NX-series Analog I/O Unit NX-AD/DA

CSM NX-AD DA DS E 3 4

Analog inputs and outputs to meet all machine control needs, from general purpose to high-speed synchronous control

- Connect to other NX I/O Units and EtherCAT® Coupler Units using the high-speed NX-bus
- Separate modules for voltage and current



Features

- Up to eight analog inputs per unit (NX-AD)
- Up to four analog outputs per unit (NX-DA)
- Free-run refreshing or synchronous I/O refreshing with the NX1P2 CPU Unit or EtherCAT Coupler Unit
- \bullet Sampling times down to 10 μs per channel and high resolution of 1/30,000
- Single-ended input type with built-in power supply terminals for low power equipments or noize-resistant differential input type (NX-AD)
- Selecting channel to use, moving average, input disconnection detection, over range/under range detection, and user calibration
- Detachable front connector with screwless Push-In Plus terminals for easy installation and maintenance
- Compact with a width of 12 mm per unit
- Connect to the CJ PLC using the EtherNet/IP™ bus coupler

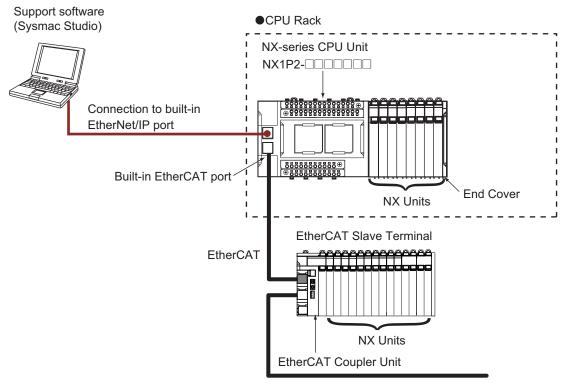
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System Configurations

Connected to a CPU Unit or Communication Control Unit

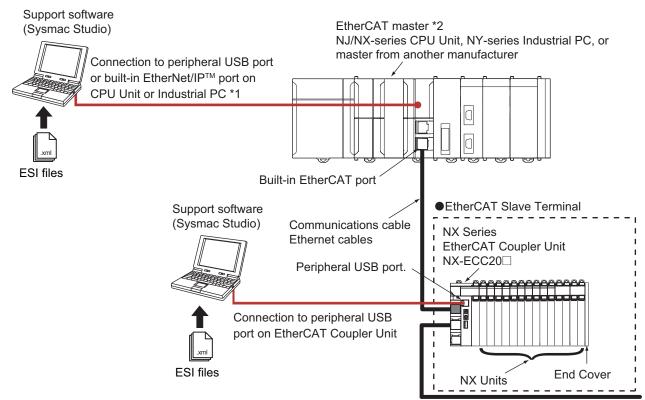
The following figure shows a system configuration when NX Units are connected to an NX-series CPU Unit.



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

Connected to an EtherCAT Coupler Unit

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

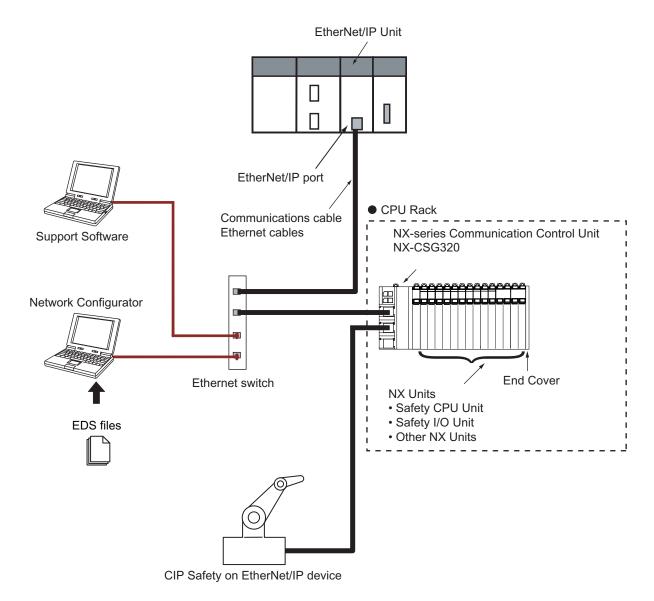


- *1. The connection method for the Sysmac Studio depends on the model of the CPU Unit or Industrial PC.
- *2. An EtherCAT Slave Terminal cannot be connected to any of the OMRON CJ1W-NC□81/□82 Position Control Units even though they can operate as EtherCAT masters.

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

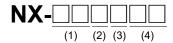
System Configuration in the Case of a Communication Control Unit

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.

Model Number Structure



(1) Unit type

<u> </u>	
No.	Specification
AD	Analog input
DA	Analog output

(2) Number of points

No.	Specification			
2	2 points			
3	4 points			
4	8 points			

(3) I/O range

No.	Specification			
1				
2	4 to 20 mA			
6	-10 to +10 V			

(4) Other specifications **Analog Input Units**

				I/O refreshing method		
No.	Resolution	Conversion time	Input method	Free-Run refreshing *1 only	Switching synchronous I/O refreshing *2 and Free-Run refreshing	
03	1/8000	250 μs/point	Single-ended	Yes		
04	1/8000	250 μs/point	Differential	Yes		
80	1/30000	10 μs/point	Differential		Yes	

Analog Output Units

			I/O refreshing method			
No.	Resolution	Conversion time	Free-Run refreshing *1 only	Switching synchronous I/O refreshing *2 and Free-Run refreshing		
03	1/8000	250 μs/point	Yes			
05	1/30000	10 μs/point		Yes		

