NX-series Analog I/O Unit

NX-AD/DA

CSM_NX-AD_DA_DS_E_3_3

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

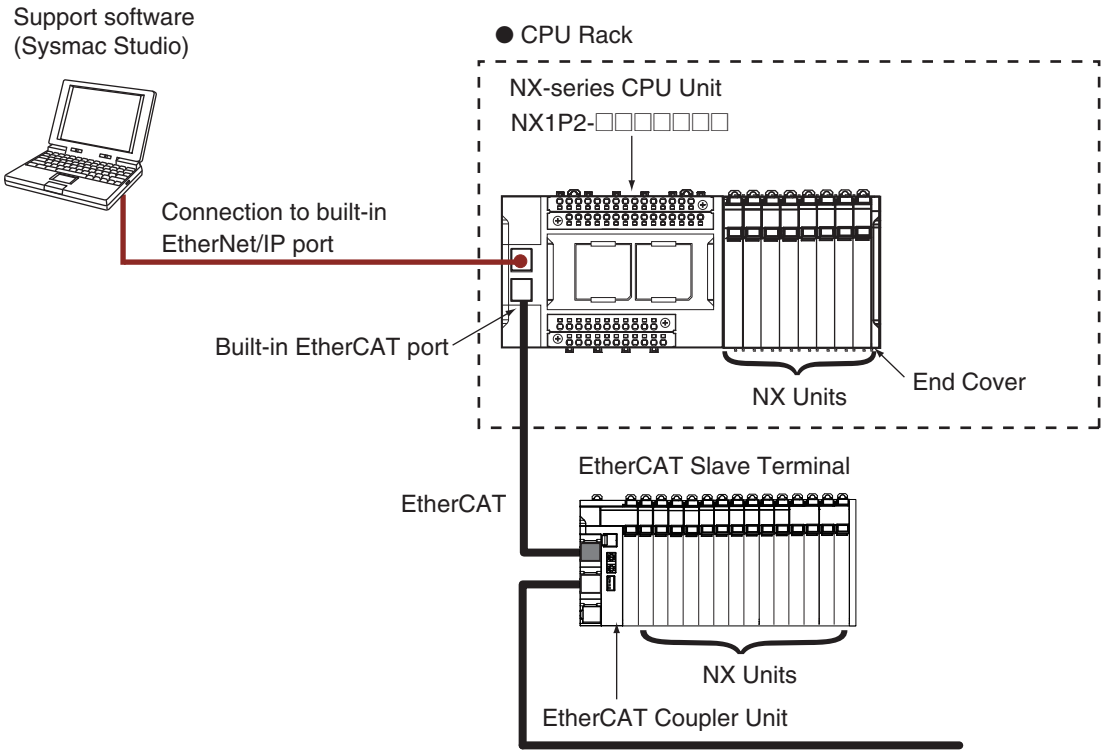
Features

- 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 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

