Complies with the Highest Safety Standards in the World

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**Note:** Do not use this document to operate the Unit.

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Note: Specifications subject to change without notice.

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**Notes:**

- The application examples provided in this catalog are for reference only. Check functions and safety of the equipment before use.
- The products are intended for use in applications requiring general safety requirements, such as nuclear energy control systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, or other application involving serious risk to life or property, without ensuring that the system as a whole has been designed to address the risks, and that the OMRON products are properly rated and installed for the intended use within the overall equipment or system.

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Simple and Flexible Safety System Design

Safety circuits are programmable, providing greater operating efficiency for design and modifications. Safety distributed control using the DeviceNet Safety Network System enables more safety I/O for distributed control. And coordination with standard control via DeviceNet has been made easier.

Safety Network System functions have been upgraded, with a new concept of safety design. Safety connections have been doubled (from 16 to 32), program capacity has been doubled (number of usable function blocks increased from 128 to 254), and function blocks, such as muting and flip-flops, have been added to provide greater programming freedom and application compatibility. And a multi-point Safety Controller with 40 safety inputs and 8 safety outputs has been added, enabling a wide range of safety applications.

The DeviceNet Safety System conforms to IEC 61508 SIL3 for functional safety, and EN 954-1 Safety Category 4 for machine safety, complying with the world’s highest level of safety standards.

IEC 61508 SIL 3
Safety circuits must be able to function to provide safety at any time. Conversely, the degree of lack of safety is used as the indicator. In IEC 61508, safety is defined as the Probability of Failure per Hour, or PFH. Based on this, the SIL (Safety Integrity Level) is classified into four levels. SIL 3 indicates a probability of dangerous failure of once in 1,000 years, which is the highest level in machine safety.

EN 954-1 Safety Category 4
EN standardizes the level of machine risk and requires the incorporation of risk minimization measures. In EN 954-1, five safety categories have been established, with Safety Category 4 indicating designs that require the highest safety design level. This category is demanded for machines with the highest level of danger, wherein “serious injury (severe limits, death, etc.) will occur frequently, with little chance of escaping danger.” This category demands that a single fault (failure) in any part of the machine, or a series of faults, will not lead to loss of the machine’s safety functions.

DeviceNet Open Network Compliant
Use DeviceNet to implement safety controls without increasing wiring.

Complies with the Highest Safety Standards in the World
The DeviceNet Safety System conforms to IEC 61508 SIL3 for functional safety, and EN 954-1 Safety Category 4 for machine safety, complying with the world’s highest level of safety standards.
In the past, safety circuits were based on hard wiring, requiring a vast amount of wiring. The resulting safety circuits were extremely difficult to change or expand. The DeviceNet Safety solves these problems.

- Reduce the Design Costs
- Reduce Wiring
- Reduce Debugging Time
- Reduce the Maintenance Costs

Reduce the Design Costs
- Using software to create safety circuits increases design efficiency and improves the ease of making modifications.
- Control panels can be downsized.

Reduce Wiring
- The mess of wiring for distributed safety devices and the mess around the control panel are eliminated.
- Data sharing with standard control is made easy with DeviceNet, eliminating the need for special wiring for monitoring safety control status.

Reduce Debugging Time
- Online monitoring is enabled using the Safety Network Configurator.
- Designing can be easily modularized using user-defined function blocks.
- New design functions such as checking for incomplete wiring have been added.

Various error messages make it easy to check setting error locations.

Reduce the Maintenance Costs
- Maintainability has been improved by providing smart functions, such as monitoring of the number of contact operations.
- Device errors can be monitored using the Network Configurator, and the causes of errors can be speedily found.

Error code display when errors occur

Safety connections, status monitoring, and error log monitoring are enabled.
Programmable Safety Circuits and Network Compatibility Provide Flexibility in Safety Control Design.

Automobile manufacturing lines use many large-scale mechanical devices. Safety circuit design using this type of equipment required a vast amount of wiring for connections between circuits and sensors. Previously, relays were combined to configure safety circuits, but separate wiring was required for safety control as well as I/O wiring for machine control. Safety circuits using relays, however, required increasingly complicated wiring according to the level of equipment machinery sophistication, making safety circuit changes or additions difficult. This has created the need to be able to monitor distributed safety devices and change the production line to adjust to shorter product life cycles to improve maintenance efficiency.

The DeviceNet Safety System responds to this need with network compatibility and programmable safety circuits.
DeviceNet Safety System

**NE1A-series Safety Network Controllers**

- Programmmable Safety Control
  - A 6-part Safety Network Controller (NE1A-SCPU02) with 40 safety inputs and 8 safety outputs has been added. Along with the earlier NE1A-SCPU01 (-V1) with 14 safety inputs and 8 safety outputs, it can operate as a compact safety PLCs when used on a network.
  - Construct safety circuits easily with special Function Blocks.
- DeviceNet Safety Communications Functions
  - Provides DeviceNet Safety Master functionality.
  - (Up to 32 NE1A-SCPU01-V1 or NE1A-SCPU02 Safety Network Controllers can be connected as Safety Slaves. Up to 32 can be connected as 12-point Input Slaves (384 points), and up to 16 can be connected as 16-point I/O Slaves (256 points). A maximum of 16 NE1A-SCPU1 Safety Network Controllers can be connected.)
- Safety Slave functionality is also included. Interlock control can be incorporated between Safety Network Controllers.
- DeviceNet Slave Functionality
  - Monitor safety I/O and status information from the DeviceNet Master.

