**Model Selection Table for Network Instrumentation Module model NX-**

### Controller Module

- **Process controller**
- (4-channel or 2-channel)

### Digital Input Module

- **Digital and pulse input module**
  - (16 inputs)

### Digital Output Module

- **Digital output module**
  - (16 outputs)

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**Azbil Corporation**

**Advanced Automation Company**

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**TIME IS MONEY!**
The model NX-SVG Smart Device Gateway is a multi-vendor IoT gateway that links data between devices connected by Ethernet and RS-485 without the need to create communication programs. It significantly enhances the data collection capability of devices (such as PLC and IPC controllers) and helps integrate IoT devices.

The setup tool greatly accelerates IoT integration development.

**USE CASE 1**
For status visualization, collect data from field devices without using the PLC.

1. Data is sent directly to the PLC CPU's Ethernet port.
2. No communication unit required.
3. Examples of the benefits of introducing IoT for industrial furnaces:
   - Proper control of air ratio
   - Visualization of combustion status
   - Proper control of process gas flow rate
   - Early detection of problems and ID of causes
   - Tracking warning signs of conveyor problems
   - Advance warning of flame failure

**USE CASE 2**
100x improvement in ability to collect data from devices.

1. In place of a line management system, the model NX-SVG collects data from industrial furnace control devices (such as controllers, combustion safety equipment, flowmeters, and inverters) for visualization of the combustion control status, burner combustion status, blower motor status, and conveyor motor load, creating the beginnings of an IoT.
2. A single NX-SVG unit can collect data from as many as 128 devices. Collected data is transferred to the internal register and can be read and written by the Modbus/TCP masters.

**Feature 1**
Dramatically speeds up development with programless communication.

**Feature 2**
Four communication ports (2 Ethernet and 2 RS-485 ports)

**Feature 3**
Connect up to 196 multivendor devices on the network.

**Network Instrumentation Modules**

- Model NX-SVG
- Model SLP-SVG

**Examples of the benefits of introducing IoT for industrial furnaces**

1. Early detection of problems and ID of causes
2. Proper control of air ratio
3. Visualization of combustion status
4. Proper control of process gas flow rate
5. Tracking warning signs of conveyor problems
6. Advance warning of flame failure

**Examples of the benefits of introducing IoT for industrial furnaces**

1. 100 devices max.
2. 196 multivendor devices on the network
3. Line management system
4. Ethernet domain 1
5. Ethernet domain 2
6. Modbus/TCP masters
7. Cloud
8. Internal register
9. Model NX-SVG
10. Model SLP-SVG

**Examples of the benefits of introducing IoT for industrial furnaces**

1. Early detection of problems and ID of causes
2. Proper control of air ratio
3. Visualization of combustion status
4. Proper control of process gas flow rate
5. Tracking warning signs of conveyor problems
6. Advance warning of flame failure

**Use cases**

1. For status visualization, collect data from field devices without using the PLC.
2. 100x improvement in ability to collect data from devices.

**Setup tool greatly accelerates IoT integration development.

**Model SLP-SVG**
**Multi-vendor communication (master communication) / Modbus / TCP server**

The model NX-SVG easily handles data transfer between devices, whether the connection methods are Ethernet-Ethernet, Ethernet- RS-485, or RS-485-RS-485, without the need to create communication programs. With the Modbus/TCP server function, data can be displayed on or written to devices from a programmable display, cloud service, etc., without using a PLC.

**Compatible with multi-vendor communication protocols**

- Ethernet communication: - Aebi CPL/TCP master - Siemens AG 57 communication master - Modbus/TCP master - Modbus/TCP server
- RS-485 communication: - Aebi CPL master - Modbus/RTU master

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**Simple setup of data links just by device addressing**

Data transfer can be easily configured by specifying the source and destination devices. No PLC ladder program is needed for communication. Moreover, fixed values (such as decimal “1234”) can be written to devices to set them up.

**Backup and restoration functions make the management of NX-____ models easy**

When the backup trigger signal from the PLC is turned on, the model NX-SVG automatically reads setup parameters from the other modules and backs them up internally. When the restoration trigger signal from the PLC is turned on, the model NX-SVG restores the backed-up setup parameters to the modules. Backing up parameters is that easy.