System Configurations

Connected to a CPU Unit or Communication Control Unit

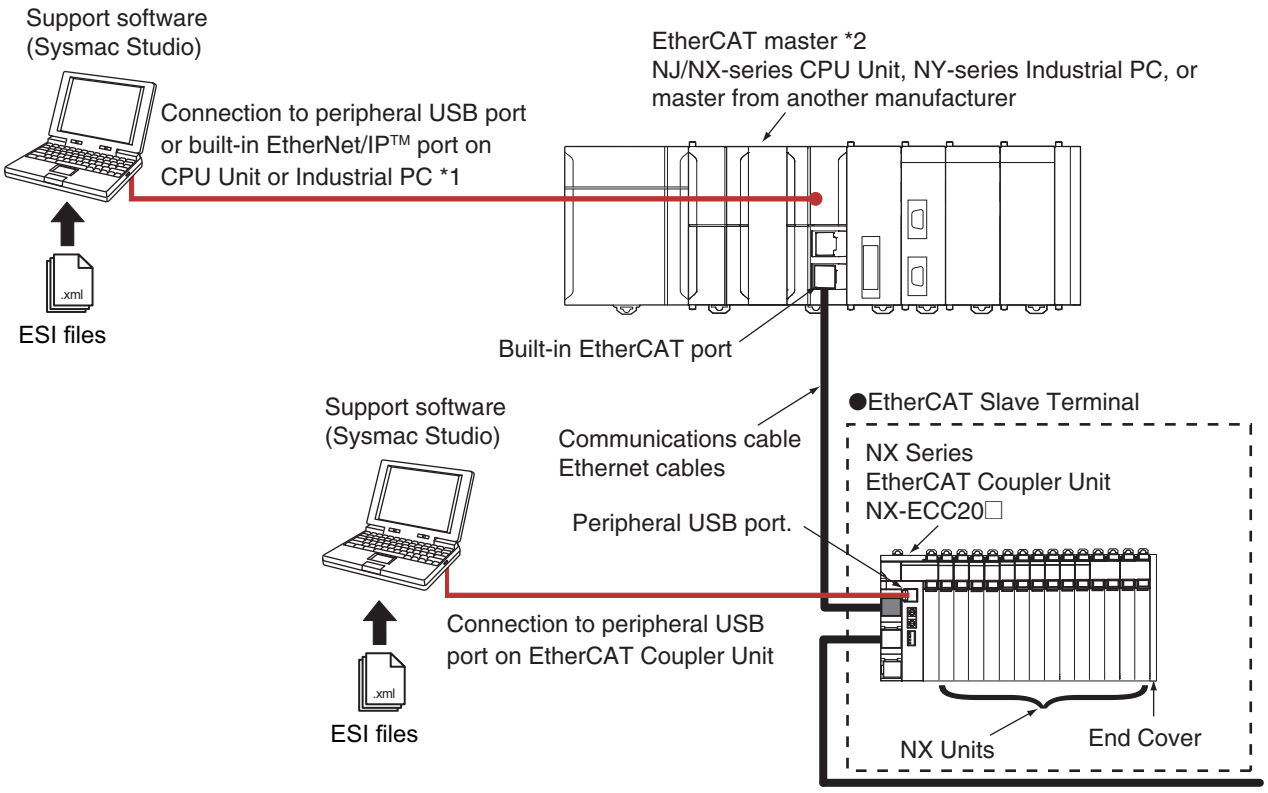
The following figure shows a system configuration when NX Units are connected to an NX-series CPU Unit.



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.

