

## Power Supply Unit, Power Connection Unit, and FG Terminal Expansion Unit for NX-series



### Features

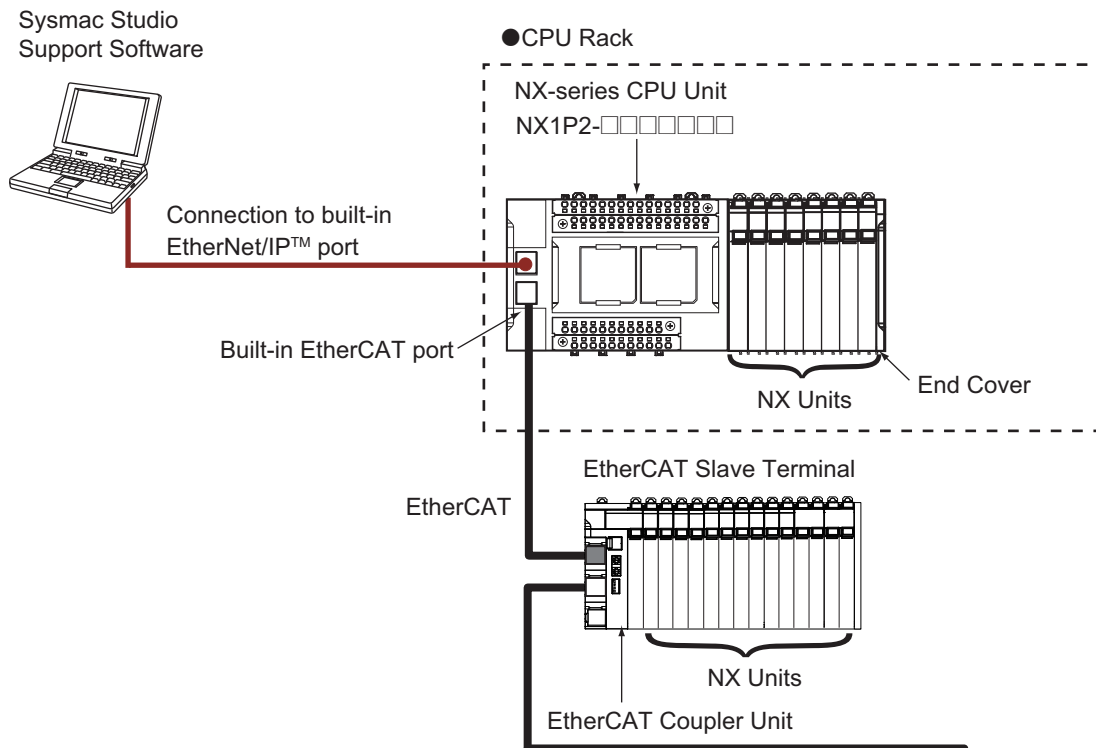
- Units to feed in additional Unit power and I/O power to an NX-series remote I/O terminal.
- Screwless clamp terminal block significantly reduces wiring work.
- Space-saving 12 mm wide units.
- The NX Unit Power Supply Unit allows expansion of the I/O configuration beyond the maximum power supply capacity of the EtherCAT Coupler.
- The I/O Power Supply Unit is used when the total allowed I/O current per feed terminal is exceeded, or to split I/O power into groups.
- The I/O Power Connection Unit can be used as an additional power supply terminal for connected sensors and actuators.
- The FG Terminal Expansion Unit can be used as ground terminal for wire shields.
- The screwless terminal block is detachable for easy commissioning and maintenance.

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## System Configuration

### System Configuration in the Case of a CPU Unit

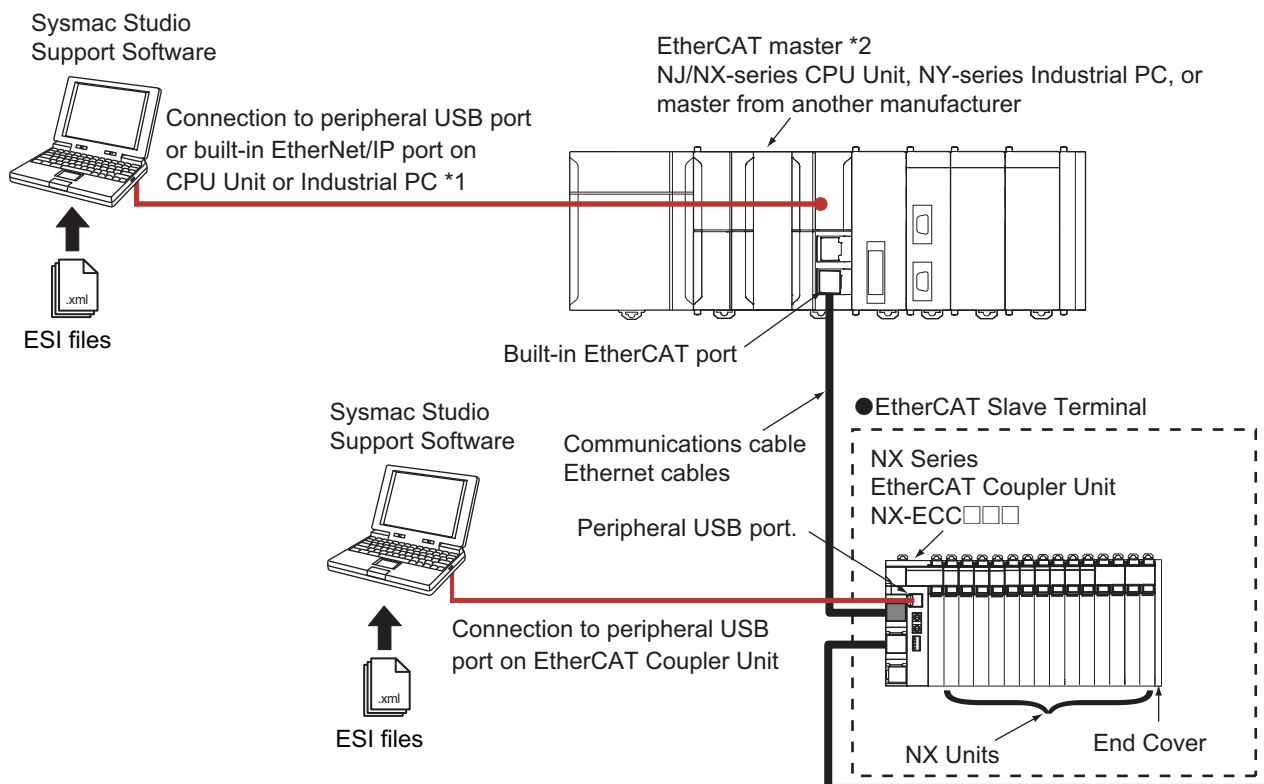
The following figure shows a system configuration when a group of NX Units is connected to an NX-series CPU Unit.



**Note:** For whether an NX Unit can be connected to the CPU Unit, refer to the version information.

### System Configuration of Slave Terminals

The following figure shows an example of the system configuration when an EtherCAT Coupler Unit is used as a Communications Coupler Unit.



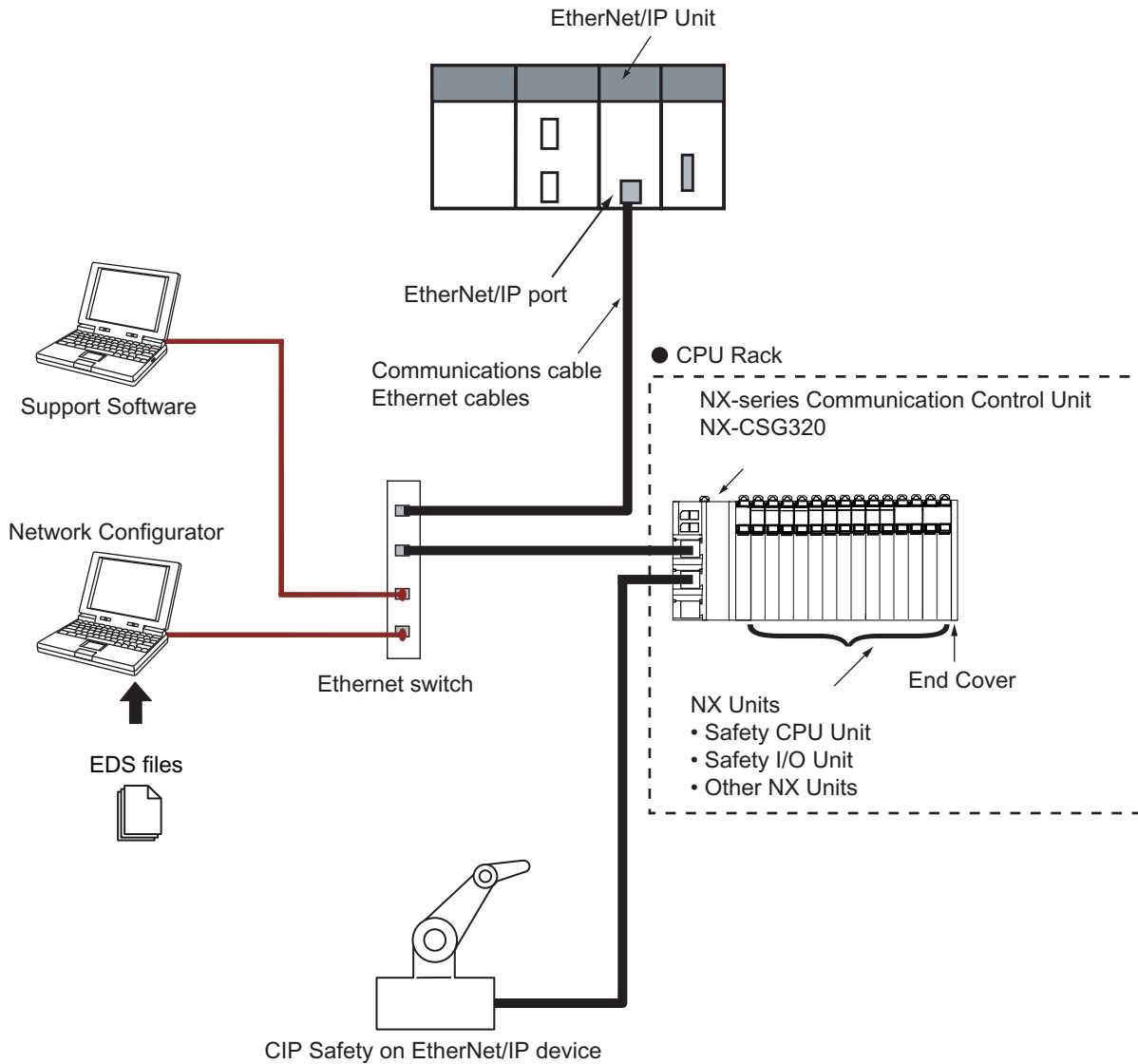
\*1. The connection method for the Sysmac Studio depends on the model of the CPU Unit or Industrial PC.