**DST1-series Safety I/O Terminals**

- Safety Input and Safety I/O Models Available
  - Safety input: 12-input model (DST1-ID12SL-1)
  - Safety I/O: 8-input/8-output model (DST1-MD16SL-1)
  - Safety I/O: 4-input/4-output (relay outputs) model (DST1-MRD08SL-1)
- DeviceNet Slave Functionality
  - Safety input and status information can be allocated as a DeviceNet Slave.
  - Maintenance functions are provided for measuring the number of operations or the operating time for safety devices.
- Easy Wiring
  - Superior construction and maintainability using spring-cage connectors. A screw terminal block is also available as an option.

**WS02-CFSC1-E Safety Network Configurator**

- Network Configurator Functions
  - Includes previous DeviceNet Configurator functions.
  - Performs setup for the DeviceNet Safety network configuration.
- Programming Functions
  - I/O configuration functions for Safety Network Controllers and Safety I/O Terminals.
  - Programming functions for safety circuits.
  - Monitor programs.

Safety Control Applications

**System Configuration 1 Standalone Safety Control**

Configuration Example for High-speed Safety I/O Response Using Small Number of Points
- NE1A-series Controller
- WS02-CFSC1-E

Delivers high-speed I/O response in a single Unit with up to 40 safety inputs and 8 safety outputs.

**System Configuration 2 Distributed Control and Expanded Safety I/O**

Example of Safety I/O Configuration for Distributed Hazard Sources
- NE1A-series Controller
- DST1 Series
- WS02-CFSC1-E

Distributed allocation of safety I/O devices can be achieved easily using Safety I/O Terminals and the DeviceNet Safety Network.

**System Configuration 3 Total Control System**

System Configuration Example for Total Control of Machine Control and Safety Control
- SYSMAC CJ Series
- NE1A-series Controller
- DST1 Series
- WS02-CFSC1-E

The DeviceNet Network can be used to monitor the status of safety I/O and safety circuits on the DeviceNet Safety Network from existing DeviceNet Masters or other PLCs.
### DeviceNet Safety System

#### NE1A-series Safety Network Controllers

- **Programmable Safety Control**
  - A 6-unit Safety Network Controller (NE1A-SCPU02) with 40 safety inputs and 8 safety outputs has been added. Along with the earlier NE1A-SCPU01-Y1, with 14 safety inputs and 8 safety outputs, it can operate as a compact safety PLC without using a network.
  - Construct safety circuits easily with special Function Blocks.
  - Up to 254 function blocks can be used with the NE1A-SCPU01-Y1 or NE1A-SCPU02, and up to 128 can be used with the NE1A-SCPU01.
- **DeviceNet Safety Communications Functions**
  - Provides DeviceNet Safety Master functionality. (up to 32 NE1A-SCPU01-Y1 or NE1A-SCPU02 Safety Network Controllers can be connected as Safety Slaves. Up to 32 can be connected as 12-point Input Slaves (384 points), and up to 16 can be connected as 16-point I/O Slaves (256 points)).
  - Safety Slave functionality is also included. Interlock control can be incorporated between Safety Network Controllers.
- **DeviceNet Slave Functionality**
  - Monitor safety I/O and status information from the DeviceNet Master.

#### DST1-series Safety I/O Terminals

- **Safety Input and Safety I/O Models Available**
  - Safety inputs: 12-input model (DST1-ID12SL-1)
  - Safety I/O: 8-input/8-output model (DST1-MD16SL-1)
  - Safety I/O: 4-input/4-output (relay outputs) model (DST1-MRD08SL-1)
- **DeviceNet Slave Functionality**
  - Safety input and status information can be allocated as a DeviceNet Slave. Maintenance functions are provided for measuring the number of operations or the operating time for safety devices.
- **Easy Wiring**
  - Superior construction and maintainability using spring-cage connectors. A screw terminal block is also available as an option.

#### WS02-CFSC1-E Safety Network Configurator

- **Network Configurator Functions**
  - Performs setup for the DeviceNet Safety network configuration.
- **Programming Functions**
  - I/O configuration functions for Safety Network Controllers and Safety I/O Terminals.
  - Programming functions for safety circuits.
  - Monitor programs.

### Safety Control Applications

#### System Configuration 1 Standalone Safety Control

**Configuration Example for High-speed Safety I/O Response Using Small Number of Points**

- NE1A-series Controller
- WS02-CFSC1-E

Delivers high-speed I/O response in a single Unit with up to 40 safety inputs and 8 safety outputs.

#### System Configuration 2 Distributed Control and Expanded Safety I/O

**Example of Safety I/O Configuration for Distributed Hazard Sources**

- NE1A-series Controller
- DST1 Series
- WS02-CFSC1-E

Distributed allocation of safety I/O devices can be achieved easily using Safety I/O Terminals and the DeviceNet Safety Network.

#### System Configuration 3 Total Control System

**System Configuration Example for Total Control of Machine Control and Safety Control**

- SYSMAC CJ Series
- NE1A-series Controller
- DST1 Series
- WS02-CFSC1-E

The DeviceNet Network can be used to monitor the status of safety I/O and safety circuits on the DeviceNet Safety Network from existing DeviceNet Masters or other PLCs.
Safety Network Controller
NE1A-SCPU Series


- Operates as a compact programmable safety circuit controller.
- NE1A-SCPU02: 40 safety inputs and 8 safety outputs.
  NE1A-SCPU01(-V1): 16 safety inputs and 8 safety outputs.
- A maximum of 254 function blocks enables easily building safety circuits.
- DeviceNet Safety Master function connects to up to 32 DeviceNet Safety Slaves.
- Equipped with DeviceNet Slave function. Monitoring can be done from a DeviceNet Master.
- IEC61508 (SIL3) and EN954-1/ISO13849-1 (Cat. 4) certification.

