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

CSM NX-AD DA DS E 3 1

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
- Sampling times down to 10 µs per channel and high resolution of 1/30,000
- Single-ended or differential input (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

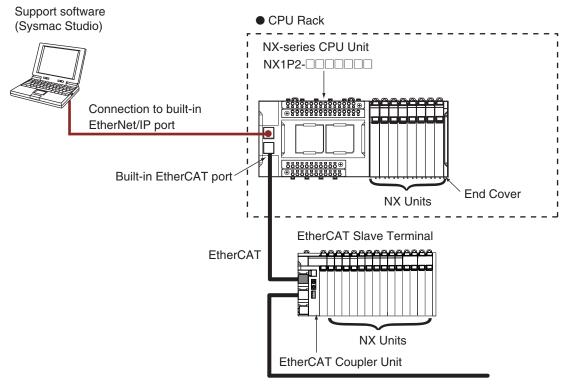
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System Configurations

Connected to a CPU Unit or Communication Control Unit

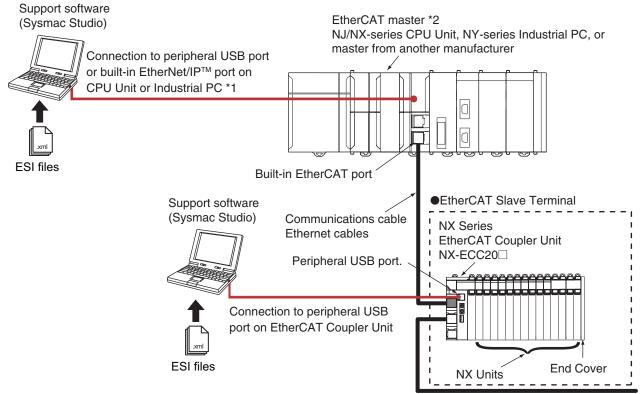
The following figure shows a system configuration when NX Units are connected to an NX-series CPU Unit.



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.



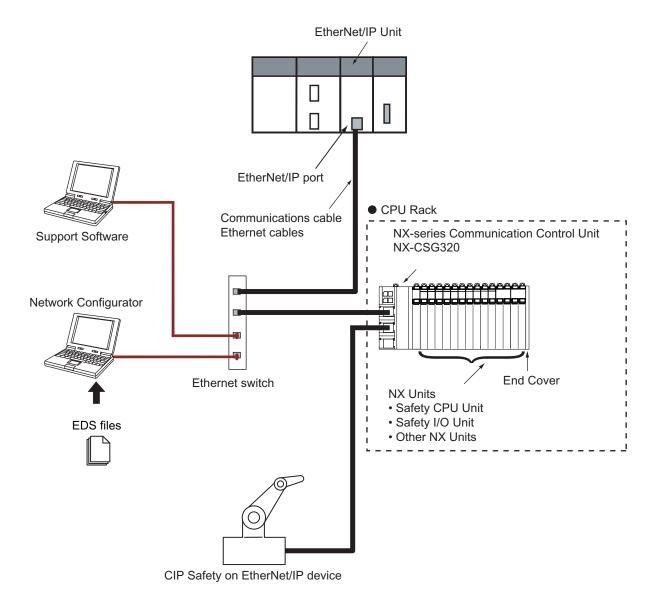
^{*1.} The connection method for the Sysmac Studio depends on the model of the CPU Unit or Industrial PC.

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

^{*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.

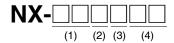
System Configuration in the Case of a Communication Control Unit

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

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		
08	1/30000	10 μs/point	Differential		Yes	