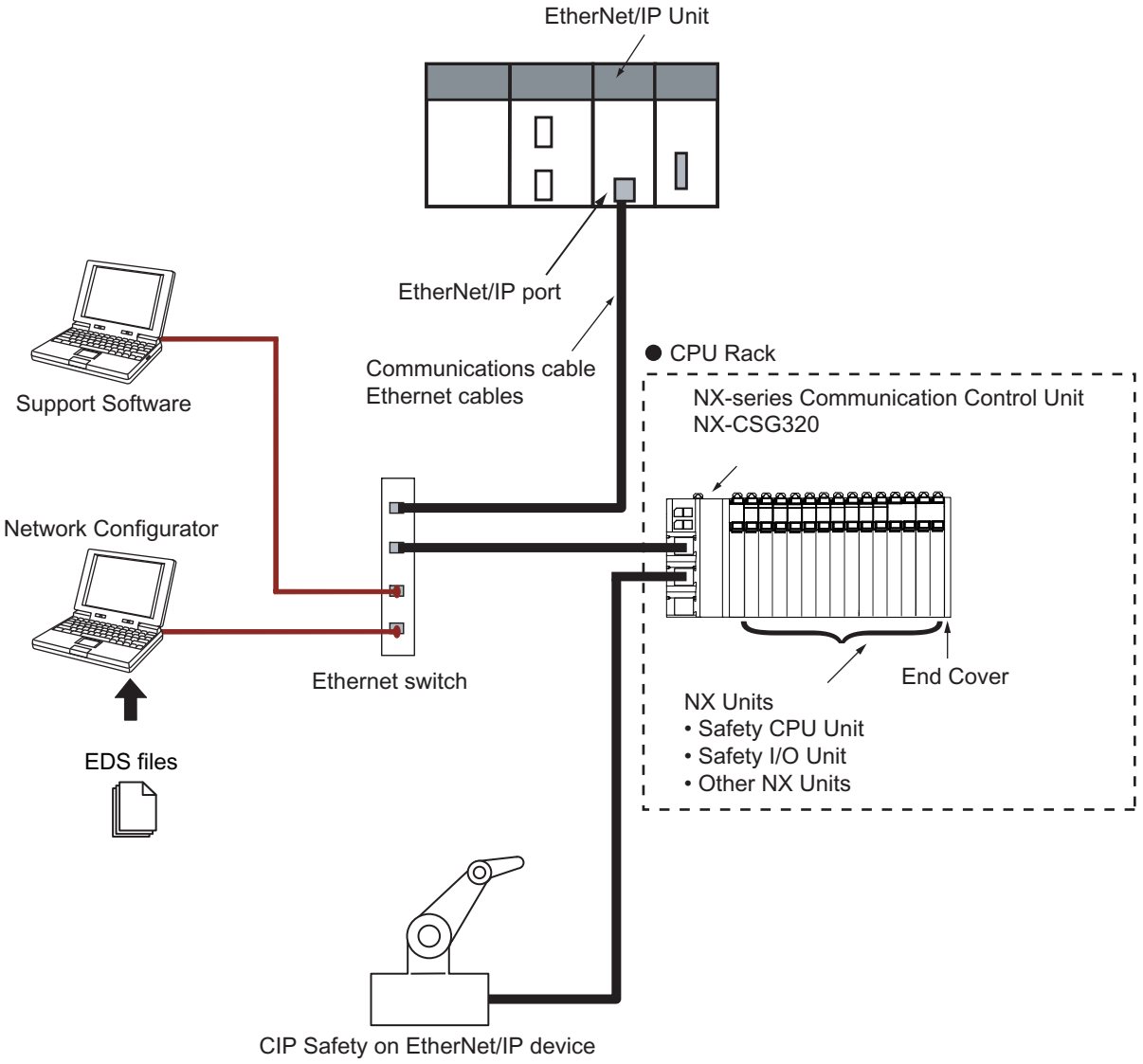


*1. The connection method for the Sysmac Studio depends on the model of the CPU Unit or Industrial PC.
*2. An EtherCAT Slave Terminal cannot be connected to any of the OMRON CJ1W-NC□81/□82 Position Control Units even though they can operate as EtherCAT masters.

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

NX-□□□□□□
(1) (2) (3) (4)

(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

No.	Resolution	Conversion time	Input method	I/O refreshing 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
*2 Synchronous I/O refreshing

Analog Output Units

No.	Resolution	Conversion time	I/O refreshing method	
			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

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

Product name	Specification									Model
	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	
Voltage Input type 	2 points	-10 to +10 V	1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 µs/ point	1 MΩ min.	Free-Run refreshing	**NX-AD2603**
						Differential input				**NX-AD2604**
			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**
	4 points		1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 µs/ point		Free-Run refreshing	**NX-AD3603**
						Differential input				**NX-AD3604**
			1/30000	-15000 to 15000	±0.1% (full scale)	Differential input	10 µs/ point		Selectable Synchronous I/O refreshing or Free-Run refreshing	**NX-AD3608**
	8 points		1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 µs/ point		Free-Run refreshing	**NX-AD4603**
						Differential input				**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**
Current Input type 	2 points	4 to 20 mA	1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 µs/ point	250 Ω	Free-Run refreshing	**NX-AD2203**
						Differential input				**NX-AD2204**
			1/30000	0 to 30000	±0.1% (full scale)	Differential input	10 µs/ point		Selectable Synchronous I/O refreshing or Free-Run refreshing	**NX-AD2208**
	4 points		1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 µs/ point		Free-Run refreshing	**NX-AD3203**
						Differential input				**NX-AD3204**
			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**
	8 points		1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 µs/ point	85 Ω	Free-Run refreshing	**NX-AD4203**
						Differential input				**NX-AD4204**
			1/30000	0 to 30000	±0.1% (full scale)	Differential input	10 µs/ point		Selectable Synchronous I/O refreshing or Free-Run refreshing	**NX-AD4208**

