048 to 3071: Standard numerical codes | *1 | | 0 | | | | |
| Input-output | Continuous output | 4 | Loop/channel definition | 0: Disabled<br>1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4 | *3 | | 0 | | | | |
| Input-output | Continuous output | 4 | Output decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 1 | | 0 | | | | |
| Input-output | Continuous output | 4 | Output scaling low limit | −19999 to +32000U | 0.0 | | 0 | DPP = OUT | | | |
| Input-output | Continuous output | 4 | Output scaling high limit | −19999 to +32000U | 100.0 | | 0 | DPP = OUT | | | |

*1. 0 for 2 channels, 1 for 4 channels
*2. 1 for 2 channels, 3 for 4 channels
*3. 2 for 2 channels, 4 for 4 channels

# Input-output / OUT/DO Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | OUT/DO output | 1 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 1 | | 0 | | | | |
| Input-output | OUT/DO output | 1 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 1 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 1 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 1 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 1 | Phase shift | 0 to 32000 ms | 0 | ms | 0 | * | | | |
| Input-output | OUT/DO output | 2 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 4 | | 0 | | | | |
| Input-output | OUT/DO output | 2 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 2 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 2 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 2 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 2 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |
| Input-output | OUT/DO output | 3 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 7 | | 0 | | | | |
| Input-output | OUT/DO output | 3 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 3 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 3 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 3 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 3 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |

* Cannot be used with NX-S21.

## Input-output / OUT/DO Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | OUT/DO output | 4 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 10 | | 0 | | | | |
| Input-output | OUT/DO output | 4 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 4 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 4 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 4 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 4 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |
| Input-output | OUT/DO output | 5 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 1088 | | 0 | | | | |
| Input-output | OUT/DO output | 5 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 5 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 5 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 5 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 5 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |
| Input-output | OUT/DO output | 6 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 1089 | | 0 | | | | |
| Input-output | OUT/DO output | 6 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 6 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 6 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 6 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 6 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |

* Cannot be used with NX-S21.

# Input-output / OUT/DO Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | OUT/DO output | 7 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 1090 | | 0 | | | | |
| Input-output | OUT/DO output | 7 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 7 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 7 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 7 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 7 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |
| Input-output | OUT/DO output | 8 | Output type | 0: OFF<br>1: Loop 1 MV<br>2: Loop 1 heat MV (for heating/cooling control)<br>3: Loop 1 cool MV (for heating/cooling control)<br>4: Loop 2 MV<br>5: Loop 2 heat MV (for heating/cooling control)<br>6: Loop 2 cool MV (for heating/cooling control)<br>7: Loop 3 MV<br>8: Loop 3 heat MV (for heating/cooling control)<br>9: Loop 3 cool MV (for heating/cooling control)<br>10: Loop 4 MV<br>11: Loop 4 heat MV (for heat/cool control)<br>12: Loop 4 cool MV (for heat/cool control)<br>13: Closing output for position proportional output 1<br>14: Opening output for position proportional output 1<br>15: Closing output for position proportional output 2<br>16: Opening output for position proportional output 2<br>1024 to 2047: Standard bit codes | 1091 | | 0 | | | | |
| Input-output | OUT/DO output | 8 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Input-output | OUT/DO output | 8 | Time proportional operation type | 0: Priority on controllability<br>1: Actuator-life oriented | 0 | | 0 | | | | |
| Input-output | OUT/DO output | 8 | Min. ON/OFF time | 0 to 300 ms | 10 | ms | 0 | | | | |
| Input-output | OUT/DO output | 8 | Time proportional cycle | 0.1 to 120.0 s | 2.0 | s | 0 | | | | |
| Input-output | OUT/DO output | 8 | Phase shift | 0 to 32000 ms | 0 | ms | 2 | * | | | |

* Cannot be used with NX-S21.

## Input-output/Zener Barrier Adjustment

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | Zener barrier adjst. | 1 | Command to store adjusted values | 0: Stop adjustment<br>1: Write adjusted value<br>99: Clear adjusted values | 0 | | 2 | | | | |
| Input-output | Zener barrier adjst. | 1 | Adjustment factor | −20.0 to +20.0 Ω | 0 | Ω | 2 | | | | |
| Input-output | Zener barrier adjst. | 2 | Command to store adjusted values | 0: Stop adjustment<br>1: Write adjusted value<br>99: Clear adjusted values | 0 | | 2 | | | | |
| Input-output | Zener barrier adjst. | 2 | Adjustment factor | −20.0 to +20.0 Ω | 0 | Ω | 2 | | | | |
| Input-output | Zener barrier adjst. | 3 | Command to store adjusted values | 0: Stop adjustment<br>1: Write adjusted value<br>99: Clear adjusted values | 0 | | 2 | | | | |
| Input-output | Zener barrier adjst. | 3 | Adjustment factor | −20.0 to +20.0 Ω | 0 | Ω | 2 | | | | |
| Input-output | Zener barrier adjst. | 4 | Command to store adjusted values | 0: Stop adjustment<br>1: Write adjusted value<br>99: Clear adjusted values | 0 | | 2 | | | | |
| Input-output | Zener barrier adjst. | 4 | Adjustment factor | −20.0 to +20.0 Ω | 0 | Ω | 2 | | | | |

## Input-output/CT Input

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | CT input | 1 | CT operation | 0: Continuous current measurement (clamp meter mode)<br>1: Detection of heater line break for terminal OUT1<br>2: Detection o-f heater line break for terminal OUT2<br>3: Detection of heater line break for terminal OUT3<br>4: Detection of heater line break for terminal OUT4 | 0 | | 0 | | | | |
| Input-output | CT input | 1 | Wait time for CT measurement | 30 to 300 ms | 30 | ms | 0 | | | | |
| Input-output | CT input | 1 | Number of CT turns | 100 to 4000 | 800 | | 1 | | | | |
| Input-output | CT input | 1 | Number of CT power line passes | 1 to 6 | 1 | | 1 | | | | |
| Input-output | CT input | 1 | Threshold current for determining heater burnout | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 1 | Threshold current for determining overcurrent | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 1 | Threshold current for determining a short circuit | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 1 | Hysteresis | 0.0 to 550.0 A | 5.0 | A | 1 | | | | |
| Input-output | CT input | 1 | Delay time | 0 to 3200.0 s | 2.0 | s | 1 | | | | |
| Input-output | CT input | 1 | Condition for restoring status before measurement | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Input-output | CT input | 2 | CT operation | 0: Continuous current measurement (clamp meter mode)<br>1: Detection of heater line break for terminal OUT1<br>2: Detection of heater line break for terminal OUT2<br>3: Detection of heater line break for terminal OUT3<br>4: Detection of heater line break for terminal OUT4 | 0 | | 0 | | | | |
| Input-output | CT input | 2 | Wait time for CT measurement | 30 to 300 ms | 30 | ms | 0 | | | | |
| Input-output | CT input | 2 | Number of CT turns | 100 to 4000 | 800 | | 1 | | | | |
| Input-output | CT input | 2 | Number of CT power line passes | 1 to 6 | 1 | | 1 | | | | |
| Input-output | CT input | 2 | Threshold current for determining heater burnout | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 2 | Threshold current for determining overcurrent | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 2 | Threshold current for determining a short circuit | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 2 | Hysteresis | 0.0 to 550.0 A | 5.0 | A | 1 | | | | |
| Input-output | CT input | 2 | Delay time | 0 to 3200.0 s | 2.0 | s | 1 | | | | |
| Input-output | CT input | 2 | Condition for restoring status before measurement | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Input-output | CT input | 3 | CT operation | 0: Continuous current measurement (clamp meter mode)<br>1: Detection of heater line break for terminal OUT1<br>2: Detection of heater line break for terminal OUT2<br>3: Detection of heater line break for terminal OUT3<br>4: Detection of heater line break for terminal OUT4 | 0 | | 0 | | | | |
| Input-output | CT input | 3 | Wait time for CT measurement | 30 to 300 ms | 30 | ms | 0 | | | | |
| Input-output | CT input | 3 | Number of CT turns | 100 to 4000 | 800 | | 1 | | | | |
| Input-output | CT input | 3 | Number of CT power line passes | 1 to 6 | 1 | | 1 | | | | |
| Input-output | CT input | 3 | Threshold current for determining heater burnout | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 3 | Threshold current for determining overcurrent | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 3 | Threshold current for determining a short circuit | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 3 | Hysteresis | 0.0 to 550.0 A | 5.0 | A | 1 | | | | |

# Input-output/CT Input

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Input-output | CT input | 3 | Delay time | 0 to 3200.0 s | 2.0 | s | 1 | | | | |
| Input-output | CT input | 3 | Condition for restoring status before measurement | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Input-output | CT input | 4 | CT operation | 0: Continuous current measurement (clamp meter mode)<br>1: Detection of heater line break for terminal OUT1<br>2: Detection of heater line break for terminal OUT2<br>3: Detection of heater line break for terminal OUT3<br>4: Detection of heater line break for terminal OUT4 | 0 | | 0 | | | | |
| Input-output | CT input | 4 | Wait time for CT measurement | 30 to 300 ms | 30 | ms | 0 | | | | |
| Input-output | CT input | 4 | Number of CT turns | 100 to 4000 | 800 | | 1 | | | | |
| Input-output | CT input | 4 | Number of CT power line passes | 1 to 6 | 1 | | 1 | | | | |
| Input-output | CT input | 4 | Threshold current for determining heater burnout | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 4 | Threshold current for determining overcurrent | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 4 | Threshold current for determining a short circuit | 0.0 to 550.0 A | 0.0 | A | 1 | | | | |
| Input-output | CT input | 4 | Hysteresis | 0.0 to 550.0 A | 5.0 | A | 1 | | | | |
| Input-output | CT input | 4 | Delay time | 0 to 3200.0 s | 2.0 | s | 1 | | | | |
| Input-output | CT input | 4 | Condition for restoring status before measurement | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Input-output | CT input | 1 | Continuous current measurement cycle | 0.1 to 3200.0 | 0 | s | 0 | | | | |
| Input-output | CT input | 2 | Continuous current measurement cycle | 0.1 to 3200.0 | 0 | s | 0 | | | | |
| Input-output | CT input | 3 | Continuous current measurement cycle | 0.1 to 3200.0 | 0 | s | 0 | | | | |
| Input-output | CT input | 4 | Continuous current measurement cycle | 0.1 to 3200.0 | 0 | s | 0 | | | | |

# SP/SP Group Selection

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SP | SP group selection | 1 | SP group selection | 1 to SP system group (4 max.) | 1 | | 0 | | | | |
| SP | SP group selection | 2 | SP group selection | 1 to SP system group (4 max.) | 1 | | 0 | | | | |
| SP | SP group selection | 3 | SP group selection | 1 to SP system group (4 max.) | 1 | | 0 | | | | |
| SP | SP group selection | 4 | SP group selection | 1 to SP system group (4 max.) | 1 | | 0 | | | | |

## SP/LSP

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SP | LSP | 1 | LSP1 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 1 | PID group definition 1 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 1 | LSP2 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 1 | PID group definition 2 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 1 | LSP3 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 1 | PID group definition 3 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 1 | LSP4 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 1 | PID group definition 4 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 2 | LSP1 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 2 | PID group definition 1 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 2 | LSP2 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 2 | PID group definition 2 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 2 | LSP3 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 2 | PID group definition 3 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 2 | LSP4 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 2 | PID group definition 4 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 3 | LSP1 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 3 | PID group definition 1 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 3 | LSP2 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 3 | PID group definition 2 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 3 | LSP3 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 3 | PID group definition 3 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 3 | LSP4 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 3 | PID group definition 4 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 4 | LSP1 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 4 | PID group definition 1 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 4 | LSP2 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 4 | PID group definition 2 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 4 | LSP3 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 4 | PID group definition 3 (for LSP) | 1 to 4 | 1 | | 0 | | | | |
| SP | LSP | 4 | LSP4 | SP low limit to SP high limit U | 0.0 | | 0 | DPP = PID_PV | | | |
| SP | LSP | 4 | PID group definition 4 (for LSP) | 1 to 4 | 1 | | 0 | | | | |

## SP/RSP

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SP | RSP | 1 | RSP | | — | | 1 | DPP = PID_PV | | | |
| SP | RSP | 1 | PID group definition (for RSP) | 1 to 4 | 1 | | 1 | | | | |
| SP | RSP | 2 | RSP | | — | | 1 | DPP = PID_PV | | | |
| SP | RSP | 2 | PID group definition (for RSP) | 1 to 4 | 1 | | 1 | | | | |
| SP | RSP | 3 | RSP | | — | | 1 | DPP = PID_PV | | | |
| SP | RSP | 3 | PID group definition (for RSP) | 1 to 4 | 1 | | 1 | | | | |
| SP | RSP | 4 | RSP | | — | | 1 | DPP = PID_PV | | | |
| SP | RSP | 4 | PID group definition (for RSP) | 1 to 4 | 1 | | 1 | | | | |

# SP/SP Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SP | SP configuration | 1 | SP low limit | −19999 to +32000U | −1999.9 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 1 | SP high limit | −19999 to +32000U | 3200.0 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 2 | SP low limit | −19999 to +32000U | −1999.9 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 2 | SP high limit | −19999 to +32000U | 3200.0 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 3 | SP low limit | −19999 to +32000U | −1999.9 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 3 | SP high limit | −19999 to +32000U | 3200.0 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 4 | SP low limit | −19999 to +32000U | −1999.9 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 4 | SP high limit | −19999 to +32000U | 3200.0 | | 0 | DPP = PID_PV | | | |
| SP | SP configuration | 1 | SP ramp unit | 0: No decimal point/s.<br>1: No decimal point/min.<br>2: No decimal point/h. 3: 0.1/s.<br>4: 0.1/min. 5: 0.1/h. 6: 0.01/s.<br>7: 0.01/min. 8: 0.01/h. 9: 0.001/s.<br>10: 0.001/min. 11: 0.001/h. | 0 | | 1 | | | | |
| SP | SP configuration | 1 | SP ramp-up for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 1 | SP ramp-down for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 1 | RSP tracking | 0: Tracking OFF<br>1: Tracking ON | 0 | | 2 | | | | |
| SP | SP configuration | 1 | SP ramp-up for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 1 | SP ramp-down for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 1 | PV start for LSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |
| SP | SP configuration | 1 | PV start for RSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |
| SP | SP configuration | 2 | SP ramp unit | 0: No decimal point/s.<br>1: No decimal point/min.<br>2: No decimal point/h. 3: 0.1/s.<br>4: 0.1/min. 5: 0.1/h. 6: 0.01/s.<br>7: 0.01/min. 8: 0.01/h. 9: 0.001/s.<br>10: 0.001/min. 11: 0.001/h. | 0 | | 1 | | | | |
| SP | SP configuration | 2 | SP ramp-up for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 2 | SP ramp-down for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 2 | RSP tracking | 0: Tracking OFF<br>1: Tracking ON | 0 | | 2 | | | | |
| SP | SP configuration | 2 | SP ramp-up for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 2 | SP ramp-down for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 2 | PV start for LSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |
| SP | SP configuration | 2 | PV start for RSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |
| SP | SP configuration | 3 | SP ramp unit | 0: No decimal point/s.<br>1: No decimal point/min.<br>2: No decimal point/h. 3: 0.1/s.<br>4: 0.1/min. 5: 0.1/h. 6: 0.01/s.<br>7: 0.01/min. 8: 0.01/h. 9: 0.001/s.<br>10: 0.001/min. 11: 0.001/h. | 0 | | 1 | | | | |
| SP | SP configuration | 3 | SP ramp-up for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 3 | SP ramp-down for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 3 | SP ramp-up for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 3 | SP ramp-down for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 3 | RSP tracking | 0: Tracking OFF<br>1: Tracking ON | 0 | | 2 | | | | |
| SP | SP configuration | 3 | PV start for LSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |
| SP | SP configuration | 3 | PV start for RSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |

# SP/SP Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SP | SP configuration | 4 | SP ramp unit | 0: No decimal point/s.<br>1: No decimal point/min.<br>2: No decimal point/h. 3: 0.1/s.<br>4: 0.1/min. 5: 0.1/h. 6: 0.01/s.<br>7: 0.01/min. 8: 0.01/h. 9: 0.001/s.<br>10: 0.001/min. 11: 0.001/h. | 0 | | 1 | | | | |
| SP | SP configuration | 4 | SP ramp-up for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 4 | SP ramp-down for LSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 4 | SP ramp-up for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 4 | SP ramp-down for RSP | 0U (No ramp)<br>1 to 32000U | 0 | | 1 | DPP = RAMP | | | |
| SP | SP configuration | 4 | RSP tracking | 0: Tracking OFF<br>1: Tracking ON | 0 | | 2 | | | | |
| SP | SP configuration | 4 | PV start for LSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |
| SP | SP configuration | 4 | PV start for RSP | 0: Allow PV start<br>1: Prevent PV start | 0 | | 1 | | | | |

## Event/Event Settings (Operating Points)

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event setting (operating point) | 1 | Event main setting | −19999 to +32000U<br>0 to 32000U when the operation type of event configuration is 6 or 9 | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 1 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 2 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 2 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 3 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 3 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 4 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 4 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 5 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 5 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 6 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 6 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 7 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 7 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 8 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 8 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 9 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 9 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 10 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 10 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 11 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 11 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 12 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 12 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 13 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 13 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 14 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 14 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 15 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 15 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 16 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 16 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 17 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 17 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 18 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 18 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 19 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 19 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 20 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 20 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 21 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 21 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 22 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 22 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 23 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 23 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 24 | Event main setting | | 0.0 | | 0 | DPP = EV | | | |
| Event | Event setting (operating point) | 24 | Event sub-setting | | 0.0 | | 0 | DPP = EV | | | |

## Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 1 | Operation type | 0: No event<br>1: PV high limit<br>2: PV low limit<br>3: PV high and low limits<br>4: Deviation high limit<br>5: Deviation low limit<br>6: Deviation high and low limits<br>7: Deviation high limit (final SP reference)<br>8: Deviation low limit (final SP reference)<br>9: Deviation high and low limits (final SP reference)<br>10: SP high limit<br>11: SP low limit<br>12: SP high and low limits<br>13: MV high limit<br>14: MV low limit<br>15: MV high and low limits<br>16: MFB1 opening high and low limits<br>17: MFB2 opening high and low limits<br>18: AI high limit<br>19: AI low limit<br>20: AI high and low limits<br>26: Standard number (high limit)<br>27: Standard number (low limit)<br>28: High and low limits for standard numbers<br>29: PV change rate<br>31: High limit of deviation between channels (specified by PV1)<br>32: High limit of deviation between channels (specified by PV2)<br>33: High limit of deviation between channels (specified by PV3)<br>34: High limit of deviation between channels (specified by PV4)<br>35: Low limit of deviation between channels (specified by PV1)<br>36: Low limit of deviation between channels (specified by PV2)<br>37: Low limit of deviation between channels (specified by PV3)<br>38: Low limit of deviation between channels (specified by PV4)<br>39: High and low limits of deviation between channels (specified by PV1)<br>40: High and low limits of deviation between channels (specified by PV2)<br>41: High and low limits of deviation between channels (specified by PV3)<br>42: High and low limits of deviation between channels (specified by PV4)<br>43: High limit of deviation between channels (PV1 standard numerical codes)<br>44: High limit of deviation between channels (PV2 standard numerical codes)<br>45: High limit of deviation between channels (PV3 standard numerical codes)<br>46: High limit of deviation between channels (PV4 standard numerical codes)<br>47: Low limit of deviation between channels (PV1 standard numerical codes)<br>48: Low limit of deviation between channels (PV2 standard numerical codes)<br>49: Low limit of deviation between channels (PV3 standard numerical codes)<br>50: Low limit of deviation between channels (PV4 standard numerical codes)<br>51: High and low limits of deviation between channels (PV1 standard numerical codes)<br>52: High and low limits of deviation between channels (PV2 standard numerical codes)<br>53: High and low limits of deviation between channels (PV3 standard numerical codes)<br>54: High and low limits of deviation between channels (PV4 standard numerical codes)<br>61: Alarm (status)<br>62: READY (status)<br>63: MANUAL (status)<br>64: RSP (status)<br>65: AT in execution (status)<br>66: During SP ramp (status)<br>67: Control direct action (status)<br>70: Timer (status) | 0 | | 0 | | | | |
| Event | Event config. | 1 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 1 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 1 | Standby | 0: No standby.. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 1 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 1 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 1 | Hysteresis | 0 to 32000 U | 5.0 | | 0 | DPP = EV | | | |
| Event | Event config. | 1 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 1 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 2 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 2 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 2 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 2 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 2 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 2 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 2 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 2 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 2 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 3 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 3 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 3 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 3 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 3 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 3 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 3 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 3 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 3 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 4 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 4 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 4 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 4 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 4 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 4 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 4 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 4 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 4 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 5 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 5 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 5 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |

## Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 5 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 5 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 5 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 5 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 5 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 5 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 6 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 6 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 6 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 6 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 6 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 6 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 6 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 6 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 6 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 7 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 7 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 7 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 7 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 7 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 7 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 7 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 7 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 7 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 8 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 8 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 8 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 8 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 8 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 8 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 8 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 8 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 8 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 9 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 9 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 9 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 9 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 9 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 9 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 9 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 9 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 9 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 10 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 10 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 10 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 10 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 10 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 10 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 10 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 10 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 10 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 11 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 11 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 11 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 11 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 11 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 11 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 11 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 11 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 11 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 12 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 12 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 12 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 12 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 12 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 12 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 12 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 12 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 12 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 13 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 13 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 13 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 13 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 13 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 13 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 13 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 13 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 13 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 14 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 14 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 14 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 14 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 14 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 14 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 14 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 14 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 14 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 15 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 15 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 15 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 15 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 15 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 15 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 15 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 15 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 15 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 16 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 16 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 16 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 16 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 16 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 16 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 16 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 16 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 16 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 17 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 17 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 17 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 17 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 17 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 17 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 17 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 17 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 17 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 18 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 18 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 18 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 18 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 18 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 18 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 18 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 18 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 18 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 19 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 19 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 19 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 19 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 19 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 19 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 19 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 19 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 19 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 20 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 20 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 20 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 20 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 20 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 20 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 20 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 20 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 20 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 21 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 21 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 21 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 21 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 21 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |

# Event/Event Configuration

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Event | Event config. | 21 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 21 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 21 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 21 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 22 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 22 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 22 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 22 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 22 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 22 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 22 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 22 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 22 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 23 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 23 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 23 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 23 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 23 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 23 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 23 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 23 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 23 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 24 | Operation type | Same as Event 1 | 0 | | 0 | | | | |
| Event | Event config. | 24 | Loop/channel definition | 1: Loop 1 / Channel 1<br>2: Loop 2 / Channel 2<br>3: Loop 3 / Channel 3<br>4: Loop 4 / Channel 4<br>2048 to 3071: Standard number | 1 | | 0 | | | | |
| Event | Event config. | 24 | Direct/reverse | 0: Direct 1: Reverse | 0 | | 0 | | | | |
| Event | Event config. | 24 | Standby | 0: No standby. 1: Standby<br>2: Standby + standby when the SP is modified | 0 | | 0 | | | | |
| Event | Event config. | 24 | Event state at READY | 0: Continuation. 1: Forced OFF | 0 | | 0 | | | | |
| Event | Event config. | 24 | Decimal point position | 0: No decimal point<br>1: 1 digit after the decimal point<br>2: 2 digits after the decimal point<br>3: 3 digits after the decimal point<br>4: 4 digits after the decimal point | 0 | | 0 | | | | |
| Event | Event config. | 24 | Hysteresis | 0 to 32000 U | 5 | | 0 | DPP = EV | | | |
| Event | Event config. | 24 | ON delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |
| Event | Event config. | 24 | OFF delay | 0.0 to 3200.0 s | 0.0 | s | 0 | | | | |

## PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 1 | Proportional band 1 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 1 | Integral time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Derivative time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Output (MV) low limit 1 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 1 | Output (MV) high limit 1 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 1 | Manual reset 1 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 1 | Proportional band for cool side 1 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 1 | Integral time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Derivative time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Cool-side MV low limit 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 1 | Cool-side MV high limit 1 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 1 | Differential 1 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 1 | Proportional band 2 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 1 | Integral time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Derivative time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Output (MV) low limit 2 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 1 | Output (MV) high limit 2 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 1 | Manual reset 2 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 1 | Proportional band for cool side 2 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 1 | Integral time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Derivative time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Cool-side MV low limit 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 1 | Cool-side MV high limit 2 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 1 | Differential 2 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

# PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 1 | Proportional band 3 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 1 | Integral time 3 | 0 –32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Derivative time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Output (MV) low limit 3 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 1 | Output (MV) high limit 3 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 1 | Manual reset 3 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 1 | Proportional band for cool side 3 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 1 | Integral time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Derivative time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Cool-side MV low limit 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 1 | Cool-side MV high limit 3 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 1 | Differential 3 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 1 | Proportional band 4 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 1 | Integral time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Derivative time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 1 | Output (MV) low limit 4 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 1 | Output (MV) high limit 4 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 1 | Manual reset 4 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 1 | Proportional band for cool side 4 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 1 | Integral time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Derivative time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 1 | Cool-side MV low limit 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 1 | Cool-side MV high limit 4 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 1 | Differential 4 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

# PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 2 | Proportional band 1 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 2 | Integral time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Derivative time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Output (MV) low limit 1 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 2 | Output (MV) high limit 1 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 2 | Manual reset 1 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 2 | Proportional band for cool side 1 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 2 | Integral time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Derivative time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Cool-side MV low limit 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 2 | Cool-side MV high limit 1 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 2 | Differential 1 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 2 | Proportional band 2 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 2 | Integral time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Derivative time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Output (MV) low limit 2 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 2 | Output (MV) high limit 2 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 2 | Manual reset 2 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 2 | Proportional band for cool side 2 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 2 | Integral time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Derivative time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Cool-side MV low limit 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 2 | Cool-side MV high limit 2 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 2 | Differential 2 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

# PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 2 | Proportional band 3 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 2 | Integral time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Derivative time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Output (MV) low limit 3 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 2 | Output (MV) high limit 3 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 2 | Manual reset 3 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 2 | Proportional band for cool side 3 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 2 | Integral time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Derivative time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Cool-side MV low limit 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 2 | Cool-side MV high limit 3 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 2 | Differential 3 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 2 | Proportional band 4 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 2 | Integral time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Derivative time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | DPP = PID | | | |
| PID | PID | 2 | Output (MV) low limit 4 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 2 | Output (MV) high limit 4 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 2 | Manual reset 4 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 2 | Proportional band for cool side 4 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 2 | Integral time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Derivative time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | DPP = PID | | | |
| PID | PID | 2 | Cool-side MV low limit 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 2 | Cool-side MV high limit 4 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 2 | Differential 4 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

# PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 3 | Proportional band 1 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 3 | Integral time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 3 | Derivative time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 3 | Output (MV) low limit 1 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 3 | Output (MV) high limit 1 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 3 | Manual reset 1 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 3 | Proportional band for cool side 1 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 3 | Integral time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 3 | Derivative time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 3 | Cool-side MV low limit 1 | −10.0 to 110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 3 | Cool-side MV high limit 1 | −10.0 to 110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 3 | Differential 1 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 3 | Proportional band 2 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 3 | Integral time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 3 | Derivative time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 3 | Output (MV) low limit 2 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 3 | Output (MV) high limit 2 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 3 | Manual reset 2 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 3 | Proportional band for cool side 2 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 3 | Integral time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 3 | Derivative time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 3 | Cool-side MV low limit 2 | −10.0 to 110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 3 | Cool-side MV high limit 2 | −10.0 to 110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 3 | Differential 2 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

## PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 3 | Proportional band 3 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 3 | Integral time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 3 | Derivative time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 3 | Output (MV) low limit 3 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 3 | Output (MV) high limit 3 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 3 | Manual reset 3 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 3 | Proportional band for cool side 3 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 3 | Integral time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 3 | Derivative time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 3 | Cool-side MV low limit 3 | −10.0 to 110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 3 | Cool-side MV high limit 3 | −10.0 to 110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 3 | Differential 3 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 3 | Proportional band 4 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 3 | Integral time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 3 | Derivative time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 3 | Output (MV) low limit 4 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 3 | Output (MV) high limit 4 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 3 | Manual reset 4 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 3 | Proportional band for cool side 4 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 3 | Integral time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 3 | Derivative time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 3 | Cool-side MV low limit 4 | −10.0 to 110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 3 | Cool-side MV high limit 4 | −10.0 to 110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 3 | Differential 4 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

# PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 4 | Proportional band 1 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 4 | Integral time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 4 | Derivative time 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 4 | Output (MV) low limit 1 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 4 | Output (MV) high limit 1 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 4 | Manual reset 1 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 4 | Proportional band for cool side 1 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 4 | Integral time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 4 | Derivative time for cool side 1 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 4 | Cool-side MV low limit 1 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 4 | Cool-side MV high limit 1 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 4 | Differential 1 | 0 to 32000U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 4 | Proportional band 2 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 4 | Integral time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 4 | Derivative time 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 4 | Output (MV) low limit 2 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 4 | Output (MV) high limit 2 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 4 | Manual reset 2 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 4 | Proportional band for cool side 2 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 4 | Integral time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 4 | Derivative time for cool side 2 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 4 | Cool-side MV low limit 2 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 4 | Cool-side MV high limit 2 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 4 | Differential 2 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

# PID/PID

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PID | PID | 4 | Proportional band 3 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 4 | Integral time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 4 | Derivative time 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 4 | Output (MV) low limit 3 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 4 | Output (MV) high limit 3 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 4 | Manual reset 3 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 4 | Proportional band for cool side 3 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 4 | Integral time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 4 | Derivative time for cool side 3 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 4 | Cool-side MV low limit 3 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 4 | Cool-side MV high limit 3 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 4 | Differential 3 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |
| PID | PID | 4 | Proportional band 4 | 0.1 to 3200.0 % | 5.0 | % | 0 | | | | |
| PID | PID | 4 | Integral time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 0 | | | | |
| PID | PID | 4 | Derivative time 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 0 | | | | |
| PID | PID | 4 | Output (MV) low limit 4 | −10.0 to +110.0 % | 0.0 | % | 0 | | | | |
| PID | PID | 4 | Output (MV) high limit 4 | −10.0 to +110.0 % | 100.0 | % | 0 | | | | |
| PID | PID | 4 | Manual reset 4 | −10.0 to +110.0 % | 50.0 | % | 0 | | | | |
| PID | PID | 4 | Proportional band for cool side 4 | 0.1 to 3200.0 % | 5.0 | % | 1 | | | | |
| PID | PID | 4 | Integral time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (integral operation at 0, 0.0, or 0.00) | 120 | s | 1 | | | | |
| PID | PID | 4 | Derivative time for cool side 4 | 0–32000 s, 0.0–3200.0 s, or 0.00–320.00 s (derivative operation at 0, 0.0, or 0.00) | 30 | s | 1 | | | | |
| PID | PID | 4 | Cool-side MV low limit 4 | −10.0 to +110.0 % | 0.0 | % | 1 | | | | |
| PID | PID | 4 | Cool-side MV high limit 4 | −10.0 to +110.0 % | 100.0 | % | 1 | | | | |
| PID | PID | 4 | Differential 4 | 0 to 32000 U | 5 | | 0 | DPP = PID_PV | | | |

## Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 1 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 1 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 1 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 2 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 2 | Breakpoint A1 | –19999 to +32000U | –1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A2 | –19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A3 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A4 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A5 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A6 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A7 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A8 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A9 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A10 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A11 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A12 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A13 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A14 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A15 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A16 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A17 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A18 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A19 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint A20 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B1 | –19999 to +32000U | –1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B2 | –19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B3 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B4 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B5 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B6 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B7 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B8 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B9 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B10 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B11 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B12 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B13 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B14 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B15 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B16 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B17 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B18 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B19 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 2 | Breakpoint B20 | –19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 3 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 3 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 3 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 4 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 4 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 4 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 5 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 5 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 5 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 6 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 6 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 6 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 7 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | | | |
| Function | Linearization table | 7 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |
| Function | Linearization table | 7 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | | | |

# Function/Linearization Table

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Linearization table | 8 | Breakpoint decimal point position | 0 to 4 | 1 | | 1 | | × | | |
| Function | Linearization table | 8 | Breakpoint A1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint A20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B1 | −19999 to +32000U | −1999.9 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B2 | −19999 to +32000U | 3200.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B3 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B4 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B5 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B6 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B7 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B8 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B9 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B10 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B11 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B12 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B13 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B14 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B15 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B16 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B17 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B18 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B19 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |
| Function | Linearization table | 8 | Breakpoint B20 | −19999 to +32000U | 0.0 | | 1 | DPP = TBL | × | | |

## Function/Internal Contact IN

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Internal contact IN | 1 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 1 | Input type | 1024 to 2047: Standard bit | 1152 | | 0 | | | | |
| Function | Internal contact IN | 1 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 1 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 2 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 2 | Input type | 1024 to 2047: Standard bit | 1153 | | 0 | | | | |
| Function | Internal contact IN | 2 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 2 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 3 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 3 | Input type | 1024 to 2047: Standard bit | 1154 | | 0 | | | | |
| Function | Internal contact IN | 3 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 3 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 4 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 4 | Input type | 1024 to 2047: Standard bit | 1155 | | 0 | | | | |
| Function | Internal contact IN | 4 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 4 | Weighting | 0 to 127 | 1 | | 0 | | | | |

## Function/Internal Contact IN

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Internal contact IN | 5 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 5 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 5 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 5 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 6 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 6 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 6 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 6 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 7 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 7 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 7 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 7 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 8 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 8 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 8 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 8 | Weighting | 0 to 127 | 1 | | 0 | | | | |

## Function/Internal Contact IN

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Internal contact IN | 9 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 9 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 9 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 9 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 10 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 10 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 10 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 10 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 11 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 11 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 11 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 11 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 12 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 12 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 12 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 12 | Weighting | 0 to 127 | 1 | | 0 | | | | |

# Function/Internal Contact IN

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Internal contact IN | 13 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 13 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 13 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 13 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 14 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 14 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 14 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 14 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 15 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 15 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 15 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 15 | Weighting | 0 to 127 | 1 | | 0 | | | | |
| Function | Internal contact IN | 16 | Operation type | 1: SP group selection<br>2: PID group selection<br>3: Fixed value group selection<br>5: Selection of group using linearization for OUT<br>6: Selection of group using linearization for position proportioning<br>9: AI group specification<br>21: RUN/READY selection<br>22: AUTO/MANUAL selection<br>23: LSP/RSP mode selection<br>24: AT stop/start selection<br>41: Control action (direct/reverse)<br>42: SP RAMP enabled/disabled<br>46: Timer stop/start selection<br>47: Release all latches | 0 | | 0 | Settings 3 (Fixed value group selection) and 5 (OUT linearization use group selection) cannot be used on NX-D15. | | | |
| Function | Internal contact IN | 16 | Input type | 1024 to 2047: Standard bit | 1024 | | 0 | | | | |
| Function | Internal contact IN | 16 | Loop/channel definition | 0 to 24: Meaning varies depending on the operation type | 1 | | 0 | ☞ ■ Loop/channel definition setup (page 6-8) | | | |
| Function | Internal contact IN | 16 | Weighting | 0 to 127 | 1 | | 0 | | | | |

# Function/Logical Operation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Logical operation | 1 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 1 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 1 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 1 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 1 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 1 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 1 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 1 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 1 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 1 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 1 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 1 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 1 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 2 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 2 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 2 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 2 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 2 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 2 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 2 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 2 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 2 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 2 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 2 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 2 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 2 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 3 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 3 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 3 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 3 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 3 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 3 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 3 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 3 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 3 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 3 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 3 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 3 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 3 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |

## Function/Logical Operation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Logical operation | 4 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 4 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 4 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 4 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 4 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 4 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 4 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 4 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 4 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 4 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 4 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 4 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 4 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 5 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 5 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 5 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 5 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 5 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 5 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 5 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 5 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 5 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 5 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 5 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 5 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 5 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 6 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 6 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 6 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 6 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 6 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 6 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 6 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 6 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 6 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 6 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 6 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 6 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 6 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |

## Function/Logical Operation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Logical operation | 7 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 7 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 7 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 7 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 7 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 7 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 7 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 7 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 7 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 7 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 7 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 7 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 7 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 8 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 8 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 8 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 8 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 8 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 8 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 8 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 8 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 8 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 8 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 8 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 8 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 8 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 9 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 9 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 9 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 9 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 9 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 9 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 9 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 9 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 9 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 9 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 9 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 9 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 9 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |

# Function/Logical Operation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Logical operation | 10 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 10 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 10 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 10 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 10 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 10 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 10 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 10 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 10 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 10 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 10 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 10 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 10 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 11 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 11 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 11 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 11 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 11 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 11 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 11 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 11 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 11 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 11 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 11 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 11 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 11 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 12 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 12 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 12 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 12 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 12 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 12 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 12 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 12 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 12 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 12 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 12 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 12 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 12 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |

## Function/Logical Operation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Logical operation | 13 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 13 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 13 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 13 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 13 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 13 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 13 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 13 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 13 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 13 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 13 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 13 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 13 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 14 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 14 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 14 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 14 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 14 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 14 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 14 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 14 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 14 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 14 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 14 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 14 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 14 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |
| Function | Logical operation | 15 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 15 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 15 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 15 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 15 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 15 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 15 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 15 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 15 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 15 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 15 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 15 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 15 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |

# Function/Logical Operation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Logical operation | 16 | Calculation type | 1: Calculation 1: (A and B) or (C and D)<br>2: Calculation 2: (A or B) and (C or D)<br>3: Calculation 3: (A or B or C or D)<br>4: Calculation 4: (A and B and C and D) | 1 | | 1 | | | | |
| Function | Logical operation | 16 | Input assignment A | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 16 | Input assignment B | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 16 | Input assignment C | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 16 | Input assignment D | 1024 to 2047: Standard bit | 1024 | | 1 | | | | |
| Function | Logical operation | 16 | Inverted input bit A | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 16 | Inverted input bit B | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 16 | Inverted input bit C | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 16 | Inverted input bit D | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 16 | ON delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 16 | OFF delay time | 0.0 to 3200.0 s | 0.0 | s | 1 | | | | |
| Function | Logical operation | 16 | Inversion | 0: Do not invert<br>1: Invert | 0 | | 1 | | | | |
| Function | Logical operation | 16 | Latch | 0: No latch<br>1: Latched at ON.<br>2: Latched at OFF (except OFF before power ON). | 0 | | 1 | | | | |

## Function/Energy Conservation

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Energy conservation time proportioning | 1 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 1 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 1 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 1 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 2 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 2 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 2 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 2 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 3 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 3 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 3 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 3 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 4 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 4 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 4 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 4 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 5 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 5 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 5 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 5 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 6 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 6 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 6 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 6 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 7 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 7 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 7 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 7 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 8 | Energy conservation time proportional operation | 0: Not used. 1: Used | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 8 | Energy conservation delay time | 0 to 1000 ms | 10 | ms | 2 | | | | |
| Function | Energy conservation time proportioning | 8 | Master/slave selection | 0: Master. 1: Other than master | 0 | | 2 | | | | |
| Function | Energy conservation time proportioning | 8 | Time proportional slave channel | 1: Time proportioning 1. 2: Time proportioning 2. 3: Time proportioning 3. 4: Time proportioning 4. 5: Time proportioning 5. 6: Time proportioning 6. 7: Time proportioning 7. 8: Time proportioning 8. | 0 | | 2 | | | | |

# Function/MV Branching Output

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | MV branching output | 1 | Loop definition | 0: Disabled<br>1: Loop 1<br>2: Loop 2<br>3: Loop 3<br>4: Loop 4 | 0 | | 2 | | | | |
| Function | MV branching output | 1 | Ratio | 0.01 to 320.00 | 1.00 | | 2 | | | | |
| Function | MV branching output | 1 | Bias | −199.00 to +320.00 % | 0.00 | % | 2 | | | | |
| Function | MV branching output | 2 | Loop definition | 0: Disabled<br>1: Loop 1<br>2: Loop 2<br>3: Loop 3<br>4: Loop 4 | 0 | | 2 | | | | |
| Function | MV branching output | 2 | Ratio | 0.01 to 320.00 | 1.00 | | 2 | | | | |
| Function | MV branching output | 2 | Bias | −199.00 to +320.00 % | 0.00 | % | 2 | | | | |
| Function | MV branching output | 3 | Loop definition | 0: Disabled<br>1: Loop 1<br>2: Loop 2<br>3: Loop 3<br>4: Loop 4 | 0 | | 2 | | | | |
| Function | MV branching output | 3 | Ratio | 0.01 to 320.00 | 1.00 | | 2 | | | | |
| Function | MV branching output | 3 | Bias | −199.00 to +320.00 % | 0.00 | % | 2 | | | | |
| Function | MV branching output | 4 | Loop definition | 0: Disabled<br>1: Loop 1<br>2: Loop 2<br>3: Loop 3<br>4: Loop 4 | 0 | | 2 | | | | |
| Function | MV branching output | 4 | Ratio | 0.01 to 320.00 | 1.00 | | 2 | | | | |
| Function | MV branching output | 4 | Bias | −199.00 to +320.00 % | 0.00 | % | 2 | | | | |

# Function/Reception Monitoring

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Reception monitoring | 1 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 1 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 1 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 1 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 1 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 2 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 2 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 2 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 2 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 2 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 3 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 3 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 3 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 3 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 3 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 4 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 4 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 4 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 4 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 4 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 5 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 5 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 5 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 5 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 5 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 6 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 6 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 6 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 6 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 6 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 7 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 7 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 7 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 7 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 7 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 8 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 8 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 8 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 8 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 8 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |

## Function/Reception Monitoring

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Function | Reception monitoring | 9 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 9 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 9 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 9 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 9 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 10 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 10 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 10 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 10 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 10 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 11 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 11 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 11 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 11 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 11 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 12 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 12 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 12 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 12 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 12 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 13 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 13 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 13 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 13 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 13 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 14 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 14 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 14 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 14 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 14 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 15 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 15 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 15 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 15 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 15 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |
| Function | Reception monitoring | 16 | Address (l) | 0 to 65535 | 0 | | 1 | | | | |
| Function | Reception monitoring | 16 | Address (h) | 0 to 65535 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 16 | Time-out (l) | 0 to 65535 s | 180 | s | 1 | | | | |
| Function | Reception monitoring | 16 | Time-out (h) | Fixed at 0 | 0 | | 1 | When writing, write 0 | | | |
| Function | Reception monitoring | 16 | Mode | 0: Without reception monitoring<br>1: With reception monitoring | 0 | | 1 | | | | |

## Other/UFLED Settings

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | UFLED settings | 1 | Lighting condition | 1024 to 2047: Standard bit | 1792 | | 1 | Representative alarm F0 | | | |
| Other | UFLED settings | 1 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 3 | | 1 | F0 | | | |
| Other | UFLED settings | 2 | Lighting condition | 1024 to 2047: Standard bit | 1088 | | 1 | Event 1 F1 | | | |
| Other | UFLED settings | 2 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 1 | | 1 | F1 | | | |
| Other | UFLED settings | 3 | Lighting condition | 1024 to 2047: Standard bit | *1 | | 1 | Event 2 F2 | | | |
| Other | UFLED settings | 3 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 1 | | 1 | F2 | | | |
| Other | UFLED settings | 4 | Lighting condition | 1024 to 2047: Standard bit | *2 | | 1 | Event 3 F3 | | | |
| Other | UFLED settings | 4 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 1 | | 1 | F3 | | | |
| Other | UFLED settings | 5 | Lighting condition | 1024 to 2047: Standard bit | *3 | | 1 | Event 4 F4 | | | |
| Other | UFLED settings | 5 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 1 | | 1 | F4 | | | |
| Other | UFLED settings | 6 | Lighting condition | 1024 to 2047: Standard bit | *4 | | 1 | Event 5 F5 | | | |
| Other | UFLED settings | 6 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 1 | | 1 | F5 | | | |
| Other | UFLED settings | 7 | Lighting condition | 1024 to 2047: Standard bit | *5 | | 1 | Event 6 F6 | | | |
| Other | UFLED settings | 7 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | *6 | | 1 | F6 | | | |
| Other | UFLED settings | 8 | Lighting condition | 1024 to 2047: Standard bit | *7 | | 1 | Event 7 F7 | | | |
| Other | UFLED settings | 8 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | *8 | | 1 | F7 | | | |
| Other | UFLED settings | 9 | Lighting condition | 1024 to 2047: Standard bit | 1545 | | 1 | RS-485 status F8<br>(normal transmission of 1 frame) | | | |
| Other | UFLED settings | 9 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 3 | | 1 | F8 | | | |
| Other | UFLED settings | 10 | Lighting condition | 1024 to 2047: Standard bit | 1968 | | 1 | Parameter error F9 | | | |
| Other | UFLED settings | 10 | Lighting status | 0: Off. 1: Lit. 2: Lit (reverse video)<br>3: Fast blink<br>4: Fast blink (conditional reverse video)<br>5: Slow blink<br>6: Slow blink (conditional reverse video) | 3 | | 1 | F9 | | | |

*1. Position proportional control models: 1900 (MFB1 OPEN). Otherwise: 1089 (Event 2)

*2. Position proportional control models: 1904 (MFB1 CLOSE). Otherwise: 1090 (Event 3)

*3. Position proportional control models: 1901 (MFB2 OPEN). Otherwise: 1091 (Event 4)

*4. Position proportional control models: 1905 (MFB2 CLOSE). Otherwise: 1092 (Event 5)

*5. Position proportional control models: 1888 (MFB1 estimation in progress). Otherwise: 1093 (Event 6)

*6. Position proportional control models: 5. Otherwise: 1

*7. Position proportional control models: 1889 (MFB2 estimation in progress). Otherwise: 1094 (Event 7)

*8. Position proportional control models: 5. Otherwise: 1

# Other/Instrument Information

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | Instrument info. | 1 | F/W ROM ID | | — | | 0 | | | | |
| Other | Instrument info. | 1 | F/W ROM Version 1 | | — | | 0 | | | | |
| Other | Instrument info. | 1 | F/W ROM Version 2 | | — | | 0 | | | | |
| Other | Instrument info. | 1 | Inter-module compatibility version | | — | | 0 | | | | |
| Other | Instrument info. | 1 | Module version (major, minor) | | — | | 0 | | | | |

## Other/PV Tag Name

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | PV tag name | 1 | Tag name 1 | | PV1 | | 0 | | | | |
| Other | PV tag name | 1 | Tag name 2 | | | | | | | | |
| Other | PV tag name | 1 | Tag name 3 | | | | | | | | |
| Other | PV tag name | 1 | Tag name 4 | | | | | | | | |
| Other | PV tag name | 1 | Tag name 5 | | | | | | | | |
| Other | PV tag name | 1 | Tag name 6 | | | | | | | | |
| Other | PV tag name | 1 | Tag name 7 | | | | | | | | |
| Other | PV tag name | 1 | Tag name 8 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 1 | | PV2 | | 0 | | | | |
| Other | PV tag name | 2 | Tag name 2 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 3 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 4 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 5 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 6 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 7 | | | | | | | | |
| Other | PV tag name | 2 | Tag name 8 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 1 | | PV3 | | 0 | | | | |
| Other | PV tag name | 3 | Tag name 2 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 3 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 4 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 5 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 6 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 7 | | | | | | | | |
| Other | PV tag name | 3 | Tag name 8 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 1 | | PV4 | | 0 | | | | |
| Other | PV tag name | 4 | Tag name 2 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 3 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 4 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 5 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 6 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 7 | | | | | | | | |
| Other | PV tag name | 4 | Tag name 8 | | | | | | | | |

## Other/OUT Tag Name

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | OUT tag name | 1 | Tag name 1 | | OUT 1 | | 0 | | | | |
| Other | OUT tag name | 1 | Tag name 2 | | | | | | | | |
| Other | OUT tag name | 1 | Tag name 3 | | | | | | | | |
| Other | OUT tag name | 1 | Tag name 4 | | | | | | | | |
| Other | OUT tag name | 1 | Tag name 5 | | | | | | | | |
| Other | OUT tag name | 1 | Tag name 6 | | | | | | | | |
| Other | OUT tag name | 1 | Tag name 7 | | | | | | | | |
| Other | OUT tag name | 1 | Tag name 8 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 1 | | OUT2 | | 0 | | | | |
| Other | OUT tag name | 2 | Tag name 2 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 3 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 4 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 5 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 6 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 7 | | | | | | | | |
| Other | OUT tag name | 2 | Tag name 8 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 1 | | OUT3 | | 0 | | | | |
| Other | OUT tag name | 3 | Tag name 2 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 3 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 4 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 5 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 6 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 7 | | | | | | | | |
| Other | OUT tag name | 3 | Tag name 8 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 1 | | OUT4 | | 0 | | | | |
| Other | OUT tag name | 4 | Tag name 2 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 3 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 4 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 5 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 6 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 7 | | | | | | | | |
| Other | OUT tag name | 4 | Tag name 8 | | | | | | | | |

## Other/Option Tag Name

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | Option tag name | 1 | Tag name 1 | | OPTION1 | | 0 | | | | |
| Other | Option tag name | 1 | Tag name 2 | | | | | | | | |
| Other | Option tag name | 1 | Tag name 3 | | | | | | | | |
| Other | Option tag name | 1 | Tag name 4 | | | | | | | | |
| Other | Option tag name | 1 | Tag name 5 | | | | | | | | |
| Other | Option tag name | 1 | Tag name 6 | | | | | | | | |
| Other | Option tag name | 1 | Tag name 7 | | | | | | | | |
| Other | Option tag name | 1 | Tag name 8 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 1 | | OPTION2 | | 0 | | | | |
| Other | Option tag name | 2 | Tag name 2 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 3 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 4 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 5 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 6 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 7 | | | | | | | | |
| Other | Option tag name | 2 | Tag name 8 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 1 | | OPTION3 | | 0 | | | | |
| Other | Option tag name | 3 | Tag name 2 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 3 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 4 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 5 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 6 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 7 | | | | | | | | |
| Other | Option tag name | 3 | Tag name 8 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 1 | | OPTION4 | | 0 | | | | |
| Other | Option tag name | 4 | Tag name 2 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 3 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 4 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 5 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 6 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 7 | | | | | | | | |
| Other | Option tag name | 4 | Tag name 8 | | | | | | | | |

## Other/Tag for All Loops

| Folder name | Bank name | Code | Item | Setting range | Default | Unit | Display Level | Notes | NX-D15 | NX-D25 | NX-D35 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Other | Tag for all loops | 1 | Tag name 1 | | LOOP1 | | 0 | | | | |
| Other | Tag for all loops | 1 | Tag name 2 | | | | | | | | |
| Other | Tag for all loops | 1 | Tag name 3 | | | | | | | | |
| Other | Tag for all loops | 1 | Tag name 4 | | | | | | | | |
| Other | Tag for all loops | 1 | Tag name 5 | | | | | | | | |
| Other | Tag for all loops | 1 | Tag name 6 | | | | | | | | |
| Other | Tag for all loops | 1 | Tag name 7 | | | | | | | | |
| Other | Tag for all loops | 1 | Tag name 8 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 1 | | LOOP2 | | 0 | | | | |
| Other | Tag for all loops | 2 | Tag name 2 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 3 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 4 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 5 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 6 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 7 | | | | | | | | |
| Other | Tag for all loops | 2 | Tag name 8 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 1 | | LOOP3 | | 0 | | | | |
| Other | Tag for all loops | 3 | Tag name 2 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 3 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 4 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 5 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 6 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 7 | | | | | | | | |
| Other | Tag for all loops | 3 | Tag name 8 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 1 | | LOOP4 | | 0 | | | | |
| Other | Tag for all loops | 4 | Tag name 2 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 3 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 4 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 5 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 6 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 7 | | | | | | | | |
| Other | Tag for all loops | 4 | Tag name 8 | | | | | | | | |

# Chapter 14. Troubleshooting

## WARNING

Before removing, mounting, or wiring this device, be sure to turn off the power to this device and all connected devices. Otherwise, there is a danger of electric shock.

## ■ Alarm codes and corrective actions

Alarm codes and countermeasures in case of abnormal operation of this controller.

| Alarm code | Failure | Problem | Cause | Corrective action |
|---|---|---|---|---|
| AL01 | Soft | PV1 high limit error | • Sensor burnout, incorrect wiring<br>• Incorrect settings for input voltage, current, or resistance. Or, input exceeding high or low limit setting for the alarm.<br>• AD error | • Check the PV wiring.<br>• Check the input voltage, current, and resistance.<br>• Check the alarm high and low limits.<br>• If there is an AD error, replace the module. |
| AL02 | Soft | PV1 low limit error | | |
| AL03 | Soft | PV2 high limit error | | |
| AL04 | Soft | PV2 low limit error | | |
| AL05 | Soft | PV3 high limit error | | |
| AL06 | Soft | PV3 low limit error | | |
| AL07 | Soft | PV4 high limit error | | |
| AL08 | Soft | PV4 low limit error | | |
| AL11 | Soft | AD1 fault | AD fault | If the module does not return to normal after the power is turned off and on again, replace it.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL12 | Soft | AD2 fault | | |
| AL13 | Soft | AD3 fault | | |
| AL14 | Soft | AD4 fault | | |
| AL21*3 | Soft | MFB1 input error | MFB1 line break or input error | Check the wiring for MFB1 input and motor resistance specifications.<br>☞ ■ Settings (page 4-24) |
| AL22*3 | Soft | MFB1 adjustment error | MFB1 adjustment failure | Check the various MBF1 wiring and readjust.<br>☞ 4 - 8, How to Set Position Proportional Output (page 4-20) |
| AL23*3 | Soft | MFB2 input error | MFB2 line break or input error | Check the wiring for MFB2 input and motor resistance specifications.<br>☞ ■ Settings (page 4-24) |
| AL24*3 | Soft | MFB2 adjustment error | MFB2 adjustment failure | Check the various MBF2 wiring and readjust.<br>☞ 4 - 8, How to Set Position Proportional Output (page 4-20) |
| AL25 | Soft | CT1 input error | • CT input over range<br>• Incorrect setting for CT input<br>• AD error | • Check the CT input.<br>• Change the CT input setting.<br>• If there is an AD error, replace the module.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL26 | Soft | CT2 input error | | |
| AL27 | Soft | CT3 input error | | |
| AL28 | Soft | CT4 input error | | |
| AL31 | — | Reception monitors 1–16 | No data write communication access to the set address within the set time. | • Check the status of the module.<br>• Check the settings. |
| AL32 | — | Transmission timeout between modules | • There is no response from the partner module.<br>• An error response is returned from the partner module. | |
| AL33*1 | Soft | RS-485 setting error | RS-485 setting error | Write the data again or turn the power off and back on. |

| Alarm code | Failure | Problem | Cause | Corrective action |
|---|---|---|---|---|
| AL34[*3] | — | Setting error for communication between modules. | There is a communication setting mismatch between modules. | Change the settings for communication between modules using the loader. |
| AL38[*3] | Soft | Adjacent ring disconnection | There is a break in the ring connection between modules. | Check the connections.<br>Replace the module.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL53[*3] | Soft | Base/main unit communication setting mismatch | There is a mismatch between the base and main unit communication settings. | Use the button to restore operation.[*4] |
| AL54[*3] | Soft | Base/main unit model No. mismatch | There is a mismatch between the base and main unit model numbers. | Use the button to restore operation.[*4] |
| AL55[*3] | Hard | Base verification error | Data write to the base is not possible. | If the module does not return to normal after the power is turned off and on again, replace it.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL71 | Soft | CJ1 error | • Abnormal terminal temperature<br>• AD error | • Check the ambient temperature.<br>• If there is an AD error, replace the module.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL72 | Soft | CJ2 error | | |
| AL73 | Soft | CJ3 error | | |
| AL74 | Soft | CJ4 error | | |
| AL83 | Hard | EEPROM not initialized | EEPROM read error | If the module does not return to normal after the power is turned off and on again, replace it.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL84[*1] | Hard | MAC address error | MAC address error | |
| AL85 | Hard | RAM read/write error | RAM read/write error | |
| AL86 | Hard | EEPROM read/write error | EEPROM read/write error | |
| AL87 | Hard | Base EEPROM read/write error | Base EEPROM read/write error | |
| AL88 | Soft | Base EEPROM error | • With ROM version 2.02 [1_0_2] and earlier, base/main unit model No. mismatch.<br>• With ROM version 3.00 [1_0_3] and later, incorrect base EEPROM. | Use the button to restore operation.[*2*4]<br>If the module does not return to normal after the power is turned off and on again, replace it. |
| AL94 | Soft | RAM error (parameter area) | RAM error | If the module does not return to normal after the power is turned off and on again, replace it.<br>☞ 15 - 2, Module Replacement (page 15-2) |
| AL95 | Soft | RAM error (adjustment data) | | |
| AL97 | Soft | EEPROM error (parameter area) | EEPROM read error | |
| AL98 | Soft | EEPROM error (adjustment data) | | |
| AL99 | Hard | ROM error | Faulty ROM (memory) | |

Note: Hard: If the error is serious, the FAIL LED stays lit.
Soft: If the error is not serious, the FAIL LED blinks slowly.