^{*1} Free-Run refreshing

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	

^{*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			1/0000	4000 1 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.	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD3608
			.,	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 μs/		Free-Run refreshing	NX-AD4603
	8 points		1/8000			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
					±0.2% (full scale)	Single-ended input	250 μs/		Free-Run refreshing	NX-AD2203
			1/8000	0 to 8000		Differential input	point			NX-AD2204
	2 points		1/30000	0 to 30000	±0.1% (full scale)	Differential input	10 μs/ point	250.0	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-AD2208
Current Input type			4/0000	0.4- 0000	±0.2%	Single-ended input	250 μs/	selectable Synchron I/O refres or Free-R	Free-Run	NX-AD3203
		4 to	1/8000	0 to 8000	(full scale)	Differential input	point		refreshing	NX-AD3204
		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
			4/0000	0.4- 0000	±0.2%	Single-ended input	250 μs/		Free-Run	NX-AD4203
			1/8000	0 to 8000	(full scale)	Differential input	point		refreshing	NX-AD4204
	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	1/30000	-15000 to 15000	±0.1% (full scale)	10 μs/point	Selectable Synchronous I/O refreshing or Free- Run refreshing	NX-DA2605
Current Output type	4 points	+10 V	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
			1/8000	0 to 8000	±0.3% (full scale)	250 μs/point	Free-Run refreshing	NX-DA2203
	2 points	4 to 20 mA	1/30000	0 to 30000	±0.1% (full scale)	10 μs/point	Selectable Synchronous I/O refreshing or Free-Run refreshing	NX-DA2205
			1/8000	0 to 8000	±0.3% (full scale)	250 μs/point	Free-Run refreshing	NX-DA3203
			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, Unit: 30 pins)				NX-AUX02	
		Specif	fication			
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 method		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 environment	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			
		External c	onnection	Screwless clamping terminal block (8			
Number of points	2 points	terminals		terminals)			
I/O refreshing method	Free-Run refreshing						
	TS indicator	Input meth		Single-ended input			
	AD2603	Input rang		-10 to +10 V			
		-	rersion range	-5 to 105% (full scale)			
Indicator		Absolute r rating		±15 V			
maioator		Input impe		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. 	I/O current	t consumption	No consumption			
Weight	70 g max.						
Circuit layout	Terminal block Input1+ to 2+ IOG AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply + I/O power supply - I/O power						
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 +) OV IOV IOV IOV IOV IOV IOV IOV IOV IOV I						
Input disconnection detection	Not supported.						

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

Number of points 2 points External connection terminals Screwless clamping terminal block (8 terminals)	Unit name	Analog Input Unit (voltage input type)	Model	NX-AD2604			
Indicator Tereshing method Free-Run refreshing Ts indicator Input method Input mange -10 to +10 V Input conversion range -5 to 105% (full scale) Absolute maximum rating -110 to +10 V Input conversion range -5 to 105% (full scale) -10 to +10 V Input conversion range -5 to 105% (full scale) -10 to +10 V Input conversion range -5 to 105% (full scale) -10 to +10 V Input conversion range -5 to 105% (full scale) -10 to +10 V Input conversion range -5 to 105% (full scale) -10 to +10 V -10							
Indicator Indicator	<u> </u>	·					
Input range	I/O refreshing method		1				
Input conversion range -5 to 105% (full scale)			•	'			
Absolute maximum rating 15 V Input impedance 1 MΩ min. Resolution 1/8000 (full scale)			' '				
Input impedance 1 MΩ min. Resolution 1/8000 (full scale) 1/9000 (full scale) 1/9000 (full scale) 25°C			•	-5 to 105% (full scale)			
Input Impedance IMΩ Imin. Homo (full scale) Homo (full sc		1		±15 V			
Overall accuracy 25°C	Indicator		Input impedance	1 MΩ min.			
Dimensions 12 (W) x 100 (H) x 71 (D) Isolation method Setween the input and the NX bus: Power = Transformer, Signal = Digital isolator (residation between inputs)		1	Resolution	1/8000 (full scale)			
Conversion time 250 μs/point		1	Overall 25°C	±0.2% (full scale)			
Dimensions 12 (W) x 100 (H) x 71 (D) Isolation method Between the input and the NX bus: Power arms former, Signal = Digital isolator (not isolation between inputs)		1	accuracy 0 to 55°C	±0.4% (full scale)			
Dimensions 12 (W) x 100 (H) x 71 (D) Isolation method = Transformer, Signal = Digital isolator (r isolation between inputs)			Conversion time	<u>' '</u>			
100 VDC Dielectric strength minute at a leakage current of 5 mA max	Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method	= Transformer, Signal = Digital isolator (no			
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 1.35 W max. • Connected to a Communications Coupler Unit 1.05 W max. Weight 70 g max. Input1+ to 2+ Input1- to 2- AG AG: Analog circuit internal GND NX bus Connector I/O power supply + NX bus Connector I/O power supply + NX bus Connector				Without I/O power supply terminals			
Circuit layout NX bus connector (J.P.)		Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit	I/O current consumption	No consumption			
Circuit layout NX bus connector (J.B)	Weight	70 g max.					
	Circuit layout	Terminal block Input1 – to 2 – AG AG: Analog circuit internal GND NX bus connector (4.14) NX bus connector (4.14)					
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. 					
Terminal connection diagram 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.		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)	Model	NX-AD2608			
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			
	AD2608	Input range	-10 to +10 V			
		Input conversion range	-5 to 105% (full scale)			
Indicator		Absolute maximum rating	±15 V			
maioatoi		Input impedance	1 MΩ min.			
		Resolution	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 1.35 W max. Connected to a Communications Coupler Unit 1.05 W max.	No consumption				
Weight	70 g max.					
Circuit layout	Terminal block Input1+ to 2+ AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply + I/O power supply -					
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 - Input					
Input disconnection detection	Not supported.					