Ordering Information

List of Models

<table>
<thead>
<tr>
<th>Name</th>
<th>No. of I/O points</th>
<th>Model</th>
<th>Unit version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Network Controllers</td>
<td>16</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: The standard NE1A Controllers are equipped with spring-cage terminal blocks, but other screw terminal blocks are available if desired, e.g., to replace previous terminals. Refer to Accessories on page 22.
Specifications

■ Certified Standards

<table>
<thead>
<tr>
<th>Certification body</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL</td>
<td>UL1998, NFPA79, UL508, CSA22.2 No. 142, CSA22.2 No. 213, UL1604</td>
</tr>
</tbody>
</table>

■ Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
<th>NE1A-SCPU01 (-V1)</th>
<th>NE1A-SCPU02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications power supply voltage</td>
<td>11 to 25 VDC supplied via communications connector</td>
<td>11 to 25 VDC supplied via communications connector</td>
<td></td>
</tr>
<tr>
<td>Unit power supply voltage (V0)*</td>
<td>20.4 to 26.4 VDC (24 VDC –15%+/10%)</td>
<td>20.4 to 26.4 VDC (24 VDC –15%+/10%)</td>
<td></td>
</tr>
<tr>
<td>I/O power supply voltage (V1, V2)*</td>
<td>24 VDC, 15 mA</td>
<td>24 VDC, 230 mA</td>
<td>24 VDC, 280 mA</td>
</tr>
<tr>
<td>Current consumption</td>
<td>Communications power supply</td>
<td>24 VDC, 15 mA</td>
<td>24 VDC, 230 mA</td>
</tr>
<tr>
<td></td>
<td>Internal circuit power supply</td>
<td>24 VDC, 230 mA</td>
<td>24 VDC, 280 mA</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise immunity</td>
<td>Conforms to IEC61131-2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration resistance</td>
<td>10 to 57 Hz: 0.35 mm, 57 to 150 Hz: 50 m/s²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td>150 m/s²; 11 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting method</td>
<td>35-mm DIN Track (IEC 60715 TH35-7.5/TH35-16)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient operating temperature</td>
<td>–10 to 55 ºC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient operating humidity</td>
<td>10% to 95% (with no condensation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient storage temperature</td>
<td>–40 to 70 ºC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IEC60529 standard IP20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial interface</td>
<td>USB version 1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>460 g max.</td>
<td>690 g max.</td>
<td></td>
</tr>
</tbody>
</table>

* V0-G0: Internal control circuit
V1-G1 (G): For external input device, test output
V2-G2 (G): For external output device
The two ground terminals on the NE1A-SCPU02 are internally connected.

■ Safety Input Specifications

<table>
<thead>
<tr>
<th>Input type</th>
<th>Sinking inputs (PNP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON voltage</td>
<td>11 VDC min. between each terminal and ground</td>
</tr>
<tr>
<td>OFF voltage</td>
<td>5 VDC min. between each terminal and ground</td>
</tr>
<tr>
<td>OFF current</td>
<td>1 mA max.</td>
</tr>
<tr>
<td>Input current</td>
<td>4.5 mA</td>
</tr>
</tbody>
</table>

■ Safety Output Specifications

<table>
<thead>
<tr>
<th>Output type</th>
<th>Sourcing outputs (PNP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated output current</td>
<td>0.5 A max./output</td>
</tr>
<tr>
<td>ON residual voltage</td>
<td>1.2 V max. between each output terminal and V2</td>
</tr>
<tr>
<td>Leakage current</td>
<td>0.1 mA max.</td>
</tr>
</tbody>
</table>

■ Test Output Specifications

<table>
<thead>
<tr>
<th>Output type</th>
<th>Sourcing outputs (PNP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated output current</td>
<td>0.7 A max./output (See note.)</td>
</tr>
<tr>
<td>ON residual voltage</td>
<td>1.2 V max. between each output terminal and V1</td>
</tr>
<tr>
<td>Leakage current</td>
<td>0.1 mA max.</td>
</tr>
</tbody>
</table>

Note: The maximum current for simultaneously ON outputs is 1.4 A. (T0 to T3: NE1A-SCPU01 (-V1), T0 to T7: NE1A-SCPU02) A 15 to 400-mA, 24-VDC external indicator can be connected to T3 and T7.
### DeviceNet Communications Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications protocol</td>
<td>DeviceNet compliant</td>
</tr>
<tr>
<td>Connection form</td>
<td>Multi-drop system and T-branch system can be combined (for trunk line and branch lines)</td>
</tr>
<tr>
<td>Communications speed</td>
<td>500/250/125 kbps</td>
</tr>
<tr>
<td>Communications media</td>
<td>Special cable, 5 conductors (2 for communications, 2 for power supply, 1 for shielding)</td>
</tr>
</tbody>
</table>

#### Communications specifications

<table>
<thead>
<tr>
<th>Speed (kbps)</th>
<th>Max. network length</th>
<th>Branch length</th>
<th>Total branch length</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>100 m max. (100 m max.)</td>
<td>6 m max.</td>
<td>39 m max.</td>
</tr>
<tr>
<td>250</td>
<td>250 m max. (100 m max.)</td>
<td>78 m max.</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>500 m max. (100 m max.)</td>
<td>156 m max.</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Figures in parentheses () indicate values when a thin cable is used.

