Additional display unit (sold separately)

<table>
<thead>
<tr>
<th>Part name</th>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLPC7 Smart Loader Package (free version)*1</td>
<td>SLPC7-J91</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>SLPC7 Smart Loader Package (paid version)</td>
<td>SLPC7-J91</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Power terminal cover (10 covers included)</td>
<td>84501420-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>C7 (display unit) mounting method change kit*2</td>
<td>84501421-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>microSD card (for replacement)</td>
<td>81406725-003</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>CLOCK block (for replacement) *3</td>
<td>QN206A</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>MOTOR block (for replacement) *3</td>
<td>QN212A</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Current transformer (dia. 5.8 mm)</td>
<td>81406726-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Current transformer (dia. 12 mm)</td>
<td>84502552-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Voltage transformer (200 V AC)</td>
<td>81406727-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
</tbody>
</table>

*1. Downloadable from our website

*2. A integrated mounting bracket is included.

*3. Mounting bracket is included.

Accessories

<table>
<thead>
<tr>
<th>Part name</th>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C7G_4 Standard gasket</td>
<td>84501420-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Display unit mounting screw (6 mm)</td>
<td>QN206A</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Display unit mounting screws (10 mm)</td>
<td>QN212A</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Setscrews (for securing temporarily)</td>
<td>81406726-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>C7G_3 Gasket with 92×92 mm hole</td>
<td>QN206A</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Integrated-mounting bracket</td>
<td>QN212A</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Display unit mounting screw (6 mm)</td>
<td>81406726-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
<tr>
<td>Integrated-mounting cable</td>
<td>81406727-001</td>
<td>Add'l display unit for multi-loop controller with multifunction display</td>
</tr>
</tbody>
</table>

Please read “Terms and Conditions” from the following URL before ordering and use.
https://www.azbil.com/products/factory/order.html

Ethernet is a trademark of XEROX Corporation.
microSD is trademark or registered trademark of SD-3C, LLC in the United States, other countries or both.
Modbus is a trademark and the property of Schneider Electric SE, its subsidiaries and affiliated companies.
MELSEC and SMART are trademarks of Mitsubishi Electric Corporation.
Other product names, model numbers and company names may be trademarks of the respective company.

Azbil Corporation
Advanced Automation Company

Ethnic Corporation changed its name to Azbil Corporation on April 1, 2012.

1-12-2 Kawana, Fujisawa
Kanagawa 251-8522 Japan
URL: https://www.azbil.com

The next stage in controller evolution
A Significantly Enhanced Role for Digital Indicating Controllers

This PID controller handles up to four loops with a top sampling cycle of 10 ms at an accuracy of 0.1% F.S. In addition, its separable structure, compact data storage, and health index* function make it useful in ways that conventional controllers cannot match.

Multi-loop Controller with Multifunction Display
Model C7G

Meet a variety of needs!

- **Need A**: High-level waterproofing for moist environments
- **Need B**: Easy-to-read settings and alarms with no difficult codes
- **Need C**: Flexible installation in small spaces
- **Need D**: A device powered from the PC during setup
- **Need E**: High-speed, smart Ethernet connection
- **Need F**: Data saved even if a problem occurs
- **Need G**: Prediction of equipment faults to prevent sudden problems
- **Need H**: Easy selection of model No. and specifications

Excellent usability

We developed the hardware from the user’s viewpoint in order to achieve a high level of usability.

- Better usability and readability of display
- Separable structure
- Screwless-clamp terminal block

Seamless coordination with other equipment maximizes value

Ethernet as a standard interface provides high-speed communication with a variety of devices. RS-485 is also a standard feature, allowing improved flexibility in network construction. A PLC link function, which provides an easy Ethernet connection with Mitsubishi Electric’s PLC, is also available.

Diagnostic and management information for problem-solving

The advanced C7G, in addition to faster and more reliable process control, is capable of detecting warning signs of trouble with connected equipment through the use of its data-processing technology.