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

Unit name	Analog Input Unit (valtage input type)	Model	NV AD2602
Unit name	Analog Input Unit (voltage input type)	External connection	NX-AD3603 Screwless clamping terminal block (12
Number of points I/O refreshing method	4 points Free-Run refreshing	terminals	terminals)
70 refreshing method	TS indicator	Input method	Single-ended input
	AD3603	Input range	-10 to +10 V
	₽TS	Input conversion range	-5 to 105% (full scale)
		Absolute maximum	, ,
Indicatou		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	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 1.10 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 -	1MΩ 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 IOO IOV IOV IOV IOV IOV IOG IOG A8 B8	Voltage Input Unit NX-AD3603 A1 B1 Input1+ Input2+ IOV IOV IOG IOG Input3+ Input4+ IOV IOV IOG IOG A8 B8	Input + 24 V (Sensor power supply +) 0 V (Sensor power supply – / Input –) ire sensor
Input disconnection detection	Not supported.		

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

Unit name	Analog Input Unit (voltage input type)	Model		NX-AD3604	
		External cor	nection	Screwless clamping terminal block (12	
Number of points	4 points	terminals		terminals)	
I/O refreshing method	Free-Run refreshing				
	TS indicator	Input metho	d	Differential Input	
	AD3604	Input range		-10 to +10 V	
		Input conver		-5 to 105% (full scale)	
In dia atau		rating	axiiiiuiii	±15 V	
Indicator		Input impeda	ance	1 MΩ min.	
		Resolution		1/8000 (full scale)	
		Overan	25°C	±0.2% (full scale)	
) to 55°C	±0.4% (full scale)	
		Conversion	time	250 μs/point	
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation me	ethod	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 st		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.	
I/O power supply method	No supply	Current capa power suppl		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 1.10 W max.	I/O current consumption		No consumption	
Weight	70 g max.				
Circuit layout	Terminal block Input1+ to 4+ AG AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply +			I/O power supply + NX bus connector	
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
		External c	onnection	Screwless clamping terminal block (12
Number of points	4 points	terminals		terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing			
	TS indicator	Input meth		Differential Input
	AD3608	Input rang		-10 to +10 V
		Absolute	rersion range	-5 to 105% (full scale)
In all a share		rating	IIIaxiiiiuiii	±15 V
Indicator		Input impe	edance	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	n time	10 μs/point
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation r	nethod	Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)
Insulation resistance	$20~M\Omega$ min. between isolated circuits (at 100 VDC)	Dielectric		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
I/O power supply method	No supply		apacity of I/O oply 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 AG: Analog circuit internal GND NX bus connector (left) I/O power supply + I/O power supply - I/O power supply - I/O power supply -			I/O power supply + NX bus connector
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-AD3608 A1			
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 connection terminals	Screwless clamping terminal block (16 terminals)	
I/O refreshing method	Free-Run refreshing			
	TS indicator	Input method	Single-ended input	
	AD4603	Input range	-10 to +10 V	
		Input conversion range	-5 to 105% (full scale)	
Indicator		Absolute maximum rating	±15 V	
ilidicator		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	Supply from the NX bus	Current capacity of I/O power supply terminal	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 consumption	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 circuit int	ernal 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	IOV ICV ICV		Input + 24 V (Sensor power supply +) 0 V (Sensor power supply –/ I	
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 terminals	Screwless clamping terminal block (16 terminals)
I/O refreshing method	Free-Run refreshing		
	TS indicator	Input method	Differential Input
	AD4604 • TS	Input range	-10 to +10 V
		Input conversion range	-5 to 105% (full scale)
Indicator		Absolute maximum rating	±15 V
maioaioi		Input impedance	1 MΩ min.
		Resolution Overall 25°C	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
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 \$510 KΩ AG: Analog circuit into	ernal 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	Not supported.		