^{*1} Free-Run refreshing
*2 Synchronous I/O refreshing

^{*1} Free-Run refreshing
*2 Synchronous I/O refreshing

Ordering Information

Applicable standards

Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

Analog Input Units

					Specificat	ion							
Product name	Number of points	Input range	Resolution	Conversion value, decimal number (0 to 100%)	Over all accuracy (25°C)	Input method	Conversion time	Input impedance	I/O refreshing method	Model			
					±0.2%	Single-ended input	250 μs/		Free-Run	NX-AD2603			
			1/8000	-4000 to 4000	(full scale)	Differential input	point		refreshing	NX-AD2604			
	2 points		1/30000	-15000 to 15000	±0.1% (full scale)	Differential input	10 μs/ point		Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD2608			
Voltage Input type			4/0000	4000 / 4000	±0.2%	Single-ended input	250 μs/		Free-Run	NX-AD3603			
		-10 to	1/8000	-4000 to 4000	(full scale)	Differential input	point		refreshing	NX-AD3604			
	4 points	+10 V	1/30000	-15000 to 15000	±0.1% (full scale)	Differential input	10 μs/ point	1 MΩ min.	1 MΩ min. Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD3608			
	8 points	voints			±0.2%	Single-ended input	250 μs/		Free-Run refreshing	NX-AD4603			
			1/8000	-4000 to 4000	(full scale)	Differential input	point			NX-AD4604			
			1/30000	-15000 to 15000	±0.1% (full scale)	Differential input	10 μs/ point		Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD4608			
	2 points	2 points				±0.2%	Single-ended input	250 μs/		Free-Run	NX-AD2203		
			1/8000	0 to 8000	(full scale)	Differential input	point		refreshing	NX-AD2204			
			1/30000	0 to 30000	±0.1% (full scale)	Differential input	10 μs/ point	250 Ω	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD2208			
Current Input type			4/0000	0 to 8000	±0.2% (full scale)	Single-ended input	250 μs/	- 250 Ω	Free-Run	NX-AD3203			
		4 to	1/8000			Differential input	point		refreshing	NX-AD3204			
	4 points	4 to 20 mA	1/30000	0 to 30000	±0.1% (full scale)	Differential input	10 μs/ point		Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD3208			
			1/005	0.4.005	±0.2%	Single-ended input	250 μs/		Free-Run	NX-AD4203			
			1/8000 0 to	0 to 8000	(full scale)	Differential input	point		refreshing	NX-AD4204			
	8 points	8 points	8 points	8 points		1/30000	0 to 30000	±0.1% (full scale)	Differential input	10 μs/ point	85 Ω	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD4208

Analog Output Units

	Specification							
Product name	Number of points	Output range	Resolution	Output setting value, decimal number (0 to 100%)	Over all accuracy (25°C)	Conversion time	I/O refreshing method	Model
Voltage Output type			1/8000	-4000 to 4000	±0.3% (full scale)	250 μs/point	Free-Run refreshing	NX-DA2603
	2 points	-10 to +10 V	1/30000	-15000 to 15000	±0.1% (full scale)	10 μs/point	Selectable Synchronous I/O refreshing or Free- Run refreshing	NX-DA2605
	4 points		1/8000	-4000 to 4000	±0.3% (full scale)	250 μs/point	Free-Run refreshing	NX-DA3603
			1/30000	-15000 to 15000	±0.1% (full scale)	10 μs/point	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-DA3605
Current Output type	2 points		1/8000	0 to 8000	±0.3% (full scale)	250 μs/point	Free-Run refreshing	NX-DA2203
			1/30000	0 to 30000	±0.1% (full scale)	10 μs/point	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-DA2205
		20 mA	1/8000	0 to 8000	±0.3% (full scale)	250 μs/point	Free-Run refreshing	NX-DA3203
	4 points		1/30000	0 to 30000	±0.1% (full scale)	10 μs/point	Selectable Synchronous I/O refreshing or Free- Run refreshing	NX-DA3205

Optional Products

Product name		Specification				
Unit/Terminal Block Coding Pins	For 10 Units (Terminal Block: 30 pins,	or 10 Units Ferminal Block: 30 pins, Unit: 30 pins)				
	Specification					
Product name	No. of terminals	Terminal number indications	Ground terminal mark	Terminal current capacity	Model	
	8				NX-TBA082	
Terminal Block	12	A/B	None	10 A	NX-TBA122	
	16				NX-TBA162	

Accessories

Not included.

General Specifications

	Item	Specification			
Enclosure		Mounted in a panel			
Grounding m	ethod	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: Meets IEC 61010-2-201.			
Operating	Noise immunity	2 kV on power supply line (Conforms to IEC61000-4-4.)			
environment	Overvoltage category	Category II: Meets IEC 61010-2-201.			
	EMC immunity level	Zone B			
	Vibration resistance	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/s², 100 min each in X, Y, and Z directions (10 sweeps of 10 min each = 100 min total)			
	Shock resistance	IConforms to IEC 60068-2-27. 147 m/s², 3 times each in X, Y, and Z directions			
Applicable sta	andards *	cULus: Listed (UL508), ANSI/ISA 12.12.01, EU: EN 61131-2, C-Tick or RCM, KC Registration, NK, LR			

^{*} Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

Analog Input Unit Specifications

Analog Input Unit (voltage input type) 2 points NX-AD2603

Unit name	Analog Input Unit (voltage input type)	Model		NX-AD2603			
	2 points	External c	onnection	Screwless clamping terminal block (8			
Number of points	'	terminals		terminals)			
I/O refreshing method	Free-Run refreshing Cingle and disput						
	TS indicator	Input meth		Single-ended input			
	AD2603	Input rang	e version range	-10 to +10 V -5 to 105% (full scale)			
		Absolute r		,			
lundin atou		rating	IIaxiiiiaiii	±15 V			
Indicator		Input impe	edance	1 MΩ min.			
		Resolution	1	1/8000 (full scale)			
		Overall	25°C	±0.2% (full scale)			
		accuracy	0 to 55°C	±0.4% (full scale)			
		Conversio	n time	250 µs/point			
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation n	nethod	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)			
Insulation resistance	$20~\text{M}\Omega$ 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.			
I/O power supply method	Supply from the NX bus		pacity of I/O	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.			
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.05 W max.	Communication Control Unit 1.35 W max. • Connected to a Communications Coupler Unit I/O current consumption					
Weight	70 g max.						
Circuit layout	Terminal block Input1+ to 2+ AMP AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply + I/O power supply - I/O power sup						
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: No restrictions						
Terminal connection diagram	Additional I/O Power Supply Unit NX-AD2603 A1 B1 Input + 24 V (Sensor power supply +) 0 V (Sensor power supply -/ Input -) IOG IOG IOG NC NC A8 B8 B8 A8 B8 The NC terminal is not connected to the internal circuit.						
Input disconnection detection	Not supported.						

Analog Input Unit (voltage input type) 2 points NX-AD2604

Unit name	Analog Input Unit (voltage input type)	Model	NX-AD2604			
Number of points	2 points	External connection	Screwless clamping terminal block (8			
·	<u>'</u>	terminals terminals)				
I/O refreshing method	Free-Run refreshing		Tage			
	TS indicator	Input method	Differential Input			
	AD2604 • TS	Input range	-10 to +10 V			
		Input conversion range Absolute maximum	-5 to 105% (full scale)			
		rating	±15 V			
Indicator		Input impedance	1 MΩ min.			
		Resolution	1/8000 (full scale)			
		Overall 25°C	±0.2% (full scale)			
		accuracy 0 to 55°C	±0.4% (full scale)			
		Conversion time	250 μs/point			
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)			
Insulation resistance	20 M Ω 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.			
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals			
NX Unit power consumption	 Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.05 W max. 	I/O current consumption No consumption				
Weight	70 g max.					
Circuit layout	Terminal block Input1+ to 2+ AG AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply + I/O power supply - I/O powe					
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: No restrictions					
Terminal connection diagram	Voltage Input Unit NX-AD2604 A1					
Input disconnection detection	Not supported.					

