

# NX-series Digital Input Unit

## NX-ID/IA

CSM\_NX-ID\_IA\_DS\_E\_5\_3

### A Wide Range of Digital Input Units from General Purpose use to High-Speed Synchronous Control

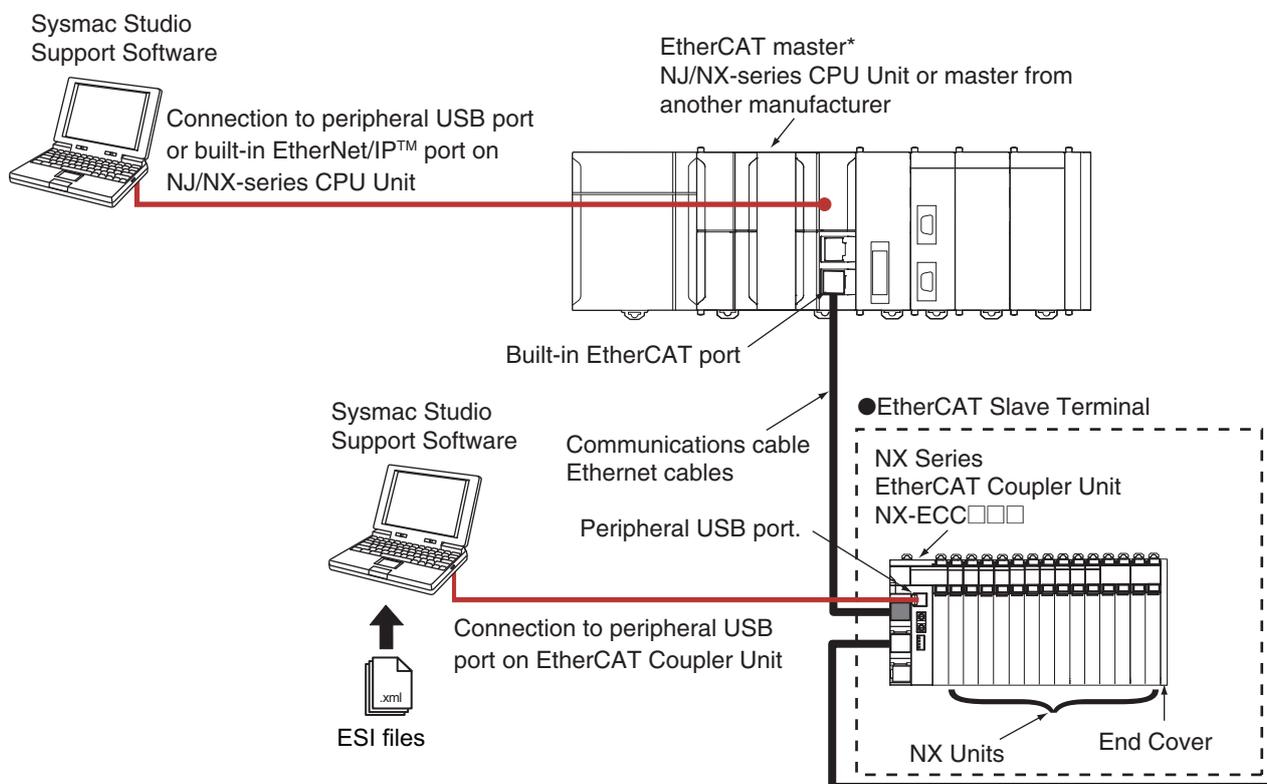
- Digital Input Units for the NX-series modular I/O system.
- Connect to other NX-series I/O Units and EtherCAT Coupler units using the high-speed NX-bus.
- Synchronous Units update the status of input devices to the controller every EtherCAT cycle.



### Features

- High-speed I/O refreshing is possible by connecting with the NX-series EtherCAT Coupler.
- I/O refreshing can be synchronized with the control cycle of the Controller. (Synchronous refreshing)
- ON/OFF response time of the high-speed model is 100 ns max, which enables high-speed, high-precision control.
- The screwless terminal block is detachable for easy commissioning and maintenance.
- Screwless clamp terminal block and Connector types (Units with MIL/Fujitsu Connectors) are significantly reduces wiring work.
- Up to 16 digital inputs in a space-saving 12 mm width. (Connector Types 30 mm width)
- The lineup includes 4-point, 8-point, 16-point, and 32-point types with 3-wire, 2-wire and 1-wire connection methods.
- With input refreshing with input changed time, the Input Unit records the time when the input is changed and the changed time with the input value is read into the Controller.
- Using with the Unit that supports output refreshing with specified time stamp enables high-precision I/O control independent of the control cycle of the Controller.

### System Configuration



\* Refer to *Versions information* on the unit versions of CPU Units when you connect an EtherCAT Slave Terminal to the built-in EtherCAT port on an OMRON NJ/NX-series CPU Unit. OMRON CJ1W-NC□81/□82 Position Control Units cannot be connected to the EtherCAT Slave Terminal even though they support EtherCAT.

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## Ordering Information

### International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations), C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, CE: EC Directives, and KC: KC Registration.
- Contact your OMRON representative for further details and applicable conditions for these standards.

### Digital Input Unit (Screwless Clamping Terminal Block, 12 mm Width)

Unit type	Product Name	Specification					Model	Standards
		Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital Input Units		4 points	NPN	12 to 24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./400 μs max.	NX-ID3317	UC1, N, L, CE, KC
				24 VDC		100 ns max./100 ns max.		
			PNP	12 to 24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./400 μs max.		
				24 VDC		100 ns max./100 ns max.		
		8 points	NPN	24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./400 μs max.	NX-ID4342	
			PNP			NX-ID4442		
			NPN			NX-ID5342		
		16 points	PNP	24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./400 μs max.	NX-ID5442	

\* To use input refreshing with input changed time, NJ CPU Unit with unit version 1.06 or later, EtherCAT Coupler Unit with unit version 1.1 or later, and Sysmac Studio version 1.07 or higher are required.

### DC Input Units (M3 Screw Terminal Block, 30 mm Width)

Unit type	Product Name	Specification					Model	Standards
		Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital Input Units		16 points	For both NPN/PNP	24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./400 μs max.	NX-ID5142-1 <b>NEW</b>	UC1, CE, KC

### DC Input Units (MIL Connector, 30 mm Width)

Unit type	Product Name	Specification					Model	Standards
		Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital Input Units		16 points	For both NPN/PNP	24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./400 μs max.	NX-ID5142-5	UC1, CE, KC
		32 points					NX-ID6142-5	

### DC Input Units (Fujitsu Connector, 30 mm Width)

Unit type	Product Name	Specification					Model	Standards
		Number of points	Internal I/O common	Rated input voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital Input Units	DC Input Units 	32 points	For both NPN/PNP	24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	20 μs max./ 400 μs max.	NX-ID6142-6 <b>NEW</b>	UC1, CE, KC

### AC Input Unit (Screwless Clamping Terminal Block, 12 mm Width)

Unit type	Product Name	Specification				Model	Standards
		Number of points	Rated input voltage	I/O refreshing method	ON/OFF response time		
NX Series Digital Input Units	AC Input Units 	4 points	200 to 240 VAC, 50/60 Hz (170 to 264 VAC, ±3 Hz)	Free-Run refreshing	10 ms max./40 ms max.	NX-IA3317	UC1, N, CE, KC

### Option

Product Name	Specification	Model	Standards
Unit/Terminal Block Coding Pins	For 10 Units (Terminal Block: 30 pins, Unit: 30 pins)	NX-AUX02	---

Product Name	Specification				Model	Standards
	No. of terminals	Terminal number indications	Ground terminal mark	Terminal current capacity		
Terminal Block	8	A/B	None	10 A	NX-TBA082	---
	12				NX-TBA122	
	16				NX-TBA162	

### Accessories

Not included.

## General Specification

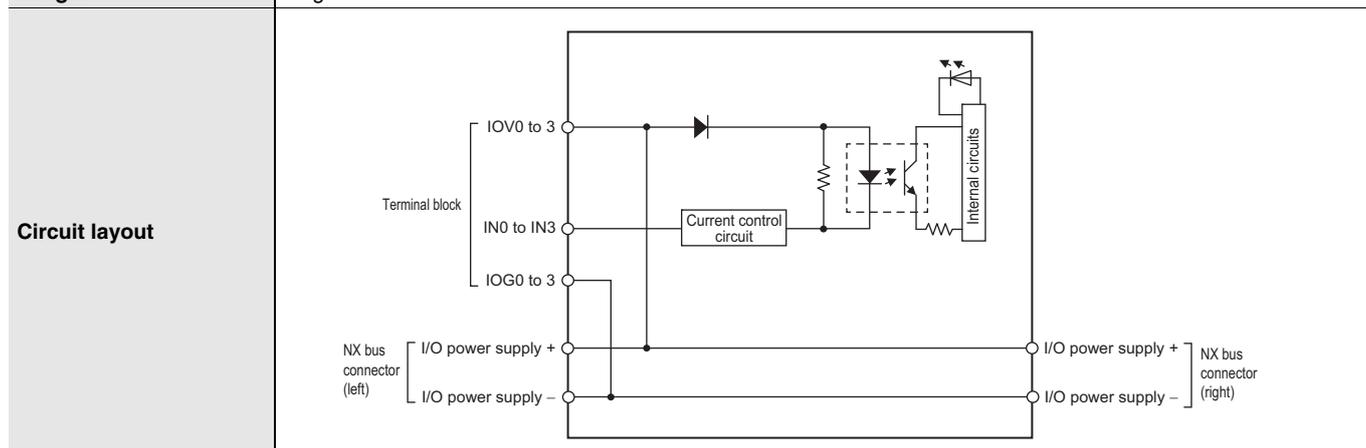
Item		Specification
<b>Enclosure</b>		Mounted in a panel
<b>Grounding method</b>		Ground to 100 $\Omega$ or less
<b>Operating environment</b>	<b>Ambient operating temperature</b>	0 to 55°C
	<b>Ambient operating humidity</b>	10% to 95% (with no condensation or icing)
	<b>Atmosphere</b>	Must be free from corrosive gases.
	<b>Ambient storage temperature</b>	-25 to 70°C (with no condensation or icing)
	<b>Altitude</b>	2,000 m max.
	<b>Pollution degree</b>	2 or less: Conforms to JIS B3502 and IEC 61131-2.
	<b>Noise immunity</b>	2 kV on power supply line (Conforms to IEC61000-4-4.)
	<b>Overvoltage category</b>	Category II: Conforms to JIS B3502 and IEC 61131-2.
	<b>EMC immunity level</b>	Zone B
	<b>Vibration resistance</b>	Conforms to IEC 60068-2-6. 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 (10 sweeps of 10 min each = 100 min total)
<b>Shock resistance</b>	Conforms to IEC 60068-2-27. 147 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions	
<b>Applicable standards *</b>		cULus: Listed UL508 and ANSI/ISA 12.12.01 EC: EN 61131-2 and C-Tick, KC: KC Registration, NK, LR

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

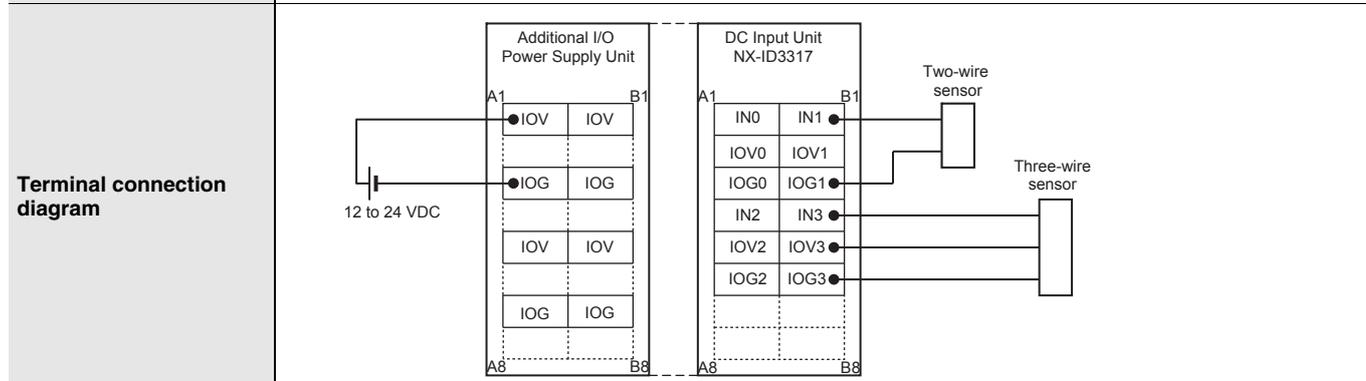
# Digital Input Unit Specifications

## ● DC Input Unit (Screwless Clamping Terminal Block 12 mm, Width) NX-ID3317

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID3317
<b>Capacity</b>	4 points	<b>External connection terminals</b>	Screwless clamping terminal block (12 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	NPN
		<b>Rated input voltage</b>	12 to 24 VDC (9 to 28.8 VDC)
		<b>Input current</b>	6 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	9 VDC min./3 mA min. (between IOV and each signal)
		<b>OFF voltage/OFF current</b>	2 VDC max./1 mA max. (between IOV and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	Without filter, 0.25 ms, 0.5 ms, 1 ms (factory setting), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.50 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	65 g max.		