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

Unit name	Analog Input Unit (voltage input type)	Model		NX-AD4608	
	<u> </u>	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	Input meth		Differential Input	
	AD4608 DTS	Input rang		-10 to +10 V	
		Absolute i	rersion range	-5 to 105% (full scale)	
lo di a atau		rating	IIIaxiiiiuiii	±15 V	
Indicator		Input impe	edance	1 MΩ min.	
		Resolution		1/30000 (full scale)	
		Overall	25°C	±0.1% (full scale)	
		accuracy	0 to 55°C	±0.2% (full scale)	
		Conversio	on time	10 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 M Ω min. between isolated circuits (at 100 VDC)	Dielectric		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.	
I/O power supply method	No supply		apacity of I/O oply 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	Terminal block Input1+ to 8+ AMP AG AG AG: Analog circuit internal GND NX bus connector (left) I/O power supply +			I/O power supply + NX bus connector	
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-AD4608 A1 B1 Input1+ Input2+ Input1- Input2- Input3+ Input4+ Input3- Input4- Input5+ Input6+ Input5- Input6- Input7+ Input8+ Input7- Input8- A8 B8				
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	
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)	
I/O refreshing method	Free-Run refreshing			
	TS indicator	Input method	Single-ended input	
	AD2203	Input range	4 to 20 mA	
		Input conversion range	-5 to 105% (full scale)	
Indicator		Absolute maximum rating	±30 mA	
indicator.		Input impedance	250 Ω min.	
		Resolution Overall 25°C	1/8000 (full scale) ±0.2% (full scale)	
		Overall 25°C accuracy 0 to 55°C	±0.2% (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 2+ IOG AMP NX bus connector (left) I/O power supply + I/O power supply - I/O pow			
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 IOV IOV IOV IOV IOG IOG A8 B8	IOG IOG • NC NC	Input + 24 V (Sensor power supply +) 0 V (Sensor power supply – / Input –) -wire sensor	
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
Number of points	2 points	External connection terminals	Screwless clamping terminal block (8 terminals)
I/O refreshing method	Free-Run refreshing	I	1
	TS indicator	Input method	Differential Input
	AD2204 DTS	Input range	4 to 20 mA
		Input conversion range Absolute maximum	-5 to 105% (full scale)
Indicator		rating	±30 mA
maioatoi		Input impedance	250 Ω min.
		Resolution Overall 25°C	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
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 $\mbox{M}\Omega$ 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 + 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 re AG terminal normally.	init.
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 Free-Run refreshing			
	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	
maioatoi		Input impedance	250 Ω	
		Resolution	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+ 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.	init.	
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	
		External connection	Screwless clamping terminal block (12	
Number of points	4 points	terminals	terminals)	
I/O refreshing method	Free-Run refreshing			
	TS indicator	Input method	Single-ended input	
	AD3203	Input range	4 to 20 mA	
		Input conversion range Absolute maximum	-5 to 105% (full scale)	
		rating	±30 mA	
Indicator		Input impedance	250 Ω 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 MΩ min. between isolated circuits (at	Dielectric strength	510 VAC between isolated circuits for 1	
I/O power supply	100 VDC)	Current capacity of I/O	minute at a leakage current of 5 mA max. IOV: 0.1 A/terminal max.,	
method	Supply from the NX bus	power supply terminal	IOG: 0.1 A/terminal max.,	
	Connected to a CPU Unit or Communication Control Unit			
NX Unit power	1.25 W max.	I/O current consumption	No consumption	
consumption	Connected to a Communications	70 current consumption	No consumption	
	Coupler Unit 0.90 W max.			
Weight	70 g max.			
	[lov			
		\sim		
	Terminal block Input1+ to 4+	250 Ω AMP		
Circuit layout	IOG O	250 Ω //		
	_	AG AG: Analog circuit inte	rnal GND	
	NX bus I/O power supply +		I/O power supply + NX bus	
	connector (left) I/O power supply –		I/O power supply – connector (right)	
	E inc power supply – 5			
Installation orientation	Installation orientation: • Connected to a CPU Unit or Communication	ation Control Unit: Possible i	n upright installation.	
and restrictions	Connected to a Communications Couple			
	Restrictions: No restrictions			
	Additional I/O Power Supply Unit	Current Input Unit		
	Fower Supply Office	NX-AD3203		
	A1 B1	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	Input3+ Input4+ Three-w	ire sensor	
	IOV IOV	IOV IOV		
		IOG IOG		
	IOG IOG			
	A8 B8	.:		
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	
·	•	terminals	terminals)	
I/O refreshing method	Free-Run refreshing	In must meather at	Differential lands	
	TS indicator AD3204	Input method Input range	Differential Input 4 to 20 mA	
	DTS	Input conversion range	-5 to 105% (full scale)	
		Absolute maximum	· · · · · ·	
la dia stan		rating	±30 mA	
Indicator		Input impedance	250 Ω 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 $\mbox{M}\Omega$ 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