Analog Input Unit (voltage input type) 2 points NX-AD2608

Unit name	Analog Input Unit (voltage input type)	NX-AD2608				
Number of points	2 points	Model External connection	Screwless clamping terminal block (8			
·	·	terminals terminals)				
I/O refreshing method	Selectable Synchronous I/O refreshing or F TS indicator		Differential Input			
	AD2608	Input method Input range	-10 to +10 V			
	DTS	Input conversion range	-5 to 105% (full scale)			
		Absolute maximum	,			
In dia atau		rating	±15 V			
Indicator		Input impedance	1 MΩ min.			
		Resolution	1/30000 (full scale)			
		Overall 25°C	±0.1% (full scale)			
		accuracy 0 to 55°C	±0.2% (full scale)			
		Conversion time	10 μs/point			
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)			
Insulation resistance	20 M Ω 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.			
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals			
NX Unit power consumption	 Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.05 W max. 	I/O current consumption	No consumption			
Weight	70 g max.					
Circuit layout	Terminal block Input1+ to 2+ AG NX bus connector (left) I/O power supply + I/O power supply -	AMP AG AG: Analog circuit inte	I/O power supply + NX bus connector (right)			
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: No restrictions					
Terminal connection diagram	Voltage Input Unit NX-AD2608 A1 Input1+ Input2+ Input - Input1- Input2- AG AG NC NC AG terminal is connected to 0 V of analog circuit inside the Unit. It is not necessary to wire AG terminal normally.					
Input disconnection detection	Not supported.					

Analog Input Unit (voltage input type) 4 points NX-AD3603

Unit name	Analog Input Unit (voltage input type)	Model	NX-AD3603	
		External connection	Screwless clamping terminal block (12	
Number of points	4 points	terminais		
I/O refreshing method	Free-Run refreshing TS indicator Input method Single-ended input			
	AD3603	Input range	-10 to +10 V	
	DTS	Input conversion range	-5 to 105% (full scale)	
		Absolute maximum	±15 V	
Indicator		rating		
		Input impedance	1 MΩ min.	
		Resolution	1/8000 (full scale)	
		Overall accuracy 0 to 55°C	±0.2% (full scale) ±0.4% (full scale)	
		Conversion time	250 μs/point	
		Conversion time	Between the input and the NX bus: Power	
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	= Transformer, Signal = Digital isolator (no	
	20 MΩ min. between isolated circuits (at		isolation between inputs) 510 VAC between isolated circuits for 1	
Insulation resistance	100 VDC)	Dielectric strength	minute at a leakage current of 5 mA max.	
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.	
	Connected to a CPU Unit or			
NX Unit power	Communication Control Unit 1.35 W max.			
consumption	Connected to a Communications	I/O current consumption	No consumption	
	Coupler Unit 1.10 W max.			
Weight	70 g max.			
	[IOV			
	Terminal block Input1+ to 4+			
	Y	1MΩ AMP		
Circuit layout	L IOG	\neg		
		AG AG: Analog circuit inte	rnal GND	
	NX bus connector I/O power supply +		I/O power supply + NX bus	
	(left) I/O power supply –		onnector (right)	
	Installation orientation:			
Installation orientation	Connected to a CPU Unit or Communication			
and restrictions	Connected to a Communications Couple Restrictions: No restrictions	er Unit: Possible in 6 orientat	ions.	
	TOSTIONOLIS NO TOSTIONOLIS			
	Additional I/O Power Supply Unit	Voltage Input Unit NX-AD3603		
	A1	A1 B1 Input1+ Input2+●	Input +	
		IOV IOV	24 V (Sensor power supply +)	
Terminal connection	●IOG IOG	IOG IOG •	0 V (Sensor power supply – / Input –)	
diagram	24 VDC		re sensor	
	IOV IOV	IOV IOV		
	log log	10G 10G		
	A8B8	A8 B8		
Input disconnection	Not aupported			
detection	Not supported.			

Analog Input Unit (voltage input type) 4 points NX-AD3604

Unit name	Analog Input Unit (voltage input type)	Model	NX-AD3604		
	3 1 1 31 7	External connection	Screwless clamping terminal block (12		
Number of points	4 points	terminals	terminals)		
I/O refreshing method	Free-Run refreshing				
	TS indicator AD3604	Input method	Differential Input		
	DTS	Input range Input conversion ran	-10 to +10 V • -5 to 105% (full scale)		
		Absolute maximum			
la dia atau		rating	±15 V		
Indicator		Input impedance	1 MΩ min.		
		Resolution	1/8000 (full scale)		
		Overall 25°C 0 to 55°C	±0.2% (full scale)		
		accuracy 0 to 55°C Conversion time	±0.4% (full scale) 250 µs/point		
		Conversion time	Between the input and the NX bus: Power		
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	= Transformer, Signal = Digital isolator (no isolation between inputs)		
Insulation resistance	20 M Ω 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.		
I/O power supply method	No supply	Current capacity of I/ power supply termin			
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.10 W max.	I/O current consump	tion No consumption		
Weight	70 g max.				
Circuit layout	Terminal block Input1- to 4- AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply - I/O power suppl				
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: No restrictions				
Terminal connection diagram	Voltage Input Unit NX-AD3604 A1				
Input disconnection detection	Not supported.				

Analog Input Unit (voltage input type) 4 points NX-AD3608

Unit name	Analog Input Unit (voltage input type)	Model	NX-AD3608		
Number of points	4 points	External connection	Screwless clamping terminal block (12		
·	·	terminals	terminals)		
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing TS indicator				
	AD3608	Input range	-10 to +10 V		
	DTS	Input conversion range	-5 to 105% (full scale)		
		Absolute maximum	, ,		
Indicator		rating	±15 V		
illuicatoi		Input impedance	1 MΩ min.		
		Resolution	1/30000 (full scale)		
		Overall 25°C	±0.1% (full scale)		
		accuracy 0 to 55°C	±0.2% (full scale)		
		Conversion time	10 μs/point		
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)		
Insulation resistance	20 M Ω 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.		
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals		
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.10 W max.	I/O current consumption	No consumption		
Weight	70 g max.				
Circuit layout	Terminal block Input1+ to 4+ AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply + I/O power supply - I/O power suppl				
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: No restrictions				
Terminal connection diagram	Input1- Input2- Input3+ Input4+ Input3- Input4- AG AG AG AG	Input + Input – d to 0 V of analog circuit inside the Un e AG terminal normally.	nit.		
Input disconnection detection	Not supported.				