- **Communications power supply:** 11 to 25 VDC
- **No. of connectable nodes:** 63

**Safety I/O communications**

- **(Pre-Ver. 1.0)**
  - Safety Master function
    - Max. no. of connections: 16
    - Max. data size: Input 16 bytes or output 16 bytes (per connection)
  - Connection type: Single-cast, multi-cast
  - Safety Slave function
    - Max. no. of connections: 4
    - Max. data size: Input 16 bytes or output 16 bytes (per connection)
  - Connection type: Single-cast, multi-cast

- **(unit version 1.0 or later)**
  - Safety Master function
    - Max. no. of connections: 32
    - Max. data size: Input 16 bytes or output 16 bytes (per connection)
  - Connection type: Single-cast, multi-cast
  - Safety Slave function
    - Max. no. of connections: 4
    - Max. data size: Input 16 bytes or output 16 bytes (per connection)
  - Connection type: Single-cast, multi-cast

**Standard I/O communications**

- All unit versions
  - Standard Slave function
    - Max. no. of connections: 2
    - Max. data size: Input 16 bytes or output 16 bytes (per connection)
  - Connection type: Poll, bit-strobe, COS, cyclic

**Message communications**

- Max. message length: 552 bytes

### Functions

#### Function Blocks

NE1A-SCPU-series Controller support the following logic functions and function blocks. Support depends on the unit version.

**Logic Functions**

<table>
<thead>
<tr>
<th>Name</th>
<th>Supporting unit versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT</td>
<td>All</td>
</tr>
<tr>
<td>AND</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Exclusive OR</td>
<td></td>
</tr>
<tr>
<td>Exclusive NOR</td>
<td></td>
</tr>
<tr>
<td>RS Flip-flop</td>
<td>1.0 or later</td>
</tr>
<tr>
<td>Comparator</td>
<td></td>
</tr>
</tbody>
</table>

**Function Blocks**

<table>
<thead>
<tr>
<th>Name</th>
<th>Supporting unit versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset</td>
<td>All</td>
</tr>
<tr>
<td>Restart</td>
<td></td>
</tr>
<tr>
<td>Emergency Stop Monitoring</td>
<td></td>
</tr>
<tr>
<td>Light Curtain Monitoring</td>
<td></td>
</tr>
<tr>
<td>Safety Gate Monitoring</td>
<td></td>
</tr>
<tr>
<td>Two-hand Controller</td>
<td></td>
</tr>
<tr>
<td>Off-Delay Timer</td>
<td></td>
</tr>
<tr>
<td>On-Delay Timer</td>
<td></td>
</tr>
<tr>
<td>User Mode Switch Monitoring</td>
<td></td>
</tr>
<tr>
<td>External Device Monitoring</td>
<td></td>
</tr>
<tr>
<td>Routing</td>
<td></td>
</tr>
<tr>
<td>Muting</td>
<td>1.0 or later</td>
</tr>
<tr>
<td>Enable Switch Monitoring</td>
<td></td>
</tr>
<tr>
<td>Pulse Generator</td>
<td></td>
</tr>
<tr>
<td>Counter</td>
<td></td>
</tr>
<tr>
<td>Multiconnector</td>
<td></td>
</tr>
</tbody>
</table>
**Connections**

### Internal Circuit Diagram

**NE1A-SCPU01 (-V1)**

<table>
<thead>
<tr>
<th>Terminal name</th>
<th>Description</th>
</tr>
</thead>
</table>
| V0            | Power supply terminal for internal circuit  
The two V0 terminals are internally connected. |
| G0            | Power supply terminal for internal circuit  
The two G0 terminals are internally connected. |
| V1            | Power supply terminal for external input device and test output |
| G1            | Power supply terminal for external input device and test output |
| V2            | Power supply terminal for external output device |
| G2            | Power supply terminal for external output device |
| IN0 to IN15   | Safety input terminal |
| T0 to T3      | Test output terminal  
Connected to IN0 to IN15 safety inputs.  
Each test output terminal outputs a different test pulse pattern.  
Terminal T3 also supports a current monitoring function for the output signal.  
Example: Muting lamp |
| OUT0 to OUT7  | Safety output terminals |

**NE1A-SCPU02**

<table>
<thead>
<tr>
<th>Terminal name</th>
<th>Description</th>
</tr>
</thead>
</table>
| V0            | Power supply terminal for internal circuit  
The two V0 terminals are internally connected. |
| G0            | Power supply terminal for internal circuit  
The two G0 terminals are internally connected. |
| V1            | Power supply terminal for external input device and test output |
| G1            | Power supply terminal for external input device and test output |
| V2            | Power supply terminal for external output device |
| G2            | Power supply terminal for external output device |
| IN0 to IN39   | Safety input terminal |
| T0 to T3      | Test output terminal  
Connected to IN0 to IN19 safety inputs.  
Each test output terminal outputs a different test pulse pattern.  
Terminal T3 also supports a current monitoring function for the output signal.  
Example: Muting lamp |
| T4 to T7      | Test output terminal  
Connected to IN20 to IN39 safety inputs.  
Each test output terminal outputs a different test pulse pattern.  
Terminal T7 also supports a current monitoring function for the output signal.  
Example: Muting lamp |
| OUT0 to OUT7  | Safety output terminals |

Dimensions

Note: All units are in millimeters unless otherwise indicated.