\*2. An EtherCAT Slave Terminal cannot be connected to any of the OMRON CJ1W-NC□81/□82 Position Control Units even though they can operate as EtherCAT masters.

**Note:** For whether an NX Unit can be connected to the Communications Coupler Unit, refer to the version information.

## System Configuration in the Case of a Communication Control Unit

The following figure shows a system configuration when a group of NX Units is connected to an NX-series Communication Control Unit. To configure a Safety Network Controller, mount the Safety CPU Unit, which is one of the NX Units, to the CPU Rack of the Communication Control Unit.



**Note:** For whether an NX Unit can be connected to the Communication Control Unit, refer to the version information.

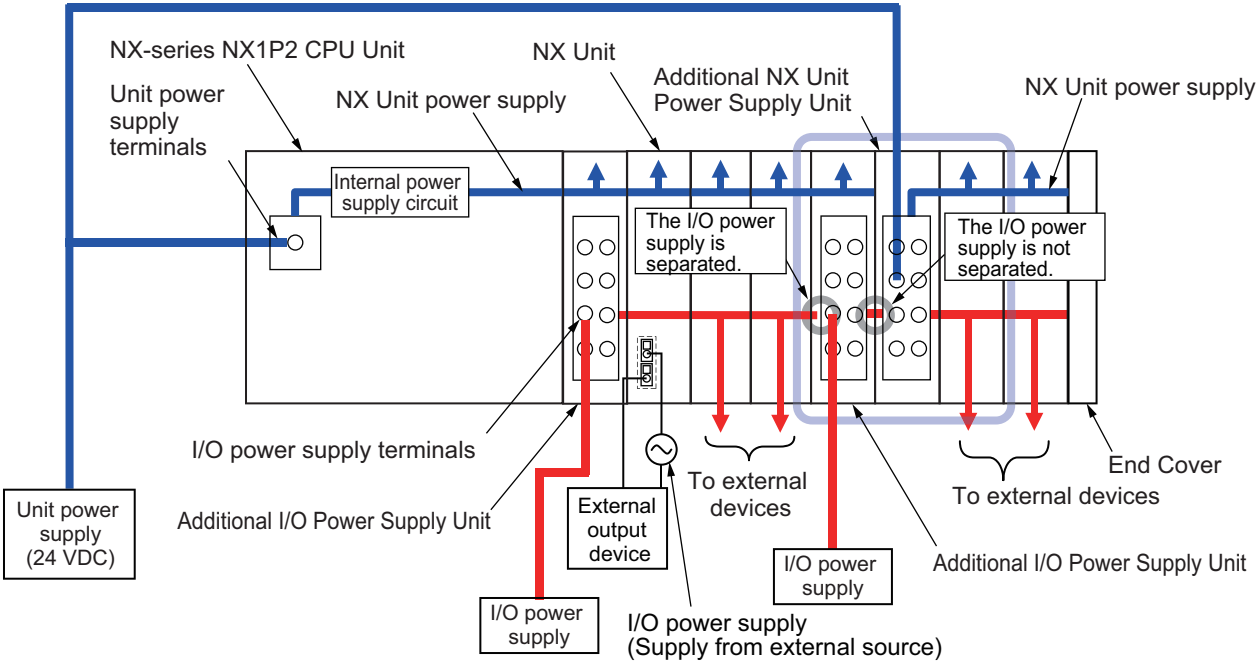
Power Supply Systems

Wiring the Power Supply to the CPU Unit

There are the following two types of power supplies that supply power to the CPU Rack of the NX1P2 CPU Units.  
I/O power supply is also required to drive the built-in I/O output circuit. However, only the supply to the NX Unit is described in this section.  
For the I/O power supply to the built-in I/O, refer to the hardware user's manual for the CPU Unit to which NX Units are connected.

| Power supply name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit power supply | This is the power supply for generating the internal power supply required for the CPU Rack to operate. This power supply is connected to the Unit power supply terminals on the CPU Unit. From the Unit power supply, the internal power supply circuit in the CPU Unit generates the internal circuit power supply, Option Board power supply and NX Unit power supply. The internal circuits of the NX Unit operates on the NX Unit power supply. The NX Unit power supply is supplied to the NX Units in the CPU Rack through the NX bus connectors. |
| I/O power supply  | This power supply is used for driving the I/O circuits of the NX Units and for the connected external devices. There are the following two I/O power supply methods. Either supply method used depends on each model of NX Unit. <ul style="list-style-type: none"><li>Supply from the NX bus</li><li>Supply from external source</li></ul> Refer to the <i>Installation and Wiring in the NX-series System Units User's Manual</i> (Cat. No. W523) for the details on the power supply methods.                                                         |

The following are wiring diagrams (examples) for each power supply.



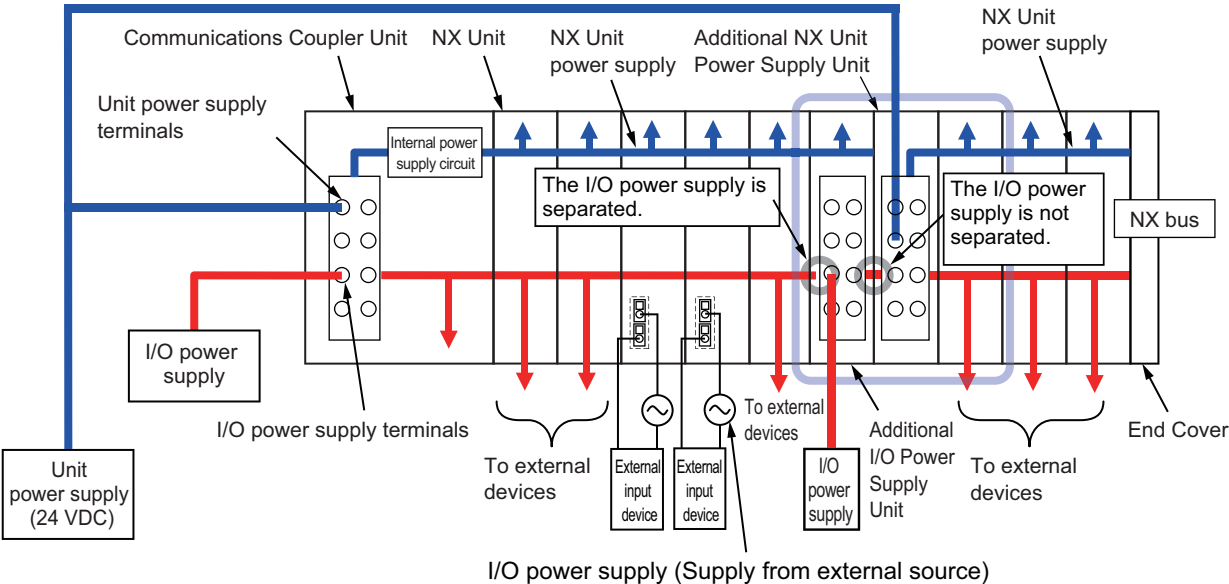
**Note:** Supply the Unit power and the I/O power from different power supplies. If you supply power from the same power supply the galvanic separation between the bus system and the I/O circuits is no longer effective. Noise generated in the I/O circuits may cause malfunctions in the internal circuits of the units.

Wiring the Power Supply to the Slave Terminal

There are the following two types of power supplies that supply power to the Slave Terminal.

| Power supply name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit power supply | <p>This is the power supply for generating the NX Unit power supply required for the Slave Terminal to operate.</p> <p>This is connected to the Unit power supply terminal on the Communications Coupler Unit or on the Additional NX Unit Power Supply Unit.</p> <p>The internal power supply circuit in the Communications Coupler Unit or the Additional NX Unit Power Supply Unit generates the NX Unit power supply from the Unit power supply.</p> <p>The internal circuits of the Communications Coupler Unit and NX Units operate by the NX Unit power supply.</p> <p>The NX Unit power supply is supplied to the NX Units in the Slave Terminal through the NX bus connectors.</p> |
| I/O power supply  | <p>This power supply provides power to drive the I/O circuits of the Position Interface Units and it provides power to external devices such as external encoders and sensors.</p> <p>There are the following two I/O power supply methods. Either supply method used depends on each model of NX Unit.</p> <ul style="list-style-type: none"><li>• Supply from the NX bus</li><li>• Supply from external source</li></ul> <p>Refer to the <i>Installation and Wiring</i> in the <i>NX-series System Units User's Manual</i> (Cat. No. W523) for the details on the power supply methods.</p>                                                                                               |

The following are wiring diagrams (examples) for each power supply.