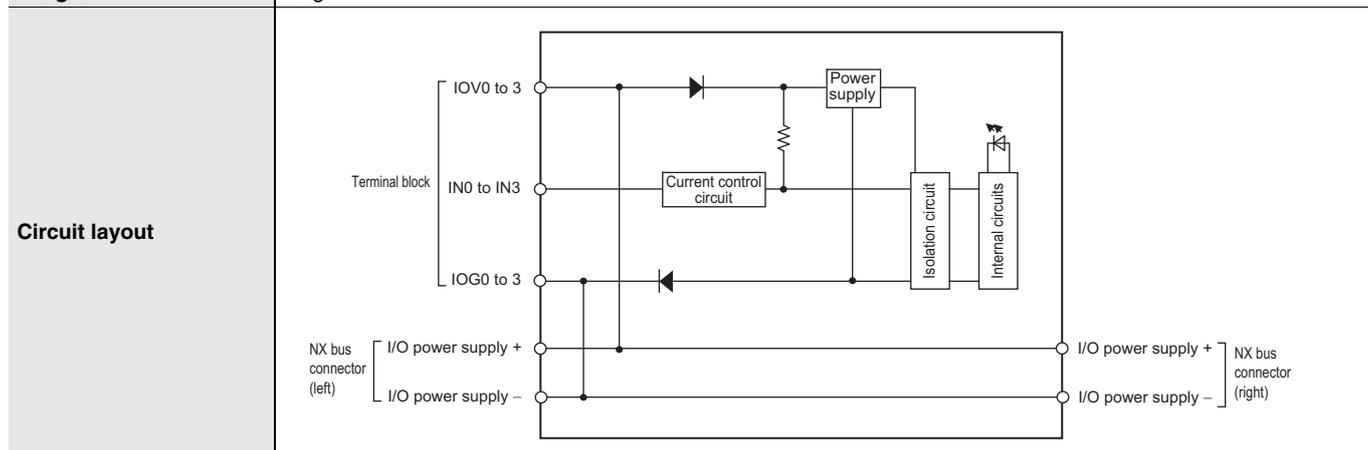
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



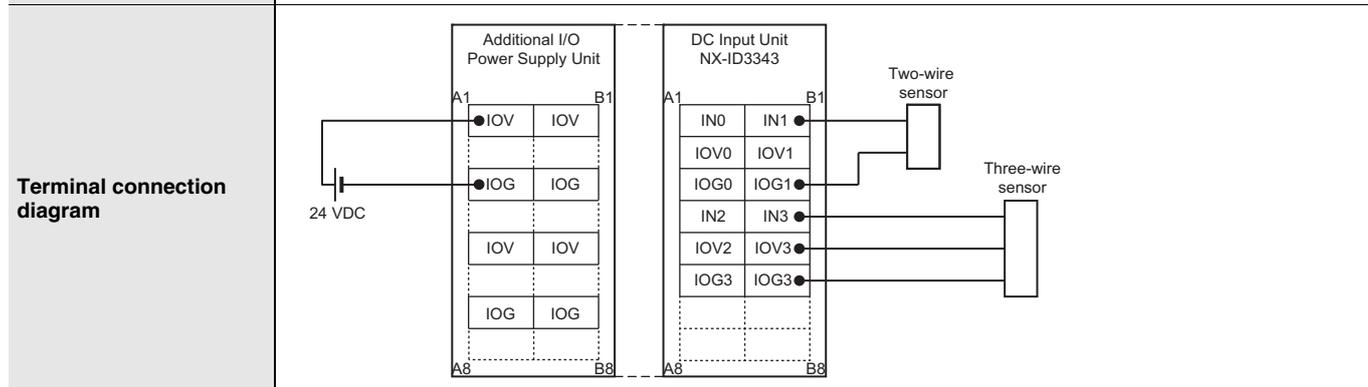
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID3343

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID3343
<b>Capacity</b>	4 points	<b>External connection terminals</b>	Screwless clamping terminal block (12 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	NPN
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	3.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between IOV and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between IOV and each signal)
		<b>ON/OFF response time</b>	100 ns max./100 ns max.
		<b>Input filter time</b>	Without filter, 1 μs, 2 μs, 4 μs, 8 μs (factory setting), 16 μs, 32 μs, 64 μs, 128 μs, 256 μs
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Digital isolator 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	30 mA max.
<b>Weight</b>	65 g max.		



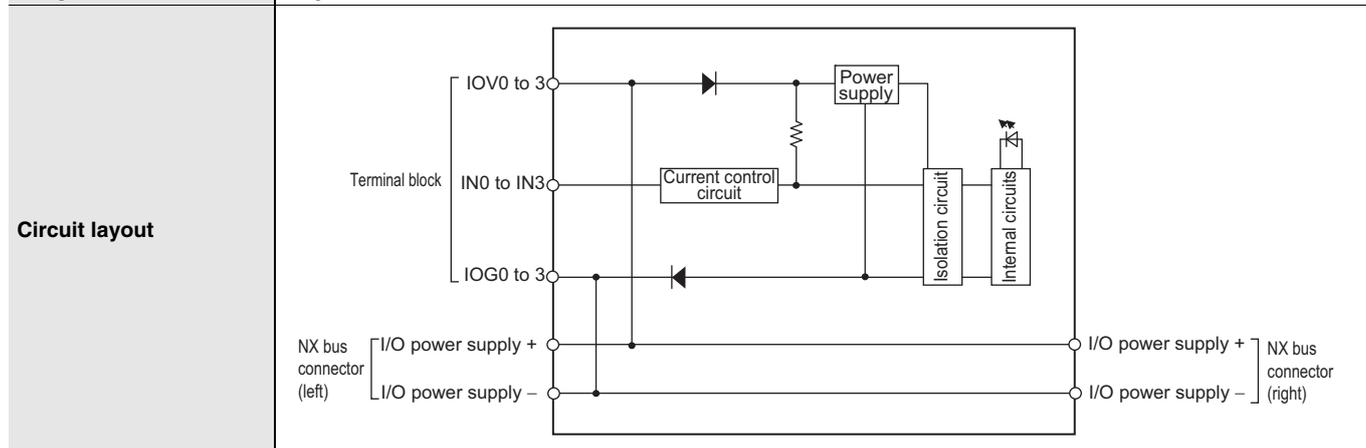
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



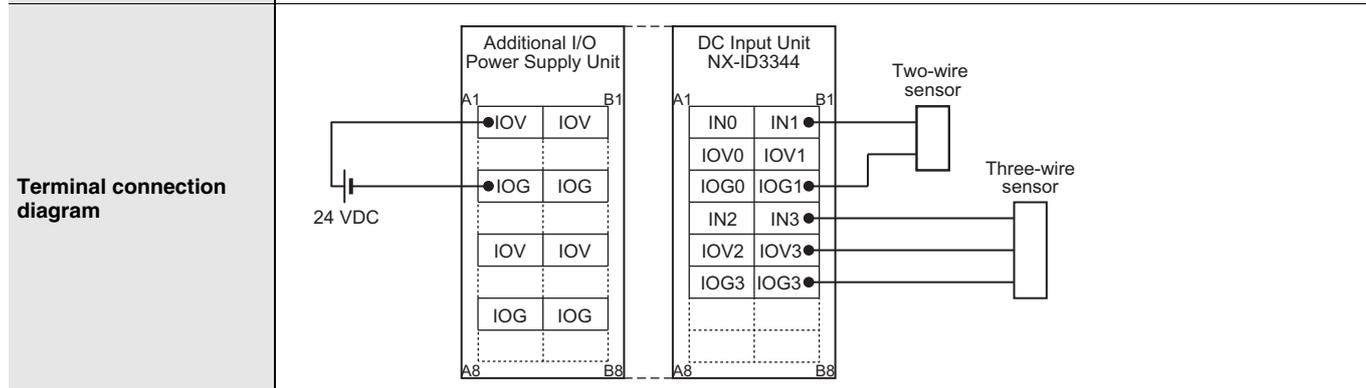
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID3344

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID3344
<b>Capacity</b>	4 points	<b>External connection terminals</b>	Screwless clamping terminal block (12 terminals)
<b>I/O refreshing method</b>	Input refreshing with input changed time		
<b>Indicators</b>		<b>Internal I/O common</b>	NPN
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	3.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between IOV and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between IOV and each signal)
		<b>ON/OFF response time</b>	100 ns max./100 ns max.
<b>Input filter time</b>	No filter		
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Digital isolator 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	30 mA max.
<b>Weight</b>	65 g max.		



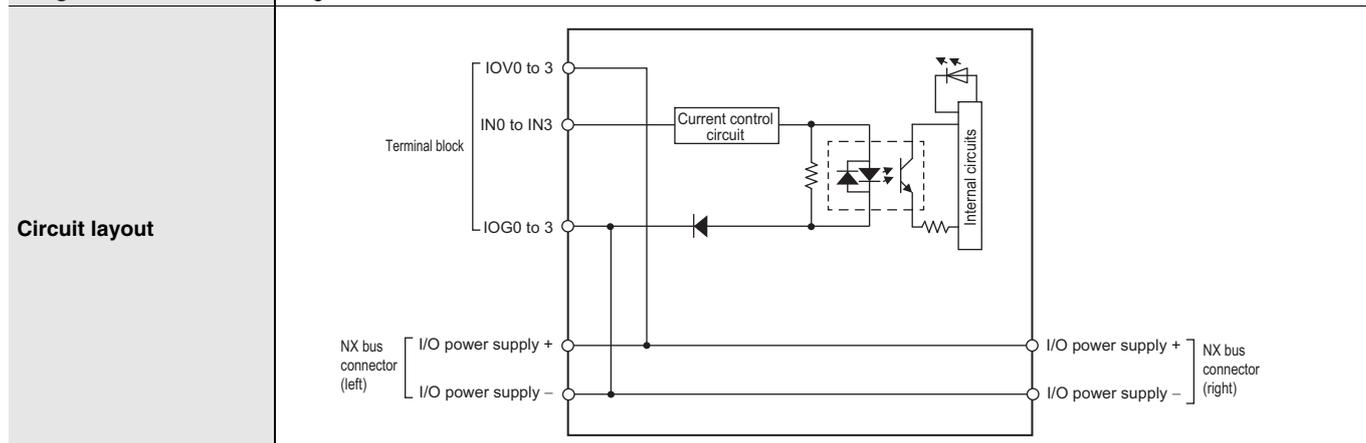
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