NE1A-SCPU01 (-V1)

NE1A-SCPU02

SAFETY NETWORK CONTROLLER
Safety Precautions

Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network Controller.


Functions Supported According to Unit Version

- Supported, ---: Not supported

<table>
<thead>
<tr>
<th>Function</th>
<th>Model</th>
<th>NE1A-SCPU01 Pre-Ver. 1.0</th>
<th>NE1A-SCPU01-V1 Unit version 1.0</th>
<th>NE1A-SCPU02 Unit version 1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic processing functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum program size (total number of function blocks)</td>
<td></td>
<td>128</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>New Function Blocks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• RS flip-flop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Multiconnector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Muting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Enable Switch Monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pulse Generator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Counter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Comparator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selecting a rising edge as the reset condition for Reset and Restart function blocks</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using local I/O status in logic programming</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using overall Unit status in logic programming</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I/O control functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring contact operation counter</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Mounting total ON status monitor</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>DeviceNet communications functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of safety I/O connections for Safety Master</td>
<td></td>
<td>16</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Selecting operating mode for safety I/O communications when communications errors occur</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Attaching local output data to send data during slave operation</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Attaching local I/O monitor data to send data during slave operation</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>System startup and error recovery functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storing log of nonfatal errors in nonvolatile memory</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Adding function block errors to error log</td>
<td></td>
<td>---</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Unit Versions and Network Configurator Versions

Network Configurator version 1.6 or higher is required for the NE1A-SCPU01-V1 and NE1A-SCPU02. The relationship between unit versions and the version of the Network Configurator is shown in the following table.

- Applicable, ×: Not applicable

<table>
<thead>
<tr>
<th>Model</th>
<th>Version</th>
<th>Network Configurator</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE1A-SCPU01</td>
<td>Pre-Ver. 1.0</td>
<td>○</td>
</tr>
<tr>
<td>NE1A-SCPU01-V1</td>
<td>Unit version 1.0</td>
<td>×</td>
</tr>
<tr>
<td>NE1A-SCPU02</td>
<td>Unit version 1.0</td>
<td>×</td>
</tr>
</tbody>
</table>

In the interest of product improvement, specifications are subject to change without notice.
**Safety I/O Terminals**

**DST1-ID12SL-1/MD16SL-1/MRD08SL-1**

Safety I/O Terminals equipped with DeviceNet Safety protocol and various functions for use in safety systems.

- Series includes three models to accommodate various I/O types and number of I/O points.
- Equipped with DeviceNet Slave function. Monitoring can be done from a DeviceNet Master.
- Smart Slave (DRT2 Series) functions improve preventive maintenance capabilities.
- IEC61508 (SIL3) and EN954-1/ISO13849-1 (Cat. 4) certification.

### Ordering Information

#### List of Models

<table>
<thead>
<tr>
<th>Name</th>
<th>No. of I/O points</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety I/O Terminals</td>
<td>Safety inputs: 12</td>
<td>DST1-ID12SL-1</td>
</tr>
<tr>
<td></td>
<td>Safety inputs: 8, safety outputs: 8</td>
<td>DST1-MD16SL-1</td>
</tr>
<tr>
<td></td>
<td>Safety inputs: 4, safety outputs (relay): 4</td>
<td>DST1-MRD08SL-1</td>
</tr>
</tbody>
</table>

**Note:** The standard DS1T Safety I/O Terminals are equipped with spring-cage terminal blocks, but screw terminal blocks are available if desired, e.g., to replace previous terminals. Refer to “Accessories” on page 22.

### Specifications

#### Certified Standards

<table>
<thead>
<tr>
<th>Certification body</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL</td>
<td>UL1998, NFPA79, UL508, CSA22.2 No. 142, UL1604 (DST1-ID12SL-1 and DST1-MD16SL-1 only) CSA22.2 No. 213 (DST1-ID12SL-1 and DST1-MD16SL-1 only)</td>
</tr>
</tbody>
</table>

#### Specifications

<table>
<thead>
<tr>
<th>Communications power supply voltage</th>
<th>11 to 25 VDC supplied via communications connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/O power supply voltage</td>
<td>20.4 to 26.4 VDC (24 VDC −15%/+10%)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>DST1-ID12SL-1/MD16SL-1: 100 mA</td>
</tr>
<tr>
<td></td>
<td>DST1-MRD08SL-1: 110 mA</td>
</tr>
<tr>
<td>Overvoltage category</td>
<td>II</td>
</tr>
<tr>
<td>Noise immunity</td>
<td>Conforms to IEC61131-2.</td>
</tr>
<tr>
<td>Vibration resistance</td>
<td>10 to 57 Hz: 0.35 mm, 57 to 150 Hz: 50 m/s²</td>
</tr>
<tr>
<td>Shock resistance</td>
<td>DST1-ID12SL-1/MD16SL-1: 150 m/s², 11 ms</td>
</tr>
<tr>
<td></td>
<td>DST1-MRD08SL-1: 100 m/s², 11 ms</td>
</tr>
<tr>
<td>Mounting method</td>
<td>35-mm DIN Track</td>
</tr>
<tr>
<td>Ambient operating temperature</td>
<td>−10 to 55°C</td>
</tr>
<tr>
<td>Ambient operating humidity</td>
<td>10% to 95% (with no condensation)</td>
</tr>
<tr>
<td></td>
<td>DST1-MRD08SL-1: 10% to 85% (with no condensation)</td>
</tr>
<tr>
<td>Ambient storage temperature</td>
<td>−40 to 70°C</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IEC60529 standard IP20</td>
</tr>
<tr>
<td>Weight</td>
<td>DST1-ID12SL-1/MD16SL-1: 420 g</td>
</tr>
<tr>
<td></td>
<td>DST1-MRD08SL-1: 600 g</td>
</tr>
</tbody>
</table>
Safety I/O Terminals DST1-ID12SL-1/MD16SL-1/MRD08SL-1