**Writing setup data from a USB flash drive (on-site setup without setup tools)**

The model NX-SVG and other Network Instrumentation Modules can be set up using only a USB flash drive. No setup tools are needed. To set parameters for the model NX-SVG and models NX-____ just copy the setup data (xxx.snsvg or xxx.nxsv) generated by the model SLP-SVG to the USB flash drive, insert the drive into the model NX-SVG’s USB port, and select setup writing with the function selection switches on the front of the unit.
Sample System Configurations

Mixed NX-... models and RS-485 devices

- Various manufacturers' displays
- Various manufacturers' inverters
- Mass Flow Controllers
- LAN cable
- Ethernet-connected RS-485 devices
- Various manufacturers' displays
- Various manufacturers' inverters
- Mass Flow Controllers
- LAN cable

Device data collection by existing model CMC15G units

- Existing equipment #1
- RS-485
- Digital Indicating Controllers
- Digital Input Module (model NX-DI_)
- Digital Output Module (model NX-DO_)

Use of multiple model NX-SVG units for more COM ports

- Various manufacturers' displays
- LAN cable
- RS-485
- Digital Indicating Controllers
- Right-side connector

Functional specifications

- Ethernet communication
- Modbus/RTU master
- Siemens AG S7 communication master
- JTEKT TOYOPUC computer link master
- Omron FINS TCP/UDP master
- SLMP master (MC protocol/3E frame)
- Azbil CPL/TCP master
- Azbil CPL master
- Ethernet communication master
- Siemens AG 37 communication master
- Modbus/TCP master
- Modbus/TCP server

- RS-485 communication
- Modbus/TCP master

- RJ45
- RJ-45
- RJ-45

Cyclic transmission

- No. of configuration sheets: 500 max.
- No. of lines processed per sheet: 500 max.
- No. of lines processed for all sheets: 10,000 max.
- Transmission cycle: 100 ms to 60 s

Triggered transmission

- No. of configuration sheets: 500 max.
- No. of lines processed per sheet: 500 max.
- No. of lines processed for all sheets: 10,000 max.
- Trigger monitoring cycle: 100 ms to 1 s

Other functions

- Automatic IP address assignment, parameter backup, and parameter restoration

External dimensions

- Unit: mm

Basic specifications of the Smart Device Gateway model NX-SVG

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM1 (RS-485)</td>
<td>- Supplies power</td>
</tr>
<tr>
<td>COM2 (RS-485)</td>
<td>- Supplies power</td>
</tr>
<tr>
<td>Left-side connector</td>
<td>- Connects switching hub model NX-CB + model NX-CB2</td>
</tr>
<tr>
<td>Right-side connector</td>
<td>- Connects switching hub model NX-CB + model NX-CB2</td>
</tr>
<tr>
<td>LAN1 (Ethernet)</td>
<td>- Modbus/TCP master</td>
</tr>
<tr>
<td>LAN2 (Ethernet)</td>
<td>- Modbus/RTU master</td>
</tr>
<tr>
<td>USB port</td>
<td>- Modbus/TCP master</td>
</tr>
<tr>
<td>RS-485 communication</td>
<td>- Modbus/TCP master</td>
</tr>
<tr>
<td>RS-485 communication</td>
<td>- Modbus/TCP master</td>
</tr>
</tbody>
</table>

System requirements for Smart Loader Package (model SLP-SVG)

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>Windows 7 (32- or 64-bit)</td>
</tr>
<tr>
<td>Language</td>
<td>Japanese, English</td>
</tr>
<tr>
<td>CPU</td>
<td>800 MHz or more</td>
</tr>
<tr>
<td>Memory</td>
<td>128 MB RAM or more</td>
</tr>
<tr>
<td>Hard disk space</td>
<td>128 MB of space or more</td>
</tr>
<tr>
<td>Display</td>
<td>Super VGA (800×600) or higher resolution</td>
</tr>
<tr>
<td>CD-ROM drive</td>
<td>Required for installation from the CD supplied with the product</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Required</td>
</tr>
<tr>
<td>Mouse</td>
<td>Required</td>
</tr>
<tr>
<td>LAN port</td>
<td>Required for connection to the main unit</td>
</tr>
</tbody>
</table>
## Connectable models