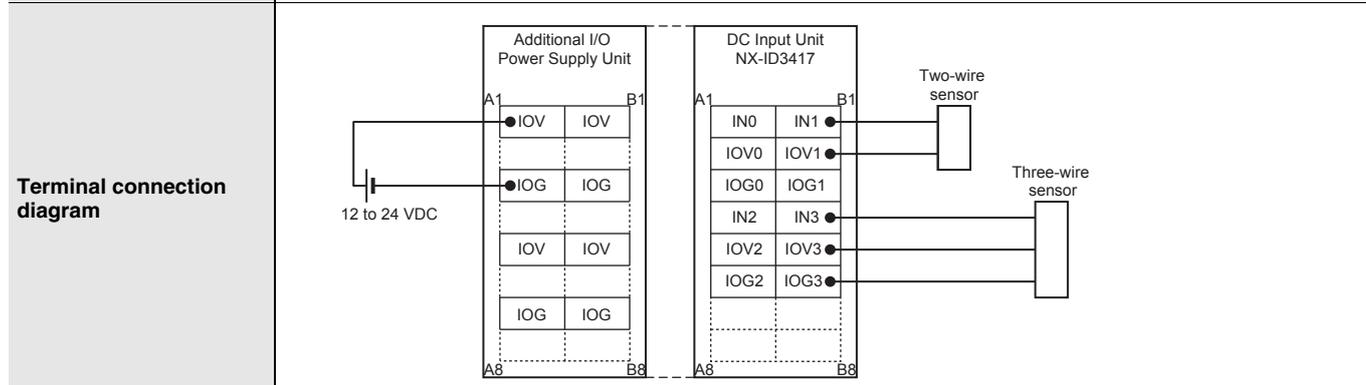
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID3417

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID3417
<b>Capacity</b>	4 points	<b>External connection terminals</b>	Screwless clamping terminal block (12 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>		<b>Internal I/O common</b>	PNP
		<b>Rated input voltage</b>	12 to 24 VDC (9 to 28.8 VDC)
		<b>Input current</b>	6 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	9 VDC min./3 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	2 VDC max./1 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	Without filter, 0.25 ms, 0.5 ms, 1 ms (factory setting), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.50 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	65 g max.		

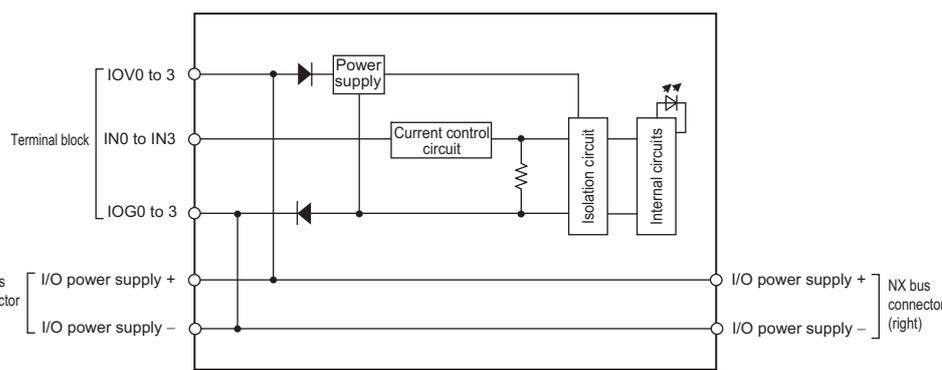
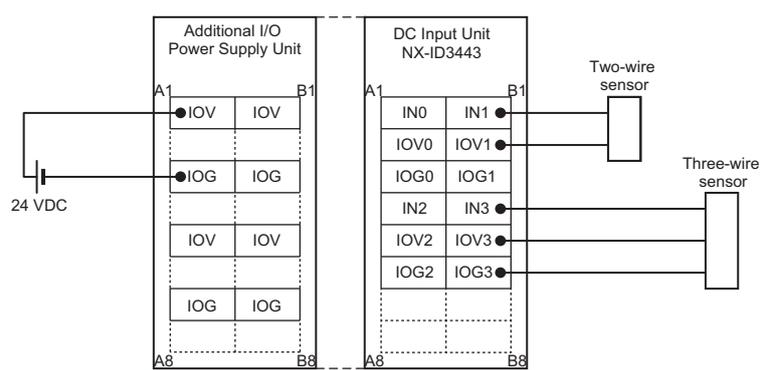


<b>Installation orientation and restrictions</b>	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions
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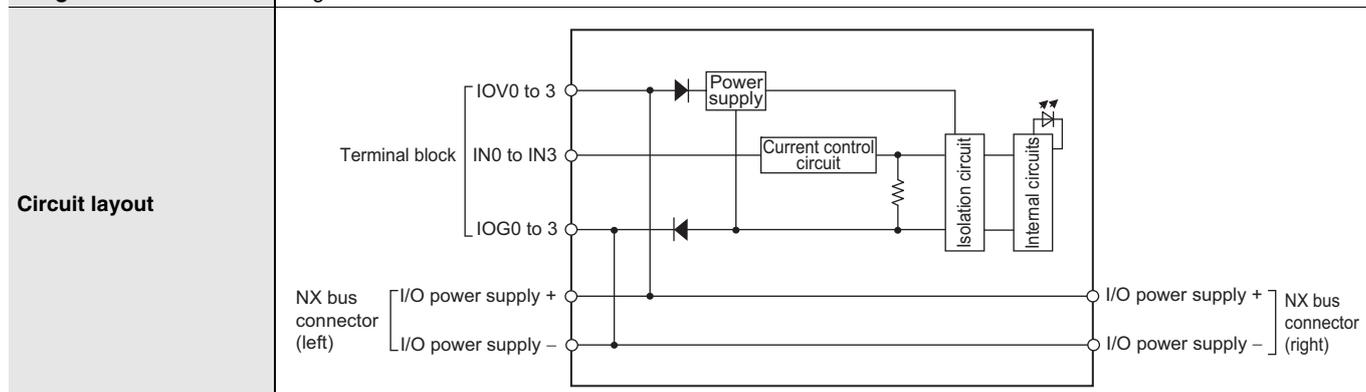
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID3443

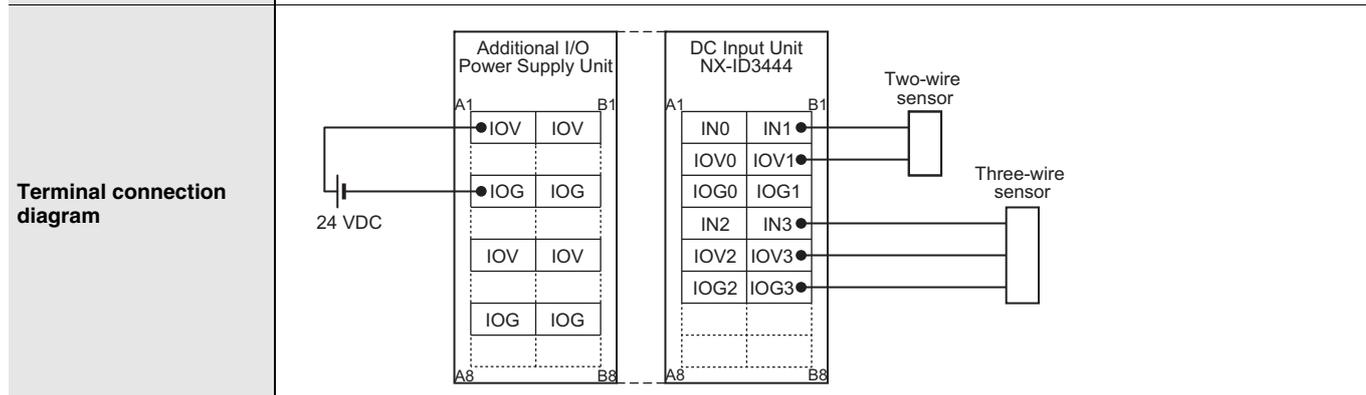
<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID3443
<b>Capacity</b>	4 points	<b>External connection terminals</b>	Screwless clamping terminal block (12 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	PNP
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	3.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	100 ns max./100 ns max.
		<b>Input filter time</b>	Without filter, 1 μs, 2 μs, 4 μs, 8 μs (factory setting), 16 μs, 32 μs, 64 μs, 128 μs, 256 μs
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Digital isolator 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	30 mA max.
<b>Weight</b>	65 g max.		
<b>Circuit layout</b>			
<b>Installation orientation and restrictions</b>	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
<b>Terminal connection diagram</b>			
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.

## NX-ID3444

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID3444
<b>Capacity</b>	4 points	<b>External connection terminals</b>	Screwless clamping terminal block (12 terminals)
<b>I/O refreshing method</b>	Input refreshing with input changed time		
<b>Indicators</b>	TS indicator, input indicators 	<b>Internal I/O common</b>	PNP
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	3.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	100 ns max./100 ns max.
<b>Input filter time</b>	No filter		
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Digital isolator 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	30 mA max.
<b>Weight</b>	65 g max.		

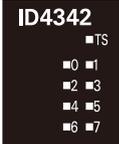


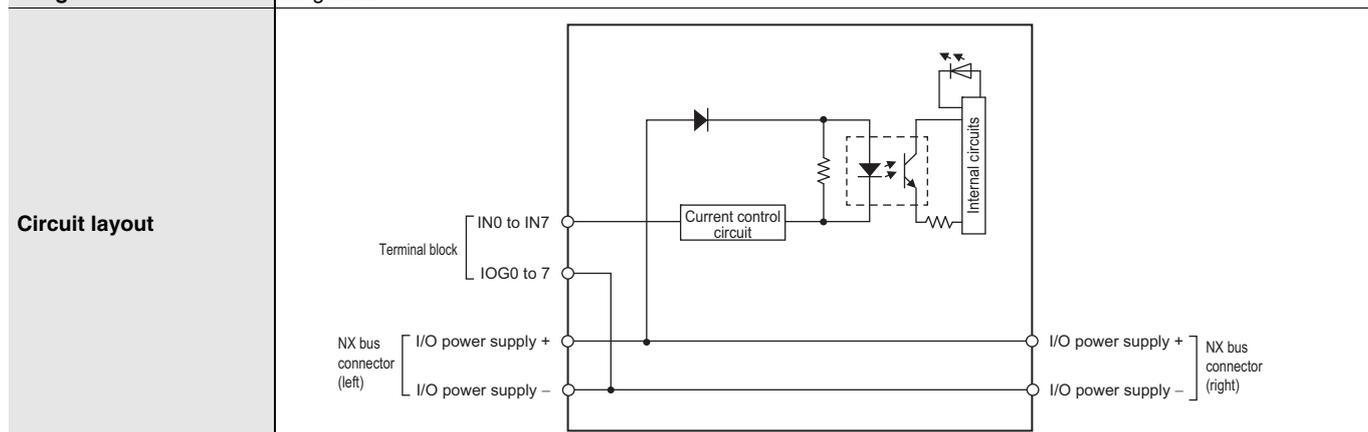
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



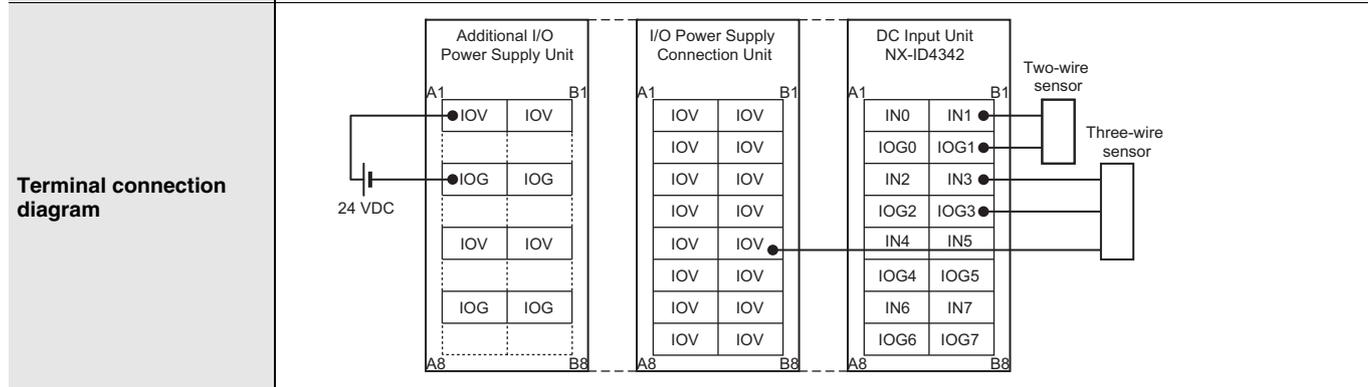
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID4342

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID4342
<b>Capacity</b>	8 points	<b>External connection terminals</b>	Screwless clamping terminal block (16 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	NPN
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	3.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	Without filter, 0.25 ms, 0.5 ms, 1 ms (factory setting), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOG: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.50 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	65 g max.		