■ Safety Input Specifications

<table>
<thead>
<tr>
<th>Input type</th>
<th>Sinking inputs (PNP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON voltage</td>
<td>11 VDC min.</td>
</tr>
<tr>
<td>OFF voltage</td>
<td>5 VDC max.</td>
</tr>
<tr>
<td>OFF current</td>
<td>1 mA max.</td>
</tr>
<tr>
<td>Input current</td>
<td>6 mA</td>
</tr>
</tbody>
</table>

■ Safety Output Specifications (Relay Output) (DST1-MRD08SL-1)

<table>
<thead>
<tr>
<th>Applicable relays</th>
<th>G7SA-2A2B, EN50205 Class A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure rate P level (See note.)</td>
<td>5 VDC, 1 mA</td>
</tr>
<tr>
<td>Rated load (resistive)</td>
<td>2 A at 240 VAC, 2 A at 30 VDC</td>
</tr>
<tr>
<td>Durability Mechanical</td>
<td>5,000,000 operations min. (at 7,200 operations/h)</td>
</tr>
<tr>
<td>Electrical</td>
<td>100,000 operations min. (at 1,800 operations/h with a resistive load)</td>
</tr>
</tbody>
</table>

Note: This value is equivalent to 300 operations/minute.

■ DeviceNet Safety Communications

<table>
<thead>
<tr>
<th>Safety Slave communications</th>
<th>Max. 4 connections (16 bytes per connection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Slave communications</td>
<td>Max. 2 connections (16 bytes per connection)</td>
</tr>
</tbody>
</table>

■ DeviceNet Slave Communications

Connections

■ Internal Circuit Configuration

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>V</td>
<td>Power supply terminal (24 VDC) for input device and test output</td>
</tr>
<tr>
<td>11, 12</td>
<td>G</td>
<td>Common terminal (Terminal Nos. 11, 12 and 35 to 40 are internally connected.)</td>
</tr>
<tr>
<td>3 to 10</td>
<td>IN0 to IN11</td>
<td>Safety input terminal</td>
</tr>
<tr>
<td>13 to 20</td>
<td>T0 to T3</td>
<td>Test output terminal</td>
</tr>
<tr>
<td>21 to 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 to 40</td>
<td>G</td>
<td></td>
</tr>
</tbody>
</table>
### DST1-MD16SL-1

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>V0</td>
<td>Power supply terminal (24 VDC) for input device and test output</td>
</tr>
<tr>
<td>11, 12</td>
<td>G0</td>
<td>Common terminal (Terminal Nos. 11, 12 and 17 to 20 are internally connected.)</td>
</tr>
<tr>
<td>3 to 10</td>
<td>IN0 to IN7</td>
<td>Safety input terminal</td>
</tr>
<tr>
<td>13 to 20</td>
<td>T0 to T3</td>
<td>Test output terminal</td>
</tr>
<tr>
<td>21, 22</td>
<td>V1</td>
<td>Power supply terminal (24 VDC) for output device</td>
</tr>
<tr>
<td>31, 32</td>
<td>G1</td>
<td>Common terminal (Terminal Nos. 31 to 40 are internally connected.)</td>
</tr>
<tr>
<td>23 to 30</td>
<td>OUT0 to OUT7</td>
<td>Safety output terminal</td>
</tr>
<tr>
<td>33 to 40</td>
<td>G1</td>
<td>Common terminal (Terminal Nos. 31 to 40 are internally connected.)</td>
</tr>
</tbody>
</table>

### DST1-MRD08SL-1

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>V0</td>
<td>Power supply terminal (24 VDC) for input device, test output, and monitoring the safety relay NC contact of the internal circuit</td>
</tr>
<tr>
<td>11, 12</td>
<td>G0</td>
<td>Common terminal (Terminal Nos. 11, 12 and 17 to 20 are internally connected.)</td>
</tr>
<tr>
<td>17 to 20</td>
<td>G0</td>
<td>Common terminal (Terminal Nos. 11, 12 and 17 to 20 are internally connected.)</td>
</tr>
<tr>
<td>3 to 6</td>
<td>IN0 to IN3</td>
<td>Safety input terminal</td>
</tr>
<tr>
<td>7 to 10</td>
<td>T0 to T3</td>
<td>Test output terminal</td>
</tr>
<tr>
<td>13 to 16</td>
<td>T0 to T3</td>
<td>Test output terminal</td>
</tr>
<tr>
<td>21, 22</td>
<td>V1</td>
<td>Power supply terminal (24 VDC) for driving the safety relay of the internal circuit</td>
</tr>
<tr>
<td>31, 32</td>
<td>G1</td>
<td>Common terminal (Terminal Nos. 23 to 30 and 33 to 40 are internally connected.)</td>
</tr>
<tr>
<td>23 to 30</td>
<td>OUT0 to OUT3</td>
<td>Safety output terminal (The outputs of terminal No. 23/33 (OUT0) and 24/34 (OUTe) are the same.)</td>
</tr>
<tr>
<td>33 to 40</td>
<td>C0 to C3</td>
<td>Safety output terminal (The outputs of terminal No. 25/35 (OUT1) and 26/36 (OUT1e) are the same.)</td>
</tr>
<tr>
<td></td>
<td>C0e to C3e</td>
<td>Safety output terminal (The outputs of terminal No. 27/37 (OUT2) and 28/38 (OUT2e) are the same.)</td>
</tr>
<tr>
<td></td>
<td>C0e to C3e</td>
<td>Safety output terminal (The outputs of terminal No. 29/39 (OUT3) and 30/40 (OUT3e) are the same.)</td>
</tr>
</tbody>
</table>