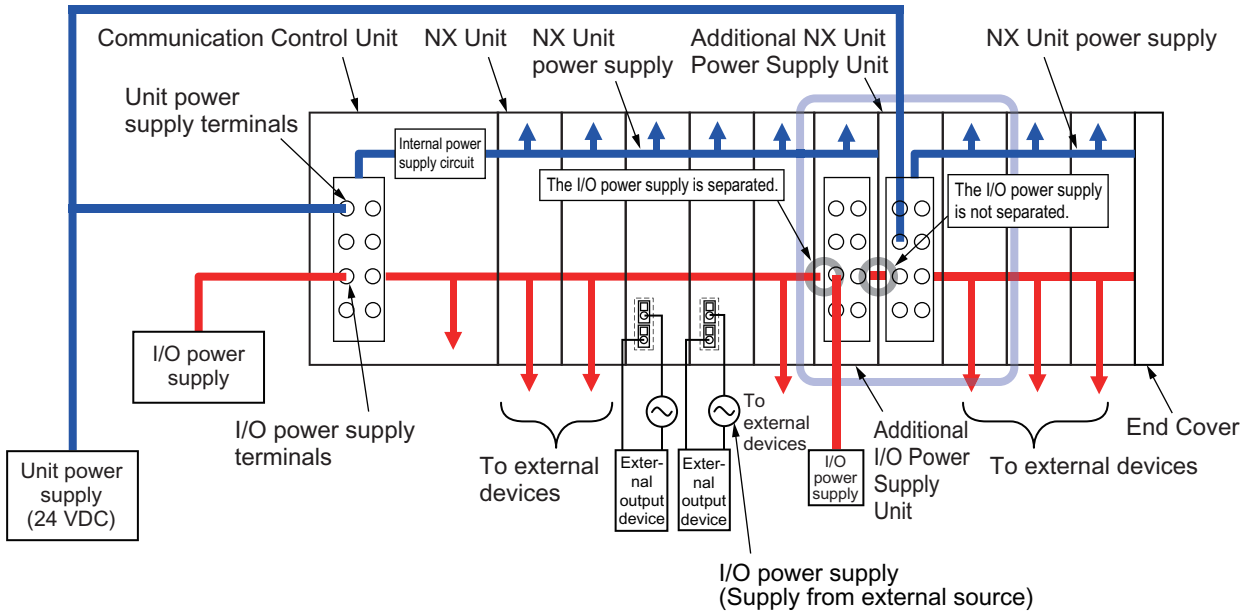
**Note:** Supply the Unit power and the I/O power from different power supplies. If you supply power from the same power supply the galvanic separation between the bus system and the I/O circuits is no longer effective. Noise generated in the I/O circuits may cause malfunctions in the internal circuits of the units.

Wiring the Power Supply to the Communication Control Unit

There are the following two types of power supplies that supply power to the Communication Control Unit.

| Power supply name | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit power supply | <p>This is the power supply for generating the internal power supply required for the CPU Rack to operate. This power supply is connected to the Unit power supply terminals on the Communication Control Unit or Additional NX Unit Power Supply Unit.</p> <p>From the Unit power supply, the internal power supply circuit in the Communication Control Unit generates the power supply to the internal circuit of the Communication Control Unit and NX Unit power supply. The internal power supply circuit in the Additional NX Unit Power Supply Unit generates the NX Unit power supply from the Unit power supply.</p> <p>The internal circuits of the NX Unit operates on the NX Unit power supply.</p> <p>The NX Unit power supply is supplied to the NX Units in the CPU Rack through the NX bus connectors.</p> |
| I/O power supply  | <p>This power supply is used for driving the I/O circuits of the NX Units and for the connected external devices.</p> <p>There are the following two I/O power supply methods. Either supply method used depends on each model of NX Unit.</p> <ul style="list-style-type: none"><li>• Supply from the NX bus</li><li>• Supply from external source</li></ul> <p>Refer to <i>Supplying Each Power Supply and Wiring</i> in the User's Manual for the details on the power supply methods.</p>                                                                                                                                                                                                                                                                                                                               |

The following are wiring diagrams (examples) for each power supply.



**Note:** Supply the Unit power and the I/O power from different power supplies. If you supply power from the same power supply the galvanic separation between the bus system and the I/O circuits is no longer effective. Noise generated in the I/O circuits may cause malfunctions in the internal circuits of the units.

## Ordering Information

### SYSTEM Units

| Product Name                                                                                                                     | Specifications                                                                                                                | Model            |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Additional NX Unit Power Supply Unit</b><br> | Power supply voltage: 24 VDC (20.4 to 28.8 VDC)<br>NX Bus power supply capacity: 10 W max.                                    | <b>NX-PD1000</b> |
| <b>Additional I/O Power Supply Unit</b><br>     | Power supply voltage: 5 to 24 VDC (4.5 to 28.8 VDC)<br>I/O power feed maximum current: 4 A                                    | <b>NX-PF0630</b> |
|                                                                                                                                  | Power supply voltage: 5 to 24 VDC (4.5 to 28.8 VDC)<br>I/O power feed maximum current: 10 A                                   | <b>NX-PF0730</b> |
| <b>I/O Power Supply Connection Unit</b><br>     | Number of I/O power terminals: IOG: 16 terminals<br>Current capacity of I/O power terminal: 4 A/terminal max.                 | <b>NX-PC0010</b> |
|                                                                                                                                  | Number of I/O power terminals: IOV: 16 terminals<br>Current capacity of I/O power terminal: 4 A/terminal max.                 | <b>NX-PC0020</b> |
|                                                                                                                                  | Number of I/O power terminals: IOV: 8 terminals, IOG: 8 terminals<br>Current capacity of I/O power terminal: 4 A/terminal max | <b>NX-PC0030</b> |
| <b>Shield Connection Unit</b><br>              | Number of shield terminals: 14 terminals (The lower two terminals are functional ground terminals.)                           | <b>NX-TBX01</b>  |

### Optional Products

| Product Name                           | Specification                                            | Model           |
|----------------------------------------|----------------------------------------------------------|-----------------|
| <b>Unit/Terminal Block Coding Pins</b> | For 10 Units<br>(Terminal Block: 30 pins, Unit: 30 pins) | <b>NX-AUX02</b> |

| Product Name   | Specification    |                             |                      |                           | Model     |
|----------------|------------------|-----------------------------|----------------------|---------------------------|-----------|
|                | No. of terminals | Terminal number indications | Ground terminal mark | Terminal current capacity |           |
| Terminal Block | 8                | A/B                         | None                 | 10 A                      | NX-TBA082 |
|                |                  |                             | Provided             |                           | NX-TBC082 |
|                | 16               |                             | None                 |                           | NX-TBA162 |
|                |                  |                             | Provided             |                           | NX-TBC162 |

### Accessories

There are no accessories.

## General Specification

| Item                   |                               | Specification                                                                                                                                                                                               |
|------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Enclosure              |                               | Mounted in a panel                                                                                                                                                                                          |
| Grounding method       |                               | Ground to 100 $\Omega$ or less                                                                                                                                                                              |
| Operating environment  | Ambient operating temperature | 0 to 55°C                                                                                                                                                                                                   |
|                        | Ambient operating humidity    | 10% to 95% (with no condensation or icing)                                                                                                                                                                  |
|                        | Atmosphere                    | Must be free from corrosive gases.                                                                                                                                                                          |
|                        | Ambient storage temperature   | -25 to 70°C (with no condensation or icing)                                                                                                                                                                 |
|                        | Altitude                      | 2,000 m max.                                                                                                                                                                                                |
|                        | Pollution degree              | 2 or less: Meets IEC 61010-2-201.                                                                                                                                                                           |
|                        | Noise immunity                | 2 kV on power supply line (Conforms to IEC61000-4-4.)                                                                                                                                                       |
|                        | Overvoltage category          | Category II: Meets IEC 61010-2-201.                                                                                                                                                                         |
|                        | EMC immunity level            | Zone B                                                                                                                                                                                                      |
|                        | Vibration resistance          | Conforms to IEC 60068-2-6.<br>5 to 8.4 Hz with 3.5-mm amplitude, 8.4 to 150 Hz, acceleration of 9.8 m/s <sup>2</sup> , 100 min each in X, Y, and Z directions<br>(10 sweeps of 10 min each = 100 min total) |
|                        | Shock resistance              | Conforms to IEC 60068-2-27. 147 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions                                                                                                                   |
| Applicable standards * |                               | cULus: Listed (UL508), ANSI/ISA 12.12.01, EU: EN 61131-2, C-Tick or RCM, KC Registration, NK, and LR                                                                                                        |

\* Refer to the OMRON website ([www.ia.omron.com](http://www.ia.omron.com)) or ask your OMRON representative for the most recent applicable standards for each model.