- Faster speed
- Compact data storage
- Data processing

*Diagnostic parameters for prediction or detection of production equipment failure (see p. 13 for the health index)

Note: Diagrams are for illustrative purposes. The actual product may differ.
Excellent usability

Excellent usability and readability
- 3.5-inch full dot matrix LCD offers crystal-clear display of values and graphs during control operation.
- Touch panel provides user-friendly operability. If lost, just press the home button.

Withstands a variety of environments
- Display unit features an IP67 protection rating. Resistance to dust and water drops allows use in a range of environments.
- Resistive touch-panel is easy to operate in cleanrooms, etc., where gloves are worn.

3.5-inch full dot matrix LCD offers crystal-clear display of values and graphs during control operation.

Clarity at a glance—set for full name display of C7G alarms and settings
Parameter settings and gauge alarms can be displayed by name rather than by code number, reducing the need to refer to the manual during setup and alarm handling. Both English and Japanese are available and can be seamlessly switched during operation.

- Sample display 1 -
  - English
  (Controller alarm indication)
- Sample display 2 -
  - Japanese
  (Parameter settings indication)

Easily identify the cause of alarms
The hierarchical design of the alarm screen allows easy identification of the location and cause of generated alarms.

[Example: sensor input error]

Graphs are helpful in trial-run adjustments
Control status can be conveniently checked on a graph while making trial-run adjustments.

<table>
<thead>
<tr>
<th>1-loop graph</th>
<th>Multi-loop graph</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FEATURE 01
Excellent usability

Separable display allows for flexible positioning.

Display unit
Since power is supplied from the main unit, separate power wiring is not needed for displays installed less than 30 meters from the main unit. (A separate power supply is required for distances from 30 to 100 meters.)

Additional display unit block
Unlike conventional controllers, a second display can be added. The home screen of each display unit can be customized as desired.

Insert wire. Spring-type terminals are that easy!
Spring-type terminals simplify wiring and improve reliability. They can be connected by simply inserting the bootlace ferrules. The spring clamp method achieves reliable electric contacts.

• Much simpler than conventional wiring methods.
• No more hassles after inserting the wire.

Configuration without a power supply
Parameters can be loaded and stored with the Smart Loader Package when the main unit is connected to a PC with a MicroUSB cable.

POINT 01
Simplified panel cutout mounting holes
Panel mounting requires only round holes. The tools previously required to make panel cutouts are not needed, allowing much simpler mounting.

POINT 02
Conventional panel cutouts also OK
As with conventional controllers, integrated mounting of the display unit attached to the main unit is also fine.

Smart Loader Package*
* Configuration and monitoring software tool
- Free version (model SLP-C7FJ91)
- Paid version (model SLP-C7-J91)
Includes configuration, monitoring, and Health Index functions.
Includes additional functions not available in the free version (advanced monitoring function and Health Index screen).

The free version of the Smart Loader Package can be downloaded from our webpage.


Note: Diagrams are for illustrative purposes. The actual product may differ.
The C7G is equipped with pattern operation functions. The same pattern operation can be used for up to 4 loops, or individual pattern operations can be executed. Functions that are needed for pattern operations, like PV start and guaranteed soak, are of course available.

### Overview of pattern operation specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patterns and segments</td>
<td>16 patterns, 16 segments per pattern</td>
</tr>
<tr>
<td>Segment setting method</td>
<td>Set by set point (SP) and time</td>
</tr>
<tr>
<td>Time units</td>
<td>0.01 s, 0.1 s, 1 s, 1 min</td>
</tr>
<tr>
<td>Operation modes</td>
<td>Pattern operation (Pattern SP), Constant-value operation (LSP/RSP)</td>
</tr>
<tr>
<td>Pattern operation functions</td>
<td>HOLD, Guaranteed soak (start and end points), PV start, Advance, Cyclic operation, Pattern link, Operation end state (READY, END, constant-value operation), Pattern SP change limits (high and low limits)</td>
</tr>
<tr>
<td>Event functions</td>
<td>Segment events 1 to 16</td>
</tr>
<tr>
<td>Host communication</td>
<td>Pattern settings and segment settings can be read and written</td>
</tr>
</tbody>
</table>

