# NX-series Digital Mixed I/O Units

# Digital Mixed I/O Units for High speed Synchronous Control

- DC Input/Transistor Output 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.
- One Unit enables synchronous Units to update the status of input devices to the controller and the output status of synchronous Units according to the controller's instructions every EtherCAT cycle.



#### Features

- High-speed I/O refreshing is possible by connecting with the NX-series EtherCAT Coupler.
- Output refreshing can be synchronized with the control cycle of the Controller. (Synchronous refreshing)
- Connector Types significantly reduces wiring work.
- Connection to the CJ-series is possible by connecting with the EtherNet/IP<sup>™</sup> Coupler.

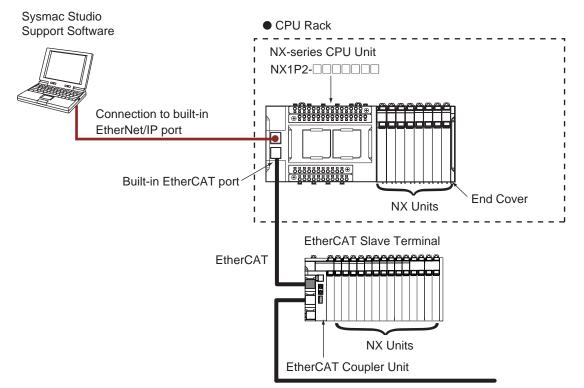
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# **System Configuration**

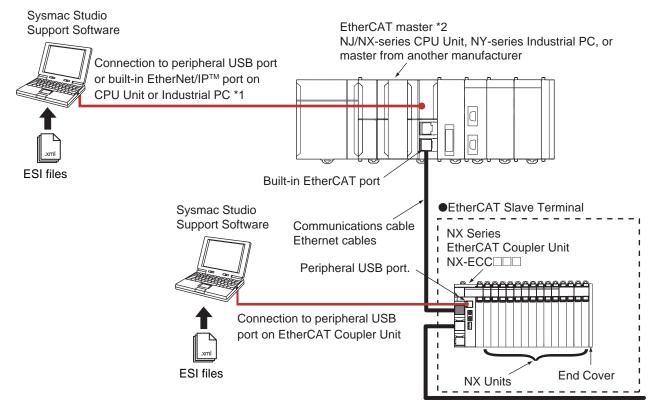
#### System Configuration in the Case of a CPU Unit

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



#### 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 NX Units can be connected to the CPU Unit or Communications Coupler Unit to be used, refer to the user's manual for the CPU Unit or Communications Coupler Unit to be used.

Web: https://www.bolenscontrol.com/ - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

# **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: EU Directives, RCM: Regulatory Compliance Mark, and KC: KC Registration.
- Contact your OMRON representative for further details and applicable conditions for these standards.

# Digital Mixed I/O Units DC Input/Transistor Output Units (MIL Connector, 30 mm Width)

	Draduat			Specif	ication			
Unit type	Product name	Number of Internal I/O		Model	Standards			
NX-series	DC Input/ Transistor Output Unit NX-series Digital Mixed		Outputs: NPN Inputs: For both NPN/PNP	Outputs: 12 to 24 VDC Inputs: 24 VDC	Switching Synchronous	Outputs: 0.1 ms max./0.8 ms max. Inputs: 20 μs max./400 μs max.	NX-MD6121-5	UC1, CE,
I/O Unit		Inputs: 16 points	Outputs: PNP Inputs: For both NPN/PNP	Outputs: 24 VDC Inputs: 24 VDC	Synchronous I/O refreshing and Free-Run refreshing Its: JC S:	Outputs: 0.5 ms max./1.0 ms max. Inputs: 20 μs max./400 μs max.	NX-MD6256-5	RCM, KC

#### • DC Input/Transistor Output Unit (Fujitsu Connector, 30 mm Width)

	Product	Specification			Specification			
Unit type	name	Number of points	Internal I/O common	Rated voltage	I/O refreshing method	ON/OFF response time	Model	Standards
NX-series Digital Output Unit	DC Input/ Transistor Output Unit	Outputs: 16 points Inputs: 16 points	Outputs: NPN Inputs: For both NPN/PNP	Outputs: 12 to 24 VDC Inputs: 24 VDC	Switching Synchronous I/O refreshing and Free-Run refreshing	Outputs: 0.1 ms max./0.8 ms max. Inputs: 20 μs max./400 μs max.	NX-MD6121-6	UC1, CE, RCM, KC

#### Accessories

Not included.