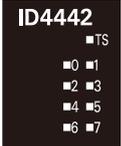


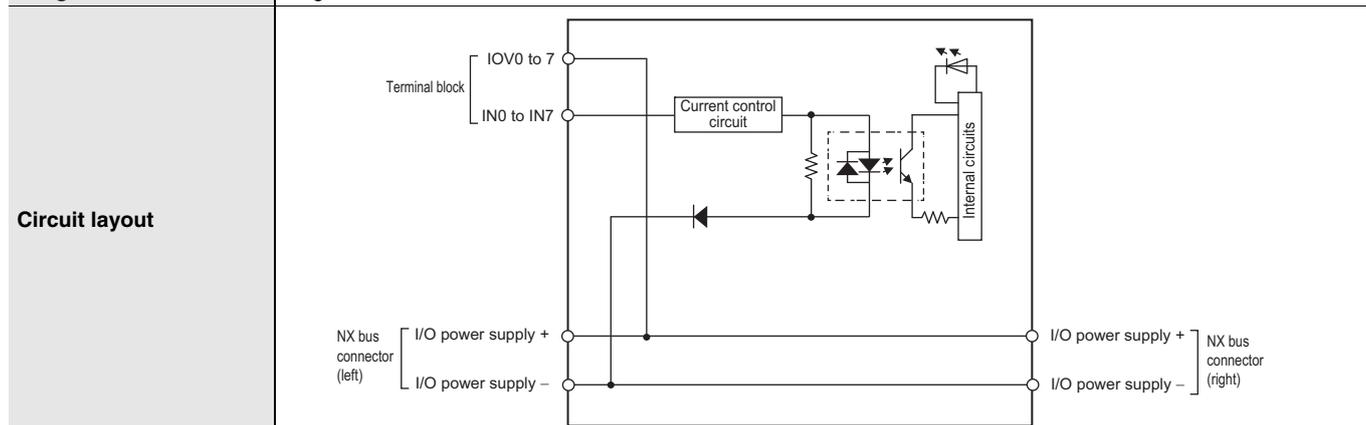
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



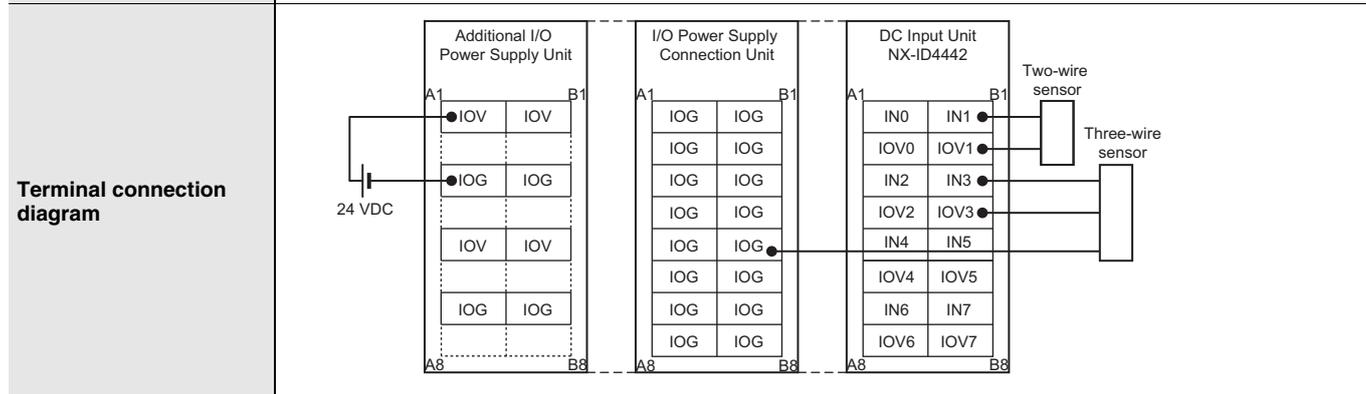
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID4442

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID4442
<b>Capacity</b>	8 points	<b>External connection terminals</b>	Screwless clamping terminal block (16 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	PNP
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	3.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	Without filter, 0.25 ms, 0.5 ms, 1 ms (factory setting), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	IOV: 0.1 A/terminal max.
<b>NX Unit power consumption</b>	0.50 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	65 g max.		

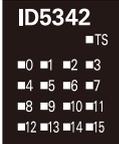


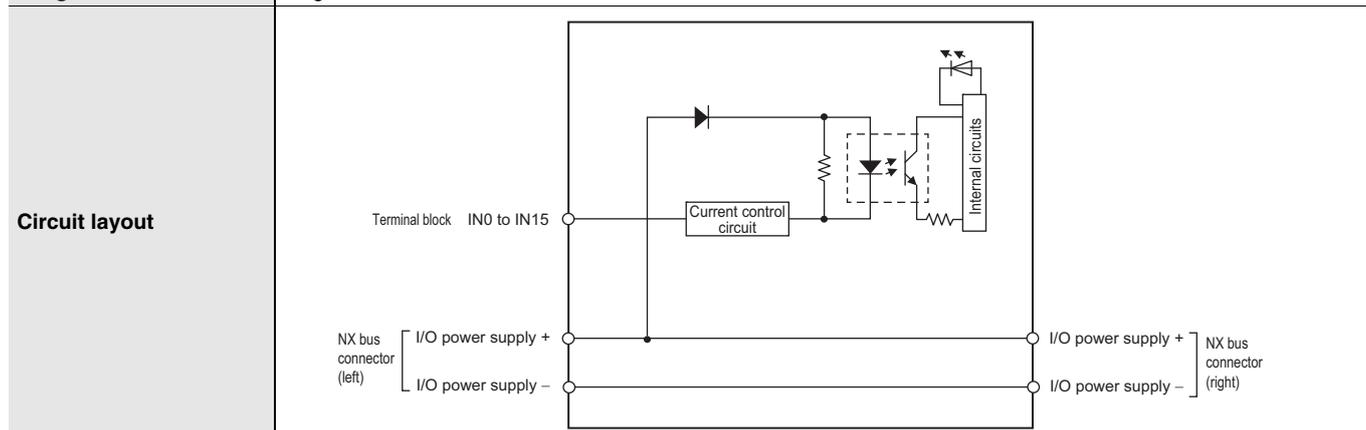
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



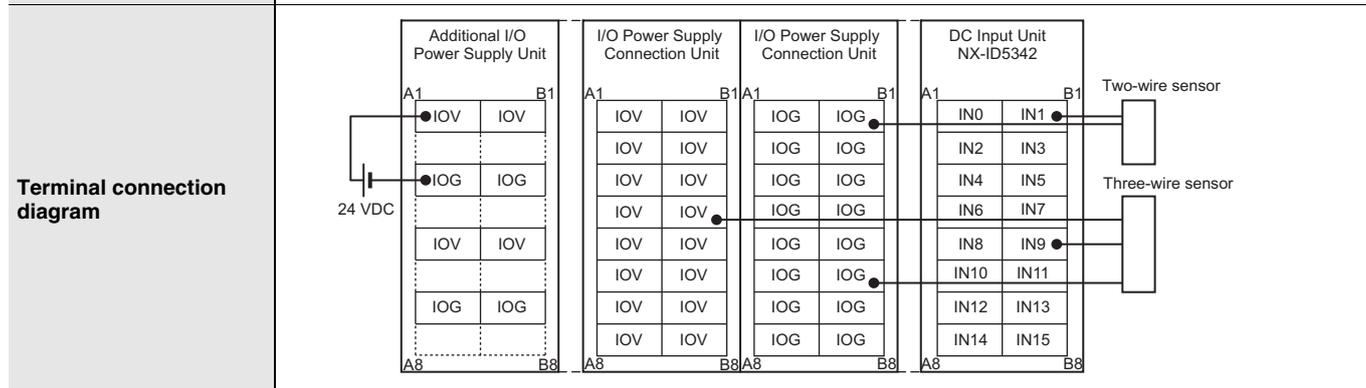
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID5342

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID5342
<b>Capacity</b>	16 points	<b>External connection terminals</b>	Screwless clamping terminal block (16 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	NPN
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	2.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./2 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./0.5 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	Without filter, 0.25 ms, 0.5 ms, 1 ms (factory setting), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	65 g max.		

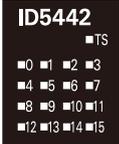


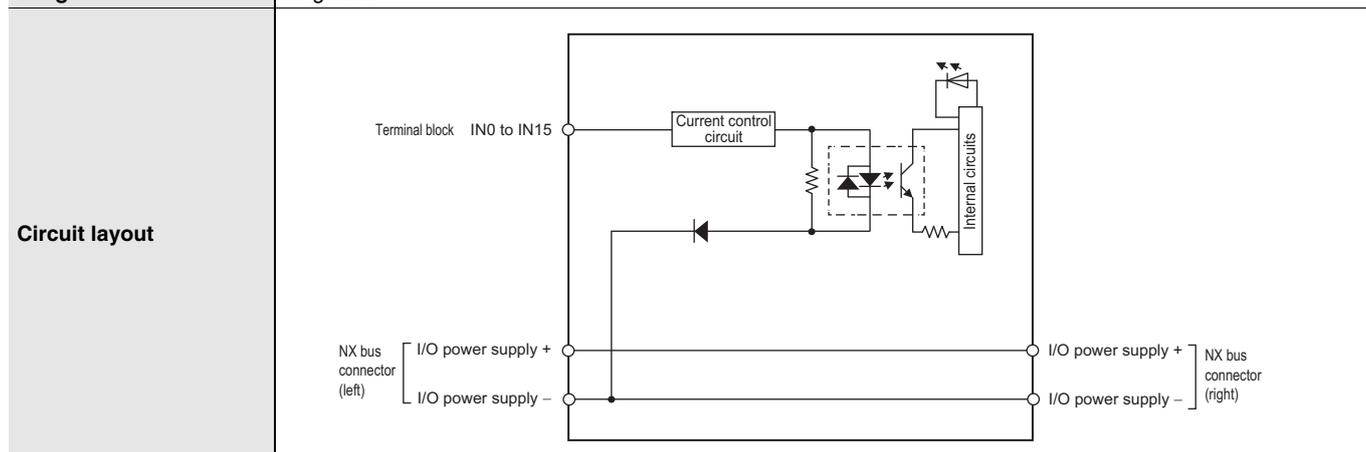
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



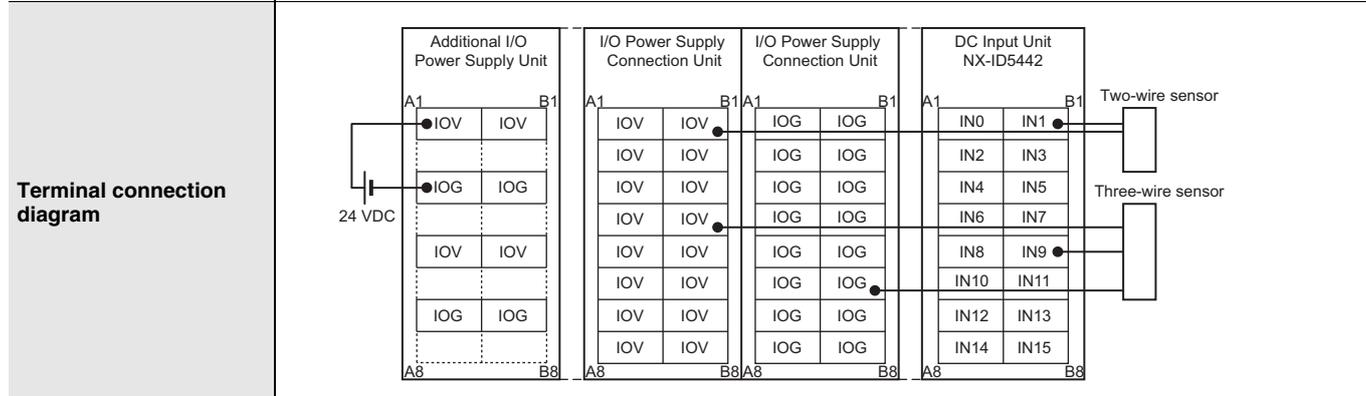
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## NX-ID5442

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID5442
<b>Capacity</b>	16 points	<b>External connection terminals</b>	Screwless clamping terminal block (16 terminals)
<b>I/O refreshing method</b>	Selectable Synchronous I/O refreshing or Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicator 	<b>Internal I/O common</b>	PNP
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	2.5 mA typical (at 24 VDC), rated current
		<b>ON voltage/ON current</b>	15 VDC min./2 mA min. (between IOG and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./0.5 mA max. (between IOG and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	Without filter, 0.25 ms, 0.5 ms, 1 ms (factory setting), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from the NX bus	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	65 g max.		