### Time diagram of pattern operation

**Loop 1**
- Pattern Operation

**Loop 2**
- Constant-Value Operation

**Loop 3**
- Constant-Value Operation

**Loop 4**
- Constant-Value Operation

**Pattern generator**
- Analog signal

**Controller 1**
- Model C7G

**Controller 2**
- Analog signal

**Controller 3**
- Analog signal

---

**Case example**

Multiple loops (up to four) can be controlled simultaneously with just one C7G unit, instead of using a group of conventional controllers receiving analog signal outputs from a pattern generator as remote set point (SP) inputs.

---

Note: Diagrams are for illustrative purposes. The actual product may differ.
Value is maximized by seamless coordination with other equipment

Comes standard with two communication ports

Both Ethernet and RS-485 support is a standard feature. With high-speed (Ethernet) communication and serial (RS-485) communication, a high degree of flexibility is ensured for equipment-internal instrumentation networks and controller-controller instrumentation networks.

PLC link function

Utilizing Ethernet, model C7G can exchange data with a PLC without a communication converter (gateway) or dedicated program. (It uses Mitsubishi MC protocol/SLMP (SE).)

Connectable PLCs

<table>
<thead>
<tr>
<th>Connectable PLCs</th>
<th>MELSEC IQ-R</th>
<th>MELSEC IQ-Q</th>
<th>MELSEC L</th>
<th>MELSEC IQ-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyence Corporation</td>
<td>KV-7000 series</td>
<td>KV-5000/3000 series</td>
<td>KV-Nano series</td>
<td></td>
</tr>
</tbody>
</table>

Even easier instrumentation with a Smart device gateway model NX-SVG

Our Smart device gateway model NX-SVG allows easy instrumentation using Ethernet.

Data transfer can be easily configured by simply setting the source and target devices. Easy setup of data transmission is achieved without requiring communication programs by PLC ladder programming.

Diagnostic and management information for problem-solving

The controller displays and records changes in heater resistance to show the heater’s condition.

Heater voltage and current is measurable from the voltage transformer (VT) input and current transformer (CT) input and is displayed as RMS values. Based on the values measured for VT input and CT input, heater resistance can be calculated, monitored (displayed/transmitted), and recorded. * The state of a heater whose resistance characteristics vary depending on the temperature environment is easier to know by recording * the resistance together with the temperature control status.

* The controller’s CDS (compact data storage) function is used for recording.

 lø

RMS voltage (V) and RMS current (A) are measured through the voltage transformer (VT) input and current transformer (CT) input. Resistance (Ω) is calculated using the formula R = RMS voltage ÷ RMS current. This information is displayed and recorded for problem-solving.

Sample display of RMS current and RMS voltage

Sample display of resistance

Heater deterioration

Diagnostic and management information for problem-solving

Lø

RMS voltage (V) and RMS current (A) are measured through the voltage transformer (VT) input and current transformer (CT) input. Resistance (Ω) is calculated using the formula R = RMS voltage ÷ RMS current. This information is displayed and recorded for problem-solving.

* The controller’s CDS (compact data storage) function is used for recording.

Note: Diagrams are for illustrative purposes. The actual product may differ.
Diagnostic and management information for problem-solving

Compact data storage (CDS)
Compact data storage is Azbil’s new technology for effective data recording. It can record necessary data at fixed intervals and also record just the required pieces of data, thus allowing controllers to achieve data processing and management at FA control layer.

Process diagnosis (Health index function)
Loop characteristics are quantified using process data for control. Loop soundness is monitored to detect status changes. Quantified data is provided for edge computing that in turn contributes to promotion of IoT services.