#### **Connection Patterns for Connector-Terminal Block Conversion Units**

Pattern	Configuration	Number of connectors	Branching
С	Connecting Cable Connector-Terminal Block Conversion Unit 20 terminals 20 terminals	2	None

#### **Connections to Connector-Terminal Block Conversion Units**

Unit	I/O capacity	Number of connectors	Polarity	Connection pattern	Number of branches	Connecting Cable	Connector-Terminal Block Conversion Unit	Common terminal
				С	None	XW2Z-□□□X	XW2B-20G4	None
	40	1 MIL	NPN/	С	None	XW2Z-□□□X	XW2B-20G5	None
	16 inputs	connector	PNP	С	None	XW2Z-□□□X	XW2D-20G6	None
				С	None	XW2Z-□□□X	XW2R-J20G-T	None
NX-MD6121-5				С	None	XW2Z-□□□X	XW2B-20G4	None
	10	1 MIL		С	None	XW2Z-□□□X	XW2B-20G5	None
	16 outputs	connector	NPN	С	None	XW2Z-□□□X	XW2D-20G6	None
				С	None	XW2Z-□□□X	XW2R-J20G-T	None
				С	None	XW2Z-🗆 🗆 🗛	XW2B-20G4	None
				С	None	XW2Z-🗆 🗆 🗛	XW2B-20G5	None
				С	None	XW2Z-🗆 🗆 🗛	XW2C-20G5-IN16 *	Yes
				С	None	XW2Z-🗆 🗆 🗛	XW2C-20G6-IO16	Yes
	16 inputs	1 Fujitsu connector	NPN/ PNP	С	None	XW2Z-🗆 🗆 🗛	XW2D-20G6	None
				С	None	XW2Z-□□□A	XW2E-20G5-IN16 *	Yes
				С	None	XW2Z-🗆 🗆 🗛	XW2F-20G7-IN16 *	Yes
NX-MD6121-6				С	None	XW2Z-□□□A	XW2N-20G8-IN16 *	Yes
				С	None	XW2Z-🗆 🗆 🗛	XW2R-J20G-T	None
				С	None	XW2Z-□□□A	XW2B-20G4	None
				С	None	XW2Z-□□□A	XW2B-20G5	None
	10	1 Fujitsu		С	None	XW2Z-□□□A	XW2C-20G6-IO16	Yes
	16 outputs	connector	NPN	С	None	XW2Z-🗆 🗆 🗛	XW2D-20G6	None
				С	None	XW2Z-🗆 🗆 🗛	XW2F-20G7-OUT16	Yes
				С	None	XW2Z-🗆 🗆 🗛	XW2R-J20G-T	None
				С	None	XW2Z-□□□X	XW2B-20G4	None
	10	1 MIL	NPN/	С	None	XW2Z-□□□X	XW2B-20G5	None
	16 inputs	connector	PNP	С	None	XW2Z-□□□X	XW2D-20G6	None
				С	None	XW2Z-□□□X	XW2R-J20G-T	None
NX-MD6256-5				С	None	XW2Z-□□□X	XW2B-20G4	None
	10	1 MIL		С	None	XW2Z-□□□X	XW2B-20G5	None
	16 outputs	connector	PNP	С	None	XW2Z-□□□X	XW2D-20G6	None
				С	None	XW2Z-□□□X	XW2R-J20G-T	None

\* The inputs are NPN. For PNP inputs, reverse the polarity of the external power supply connections to the power supply terminals on the Connector-Terminal Block Conversion Unit.

Note: For details of connection patterns for I/O relay terminals, refer to the NX-series Digital I/O Units User's Manual (Cat. No. W521).

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## **General Specification**

Item		Specification			
Enclosure		Mounted in a panel			
Grounding method Ground to 100 Ω or less		Ground to 100 Ω or less			
	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: Conforms to JIS B3502 and IEC 61131-2.			
Operating environment	Noise immunity	2 kV on power supply line (Conforms to IEC61000-4-4.)			
invironment	Overvoltage category	Category II: Conforms to JIS B3502 and IEC 61131-2.			
	EMC immunity level	Zone B			
,	Vibration resistance *1	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)			
	Shock resistance *1	Conforms to IEC 60068-2-27. 147 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions			
Applicable standards *2		cULus: Listed (UL508) or Listed (UL 61010-2-201), ANSI/ISA 12.12.01, EU: EN 61131-2 or EN 61010-2-201, C-Tick or RCM, KC: KC Registration, NK, LR			