*1. ROM versions 2.00 [1_0_1] and later

*2. ROM versions 2.02 [1_0_2] and earlier

*3. ROM version 3.00 [1_0_3] and later versions

*4. ☞ ■ Restoring base EEPROM using the button (page 5-6) (for details on button operation)

### Note

- ☞ 7 - 17, Reception Monitoring and Communication Timeout (page 7-33)
  (for details on AL31 and AL32)

### Handling Precautions

- The mode changes to IDLE when AL53 (base/main unit communication settings mismatch), AL54 (base/main unit model No. mismatch), or AL88 (base EEPROM error) occurs.

## ■ If a touch panel, etc., does not respond after module replacement

If a module communicating with host devices like touch panels using the CPL/TCP or Modbus/TCP protocol is replaced with another module, the new module may be unable to communicate with the devices. In this case, either temporarily turn OFF the power to devices like touch panels, or wait for a while for automatic recovery.

### Note

- After module replacement, the new module must be configured.
  ☞ 15 - 2, Module Replacement (page 15-2) (for details)

### ● Major host devices and estimated time required for automatic recovery

- ARF100/200 seriess: about 5 minutes
- Azbil Corporation system products
  (Harmonas-DEO, PREXION, EneSCOPE, etc.): about 10 minutes
- Digital Electronics Corporation GP series graphic operator interfaces:
  about 20 minutes
- Mitsubishi Electric Corporation GOT series graphic operator interfaces:
  about 20 minutes

### ● Reason for loss of communication

Host devices using CPL/TCP or Modbus/TCP automatically read MAC addresses from modules and regularly update them in order to identify each module.
After module replacement, the MAC address of the replaced module may remain in the host devices. In such a case, they attempt to communicate using the old address. When a command message is received from a host device, since the MAC address in the message is not the new module's MAC address (even though the IP address is the same), the new module discards the message. Therefore communication cannot be established.
For normal communications to resume, time is required to rewrite the MAC address in the host devices. The amount of time varies depending on the host device.

## ■ If the module can no longer communicate with host devices using the CPL/TCP or Modbus/TCP protocol

The module can communicate with host devices using the CPL/TCP or Modbus/TCP protocol. However, in the following cases, CPL/TCP or Modbus/TCP communications may not be possible. In these cases, turn OFF the power to the host devices and module, or wait for 3 minutes for automatic recovery.

### ● Cases where communication fails

- When the host device is subject to repeated short interruptions
- When network devices (a hub, etc.) between the host device and the module experiences repeated short power outages or disconnections.

### ● Reason for loss of communications

Since the module retains data from its communication partners for a certain period of time, if the host devices experience repeated short interruptions, the module sometimes detects different devices before and after the interruption. As a result, the module may mistakenly conclude that the number of host communications exceeds the limit (2) and refuse to accept further communications.

# Chapter 15. Maintenance, Inspection, and Disposal

## 15 - 1 Maintenance and Inspection

| WARNING |
| --- |
| Before removing, mounting, or wiring this device, be sure to turn off the power to this device and all connected devices. Otherwise, there is a danger of electric shock. |

| CAUTION |
| --- |
| Make sure that there are no loose connections. Failure to do so may cause overheating or equipment failure. |
| To remove dirt from this device, wipe it with a soft dry cloth. |
| When removing dirt from this device, never use an organic solvent such as thinner or benzene, or a detergent. |

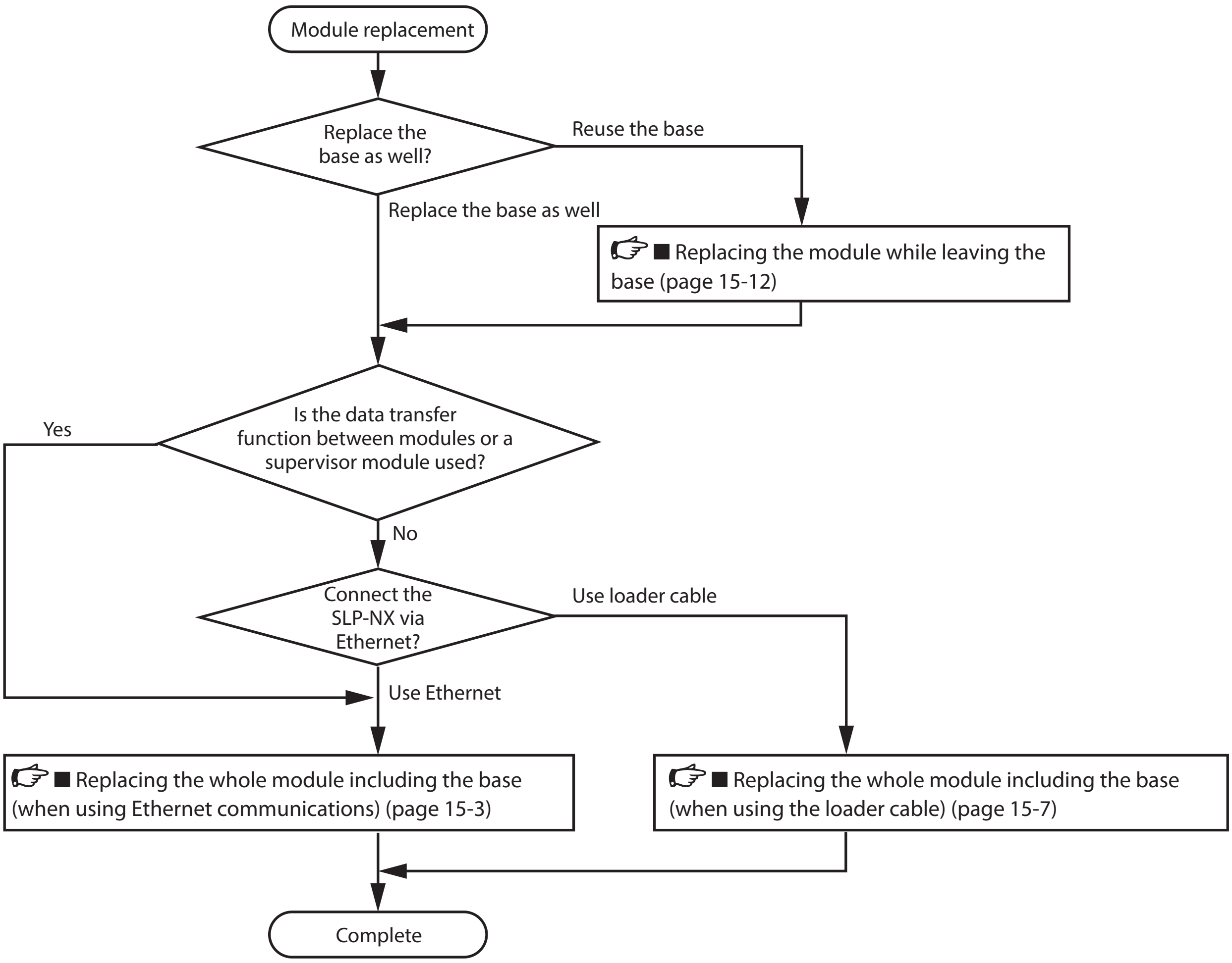
| | | |
| --- | --- | --- |
| Cleaning | : | If the device is dirty, wipe it with a soft, dry cloth. |
| Parts replacement | : | Do not replace any parts of this unit. |
| Fuse replacement | : | When replacing the fuse for the power wiring, always use the fuse that is recommended for your power supply. |

# 15 - 2 Module Replacement

| CAUTION |
|---|
| Before wiring the NX-D15/25/35, be sure to disconnect the power. Otherwise, there is a danger of device failure. |
| Do not use screw terminal block models together with screwless terminals, or vice versa, since correct measurement will not be possible. |

This section explains replacement methods when installing or operating this unit.

- Replacing the whole module including the base (when using Ethernet communications)
- Replacing the whole module including the base (when using the loader cable)
- Replacing the module while leaving the base




## Handling Precautions

- When changing the module model before or after the replacement, use the SLP-NX Smart Loader Package to change the model number, or create a new project.
- For modules using the function for data transfer between modules, or modules that are controlled by a supervisor module, write settings for all modules registered to the project at the same time.

## ■ Replacing the whole module including the base (when using Ethernet communications)

When replacing a module, replacing the terminal sections and base along with the main unit is recommended.
The following is the procedure for replacing a module that utilizes Ethernet communications.

### Handling Precautions

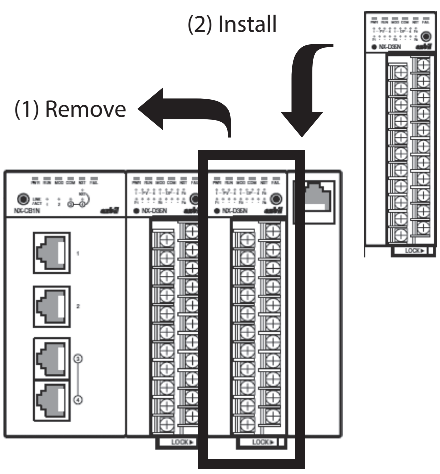
- This explanation is for environments where the network environment of this device matches the network log file for the SLP-NX Smart Loader Package. For details on the network log file, ☞ see chapter 5, "Actual Module Communication Settings," in Network Instrumentation Module Smart Loader Package SLP-NX User's Manual (CP-UM-5636E).
- When writing to all modules, the parameters in the project files of modules that are not being replaced will also be overwritten, so be sure to use the latest version of the project file.

**Note**

- The following is an example. It is not the only way to make the change.

(1) Check that the power is OFF.

(2) Replace the module.

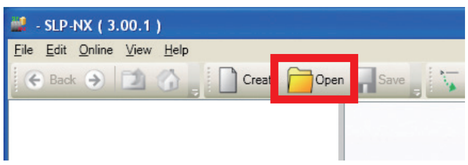



**Note**

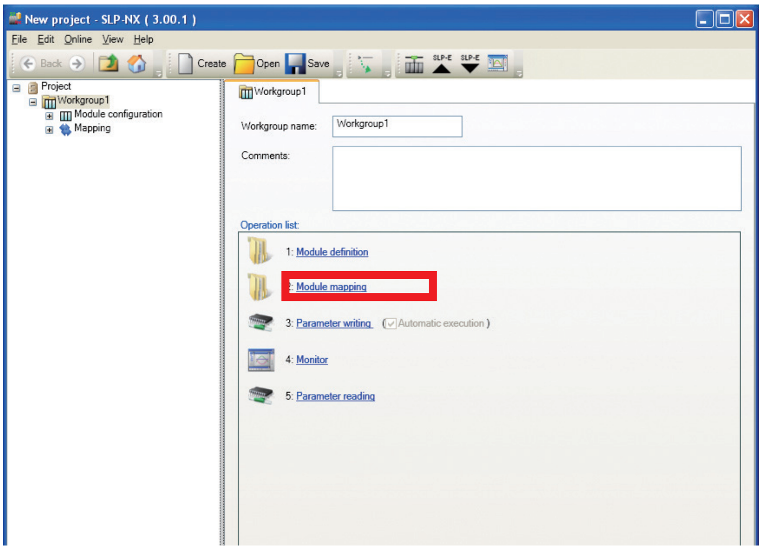
- ☞ Chapter 2, Installation (for how to install a module)

(3) Turn the power on.

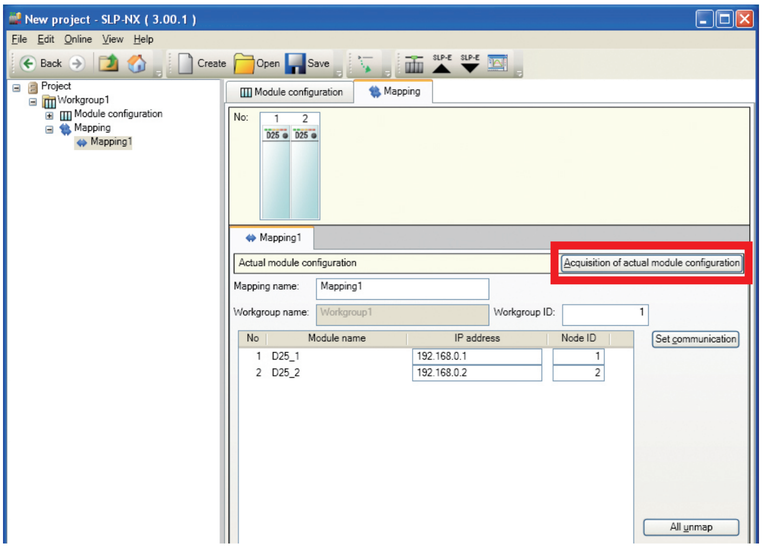
(4) Start the SLP-NX and open the existing project files that have been saved.



(5) Display the mappings in the SLP-NX project window.

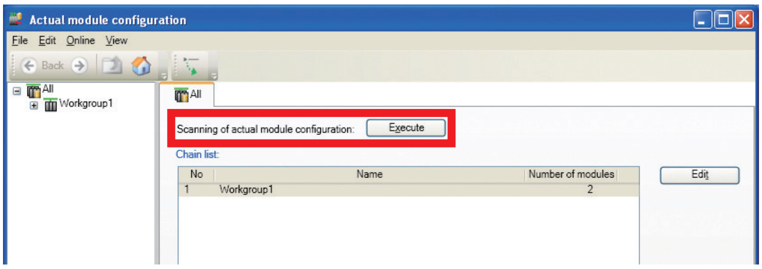



(6) Click [Acquisition of actual module configuration] on the Individual Mapping screen.

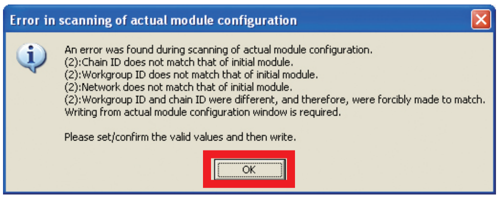



> The [Actual module configuration] window is displayed.

(7) Open the [Actual module configuration] window, then click the [Execute] button for [Scanning of actual module configuration].



(8) When a scan for the actual module configuration is executed, [Error in scanning of actual module configuration] is displayed. Click the [OK] button and close the error report.



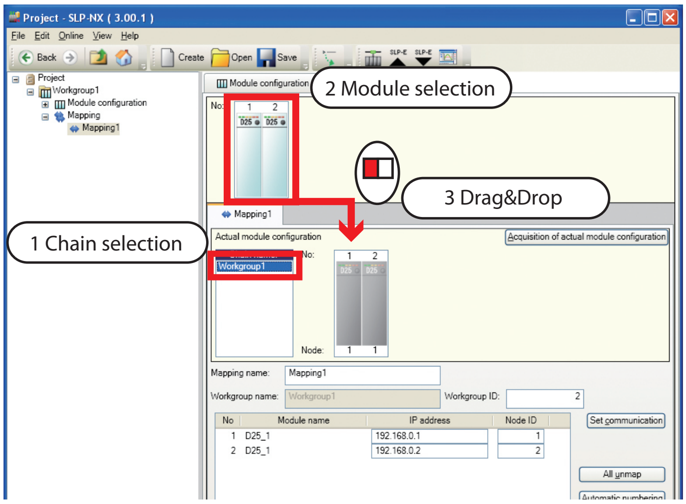

If you replaced the module with one having all the settings configured, [Error in scanning of actual module configuration] is not displayed. In this case skip to step 11.

(9) Carry out the following operation to copy communication settings, etc., from the mapping information in the project window to the [Actual module configuration] window.

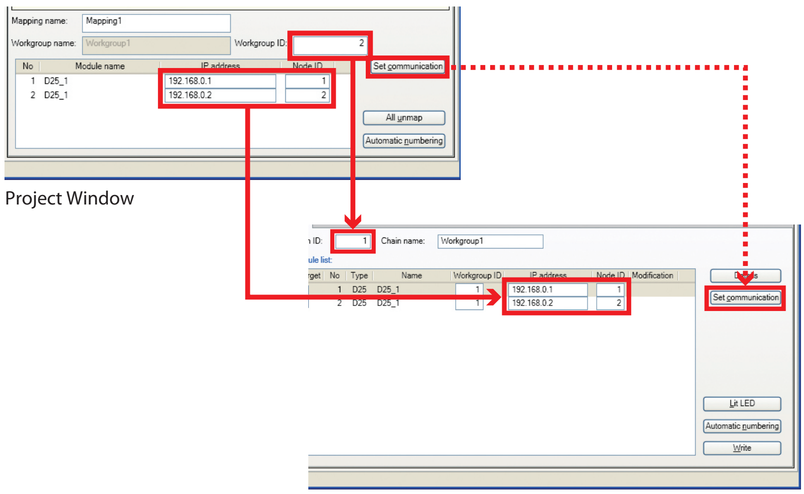
(1) Select the chain of the module to be replaced.

(2) Press the [shift] key while selecting all the modules to be mapped.

(3) Drag and drop the selected modules onto the actual module configuration.



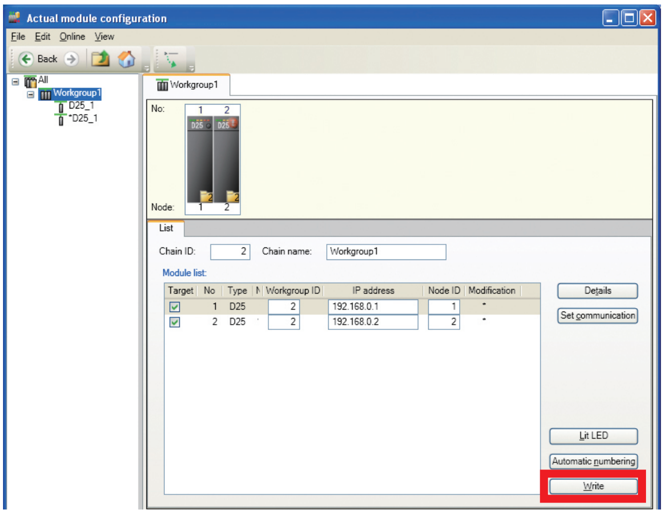

> As a result, the mapping information will be copied into the [Actual module configuration] window from the project window.



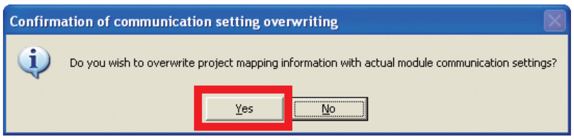

Actual module configuration window

(10) From the [Actual module configuration] window, select the chains and modules to be targeted, and click the [Write] button.

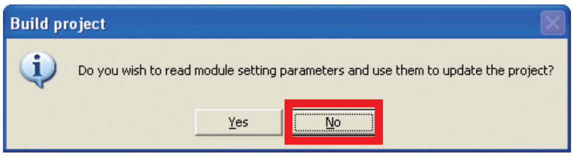
> The communications settings are written to the modules.




(11) When [Confirmation of communication setting overwriting] is displayed, click the [Yes] button.



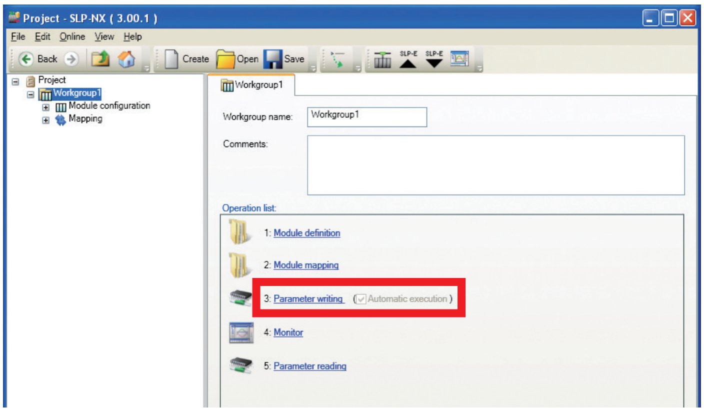

(12) When [Build project] is displayed, click the [No] button.




## Handling Precautions

- If [Yes] for [Build project] is clicked, the content of the project file used to read module parameters after replacement will be updated.

(13) Write parameters for the relevant modules selected from the SLP-NX project window.




**Handling Precautions**

- For modules using the Data Transfer Function between Modules, or modules which are controlled by a supervisor module, write all settings for all modules registered to the project.

## ■ Replacing the whole module including the base (when using the loader cable)

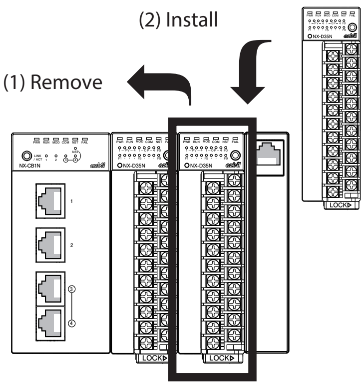
When replacing a module, replacing the terminal sections and base along with the main unit is recommended.
The following gives the procedure for replacing modules in cases where the loader cable is used.

**Note**

- The following is an example. It is not the only way to make the change.

(1) Check that the power is OFF.

(2) Replace the module.

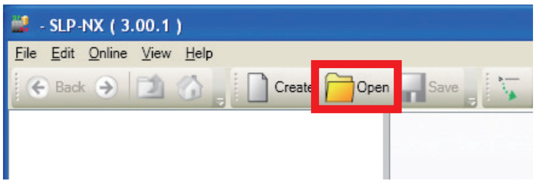



**Note**

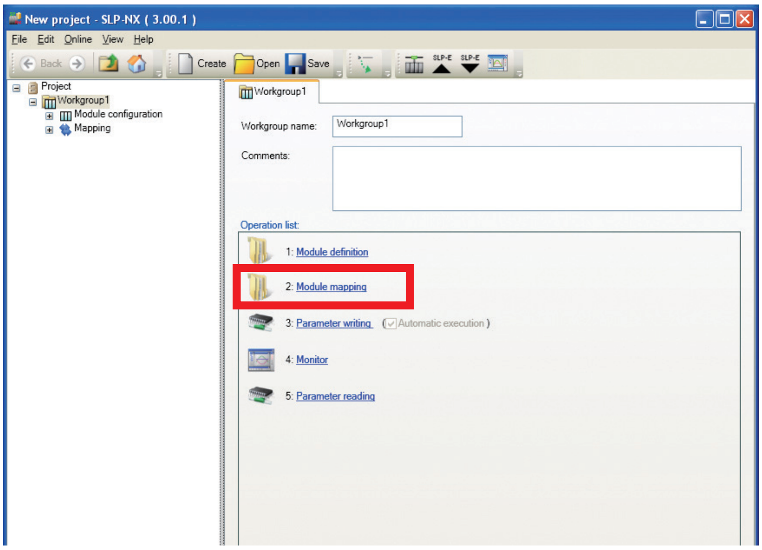
- ☞ Chapter 2, Installation (for how to install the module)

(3) Turn the power on.

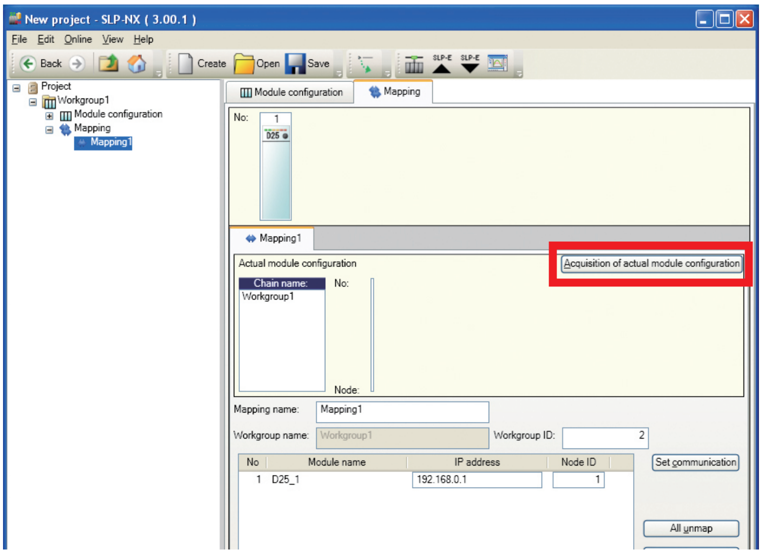
(4) Start the SLP-NX and open the existing project files that have been saved.




(5) Display mappings in the SLP-NX project window.

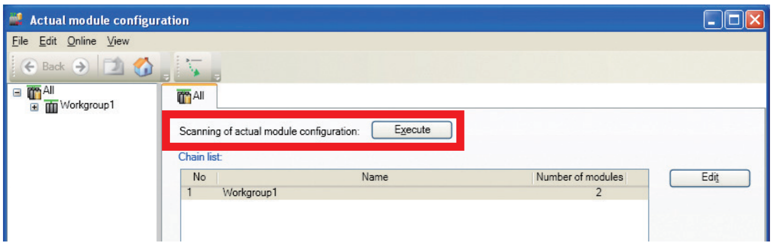



(6) Click [Acquisition of actual module configuration] on the Individual Mapping screen.

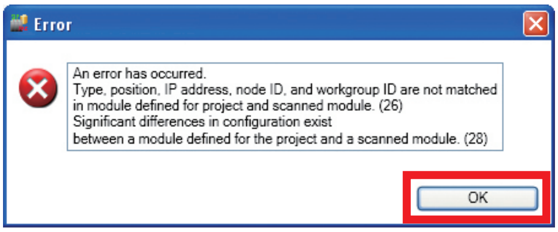



> The [Actual module configuration] window is displayed.

(7) Open the [Actual module configuration] window, and then click the [Execute] button for [Scanning of actual module configuration].