Analog Output Units

Product name	Specification							Model
	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	
Voltage Output type 	2 points	-10 to +10 V	1/8000	-4000 to 4000	±0.3% (full scale)	250 µs/point	Free-Run refreshing	**NX-DA2603**
			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	4 to 20 mA	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**
	4 points		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	Model
Unit/Terminal Block Coding Pins	For 10 Units (Terminal Block: 30 pins, Unit: 30 pins)	**NX-AUX02**

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

Accessories

Not included.

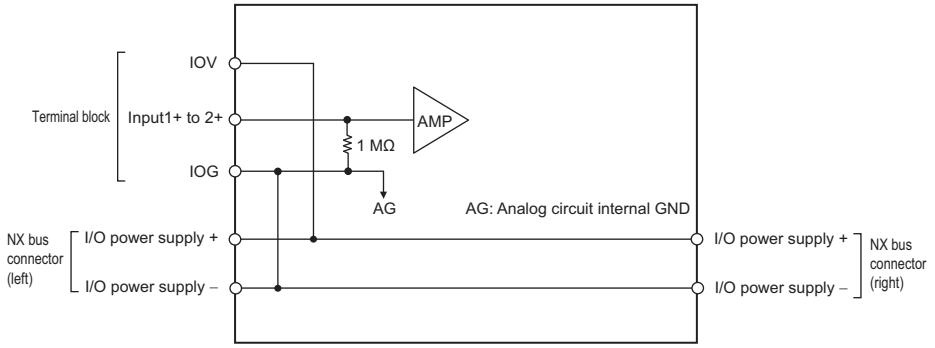
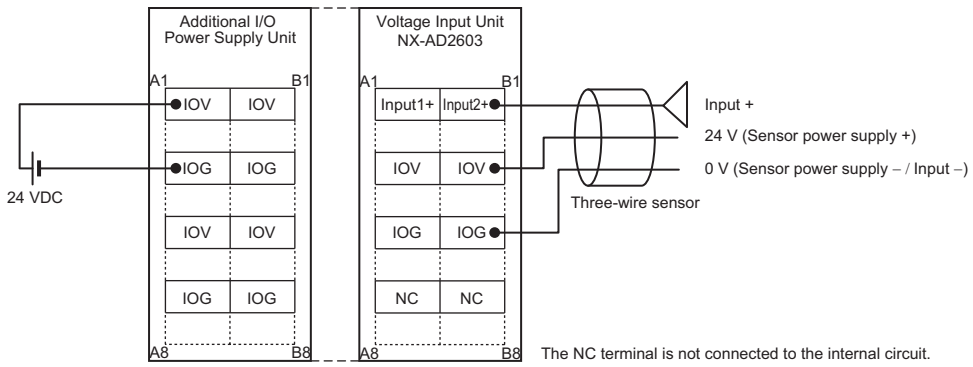
General Specifications

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

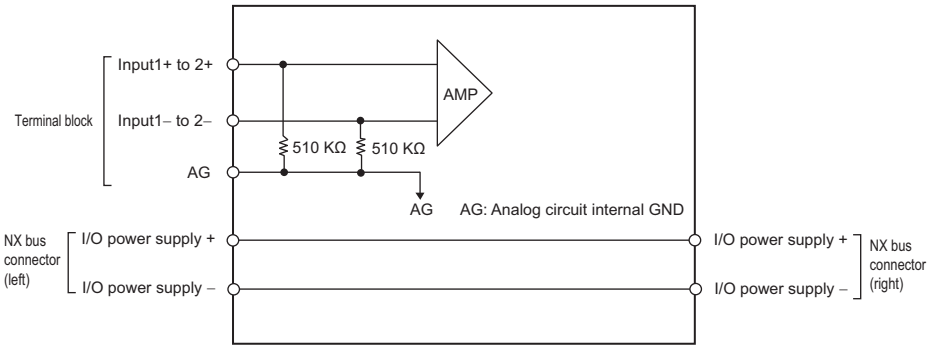
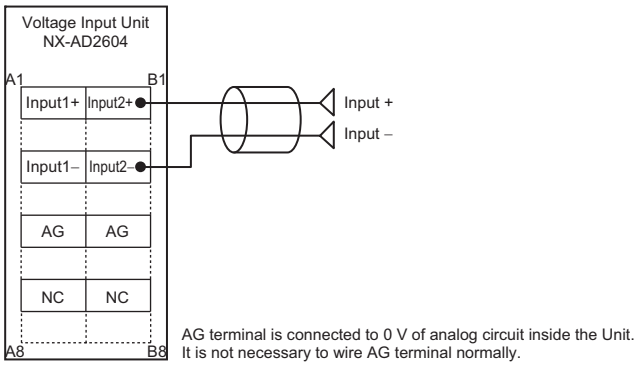
* Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