Analog Input Unit (voltage input type) 8 points NX-AD4603

Unit name	Analog Input Unit (voltage input type)	Model		NX-AD4603
Number of points	8 points	External connect terminals	ion	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Free-Run refreshing			
	TS indicator	Input method		Single-ended input
	AD4603 • TS	Input range		-10 to +10 V
		Input conversion		-5 to 105% (full scale)
Indicator		Absolute maximurating	ım	±15 V
mulcator		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall 25°C o to 59	-00	±0.2% (full scale)
		, , , , ,	5-6	±0.4% (full scale)
		Conversion time		250 μs/point Between the input and the NX bus: Power
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method		= Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	20 M Ω min. between isolated circuits (at 100 VDC)	Dielectric strengt	h	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
I/O power supply method	Supply from the NX bus	Current capacity power supply ter		IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.15 W max.	I/O current consu	mption	No consumption
Weight	70 g max.			
Circuit layout	Terminal block Input1+ to 8+ IOG NX bus connector (left) I/O power supply + I/O power supply -	AMP AG AG: Analog	g circuit inte	I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions			
Terminal connection diagram	24 VDC	Üİnİİ NX-AD46(B1)3 B1	Input + 24 V (Sensor power supply +) 0 V (Sensor power supply – / I Three-wire sensor
Input disconnection detection	Not supported.			

Analog Input Unit (voltage input type) 8 points NX-AD4604

Unit name	Analog Input Unit (voltage input type)	Model	NX-AD4604		
Number of points	8 points	External connection	Screwless clamping terminal block (16		
•	terminais		terminals)		
I/O refreshing method	Free-Run refreshing TS indicator				
	AD4604	Input method Input range	-10 to +10 V		
	DTS	Input conversion range	-5 to 105% (full scale)		
		Absolute maximum	` '		
La alla ada a		rating	±15 V		
Indicator		Input impedance	1 MΩ min.		
		Resolution	1/8000 (full scale)		
		Overall 25°C	±0.2% (full scale)		
		accuracy 0 to 55°C	±0.4% (full scale)		
		Conversion time	250 µs/point		
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)		
Insulation resistance	$20~\text{M}\Omega$ 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.		
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals		
NX Unit power consumption	 Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.15 W max. 	I/O current consumption	No consumption		
Weight	70 g max.				
Circuit layout]]	AMP AG: Analog circuit inte	I/O power supply + NX bus connector (right)		
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions				
Terminal connection diagram		nput + nput –			
Input disconnection detection	Not supported.				

Analog Input Unit (voltage input type) 8 points NX-AD4608

Unit name	Analog Input Unit (voltage input type)	Model		NX-AD4608	
		External c	onnection	Screwless clamping terminal block (16	
Number of points	8 points	terminals		terminals)	
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing				
	TS indicator AD4608	Input meth		Differential Input -10 to +10 V	
	DTS	Input rang			
		Absolute r	version range maximum	-5 to 105% (full scale) ±15 V	
Indicator		rating			
		Input impe		1 M Ω min. 1/30000 (full scale)	
			25°C	±0.1% (full scale)	
		Overall accuracy	0 to 55°C	±0.2% (full scale)	
		Conversio		10 μs/point	
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation n		Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)	
Insulation resistance	$20~\text{M}\Omega$ 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.	
I/O power supply method	No supply		pacity of I/O	Without I/O power supply terminals	
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.15 W max.	I/O current consumption		No consumption	
Weight	70 g max.				
Circuit layout	Terminal block Input1+ to 8+ Input1- to 8-				
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: No restrictions				
Terminal connection diagram		nput + nput –			
Input disconnection detection	Not supported.				

Analog Input Unit (current input type) 2 points NX-AD2203

Unit name	Analog Input Unit (current input type)	Model	NX-AD2203
	<u> </u>	External connection	Screwless clamping terminal block (8
Number of points	2 points	terminals	terminals)
I/O refreshing method	Free-Run refreshing		
	TS indicator	Input method	Single-ended input
	AD2203 ■TS	Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
Indicator		Absolute maximum rating	±30 mA
maioutoi		Input impedance	250 Ω
		Resolution	1/8000 (full scale)
		Overall 25°C accuracy 0 to 55°C	±0.2% (full scale) ±0.4% (full scale)
		Conversion time	250 μs/point
		Conversion time	Between the input and the NX bus: Power
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	= Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	20 $\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	Terminal block Input1+ to 2+ IOG NX bus connector (left) I/O power supply + I/O power supply -	250 Ω AMP AG AG: Analog circuit inte	I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions		
Terminal connection diagram	Additional I/O Power Supply Unit A1 B1 IOV IOV IOG IOG IOG IOG A8 B8	IOG IOG NC	Input + 24 V (Sensor power supply +) 0 V (Sensor power supply – / Input –) wire sensor minal is not connected to the internal circuit.
Input disconnection detection	Supported.		

Analog Input Unit (current input type) 2 points NX-AD2204

Unit name	Analog Input Unit (current input type)	Model	NX-AD2204
	3 1 (1 21 7	External connection	Screwless clamping terminal block (8
Number of points	2 points	terminals	terminals)
I/O refreshing method	Free-Run refreshing	1	
	TS indicator	Input method	Differential Input
	AD2204 ■TS	Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
Indicator		Absolute maximum rating	±30 mA
maicator		Input impedance	250 Ω
		Resolution	1/8000 (full scale)
		Overall 25°C accuracy 0 to 55°C	±0.2% (full scale) ±0.4% (full scale)
		Conversion time	250 µs/point
		Conversion time	Between the input and the NX bus: Power
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	= Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	Terminal block Input1+ to 2+ AG NX bus connector (left) I/O power supply + I/O power supply - I/O power supply - I/O power supply - I/O power supply - I/O power supply - I/O power supply - I/O power supply -		
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communications Connected to a Communications Couple Restrictions: No restrictions		
Terminal connection diagram	Input1- Input2-	nput + nput – d to 0 V of analog circuit inside the U re AG terminal normally.	nit.
Input disconnection detection	Supported.		