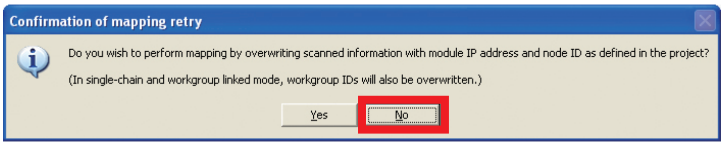



(8) When a scan for the actual module configuration is executed, [Error] is displayed. Click the [OK] button and close the error report.




If you replaced the module with one having all the settings configured, “Error” is not displayed. In this case skip to step 14.

(9) When [Confirmation of Mapping Retry] is displayed, click the [No] button.



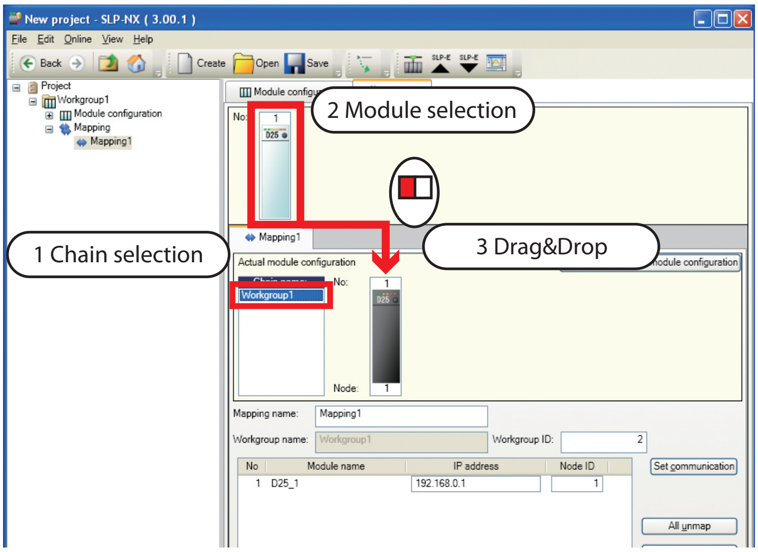

(10) The [Error] message displayed in step 8 for confirmation may appear again. Click the [OK] button and close the error report.

(11) Carry out the following operation to copy communication settings, etc., from the mapping information in the project window to the [Actual module configuration] window.

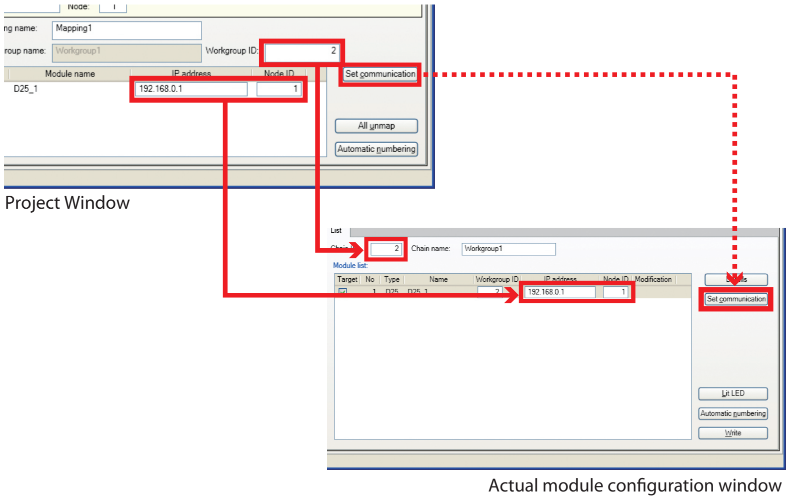
(1) Select the chain of the module to be replaced.

(2) Select the mapping module.

(3) Drag and drop the selected modules onto the actual module configuration.

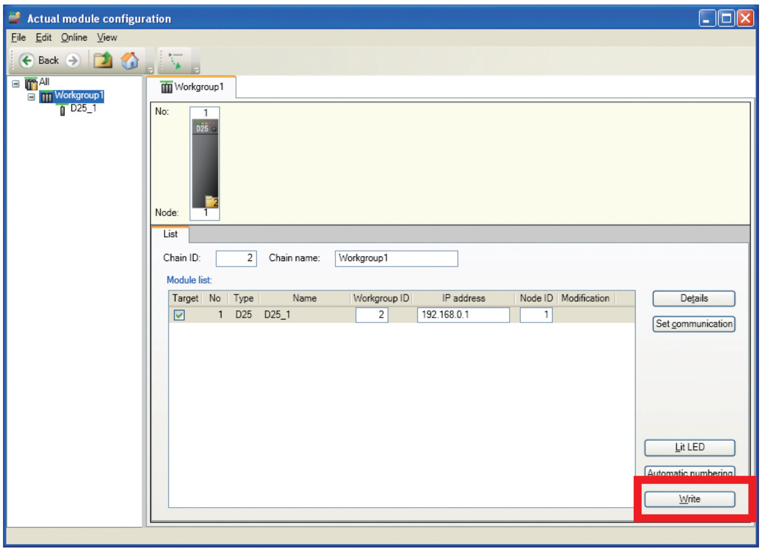



Consequently, the mapping information will be copied into the [Actual module configuration] window from the project window.

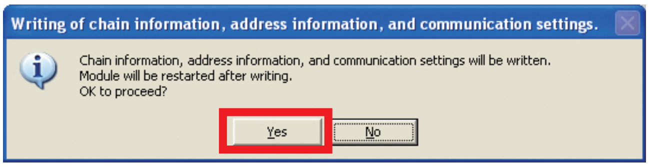


(12) From the [Actual module configuration] window, select the chains and modules to be targeted, and click the [Write] button.

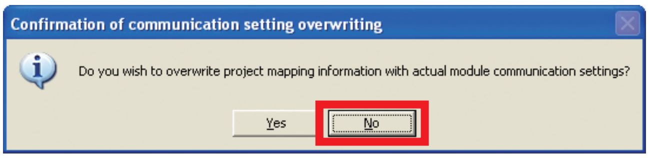
> The communications settings are written to the modules.



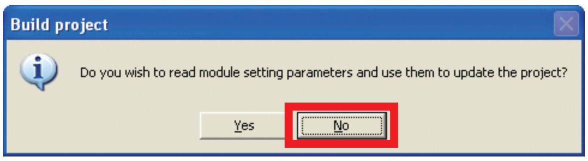

(13) When [Writing of chain information, address information, and communication settings] is displayed, click the [Yes] button.




(14) When [Confirmation of communication setting overwriting] is displayed, click the [No] button.



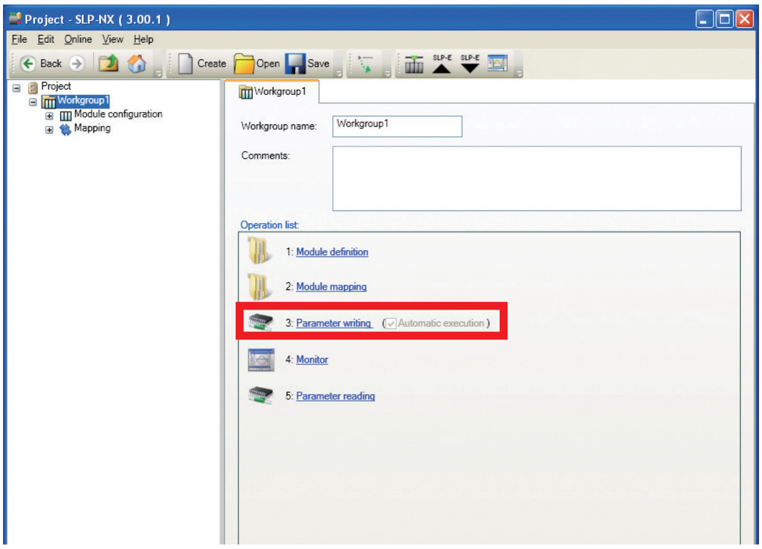

(15) When [Build project] is displayed, click the [No] button.




### ! Handling Precautions

- If [Yes] in [Build project] is clicked, the content of the project file used to read module parameters after replacement will be updated.

(16) Write parameters for the relevant modules selected from the SLP-NX project window.




**Handling Precautions**

- For modules using the Data Transfer Function between Modules, or which are controlled by a supervisor module, write all settings for all modules registered to the project.

## ■ Replacing the module while leaving the base

If the main unit is replaced but the base is left in place, the content recorded in the base and the information in the new unit will differ, causing the following errors to occur.

- AL53: Base/main unit communication setting mismatch (for ROM versions 3.00 [1_0_3] and later)
- AL54: Base/main unit model No. mismatch (for ROM versions 3.00 [1_0_3] and later)
- AL88: Base EEPROM error

The content of these errors can be checked from the LED operation indicators.
☞ ■ LED lighting pattern under special conditions (page 5-4)

When an error occurs, do a base EEPROM restoration. This will allow elimination of discrepancies between the main unit and the base.
☞ ■ Restoring base EEPROM using the button (page 5-6)

Subsequently, if using Ethernet communications, follow the procedure described in ☞ ■ Replacing the whole module including the base (when using Ethernet communications) (page 15-3).

If using a loader cable, or if Ethernet is unavailable, follow the procedure described in ☞ ■ Replacing the whole module including the base (when using the loader cable) (page 15-7).

# 15 - 3 Disposal

**CAUTION**

When disposing of this product, please do so appropriately, in compliance with local ordinances for industrial waste.

-MEMO-

# Chapter 16. Specifications

## 16 - 1 Specifications

### ■ Module specifications

| | | |
|---|---|---|
| Cycle period | : | 500 ms (NX-D15)<br>200 ms, 400 ms (NX-D25)<br>100 ms, 200 ms, 400 ms (NX-D35) |

### ■ PV input

| | | |
|---|---|---|
| Number of inputs | : | 4 |
| Thermocouple | : | K, E, J, T, B, R, S, N (JIS C 1602-1995),<br>WRe5-26 (ASTM E988-96 (reapproved 2002)),<br>PR40-20 (ASTM E1751-00), Ni-Ni·Mo (ASTM E1751-00),<br>PL II (ASTM E1751-00), DIN U, DIN L (DIN 43710-1985),<br>Gold-iron/Chromel (ASTM E1751-00) |
| Resistance temperature detector (RTD) | : | Pt100 (JIS C 1604-1997), JPt100 (JIS C 1604-1989) |
| DC voltage (mV) | : | 0 to 10 mV, −10 to +10 mV, 0 to 100 mV |
| DC voltage (V) | : | 0–1 V, −1 to +1 V, 1–5 V, 0–5 V, 0–10 V, 2–10 V |
| DC current | : | 4–20 mA, 0–20 mA |
| Sampling cycle | : | The same as the cycle period |
| Allowable input voltage | : | For PV1* |

| Power | Input setup | Allowable input voltage | Allowable input current |
|---|---|---|---|
| ON | Thermocouple | BA-B9: ±1 V<br>B8-B9: +12 to −2 V | — |
| | DC voltage (mV) | BA-B9: ±1 V<br>B8-B9: +12 to −2 V | — |
| | Resistance temperature detector (RTD) | BA-B9: ±1 V<br>B8-B9: ±1 V | — |
| | DC voltage (V) | BA-B9: ±1 V<br>B8-B9: +12 to −2 V | — |
| | DC current | BA-B9: ±1 V<br>B8-B9: +12 to −2 V<br>(Power generator open voltage: 35 V max.) | B8-B9: 0 to 25 mA<br>(Operation for excessive input starts at 30 mA typ or more.) |
| OFF | — | BA-B9: ±1 V<br>B8-B9: +12 to −2 V | — |

* The same limits between terminals also apply for PV2–PV4.

## ● Thermocouple input

Indication accuracy (NX-D15/25, under standard conditions)

| Range type | Sensor type | Range | Accuracy |
|---|---|---|---|
| 1 | K | −200 to +1200 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 2 | K | 0 to +1200 °C | ±0.3 % FS ± 1 digit |
| 3 | K | 0.0 to 800.0 °C | ±0.3 % FS ± 1 digit |
| 4 | K | 0.0 to 600.0 °C | ±0.3 % FS ± 1 digit |
| 5 | K | 0.0 to 400.0 °C | ±0.3 % FS ± 1 digit |
| 6 | K | −200.0 to +400.0 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 7 | K | −200.0 to +200.0 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 8 | J | 0 to +1200 °C | ±0.3 % FS ± 1 digit |
| 9 | J | 0.0 to 800.0 °C | ±0.3 % FS ± 1 digit |
| 10 | J | 0.0 to 600.0 °C | ±0.3 % FS ± 1 digit |
| 11 | J | −200.0 to +400.0 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 12 | E | 0.0 to 800.0 °C | ±0.3 % FS ± 1 digit |
| 13 | E | 0.0 to 600.0 °C | ±0.3 % FS ± 1 digit |
| 14 | T | −200.0 to +400.0 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 15 | R | 0 to 1600 °C | ±0.4 % FS (±6.4 °C) ± 1 digit |
| 16 | S | 0 to 1600 °C | ±0.4 % FS (±6.4 °C) ± 1 digit |
| 17 | B | 0 to 1800 °C | 800 to 1800 °C : ±0.4 % FS (±7.2 °C) ± 1 digit<br>260 to 800 °C : ±0.8 %FS (±14.4 °C) ± 1 digit<br>0 to 260 °C : ±4 % FS (±72 °C) ± 1 digit<br>Low limit for indication : 20 °C ± 1 digit |
| 18 | N | 0 to 1300 °C | ±0.3 % FS ± 1 digit |
| 19 | PL II | 0 to 1300 °C | ±0.3 % FS ± 1 digit |
| 20 | WRe5-26 | 0 to 1400 °C | ±0.3 % FS ± 1 digit |
| 21 | WRe5-26 | 0 to 2300 °C | ±0.3 % FS ± 1 digit |
| 22 | Ni-Ni·Mo | 0 to 1300 °C | ±0.3 % FS ± 1 digit |
| 23 | PR40-20 | 0 to 1900 °C | 800 to 1900 °C : ±1.0 % FS (±19.0 °C) ± 1 digit<br>300 to 800 °C : ±2 % FS (±38 °C) ± 1 digit<br>0 to 300 °C : ±4 % FS (± 76 °C) ± 1 digit |
| 24 | DIN U | −200.0 to +400.0 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 25 | DIN L | −100.0 to +800.0 °C | ±0.3 % FS (load range ±0.6 % FS) ± 1 digit |
| 26 | Gold/iron-Chromel | 0.1 to 360.1K | 280.1 to 360.1 K : no specification (linear interpolation is used)<br>0.1 to 280.1 K : ±3.0 K ± 1 digit |

Indication accuracy (NX-D35, under standard conditions)

| Range type | Sensor type | Range | Accuracy |
|---|---|---|---|
| 1 | K | −200 to +1200 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit |
| 2 | K | 0 to +1200 °C | ±0.1 % FS ± 1 digit |
| 3 | K | 0.0 to 800.0 °C | ±0.1 % FS ± 1 digit |
| 4 | K | 0.0 to 600.0 °C | ±0.1 % FS ± 1 digit |
| 5 | K | 0.0 to 400.0 °C | ±0.1 % FS ± 1 digit |
| 6 | K | −200.0 to +400.0 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit<br>±2 °C ± 1 digit (below −100 °C) |
| 7 | K | −200.0 to +200.0 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit<br>±2 °C ± 1 digit (below −100 °C) |
| 8 | J | 0 to +1200 °C | ±0.1 % FS ± 1 digit |
| 9 | J | 0.0 to 800.0 °C | ±0.1 % FS ± 1 digit |
| 10 | J | 0.0 to 600.0 °C | ±0.1 % FS ± 1 digit |
| 11 | J | −200.0 to +400.0 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit<br>±2 °C ± 1 digit (below −100 °C) |
| 12 | E | 0.0 to 800.0 °C | ±0.1 % FS ± 1 digit |
| 13 | E | 0.0 to 600.0 °C | ±0.1 % FS ± 1 digit |
| 14 | T | −200.0 to +400.0 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit<br>±2 °C ± 1 digit (below −100 °C) |
| 15 | R | 0 to 1600 °C | 100 to 1600 °C : ±0.15 % FS (2.4 °C) ± 1 digit<br>0 to 100 °C : ±0.20 % FS (3.2 °C) ± 1 digit |
| 16 | S | 0 to 1600 °C | 100 to 1600 °C : ±0.15 % FS (2.4 °C) ± 1 digit<br>0 to 100 °C : ±0.20 % FS (3.2 °C) ± 1 digit |
| 17 | B | 0 to 1800 °C | 800 to 1800 °C : ±0.2 % FS (3.6 °C) ± 1 digit<br>260 to 800 °C : ±0.4 % FS (7.2 °C) ± 1 digit<br>0 to 260 °C : ±4 % FS (72 °C) ± 1 digit<br>Low limit for indication : 20 °C ± 1 digit |
| 18 | N | 0 to 1300 °C | ±0.1 % FS ± 1 digit |
| 19 | PL II | 0 to 1300 °C | ±0.1 % FS ± 1 digit |
| 20 | WRe5-26 | 0 to 1400 °C | ±0.1 % FS ± 1 digit |
| 21 | WRe5-26 | 0 to 2300 °C | ±0.1 % FS ± 1 digit |
| 22 | Ni-Ni·Mo | 0 to 1300 °C | ±0.1 % FS ± 1 digit |
| 23 | PR40-20 | 0 to 1900 °C | 800 to 1900 °C : ±0.5 % FS (9.5 °C) ± 1 digit<br>300 to 800 °C : ±1.5 % FS (28.5 °C) ± 1 digit<br>0 to 300 °C : ±2.5 % FS (47.5 °C) ± 1 digit |
| 24 | DIN U | −200.0 to +400.0 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit |
| 25 | DIN L | −100.0 to +800.0 °C | ±0.1 % FS (load range ±0.2 % FS) ± 1 digit |
| 26 | Gold/iron-Chromel | 0.1 to 360.1K | 280.1 to 360.1 K : no specification (linear interpolation is used)<br>0.1 to 280.1 K : ±1.5 K ± 1 digit |

| | | |
|---|---|---|
| Cold junction compensation accuracy | : | ±0.5 °C (at ambient temperature of 23 ± 2 °C), ±1.5 °C (at ambient temperature of 0–50 °C) |
| Cold junction compensation method | : | Internal/external (0 °C only) compensation selectable |
| Allowable input voltage | : | ±1 V |
| Input bias current | : | +0.2 μA max. (under standard conditions) |
| Wiring resistance effect | : | 0.2 μV/Ω max. (wiring resistance: total resistance of all wires) |
| Allowable parallel connection resistance | : | 1 MΩ min. |

### ● RTD input

Indication accuracy (under standard conditions)

: • NX-D15/25
±0.3 % FS ± 1 digit

• NX-D35
±0.1 % FS ± 1 digit
Note that ±0.15 % FS ± 1 digit (−20.00 to +60.00 °C/Pt)
±0.2 % FS ± 1 digit (−20.00 to +60.00 °C/JPt)

| | | |
|---|---|---|
| Measuring current | : | 1.0 mA (typical), from terminals A and B |
| Allowable wiring resistance | : | 85 Ω max. (per wire) |
| Wiring resistance effect | : | 0.05 % FS/Ω max. |

### ● DC voltage (V-range) input

Indication accuracy (under standard conditions)

: • NX-D15/25
±0.3 % FS ± 1 digit

• NX-D35
±0.1 % FS ± 1 digit

| | | |
|---|---|---|
| Allowable input voltage | : | −2 to +12 V |
| Input bias current | : | 0–1 V range: +2 μA max. (under standard conditions)<br>0–5 V and 1–5 V ranges: +7 μA max. (under standard conditions)<br>0–10 V and 2–10 V ranges: +12 μA max. (under standard conditions) |
| Wiring resistance effect | : | 0–1 V range: +2 μV/Ω max. (under standard conditions)<br>0–5 V and 1–5 V ranges: +7 μV/Ω max. (under standard conditions)<br>0–10 V and 2–10 V ranges: +12 μV/Ω max. (under standard conditions) |
| Input impedance | : | 1 MΩ min. |

### ● DC voltage (mV range) input

Indication accuracy (under standard conditions)

: • NX-D15/25
±0.3 % FS ± 1 digit

• NX-D35
±0.1 % FS ± 1 digit
±0.15 % FS ± 1 digit (0–10 mV)

| | | |
|---|---|---|
| Allowable input voltage | : | ±1 V |
| Input bias current | : | 0.2 μA max. (under standard conditions) |
| Wiring resistance effect | : | 0.2 μV/Ω max. (under standard conditions) |
| Allowable parallel connection resistance | : | 1 MΩ min. (range 83: 2 MΩ min.) |

● **DC current input**

Indication accuracy (under standard conditions)
: • NX-D15/25
±0.3 % FS ± 1 digit
• NX-D35
±0.1 % FS ± 1 digit

Maximum allowable input : 25 mA, 35 V

Input impedance : 80 Ω max. (with 20 mA input)

● **MFB input (NX-D35 (position proportional control))**

Allowable resistance range : 100–1000 Ω, 1000–5000 Ω

Sampling cycle : The same as the cycle period

## ■ Behavior if a PV input error occurs

| Type | Range type | Cause | Indication | Alarm*1 |
|---|---|---|---|---|
| Thermocouple<br>DC voltage (mV) | 1–26<br>81–83 | Line break | Upscale, 110 % FS | PV high limit error<br>(AL01, AL03, AL05, AL07) |
| Resistance temperature detector (RTD) | 41–52 | Line A break<br>Line B break<br>Line C break<br>2 or 3 line break | Upscale, 110 % FS | PV high limit error<br>(AL01, AL03, AL05, AL07)*4 |
| | | Short circuit, lines A and B<br>Short circuit, lines A and C | Downscale –10 % FS or 0 % FS*3 | PV low limit error<br>(AL02, AL04, AL06, AL08) |
| DC voltage (V) | 84, 87, 88 | Line break | About 0 % FS | None |
| | 85 | Line break | About 50 % FS | None |
| | 86, 89 | Line break | Downscale –10 % FS | PV low limit error<br>(AL02, AL04, AL06, AL08) |
| DC current*2 | 90 | Line break | About 0 % FS | None |
| | 91 | Line break | Downscale –10 % FS | PV low limit error<br>(AL02, AL04, AL06, AL08) |

*1. Alarms operate as shown here when the default alarm high and low limits for each range type are used.

*2. If DC current is detected that exceeds the specification for maximum permissible input, the current path may be cut off intermittently to protect the circuit.

*3. Whether downscale is shown as –10 % FS or 0 % FS depends on the range type. (Upscale may be displayed in ROM version 1.00 [1_0_0].)

*4. If the B line breaks, there may be a PV low limit alarm (AL02, AL04, AL06, AL08) lasting for about 1 second before the PV high limit alarm (AL01, AL03, AL05, AL07) is triggered.

## ■ Behavior if an MFB input error occurs

| Type | Range type | Cause | Indication | Alarm |
|---|---|---|---|---|
| MFB1 | 75–76 | Input high limit error | Upscale | AL21 and AL05 |
| | | Input low limit error | Downscale | AL21 and AL06 |
| | | Y line break<br>G line break<br>T line break<br>Multiline break | Upscale | AL21 and AL05*1 |
| MFB2 | 75–76 | Input high limit error | Upscale | AL23 and AL07 |
| | | Input low limit error | Downscale | AL23 and AL08 |
| | | Y line break<br>G line break<br>T line break<br>Multiline break | Upscale | AL23 and AL07*2 |

*1. If the Y line breaks before AL 21 and AL05 occur, AL06 may occur for about 1 second.

*2. If the Y line breaks before AL 23 and AL07 occur, AL08 may occur for about 1 second.

## ■ Transistor output (position proportional control models)

Number of outputs : 4
Output type : Transistor output (sink type)
External power source rating : 5–24 V DC
External power source allowable voltage : 4.5–26.4 V DC
Allowable output current : 100 mA DC max.
OFF-state leakage current : 100 μA max.
ON residual voltage : 0.5 V max.
Output update cycle : The same as the cycle period

## ■ Analog current output

Number of outputs : 4 outputs (2 outputs with output type S)
Output type : DC current output
Output current : 4–20 mA DC (2.4–21.6 mA), 0–20 mA DC (0–22 mA)
Allowable load resistance : 300 Ω max. (6.6 V max.)
600 Ω max. with output type S (13.2 V max.)

Note When using a 100 Ω or less load resistance, do not connect it in a live state. Doing so affects other outputs.

Output accuracy :
- NX-D15/25
  ±0.3 % FS, however, ±1 % FS or less for 0–0.2 mA
- NX-D35
  ±0.1 % FS, however, ±1 % FS or less for 0–0.2 mA

Output resolution : 1/10000 (4–20 mA range), 1/12500 (0–20 mA range)
Voltage when open : 10 V DC ± 10 % (18.5 V DC ± 10 % for output type S)

## ■ Analog voltage output

| | | |
|---|---|---|
| Number of outputs | : | 4 outputs (2 outputs with output type G) |
| Output type | : | DC voltage output |
| Output voltage | : | 0–5 V DC (0–5.5 V DC),<br>1–5 V DC (0.6–5.4 V DC), 0–10 V DC (0–11 V DC), 2–10 V DC (1.2–10.8 V DC) |
| Allowable load resistance | : | 4 kΩ min. |
| Output accuracy | : | • NX-D15/25<br>±0.3 % FS, however, ±1 % FS or less for 0–0.1 V<br>• NX-D35<br>±0.1 % FS, however, ±1 % FS or less for 0–0.1 V |
| Output resolution | : | 1/8000 (1–5 V range), 1/10000 (0–5 V range),<br>1/16000 (2–10 V range), 1/20000 (0–10 V range) |

## ■ Current transformer input (optional)

| | | |
|---|---|---|
| Number of inputs | : | 4 |
| Recommended current transformers | : | QN206A (hole diameter: 5.8 mm, 800 turns), sold separately<br>QN212A (hole diameter: 12 mm, 800 turns), sold separately |
| Measuring current range | : | 0.4–50.0 A AC (rms) (peak current: 71 A max., number of turns: 800, number of power line passes: 1) |
| Maximum allowable current | : | 60 A AC (rms) (peak current: 85 A max., number of turns: 800, number of power line passes: 1) |
| Indication accuracy | : | ±5 % FS ± 1 digit |
| Indication resolution | : | 0.1 A |

## ■ Digital output (optional)

| | | |
|---|---|---|
| Number of outputs | : | 4 |
| Output type | : | Transistor output (sink type) |
| External power source rating | : | 5–24 V DC |
| External power source allowable voltage | : | 4.5–26.4 V DC |
| Allowable output current | : | 100 mA DC max. |
| OFF-state leakage current | : | 100 μA max. |
| ON residual voltage | : | 0.5 V max. |
| Output update cycle | : | The same as the cycle period |

## ■ Digital input (optional)

| | | |
|---|---|---|
| Number of inputs | : | 4 |
| Parallel connections with other devices | : | Parallel connection with our SDC controllers is possible |
| Compatible output type | : | Non-voltage contacts or transistor output (sink type) |
| Open terminal voltage | : | 5 V DC ± 10 % |
| Terminal current (when shorted) | : | 5.6 mA (typical) |
| Allowable ON contact resistance | : | 250 Ω max. |
| Allowable OFF contact resistance | : | 100 kΩ min. |
| Allowable ON residual voltage | : | 1 V max. |
| OFF-state leakage current | : | 100 μA max. |
| Minimum hold time | : | Twice the cycle period |

## ■ Standard conditions

| | | |
|---|---|---|
| Ambient temperature | : | 23 ± 2 °C |
| Ambient humidity | : | 60 ± 5 % RH (without condensation) |
| Rated voltage | : | 24 V DC |
| Vibration | : | 0 $m/s^2$ |
| Shock | : | 0 $m/s^2$ |
| Mounting angle | : | Reference plane ±3° |

## ■ Operating conditions

| | | |
|---|---|---|
| Ambient temperature | : | 0–50 °C (below the installed NX) |
| Ambient humidity | : | 10–90 % RH (without condensation) |
| Allowable operating voltage | : | 21.6–26.4 V DC |
| Vibration | : | 0–3.2 $m/s^2$ (10–150 Hz for 2 h each in X, Y, and Z directions) |
| Shock | : | 0-9.8 $m/s^2$ |
| Mounting angle | : | Reference plane ±3° |
| Dust | : | 0.3 $mg/m^3$ max. |
| Corrosive gas | : | None |
| Elevation | : | 2000 m max. |
| Pollution degree | : | 2 (equivalent to a normal office environment) |

## ■ Transport and storage conditions

| | |
|---|---|
| Ambient temperature | : −20 to +70 °C |
| Ambient humidity | : 5–95 % RH (without condensation) |
| Vibration | : 0–9.8 m/s$^2$ (10–150 Hz for 2 h each in X, Y, and Z directions) |
| Shock | : 0–300 m/s$^2$ (vertically 3 times while on DIN rail) |
| Package drop test | : Drop height 60 cm (free fall on 1 corner, 3 edges, 6 sides) |

## ■ Other

| | |
|---|---|
| Memory backup | : Non-volatile (EEPROM) |
| Number of EEPROM writing cycles | : Up to 100,000 cycles |
| Insulation resistance | : 500 V DC, 20 MΩ min. (between power supply terminals 1 and 2 and I/O terminals insulated from the power supply terminals) |
| Dielectric strength | : 500 V AC, 1 min (between power supply terminals 1 and 2 and I/O terminals insulated from the power supply terminals) |
| Power consumption | : 4 W max. (under operating conditions) |
| Power-on behavior | : Requires approx. 10 s before normal operation begins (under standard conditions) |
| Power-on inrush current | : 20 A max. (under operating conditions) |
| Case material, color | : Modified PPO resin, black |
| Weight | : 200 g max. |
| Mounting method | : DIN rail mounting |
| Terminal screw tightening torque | : 0.6 ±0.1 N·m |

Certifications, compliance with regulations:

| | Law/directive | Certificate No. or file No. | Notes |
|---|---|---|---|
| UL | | QUYX2.E246616 | UL 61010-1 |
| cUL | | QUYX8.E246616 | CAN/CSA-C22.2 No.61010-1 |
| CE | EMC | | EN 61326-1<br>(For use in industrial locations)* |
| CE | RoHS | | EN IEC63000 |
| UKCA | EMC | | EN 61326-1<br>(For use in industrial locations)* |
| UKCA | RoHS | | EN IEC63000 |
| KC | Korean Radio Act | KCC-REM-A2B-A043 | |

* During EMC testing, the indication or output may fluctuate by the equivalent of ±5 % FS.