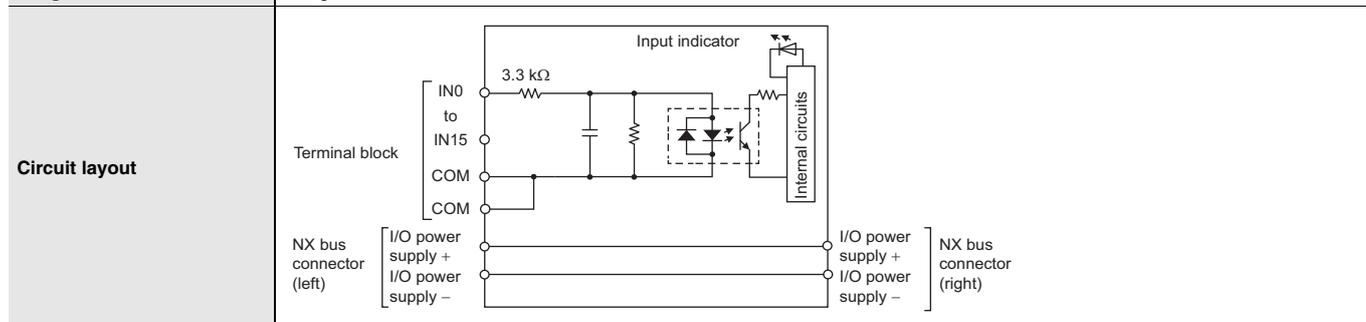
**Installation orientation and restrictions**  
 Installation orientation: Possible in 6 orientations.  
 Restrictions: No restrictions



<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.
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## ● DC Input Units (M3 Screw Terminal Block, 30 mm Width) NX-ID5142-1

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID5142-1
<b>Number of points</b>	16 points	<b>External connection terminals</b>	M3 screw terminal block (18 terminals)
<b>I/O refreshing method</b>	Switching Synchronous I/O refreshing and Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicators	<b>Internal I/O common</b>	For both NPN/PNP
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	7 mA typical (at 24 VDC)
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between COM and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between COM and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
<b>Input filter time</b>	No filter, 0.25 ms, 0.5 ms, 1 ms (default), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms		
<b>Dimensions</b>	30 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from external source	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	125 g max.		

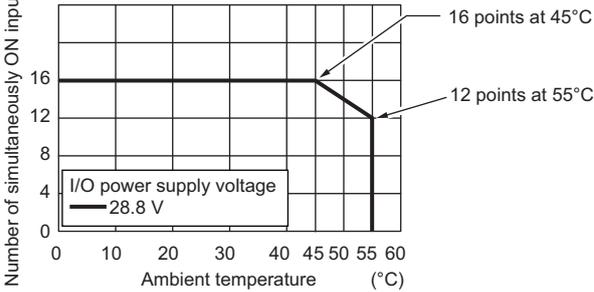


**Installation orientation and restrictions**

Installation orientation: Possible in 6 orientations.  
Restrictions: As shown in the following.

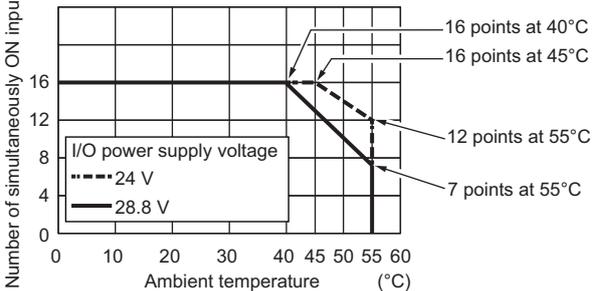
- For upright installation
 

Number of simultaneously ON input points vs. Ambient temperature characteristic

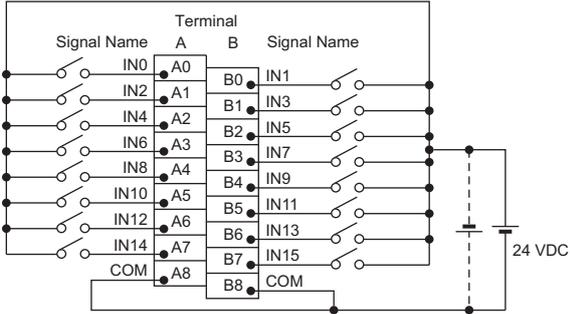


Ambient temperature (°C)	Number of simultaneously ON input points (28.8 V)
0 - 45	16
55	12
- For any installation other than upright
 

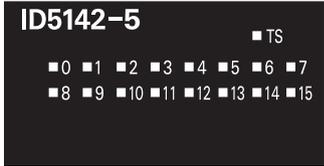
Number of simultaneously ON input points vs. Ambient temperature characteristic

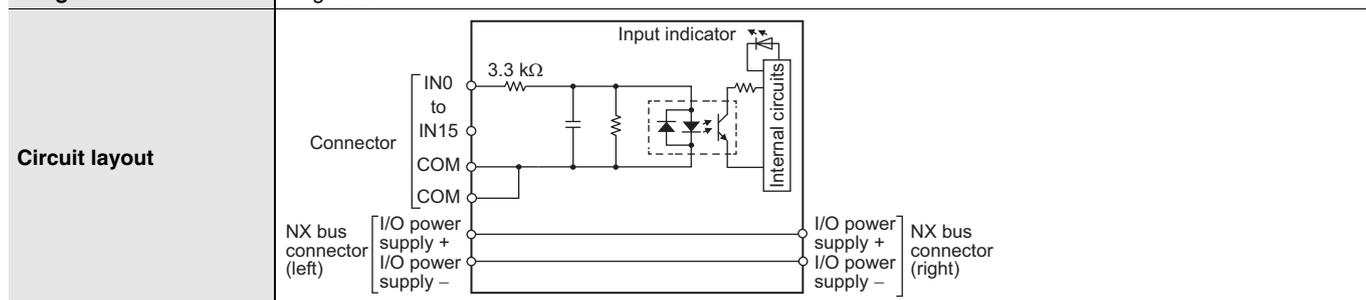


Ambient temperature (°C)	Number of simultaneously ON input points (24 V)	Number of simultaneously ON input points (28.8 V)
0 - 40	16	16
45	16	16
55	12	7

<p><b>Terminal connection diagram</b></p>	 <p>• The polarity of the input power supply can be connected in either direction.</p>	
<p><b>Disconnection/Short-circuit detection</b></p>	<p>Not supported.</p>	<p><b>Protective function</b></p> <p>Not supported.</p>

● DC Input Units (MIL Connector, 30 mm Width)  
**NX-ID5142-5**

<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID5142-5
<b>Number of points</b>	16 points	<b>External connection terminals</b>	MIL connector (20 terminals)
<b>I/O refreshing method</b>	Switching Synchronous I/O refreshing and Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicators 	<b>Internal I/O common</b>	For both NPN/PNP
		<b>Rated input voltage</b>	24 VDC (15 to 28.8 VDC)
		<b>Input current</b>	7 mA typical (at 24 VDC)
		<b>ON voltage/ON current</b>	15 VDC min./3 mA min. (between COM and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between COM and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	No filter, 0.25 ms, 0.5 ms, 1 ms (default), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	30 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from external source	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	85 g max.		

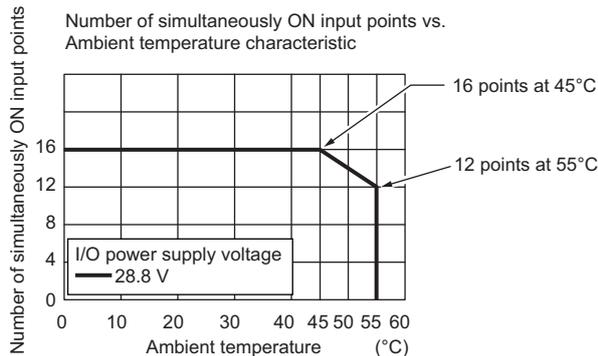


**Installation orientation and restrictions**

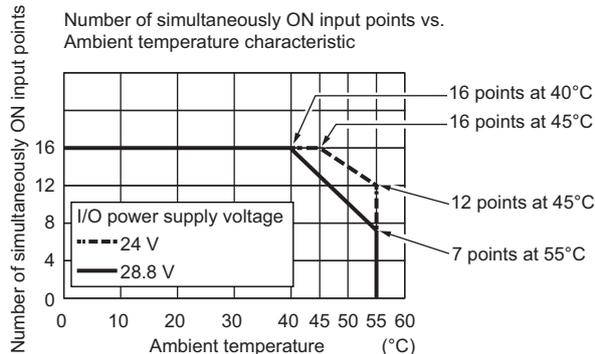
Installation orientation: Possible in 6 orientations.

Restrictions: As shown in the following.

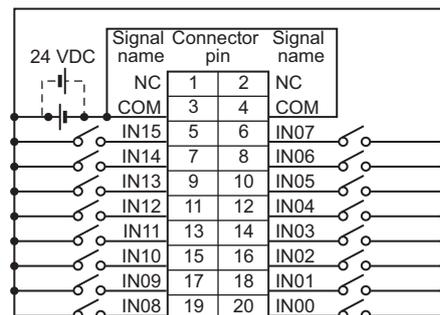
- For upright installation



- For any installation other than upright



**Terminal connection diagram**



- The polarity of the input power supply can be connected in either direction.
- Be sure to wire both pins 3 and 4 (COM), and set the same polarity for both pins.

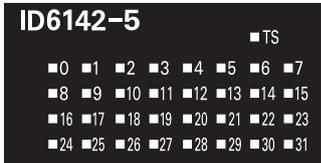
**Disconnection/ Short-circuit detection**

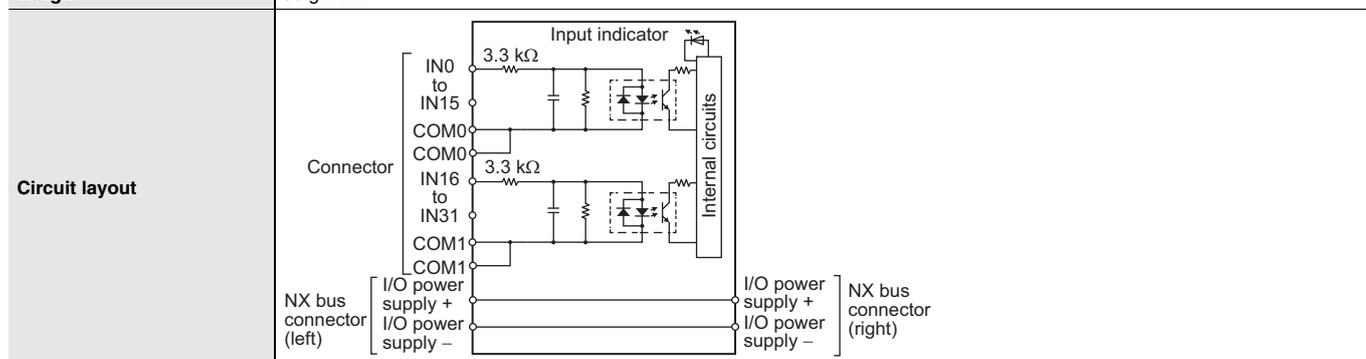
Not supported.