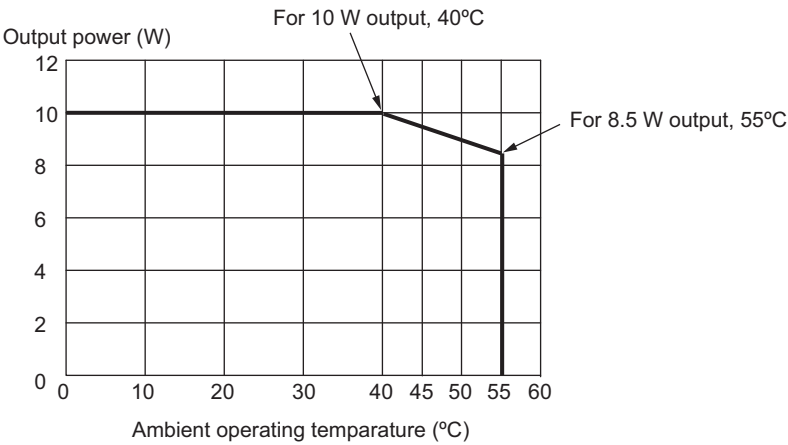


Specification

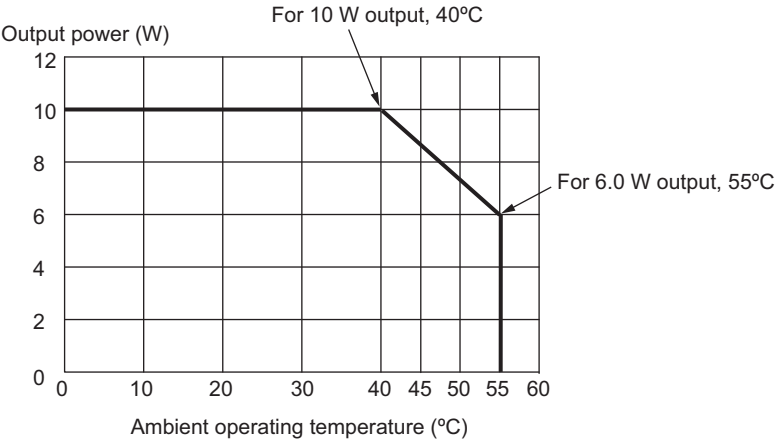
|                                                |                                                                                                                                                                                              |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional NX Unit Power Supply Unit NX-PD1000 |                                                                                                                                                                                              |
| Unit name                                      | Additional NX Unit Power Supply Unit                                                                                                                                                         |
| Model                                          | NX-PD1000                                                                                                                                                                                    |
| External connection terminals                  | Screwless push-in terminal block (8 terminals)                                                                                                                                               |
| Power supply voltage                           | 24 VDC (20.4 to 28.8 VDC)                                                                                                                                                                    |
| NX Bus power supply capacity                   | 10 W max. (Refer to Installation orientation and restrictions for details.)                                                                                                                  |
| NX Unit power supply efficiency                | 70%                                                                                                                                                                                          |
| Unwired terminal current capacity              | 4 A max. (Including the current of through-wiring)                                                                                                                                           |
| Dimensions                                     | 12 (W) × 100 (H) 71 × (D)                                                                                                                                                                    |
| Isolation method                               | No-isolation                                                                                                                                                                                 |
| Insulation resistance                          | 20 MΩ min. between isolated circuits (at 100 VDC)                                                                                                                                            |
| Dielectric strength                            | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                                                                             |
| NX Unit power consumption                      | <ul style="list-style-type: none"><li>• Connected to a CPU Unit or Communication Control Unit<br/>0.85 W max.</li><li>• Connected to a Communications Coupler Unit<br/>0.45 W max.</li></ul> |
| I/O current consumption                        | No consumption                                                                                                                                                                               |
| Weight                                         | 65 g max.                                                                                                                                                                                    |
| Circuit layout                                 |                                                                                                                                                                                              |

Installation orientation and restrictions

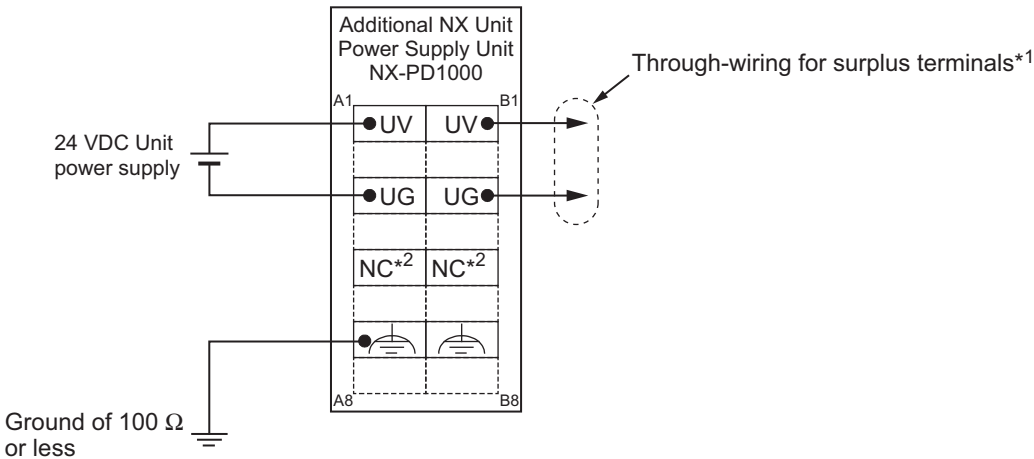
- Installation orientation:
- Connected to a CPU Unit or Communication Control Unit: Possible in upright installation.
  - Connected to a Communications Coupler Unit: Possible in 6 orientations.
- Restrictions:
- For upright installation



- For any installation other than upright



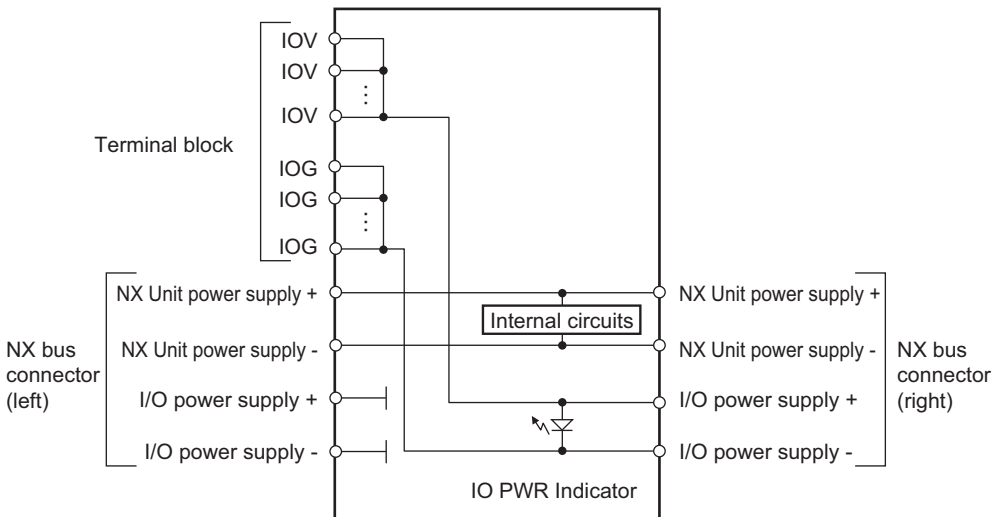
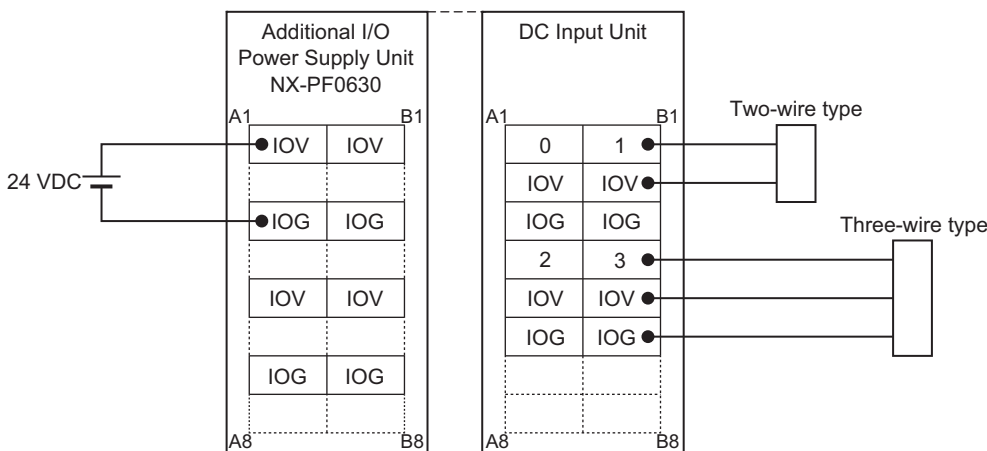
Terminal connection diagram



\*1. You can use the unwired terminals of the Unit power supply terminals (UV/UG) for through-wiring of the Additional NX Unit Power Supply Unit or the Unit power supply terminals on the EtherCAT Coupler Unit.

\*2. The NC terminal is not connected to the internal circuit.

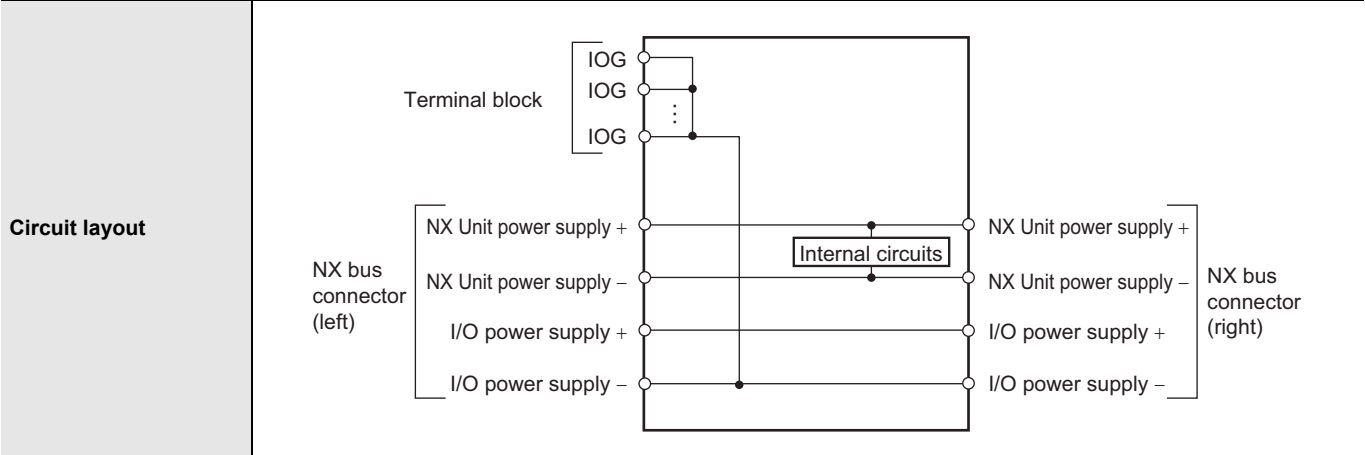
## Additional I/O Power Supply Units NX-PF0□30