## ■ Communication specifications

### ● Host communications

Maximum number of connections : 2 (total of simultaneous RS-485 and Ethernet sessions. Ethernet is limited to 1 session if RS-485 is used.)

### ● Ethernet communications

Protocol : CPL TCP, Modbus/TCP

● **RS-485 communication**

| | |
|---|---|
| Protocol | : Selectable from CPL, Modbus/ASCII, and Modbus/RTU |
| Signal level | : RS-485-compliant |
| Network | : Multidrop (up to 31 slave stations for 1 host station) |
| Communications/synchronization type | : Half-duplex, start-stop synchronization |
| Maximum cable length | : 500 m |
| No. of communication wires | : 3-wire system |
| Terminating resistor | : External (150 Ω ± 5 %, ½ W or more) |
| Transmission speed | : Selectable from 4800, 9600, 19200, 38400, 57600 and 115200 bps |
| Bit length | : 7 or 8 bits |
| Stop bits | : 1 or 2 |
| Parity | : Even parity, odd parity, or no parity |

● **Loader communication**

| | |
|---|---|
| Dedicated loader | : SLP-NX-J70, SLP-NX-J70PRO, SLP-NX-J71, SLP-NX-J71PRO |
| Connection cable | : Provided with the loader (SLP-NX-J70/SLP-NX-J70PRO) (USB loader cable)<br>Note: On a 4-channel model with a sampling cycle of 100 ms, during control operation it is not possible to use the Universal Monitor of the SLP-NX using the USB loader cable. |

## ■ Communication box (sold separately; model No. NX-CB_ _ _ _ _ _ _)

| | |
|---|---|
| Number of ports | : 4 |
| Transmission line type | : • Ethernet ports 1 and 2<br>IEEE802.3/IEEE802.3u 10BASE-T/100BASE-TX (with auto-negotiation and Auto-MDI/MDI-X)<br>• Ethernet ports 3 and 4 (option 0), Ethernet port 3 (option 1)<br>IEEE802.3u 100BASE-TX (with Full Duplex, Auto MDI/MDI-X function. The auto-negotiation function on a connected device should be enabled except when the device is connected between communication boxes.)<br>• Ethernet port 4 (option 1)<br>IEEE802.3u 100BASE-FX (full duplex, wavelength 1300 nm) |
| Connector | : • 100BASE-TX connector RJ-45<br>• 100BASE-FX connector 2-core LC |
| Cable | : • 100BASE-TX cable<br>UTP cable (4P)<br>Cat5e min. (straight) (both ends ANSI/TIA/EIA-568B) 100 m max.<br>• 100BASE-FX cable<br>Multi-mode grated index type (reflective index profile type) Optical fiber cable GI-50/125 or GI-62.5/125 (2-core), 2 km max.<br>Note: For handling of the optical fiber cable, refer to the notes provided by the optical fiber manufacturer. |

## ■ Communication adapters (sold separately, model Nos.: NX-CL1_ _ _ _ , NX-CR1_ _ _ _ )

| | | |
|---|---|---|
| Number of ports | : | 1 |
| Transmission line type | : | IEEE802.3u 100BASE-TX<br>(With Full Duplex, Auto MDI/MDI-X functions. The auto-negotiation function on a connected device should be enabled.) |
| Connector | : | RJ-45 |
| Cable | : | UTP cable (4P)<br>Cat5e or later (straight) (both ends ANSI/TIA/EIA-568-B) |

## ■ Terminal adapters (sold separately, model Nos.: NX-TL1_ _ _ _ _ _ , NX-TR1_ _ _ _ _ _)

These are adapters to use as the terminators of a chain connector ring (an Ethernet communications path within the base)

## ■ Connector caps (sold separately, model Nos. 80700224-010 (male), 80700225-010 (female))

Used to protect the male and female side connectors.

The right connector is male and the left is female when viewed from the front of the module.

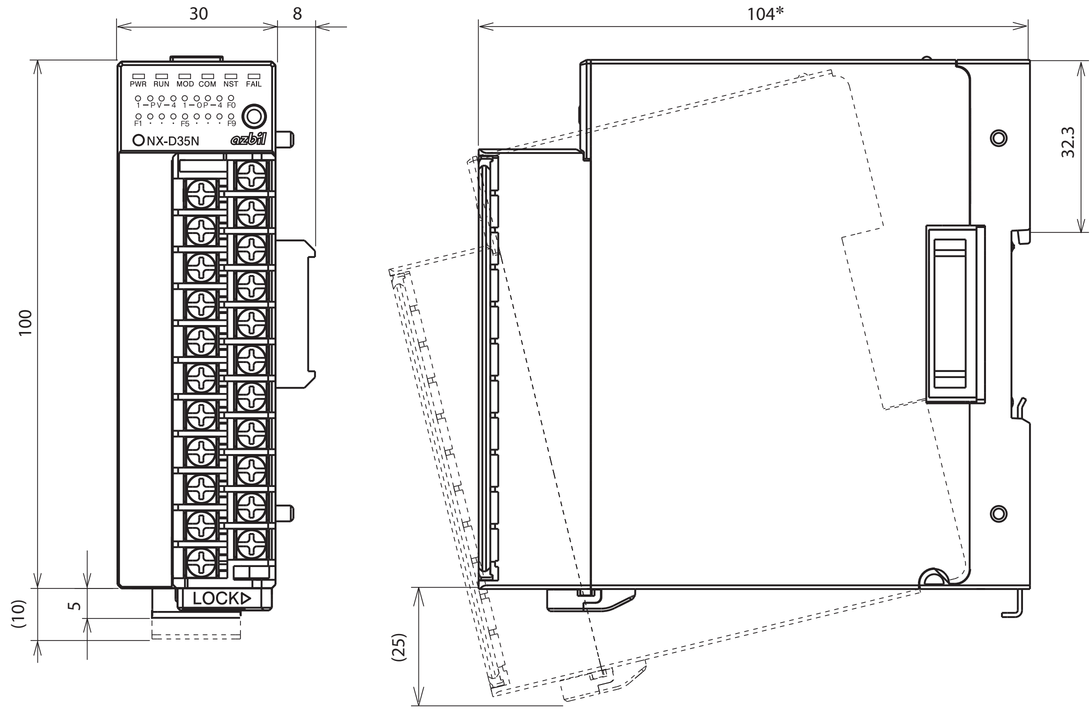
Quantity: 10

# 16-2 Dimensions

## ■ Controller module

The figure below shows a screw terminal block model.

Unit: mm

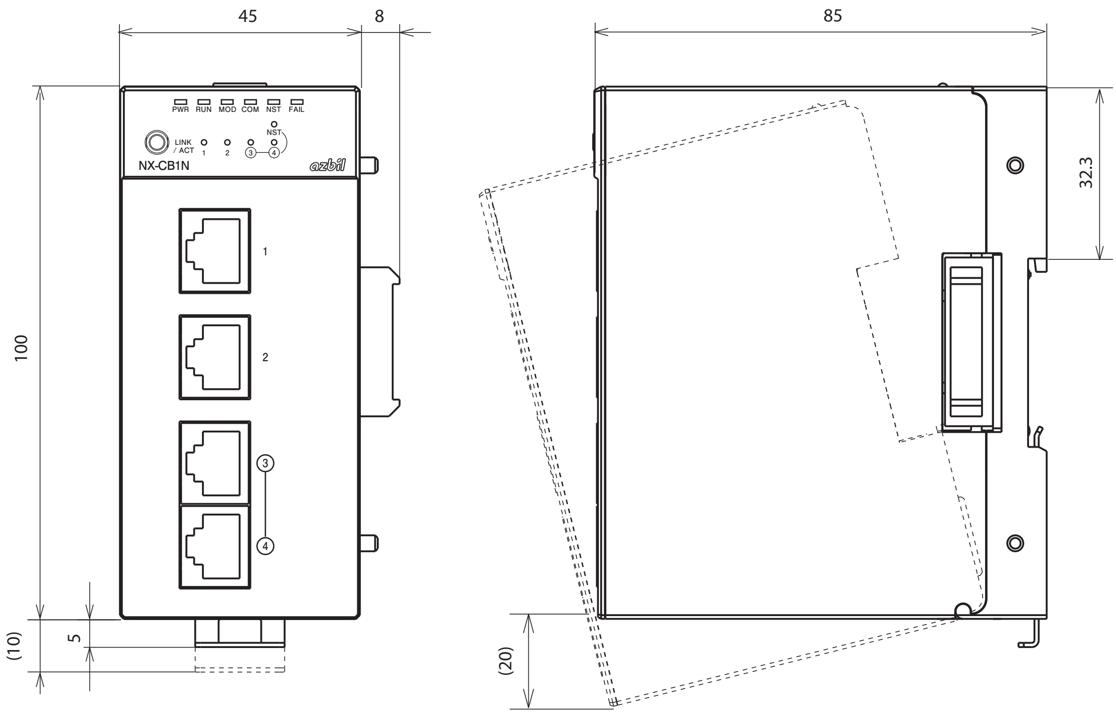



* 98 for the screwless terminal block

## ■ Communication box

The diagram below shows the NX-CB1N, which has the same dimensions as the NX-CB1R/CB2N/CB2R.

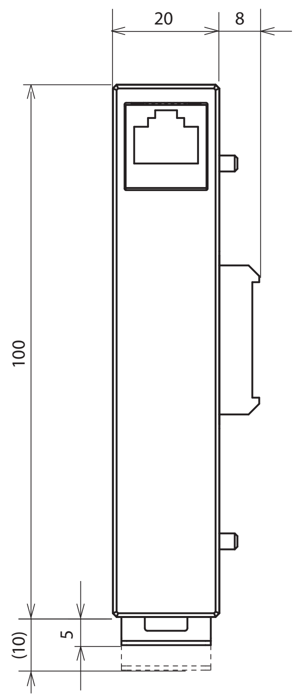
Unit: mm

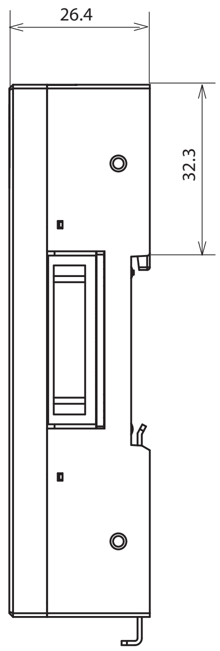


## ■ Communication adapter

### ● For left side

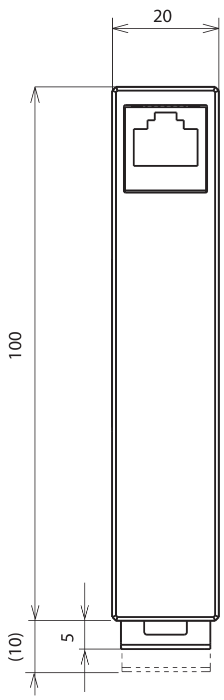
Unit: mm

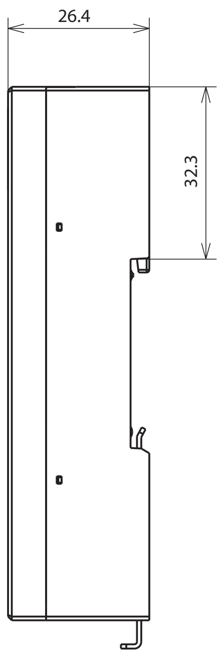



### ● For right side

Unit: mm

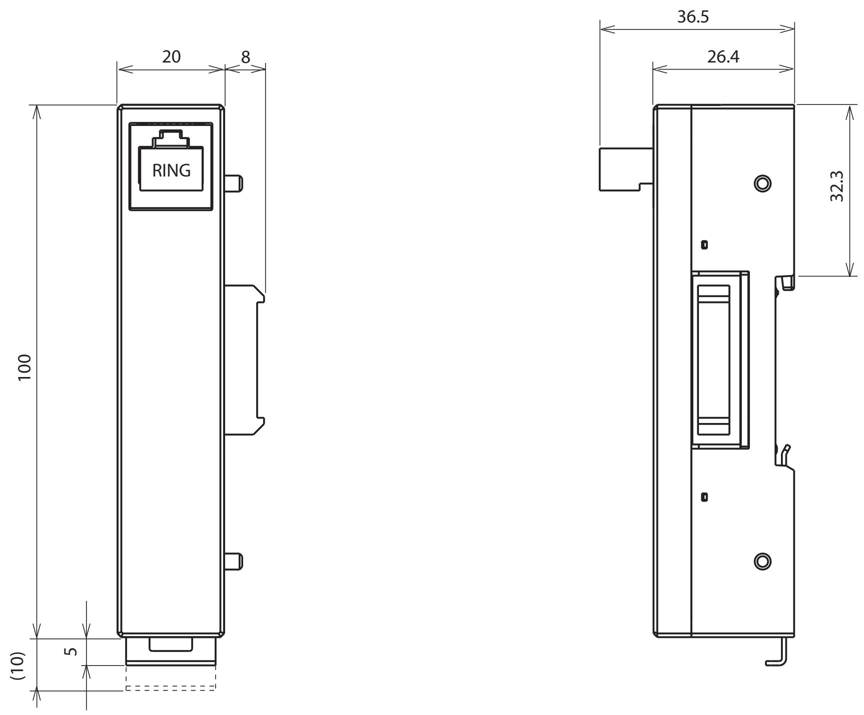


## ■ Terminal adapter

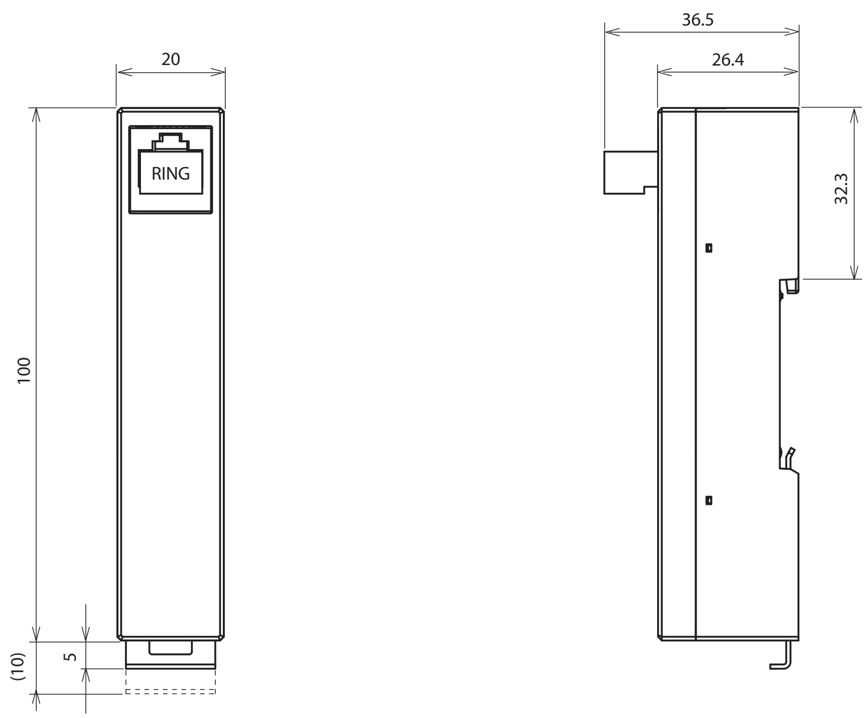
● **Port for left-side connection**

Unit: mm




● **Port for right-side connection**

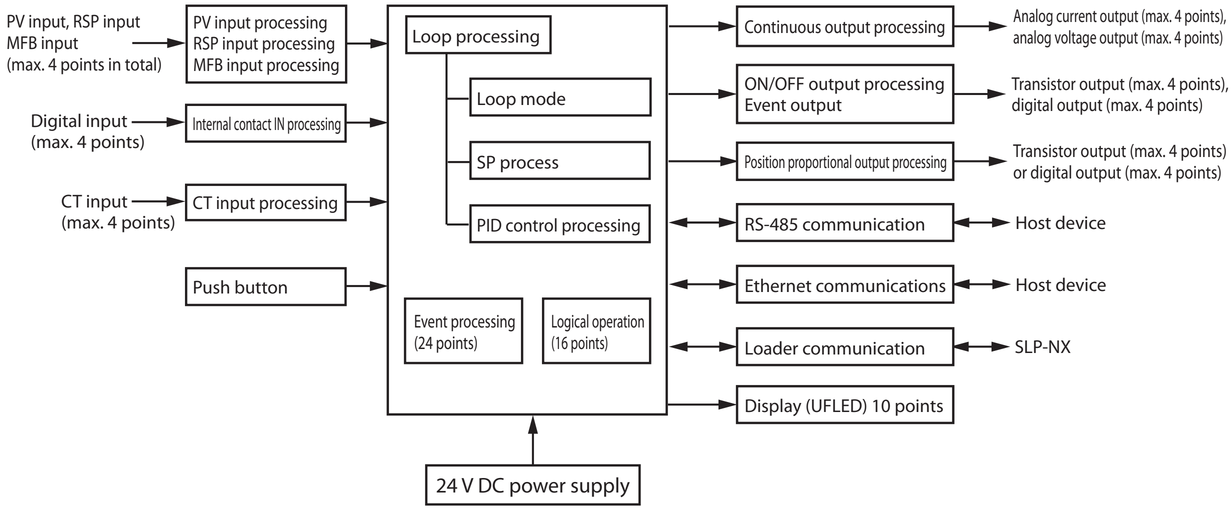
Unit: mm



# Appendix

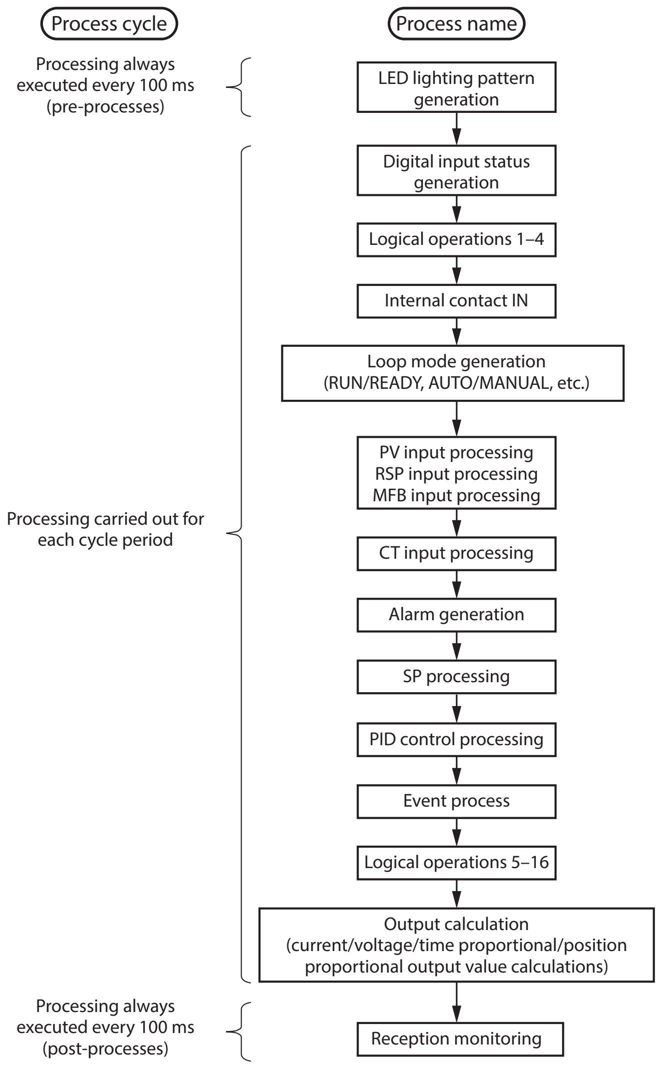
## Appendix-1 Function Block Diagram

### ■ NX-D15/25/35 basic function block diagram

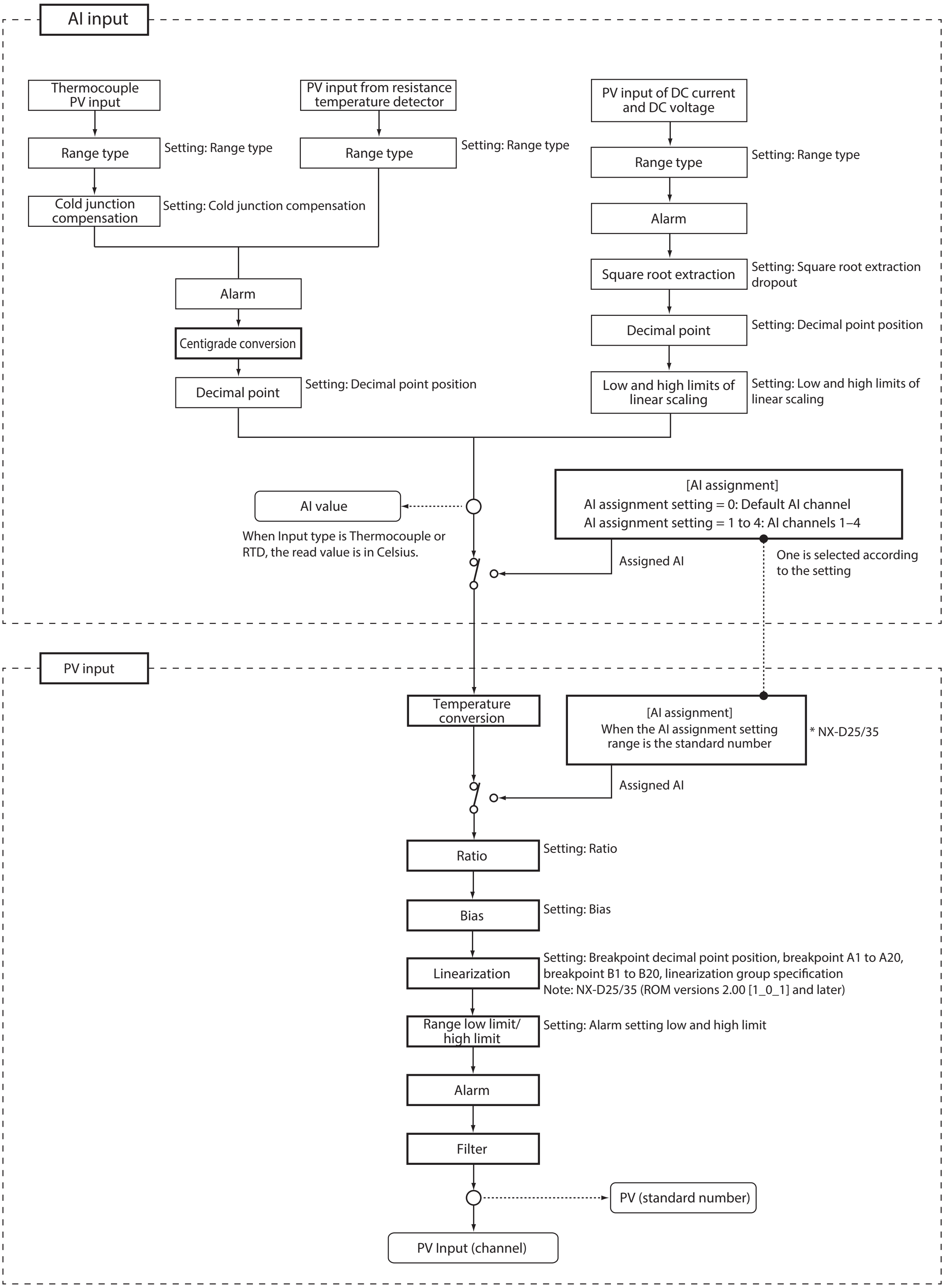



### ■ Processing procedure

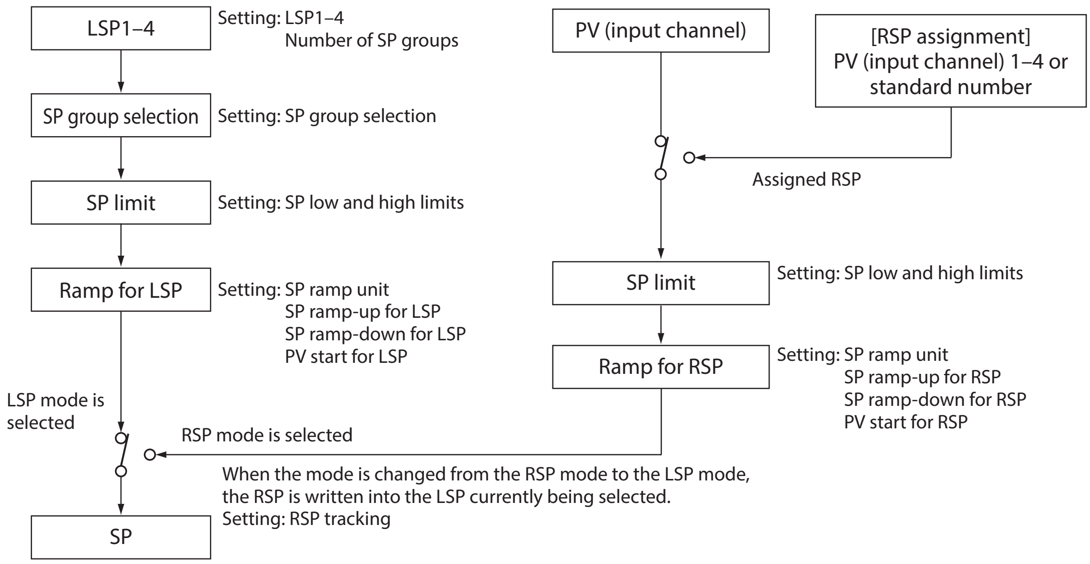
Processing is done in the order shown.