Unit name	Analog Input Unit (current input type)	Model	NX-AD3208	
Number of points	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)	
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing			
	TS indicator	Input method	Differential Input	
	AD3208	Input range	4 to 20 mA	
		Input conversion range	-5 to 105% (full scale)	
Indicator		Absolute maximum rating	±30 mA	
maioatoi		Input impedance	250 Ω min.	
		Resolution	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 1.30 W max. Connected to a Communications Coupler Unit 0.95 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 -		alog circuit ernal GND 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 Communica Connected to a Communications Couple Restrictions: No restrictions			
Terminal connection diagram	Input1- Input2- Input3+ Input4+ Input3- Input4- AG AG AG AG AG AG	nput + nput – d to 0 V of analog circuit inside the U re AG terminal normally.	Jnit.	
Input disconnection detection	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 DTS	Input range	4 to 20 mA		
		Input conversion range	-5 to 105% (full scale)		
Indicator		Absolute maximum rating	±30 mA		
		Input impedance	85 Ω		
		Resolution Overall 25°C	1/8000 (full scale) ±0.2% (full scale)		
		Overall 25°C accuracy 0 to 55°C	±0.2% (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		
Insulation resistance	20 MΩ min. between isolated circuits (at 100 VDC)	Dielectric strength	isolation between inputs) 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+ AG: Analog circuit internal GND NX bus connector (left) I/O power supply -				
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 IOG	NX-AD4203			
Input disconnection detection	Supported.				

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

Unit name	Analog Input Unit (current input type)	Model		NX-AD4	4204
		External connection			ess clamping terminal block (16
Number of points	8 points	terminals		termina	
I/O refreshing method	Free-Run refreshing	T			
	TS indicator	Input meth			ntial Input
	AD4204 ■TS	Input rang		4 to 20 mA	
		Absolute r	rersion range	-5 to 10	05% (full scale)
Indicator		rating		±30 mA	1
ilidicator		Input impe	edance	85 Ω	
		Resolution	I		(full scale)
		Overall	25°C		(full scale)
		accuracy	0 to 55°C		(full scale)
		Conversio	n time	250 μs/	<u>'</u>
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation n	nethod	= Trans	en the input and the NX bus: Power sformer, Signal = Digital isolator (no n between inputs)
Insulation resistance	20 M Ω min. between isolated circuits (at 100 VDC)	Dielectric			C between isolated circuits for 1 at a leakage current of 5 mA max.
I/O power supply method	No supply		pacity of I/O ply terminal	Without	t 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+	510 KΩ \$510 , G AG	AG: Anal	og circuit nal GND	O 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				installation.
Terminal connection diagram	Current Input Unit NX-AD4204 A1 B1 Input1+ Input2+ Input1- Input2- Input3- Input4- Input5- Input6- Input5- Input8- Input7- Input8- A8 B8				
Input disconnection detection	Supported.				