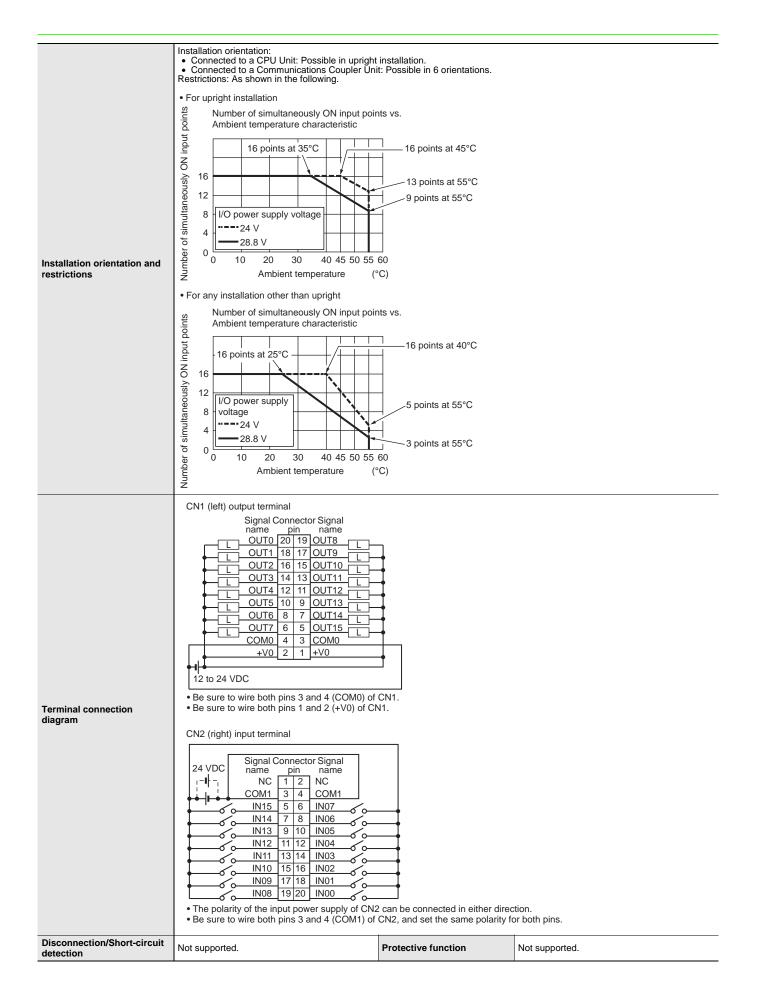
\*1. For the Relay Output Unit, refer to the Digital Input Unit Specifications.
\*2. Refer to the OMRON website or consult your OMRON representative for the most recent applicable standards for

each model.

## **Digital Mixed I/O Unit Specifications**

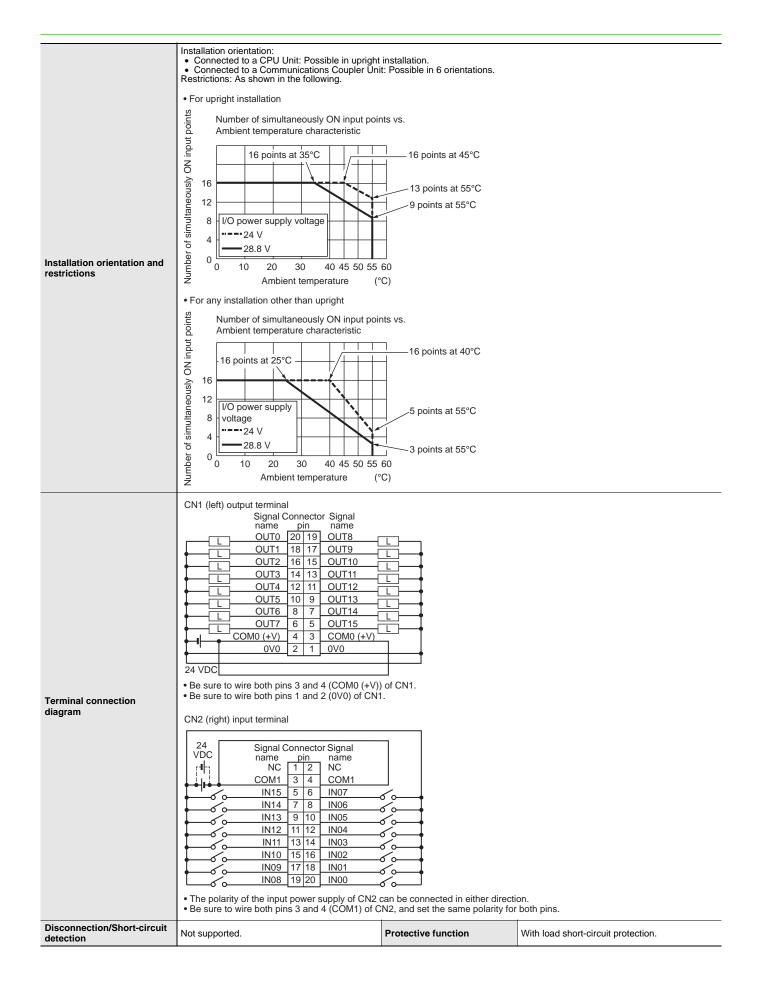
# • DC Input/Transistor Output Units (MIL Connector, 30 mm Width) NX-MD6121-5