|                                                      |                                                                                                                                                                                                                                                                                                   |           |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Unit name</b>                                     | Additional I/O Power Supply Unit                                                                                                                                                                                                                                                                  |           |
| <b>Model</b>                                         | NX-PF0630                                                                                                                                                                                                                                                                                         | NX-PF0730 |
| <b>External connection terminals</b>                 | Screwless push-in terminal block (8 terminals)                                                                                                                                                                                                                                                    |           |
| <b>Power supply voltage</b>                          | 5 to 24 VDC (4.5 to 28.8 VDC)*                                                                                                                                                                                                                                                                    |           |
| <b>I/O power supply maximum current</b>              | 4 A                                                                                                                                                                                                                                                                                               | 10 A      |
| <b>Current capacity of I/O power supply terminal</b> | 4 A max.                                                                                                                                                                                                                                                                                          | 10 A max. |
| <b>Dimensions</b>                                    | 12 (W) × 100 (H) 71 × (D)                                                                                                                                                                                                                                                                         |           |
| <b>Isolation method</b>                              | No-isolation                                                                                                                                                                                                                                                                                      |           |
| <b>Insulation resistance</b>                         | 20 MΩ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                                                 |           |
| <b>Dielectric strength</b>                           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                                                                                                                                                                                  |           |
| <b>NX Unit power consumption</b>                     | <ul style="list-style-type: none"> <li>Connected to a CPU Unit or Communication Control Unit<br/>0.85 W max.</li> <li>Connected to a Communications Coupler Unit<br/>0.45 W max.</li> </ul>                                                                                                       |           |
| <b>I/O current consumption</b>                       | 10 mA max.                                                                                                                                                                                                                                                                                        |           |
| <b>Weight</b>                                        | 65 g max.                                                                                                                                                                                                                                                                                         |           |
| <b>Circuit layout</b>                                |                                                                                                                                                                                                                |           |
| <b>Installation orientation and restrictions</b>     | <p>Installation orientation:</p> <ul style="list-style-type: none"> <li>Connected to a CPU Unit or Communication Control Unit: Possible in upright installation.</li> <li>Connected to a Communications Coupler Unit: Possible in 6 orientations.</li> </ul> <p>Restrictions: No restrictions</p> |           |
| <b>Terminal connection diagram</b>                   |                                                                                                                                                                                                               |           |
| <b>Overload/low voltage detection</b>                | Not supported                                                                                                                                                                                                                                                                                     |           |
| <b>Protective function</b>                           | Not supported.                                                                                                                                                                                                                                                                                    |           |

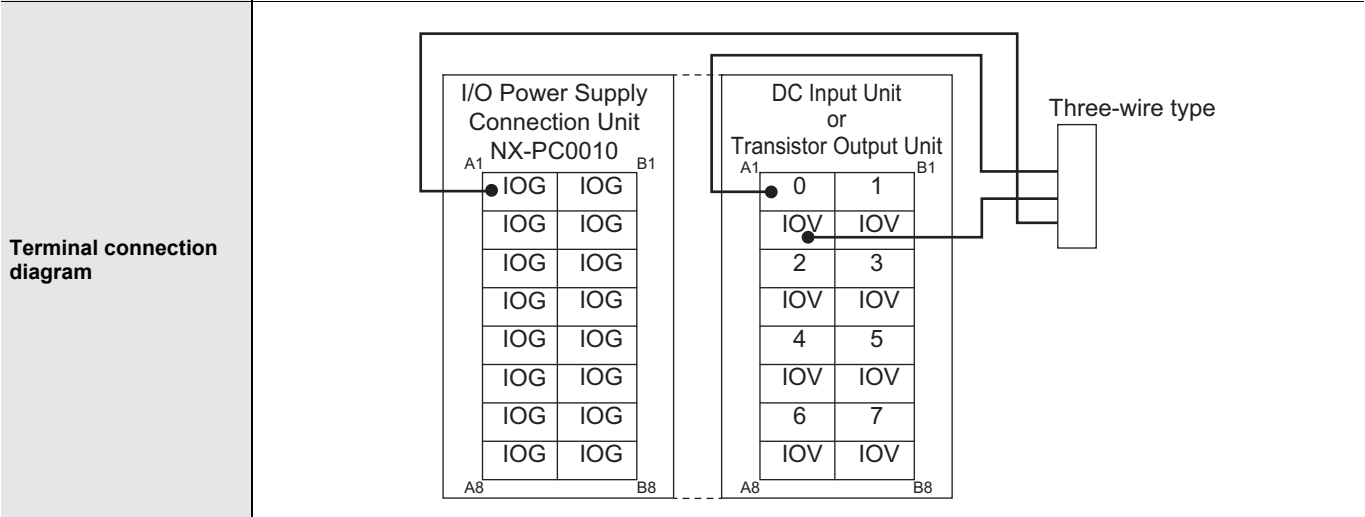
\* Use an output voltage that is appropriate for the I/O circuits of the NX Units and the connected external devices.

I/O Power Supply Connection Unit IOG terminal type NX-PC0010

|                                               |                                                                                                                                                                                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit name                                     | I/O Power Supply Connection Unit                                                                                                                                                         |
| Model                                         | NX-PC0010                                                                                                                                                                                |
| External connection terminals                 | Screwless push-in terminal block (16 terminals)                                                                                                                                          |
| Number of I/O power supply terminals          | IOG: 16 terminals                                                                                                                                                                        |
| Current capacity of I/O power supply terminal | 4 A/terminal max.                                                                                                                                                                        |
| Dimensions                                    | 12 (W) × 100 (H) 71 ×(D)                                                                                                                                                                 |
| Isolation method                              | No-isolation                                                                                                                                                                             |
| Insulation resistance                         | 20 MΩ min. between isolated circuits (at 100 VDC)                                                                                                                                        |
| Dielectric strength                           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                                                                         |
| NX Unit power consumption                     | <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit<br/>0.85 W max.</li><li>Connected to a Communications Coupler Unit<br/>0.45 W max.</li></ul> |
| I/O current consumption                       | No consumption                                                                                                                                                                           |
| Weight                                        | 65 g max.                                                                                                                                                                                |

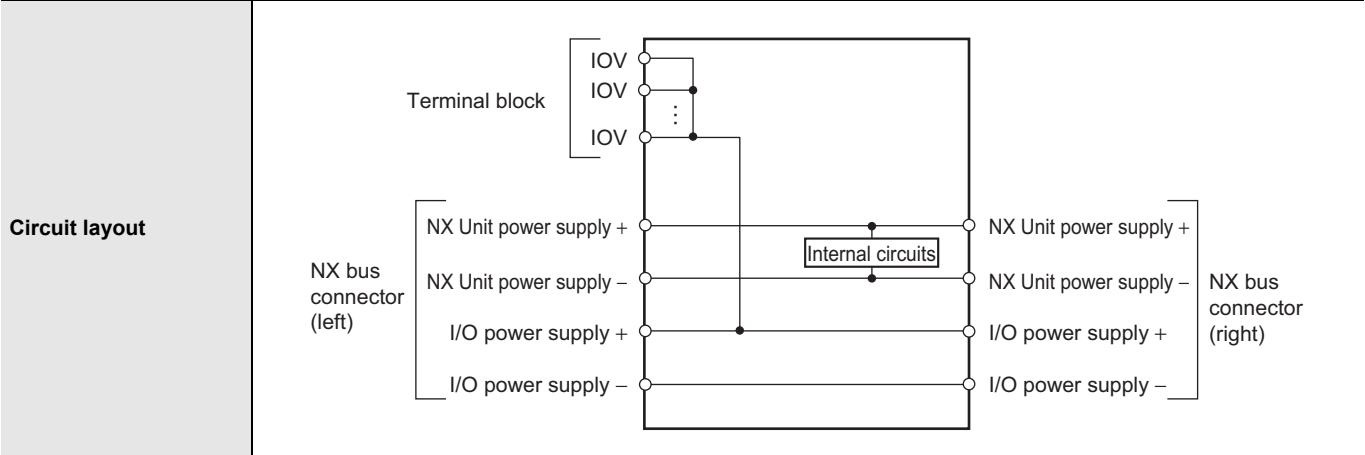


|                                                  |                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Installation orientation and restrictions</b> | <p>Installation orientation:</p> <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit: Possible in upright installation.</li><li>Connected to a Communications Coupler Unit: Possible in 6 orientations.</li></ul> <p>Restrictions: No restrictions</p> |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

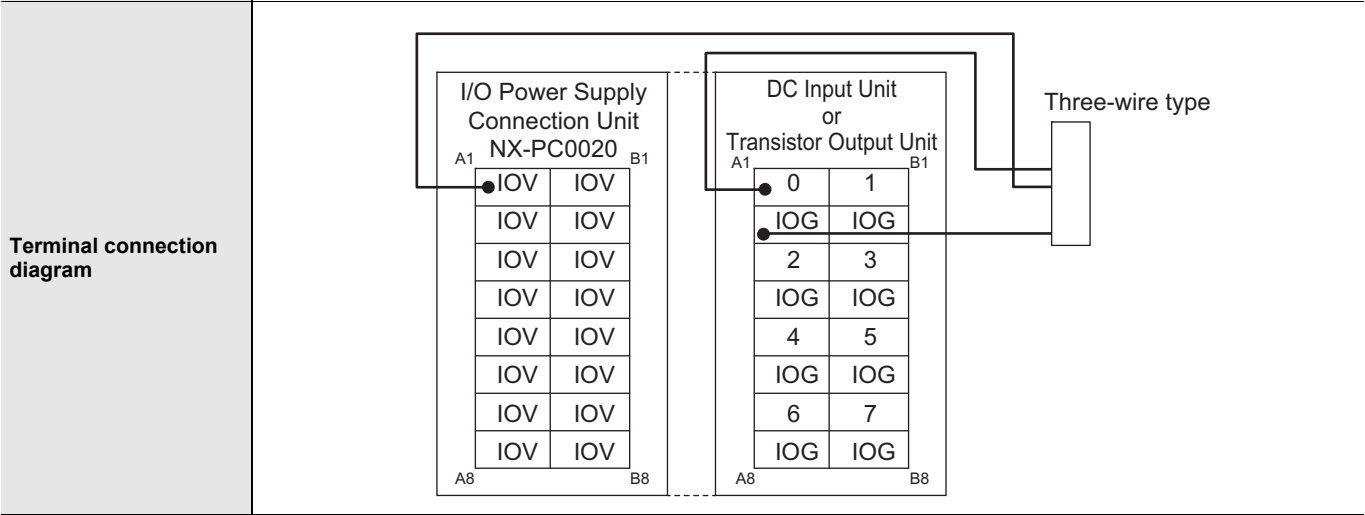


I/O Power Supply Connection Unit IOV terminal type NX-PC0020

|                                               |                                                                                                                                                                                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit name                                     | I/O Power Supply Connection Unit                                                                                                                                                         |
| Model                                         | NX-PC0020                                                                                                                                                                                |
| External connection terminals                 | Screwless push-in terminal block (16 terminals)                                                                                                                                          |
| Number of I/O power supply terminals          | IOV: 16 terminals                                                                                                                                                                        |
| Current capacity of I/O power supply terminal | 4 A/terminal max.                                                                                                                                                                        |
| Dimensions                                    | 12 (W) × 100 (H) 71 × (D)                                                                                                                                                                |
| Isolation method                              | No-isolation                                                                                                                                                                             |
| Isolation resistance                          | 20 MΩ min. between isolated circuits (at 100 VDC)                                                                                                                                        |
| Dielectric strength                           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                                                                         |
| NX Unit power consumption                     | <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit<br/>0.85 W max.</li><li>Connected to a Communications Coupler Unit<br/>0.45 W max.</li></ul> |
| I/O current consumption                       | No consumption                                                                                                                                                                           |
| Weight                                        | 65 g max.                                                                                                                                                                                |