Unit name	Analog Input Unit (current input type)	Model External connection terminals		NX-AD4208	
Number of points	8 points			Screwless clamping terminal block (16 terminals)	
I/O refreshing method	Selectable Synchronous I/O refreshing or I	Free-Run ref	reshing		
	TS indicator	Input method		Differential Input	
	AD4208 DTS	Input rang		4 to 20 mA	
	₩15	•	version range	-5 to 105% (full scale)	
Indicator		Absolute i		±30 mA	
	_	Input impe		85 Ω	
		Resolution		1/30000 (full scale)	
		Overall	25°C	±0.1% (full scale)	
			0 to 55°C	±0.2% (full scale)	
		Conversion	on time	10 μs/point	
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation method		Between the input and the NX bus: Powel = 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 term		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		5510 KΩ ₹ 510 G AG	AG: Analo	og circuit nal GND I/O power supply + NX bus connector (right)	
Installation orientation and restrictions	Installation orientation: Connected to a CPU Unit or Communic Connected to a Communications Couple Restrictions: No restrictions				
Terminal connection diagram	Current Input Unit NX-AD4208 A1 Input1+ Input2+ Input1- Input2- Input3+ Input4+ Input3- Input4-	Input + Input –			

Input3- Input4-Input5+ Input6+ Input5- Input6-

Input7+

Supported.

Input disconnection detection

Input6-

Input8-

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		-10 to +10 V -5 to 105% (full scale)		
		Allowable load resistance	5 kΩ min.		
Indicator		Output impedance	0.5 Ω 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 (0)	Output V1+ to V2+ 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 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 IOO IOV IOV IOV IOG IOG A8 B8 A8	Voltage Output Unit NX-DA2603 V1+ V2+ IOV IOV IOG IOG NC NC B8 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 Free-Run refreshing				
	TS indicator	Output ran	nge	-10 to +10 V	
	DA2605	Output cor range	nversion	-5 to 105% (full scale)	
		Allowable resistance		5 k $Ω$ min.	
Indicator		Output imp	pedance	$0.5~\Omega$ max.	
		Resolution	l	1/30000 (full scale)	
		Overall	25°C	±0.1% (full scale)	
		accuracy	0 to 55°C	±0.3% (full scale)	
		Conversio	n time	10 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 1.40 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) NX bus connector (left) NX bus connector (left)		MP - (1)0	Output V1+ to V2+ IOG 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	elov lov 24 VDC lov lov log log	Voltage Output NX-DA2605 A V1+ V2+ IOV IOV IOG IOC NC NC	B1	Voltage output + Voltage output –	