Analog Input Unit (current input type) 2 points NX-AD2208

Unit name	Analog Input Unit (current input type)	Model	NX-AD2208
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or F		
	TS indicator	Input method	Differential Input
	AD2208	Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
Indicator		Absolute maximum rating	±30 mA
		Input impedance	250 Ω
		Resolution Overall 25°C	1/30000 (full scale)
		Overall 25°C accuracy 0 to 55°C	±0.1% (full scale) ±0.2% (full scale)
		Conversion time	10 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	20 M Ω 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.
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	Terminal block Input1+ to 2+ Input1- to 2- AG NX bus connector (left) I/O power supply + I/O power supply -		I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions		
Terminal connection diagram	Input1- Input2- AG AG NC NC	nput + nput – d to 0 V of analog circuit inside the U e AG terminal normally.	nit.
Input disconnection detection	Supported.		

Analog Input Unit (current input type) 4 points NX-AD3203

Unit name	Analog Input Unit (current input type)	Model	NX-AD3203	
	4 points	External connection	Screwless clamping terminal block (12	
Number of points	·	terminals	terminals)	
I/O refreshing method	Free-Run refreshing			
	TS indicator AD3203	Input method	Single-ended input 4 to 20 mA	
	DTS	Input range Input conversion range	-5 to 105% (full scale)	
		Absolute maximum		
		rating	±30 mA	
Indicator		Input impedance	250 Ω	
		Resolution	1/8000 (full scale)	
		Overall 25°C	±0.2% (full scale)	
		accuracy 0 to 55°C	±0.4% (full scale)	
		Conversion time	250 µs/point	
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)	
Insulation resistance	20 M Ω 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.	
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.	
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max.	I/O current consumption	No consumption	
Weight	70 g max.			
Circuit layout	Terminal block Input1+ to 4+ IOG NX bus connector (left) I/O power supply + I/O power supply -	AMP 250 Ω AG: Analog circuit inte	I/O power supply + NX bus connector (right)	
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: No restrictions			
Terminal connection diagram	Additional I/O Power Supply Unit A1 B1 OIOV IOV IOV IOV IOV IOV IOG IOG A8 B8	Current Input Unit NX-AD3203 A1 B1 Input1+ Input2+ IOV IOV IOG IOG Input3+ Input4+ IOV IOV IOG IOG IOG IOG A8 B8	Input + 24 V (Sensor power supply +) 0 V (Sensor power supply – / Input –)	
Input disconnection detection	Supported.			

Analog Input Unit (current input type) 4 points NX-AD3204

Unit name	Analog Input Unit (current input type)	Model	NX-AD3204		
Number of points	4 points	External connection	Screwless clamping terminal block (12		
•	terminais		terminals)		
I/O refreshing method	Free-Run refreshing TS indicator Input method Differential Input				
	AD3204	Input range	4 to 20 mA		
	DTS	Input conversion range	-5 to 105% (full scale)		
		Absolute maximum	,		
		rating	±30 mA		
Indicator		Input impedance	250 Ω		
		Resolution	1/8000 (full scale)		
		Overall 25°C	±0.2% (full scale)		
		accuracy 0 to 55°C	±0.4% (full scale)		
		Conversion time	250 μs/point		
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)		
Insulation resistance	$20~\text{M}\Omega$ 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.		
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals		
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max.	I/O current consumption	No consumption		
Weight	70 g max.				
Circuit layout	Terminal block Input1+ to 4+ AG NX bus connector (left) I/O power supply + I/O power supply -	AMP AG: Analinten	og circuit nal GND I/O power supply + NX bus connector (right)		
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: No restrictions				
Terminal connection diagram	Input1- Input2- Input3+ Input4+ Input3- Input4- AG AG AG AG	nput + nput – d to 0 V of analog circuit inside the U re AG terminal normally.	nit.		
Input disconnection detection	Supported.				

Analog Input Unit (current input type) 4 points NX-AD3208

Number of points 4 points External connection terminals Screwless clamping terminal block (12 terminals	Unit name	Analog Input Unit (current input type)	Model	NX-AD3208	
Indicator Points Forminals Iterminals Itermina		3 , , ,			
Input method Differential Input Input range 4 to 20 mA Input conversion range 4 to 20 mA Input case 250 Ω Input conversion range 250 Ω Input conversion 250 Ω Inp	<u> </u>	'	terminals		
Input range	I/O retreshing method	·			
Input conversion range -5 to 105% (full scale)			•		
Absolute maximum rating ±30 mA			· · · · · · · · · · · · · · · · · · ·		
Input impedance 250 Ω Resolution 1/30000 (full scale) 1/300000 (full scale) 1/30000 (full scale) 1			Absolute maximum	,	
Resolution	Indicator			250 Ω	
Overall accuracy 25°C					
Dimensions 12 (W) x 100 (H) x 71 (D) Isolation method 10 μs/point 10 μs/poi			0=00	, ,	
Conversion time 10 μs/point			Overan	, ,	
Dimensions 12 (W) x 100 (H) x 71 (D) Isolation method Between the input and the NX bus: Power supply Transformer, Signal = Digital isolator isolation between inputs)			Conversion time	` '	
100 VDC Dielectric strength minute at a leakage current of 5 mA minute at a leakage current of 100 power supply terminal without l/O power supp	Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)	
method No supply Power supply terminal Without I/O power supply terminal	Insulation resistance		Dielectric strength	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.	
Communication Control Unit 1.30 W max. • Connected to a Communications Coupler Unit 0.95 W max. Weight 70 g max. Circuit layout Circuit layout Circuit layout Input1+ to 4+ AG Input1+ to 4+ Input1- to 4- AG Input1+ to 4+ Input1- to 4- Input1- to 4- AG Input1+ to 4- Input1- t		,		Without I/O power supply terminals	
Circuit layout Terminal block NX bus connector (left) Input1+ to 4+ AG AG: Analog circuit internal GND NX bus connector (right) I/O power supply - I/O power supply - Installation orientation:		Communication Control Unit 1.30 W max. Connected to a Communications Coupler Unit	I/O current consumption	No consumption	
Circuit layout NX bus connector (left) Installation orientation: AG AG: Analog circuit internal GND AG: Analog circuit internal GND I/O power supply + NX bus connector (right)	Weight	70 g max.			
	Circuit layout	Terminal block Input1− to 4−	AG: Ana	I/O power supply + NX bus connector	
 Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. Restrictions: No restrictions 	Installation orientation and restrictions	 Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. 			
Terminal connection diagram Terminal connection diagram A1		NX-AD3208 A1 B1 Input1+ Input2+ Input3+ Input4+ Input3- Input4- AG AG AG AG AG AG AG AG AG terminal is connecte	nput – ed to 0 V of analog circuit inside the U	nit.	
Input disconnection detection Supported.		Supported.			