Unit name	50121-5	DC Input/Transistor Output Unit	Model		NX-MD6121-5	
Number of points			External connection			
•		terminais			2 MIL connectors (20 terminals)	
I/O refres	hing method Internal I/O common	Switching Synchronous I/O refreshing and Free- NPN	Run refresh	Internal I/O	For both NPN/PNP	
	Rated voltage	12 to 24 VDC		Rated input voltage	24 VDC (15 to 28.8 VDC)	
	Operating load voltage range	10.2 to 28.8 VDC	-	Input current	7 mA typical (at 24 VDC)	
Output section	Maximum value of load current	0.5 A/point, 2 A/Unit	Input section	ON voltage/ON current	15 VDC min./3 mA min. (between COM and each signal)	
(CN1)	Maximum inrush current	4.0 A/point, 10 ms max.	(CN2)	OFF voltage/OFF current	5 VDC max./1 mA max. (between COM and each signal)	
	Leakage current	0.1 mA max.		ON/OFF response time	20 μs max./400 μs max.	
	Residual voltage ON/OFF response time	1.5 V max. 0.1 ms max./0.8 ms max.		Input filter time	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	
	1	TS indicator, I/O indicators	Dimensio	ns	30 (W) x 100 (H) x 71 (D)	
		MD6121-5	Isolation I	method	Photocoupler isolation	
			Insulation	resistance	20 M $\Omega$ min. between isolated circuits (at 100 VDC)	
		1 <b>1 1 1 1 1 1 1 1 1 1</b>	Dielectric strength		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.	
		2 8 9 10 11 12 13 14 15	I/O power supply method Current capacity of I/O power		Supply from external source	
Indicators	5	supply terminal			Without I/O power supply terminals	
			NX Unit power consumption		Connected to a CPU Unit 1.00 W max.     Connected to a Communications Coupler Unit 0.70 W max.	
			Current consumption from I/O power supply		30 mA max.	
			Weight		105 g max.	
Circuit layout		CN1 (left) output circuit		) T0 )UT15 Connector M0		



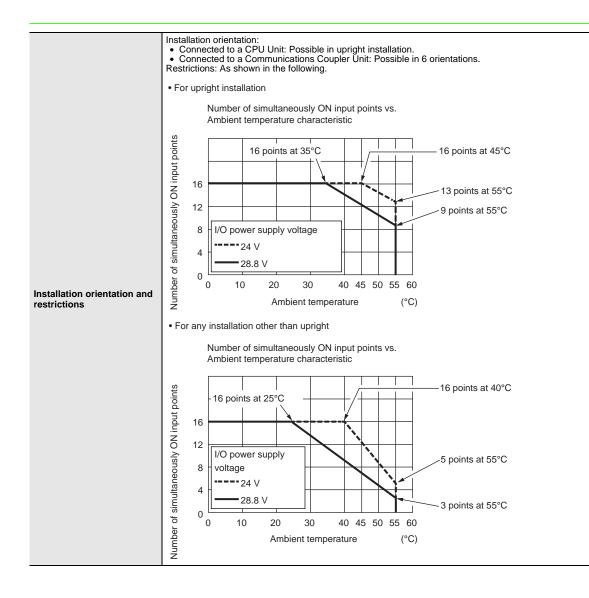
#### NX-MD6256-5

Unit name		DC Input/Transistor Output Unit	Model		NX-MD6256-5	
Number of	points	16 inputs/16 outputs	External c terminals	onnection	2 MIL connectors (20 terminals)	
I/O refreshing method		Switching Synchronous I/O refreshing and Free-	Run refreshi	ing		
Internal I/O common		PNP		Internal I/O common	For both NPN/PNP	
	Rated voltage	24 VDC		Rated input voltage	24 VDC (15 to 28.8 VDC)	
Output section	Operating load voltage range	20.4 to 28.8 VDC		Input current	7 mA typical (at 24 VDC)	
	Maximum value of load current	0.5 A/point, 2 A/Unit	section (CN2)	ON voltage/ON current	15 VDC min./3 mA min. (between COM and each signal)	
(CN1)	Maximum inrush current	4.0 A/point, 10 ms max.		OFF voltage/OFF current	5 VDC max./1 mA max. (between COM and each signal)	
	Leakage current	0.1 mA max.		ON/OFF response time	20 μs max./400 μs max.	
	Residual voltage	1.5 V max.	_		No filter, 0.25 ms, 0.5 ms, 1 ms (default), 2 ms,	
	ON/OFF response time	0.5 ms max./1.0 ms max.		Input filter time	4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms, 256 ms	
		TS indicator, I/O indicators	Dimension	าร	30 (W) x 100 (H) x 71 (D)	
		MD6256-5	Isolation n	nethod	Photocoupler isolation	
		CN ■TS	Insulation	resistance	20 M $\Omega$ min. between isolated circuits (at 100 VDC)	
		1 <b>= 0 = 1 = 2 = 3 = 4 = 5 = 6 = 7</b> = 8 = 9 = 10 = 11 = 12 = 13 = 14 = 15 = <b>= 0 = 1 = 2 = 3 = 4 = 5 = 6 = 7</b>	Dielectric strength		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.	
			I/O power supply method		Supply from external source	
ndicators			Current ca supply ter	pacity of I/O power minal	Without I/O power supply terminals	
			NX Unit power consumption		<ul> <li>Connected to a CPU Unit 1.10 W max.</li> <li>Connected to a Communications Coupler Unit 0.75 W max.</li> </ul>	
			Current co O power s	onsumption from I/ supply	40 mA max.	
			Weight		110 g max.	
Circuit layout		CN1 (left) output circuit NX bus connector (left) CN2 (right) input circuit NX bus connector I/O power I/O po	Internal circuits	COM0 (+V) COM0 (+V) COM0 (+V) COUT0 to OUT15 OV0 V00 I/O power Supply + Supply - Supply + O/O power Supply + O/O power Supply + O/O power	tor	