Analog Input Unit Specifications

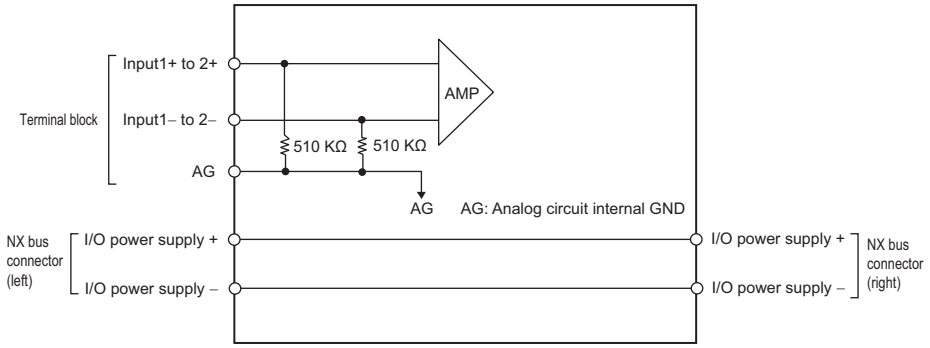
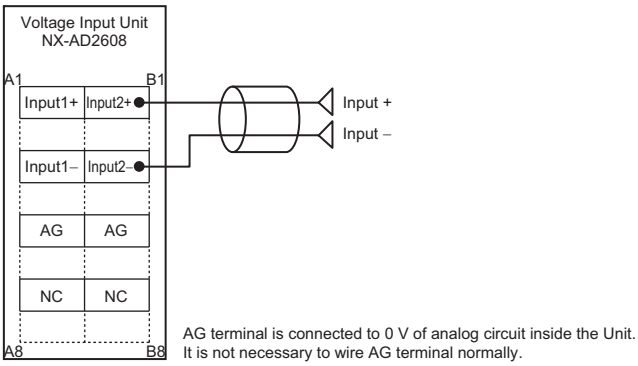
Analog Input Unit (voltage input type) 2 points NX-AD2603

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD2603
Number of points	2 points	**External connection terminals**		Screwless clamping terminal block (8 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Single-ended input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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 1.05 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: • Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. • Connected to a Communications Coupler Unit: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Not supported.			