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

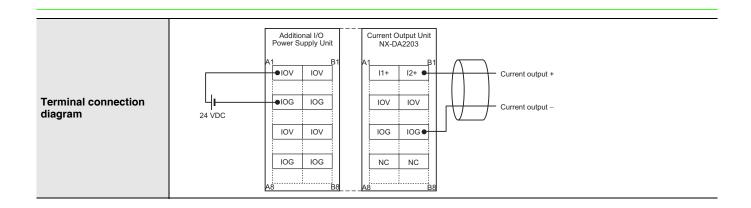
Unit name	Analog Output Unit (voltage output type)	Model	NX-DA3603
Number of points	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
/O refreshing method	Free-Run refreshing	1	
	TS indicator	Output range	-10 to +10 V
	DA3603	Output conversion range	-5 to 105% (full 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 1.35 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) I/O power supply +	AMP W	Output V1+ to V4+ 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: No restrictions		
Terminal connection diagram	Additional I/O Power Supply Unit A1 B1 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 tel terminals)	rminal block (12
/O refreshing method	Selectable Synchronous I/O refreshing or F	ree-Run refre	shing	I	
	TS indicator	Output rang	je	-10 to +10 V	
	DA3605 ●TS		version	-5 to 105% (full scale)	
		Allowable lo	oad	5 kΩ min.	
Indicator		Output impe	edance	$0.5~\Omega$ max.	
		Resolution		1/30000 (full scale)	
		Overall	25°C	±0.1% (full scale)	
		accuracy) to 55°C	±0.3% (full scale)	
		Conversion	time	10 μs/point	
Dimensions	12 (W) x 100 (H) x 71 (D)	Isolation me	ethod	Between the input and = Transformer, Signal = isolation between input	= Digital isolator (no
Insulation resistance	20 $\mbox{M}\Omega$ min. between isolated circuits (at 100 VDC)	Dielectric st	rength	510 VAC between isola minute at a leakage cu	
I/O power supply method	Supply from the NX bus	Current cap power supp		IOV: 0.1 A/terminal ma IOG: 0.1 A/terminal ma	
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)	AMF	AG AG	Output V1+ to V4+ IOG I/O power supply +	Terminal block NX bus connector (right)
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 OIOV IOV IOV IOV IOG IOG A8 B8	Voltage Output Ur NX-DA3605 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	B1 (─ Voltage output + Voltage output –	

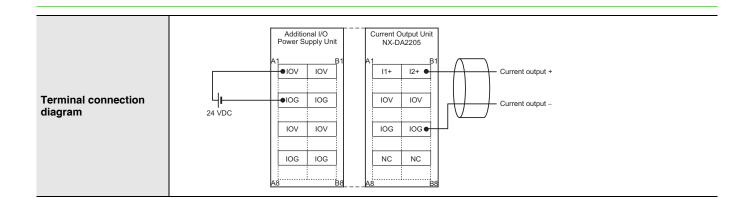
Analog Output Unit (current output type) 2 points NX-DA2203

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	Output conversion range	-5 to 105% (full scale)
Indicator		Allowable load resistance	600 Ω min.
		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) NX bus connector (left) NX bus connector (left)	aMP	Output I1+ to I2+ 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	ations.



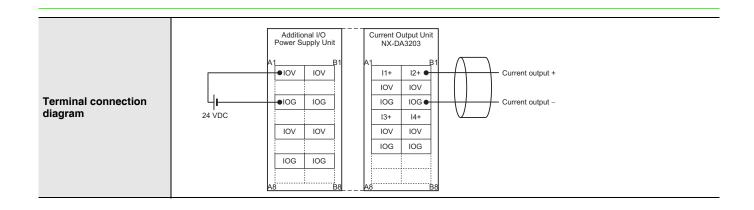
Analog Output Unit (current output type) 2 points NX-DA2205

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 Free-Run refreshing				
	TS indicator	Output range	4 to 20 mA		
	DA2205	Output conversion range	-5 to 105% (full scale)		
Indicator		Allowable load resistance	600 Ω min.		
		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) NX bus connector (left) NX bus connector (left)	uit 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 Couple Restrictions: For upright installation: No restrictions For any installation other than upright: Res	tricted as shown in the grap	ations.		



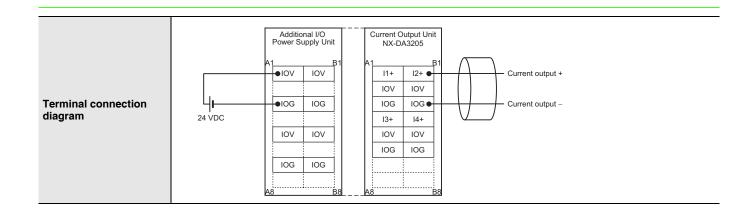
Analog Output Unit (current output type) 4 points NX-DA3203