Analog Input Unit (current input type) 8 points NX-AD4203

Unit name	Analog Input Unit (current input type)	Model	NX-AD4203
Number of points	8 points	External connection terminals	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Free-Run refreshing		
	TS indicator	Input method	Single-ended input
	AD4203	Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
Indicator		Absolute maximum rating	±30 mA
indicator		Input impedance	85 Ω
		Resolution	1/8000 (full scale)
		Overall 25°C	±0.2% (full scale)
		accuracy 0 to 55°C	±0.4% (full scale)
		Conversion time	250 µs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.05 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	Terminal block Input1+ to 8+ NX bus connector (left) I/O power supply + I/O power supply -	AMP AG: Analog circuit inte	I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation:		
Terminal connection diagram	Additional I/O Power Suppr Connection Unit I/O Power Supply Unit I/O Power Suppr Connection Un	B1 A1 B1 Input1+ Input2+ Input3+ Input4+ Input4+	Input + 24 V (Sensor power supply +) 0 V (Sensor power supply – / Input –) ree-wire Sensor
Input disconnection detection	Supported.		

Analog Input Unit (current input type) 8 points NX-AD4204

Unit name	Analog Input Unit (current input type)	Model	NX-AD4204
Number of points	8 points	External connection	Screwless clamping terminal block (16
·	•	terminals	terminals)
I/O refreshing method	Free-Run refreshing TS indicator	Input method	Differential Input
	AD4204	Input range	4 to 20 mA
	■ TS	Input conversion range	-5 to 105% (full scale)
		Absolute maximum	, ,
In all a stan		rating	±30 mA
Indicator		Input impedance	85 Ω
		Resolution	1/8000 (full scale)
		Overall 25°C	±0.2% (full scale)
		accuracy 0 to 55°C	±0.4% (full scale)
		Conversion time	250 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	20 $\text{M}\Omega$ 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.
I/O power supply method	No supply	Current capacity of I/O power supply terminal	Without I/O power supply terminals
NX Unit power consumption	 Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.05 W max. 	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	Terminal block Input1+ to 8+		log circuit nal GND I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions		
Terminal connection diagram		nput + nput –	
Input disconnection detection	Supported.		

Analog Input Unit (current input type) 8 points NX-AD4208

Unit name	Analog Input Unit (current input type)	Model		NX-AD	04208
Number of points	8 points	External co	onnection	Screwl termina	less clamping terminal block (16 als)
I/O refreshing method	Selectable Synchronous I/O refreshing or F	ree-Run refr	reshing		
	TS indicator	Input meth	od	Differe	ential Input
	AD4208	Input rang	е	4 to 20) mA
	■TS	Input conv	ersion range	-5 to 1	05% (full scale)
		Absolute r	naximum	±30 m	A
Indicator		Input impe	dance	85 Ω	
		Resolution	1	1/3000	00 (full scale)
		Overall	25°C	±0.1%	(full scale)
		accuracy	0 to 55°C	±0.2%	(full scale)
		Conversio	n time	10 μs/	point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation n	nethod	= Tran	en the input and the NX bus: Powe sformer, Signal = Digital isolator (no
Insulation resistance	20 MΩ min. between isolated circuits (at	Dielectric :	strenath	510 V	on between inputs) AC between isolated circuits for 1
	100 VDC)			minute	e at a leakage current of 5 mA max.
I/O power supply method	No supply		pacity of I/O ply terminal	Withou	ut I/O power supply terminals
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.10 W max.	I/O current	consumption	No cor	nsumption
Weight	70 g max.	•			
Circuit layout	Terminal block Input1+ to 8+ Input1- to 8- NX bus connector (left) I/O power supply + I/O power supply -	510 KΩ \$ 510 l	AG: Anal	og circuit nal GND (I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions				it installation.
Terminal connection diagram		nput + nput –			
Input disconnection	Supported.				

Analog Output Unit Specifications

Analog Output Unit (voltage output type) 2 points NX-DA2603

Unit name	Analog Output Unit (voltage output type)	Model	NX-DA2603
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Free-Run refreshing		
	TS indicator DA2603 TS	Output range Output conversion range	-10 to +10 V -5 to 105% (full scale)
		Allowable load resistance	5 kΩ min.
Indicator		Output impedance	$0.5~\Omega$ max.
		Resolution	1/8000 (full scale)
		Overall 25°C	±0.3% (full scale)
		accuracy 0 to 55°C	±0.5% (full scale)
		Conversion time	250 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.10 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) I/O power supply -	AMP W	Output V1+ to V2+ IOG I/O power supply + I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communications Connected to a Communications Couple Restrictions: No restrictions		
Terminal connection diagram	Additional I/O Power Supply Unit A1 B1 IOV IOV IOV IOV IOG IOG A8 B8	Voltage Output Unit NX-DA2603 V1+ V2+ IOV IOV IOG IOG NC NC B8	Voltage output + Voltage output -

Analog Output Unit (voltage output type) 2 points NX-DA2605

Unit name	Analog Output Unit (voltage output type)	Model	NX-DA2605
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or F		
	TS indicator	Output range	-10 to +10 V
	DA2605 ▶TS	Output conversion range	-5 to 105% (full scale)
		Allowable load resistance	5 k $Ω$ min.
Indicator		Output impedance	0.5 Ω max.
		Resolution	1/30000 (full scale)
		Overall 25°C	±0.1% (full scale)
		accuracy 0 to 55°C	±0.3% (full scale)
		Conversion time	10 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	20 M Ω 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.10 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) NX bus connector (left) I/O power supply -	AMP W	Output V1+ to V2+ IOG I/O power supply + I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communica Connected to a Communications Couple Restrictions: No restrictions		
Terminal connection diagram	●IOV IOV ■IOG IOG IOV IOV IOG IOG	Voltage Output Unit NX-DA2605 A V1+ V2+ IOV IOV IOG IOG NC NC B1	Voltage output + Voltage output –

Analog Output Unit (voltage output type) 4 points NX-DA3603

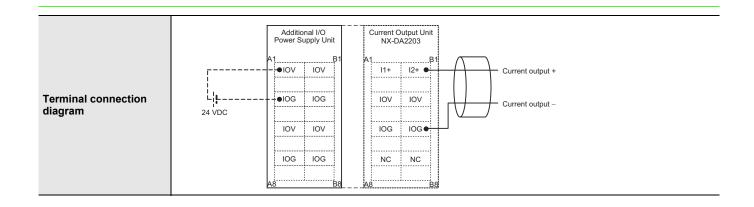
Unit name	Analog Output Unit (voltage output type)	Model	NX-DA3603
Number of points	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
/O refreshing method	Free-Run refreshing		
	TS indicator	Output range	-10 to +10 V
	DA3603	Output conversion range	-5 to 105% (full scale)
		Allowable load resistance	5 k $Ω$ min.
Indicator		Output impedance	0.5Ω max.
		Resolution	1/8000 (full scale)
		Overall 25°C	±0.3% (full scale)
		accuracy 0 to 55°C	±0.5% (full scale)
		Conversion time	250 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.25 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) NX bus connector I/O power supply +	uit internal GND AG	Output V1+ to V4+ IOG I/O power supply + I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation:		
Terminal connection diagram	Additional I/O Power Supply Unit A IOV IOV IOV IOV IOV IOG IOG IOG IOG A8 B8	Voltage Output Unit NX-DA3603 A1	Voltage output + Voltage output –