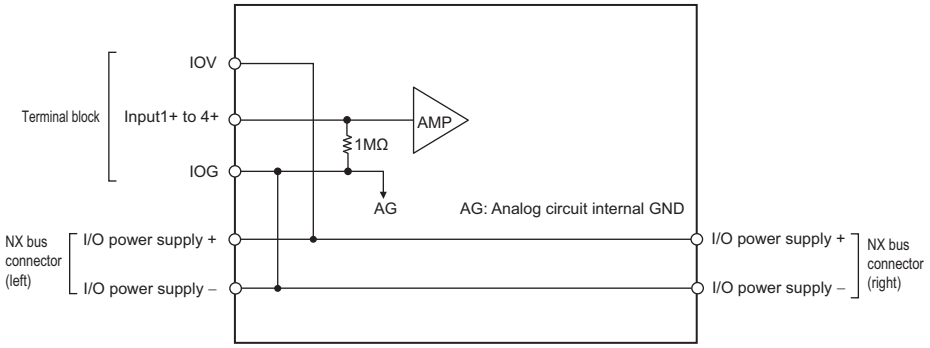
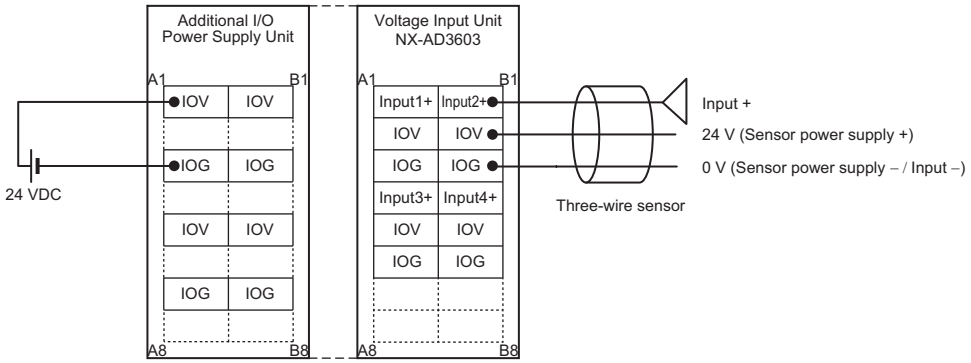
Analog Input Unit (voltage input type) 2 points NX-AD2604

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD2604
Number of points	2 points	**External connection terminals**		Screwless clamping terminal block (8 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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	 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.			

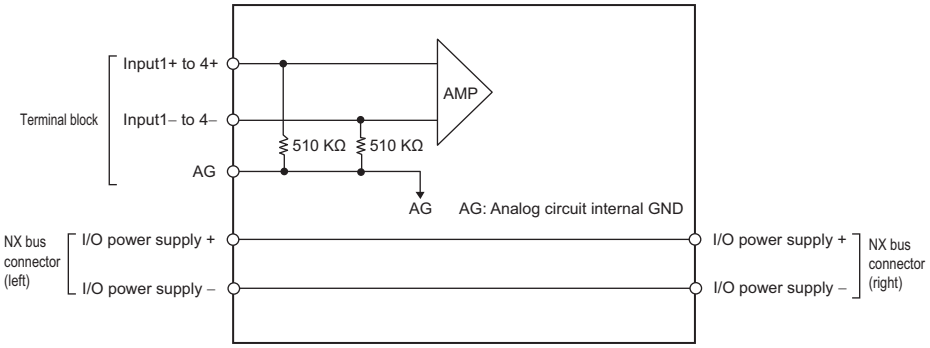
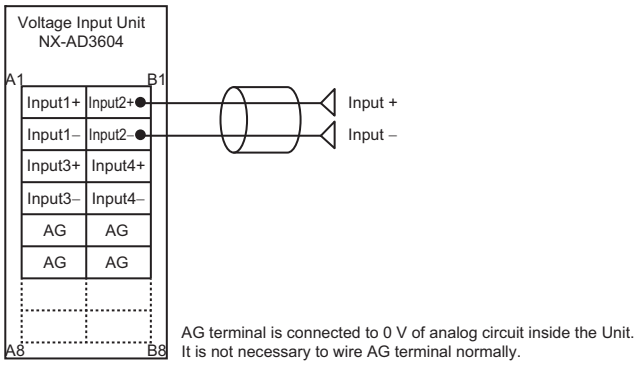
Analog Input Unit (voltage input type) 2 points NX-AD2608

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 Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				
Input disconnection detection	Not supported.			