## ■ PV input process block diagram



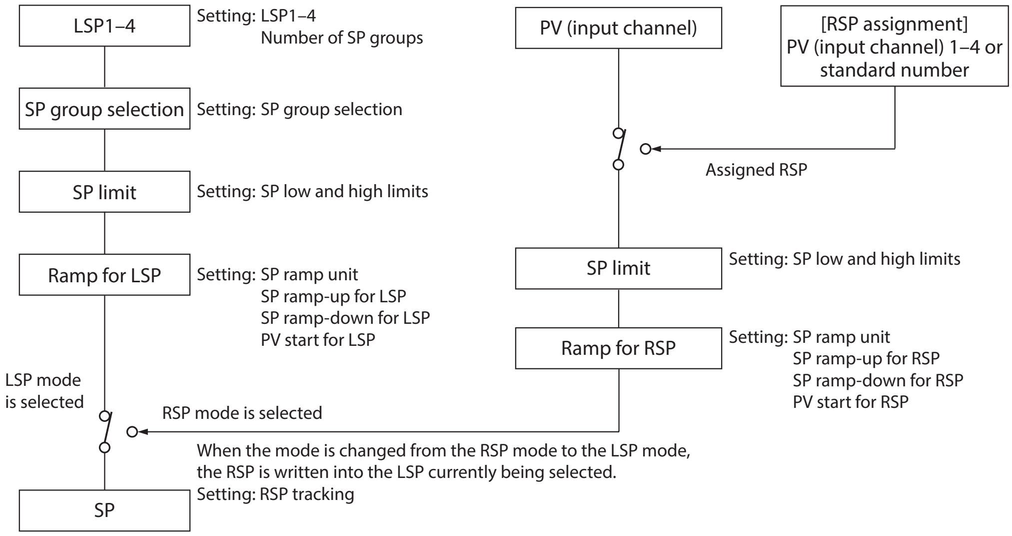
## ■ SP process block diagram



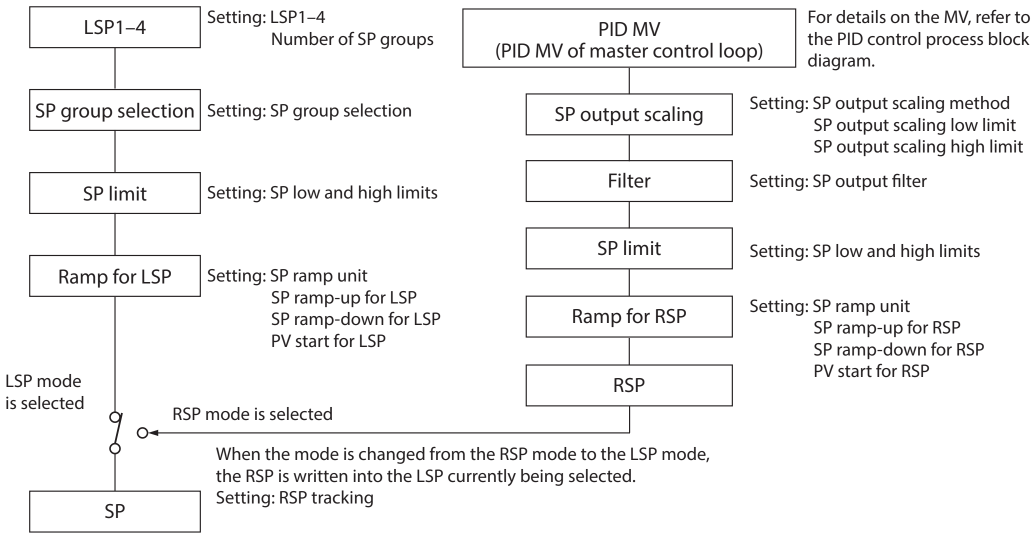
## ■ SP process block diagram (internal cascade)

The following describes SP processing with an internal cascade: The master and slave control loops execute different SP processing. The master and slave control loops use the settings for loops 1/3 and the settings for loops 2/4 respectively. The MV on the master control loop is converted by SP output scaling and is used as the RSP on the slave control loop.

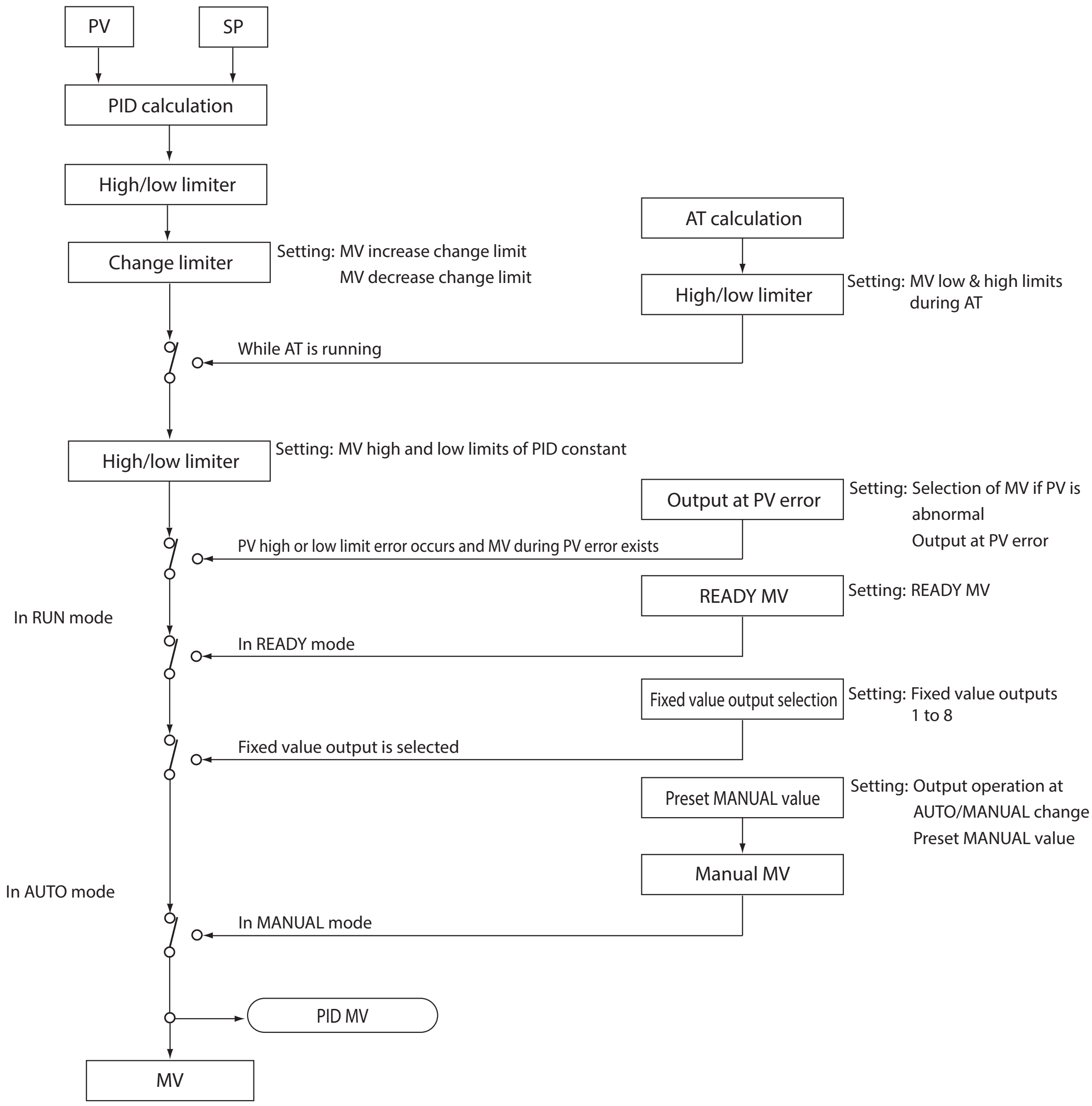
### ● Master control loop (loops 1/3)



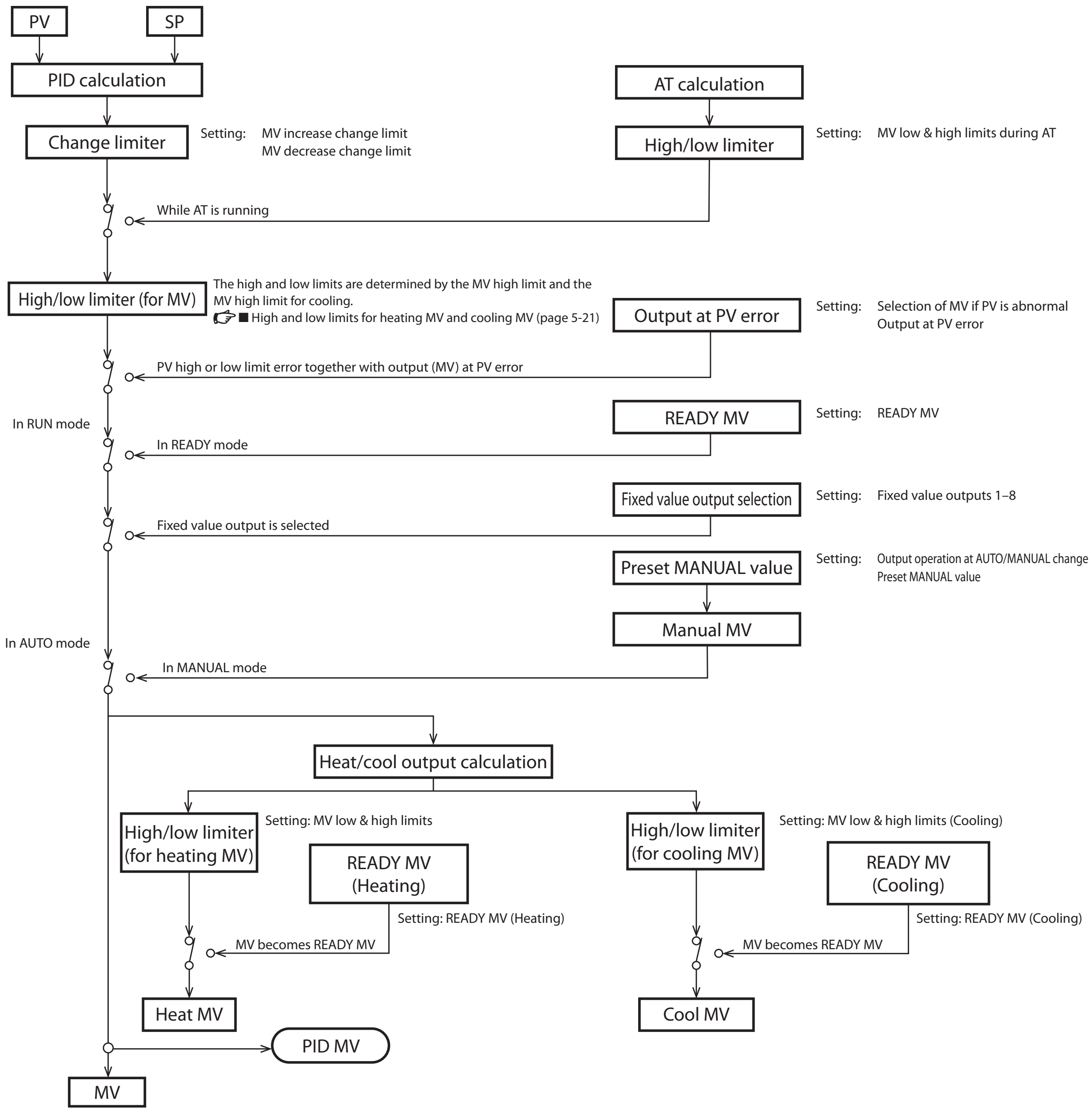

### ● Slave control loop (loops 2/4)



## ■ PID control process block diagram (direct or reverse action)



## ■ PID control process block diagram (heat/cool control)

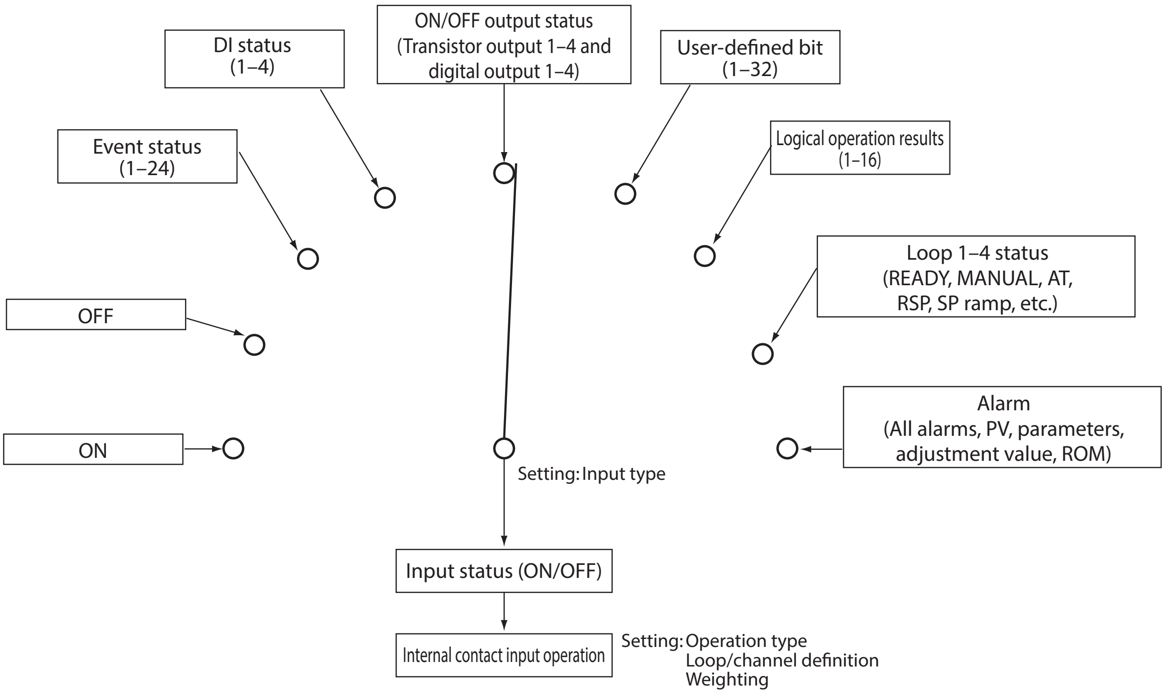



### Handling Precautions

- When Heating/Cooling control dead zone < 0 %, the MV high limit may affect the low limit for cooling MV and the cool-side MV high limit may affect the low limit for heating MV. "Handling Precautions" in ☞ 5 - 12, Heating/Cooling Control (page 5-19) (for details)

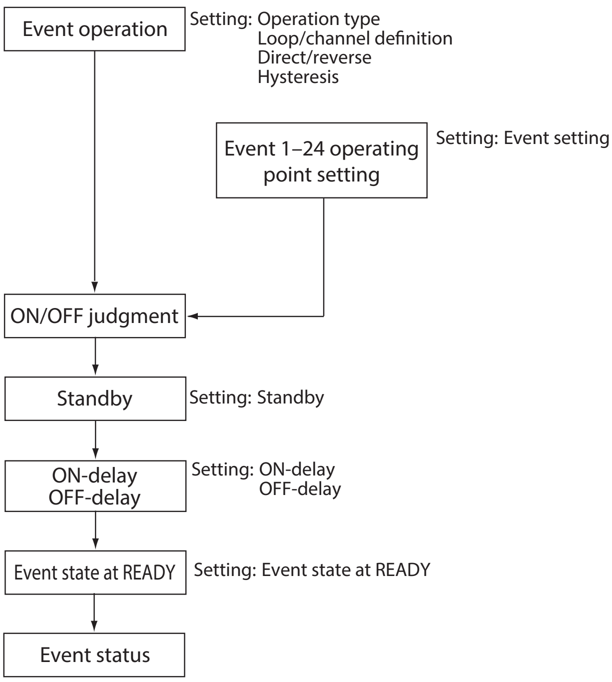
## ■ Internal contact input process block diagram

There are 16 groups of internal contact input processes. The process is the same for all groups. Settings are provided for each group.



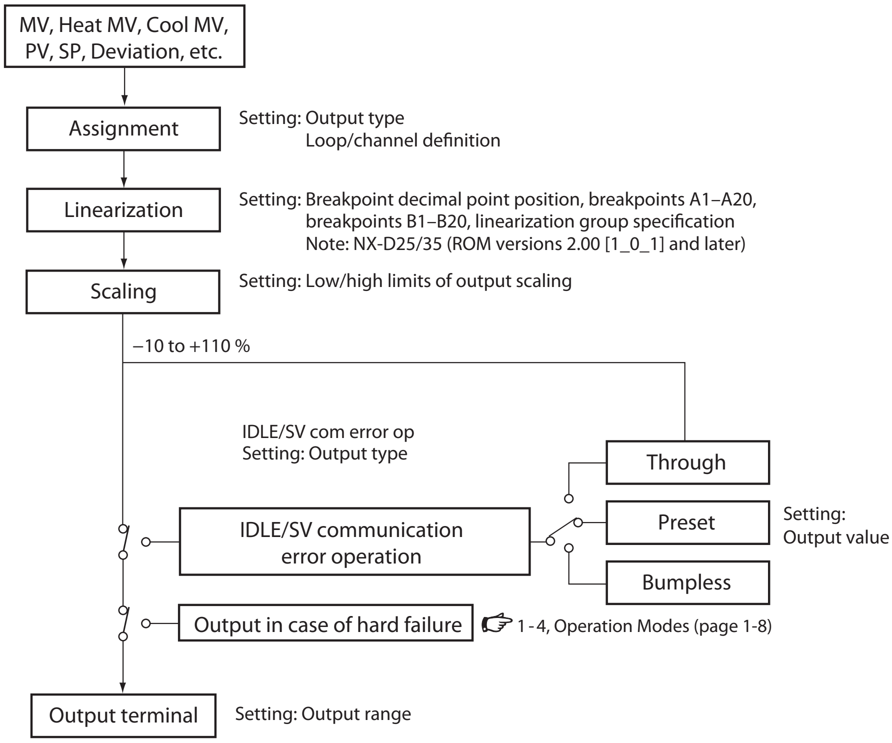

## ■ Event processing block diagram

There are 24 groups of event processes. The process is the same for all groups. Settings are provided for each group.



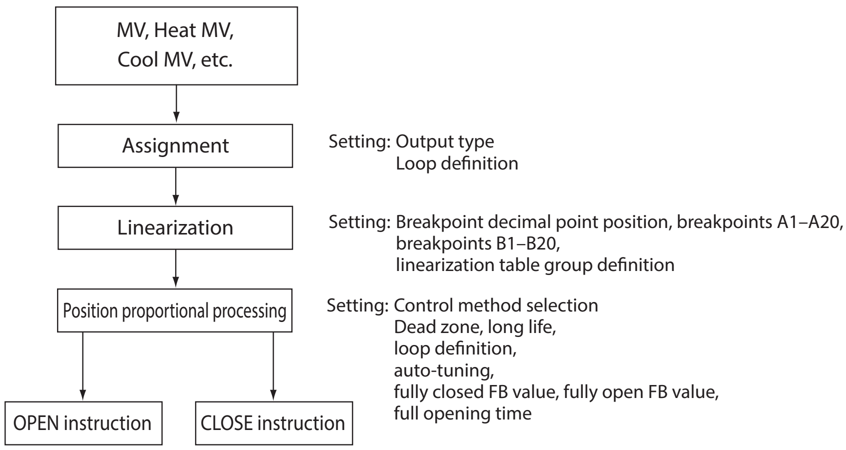
## ■ Continuous output process block diagram

The following shows the analog current output and analog voltage output processes:



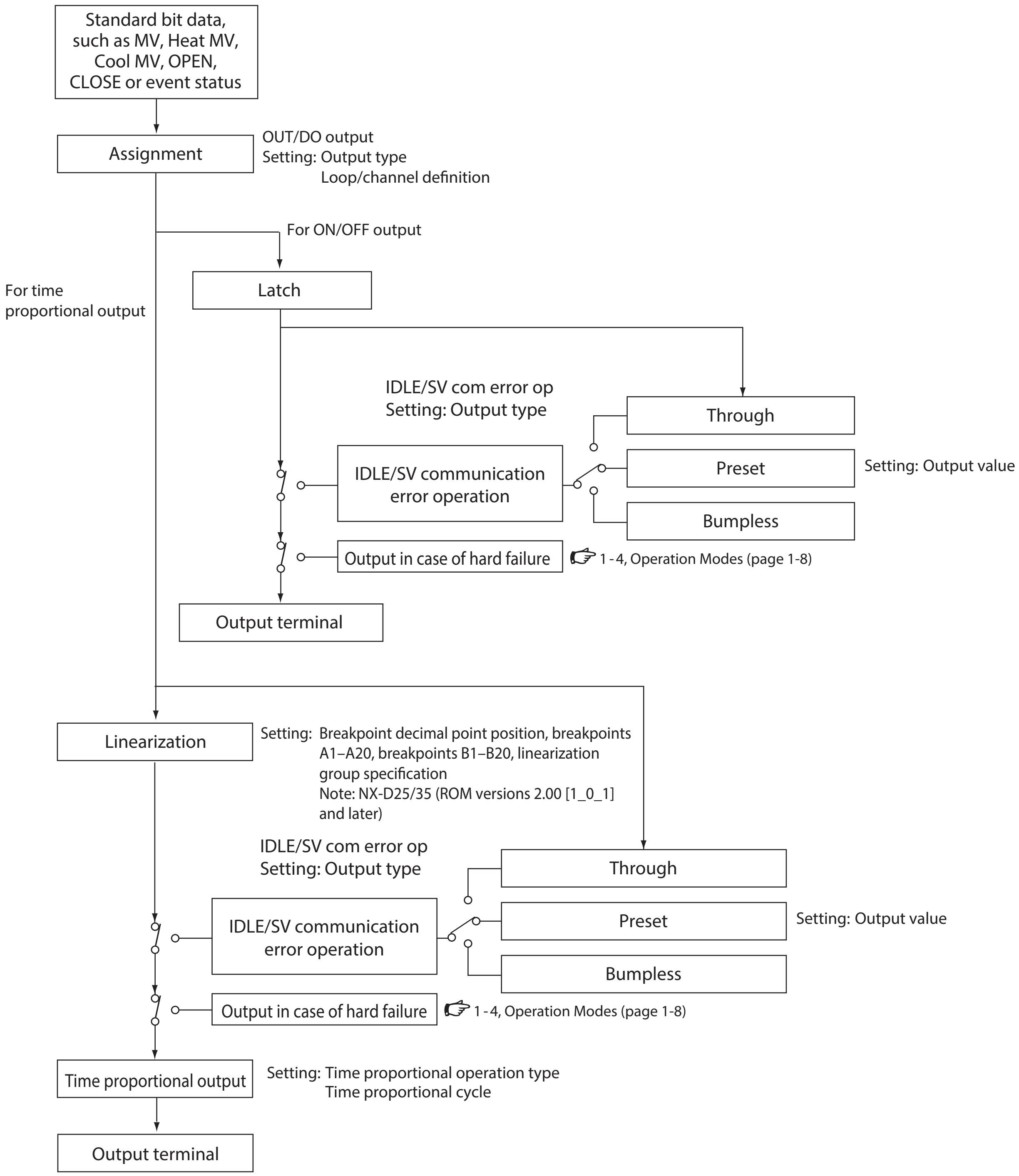

## ■ Position proportional output process block diagram

The following shows the position proportional output processes. (NX-D35 position proportional control models only)

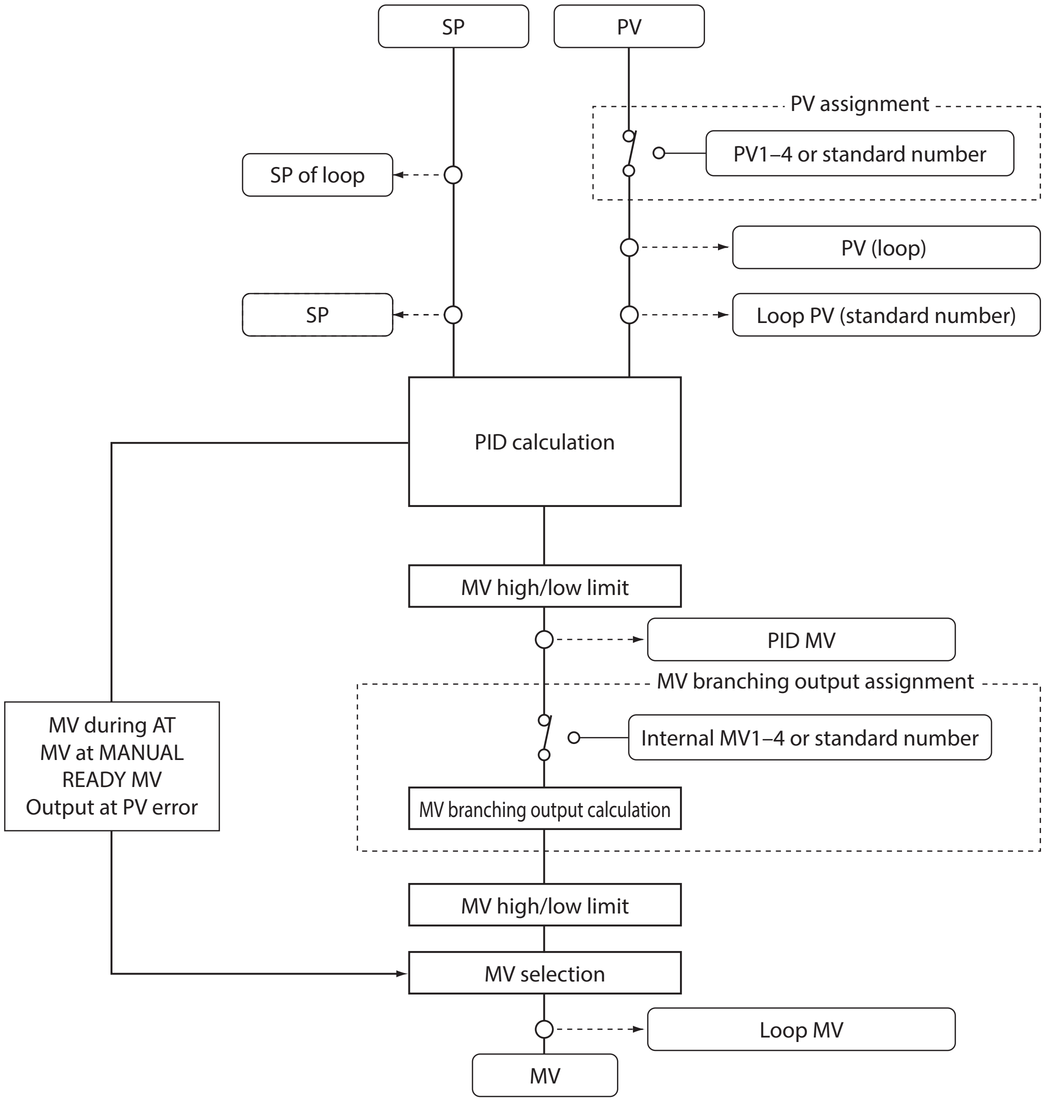


## ■ OUT/DO output process block diagram

The following shows the transistor output and digital output processes.