**Protective function**

Not supported.

## NX-ID6142-5

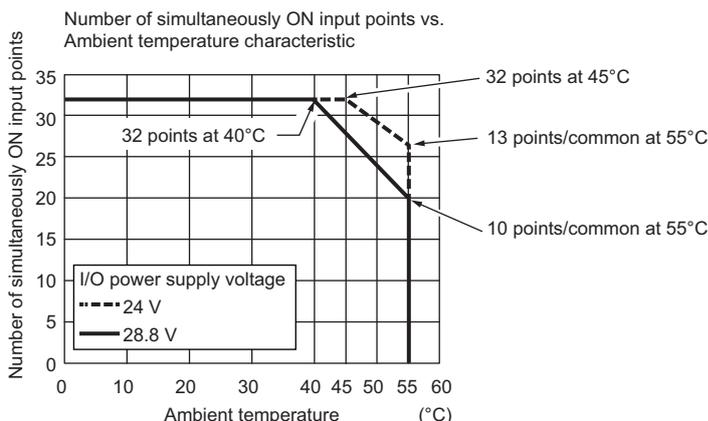
<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID6142-5
<b>Number of points</b>	32 points	<b>External connection terminals</b>	MIL connector (40 terminals)
<b>I/O refreshing method</b>	Switching Synchronous I/O refreshing and Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicators	<b>Internal I/O common</b>	For both NPN/PNP
		<b>Rated input voltage</b>	24 VDC (19 to 28.8 VDC)
		<b>Input current</b>	4.1 mA typical (24 VDC)
		<b>ON voltage/ON current</b>	19 VDC min./3 mA min. (between COM and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between COM and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
		<b>Input filter time</b>	No filter, 0.25 ms, 0.5 ms, 1 ms (default), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	30 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from external source	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.60 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	90 g max.		



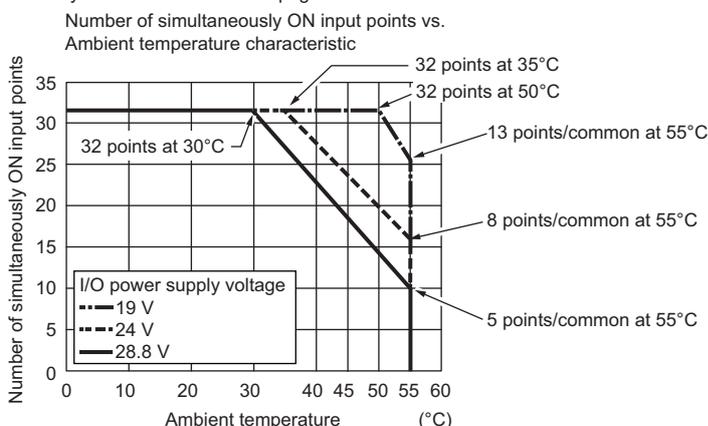
**Installation orientation and restrictions**

Installation orientation: Possible in 6 orientations.  
Restrictions: As shown in the following.

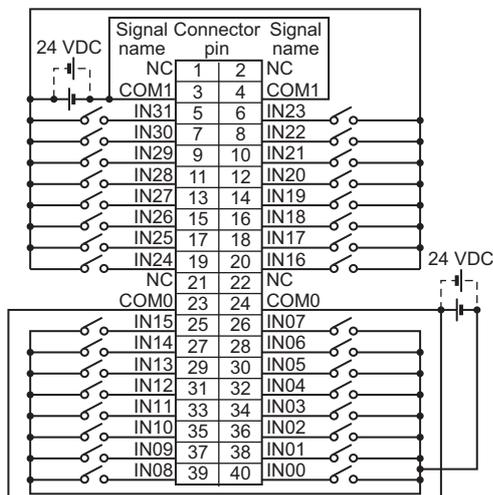
- For upright installation



- For any installation other than upright



**Terminal connection diagram**



- The polarity of the input power supply can be connected in either direction.
- Be sure to wire both pins 23 and 24 (COM0), and set the same polarity for both pins.
- Be sure to wire both pins 3 and 4 (COM1), and set the same polarity for both pins.

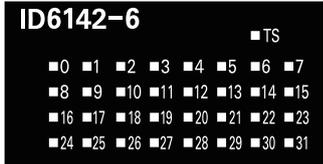
**Disconnection/Short-circuit detection**

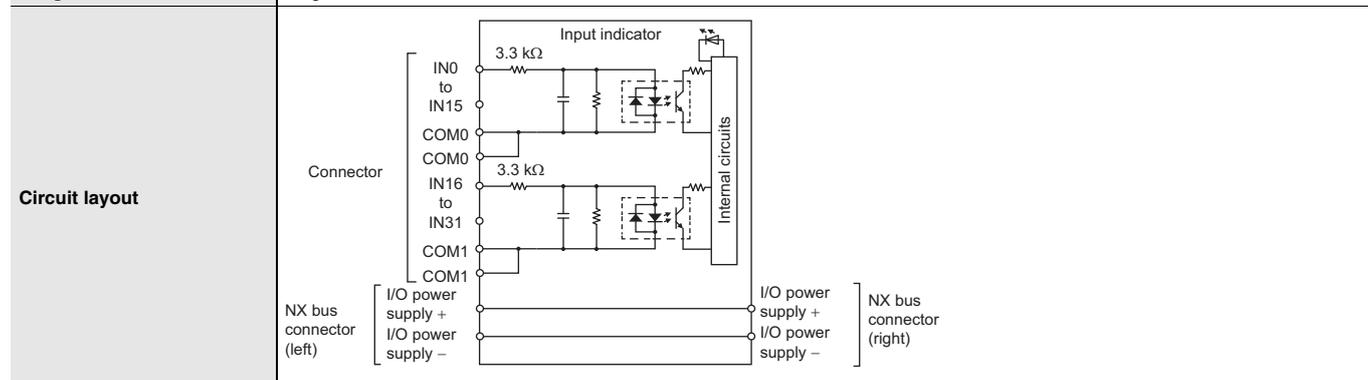
Not supported.

**Protective function**

Not supported.

## ● DC Input Units (Fujitsu Connector, 30 mm Width) NX-ID6142-6

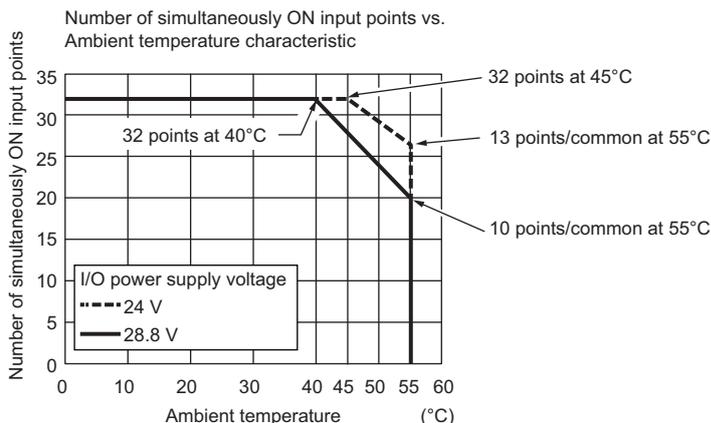
<b>Unit name</b>	DC Input Unit	<b>Model</b>	NX-ID6142-6
<b>Number of points</b>	32 points	<b>External connection terminals</b>	Fujitsu connector (40 terminals)
<b>I/O refreshing method</b>	Switching Synchronous I/O refreshing and Free-Run refreshing		
<b>Indicators</b>	TS indicator, input indicators	<b>Internal I/O common</b>	For both NPN/PNP
		<b>Rated input voltage</b>	24 VDC (19 to 28.8 VDC)
		<b>Input current</b>	4.1 mA typical (24 VDC)
		<b>ON voltage/ON current</b>	19 VDC min./3 mA min. (between COM and each signal)
		<b>OFF voltage/OFF current</b>	5 VDC max./1 mA max. (between COM and each signal)
		<b>ON/OFF response time</b>	20 μs max./400 μs max.
<b>Input filter time</b>	No filter, 0.25 ms, 0.5 ms, 1 ms (default), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms		
<b>Dimensions</b>	30 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler 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>I/O power supply method</b>	Supply from external source	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.55 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	90 g max.		



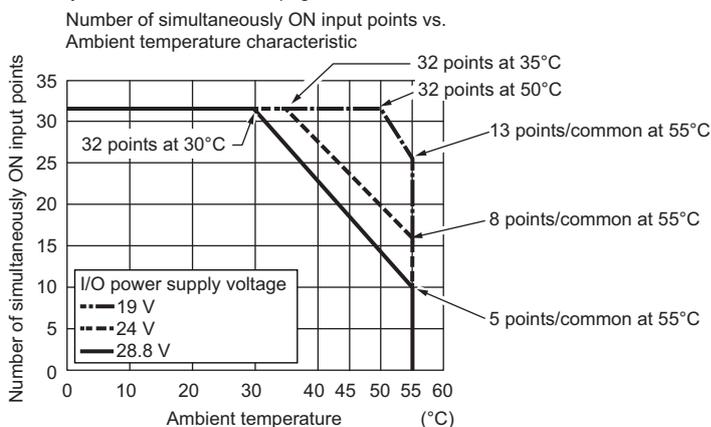
**Installation orientation and restrictions**

Installation orientation: Possible in 6 orientations.  
Restrictions: As shown in the following.

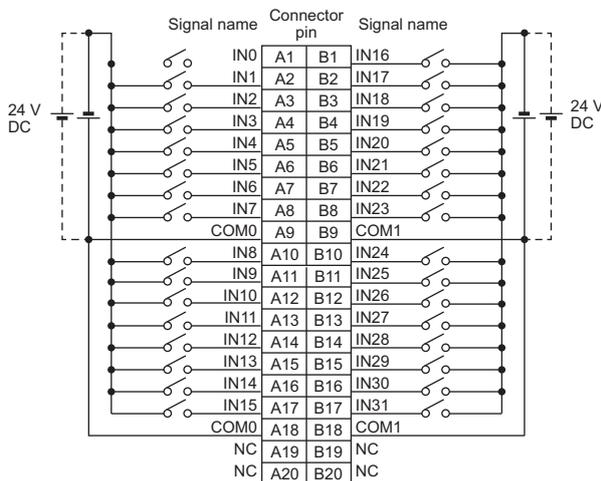
- For upright installation



- For any installation other than upright



**Terminal connection diagram**



- The polarity of the input power supply can be connected in either direction.
- Be sure to wire both pins A9 and A18 (COM0), and set the same polarity for both pins.
- Be sure to wire both pins B9 and B18 (COM1), and set the same polarity for both pins.