# • DC Input/Transistor Output Units (Fujitsu Connector, 30 mm Width) NX-MD6121-6

	J6121-6						
Unit name		DC Input/Transistor Output Unit	Model		NX-MD6121-6		
Number o	-	16 inputs/16 outputs	terminals	connection	nnection 2 Fujitsu connectors (24 terminals)		
I/O refres	hing method	Switching Synchronous I/O refreshing and Free-I	Run refreshi				
	Internal I/O common	NPN	-	Internal I/O common	For both NPN/PNP		
	Rated voltage Operating load	12 to 24 VDC	-	Rated input voltage	24 VDC (15 to 28.8 VDC)		
	voltage range Maximum value	10.2 to 28.8 VDC		Input current ON voltage/ON	7 mA typical (at 24 VDC) 15 VDC min./3 mA min. (between COM and each		
Output section (CN1)	of load current Maximum inrush	0.5 A/point, 2 A/Unit	Input section (CN2)	current	signal)		
(0.11)	current	4.0 A/point, 10 ms max.	(0.112)	OFF voltage/OFF current	5 VDC max./1 mA max. (between COM and each signal)		
	Leakage current	0.1 mA max.	-	ON/OFF response time	20 µs max./400 µs max.		
	Residual voltage ON/OFF response time	1.5 V max. 0.1 ms max./0.8 ms max.	-	Input filter time	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		
	-	TS indicator, I/O indicators	Dimensio	ns	30 (W) x 100 (H) x 71 (D)		
		MD6121-6	Isolation r	method	Photocoupler isolation		
		TS CN CN CN CN CN CN CN CN CN CN CN CN CN	Insulation	resistance	20 M $\Omega$ min. between isolated circuits (at 100 VDC)		
		1 Les = 1 = 2 = 3 = 4 = 5 = 6 = 7 1 Les = 9 = 10 = 11 = 12 = 13 = 14 = 15 0 Les = 1 = 2 = 3 = 4 = 5 = 6 = 7	Dielectric	strength	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.		
		2 8 9 10 11 12 13 14 15		supply method	Supply from external source		
Indicators	5		Current capacity of I/O power supply terminal		Without I/O power supply terminals		
			NX Unit power consumption		Connected to a CPU Unit 1.00 W max.     Connected to a Communications Coupler Unit 0.70 W max.		
			Current consumption from I/O power supply		30 mA max.		
			Weight		95 g max.		
Circuit layout		NX bus connector (left) [I/O power supply + I/O power supply -		<ul> <li>+V0</li> <li>+V0</li> <li>OUT0</li> <li>to OUT15</li> <li>COM0</li> <li>COM0</li> <li>I/O power</li> <li>supply +</li> <li>I/O power</li> <li>supply -</li> </ul>	Connector NX bus connector (right)		
		CN2 (right) input circuit	icator	I/O power supply + l/O power supply –	NX bus connector (right)		