## ■ MV branching output process block diagram




### Note

- ☞ 7-4, MV Branching Output (page 7-4) (for MV branching output process block diagram)

# Appendix-2 Standard Bit Codes and Standard Numerical Codes

## ■ Standard bit codes

The range of standard bits is 1024–2047. Codes not listed below are reserved for the system, so do not use them for configuration.

| Standard bit code | Meaning of standard bit |
|---|---|
| 1024 | Always 0 (OFF) |
| 1025 | Always 1 (ON) |
| 1088 | Event 1 |
| 1089 | Event 2 |
| 1090 | Event 3 |
| 1091 | Event 4 |
| 1092 | Event 5 |
| 1093 | Event 6 |
| 1094 | Event 7 |
| 1095 | Event 8 |
| 1096 | Event 9 |
| 1097 | Event 10 |
| 1098 | Event 11 |
| 1099 | Event 12 |
| 1100 | Event 13 |
| 1101 | Event 14 |
| 1102 | Event 15 |
| 1103 | Event 16 |
| 1104 | Event 17 |
| 1105 | Event 18 |
| 1106 | Event 19 |
| 1107 | Event 20 |
| 1108 | Event 21 |
| 1109 | Event 22 |
| 1110 | Event 23 |
| 1111 | Event 24 |
| 1120 | CT1 Heater burnout detection |
| 1121 | CT2 heater burnout detection |
| 1122 | CT3 heater burnout detection |
| 1123 | CT4 heater burnout detection |
| 1124 | CT1 overcurrent detection |
| 1125 | CT2 overcurrent detection |
| 1126 | CT3 overcurrent detection |
| 1127 | CT4 overcurrent detection |
| 1128 | CT1 short-circuit detection |
| 1129 | CT2 short-circuit detection |
| 1130 | CT3 short-circuit detection |
| 1131 | CT4 short-circuit detection |
| 1152 | DI1 terminal status |
| 1153 | DI2 terminal status |
| 1154 | DI3 terminal status |
| 1155 | DI4 terminal status |
| 1280 | OUT1 terminal status |
| 1281 | OUT2 terminal status |
| 1282 | OUT3 terminal status |
| 1283 | OUT4 terminal status |
| 1284 | DO1 terminal status |
| 1285 | DO2 terminal status |
| 1286 | DO3 terminal status |
| 1287 | DO4 terminal status |
| 1408 | User-defined bit 1 |
| 1409 | User-defined bit 2 |
| 1410 | User-defined bit 3 |
| 1411 | User-defined bit 4 |
| 1412 | User-defined bit 5 |
| 1413 | User-defined bit 6 |
| 1414 | User-defined bit 7 |
| 1415 | User-defined bit 8 |
| 1416 | User-defined bit 9 |
| 1417 | User-defined bit 10 |
| 1418 | User-defined bit 11 |
| 1419 | User-defined bit 12 |

| Standard bit code | Meaning of standard bit |
|---|---|
| 1420 | User-defined bit 13 |
| 1421 | User-defined bit 14 |
| 1422 | User-defined bit 15 |
| 1423 | User-defined bit 16 |
| 1424 | User-defined bit 17 |
| 1425 | User-defined bit 18 |
| 1426 | User-defined bit 19 |
| 1427 | User-defined bit 20 |
| 1428 | User-defined bit 21 |
| 1429 | User-defined bit 22 |
| 1430 | User-defined bit 23 |
| 1431 | User-defined bit 24 |
| 1432 | User-defined bit 25 |
| 1433 | User-defined bit 26 |
| 1434 | User-defined bit 27 |
| 1435 | User-defined bit 28 |
| 1436 | User-defined bit 29 |
| 1437 | User-defined bit 30 |
| 1438 | User-defined bit 31 |
| 1439 | User-defined bit 32 |
| 1440 | Result of logical operation 1 |
| 1441 | Result of logical operation 2 |
| 1442 | Result of logical operation 3 |
| 1443 | Result of logical operation 4 |
| 1444 | Result of logical operation 5 |
| 1445 | Result of logical operation 6 |
| 1446 | Result of logical operation 7 |
| 1447 | Result of logical operation 8 |
| 1448 | Result of logical operation 9 |
| 1449 | Result of logical operation 10 |
| 1450 | Result of logical operation 11 |
| 1451 | Result of logical operation 12 |
| 1452 | Result of logical operation 13 |
| 1453 | Result of logical operation 14 |
| 1454 | Result of logical operation 15 |
| 1455 | Result of logical operation 16 |
| 1545 | RS-485 status (normal reception of 1 frame) |
| 1568 | Loop 1 RUN/READY status |
| 1569 | Loop 2 RUN/READY status |
| 1570 | Loop 3 RUN/READY status |
| 1571 | Loop 4 RUN/READY status |
| 1584 | Loop 1 AUTO/MANUAL status |
| 1585 | Loop 2 AUTO/MANUAL status |
| 1586 | Loop 3 AUTO/MANUAL status |
| 1587 | Loop 4 AUTO/MANUAL status |
| 1600 | Loop 1 AT stop/start status |
| 1601 | Loop 2 AT stop/start status |
| 1602 | Loop 3 AT stop/start status |
| 1603 | Loop 4 AT stop/start status |
| 1616 | Loop 1 LSP/RSP status |
| 1617 | Loop 2 LSP/RSP status |
| 1648 | Loop 1 SP ramp-up in progress |
| 1649 | Loop 2 SP ramp-up in progress |
| 1650 | Loop 3 SP ramp-up in progress |
| 1651 | Loop 4 SP ramp-up in progress |
| 1664 | Loop 1 SP ramp-down in progress |
| 1665 | Loop 2 SP ramp-down in progress |
| 1666 | Loop 3 SP ramp-down in progress |
| 1667 | Loop 4 SP ramp-down in progress |
| 1792 | Alarm (logical OR of all displayed alarms) |
| 1808 | AD1 fault (AL11) |
| 1809 | AD2 fault (AL12) |

| Standard bit code | Meaning of standard bit |
|---|---|
| 1810 | AD3 fault (AL13) |
| 1811 | AD4 fault (AL14) |
| 1824 | PV1 high limit error (AL01) |
| 1825 | PV2 high limit error (AL03) |
| 1826 | PV3 high limit error (AL05) |
| 1827 | PV4 high limit error (AL07) |
| 1840 | PV1 low limit error (AL02) |
| 1841 | PV2 low limit error (AL04) |
| 1842 | PV3 low limit error (AL06) |
| 1843 | PV4 low limit error (AL08) |
| 1856 | CJ1 error (AL71) |
| 1857 | CJ2 error (AL72) |
| 1858 | CJ3 error (AL73) |
| 1859 | CJ4 error (AL74) |
| 1880 | MFB1 input error (AL21) |
| 1881 | MFB2 input error (AL23) |
| 1884 | MFB1 is under adjustment |
| 1885 | MFB2 is under adjustment |
| 1888 | MFB1 estimation in progress |
| 1889 | MFB2 estimation in progress |
| 1896 | MFB1 adjustment error (AL22) |
| 1897 | MFB2 adjustment error (AL24) |
| 1900 | MFB1 OPEN |
| 1901 | MFB2 OPEN |
| 1904 | MFB1 CLOSE |
| 1905 | MFB2 CLOSE |
| 1920 | Reception monitoring 1 |
| 1921 | Reception monitoring 2 |
| 1922 | Reception monitoring 3 |
| 1923 | Reception monitoring 4 |
| 1924 | Reception monitoring 5 |
| 1925 | Reception monitoring 6 |
| 1926 | Reception monitoring 7 |
| 1927 | Reception monitoring 8 |
| 1928 | Reception monitoring 9 |
| 1929 | Reception monitoring 10 |
| 1930 | Reception monitoring 11 |
| 1931 | Reception monitoring 12 |
| 1932 | Reception monitoring 13 |
| 1933 | Reception monitoring 14 |
| 1934 | Reception monitoring 15 |
| 1935 | Reception monitoring 16 |
| 1952 | CT1 input error (AL25) |
| 1953 | CT2 input error (AL26) |
| 1954 | CT3 input error (AL27) |
| 1955 | CT4 input error (AL28) |
| 1968 | Parameter error (AL94/AL97) |
| 1969 | Adjustment data error (AL95/AL98) |
| 1970 | EEPROM not initialized (AL83) |
| 1972 | ROM error (AL99) |
| 1973 | RAM read/write error (AL85) |
| 1974 | EEPROM read/write error (AL86) |
| 1979 | Reception monitoring (representative of 1–16) (AL31) |
| 1980 | Transmission timeout between modules (AL32) |
| 1981 | Writing to EEPROM |
| 1982 | Supervisor module reception timeout |
| 1983 | RS-485 setting error (AL33) |
| 1984 | Adjacent ring disconnection (AL38) |
| 1985 | Non-adjacent ring disconnection |
| 1986 | Base/main unit communication setting mismatch (AL53) |
| 1987 | Base/main unit model No. mismatch (AL 54) |
| 1988 | Base verification error (AL55) |

## ■ Standard numerical codes

The range of the standard numbers is 2048 –3071. Codes not listed below are reserved for the system, so do not use them for configuration.

| Standard numerical code | Meaning of standard number |
|---|---|
| 2048 | Fixed at 0.0 |
| 2111 | User-defined number 1 |
| 2112 | User-defined number 2 |
| 2113 | User-defined number 3 |
| 2114 | User-defined number 4 |
| 2115 | User-defined number 5 |
| 2116 | User-defined number 6 |
| 2117 | User-defined number 7 |
| 2118 | User-defined number 8 |
| 2119 | User-defined number 9 |
| 2120 | User-defined number 10 |
| 2121 | User-defined number 11 |
| 2122 | User-defined number 12 |
| 2123 | User-defined number 13 |
| 2124 | User-defined number 14 |
| 2125 | User-defined number 15 |
| 2126 | User-defined number 16 |
| 2288 | PID MV1 |
| 2289 | PID MV2 |
| 2290 | PID MV3 |
| 2291 | PID MV4 |
| 2304 | PV1 |
| 2305 | PV2 |
| 2306 | PV3 |
| 2307 | PV4 |
| 2312 | AI1 |
| 2313 | AI2 |
| 2314 | AI3 |
| 2315 | AI4 |
| 2320 | Loop 1 PV |
| 2321 | Loop 2 PV |
| 2322 | Loop 3 PV |
| 2323 | Loop 4 PV |
| 2328 | Zener barrier adjustment monitor 1 |
| 2329 | Zener barrier adjustment monitor 2 |
| 2330 | Zener barrier adjustment monitor 3 |
| 2331 | Zener barrier adjustment monitor 4 |
| 2336 | Loop 1 SP (in use) |
| 2337 | Loop 2 SP (in use) |
| 2338 | Loop 3 SP (in use) |
| 2339 | Loop 4 SP (in use) |
| 2352 | Loop 1 SP (final value) |
| 2353 | Loop 2 SP (final value) |
| 2354 | Loop 3 SP (final value) |
| 2355 | Loop 4 SP (final value) |
| 2384 | SP output of loop 1 |
| 2385 | SP output of loop 2 |
| 2386 | SP output of loop 3 |
| 2387 | SP output of loop 4 |
| 2416 | Loop 1 MV |
| 2417 | Loop 2 MV |
| 2418 | Loop 3 MV |
| 2419 | Loop 4 MV |

| Standard numerical code | Meaning of standard number |
|---|---|
| 2432 | Loop 1 MV for heating |
| 2433 | Loop 2 MV for heating |
| 2434 | Loop 3 MV for heating |
| 2435 | Loop 4 MV for heating |
| 2448 | Loop 1 MV for cooling |
| 2449 | Loop 2 MV for cooling |
| 2450 | Loop 3 MV for cooling |
| 2451 | Loop 4 MV for cooling |
| 2464 | MFB1 amount of opening (estimated) |
| 2465 | MFB2 amount of opening (estimated) |
| 2480 | MFB1 degree of opening (actual value) |
| 2481 | MFB2 degree of opening (actual value) |
| 2496 | CT1 measured current when output ON |
| 2497 | CT2 measured current when output ON |
| 2498 | CT3 measured current when output ON |
| 2499 | CT4 measured current when output ON |
| 2512 | CT1 measured current when output OFF |
| 2513 | CT2 measured current when output OFF |
| 2514 | CT3 measured current when output OFF |
| 2515 | CT4 measured current when output OFF |
| 2528 | Loop 1 deviation (PV – SP) |
| 2529 | Loop 2 deviation (PV – SP) |
| 2530 | Loop 3 deviation (PV – SP) |
| 2531 | Loop 4 deviation (PV – SP) |
| 2656 | Event 1 timer remaining time |
| 2657 | Event 2 timer remaining time |
| 2658 | Event 3 timer remaining time |
| 2659 | Event 4 timer remaining time |
| 2660 | Event 5 timer remaining time |
| 2661 | Event 6 timer remaining time |
| 2662 | Event 7 timer remaining time |
| 2663 | Event 8 timer remaining time |
| 2664 | Event 9 timer remaining time |
| 2665 | Event 10 timer remaining time |
| 2666 | Event 11 timer remaining time |
| 2667 | Event 12 timer remaining time |
| 2668 | Event 13 timer remaining time |
| 2669 | Event 14 timer remaining time |
| 2670 | Event 15 timer remaining time |
| 2671 | Event 16 timer remaining time |
| 2672 | Event 17 timer remaining time |
| 2673 | Event 18 timer remaining time |
| 2674 | Event 19 timer remaining time |
| 2675 | Event 20 timer remaining time |
| 2676 | Event 21 timer remaining time |
| 2677 | Event 22 timer remaining time |
| 2678 | Event 23 timer remaining time |
| 2679 | Event 24 timer remaining time |
| 2720 | MV for position proportioning 1 |
| 2721 | MV for position proportioning 2 |
| 2736 | CT1 Time proportioning current |
| 2737 | CT2 Time proportioning current |
| 2738 | CT3 Time proportioning current |
| 2739 | CT4 Time proportioning current |

**! Handling Precautions**

- Other than the above, defined bits for SV (1488–1491) and defined numbers for SV (2176–2191) are reserved for the system and cannot be used.

# Appendix-3 Ring Communication Status (Net Status)

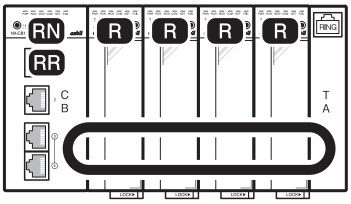
The status of ring communication can be checked not only by [NST] LED display, but also with host communications, if the module supports chain connection ring communications. This function is available for the following versions and later.

- Controller module (NX-D15/25/35) ROM versions 3.00 [1_0_3]
- Digital input/pulse input module (NX-DX1/DX2) ROM versions 2.00 [2_0_1]
- Digital output module (NX-DY1/2) ROM versions 1.00 [1_0_1]
- Supervisor module (NX-S11/12/21) ROM version 2.00

## Ring communication status

### Normal status

The diagram below shows that ring communication is normally operating in a chain communication. When ring communications are in the normal status, the [NST] LED is turned OFF.



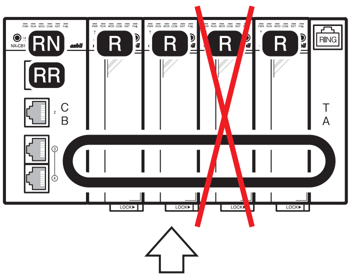

### Adjacent ring disconnection

The diagram below shows that the ring communication is not possible between the module being checked and an adjacent module. The following are some of the main causes of ring communication failure.

- A module is turned OFF
- The cable connected through a CA is broken
- CB or TA is missing
- A module for non-ring communication is connected
- The hardware is actually broken

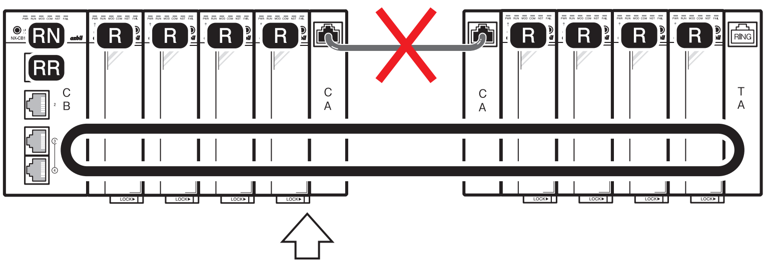
The [NST] LED will blink slowly if an adjacent ring disconnection occurs.

Module failure




Module being checked

Cable break




Module being checked

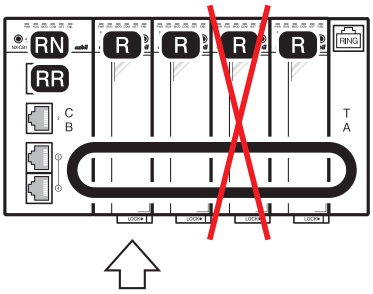
**Handling Precautions**

- As shown above, if the cable is broken, the host communication to the linked modules in the chain on the right is not possible.

## ● Non-adjacent ring disconnection

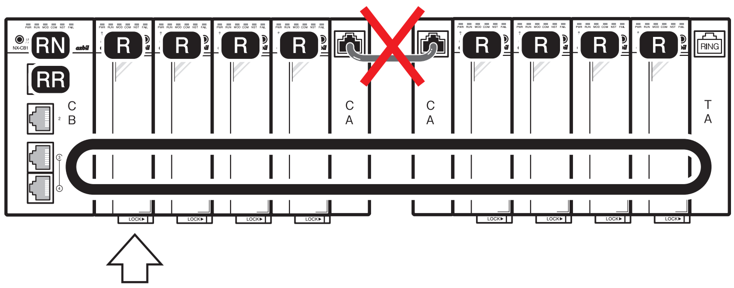
The diagram below shows that the ring communication is not possible between the module being checked and a non-adjacent module.
The [NST] LED will blink quickly if a non-adjacent ring disconnection occurs.

Module failure




Module being checked

Cable break




Module being checked

### Handling Precautions

- As shown above, if the cable is broken, the host communication to the linked modules in the chain on the right is not possible.

## ■ How to check the status of ring communication through communications

The status of ring communication can be checked not only by the [NST] LED display on the front side of this unit, but also with host communications and the SLP-NX Universal Monitor.

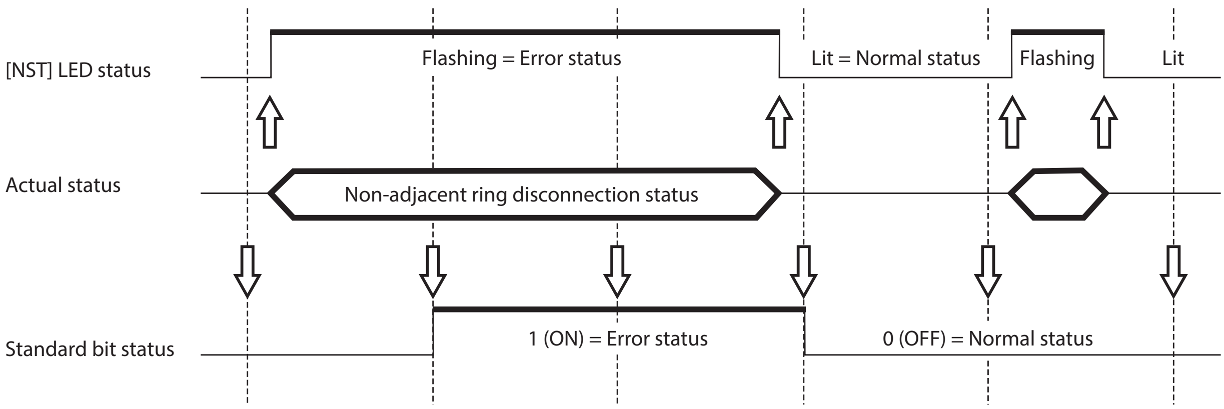
### ● Host communication data

It is possible to check for adjacent ring disconnection and non-adjacent ring disconnection by reading standard bits.
The relevant standard bits are shown below.

| Folder name | Bank name | Item | Description |
|---|---|---|---|
| Standard bit code | Standard bit code (1920–2047) | Adjacent ring disconnection (AL38) | 0: Normal<br>1: Adjacent ring disconnected has occurred |
| | | Non-adjacent ring disconnection | 0: Normal<br>1: Non-adjacent ring disconnected has occurred |

### ● Difference between the [NST] LED and host communications

The difference between ring communication status read from host communication and the status shown by the [NST] LED is the timing at which they show the actual status.
The [NST] LED reflects the actual status.
Standard bits that are read by host communication show the actual status at approximately 2-second intervals.




### Handling Precautions

- Abnormal ring communication status may not be reflected in the status read by host communication for almost 2 seconds.

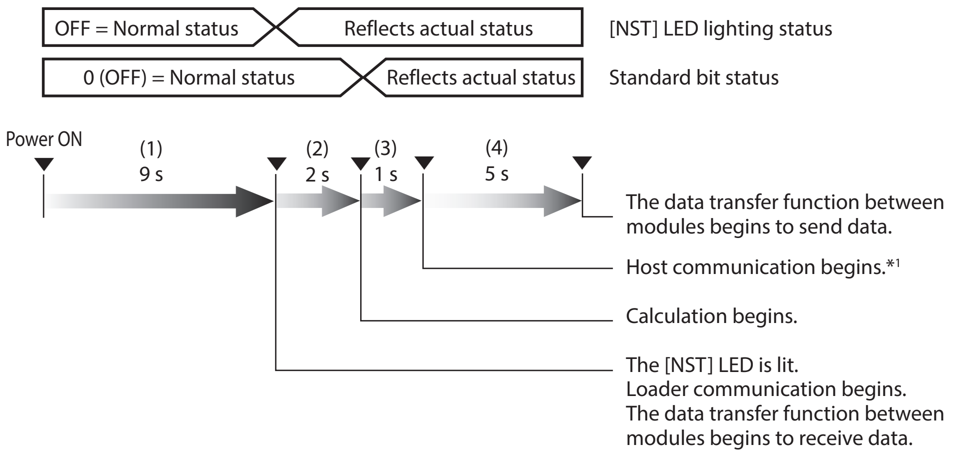
## ■ Timing of ring communication status indication when the power is turned on

When the power is turned on, the module's operation to indicate the status of ring communication varies depending on the type of module.

### Handling Precautions

- No communication boxes are compatible with this function.

#### ● Controller module (NX-D15/25/35)

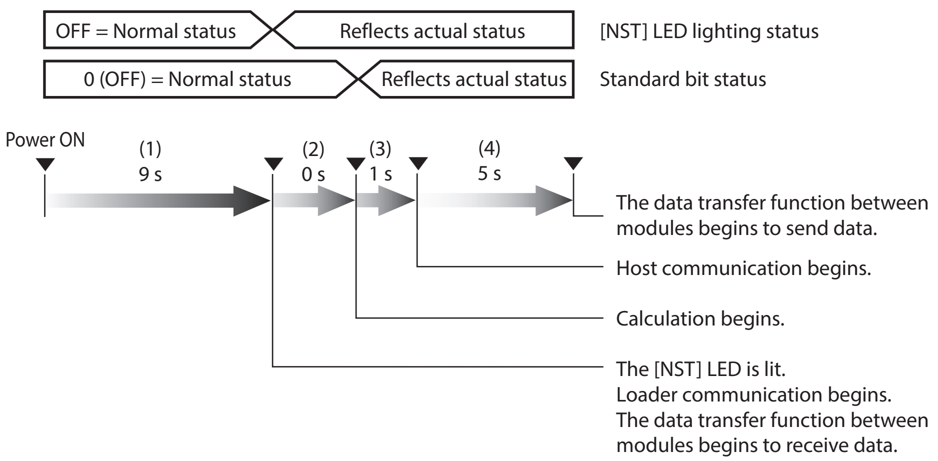



| | |
|---|---|
| (1) Startup | : 9 seconds (fixed) |
| (2) Run delay when turned on | : 2 seconds (initial value). This setting can be changed. |
| (3) Wait time for host communication to begin | : 1 second (fixed) |
| (4) Wait time for data transfer between modules | : 5 seconds (fixed)*2 |

*1. In ROM version 1.00 [1_0_0], host communications start after (1) Startup.

*2. In ROM versions 1.00 [1_0_0] and 2.00 [1_0_1], there is a 5-second wait (fixed) for data transfer between modules after the Delay after startup ((2)).

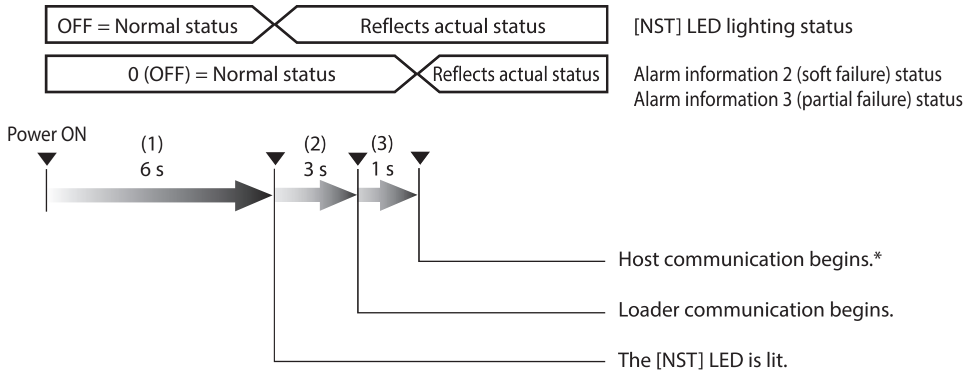
#### ● Digital input/pulse input/digital output module (NX-DX1/DX2, NX-DY1/2)




| | |
|---|---|
| (1) Startup | : 9 seconds (fixed) |
| (2) Run delay when turned on | : 0 seconds (initial value). This setting can be changed. |
| (3) Wait time for host communication to begin | : 1 second (fixed) |
| (4) Wait time for data transfer between modules | : 5 seconds (fixed)* |

* In NX-DX1/DX2 ROM versions 1.00 [2_0_0], there is a 5-second (fixed) wait for data transfer between modules after the Delay after startup ((2)).

### ● Supervisor module (NX-S11/12/21)




(1) Startup : 6 seconds (fixed)
(2) Restart time : 3 seconds (fixed)
(3) Wait time for host communication to begin : 1 second (can be set)

* If the operation mode is RUN, it takes 30–60 seconds for the module to establish host communications because communication is first established with the IO module under the control of the SV.

# Appendix-4 PID_PV Decimal Point Information

The number of decimal places for PID_PV, unlike some other cases, is based on the AI assignment and PV assignment settings in addition to the loop PV/SP decimal point position setting.