Refer to the DeviceNet Safety DST1-series Safety I/O Terminals Operation Manual (Cat. No. Z904) for wiring examples.
### Dimensions

**Note:** All units are in millimeters unless otherwise indicated.

**DST1-ID12SL-1**

**DST1-MD16SL-1**

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>DST1-ID12SL-1</th>
<th>DST1-MD16SL-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>Height</td>
<td>35.5</td>
<td>35.5</td>
</tr>
<tr>
<td>Depth</td>
<td>63</td>
<td>63</td>
</tr>
</tbody>
</table>

**DST1-MRD08SL-1**

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>DST1-MRD08SL-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>170</td>
</tr>
<tr>
<td>Height</td>
<td>50</td>
</tr>
<tr>
<td>Depth</td>
<td>83.2</td>
</tr>
</tbody>
</table>

### Safety Precautions

Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network Controller.

*DeviceNet Safety DST1-series Safety I/O Terminals Operation Manual* (Cat. No. Z904)

---

**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. J158-E1-02

In the interest of product improvement, specifications are subject to change without notice.
Safety Network Configurator
WS02-CFSC1-E


- Performs settings for the Safety Network Controllers and Safety I/O Terminals.
- Built-in safety circuit programming functions.
- Enables easily monitoring safety circuit status.
- Includes DeviceNet Configurator functions.

Ordering Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Components</th>
<th>Applicable computer</th>
<th>Applicable OS</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Network Configurator</td>
<td>Install disk (CD-ROM)</td>
<td>IBM PC/AT or compatible</td>
<td>Windows 2000, Windows XP</td>
<td>WS02-CFSC1-E</td>
</tr>
</tbody>
</table>

System Configuration

- Safety Control Using the Safety Network Controller
  - Safety I/O communications
- Safety Network Configurator
  - Standard configuration
  - Standard PLC control and monitoring
  - Standard I/O communications
  - Explicit message communications
  - Standard Slave function
  - Safety Slave function
  - Standard Slave function
- DeviceNet Safety
  - Safety communications
  - Safety I/O Terminal
  - Safety Slave function
- Standard communications
  - Safety Network Controller
  - Standard Slave
  - Safety Master function
  - Standard Slave function
Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable computer</td>
</tr>
<tr>
<td>CPU</td>
</tr>
<tr>
<td>OS</td>
</tr>
<tr>
<td>Supported languages</td>
</tr>
<tr>
<td>RAM</td>
</tr>
<tr>
<td>Hard disk</td>
</tr>
<tr>
<td>Monitor</td>
</tr>
<tr>
<td>CD-ROM</td>
</tr>
<tr>
<td>Communications ports</td>
</tr>
<tr>
<td>• USB port</td>
</tr>
<tr>
<td>• DeviceNet Interface Card</td>
</tr>
</tbody>
</table>

Note: Windows is a registered trademark of Microsoft. IBM is a registered trademark of International Business Machines Corp.

Safety Precautions

Be sure to read the following operation manual for precautions and other details required for correct use of the Safety Network Controller. DeviceNet Safety Network Configurator Operation Manual (Cat. No. 2905)

Unit Versions and Network Configurator Versions

Network Configurator version 1.6 or higher is required for the NE1A-SCPU01-V1 and NE1A-SCPU02. The relationship between unit versions and the version of the Network Configurator is shown in the following table.

<table>
<thead>
<tr>
<th>Model</th>
<th>Version</th>
<th>Network Configurator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ver. 1.32</td>
<td>Ver. 1.51</td>
</tr>
<tr>
<td>NE1A-SCPU01 Pre-Ver. 1.0</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>NE1A-SCPU01-V1 Unit version 1.0</td>
<td>×</td>
<td>×</td>
</tr>
<tr>
<td>NE1A-SCPU02 Unit version 1.0</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>

In the interest of product improvement, specifications are subject to change without notice.
### Accessories

## Terminal Blocks for the NE1A

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Specification</th>
<th>Applicable Controllers</th>
<th>Model</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw terminal blocks (4 pins)</td>
<td>NE1A-SCPU01&lt;br&gt;NE1A-SCPU01-V1&lt;br&gt;NE1A-SCPU02</td>
<td>Y9S-04T1B-02A</td>
<td>A set including two screw terminal blocks (black) and six code marks to prevent incorrect insertion</td>
<td></td>
</tr>
<tr>
<td>Spring-cage terminal blocks (4 pins)</td>
<td>Y9S-04C1B-02A</td>
<td>A set including two spring-cage terminal blocks (black) and six code marks to prevent incorrect insertion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The standard NE1A Controllers are equipped with spring-cage terminal blocks. Screw terminal blocks can be ordered if desired, e.g., to replace previous terminals.