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)		
I/O refreshing method	Free-Run refreshing				
	TS indicator	Output range	4 to 20 mA		
	DA3203 DTS	Output conversion range	-5 to 105% (full scale)		
Indicator		Allowable load resistance	$350~\Omega$ min.		
		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)	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 Communication Control Unit: Possible in upright installation. • Connected to a Communications Coupler Unit: Possible in 6 orientations. Restrictions: For upright installation: No restrictions For any installation other than upright: Restricted as shown in the graph below. (a) (b) (c) (d) (d) (d) (d) (d) (d) (d				



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

Unit name	Analog Output Unit (current output type)	Model	NX-DA3205
Number of points	4 points	External connection terminals	Screwless clamping terminal block (12 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or I		
-	TS indicator	Output range	4 to 20 mA
	DA3205	Output conversion range	-5 to 105% (full scale)
Indicator		Allowable load resistance	$350~\Omega$ min.
		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)	aMP (0)	Output I1+ to I4+ 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	tricted as shown in the grap Use it within the state of	tions. The 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	Corresponding unit versions/versions			
Model	Model Unit version		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 Unit			Corresponding unit versions/versions					
			Application with an NJ/NX/NY-series Controller *1			Application with a CS/CJ/CP-series PLC *2		
	Model	Unit version	EtherNet/IP Coupler Unit	CPU Unit or Industrial PC	Sysmac 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.

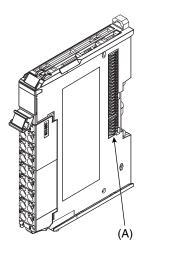
Connected to Communication Control Units

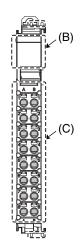
	NX Unit	Corresponding unit versions/versions		
Model Unit version		Communication Control Unit	Sysmac Studio	
NX-AD	Ver.1.0	Ver.1.00	Ver.1.24	

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

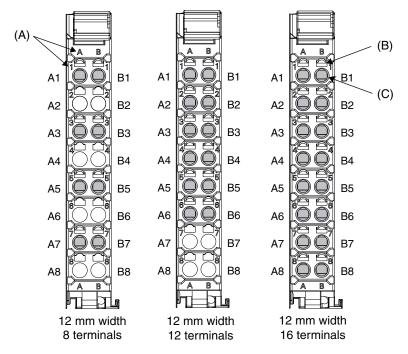
Screwless Clamping Terminal Block Type 12 mm Width





Letter	Item	Specification	
(A) NX bus connector This connector is used to connect to another Unit.		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.

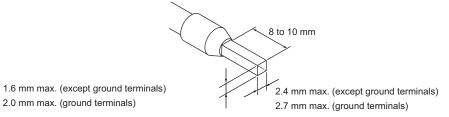
The applicable ferrules, wires, and crimping tool are given in the following table.

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)
terminais		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)	
		Al1,5-10		
Ground terminals		Al2,5-10	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 mm², 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		

^{*} 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



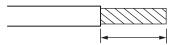
Using Twisted Wires/Solid Wires

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

Terminals		Wire type					0
		Twisted wires		Solid wire		Wire size	Conductor length (stripping length)
Classification	sification Current capacity Pla		Unplated	Plated	Unplated		(0ppg.10.19)
All terminals except ground terminals	2 A or less	Possible	Possible	Possible	Possible		8 to 10 mm
	Greater than 2 A and 4 A or less		Not Possible	Possible *1	Not	0.08 to 1.5 mm ² AWG28 to 16	
	Greater than 4 A	Possible *1		Not Possible	Possible	AVIGEO IO IO	
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.



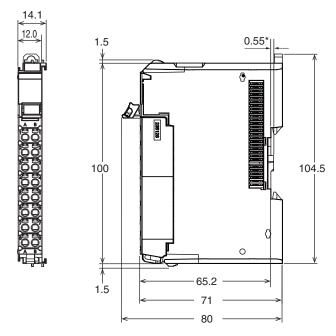
Conductor length (stripping length)

< 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	Learning how to use NX-series	The hardware, setup methods, and functions of the NX-series Analog Input Units and Analog Output Units are described.

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