## ■ PID_PV when default PV and AI assignment settings are used

| | Setting | | PID_PV decimal point position |
|---|---|---|---|
| | PV assignment | AI assignment | |
| Loop 1 | 0 | 0 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 1, whichever is smaller |
| Loop 2 | 0 | 0 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 2, whichever is smaller |
| Loop 3 | 0 | 0 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 3, whichever is smaller |
| Loop 4 | 0 | 0 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 4, whichever is smaller |

* ☞ 4-2, How to Set the PV Input (page 4-3) (for the maximum number of decimal places for each range type)

## ■ PID_PV when only PV assignment setting is specified

| | Setting | | PID_PV decimal point position |
|---|---|---|---|
| | PV assignment | AI assignment | |
| Loop 1 | 1 | 0 | "Loop PV/SP decimal point position" and PV1*2 "Range type"*1 for loop 1, whichever is smaller |
| | 2 | | "Loop PV/SP decimal point position" and PV2*2 "Range type"*1 for loop 1, whichever is smaller |
| | 3 | | "Loop PV/SP decimal point position" and PV3*2 "Range type"*1 for loop 1, whichever is smaller |
| | 4 | | "Loop PV/SP decimal point position" and PV4*2 "Range type"*1 for loop 1, whichever is smaller |
| Loop 2 | 1 | 0 | "Loop PV/SP decimal point position" and PV1*3 "Range type"*1 for loop 2, whichever is smaller |
| | 2 | | "Loop PV/SP decimal point position" and PV2*3 "Range type"*1 for loop 2, whichever is smaller |
| | 3 | | "Loop PV/SP decimal point position" and PV3*3 "Range type"*1 for loop 2, whichever is smaller |
| | 4 | | "Loop PV/SP decimal point position" and PV4*3 "Range type"*1 for loop 2, whichever is smaller |
| Loop 3 | 1 | 0 | "Loop PV/SP decimal point position" and PV1*4 "Range type"*1 for loop 3, whichever is smaller |
| | 2 | | "Loop PV/SP decimal point position" and PV2*4 "Range type"*1 for loop 3, whichever is smaller |
| | 3 | | "Loop PV/SP decimal point position" and PV3*4 "Range type"*1 for loop 3, whichever is smaller |
| | 4 | | "Loop PV/SP decimal point position" and PV4*4 "Range type"*1 for loop 3, whichever is smaller |
| Loop 4 | 1 | 0 | "Loop PV/SP decimal point position" and PV1*5 "Range type"*1 for loop 4, whichever is smaller |
| | 2 | | "Loop PV/SP decimal point position" and PV2*5 "Range type"*1 for loop 4, whichever is smaller |
| | 3 | | "Loop PV/SP decimal point position" and PV3*5 "Range type"*1 for loop 4, whichever is smaller |
| | 4 | | "Loop PV/SP decimal point position" and PV4*5 "Range type"*1 for loop 4, whichever is smaller |
| Loop 1 | Standard numerical code | 0 | "Loop PV/SP decimal point position" for loop 1 |
| Loop 2 | Standard numerical code | 0 | "Loop PV/SP decimal point position" for loop 2 |
| Loop 3 | Standard numerical code | 0 | "Loop PV/SP decimal point position" for loop 3 |
| Loop 4 | Standard numerical code | 0 | "Loop PV/SP decimal point position" for loop 4 |

*1. ☞ 4-2, How to Set the PV Input (page 4-3) (for the maximum number of decimal places for each range type).
The settings for ROM versions 2.01 and earlier are shown below.

*2. Becomes the PV1 setting.

*3. Becomes the PV2 setting.

*4. Becomes the PV3 setting.

*5. Becomes the PV4 setting.

## ■ PID_PV when only AI assignment setting is specified

| | Setting | | PID_PV decimal point position |
|---|---|---|---|
| | PV assignment | AI assignment | |
| Loop 1 | 0 | 1 | "Loop PV/SP decimal point position" and PV1*2 "Range type"*1 for loop 1, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2*2 "Range type"*1 for loop 1, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3*2 "Range type"*1 for loop 1, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4*2 "Range type"*1 for loop 1, whichever is smaller |
| Loop 2 | 0 | 1 | "Loop PV/SP decimal point position" and PV1*3 "Range type"*1 for loop 2, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2*3 "Range type"*1 for loop 2, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3*3 "Range type"*1 for loop 2, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4*3 "Range type"*1 for loop 2, whichever is smaller |
| Loop 3 | 0 | 1 | "Loop PV/SP decimal point position" and PV1*4 "Range type"*1 for loop 3, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2*4 "Range type"*1 for loop 3, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3*4 "Range type"*1 for loop 3, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4*4 "Range type"*1 for loop 3, whichever is smaller |
| Loop 4 | 0 | 1 | "Loop PV/SP decimal point position" and PV1*5 "Range type"*1 for loop 4, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2*5 "Range type"*1 for loop 4, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3*5 "Range type"*1 for loop 4, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4*5 "Range type"*1 for loop 4, whichever is smaller |
| Loop 1 | 0 | Standard numerical code | "Loop PV/SP decimal point position" for loop 1 |
| Loop 2 | 0 | Standard numerical code | "Loop PV/SP decimal point position" for loop 2 |
| Loop 3 | 0 | Standard numerical code | "Loop PV/SP decimal point position" for loop 3 |
| Loop 4 | 0 | Standard numerical code | "Loop PV/SP decimal point position" for loop 4 |

*1. ☞ 4 - 2, How to Set the PV Input (page 4-3) (for the maximum number of decimal places for each range type)
The settings for ROM versions 2.01 and earlier are shown below.

*2. Becomes the PV1 setting.

*3. Becomes the PV2 setting.

*4. Becomes the PV3 setting.

*5. Becomes the PV4 setting.

## ■ PID_PV when both PV and AI assignment settings are specified

| | Setting | | PID_PV decimal point position |
|---|---|---|---|
| | PV assignment | AI assignment | |
| Loop 1 | 1 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 1, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 1, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 1, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 1, whichever is smaller |
| | 2 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 1, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 1, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 1, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 1, whichever is smaller |
| | 3 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 1, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 1, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 1, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 1, whichever is smaller |
| | 4 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 1, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 1, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 1, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 1, whichever is smaller |
| Loop 2 | 1 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 2, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 2, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 2, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 2, whichever is smaller |
| | 2 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 2, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 2, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 2, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 2, whichever is smaller |
| | 3 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 2, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 2, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 2, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 2, whichever is smaller |
| | 4 | 1 | "Loop PV/SP decimal point position" and PV1 "Range type"* for loop 2, whichever is smaller |
| | | 2 | "Loop PV/SP decimal point position" and PV2 "Range type"* for loop 2, whichever is smaller |
| | | 3 | "Loop PV/SP decimal point position" and PV3 "Range type"* for loop 2, whichever is smaller |
| | | 4 | "Loop PV/SP decimal point position" and PV4 "Range type"* for loop 2, whichever is smaller |
| Loop 3 | Repeat in the same way | Repeat in the same way | Repeat in the same way |
| Loop 4 | Repeat in the same way | Repeat in the same way | Repeat in the same way |
| Loop 1 | Standard numerical code | Standard numerical code | "Loop PV/SP decimal point position" for loop 1 |
| Loop 2 | Standard numerical code | Standard numerical code | "Loop PV/SP decimal point position" for loop 2 |
| Loop 3 | Standard numerical code | Standard numerical code | "Loop PV/SP decimal point position" for loop 3 |
| Loop 4 | Standard numerical code | Standard numerical code | "Loop PV/SP decimal point position" for loop 4 |

* ☞ 4-2, How to Set the PV Input (page 4-3) (for the maximum number of decimal places for each range type)

# Appendix-5 ROM Version History

This section explains functions added by ROM versions and the content of specification changes.
Reference in the table below as well as each item name in ☞ Chapter 12, List of Communication Data and ☞ Chapter 13, List of Parameter Settings (for details)
☞ Conventions Used in This Manual (page i) (for the conventions used in this manual)

## ■ ROM version 1.00 [1_0_0] (support start date: March 2010) ROM version 2.00 [1_0_1] (support start date: August 2010)

### ● Added functions

| Description | Reference | Item with changed/added settings |
|---|---|---|
| Compatible with supervisor modules (NX-D25) | ☞ Network Instrumentation Module Model NX-S11/12/21 Supervisor Module User's Manual: Functions (CP-SP-1324E) | — |
| PID-B calculation functions were added (NX-D25). | ☞ 7 - 1, Control Algorithm | Control algorithms |
| Addition of zone PID function (NX-D25) | ☞ 7 - 9, Zone PID | All settings described in the section were added. |
| Linearization approximation functions were added. (NX-D25) | ☞ 7 - 7, Approximation by Linearization Table | All settings described in the section were added. |
| Support for AI input, PV input, RSP input, OUT/DO output, and use of MV branching output with the data transfer between modules function (NX-D25) | ☞ 7 - 16, Data Transfer Function between Modules | The function for data transfer between modules was added (with the ability to configure it using the SLP-NX). |
| Numeric data set for the OUT and DO terminals was made viewable on the monitor (AO percentage value) | ☞ Chapter 12, List of Communication Data | AO percent data |
| AL33 and AL84 were added. | ☞ Chapter 14, Troubleshooting | — |
| Cycle setup was added.<br>(Parameter setting from the loader) | ☞ 7 - 16, Data Transfer Function between Modules | Cycle period |
| Operation modes were added. | ☞ 1 - 4, Operation Modes | — |

● **Specification changes**

| Description | Reference | Item with changed/added settings |
|---|---|---|
| The action of the FAIL LED indicator in the event of a soft failure was changed to a slow blink. | ☞ 5 - 1, Operation Settings | LED name = FAIL |
| (H) and (L) parameter data addresses of the reception monitoring function were changed. | ☞ Chapter 12, List of Communication Data | Function/Reception Monitoring |
| Changed to support "AI group definition", setting 9 of the "Internal contact IN" function (NX-D15). | ☞ 6 - 2, How to Use Internal Contact Input | Operation type |
| Changed to support AI assignment for the Input assignment function (NX-D15). | ☞ 7 - 19, Input Assignment Function | AI assignment |
| Changed so that the device operation mode changes to IDLE in the event of a hard failure and when AL88 (base EEPROM error) occurs. | ☞ 16 - 1, Specifications | — |
| Changed so that communication other than from the loader is not allowed during warmup | ☞ 16 - 1, Specifications | — |
| Both downscale burnout detection (PV low limit error occurs at −10 % FS or 0 % FS) and upscale burnout detection (PV high limit error occurs at 110 % FS) were formerly available for the PV of RTD lines A and B or A and C during a short circuit. Now only downscale burnout is available. | ☞ ■ Behavior if a PV input error occurs (page 16-5) | — |
| Changed so that reception monitoring and transmission timeout do not cause latching. | ☞ 7 - 17, Reception Monitoring and Communication Timeout | — |

## ■ ROM version 2.01 [1_0_1] (support start date: November 2010)

● **Specification changes**

| Description | Reference | Item with changed/added settings |
|---|---|---|
| At startup, the "Wait time for data transfer between modules" before sending begins remains fixed at 5 seconds, but its position has been changed. Previously it followed "Delay after startup," but now it follows "Wait time for host communications to begin." | ☞ 7 - 13, Start Delay at Power ON | — |

## ■ ROM version 2.02 [1_0_2] (support start date: April 2011)

● **Specification changes**

| Description | Reference | Item with changed/added settings |
|---|---|---|
| Square root extraction is now executed even when the input is 100 % or more. | ☞ ■ How to set up square root extraction (page 4-7) | — |
| In IDLE mode, PID values are not initialized. (However, there was PID initialization until ROM version 2.01 [1_0_1].) | ☞ 7 - 13, Start Delay at Power ON | — |

## ■ ROM version 3.00 [1_0_3] (support start date: December 2011)

### ● Added functions

| Description | Reference | Item with changed/added settings |
|---|---|---|
| The NX-D35 (cycle period: 100 ms, accuracy: ±0.1 % FS) was added. | — | — |
| Position proportional control was added (NX-D35). | ☞ 4 - 8, How to Set Position Proportional Output | All settings described in the section were added. |
| Fixed value output was added (NX-D25, NX-D35). | ☞ 7 - 24, Fixed Value Output | All settings described in the section were added. |
| Internal cascade control was added (NX-D25, NX-D35). | ☞ 7 - 22, Internal Cascade Control | All settings described in the section were added. |
| CT continuous current measurement cycle was added. | ☞■ Continuous current measurement cycle (page 6-31) | — |
| Heat/cool control for 4 loops | ☞ 5 - 12, Heating/Cooling Control<br>☞ 4 - 1, How to Set the Loop Configuration<br>☞ 4 - 7, How to Set Outputs (continuous output and time proportional output) | • Proportional band (cool) for loops 3 and 4, Integration time (cool), Derivative time (cool)<br>• Loop type<br>• Output type |
| IDLE/SV communication error operation was added. | ☞ 7 - 23, IDLE/SV Communication Error Operation | All settings described in the section were added. |
| Zener barrier adjustment for RTD input was added. | ☞ 7 - 25, Zener Barrier Adjustment and Wiring Resistance Correction | All settings described in the section were added. |
| MFB opening high and low limits (NX-D35 only) and deviation between channels (PV - standard) were added. | ☞ 6 - 1, How to Use Events | Operation type |
| Loop configuration type was added. | ☞ 4 - 1, How to Set the Loop Configuration | Loop type |
| CPL/TCP was added. | ☞ Chapter 10, CPL/TCP Communications Function | — |
| Alarms (AL21, AL22, AL23, AL24, AL34, AL38, AL53, AL54, AL55) were added. | ☞ Chapter 14, Troubleshooting | — |
| Addresses and standard numerical codes for PID MV1–4 were added (standard numerical codes 2288–2291 and addresses 18928–18931). | ☞ Appendix-2, Standard Bit Codes and Standard Numerical Codes<br>☞ Chapter 12, List of Communication Data | — |

### ● Specification changes

| Description | Reference | Item with changed/added settings |
|---|---|---|
| The setting range of user-defined numbers was changed. | | User-defined numbers 1–16 |

## ■ ROM version 3.01 [1_0_3] (support start date: June 2012)

### ● Added functions

| Description | Reference | Item with changed/added settings |
|---|---|---|
| Isolated analog output models were added to the NX-D35. | ☞ 1 - 2, Model Selection Table<br>☞ 3 - 5, Terminal Wiring Diagram | — |

## ■ ROM version 4.00 [1_0_4] (support start date: July 2015)

### ● Specification changes

| Description | Reference | Item with changed/added settings |
|---|---|---|
| Changed the default settings for zones 1–3, hysteresis for zone, and SP scaling high limit. | — | • Zones 1–3<br>• Zone hysteresis<br>• Output scaling high limit |

# Appendix-6 Abbreviations and Terms

The main abbreviations and terms used in the descriptions, tables, and illustrations of this manual are explained below.

| | |
|---|---|
| AT | : Auto Tuning. PID constants are automatically adjusted to optimal values. |
| DI | : Digital input |
| DO | : Digital output (control output of relay and voltage pulse, and event output). |
| OL | : Output low.<br>The minimum output level setting. |
| OH | : Output high.<br>The maximum output level setting. |
| PID | : P (proportional): Proportional operation.<br>I (integral): Integral operation or reset operation.<br>D (derivative): Derivative operation or rate operation. |
| PV | : Process variable.<br>Measured values from thermocouple, RTD, and linear input. |
| SP | : The set point or set value<br>For example, a set point to control the temperature. |
| LSP | : Local set point.<br>A set value stored in the controller. |
| RSP | : Remote set point.<br>A set value given from outside by an analog signal. |
| MV | : Manipulated variable. The output of the controlling instrument<br>(the result of PID calculations). |
| Setup | : The selection of settings to suit the operations of a device that incorporates operating conditions, such as control action. |
| Hysteresis | : An operation gap during event operation. The difference between the value at which the event OFF is changed to ON and the value at which the event ON is changed to OFF.<br>Hysteresis is shown as “HYS” in the figures in this manual. |
| EV | : Event.<br>EV shows the value set for the event function. The event function is an ON/OFF signal function. The signal is ON or OFF depending on the control status. “EV” plus a number, like EV1 or EV2, indicates a particular event function. |
| ch | : Channel.<br>For example, ch2 means channel 2. |
| U | : Unit. This indicates the minimum unit of the setting.<br>If the number of digits after the decimal point of the set value is 0, 1, 2, 3, or 4, the value of 1U is 1, 0.1, 0.01, 0.001, and 0.0001 respectively. |
| Heat/cool output | : Control output, which is output when the heat output is related to the cool output within one controller. |
| AUTO | : Automatic operation status in which the PID control result is used as the MV. |
| MANUAL | : Manual operation status in which a value manually set by the operator is used as the MV. |
| READY | : Standby status during which control calculations are stopped. |
| RUN | : The status in which control calculations are executed. |

# Revision History

| Printed date | Manual Number | Edition | Revised pages | Description |
|---|---|---|---|---|
| **Mar. 2010** | **CP-UM-1308E** | **1st Edition** | | |
| **Oct. 2010** | | **2nd Edition** | | **Overall revision** |
| **Feb. 2011** | | **3rd Edition** | | **Overall revision** |
| **Jun. 2011** | | **4th Edition** | | Terms standardized. |
| | | | 1-2 | Model selection table added. |
| | | | 3-9, 3-10, 3-15 | Diagrams were changed. |
| | | | 4-2 | Table for Bank and Settings was changed.<br>Setting procedures were changed. |
| | | | 4-3 | Handling precautions were changed. |
| | | | 4-4 | Table for Bank and Settings was changed. |
| | | | 4-5 | An explanation was added to the Note. |
| | | | 4-6 | Section “How to set the square root extraction function” was added. |
| | | | 4-7 | Section “How to set the PV filter” was added. |
| | | | 5-16 | Note was added. |
| | | | 5-17 | Handling Precautions were added. |
| | | | 6-4 | Explanation for PV change rate was added. |
| | | | 6-8 | “Latch” section was added. |
| | | | 6-11 | Settings for “9:AI group definition” were changed. Table was added to “Weighting” section. |
| | | | 6-18 | Explanation for CT operations was changed. |
| | | | 6-19 | Explanations were added to sections “Heater burnout detection current value,” and “Minimum current defined as overcurrent”. |
| | | | 6-20 | Explanations were added to sections “Minimum current defined as short-circuit,” and the “Condition for restoring status before measurement”. |
| | | | 6-21 | Handling Precautions added. |
| | | | 6-9 to 6-20 | Pages 6-8 to 6-18 in the previous edition were moved here. |
| | | | 7-3 | Handling Precautions added. |
| | | | 7-5 | Explanation was added to Handling Precautions. |
| | | | 7-6 | Sections “Master/slave selection” and “Time proportional slave channel” were added. |
| | | | 7-15 | “AT progress” section was added. |
| | | | 7-20 | “Latch” section was added. |
| | | | 7-31 | Chapter “Just-FiTTER” was added. |
| | | | 7-32 | “SP lag” chapter was added. |
| | | | 11-3 | Notes were added. |
| | | | 11-6 | Items and notes were added. |
| | | | 11-14 | Note was added. |
| | | | 12-3 | Note was added. |
| | | | 12-7 | Monitor ranges were added. |
| | | | 12-8 | Items were added. |
| | | | 13-3 | Sections “If a touch panel (etc.) does not respond after module replacement” and “If the module can no longer communicate with a device using the MODBUS/TCP protocol” were added. |
| | | | 15-2 | Specifications changed. |
| | | | 15-3 | Error types added to the table. Note added. |
| | | | Appendix-14 | Description was added to specification changes for Version 2.00.<br>Version 2.02 section was added. |
| **Sep. 2012** | | **5th Edition** | | Overall revision because new models were added. |
| **Mar. 2023** | | **6th Edition** | | Overall revision based on CP-SP-1308-18 |

# Terms and Conditions

We would like to express our appreciation for your purchase and use of Azbil Corporation's products.

You are required to acknowledge and agree upon the following terms and conditions for your purchase of Azbil Corporation's products (system products, field instruments, control valves, and control products), unless otherwise stated in any separate document, including, without limitation, estimation sheets, written agreements, catalogs, specifications and instruction manuals.

1. Warranty period and warranty scope

1.1 Warranty period

Azbil Corporation's products shall be warranted for one (1) year from the date of your purchase of the said products or the delivery of the said products to a place designated by you.

1.2 Warranty scope

In the event that Azbil Corporation's product has any failure attributable to azbil during the aforementioned warranty period, Azbil Corporation shall, without charge, deliver a replacement for the said product to the place where you purchased, or repair the said product and deliver it to the aforementioned place. Notwithstanding the foregoing, any failure falling under one of the following shall not be covered under this warranty:

(1) Failure caused by your improper use of azbil product (noncompliance with conditions, environment of use, precautions, etc. set forth in catalogs, specifications, instruction manuals, etc.);
(2) Failure caused for other reasons than Azbil Corporation's product;
(3) Failure caused by any modification or repair made by any person other than Azbil Corporation or Azbil Corporation's subcontractors;
(4) Failure caused by your use of Azbil Corporation's product in a manner not conforming to the intended usage of that product;
(5) Failure that the state-of-the-art at the time of Azbil Corporation's shipment did not allow Azbil Corporation to predict; or
(6) Failure that arose from any reason not attributable to Azbil Corporation, including, without limitation, acts of God, disasters, and actions taken by a third party.

Please note that the term "warranty" as used herein refers to equipment-only-warranty, and Azbil Corporation shall not be liable for any damages, including direct, indirect, special, incidental or consequential damages in connection with or arising out of Azbil Corporation's products.

2. Ascertainment of suitability

You are required to ascertain the suitability of Azbil Corporation's product in case of your use of the same with your machinery, equipment, etc. (hereinafter referred to as "Equipment") on your own responsibility, taking the following matters into consideration:

(1) Regulations and standards or laws that your Equipment is to comply with.
(2) Examples of application described in any documents provided by Azbil Corporation are for your reference purpose only, and you are required to check the functions and safety of your Equipment prior to your use.
(3) Measures to be taken to secure the required level of the reliability and safety of your Equipment in your use
Although azbil is constantly making efforts to improve the quality and reliability of Azbil Corporation's products, there exists a possibility that parts and machinery may break down. You are required to provide your Equipment with safety design such as fool-proof design,*1 and fail-safe design*2 (anti-flame propagation design, etc.), whereby preventing any occurrence of physical injuries, fires, significant damage, and so forth. Furthermore, fault avoidance,*3 fault tolerance,*4 or the like should be incorporated so that the said Equipment can satisfy the level of reliability and safety required for your use.

*1. A design that is safe even if the user makes an error.
*2. A design that is safe even if the device fails.
*3. Avoidance of device failure by using highly reliable components, etc.
*4. The use of redundancy.

3. Precautions and restrictions on application

3.1 Restrictions on application

Please follow the table below for use in nuclear power or radiation-related equipment.

| | Nuclear power quality*5 required | Nuclear power quality*5 not required |
|---|---|---|
| Within a radiation controlled area*6 | Cannot be used (except for limit switches for nuclear power*7) | Cannot be used (except for limit switches for nuclear power*7) |
| Outside a radiation controlled area*6 | Cannot be used (except for limit switches for nuclear power*7) | Can be used |

*5. Nuclear power quality: compliance with JEAG 4121 required
*6. Radiation controlled area: an area governed by the requirements of article 3 of "Rules on the Prevention of Harm from Ionizing Radiation," article 2 2 4 of "Regulations on Installation and Operation of Nuclear Reactors for Practical Power Generation," article 4 of "Determining the Quantity, etc., of Radiation-Emitting Isotopes,"etc.
*7. Limit switch for nuclear power: a limit switch designed, manufactured and sold according to IEEE 382 and JEAG 4121.

Any Azbil Corporation's products shall not be used for/with medical equipment.

The products are for industrial use. Do not allow general consumers to install or use any Azbil Corporation's product. However, azbil products can be incorporated into products used by general consumers. If you intend to use a product for that purpose, please contact one of our sales representatives.

3.2 Precautions on application

you are required to conduct a consultation with our sales representative and understand detail specifications, cautions for operation, and so forth by reference to catalogs, specifications, instruction manual, etc. in case that you intend to use azbil product for any purposes specified in (1) through (6) below. Moreover, you are required to provide your Equipment with fool-proof design, fail-safe design, anti-flame propagation design, fault avoidance, fault tolerance, and other kinds of protection/safety circuit design on your own responsibility to ensure reliability and safety, whereby preventing problems caused by failure or nonconformity.

(1) For use under such conditions or in such environments as not stated in technical documents, including catalogs, specification, and instruction manuals
(2) For use of specific purposes, such as:
   * Nuclear energy/radiation related facilities
     [When used outside a radiation controlled area and where nuclear power quality is not required]
     [When the limit switch for nuclear power is used]
   * Machinery or equipment for space/sea bottom
   * Transportation equipment
     [Railway, aircraft, vessels, vehicle equipment, etc.]
   * Antidisaster/crime-prevention equipment
   * Burning appliances
   * Electrothermal equipment
   * Amusement facilities
   * Facilities/applications associated directly with billing
(3) Supply systems such as electricity/gas/water supply systems, large-scale communication systems, and traffic/air traffic control systems requiring high reliability
(4) Facilities that are to comply with regulations of governmental/public agencies or specific industries
(5) Machinery or equipment that may affect human lives, human bodies or properties
(6) Other machinery or equipment equivalent to those set forth in items (1) to (5) above which require high reliability and safety

4. Precautions against long-term use

Use of Azbil Corporation's products, including switches, which contain electronic components, over a prolonged period may degrade insulation or increase contact-resistance and may result in heat generation or any other similar problem causing such product or switch to develop safety hazards such as smoking, ignition, and electrification. Although acceleration of the above situation varies depending on the conditions or environment of use of the products, you are required not to use any Azbil Corporation's products for a period exceeding ten (10) years unless otherwise stated in specifications or instruction manuals.

5. Recommendation for renewal

Mechanical components, such as relays and switches, used for Azbil Corporation's products will reach the end of their life due to wear by repetitious open/close operations.

In addition, electronic components such as electrolytic capacitors will reach the end of their life due to aged deterioration based on the conditions or environment in which such electronic components are used. Although acceleration of the above situation varies depending on the conditions or environment of use, the number of open/close operations of relays, etc. as prescribed in specifications or instruction manuals, or depending on the design margin of your machine or equipment, you are required to renew any Azbil Corporation's products every 5 to 10 years unless otherwise specified in specifications or instruction manuals. System products, field instruments (sensors such as pressure/flow/level sensors, regulating valves, etc.) will reach the end of their life due to aged deterioration of parts. For those parts that will reach the end of their life due to aged deterioration, recommended replacement cycles are prescribed. You are required to replace parts based on such recommended replacement cycles.

6. Other precautions

Prior to your use of Azbil Corporation's products, you are required to understand and comply with specifications (e.g., conditions and environment of use), precautions, warnings/cautions/notices as set forth in the technical documents prepared for individual Azbil Corporation's products, such as catalogs, specifications, and instruction manuals to ensure the quality, reliability, and safety of those products.

7. Changes to specifications

Please note that the descriptions contained in any documents provided by azbil are subject to change without notice for improvement or for any other reason. For inquires or information on specifications as you may need to check, please contact our branch offices or sales offices, or your local sales agents.

8. Discontinuance of the supply of products/parts

Please note that the production of any Azbil Corporation's product may be discontinued without notice. After manufacturing is discontinued, we may not be able to provide replacement products even within the warranty period.

For repairable products, we will, in principle, undertake repairs for five (5) years after the discontinuance of those products. In some cases, however, we cannot undertake such repairs for reasons, such as the absence of repair parts. For system products, field instruments, we may not be able to undertake parts replacement for similar reasons.

9. Scope of services

Prices of Azbil Corporation's products do not include any charges for services such as engineer dispatch service. Accordingly, a separate fee will be charged in any of the following cases:

(1) Installation, adjustment, guidance, and attendance at a test run
(2) Maintenance, inspection, adjustment, and repair
(3) Technical guidance and technical education
(4) Special test or special inspection of a product under the conditions specified by you

Please note that we cannot provide any services as set forth above in a nuclear energy controlled area (radiation controlled area) or at a place where the level of exposure to radiation is equivalent to that in a nuclear energy controlled area.

Specifications are subject to change without notice. (11)

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