#### NX-MD

Terminal connection       CN1 (left) output terminal         Signal name       Pin         NC       Bit A 11 NC         +VO       DUT13         Bit A 2017       L				
Terminal connection     Output terminal     Output terminal       Signal name     NB     Signal name       1     0     UT1 B       1     D       1     D       1     D       1     D       1     D       1     D				
Terminal connection       NC BIZ AT2 NC BIT AT1 NC VI BIT AT0 +V0 VI BIT AT0 +V0 COMB BI AT0 +V0 VI BIT AT0 +V0 VI B		Signai name pin Signai	name	
Terminal connection       NC       Bit       Ati       VC         Bit       Ati       VC       Bit       Ati       VC         U       U       U       Bit       Ati       VC       Bit       Ati         U       U       U       Bit       Ati       VC       Bit       Ati       VC         U       U       U       Bit       Ati       VC       Bit       Ati       VC         U       U       U       U       Bit       Ati       VC       U <td< th=""><th></th><th></th><th></th><th></th></td<>				
Terminal connection         Terminal connection         Bigram         CVD (right) input terminal         Signal name         OUT (right) Res & Big (N15)         OUT (right) Res & Big (N15)         OUT (right) Res & Connector         Signal name         OUT (right) Res (right) Res (				
Terminal connection       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT       Image: Control BB AB OUT         Image: Control BB AB OUT       Image: Cont				
Terminal connection       Image: Connection (Connector Signal name Connector Signal name Con				
Terminal connection       Image: Connection is a connection.				
Terminal connection       Image: Connection (Connection (Conne				
Terminal connection         Terminal connection         Be sure to wire both pins A9 and B9 (COM0) of CN1.         • Be sure to wire both pins A9 and B9 (COM0) of CN1.         • Be sure to wire both pins A0 and B10 (+V0) of CN1.         • Be sure to wire both pins A10 and B10 (+V0) of CN1.         • CN2 (right) input terminal         Signal name         0		▎▎		
Terminal connection         Giagram         Image: split of the input power supply of CN2 can be connected in either direction.         Pisconnection/Short-circuit				
Terminal connection         Terminal connection         Bi arrow out to wire both pins A9 and B9 (COM0) of CN1.         Be sure to wire both pins A9 and B9 (COM0) of CN1.         Be sure to wire both pins A9 and B9 (COM0) of CN1.         Be sure to wire both pins A9 and B10 (+V0) of CN1.         CN2 (right) input terminal         Signal name         Onector         NNA         All B1         NR         All B2         NR         All B1         NR         All B1         NR         All B1         NR         All B2         NR         All B2         NR				
Terminal connection diagram       Image: Connection (Connector Signal name (Connector (Connet) (Connector (Connector (Connector (Connector (Conneto		OUT10 B3 A3 OUT2		
Terminal connection         Giagram         Terminal connection         We use of wire both pins A9 and B9 (COM0) of CN1.         Be sure to wire both pins A10 and B10 (+V0) of CN1.         CN2 (right) input terminal         Signal name         One of the pins A10 and B10 (+V0) of CN1.         CN2 (right) input terminal         Signal name         One of the pins A10 and B10 (+V0) of CN1.         CN2 (right) input terminal         Signal name         One of the pins A10 and B10 (+V0) of CN1.         CN2 (right) input terminal         Signal name         One of the pins A10 and B10 (+V0) of CN1.         CN2 (right) input terminal         Signal name         One of the pins A10 and B10 (+V0) of CN2.         Interpine A1 B10 (NC)         Interpine A2 B2 (N2)         One of the pins A2 and B9 (COM1) of CN2, and set the same polarity for both pins.				
Terminal connection diagram <ul> <li>Be sure to wire both pins A9 and B9 (COM0) of CN1.</li> <li>Be sure to wire both pins A10 and B10 (+V0) of CN1.</li> <li>Be sure to wire both pins A10 and B10 (+V0) of CN1.</li> </ul> CN2 (right) input terminal              Signal name Connector Signal name A <sup>pin</sup> B            INIX A2 B2 INN              INIX A2 B2 INN           INIX A5 B6 IN12              INIX A5 B6 IN12           INIX A5 B6 IN12              INIX A8 B8 IN12           INIX A8 B8 IN15              INIX A8 B8 IN15           INIX A1 B11 NC              NC A11 B11 NC           INIX A8 B8 IN15              NC A12 B12 NC           INIX A8 B8 IN15              NC A12 B12 NC           INIX A9 B9 (COM1) of CN2, and set the same polarity for both pins.		UT8 B1 A1 OUT0		
Terminal connection diagram <ul> <li>Be sure to wire both pins A9 and B9 (COM0) of CN1.</li> <li>Be sure to wire both pins A10 and B10 (+V0) of CN1.</li> <li>Be sure to wire both pins A10 and B10 (+V0) of CN1.</li> </ul> CN2 (right) input terminal              Signal name Connector Signal name A <sup>pin</sup> B            Image: Non-Ange and B9 (COM0) of CN1.              Signal name Connector Signal name A <sup>pin</sup> B            Image: Non-Ange and B9 (COM0) of CN1.              Connector Nint A2 B2            Image: Non-Ange and B9 (COM0) of CN1.              Connector Signal name A <sup>pin</sup> B            Image: Non-Ange and B9 (COM1) of CN2 and B9 (COM1) of CN2 and B9 (COM1) of CN2 and B9 (COM1) of CN2, and set the same polarity for both pins.           Image: Non-Ange and B9 (COM1) of CN2, and set the same polarity for both pins.           Image: Non-Ange and B9 (COM1) of CN2, and set the same polarity for both pins.           Image: Non-Ange and B9 (COM1) of CN2, and set the same polarity for both pins.           Image: Non-Ange and B9 (COM1) of CN2, and set the same polarity for both pins.		│ ∲ ┨ ॑ ─────		
<ul> <li>Be sure to wire both pins A10 and B10 (+V0) of CN1.</li> <li>CN2 (right) input terminal</li> <li>Signal name</li> <li>An</li> <li>Branch</li> <li>Branch</li> <li>Branch</li> <li>Connector</li> <li>Signal name</li> <li>Signal name</li> <li>An</li> <li>Branch</li> <li>Branch<th></th><th>12 to 24 VDC</th><th></th><th></th></li></ul>		12 to 24 VDC		
CN2 (right) input terminal Signal name CN2 (right) input terminal Signal name CN2 (right) input terminal Signal name CN2 (right) input terminal CN2 (right) input t				