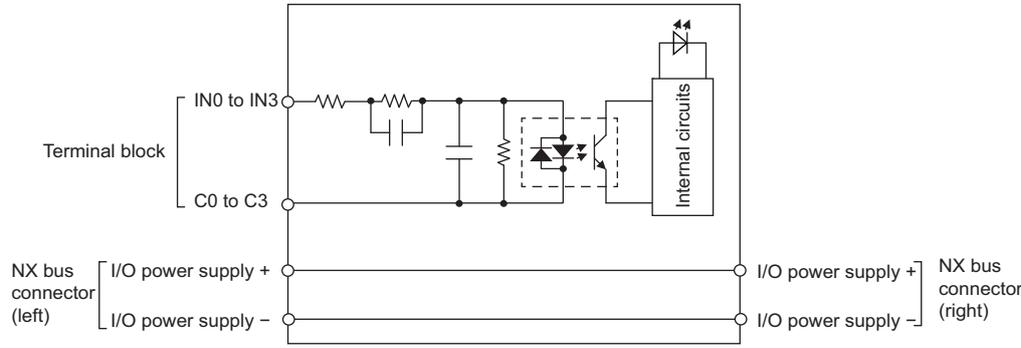
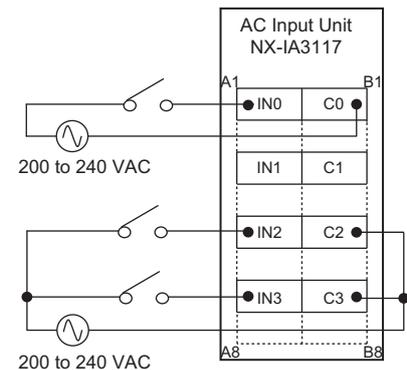
**Disconnection/Short-circuit detection**

Not supported.

**Protective function**

Not supported.

● AC Input Units (Screwless Clamping Terminal Block, 12 mm Width)  
**NX-IA3117**

<b>Unit name</b>	AC Input Unit	<b>Model</b>	NX-IA3117
<b>Number of points</b>	4 points, independent contacts	<b>External connection terminals</b>	Screwless clamping terminal block (8 terminals)
<b>Capacity</b>	Free-Run refreshing		
<b>Indicators</b>	<p>TS indicator, input indicator</p> 	<b>Internal I/O common</b>	No polarity
		<b>Rated input voltage</b>	200 to 240 VAC, 50/60 Hz (170 to 264 VAC, ±3 Hz)
		<b>Input current</b>	9 mA typical (at 200 VAC, 50 Hz) 11 mA typical (at 200 VAC, 60 Hz)
		<b>ON voltage/ON current</b>	120 VAC min./4 mA min.
		<b>OFF voltage/OFF current</b>	40 VAC max./2 mA max.
		<b>ON/OFF response time</b>	10 ms max./40 ms max.
		<b>Input filter time</b>	No filter, 0.25 ms, 0.5 ms, 1 ms (default), 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms
<b>Dimensions</b>	12 (W) x 100 (H) x 71 (D)	<b>Isolation method</b>	Photocoupler isolation
<b>Insulation resistance</b>	Between each AC input circuit: 20 MΩ min. (at 500 VDC) Between the external terminals and the functional ground terminal: 20 MΩ min. (at 500 VDC) Between the external terminals and internal circuits: 20 MΩ min. (at 500 VDC) Between the internal circuit and the functional ground terminal: 20 MΩ min. (at 100 VDC)	<b>Dielectric strength</b>	Between each AC input circuit: AC3700V VAC for 1 min at a leakage current of 5 mA max. Between the external terminals and functional ground terminal: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the external terminals and internal circuits: 2300 VAC for 1 min at a leakage current of 5 mA max. Between the internal circuit and the functional ground terminal: 510 VAC for 1 min at a leakage current of 5 mA max.
<b>I/O power supply method</b>	Supplied from external source.	<b>Current capacity of I/O power supply terminal</b>	Without I/O power supply terminals
<b>NX Unit power consumption</b>	0.5 W max.	<b>Current consumption from I/O power supply</b>	No consumption
<b>Weight</b>	60 g max.		
<b>Circuit layout</b>			
<b>Installation orientation and restrictions</b>	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
<b>Terminal connection diagram</b>			
<b>Disconnection/Short-circuit detection</b>	Not supported.	<b>Protective function</b>	Not supported.

## Version Information

NX Units		Corresponding Unit Versions/Versions *1				
Model	Unit version	EtherCAT			EtherNet/IP	
		Communications Coupler Units NX-ECC20□	NJ/NX series CPU Units	Sysmac Studio	Communications Coupler Units NX-EIC202	Sysmac Studio
NX-ID3317	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.06	Ver.1.0	Ver.1.10
NX-ID3343						
NX-ID3344		Ver.1.1	Ver.1.06 *2	Ver.1.07	---	---
NX-ID3417		Ver.1.0	Ver.1.05	Ver.1.06	Ver.1.0	Ver.1.10
NX-ID3443						
NX-ID3444		Ver.1.1	Ver.1.06 *2	Ver.1.07	---	---
NX-ID4342				Ver.1.06	Ver.1.0	Ver.1.10
NX-ID4442				Ver.1.13		Ver.1.13
NX-ID5142-1				Ver.1.10		Ver.1.10
NX-ID5142-5				Ver.1.06		
NX-ID5342		Ver.1.0	Ver.1.05	Ver.1.06		
NX-ID5442				Ver.1.10		
NX-ID6142-5				Ver.1.13		Ver.1.13
NX-ID6142-6				Ver.1.13		Ver.1.13
NX-IA3117				Ver.1.08		Ver.1.10

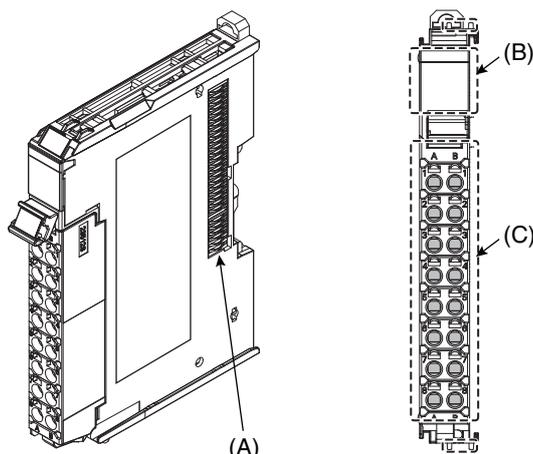
\*1 Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

\*2 The instructions for time stamp refreshing are supported by CPU Units with unit version 1.06 or later. If you do not use instructions for time stamp refreshing, you can use version 1.05. Refer to the *NJ/NX-series Instructions Reference Manual* (Cat. No. W502) for details on the instructions for time stamp refreshing.

## External Interface

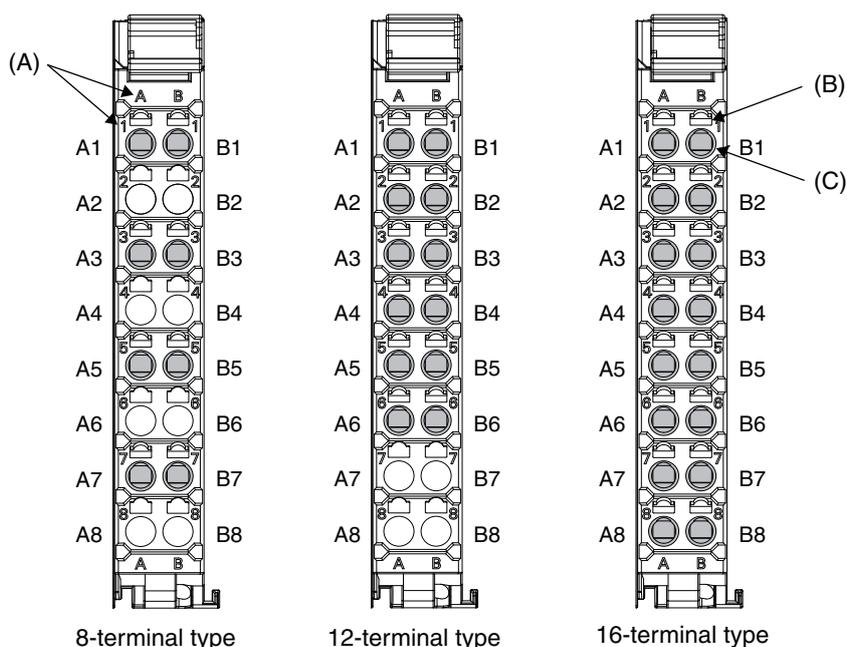
### Screwless Clamping Terminal Block Type

● 12 mm Width



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. 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, i.e. A1 to A8 and B1 to B8. 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	Ground terminal mark	Terminal current capacity
NX-ID3□□□	NX-TBA122	12	None	10 A
NX-ID4□□□	NX-TBA162	16	None	10 A
NX-ID5□□□	NX-TBA162	16	None	10 A
NX-IA3117	NX-TBA082	8	None	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.

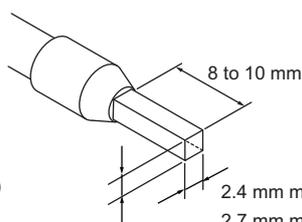
The applicable ferrules, wires, and crimping tools are listed in the following table.

Terminal types	Manufacturer	Ferrule model number	Applicable wire (mm <sup>2</sup> (AWG))	Crimping tool
Terminals other than ground terminals	Phoenix Contact	AI0,34-8	0.34 (#22)	Phoenix Contact (The figure in parentheses is the applicable wire size.) CRIMPFOX 6 (0.25 to 6 mm <sup>2</sup> , AWG24 to 10)
		AI0,5-8	0.5 (#20)	
		AI0,5-10		
		AI0,75-8	0.75 (#18)	
		AI0,75-10		
		AI1,0-8	1.0 (#18)	
		AI1,0-10		
		AI1,5-8	1.5 (#16)	
Ground terminals	Phoenix Contact	AI1,5-10		
		AI2,5-10	2.0 *	
Terminals other than ground terminals	Weidmuller	H0.14/12	0.14 (#26)	Weidmuller (The figure in parentheses is the applicable wire size.) 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)	
Ground terminals	Weidmuller	H1.5/16		

\* 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.

Finished Dimensions of Ferrules



1.6 mm max. (except ground terminals)

2.0 mm max. (ground terminals)

2.4 mm max. (except ground terminals)

2.7 mm max. (ground terminals)

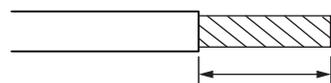
### Using Twisted Wires/Solid Wires

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> 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	Not Possible	Not Possible		
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.

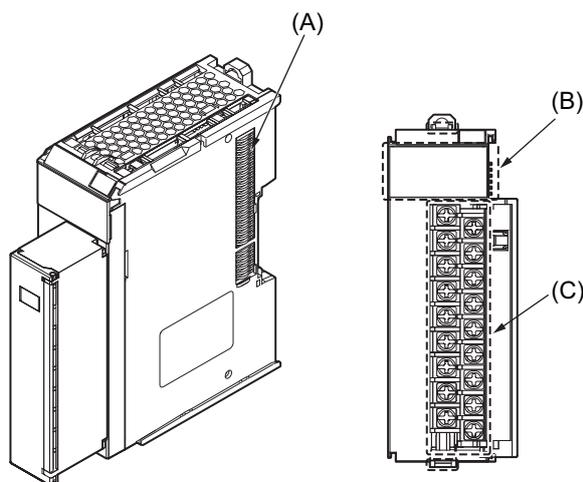
\*2 With the NX-TB□□□1 Terminal Block, use twisted wires to connect the ground terminal. Do not use a solid wire.



Conductor length (stripping length)

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

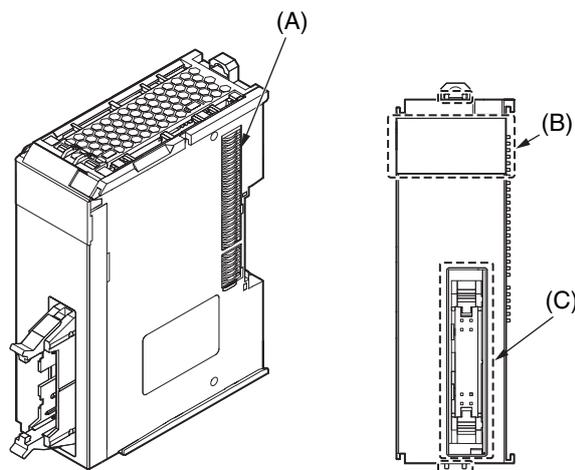
### M3 Screw Terminal Block Type NX Units (30 mm Width)



Letter	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)	Screw terminals	These screw terminals are used to connect the wires.