Analog Output Unit (voltage output type) 4 points NX-DA3605

Unit name	Analog Output Unit (voltage output type)	Model	NX-DA3605
Number of points	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
/O refreshing method	Selectable Synchronous I/O refreshing or I	ree-Run refreshing	
	TS indicator	Output range	-10 to +10 V
	DA3605	Output conversion range	-5 to 105% (full scale)
		Allowable load resistance	5 kΩ min.
Indicator		Output impedance	0.5 Ω max.
		Resolution	1/30000 (full scale)
		Overall 25°C	±0.1% (full scale)
		accuracy 0 to 55°C	±0.3% (full scale)
		Conversion time	10 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
nsulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 1.60 W max. Connected to a Communications Coupler Unit 1.25 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) NX bus connector (left) NX bus connector (left) NX bus connector (left)	AMP (1)	Output V1+ to V4+ IOG I/O power supply + NX bus connector (right)
Installation orientation and restrictions	Installation orientation:		
Terminal connection diagram	Additional I/O Power Supply Unit A1 B1 OIOV IOV IOV IOV IOV IOG IOG A8 B8	Voltage Output Unit NX-DA3605 1	Voltage output + Voltage output –

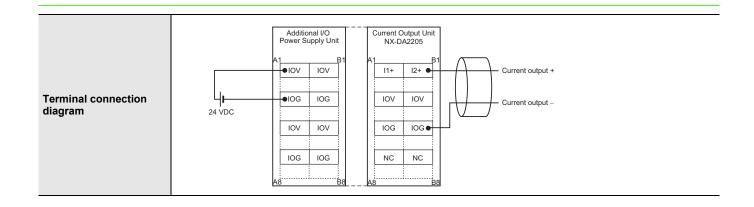
Analog Output Unit (current output type) 2 points NX-DA2203

Unit name	Analog Output Unit (current output type)	Model	NX-DA2203
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Free-Run refreshing		
	TS indicator	Output range	4 to 20 mA
	DA2203 ■TS	Output conversion range	-5 to 105% (full scale)
Indicator		Allowable load resistance	600 Ω max.
		Resolution	1/8000 (full scale)
		Overall 25°C	±0.3% (full scale)
		accuracy 0 to 55°C	±0.6% (full scale)
		Conversion time	250 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	 Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.75 W max. 	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) N/O power supply +	AMP With internal GND AG	Output I1+ to I2+ IOG I/O power supply + I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communic Connected to a Communications Coupl Restrictions: For upright installation: No restrictions For any installation other than upright: Res	er Unit: Possible in 6 orienta	ations.



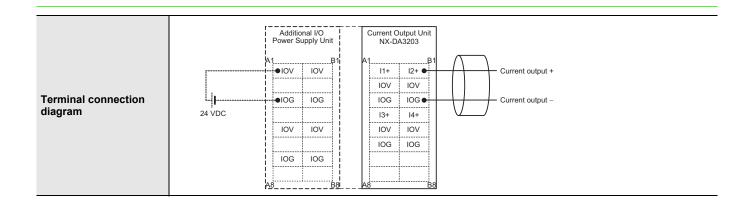
Analog Output Unit (current output type) 2 points NX-DA2205

Unit name	Analog Output Unit (current output type)	Model	NX-DA2205
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or I	Free-Run refreshing	
	TS indicator	Output range	4 to 20 mA
	DA2205 ■TS	Output conversion range	-5 to 105% (full scale)
Indicator		Allowable load resistance	600 $Ω$ max.
		Resolution	1/30000 (full scale)
		Overall 25°C	±0.1% (full scale)
		accuracy 0 to 55°C	±0.3% (full scale)
		Conversion time	10 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	 Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.75 W max. 	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) I/O power supply + I/O power supply -	aMP 00 autitinternal GND AG	Output I1+ to I2+ IOG I/O power supply + I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communic Connected to a Communications Couple Restrictions: For upright installation: No restrictions For any installation other than upright: Res	er Unit: Possible in 6 oriental stricted as shown in the grap	tions.



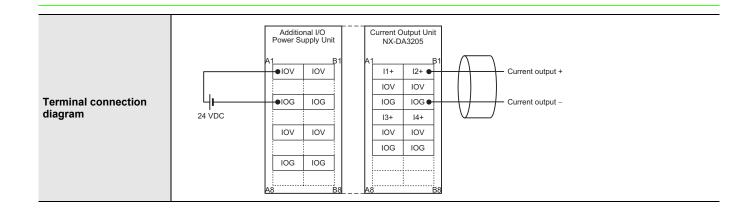
Analog Output Unit (current output type) 4 points NX-DA3203

Unit name	Analog Output Unit (current output type)	Model	NX-DA3203
Number of points	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
/O refreshing method	Free-Run refreshing		
	TS indicator	Output range	4 to 20 mA
	DA3203	Output conversion range	-5 to 105% (full scale)
Indicator		Allowable load resistance	350 $Ω$ max.
		Resolution	1/8000 (full scale)
		Overall 25°C	±0.3% (full scale)
		accuracy 0 to 55°C	±0.6% (full scale)
		Conversion time	250 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.80 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) NX bus connector (left) NX bus connector (left)	AMP W	Output I1+ to I4+ IOG I/O power supply + I/O power supply - I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communic Connected to a Communications Coupl Restrictions: For upright installation: No restrictions For any installation other than upright: Res	er Unit: Possible in 6 orienta	itions.



Analog Output Unit (current output type) 4 points NX-DA3205

Unit name	Analog Output Unit (current output type)	Model	NX-DA3205
Number of points		External connection	Screwless clamping terminal block (12
·	4 points	terminals	terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or F		L44: 00 A
	TS indicator	Output range	4 to 20 mA
	DA3205 ■TS	Output conversion range	-5 to 105% (full scale)
Indicator		Allowable load resistance	350 Ω max.
		Resolution	1/30000 (full scale)
		Overall 25°C	±0.1% (full scale)
		accuracy 0 to 55°C	±0.3% (full scale)
		Conversion time	10 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~\text{M}\Omega$ 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.
I/O power supply method	Supply from the NX bus	Current capacity of I/O power supply terminal	IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max.
NX Unit power consumption	Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.80 W max.	I/O current consumption	No consumption
Weight	70 g max.		
Circuit layout	NX bus connector (left) NX bus connector (left) NX bus connector (left)	uit internal GND AG	Output I1+ to I4+ IOG I/O power supply + I/O power supply - I/O power supply - I/O power supply -
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communications Couple Restrictions: For upright installation: No restrictions For any installation other than upright: Res	tricted as shown in the grap Use it within t	h below.