CN2 (right) input terminal Signal name CN2 (right) input terminal Signal name NI A B Signal name A B A B Signal name A B A B A B A B A B A B A B A B		<ul> <li>Be sure to wire both pins A10 and B10 (+V0)</li> </ul>	of CN1.	
Signal name     Connector Signal name       A <sup>pin</sup> B       IND       A1       B1       IND       IND       A3       B3       IN10       IN12       IN13       A4       B4       IN11       IN14       IN18       A6       B6       IN17       A8       B1       IN2       A11	diagram			
A     pin     B       INI     A2     B2       INI     A3     B3       INI     A3     B3       INI     A4     B4       INI     A5       B5     INI2       INI     A5       B6     INI3       INI     A6       B6     INI3       O     INI       A8     B8       INI2     A8       B8     INI5       O     INI       A9     B9       COMI     A9       B9     COMI       NC     A12       B12     NC       NC     A12       B12     NC       NC     A12       B12     NC       NC     NC       NC     A12       B12     NC		CN2 (right) input terminal		
$\begin{array}{ c c c c c c } \hline \textbf{Disconnection/Short-circuit} \\ \hline \textbf{Disconnection} \\ \hline Disconn$			name	
Disconnection/Short-circuit       Not supported		DIL		
$\overrightarrow{Protective function}$		OINO_A1_B1_IN8		
IN3       A4       B4       IN1         IN4       A5       B5       IN12         IN5       A6       B6       IN13         IN5       A6       B6       IN13         IN6       A7       B7       IN14         IN7       A8       B8       IN15         IN7       A8       B8       IN15         IN7       A8       B9       COM1         IN7       A8       B8       IN15         IN6       A10       B10       NC         NC       A11       B11       NC         NC       A12       B12       NC         IN6       NC       A12       B12         NC       NC       A12       B12       NC         IN6       B8       S0       COM1) of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit       Not supported <td< th=""><th></th><th></th><th></th><th></th></td<>				
IN4       A5       B5       IN12         IN5       A6       B6       IN13         IN6       A7       B7       IN14         IN7       A8       B8       IN15         COM1       A9       B9       COM1         INC       A10       B10       NC         IN6       A11       B11       NC         VDC       NC       A12       B12       NC         • The polarity of the input power supply of CN2 can be connected in either direction.       • Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit       Not supported       Not supported				
IN5       A6       B6       IN13         IN6       A7       B7       IN14         IN7       A8       B8       IN15         COM1       A9       B9       COM1         V       COM1       A9       B9         COM1       A9       B9       COM1         V       NC       A10       B10       NC         NC       A11       B11       NC       NC         VDC       NC       A12       B12       NC         • The polarity of the input power supply of CN2 can be connected in either direction.       • Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit       Not supported       Protective function       Not supported				
IN6       A7       B7       IN14         IN7       A8       B8       IN15         COM1       A9       B9       COM1         Y       A10       B10       NC         A10       B10       NC         A11       B11       NC         A12       B12       NC         • The polarity of the input power supply of CN2 can be connected in either direction.         • Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.				
INT       A8       B8       IN15         COM1       A9       B9       COM1         NC       A10       B10       NC         INT       A8       B8       IN15         COM1       A9       B9       COM1         NC       A10       B10       NC         INT       A10       B10       NC         INT       NC       A11       B11         NC       A12       B12       NC         INT       Supported       Protective function       Not supported				
COM1       A9       B9       COM1         NC       A10       B10       NC         NC       A11       B11       NC         Y       NC       A11       B11         NC       A11       B11       NC         Y       NC       A12       B12       NC         • The polarity of the input power supply of CN2 can be connected in either direction.       • Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit       Not supported       Protective function				
NC       A10       B10       NC         NC       A11       B11       NC         NC       A11       B11       NC         24 VDC       NC       A12       B12       NC         • The polarity of the input power supply of CN2 can be connected in either direction.       • The polarity of the input power supply of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit       Not supported       Protective function			o	
i -   -         NC       A11       B11       NC         24 VDC       NC       A12       B12       NC         • The polarity of the input power supply of CN2 can be connected in either direction.       • The polarity of the input power supply of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit       Not supported       Protective function       Not supported		│ <b>♥♥┨│♥─♥────┤</b> ───┤────		
24 VDC       NC A12 B12 NC         • The polarity of the input power supply of CN2 can be connected in either direction.         • Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.         Disconnection/Short-circuit         Not supported				
The polarity of the input power supply of CN2 can be connected in either direction.     Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.				
Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.  Disconnection/Short-circuit Not supported  Protective function Not supported				
Be sure to wire both pins A9 and B9 (COM1) of CN2, and set the same polarity for both pins.  Disconnection/Short-circuit Not supported  Protective function Not supported		• The polarity of the input power supply of CN2		ion
		Be sure to wire both pins A9 and B9 (COM1)	of CN2, and set the same polarity	for both pins.
detection not supported.		Not supported	Protective function	Not supported
	detection			