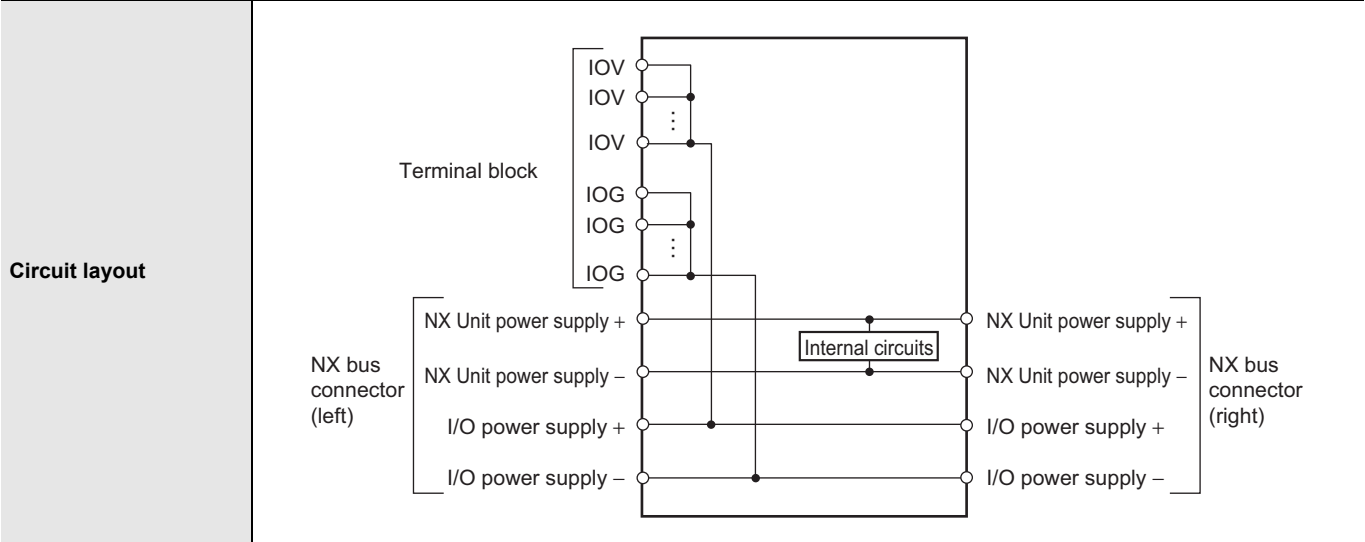


|                                           |                                                                                                                                                                                                                                                                                                |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit: Possible in upright installation.</li><li>Connected to a Communications Coupler Unit: Possible in 6 orientations.</li></ul> <p>Restrictions: No restrictions</p> |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

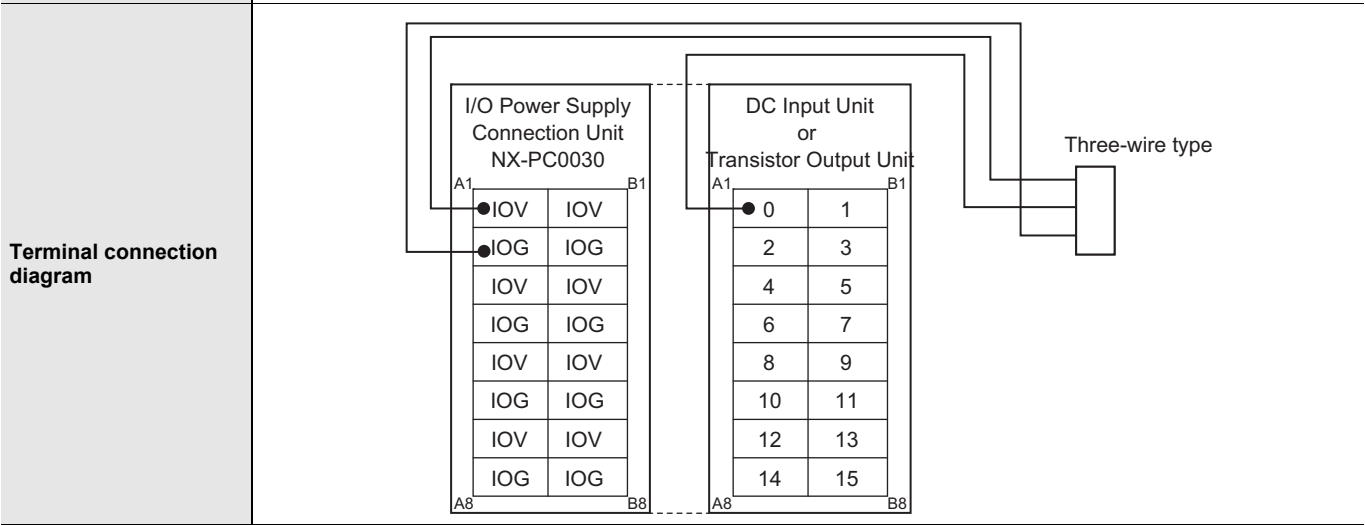


I/O Power Supply Connection Unit IOV/IOG terminal type NX-PC0030

|                                               |                                                                                                                                                                                          |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit name                                     | I/O Power Supply Connection Unit                                                                                                                                                         |
| Model                                         | NX-PC0030                                                                                                                                                                                |
| External connection terminals                 | Screwless push-in terminal block (16 terminals)                                                                                                                                          |
| Number of I/O power supply terminals          | IOV: 8 terminals<br>IOG: 8 terminals                                                                                                                                                     |
| Current capacity of I/O power supply terminal | 4 A/terminal max.                                                                                                                                                                        |
| Dimensions                                    | 12 (W) × 100 (H) 71 × (D)                                                                                                                                                                |
| Isolation method                              | No-isolation                                                                                                                                                                             |
| Insulation resistance                         | 20 MΩ min. between isolated circuits (at 100 VDC)                                                                                                                                        |
| Dielectric strength                           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                                                                         |
| NX Unit power consumption                     | <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit<br/>0.85 W max.</li><li>Connected to a Communications Coupler Unit<br/>0.45 W max.</li></ul> |
| I/O current consumption                       | No consumption                                                                                                                                                                           |
| Weight                                        | 65 g max.                                                                                                                                                                                |

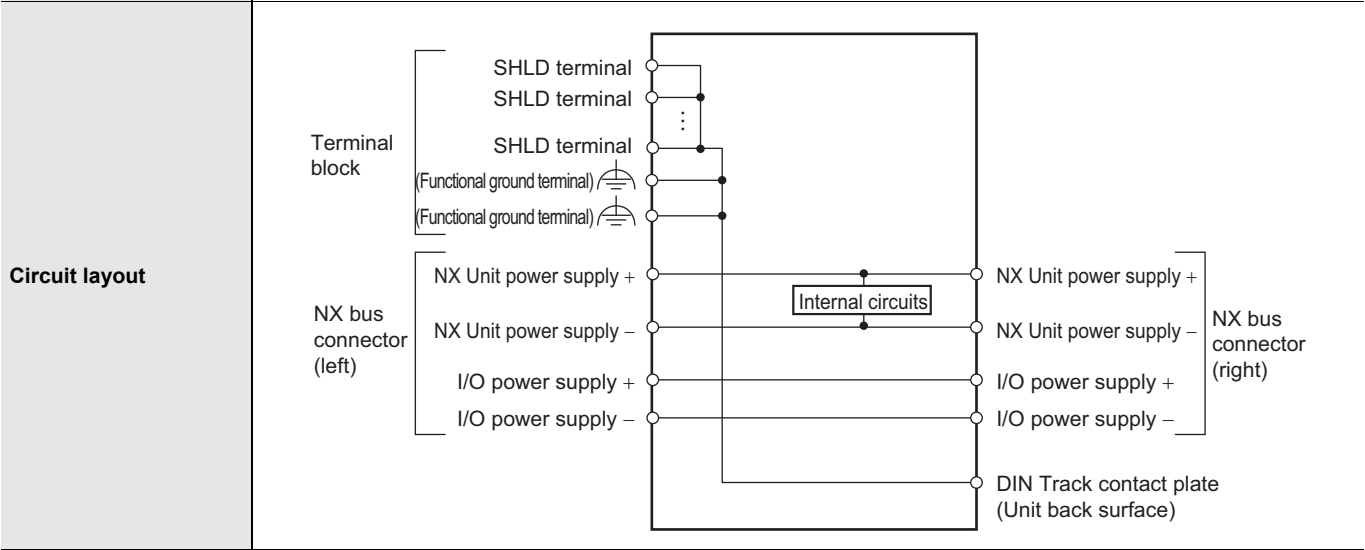


|                                           |                                                                                                                                                                                                                                                                                                |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit: Possible in upright installation.</li><li>Connected to a Communications Coupler Unit: Possible in 6 orientations.</li></ul> <p>Restrictions: No restrictions</p> |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