Version Information

Connected to a CPU Unit

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

NX Unit		Corresponding unit versions/versions	
Model	Unit version	CPU Unit	Sysmac Studio
NX-AD	Ver.1.0	Ver.1.13	Ver.1.17

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.

Connected to an EtherCAT Coupler Unit

N	NX Unit	Corre	esponding unit versions/versions			
Model	Model Unit version E		CPU Unit or Industrial PC	Sysmac Studio		
NX-AD	Ver.1.0	Ver.1.0	Ver.1.05	Ver.1.06		

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.

Connected to an EtherNet/IP Coupler Unit

NX Uni	t	Corresponding unit versions/versions					
		Application with a	n NJ/NX/NY-serie	es Controller *1	*1 Application with a CS/CJ/CP-series PLC *2		
Model	Unit version	EtherNet/IP CPU Unit or Sysmac Coupler Unit Industrial PC Studio		EtherNet/IP Coupler Unit	Sysmac Studio	NX-IO Configurator *3	
NX-AD	Ver. 1.0	Ver. 1.2	Ver. 1.14	Ver. 1.19	Ver. 1.0	Ver. 1.10	Ver. 1.00

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, connection is supported only for a connection to the peripheral USB port on the EtherNet/IP Coupler Unit. You cannot connect by any other path. If you need to connect by another path, use an EtherNet/IP Coupler Unit with unit version 1.2 or later.

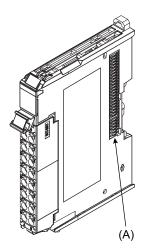
Connected to Communication Control Units

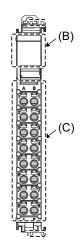
	NX Unit	Corresponding unit versions/versions		
Model	Unit version	Communication Control Unit	Sysmac Studio	
NX-AD	Ver.1.0	Ver.1.00	Ver.1.24	

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

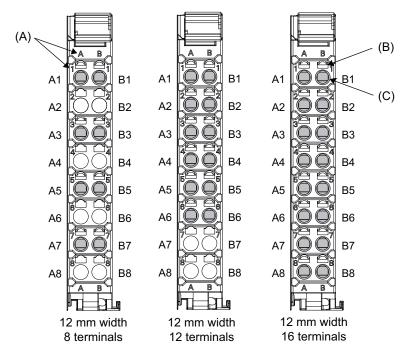
Screwless Clamping Terminal Block Type 12 mm Width





Letter	Item	Specification	
(A)	NX bus connector	This connector is used to connect to another Unit.	
(B)	Indicators	The indicators show the current operating status of the Unit.	
(C)	Terminal block	The terminal block is used to connect to external devices. The number of terminals depends on the Unit.	

Terminal Blocks



Letter	Item	Specification
(A)	Terminal number indication	The terminal number is identified by a column (A through D) and a row (1 through 8). Therefore, terminal numbers are written as a combination of columns and rows, A1 through A8 and B1 through B8. The terminal number indication is the same regardless of the number of terminals on the terminal block.
(B)	Release hole	A flat-blade screwdriver is inserted here to attach and remove the wiring.
(C)	Terminal hole	The wires are inserted into these holes.

Applicable Terminal Blocks for Each Unit Model

	Terminal Blocks						
Unit model	Model	No. of terminals	Terminal number indications	Ground terminal mark	Terminal current capacity		
NX-AD2□□□	NX-TBA082	8	A/B	None	10 A		
NX-AD3□□□	NX-TBA122	12	A/B	None	10 A		
NX-AD4□□□	NX-TBA162	16	A/B	None	10 A		
NX-DA2□□□	NX-TBA082	8	A/B	None	10 A		
NX-DA3□□□	NX-TBA122	12	A/B	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.

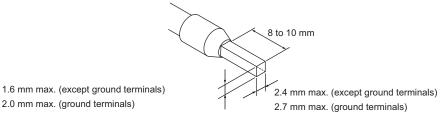
The applicable ferrules, wires, and crimping tool are given in the following table.

Terminal type	Manufacturer	Ferrule model	Applicable wire (mm² (AWG))	Crimping tool
Terminals other	Phoenix Contact	AI0,34-8	0.34 (#22)	Phoenix Contact (The figure in parentheses is the applicable wire size.)
than ground terminals		AI0,5-8	0.5 (#20)	CRIMPFOX 6 (0.25 to 6 mm ² , AWG24 to 10)
terrilliais		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)	
		AI1,5-10		
Ground terminals		AI2,5-10	2.0 *	
Terminals other	Weidmuller	H0.14/12	0.14 (#26)	Weidmuller (The figure in parentheses is the applicable wire size.)
than ground terminals		H0.25/12	0.25 (#24)	PZ6 Roto (0.14 to 6 mm ² , AWG 26 to 10)
terminais		H0.34/12	0.34 (#22)	
		H0.5/14	0.5 (#20)	
		H0.5/16	1	
		H0.75/14	0.75 (#18)	
		H0.75/16	1	
		H1.0/14	1.0 (#18)	
		H1.0/16	1	
		H1.5/14	1.5 (#16)	
		H1.5/16	7	

^{*} Some AWG 14 wires exceed 2.0 mm² 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



Using Twisted Wires/Solid Wires

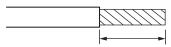
2.0 mm max. (ground terminals)

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

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

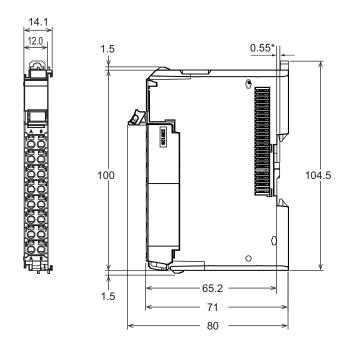


Conductor length (stripping length)

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

Dimensions (Unit/mm)

Screwless Clamping Terminal Block Type 12 mm Width



^{*} The dimension is 1.35 mm for Units with lot numbers through December 2014.

Related Manual

Cat. No.	Model number	Manual name	Application	Description
W522	NX-AD	NX-series Analog I/O Units User's Manual for Analog Input Units and Analog Output Units		The hardware, setup methods, and functions of the NX-series Analog Input Units and Analog Output Units are described.

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