- Kp/Tp calculation block diagram

\[ \frac{K_p}{T_p} = \frac{K_m}{T_m} \]

Kp: Process gain  Tp: Time constant  Lp: Waste time

Transfer function
Heating control can be expressed by the following approximation formula:

\[ P = K_p e^{-L_p s}/(1+T_p s) \]

Kp: Process gain  Tp: Time constant  Lp: Waste time

Normalized responsiveness is calculated with the following formula:

\[ \frac{\Delta P_{V_{\text{max}}}}{\Delta P_{V_{\text{max}}}} \cdot \frac{\Delta P_{V_{m_{\text{max}}}}}{\Delta P_{V_{m_{\text{max}}}}} \cdot \frac{1}{T_D} \]

By comparing the maximum amount of process change in a transient response (\( \Delta P_{V_{\text{max}}} \)) and the same value for the model installed in the controller (\( \Delta P_{V_{m_{\text{max}}}} \)), the value of “Process gain (Kp) ÷ time constant (Tp)” is calculated as the Health Index (control loop quality). The health index is calculated while CDS is activated, and is then stored on the microSD memory card. (Depending on processing conditions, calculation may sometimes not be possible.)

How to use
The health index is an approximation of control loop condition. By storing data in batches and comparing it with initial values, equipment status changes can be detected before a failure occurs.

Index calculation for each batch

Data collection and extraction

Data processing

The health index is based on our proprietary data processing technology.
Specifications

Display unit (Included) Additional display unit (model C7D- _ _ _ _ _ _)

Screen specifications 3.5-inch (QVGA LCD)
Operation buttons Touch panel (resistant) and 6 hardkeys buttons
Display power source May or may not be included. The AC power supply is connected to the AC power source of the display or to the AC power supply of the additional display unit, or it can be removed or connected to the AC power supply of the display and additional display unit
Interface rating IP44 (front of display unit only)
Language English (printable with settings)
Service life of LCD 5 years (at ambient temperature of 0-40 °C and brightness setting 4, for handling of backlights (brightness))

Digital input (Digital Input/DI) block

No. of I/Os 4
Compatible control type Non-voltage contacts or open collector (with type)
Function selection RUN/READY mode selection, SUMMARIZE mode selection, SP group selection, DIGI output selection, etc.
Digital input method Open collector (plug type)
Function assignment Select an event status or a standard bit code
Sampling cycle 16 ms, 50 ms, 100 ms (factory default: 50 ms)
Decentralized point position Every 8 digits after the decimal point are displayed. Values are displayed so that the entire value does not exceed 5 digits. (Note: Effective resolution depends on the range.)

Thermocouple

Reference junction compensation accuracy ±0.2 °C (ambient temperature of 25 °C, under standard conditions); ±1.5 °C (ambient temperature of 0 °C, 50 °C, under standard conditions except for ambient temperature)
Reference input/output compensation method Compensation within the model C7G
Measuring current 1.0 A (referred temperature from 100 °C to 1000 °C, under standard conditions)
Allowable wiring resistance 500 m (per wire)
DC voltage range ±15 V
Input bias current 0 to 10 mA (under standard conditions)
10 to 50 mA (under standard conditions)
Input resistance 500 k (under standard conditions)
DC current input ±15 V ±15 mA (under standard conditions)
Scaling 0 to 5000 mV to 0 to 10 V
(0 to 1000 mV to 0 to 1 V)
(0 to 500 mV to 0 to 0.1 V)
(0 to 100 mV to 0 to 0.01 V)
(0 to 10 mV to 0 to 0.001 V)

Motor drive output (MOTOR) block

Start Method (starting method) V/F control, Frequency control, Time control, Current control
Motor brake 10 W
Motor rating 0.1 to 0.75 kW
Motor CV 100 to 480 V
Motor constant 20 to 200 (under standard conditions)
Number of connectable units 1
Contact voltage 24 V DC
Contact rating 2 A
Contact type (final SP basis) SP (LSP: Local SP)
Contact setting Deviation low limit, Deviation high and low limits, Deviation high limit, Deviation low limit, Deviation high and low limits