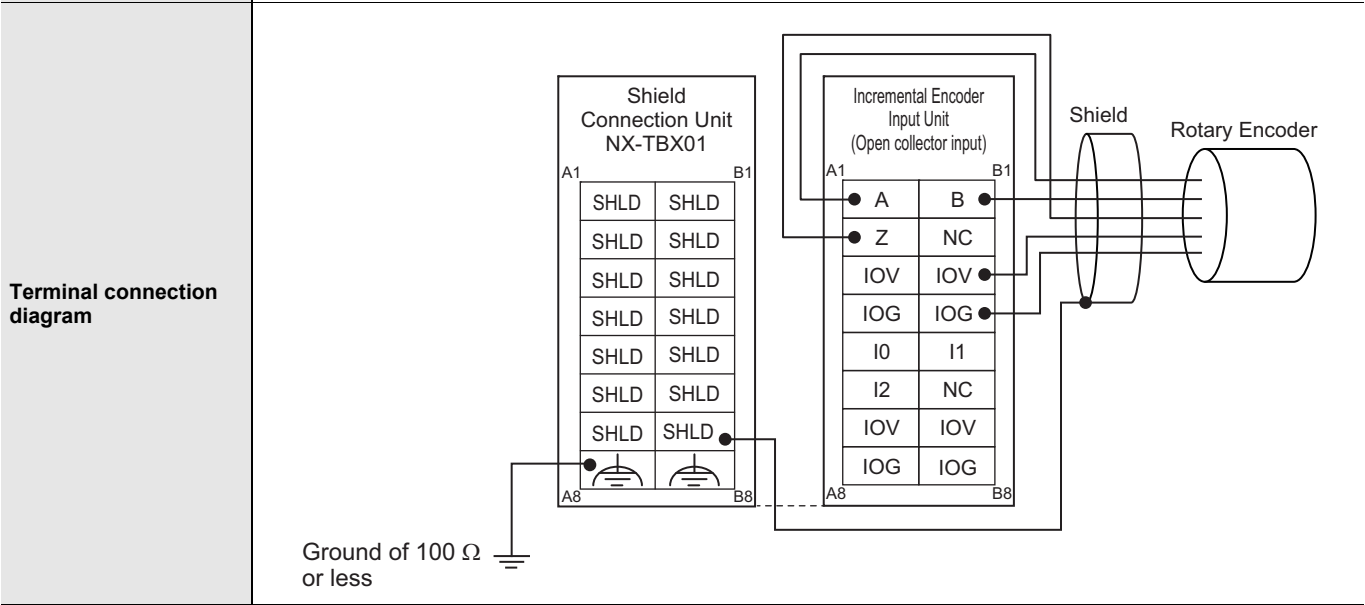


Shield Connection Unit NX-TBX01

|                               |                                                                                                                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit name                     | Shield Connection Unit                                                                                                                                                                   |
| Model                         | NX-TBX01                                                                                                                                                                                 |
| External connection terminals | Screwless push-in terminal block (16 terminals)                                                                                                                                          |
| Number of shield terminals    | 14 terminals (The following two terminals are functional ground terminals.)                                                                                                              |
| Dimensions                    | 12 (W) × 100 (H) 71 × (D)                                                                                                                                                                |
| Isolation method              | Isolation between the SHLD functional ground terminal, and internal circuit: No-isolation                                                                                                |
| Insulation resistance         | 20 MΩ min. between isolated circuits (at 100 VDC)                                                                                                                                        |
| Dielectric strength           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                                                                         |
| NX Unit power consumption     | <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit<br/>0.85 W max.</li><li>Connected to a Communications Coupler Unit<br/>0.45 W max.</li></ul> |
| I/O current consumption       | No consumption                                                                                                                                                                           |
| Weight                        | 65 g max.                                                                                                                                                                                |



|                                           |                                                                                                                                                                                                                                                                                                |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"><li>Connected to a CPU Unit or Communication Control Unit: Possible in upright installation.</li><li>Connected to a Communications Coupler Unit: Possible in 6 orientations.</li></ul> <p>Restrictions: No restrictions</p> |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



## Version Information

### Connecting with CPU Units

Refer to the user's manual for the CPU Unit for the models of CPU Unit to which NX Units can be connected.

| NX Unit   |              | Corresponding unit versions/versions |               |
|-----------|--------------|--------------------------------------|---------------|
| Model     | Unit Version | CPU Unit                             | Sysmac Studio |
| NX-PD1000 | Ver.1.0      | Ver.1.13                             | Ver.1.17      |
| NX-PF0630 |              |                                      |               |
| NX-PF0730 |              |                                      |               |
| NX-PC0020 |              |                                      |               |
| NX-PC0010 |              |                                      |               |
| NX-PC0030 |              |                                      |               |
| NX-TBX01  |              |                                      |               |

**Note:** Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

### Connecting with EtherCAT Coupler Units

| NX Unit   |              | Corresponding unit versions/versions |                             |               |
|-----------|--------------|--------------------------------------|-----------------------------|---------------|
| Model     | Unit Version | EtherCAT Coupler Unit                | CPU Units or Industrial PCs | Sysmac Studio |
| NX-PD1000 | Ver.1.0      | Ver.1.0                              | Ver.1.05                    | Ver.1.06      |
| NX-PF0630 |              |                                      |                             | Ver.1.08      |
| NX-PF0730 |              |                                      |                             |               |
| NX-PC0020 |              |                                      |                             | Ver.1.06      |
| NX-PC0010 |              |                                      |                             |               |
| NX-PC0030 |              |                                      |                             |               |
| NX-TBX01  |              |                                      |                             |               |

**Note:** Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

### Connecting with EtherNet/IP Coupler Unit

| NX Unit   |              | Corresponding unit versions/versions              |                           |               |                                           |               |                       |
|-----------|--------------|---------------------------------------------------|---------------------------|---------------|-------------------------------------------|---------------|-----------------------|
| Model     | Unit version | Application with an NJ/NX/NY-series Controller *1 |                           |               | Application with a CS/CJ/CP-series PLC *2 |               |                       |
|           |              | EtherNet/IP Coupler Unit                          | CPU Unit or Industrial PC | Sysmac Studio | EtherNet/IP Coupler Unit                  | Sysmac Studio | NX-IO Configurator *3 |
| NX-PD1000 | Ver. 1.0     | Ver. 1.2                                          | Ver. 1.14                 | Ver. 1.19     | Ver. 1.0                                  | Ver. 1.10     | Ver. 1.00             |
| NX-PF0630 |              |                                                   |                           |               |                                           |               |                       |
| NX-PF0730 |              |                                                   |                           |               |                                           |               |                       |
| NX-PC0020 |              |                                                   |                           |               |                                           |               |                       |
| NX-PC0010 |              |                                                   |                           |               |                                           |               |                       |
| NX-PC0030 |              |                                                   |                           |               |                                           |               |                       |
| NX-TBX01  |              |                                                   |                           |               |                                           |               |                       |

**Note:** Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

\*1. Refer to the user's manual for the EtherNet/IP Coupler Units for information on the unit versions of EtherNet/IP Units that are compatible with EtherNet/IP Coupler Units.

\*2. Refer to the user's manual for the EtherNet/IP Coupler Units for information on the unit versions of CPU Units and EtherNet/IP Units that are compatible with EtherNet/IP Coupler Units.

\*3. For connection to an EtherNet/IP Coupler Unit with unit version 1.0, You can connect only to the peripheral USB port on the EtherNet/IP Coupler Unit. You cannot connect with any other path. If you need to connect by another path, use an EtherNet/IP Coupler Unit with unit version 1.2 or later.

### Connecting with Communication Control Units

| NX Unit   |              | Corresponding unit versions/versions |               |
|-----------|--------------|--------------------------------------|---------------|
| Model     | Unit version | Communication Control Unit           | Sysmac Studio |
| NX-PD1000 | Ver. 1.0     | Ver.1.00                             | Ver.1.24      |
| NX-PF0630 |              |                                      |               |
| NX-PF0730 |              |                                      |               |
| NX-PC0020 |              |                                      |               |
| NX-PC0010 |              |                                      |               |
| NX-PC0030 |              |                                      |               |
| NX-TBX01  |              |                                      |               |

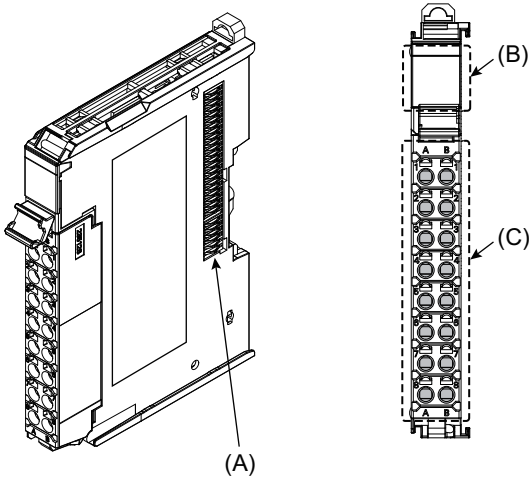
**Note:** Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.