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX8/A310/A310f/A310 pt</td>
<td>Smart Loader Package</td>
</tr>
</tbody>
</table>

## Model selection for Smart Device Gateway model NX-SVG

### Model NX-SVG

<table>
<thead>
<tr>
<th>Basic model no.</th>
<th>Type</th>
<th>Ring connection</th>
<th>Options</th>
<th>Add'l</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>N</td>
<td>Network Instrumentation Module</td>
<td>N</td>
<td>None</td>
<td>Smart Device Gateway</td>
</tr>
<tr>
<td>B</td>
<td>N</td>
<td>Smart Device Gateway</td>
<td>N</td>
<td>None</td>
<td>Networking communication</td>
</tr>
<tr>
<td>B</td>
<td>R</td>
<td>Ring communication</td>
<td>R</td>
<td>None</td>
<td>Ring communication</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>Ethernet communication</td>
<td>0</td>
<td>None</td>
<td>WAN USB connector</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>Without USB connector</td>
<td>1</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>B</td>
<td>K</td>
<td>Anti-sulfidation treatment</td>
<td>K</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

## Model selection for Network Instrumentation Module model NX- ___

### Communication Adaptor

- **Basic Type:** Ethernet interface (1 port)

### Terminal Adaptor

- **Model:** Terminal Adaptor
- **Type:** An adapter used as a ring communications terminal

### Communication Box

- **Model:** Communication Box
- **Type:** Ethernet interface (switching hub)

### Supervisor Module

- **Model:** Supervisor Module
- **Type:** Multi-loop harmonized operation controller

## Inverters

### Panasonic Corporation

- **Model:** M-System Co., Ltd. SC series SC200/SC210/SC200B/SC200E
- **Manufacturer:** Panasonic Corporation
- **Series:** SC200/SC210/SC200B/SC200E
- **Model No.:** Ethernet RS-485

### Yaskawa Electric

- **Model:** 0i-PF (Type 1)
- **Manufacturer:** Yaskawa Electric
- **Series:** 0i-PF (Type 1)
- **Model No.:** Ethernet RS-485

### Power Monitors / Insulation Monitoring Units

### Panasonic Corporation

- **Model:** EcoPower Meter
- **Manufacturer:** Panasonic Corporation
- **Series:** EcoPower Meter
- **Model No.:** KW02XW/KW03XW
- **Ethernet:** KW02XW/KW03XW

### Mitsubishi Electric Corporation

- **Model:** Energy Measuring Unit
- **Manufacturer:** Mitsubishi Electric Corporation
- **Series:** Energy Measuring Unit
- **Model No.:** ECOMonitorPlus (insulation monitor model)
- **Ethernet:** ECOMonitorPlus

### 920-MHz Band Multi-hop Wireless

### Panasonic Corporation

- **Model:** EC-Dev
- **Manufacturer:** Panasonic Corporation
- **Series:** EC-Dev
- **Model No.:** EC-Dev
- **Ethernet:** EC-Dev

### Molded Temperature Controllers (Thermal Fluid Circulation Temperature Controllers)

### Kamata Mfg Co., Ltd.

- **Model:** TK/T-H/M/HO
- **Manufacturer:** Kamata Mfg Co., Ltd.
- **Series:** TK/T-H/M/HO
- **Model No.:** TK/T-H/M/HO
- **Ethernet:** TK/T-H/M/HO

### Thermographic Cameras

### FLIR Systems, Inc.

- **Model:** FLIR
- **Manufacturer:** FLIR Systems, Inc.
- **Series:** FLIR
- **Model No.:** A310/A310F/A310 pr
- **Ethernet:** FLIR

### Single Loop Controllers

### Yokogawa Electric Corporation

- **Model:** 951000
- **Manufacturer:** Yokogawa Electric Corporation
- **Series:** 951000
- **Model No.:** Basic type (suffix code for type is 0 or 1)
- **Ethernet:** 951000
- **RS-485:** 951000