Auto (Automatic) block

Control type 5-digit (Min. OFF time / ON time
No. of control loops 4
No. of connectable units 1
No. of I/Os 10
Number of I/Os 4
Number of inputs 4
Number of outputs 4
Voltage measurement range 0 to 10 V
Recommended voltage transformer 81406725-003
Recommended current transformer 80746067-003
Output resolution 16 bit
Allowable load resistance 0.1 A
Output type Digital
Type 4 to 20 mA DC / 0 to 20 mA DC

Contact voltage 24 V DC
Contact type 2 A
Contact rating 10 W
Contact setting Deviation low limit, Deviation high and low limits, Deviation high limit, Deviation low limit

Output resolution 1.0 °C
Allowable wiring resistance 500 m (per wire)
Measuring current 1.0 A
Allowable wiring resistance 500 m (per wire)
DC voltage range ±15 V
Input bias current 0 to 10 mA (under standard conditions)
10 to 50 mA (under standard conditions)
Input resistance 500 k (under standard conditions)
DC current input ±15 V ±15 mA (under standard conditions)
Scaling 0 to 5000 mV to 0 to 10 V
(0 to 1000 mV to 0 to 1 V)
(0 to 500 mV to 0 to 0.1 V)
(0 to 100 mV to 0 to 0.01 V)
(0 to 10 mV to 0 to 0.001 V)

Communication

Transmission speed 9600 bps
Transmission protocol Modbus/RTU

Ethernet

Transmission line type RJ-45
No. of connections 4 (The number of connections for Ethernet is 1 to 4, and the number of connections for PLC link communication is fixed at 1.)
No. of physical ports (connectors) 2 (RJ-45)
Transmission limit 100 Mbit/s (STP cable, UTP cable, straight) (straight/UTP/STP/in-RJ45, bidirectional)
Network Monitoring (up to 25 slaves for 1 host station)
No. of communication wires 3 wires
Transmission speed 10, 100, 1000, 11000, 115200 type
Protocol Modbus/RTU

USB

Loader communication

Supported protocol SLIP (no encryption), SLIP (encrypted)
USB port (Micro USB) Type A (USB 2.0 supported, supported PDA) or Ethernet cable
Power supply When connected with USB cable, this device can be powered by the PC, and parameters can be changed.

Data storage

Type 16-bit SD card (supports SDHC: up to 32 Gbytes)
Data backup In CLIP-C7FJ91 (free version), SLIP-C7FJ91 (paid version)
Format USB storage (FAT) or SD card (FAT)
File FAT16

General specifications

Memory backup 320 Kbytes (Storable: 1 million words, cyclic mode, for parameter setting)
Power consumption AC models: 20 W max. (20 AL, D, S, C1 models) 55 W max. (R, 2 models) DC models: 13 W max. (2 models) DC models: 13 W max. (2 models)
Case weight Main unit: Mounting (in an enclosure) 25 kg (maximum weight for mounting (in an enclosure)) 25 kg
Display unit: Mounting (in an enclosure) 15 kg
Applicable standards EN 61010-1, EN 61326-1 (for use in industrial locations)
Display unit: Display and interface (connection): EN 61326-1, EN 61326-1, EN 61326-1 (applicable model needs to be selected)
Display unit: Display and interface (connection): IEC 60664-1, IEC 60364-4-443
Overload category Category III 50/60 Hz, IEC 60664-1, IEC 60664-1
Installation Main unit: Mounting on the DI (nail standard) or on the display unit using the mounting bracket (hole pitch is 8) Mounting using an adhesive backplate (hole pitch is 8) Mounting using the mounting bracket (hole pitch is 8)
Built-in clock accuracy Monthly error: less than ±140 s (less than ±65 s if the SLP-C7FJ91 is used)