## Terminal Blocks for the DST1

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Specification</th>
<th>Applicable Safety I/O Terminals</th>
<th>Model</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw terminal blocks (10 pins)</td>
<td>DST1-ID12SL-1&lt;br&gt;DST1-MD16SL-1&lt;br&gt;DST1-MRD08SL-1</td>
<td>Y9S-10T1B-04B</td>
<td>A set including four screw terminal blocks (black), six code marks to prevent incorrect insertion, one set of terminal labels (See note 1.), and code mark instructions</td>
<td></td>
</tr>
<tr>
<td>Spring-cage terminal blocks (10 pins)</td>
<td>Y9S-10C1B-04B</td>
<td>A set including four spring-cage terminal blocks (black), six code marks to prevent incorrect insertion, one set of terminal labels (See note 1.), and code mark instructions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
1. The set of terminal labels is one sheet containing four sets of labels required for one Terminal Block, i.e., [1, 2 ... 10], [11, 12 ... 20], [21, 22 ... 30] and [31, 32 ... 40].
2. The standard DST1 Safety I/O Terminals are equipped with spring-cage terminal blocks. Screw terminal blocks can be ordered if desired, e.g., to replace previous terminals.

## Peripheral Devices for DeviceNet Communications

<table>
<thead>
<tr>
<th>Product</th>
<th>Appearance</th>
<th>Model</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-branch Tap for 1 branch line</td>
<td>DCN1-1NC</td>
<td>Cable wiring direction: Toward top&lt;br&gt;Cable lock direction: From top&lt;br&gt;Connector screw direction: From top</td>
<td>Provided with 3 parallel connectors with clamps (XW4G-05C1-H1-D), standard terminating resistor</td>
</tr>
<tr>
<td></td>
<td>DCN1-1C</td>
<td>Cable wiring direction: Toward side&lt;br&gt;Cable screw direction: From top&lt;br&gt;Connector screw direction: From side</td>
<td>Provided with 3 parallel connectors with screws (XW4B-05C1-H1-D), standard terminating resistor</td>
</tr>
<tr>
<td></td>
<td>DCN1-2C</td>
<td>Cable wiring direction: Toward top&lt;br&gt;Cable screw direction: From side&lt;br&gt;Connector screw direction: From top</td>
<td>Provided with 3 orthogonal connectors with screws (XW4B-05C1-VIR-D), standard terminating resistor</td>
</tr>
<tr>
<td></td>
<td>DCN1-2R</td>
<td>Cable wiring direction: Toward side&lt;br&gt;Cable screw direction: From top&lt;br&gt;Connector screw direction: From top</td>
<td></td>
</tr>
<tr>
<td>Product</td>
<td>Appearance</td>
<td>Model</td>
<td>Specification</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>-------</td>
<td>---------------</td>
</tr>
</tbody>
</table>
| T-branch Tap for 3 branch lines | ![Image](image1.png) | DCN1-3NC | Cable wiring direction: Toward top  
Cable lock direction: From top  
Connector screw direction: From top  
Provided with 5 parallel clamp connectors with screws (XW4G-05C1-H1-D), standard terminating resistor |
| | ![Image](image2.png) | DCN1-3C | Cable wiring direction: Toward side  
Cable screw direction: From top  
Connector screw direction: From side  
Provided with 5 parallel connectors with screws (XW4B-05C1-H1-D), standard terminating resistor |
| | ![Image](image3.png) | DCN1-4C | Cable wiring direction: Toward top  
Cable screw direction: From side  
Connector screw direction: From top  
Provided with 5 orthogonal clamp connectors with screws (XW4B-05C1-VIR-D), standard terminating resistor |
| | ![Image](image4.png) | DCN1-4R | Cable wiring direction: Toward side  
Cable screw direction: From top  
Connector screw direction: From top |
| Power Supply Tap | ![Image](image5.png) | DCN1-1P | One-branch tap provided with 2 connectors, standard terminating resistor, and fuse |
| Connectors | ![Image](image6.png) | XW4G-05C1-H1-D | Parallel clamp connector with screws  
Connector insertion and wiring both performed horizontally. |
| | ![Image](image7.png) | XW4G-05C4-TF-D | Parallel multi-branching clamp connector with screws  
Connector insertion and wiring performed in same direction. |
| | ![Image](image8.png) | XW4B-05C1-H1-D | Parallel connector with screws  
Connector insertion and wiring performed in same direction. |
| | ![Image](image9.png) | XW4B-05C4-T-D | Parallel, screw-less, multi-branching connector  
Connector insertion and wiring performed in same direction. |
| | ![Image](image10.png) | XW4B-05C4-TF-D | Parallel, multi-branching connector with screws  
Connector insertion and wiring performed in same direction. |
| | ![Image](image11.png) | XW4B-05C1-VIR-D | Orthogonal connector with screws  
Connector insertion and wiring performed at a right angle. |
| DeviceNet Cables | ![Image](image12.png) | DCA1-5C10 (-B) | Thin cable length: 100 m  
DCA1-5C10-B: Cable color: Blue  
DCA1-5C10: Cable color: Gray |
| | ![Image](image13.png) | DCA2-5C10 (-B) | Thick cable length: 100 m  
DCA2-5C10-B: Cable color: Blue  
DCA2-5C10: Cable color: Gray |
| Terminal-block Terminator | ![Image](image14.png) | DRS1-T | Resistance of 121 Ω |
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