External Interface

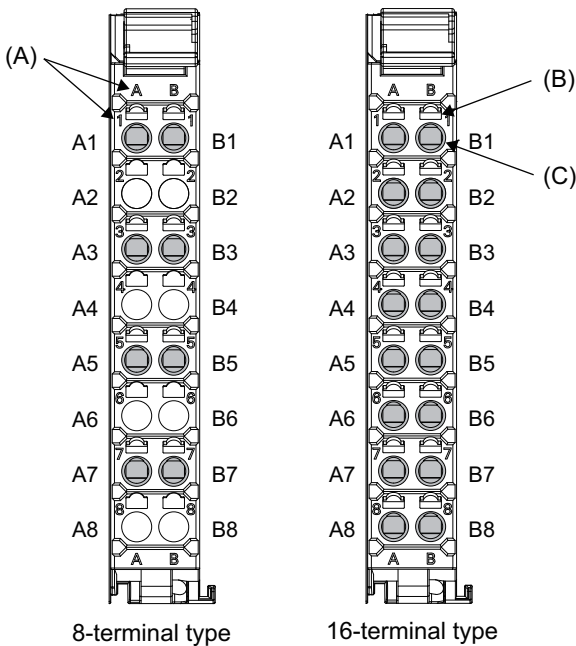
Additional NX Unit Power Supply Unit, Additional I/O Power Supply Unit, I/O Power Supply Connection Unit, and Shield Connection Unit

NX-PD1000/NX-PF0□30/NX-PC00□0/NX-TBX01



| Symbol | Name             | Function                                                                                                        |
|--------|------------------|-----------------------------------------------------------------------------------------------------------------|
| (A)    | NX bus connector | This connector is used to connect each Unit.                                                                    |
| (B)    | Indicators       | The indicators show the current operating status of the Unit.                                                   |
| (C)    | Terminal block   | The terminal block is used to connect external devices.<br>The number of terminals depends on the type of Unit. |

Terminal Blocks



| Symbol | Name                        | Function                                                                                                                                                                                                                                                                                                       |
|--------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| {A}    | Terminal number indications | Terminal numbers for which A and B indicate the column, and 1 to 8 indicate the line are displayed. The terminal number is a combination of column and line, so A1 to A8 and B1 to B8 are displayed. The terminal number indications are the same regardless of the number of terminals on the terminal block. |
| (B)    | Release holes               | Insert a flat-blade screwdriver into these holes to connect and remove the wires.                                                                                                                                                                                                                              |
| (C)    | Terminal holes              | The wires are inserted into these holes.                                                                                                                                                                                                                                                                       |

## Applicable Terminal Blocks for Each Unit Model

| Unit model | Terminal Blocks |                  |                             |                      |                           |
|------------|-----------------|------------------|-----------------------------|----------------------|---------------------------|
|            | Model           | No. of terminals | Terminal number indications | Ground terminal mark | Terminal current capacity |
| NX-PD1000  | NX-TBC082       | 8                | A/B                         | Provided             | 10 A                      |
| NX-PF0630  | NX-TBA082       | 8                | A/B                         | None                 | 10 A                      |
| NX-PF0730  | NX-TBA082       | 8                | A/B                         | None                 | 10 A                      |
| NX-PC□□□□  | NX-TBA162       | 16               | A/B                         | None                 | 10 A                      |
| NX-TBX01   | NX-TBC162       | 16               | A/B                         | Provided             | 10 A                      |

## Applicable Wires

### Using Ferrules

If you use ferrules, attach the twisted wires to them.

Observe the application instructions for your ferrules for the wire stripping length when attaching ferrules.

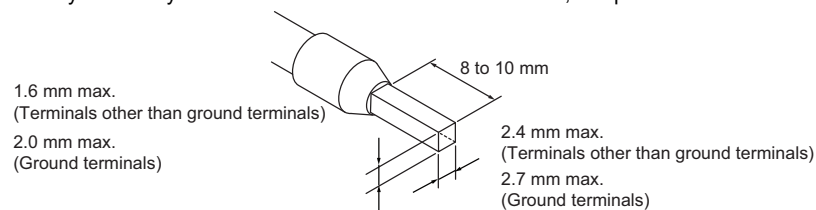
Always use plated one-pin ferrules. Do not use unplated ferrules or two-pin ferrules.

The applicable ferrules, wires, and crimping tool are given in the following table.

| Terminal types                        | Manufacturer    | Ferrule model | Applicable wire (mm <sup>2</sup> (AWG)) | Crimping tool                                                                                                                     |
|---------------------------------------|-----------------|---------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Terminals other than ground terminals | Phoenix Contact | Al0,34-8      | 0.34 (#22)                              | Phoenix Contact (The figure in parentheses is the applicable wire size.)<br>CRIMPFOX 6 (0.25 to 6 mm <sup>2</sup> , AWG 24 to 10) |
|                                       |                 | Al0,5-8       | 0.5 (#20)                               |                                                                                                                                   |
|                                       |                 | Al0,5-10      |                                         |                                                                                                                                   |
|                                       |                 | Al0,75-8      | 0.75 (#18)                              |                                                                                                                                   |
|                                       |                 | Al0,75-10     |                                         |                                                                                                                                   |
|                                       |                 | Al1,0-8       | 1.0 (#18)                               |                                                                                                                                   |
|                                       |                 | Al1,0-10      |                                         |                                                                                                                                   |
|                                       |                 | Al1,5-8       | 1.5 (#16)                               |                                                                                                                                   |
| Ground terminals                      |                 | Al1,5-10      |                                         |                                                                                                                                   |
|                                       |                 | Al2,5-10      | 2.0 *1                                  |                                                                                                                                   |
| Terminals other than ground terminals | Weidmuller      | H0.14/12      | 0.14 (#26)                              | Weidmuller (The figure in parentheses is the applicable wire size.)<br>PZ6 Roto (0.14 to 6 mm <sup>2</sup> , AWG 26 to 10)        |
|                                       |                 | H0.25/12      | 0.25 (#24)                              |                                                                                                                                   |
|                                       |                 | H0.34/12      | 0.34 (#22)                              |                                                                                                                                   |
|                                       |                 | H0.5/14       | 0.5 (#20)                               |                                                                                                                                   |
|                                       |                 | H0.5/16       |                                         |                                                                                                                                   |
|                                       |                 | H0.75/14      | 0.75 (#18)                              |                                                                                                                                   |
|                                       |                 | H0.75/16      |                                         |                                                                                                                                   |
|                                       |                 | H1.0/14       | 1.0 (#18)                               |                                                                                                                                   |
|                                       |                 | H1.0/16       |                                         |                                                                                                                                   |
|                                       |                 | H1.5/14       | 1.5 (#16)                               |                                                                                                                                   |
|                                       |                 | H1.5/16       |                                         |                                                                                                                                   |

\*1. Some AWG 14 wires exceed 2.0 mm<sup>2</sup> and cannot be used in the screwless clamping terminal block.

When you use any ferrules other than those in the above table, crimp them to the twisted wires so that the following processed dimensions are achieved.



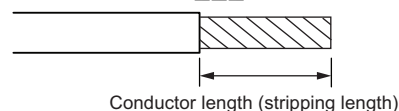
### Using Twisted Wires/Solid Wires

If you use the twisted wires or the solid wires, use the following table to determine the correct wire specifications.

| Terminals                             |                                  | Wire type     |              |             |              | Wire size                                  | Conductor length (stripping length) |
|---------------------------------------|----------------------------------|---------------|--------------|-------------|--------------|--------------------------------------------|-------------------------------------|
|                                       |                                  | Twisted wires |              | Solid wire  |              |                                            |                                     |
| Classification                        | Current capacity                 | Plated        | Unplated     | Plated      | Unplated     |                                            |                                     |
| All terminals except ground terminals | 2 A max.                         | Possible      | Possible     | Possible    | Possible     | 0.08 to 1.5 mm <sup>2</sup><br>AWG28 to 16 | 8 to 10 mm                          |
|                                       | Greater than 2 A and 4 A or less |               | Not Possible | Possible *1 | Not Possible |                                            |                                     |
|                                       | Greater than 4 A                 | Possible *1   |              |             |              |                                            |                                     |
| Ground terminals                      | ---                              | Possible      | Possible     | Possible *2 | Possible *2  | 2.0 mm <sup>2</sup>                        | 9 to 10 mm                          |

\*1. Secure wires to the screwless clamping terminal block. Refer to the Securing Wires in the USER'S MANUAL for how to secure wires.

\*2. With the NX-TB□□□1 Terminal Block, use twisted wires to connect the ground terminal. Do not use a solid wire.



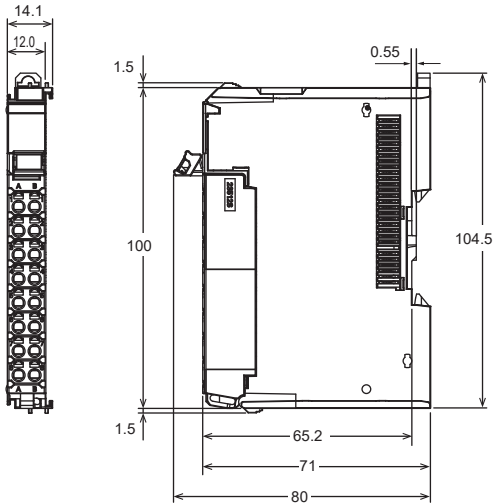
<Additional Information> If more than 2 A will flow on the wires, use plated wires or use ferrules.

Dimensions

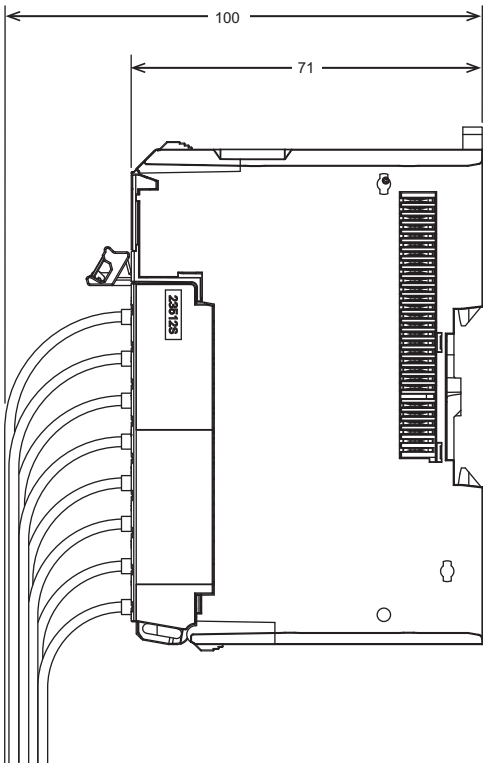
(Unit: mm)

Additional NX Unit Power Supply Unit, Additional I/O Power Supply Unit, I/O Power Supply Connection Unit, and Shield Connection Unit  
NX-PD1000/NX-PF0□30/NX-PC00□0/NX-TBX01

● Unit Only



● With Cables Connected



Related Manuals

| Man. No | Model                                              | Manual                                 | Application                                    | Description                                                                |
|---------|----------------------------------------------------|----------------------------------------|------------------------------------------------|----------------------------------------------------------------------------|
| W523    | NX-PD1 □□□<br>NX-PF0 □□□<br>NX-PC0 □□□<br>NX-TBX01 | NX-series System Unit<br>User's Manual | Learning how to use NX-<br>series System Units | The hardware and functions of the NX-series<br>System Units are described. |

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