Standard conditions

Ambient temperature 5 °C to 40 °C
Ambient humidity 10 to 95 %

Power supply AC models: 20 W max. (20 AL, D, S, C1 models) 55 W max. (R, 2 models) DC models: 13 W max. (2 models) DC models: 13 W max. (2 models)
Operating temperature C1 models: 0 to 40 °C (to use main unit or display unit) 20 °C (display unit) C2 models: 0 to 40 °C (to use main unit or display unit) 20 °C (display unit)
Rated power voltage AC models: 100-120 V AC / 200-240 V AC
Mounting angle Reference plane (± 0.5 ° tilt plane) and main unit end display unit) 0 degree (no restriction for display unit in standard mounting

Note: For details, refer to specification sheet No. C11C-P-57-16.
### Specification

#### Input types and ranges

<table>
<thead>
<tr>
<th>Input type</th>
<th>Range type No.</th>
<th>Sensor</th>
<th>Range</th>
<th>Accuracy</th>
<th>Effective resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>K</td>
<td>-200 to +1200 ℃</td>
<td>± 0.1 % FS ± 1 digit **</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>K</td>
<td>0 to 1200 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>K</td>
<td>0 to 600 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>K</td>
<td>0 to 400 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>K</td>
<td>0 to 400 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>K</td>
<td>-200 to +400 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>K</td>
<td>-200 to +400 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>J</td>
<td>0 to 1200 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>J</td>
<td>0 to 800 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>J</td>
<td>0 to 600 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>J</td>
<td>-200 to +600 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>E</td>
<td>0 to 800 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>E</td>
<td>0 to 600 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>E</td>
<td>-200 to +600 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>R</td>
<td>0 to 1200 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>S</td>
<td>0 to 1600 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>R</td>
<td>0 to 1200 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>N</td>
<td>0 to 1300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>N</td>
<td>0 to 1300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>PL-II</td>
<td>0 to 1400 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>WRe5-26</td>
<td>0 to 1400 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>WRe5-26</td>
<td>0 to 2300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>Pt100</td>
<td>0 to 1900 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>Pt100</td>
<td>-200 to +500 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>43</td>
<td>Pt100</td>
<td>-200 to +300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>Pt100</td>
<td>-100 to +300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>Pt100</td>
<td>-100 to +300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>49</td>
<td>Pt100</td>
<td>-100 to +300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>Pt100</td>
<td>-50 to +200 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>53</td>
<td>Pt100</td>
<td>-50 to +100 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>Pt100</td>
<td>-50 to +100 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>57</td>
<td>Pt100</td>
<td>-50 to +100 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>59</td>
<td>Pt100</td>
<td>-100 to +60 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>61</td>
<td>Pt100</td>
<td>0 to 100 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>63</td>
<td>Pt100</td>
<td>0 to 100 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>Pt100</td>
<td>0 to 100 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>67</td>
<td>Pt100</td>
<td>0 to 300 ℃</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>68</td>
<td>Voltage (V)</td>
<td>1 to 5V</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>69</td>
<td>Voltage (V)</td>
<td>1 to 10V</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>70</td>
<td>Voltage (V)</td>
<td>1 to 10V</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>71</td>
<td>Current (mA)</td>
<td>0 to 200mA</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>72</td>
<td>Current (mA)</td>
<td>0 to 200mA</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>73</td>
<td>Current (mA)</td>
<td>4 to 200mA</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>Current (mA)</td>
<td>4 to 200mA</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>Voltage (V)</td>
<td>-10 to +10V</td>
<td>± 0.1 % FS ± 1 digit</td>
<td>0.1 ℃</td>
</tr>
</tbody>
</table>

**1. For -200 to 0 ℃, ±0.2 % FS ± 1 digit**
**2. For 0 to 100 ℃, ±0.2 % FS ± 1 digit**
**3. For 100 to 600 ℃, ±0.2 % FS ± 1 digit**
**4. For 600 to 2000 ℃, ±0.1 % FS ± 1 digit**
**5. For 2000 to 4000 ℃, ±0.1 % FS ± 1 digit**
**6. For 100 to 1200 ℃, ±0.1 % FS ± 1 digit**
**7. For 1200 to 1500 ℃, ±0.1 % FS ± 1 digit**
**8. For 1500 to 1800 ℃, ±0.1 % FS ± 1 digit**
**9. For 1800 to 2000 ℃, ±0.1 % FS ± 1 digit**