### **Version Information**

#### **Connecting with CPU Units**

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

NX U	nit	Corresponding versions *		
Model	Unit version	CPU Unit	Sysmac Studio	
NX-MD6121-5	Ver.1.0	Ver.1.13 or later	Ver.1.17 or higher	
NX-MD6121-6				
NX-MD6256-5				

\* 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 Coupler Units**

NX Ur	nit		Corresponding versions *					
		EtherCAT			EtherNet/IP			
Model	Unit version	Communications Coupler Unit	NJ/NX-series CPU Units or NY-series Industrial PCs	Sysmac Studio	Communications Coupler Unit	Sysmac Studio		
NX-MD6121-5	Ver.1.0	Ver.1.0 or later	Ver.1.05 or later	Ver.1.10 or higher	Ver.1.0 or later	Ver.1.10 or higher		
NX-MD6121-6				Ver.1.13 or higher		Ver.1.13 or higher		
NX-MD6256-5				Ver.1.10 or higher		Ver.1.10 or higher		

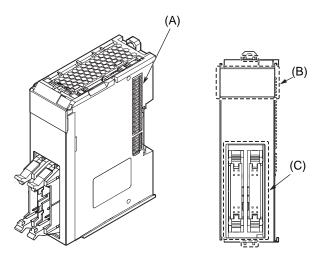
\* Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

#### **External Interface**

# Connector Types

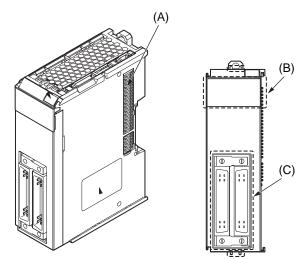
NX Units (30 mm Width)

• Units with MIL Connectors (2 Connectors 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. The number of terminals depends on the type of Unit.		

#### • Units with Fujitsu Connectors (2 Connectors with 24 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.	

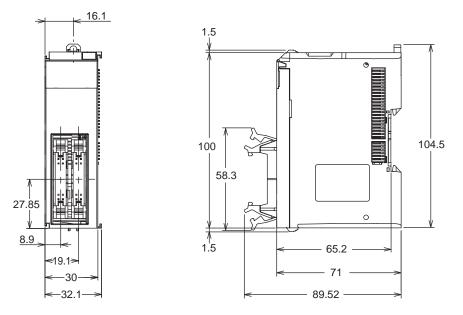
(Unit/mm)

#### Dimensions

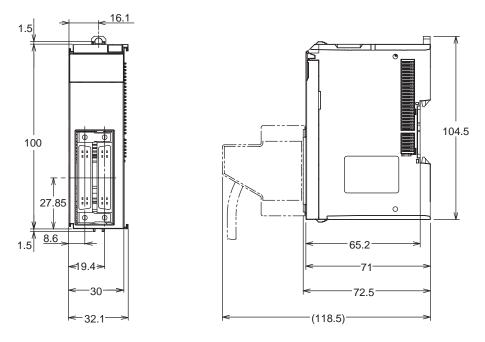
#### **Connector Types**

30 mm Width

• Units with MIL Connectors (2 Connectors with 20 Terminals)



• Units with Fujitsu Connectors (2 Connectors with 24 Terminals)



#### **Related Manuals**

Cat. No.	Model number	Manual name	Application	Description
W521	NX-IA	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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