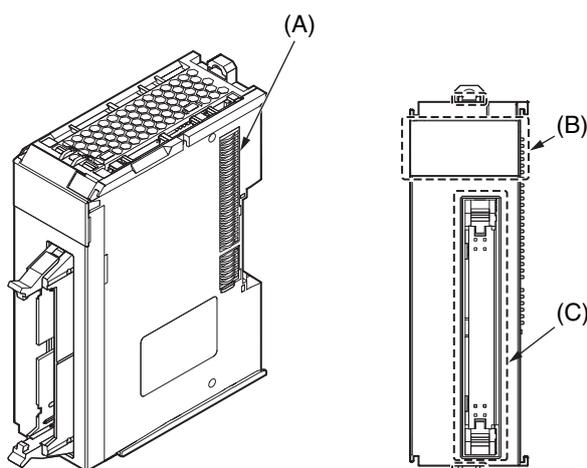
### Connector Types NX Units (30 mm Width)

● Units with MIL Connectors (1 Connector with 20 Terminals)



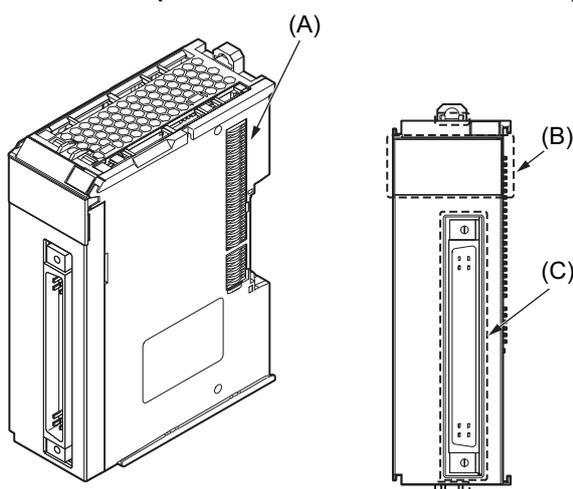
Letter	Name	Function
(A)	NX bus connector	This connector is used to connect each Unit.
(B)	Indicators	The indicators show the current operating status of the Unit.
(C)	Connectors	The connectors are used to connect to external devices.

● Units with MIL Connectors (1 Connector with 40 Terminals)



Letter	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)	Connectors	The connectors are used to connect to external devices.

● Units with Fujitsu Connectors (1 Connector with 40 Terminals)

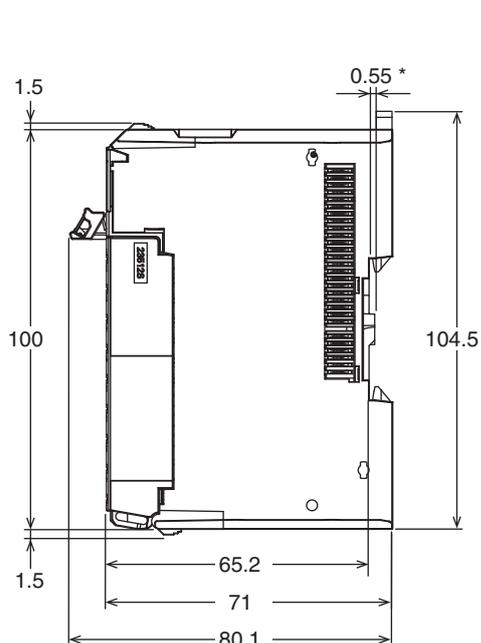


Letter	Name	Function
(A)	NX bus connector	This connector is used to connect each Unit.
(B)	Indicators	The indicators show the current operating status of the Unit.
(C)	Connectors	The connectors are used to connect to external devices.

## Dimensions

### Screwless Clamping Terminal Block Type

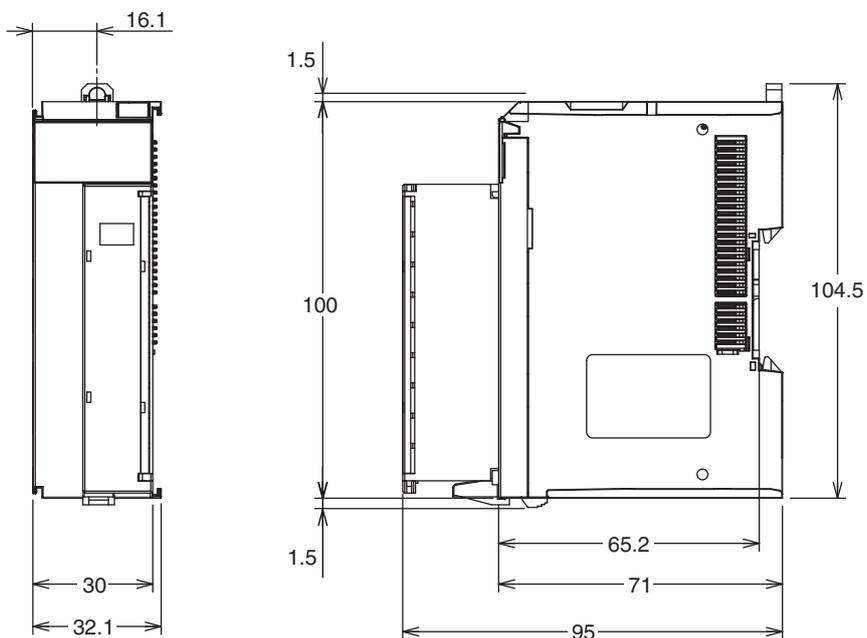
12 mm Width



\* The dimension is 1.35 mm for Units with lot numbers through December 2014.

### M3 Screw Terminal Block Type

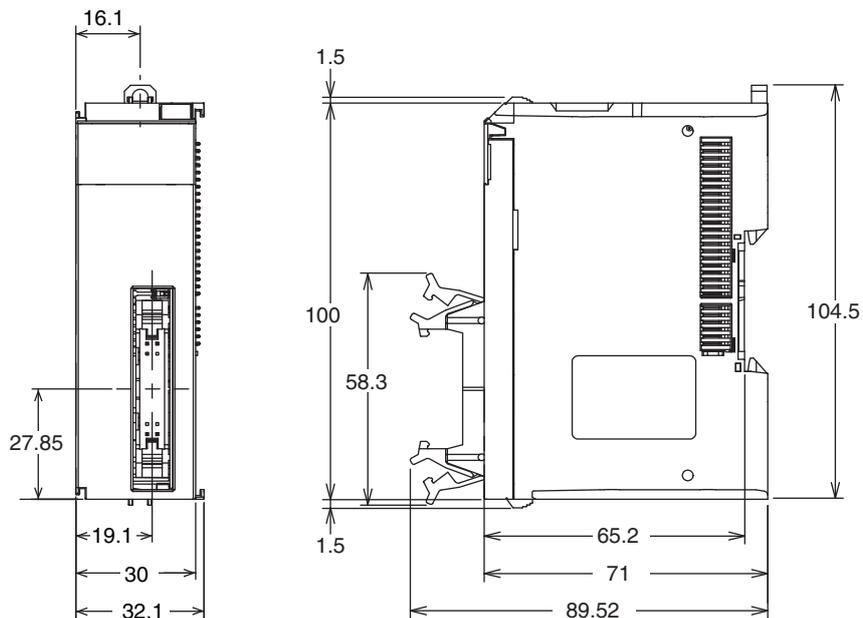
30 mm Width



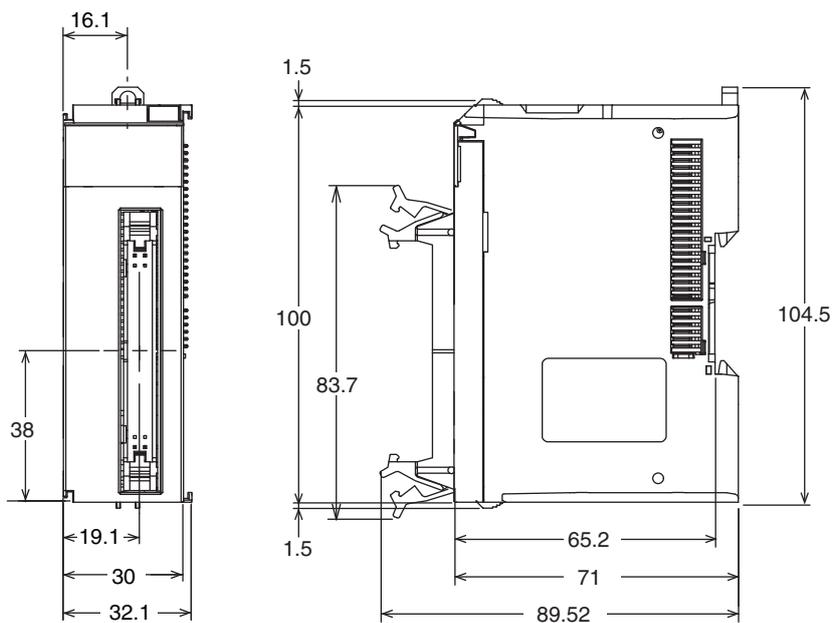
## Connector Types

30 mm Width

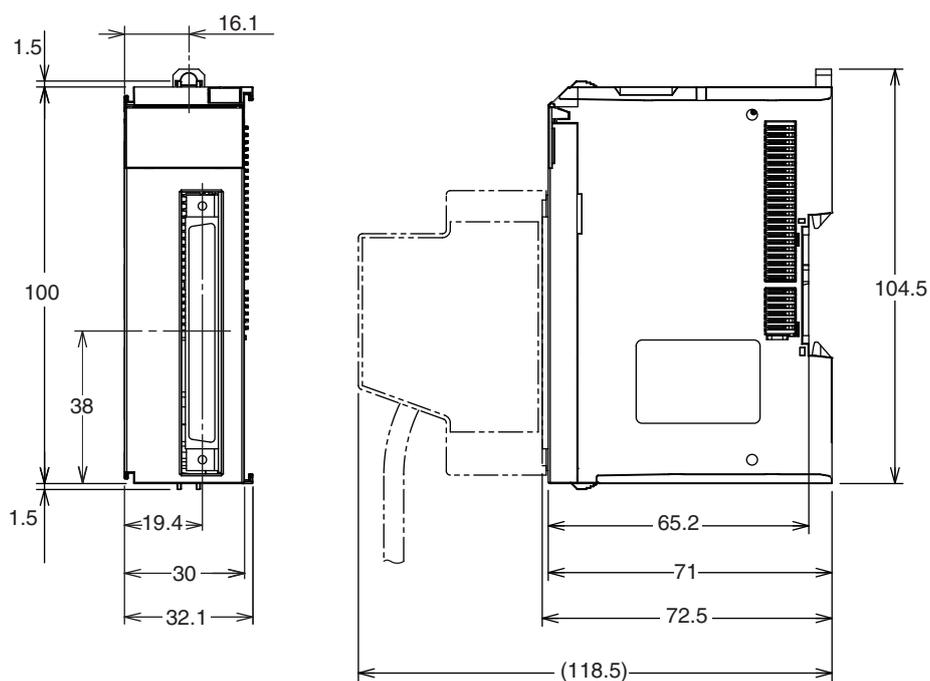
### ● Units with MIL Connectors (1 Connector with 20 Terminals)



### ● Units with MIL Connectors (1 Connector with 40 terminals)



●Units with Fujitsu Connectors (1 Connector with 40 Terminals)



Related Manuals

Cat. No.	Model number	Manual name	Application	Description
W521	NX-ID□□□□ NX-IA□□□□ NX-OD□□□□ NX-OC□□□□ NX-MD□□□□	NX-series Digital I/O Units User's Manual	Learning how to use NX-series Digital I/O Units	The hardware, setup methods, and functions of the NX-series Digital I/O Units are described.

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