### External dimensions and mounting (Unit: mm)

#### Standard mounting

- Display unit, additional display unit

#### Integrated-mounting

- **Main unit**
- **Panel cutout (front)**

#### Part names and functions

- **Main unit**
  - Power supply terminals
  - Status indicator
  - Mini-USB memory card slot
  - LAN connector
  - Display connector
  - RS-485 terminal block
  - DIN rail terminal block
- **Display unit**
  - Power indicator (green in normal status)
### Specification

#### Model selection

<table>
<thead>
<tr>
<th>Basic model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4 B4 C4 D4 E4 F4</td>
<td>Integrated mounting</td>
</tr>
<tr>
<td>A5 B5 C5 D5 E5 F5</td>
<td>Integrated mounting</td>
</tr>
</tbody>
</table>

- **Digital input:** (D1, D2, D3, D4, D5, D6, D7, D8) + (B1, B2) in 1 each.
- **Digital output:** (A1, A2) + (B1, B2) in 4 each.
- **Analog input:** (A1, A2, A3, A4) + (B1, B2) in 2 each.
- **Analog output:** (A1, A2, A3, A4) + (B1, B2) in 2 each.
- **Analog communication:** (A1, A2, A3, A4) + (B1, B2) in 2 each.

#### Model selection (models with motor output)

<table>
<thead>
<tr>
<th>Basic model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A5 B5 C5 D5 E5 F5</td>
<td>Integrated mounting</td>
</tr>
</tbody>
</table>

- **Motor drive output:** (A1, A2) + (B1, B2) in 1 each.

### Recommended models

- **Digital input:** (D1, D2, D3, D4, D5, D6, D7, D8, D9) + (B1, B2) in 1 each.
- **Digital output:** (A1, A2) + (B1, B2) in 4 each.
- **Analog input:** (A1, A2, A3, A4) + (B1, B2) in 2 each.
- **Analog output:** (A1, A2, A3, A4) + (B1, B2) in 2 each.
- **Analog communication:** (A1, A2, A3, A4) + (B1, B2) in 2 each.

### Symbol block name

- **V-P:** Voltage pulse output
- **AO-C:** Analog current output
- **DO:** Digital output
- **DI:** Digital input
- **AI:** Analog input
- **BA:** Back-up accumulator
- **PT:** Power transformer
- **MFB:** Motor feedback
- **CLOCK:** Clock function
- **CC:** Current output
- **SS:** Switching function
- **M:** Motor drive
- **AS:** Additional support
- **FML:** Fiberglass molding

*1 A integrated mounting bracket and a dedicated cable for connecting the display unit are included with the product.
*2 RSP1 can be switched for use as PV3.
*3 RSP2 can be switched for use as PV4.
*4 Additional display unit is sold separately.

### Block layout example

- **A1:** Analog input
- **A2:** Analog output
- **B1:** Digital input
- **B2:** Digital output
- **C:** Clock function
- **D:** Digital input
- **E:** Digital output
- **F:** Digital input
- **G:** Digital output

---

*1: 4 digital outputs (sink output) + DO (sink output) × 4
*2: Current output (CT and VT inputs, 1 each) + clock (with battery)
*3: Clock function
*4: Clock function

---

### Example: C7GAH1M00000

- **A1:** Analog input
- **A2:** Analog output
- **B1:** Digital input
- **B2:** Digital output
- **C:** Clock function
- **D:** Digital input
- **E:** Digital output
- **F:** Digital input
- **G:** Digital output

---

*1: A integrated mounting bracket and a dedicated cable for connecting the display unit are included with the product.
*2: RSP1 can be switched for use as PV3.
*3: RSP2 can be switched for use as PV4.
*4: Additional display unit is sold separately.