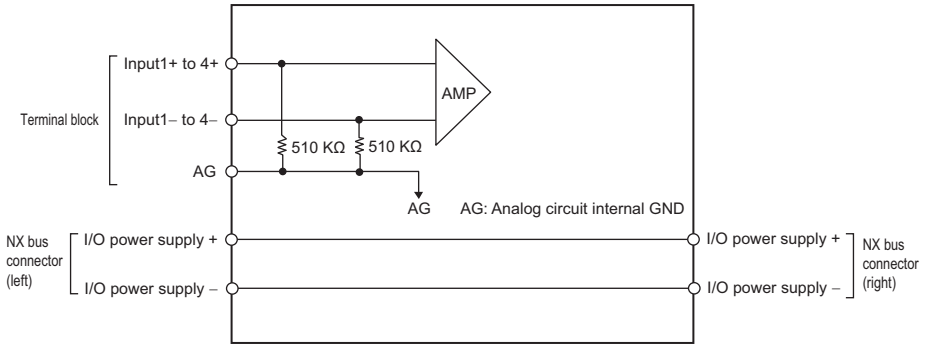
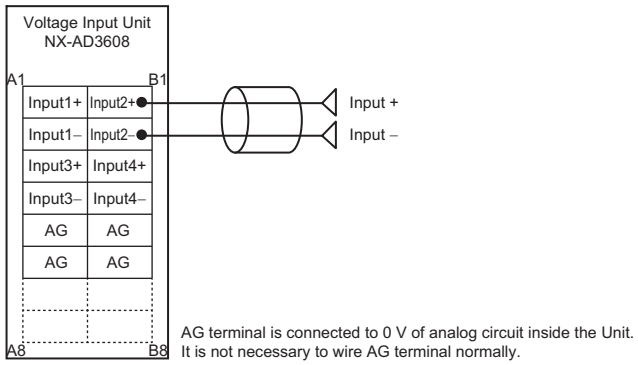
Analog Input Unit (voltage input type) 4 points NX-AD3603

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD3603
Number of points	4 points	**External connection terminals**		Screwless clamping terminal block (12 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Single-ended input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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				
Input disconnection detection	Not supported.			

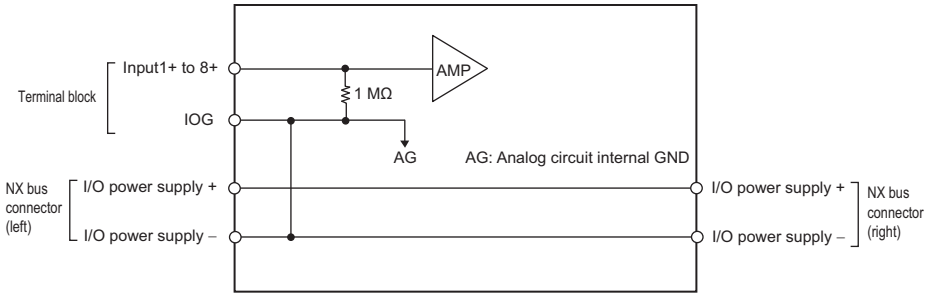
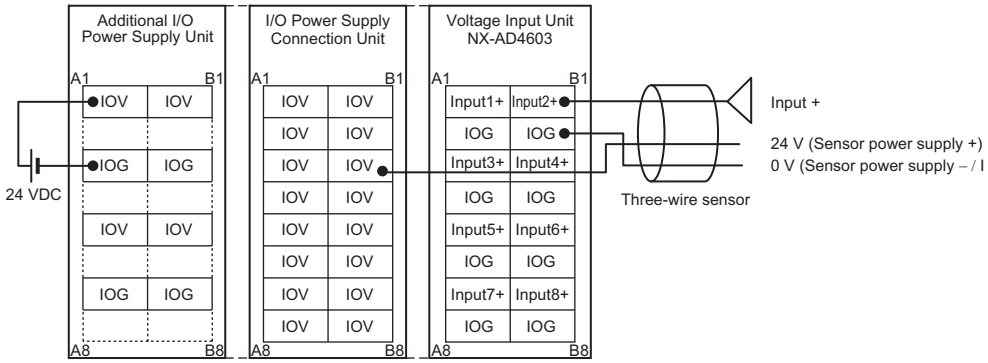
Analog Input Unit (voltage input type) 4 points NX-AD3604

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD3604
Number of points	4 points	**External connection terminals**		Screwless clamping terminal block (12 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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 1.10 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: • Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. • Connected to a Communications Coupler Unit: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram	 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.			

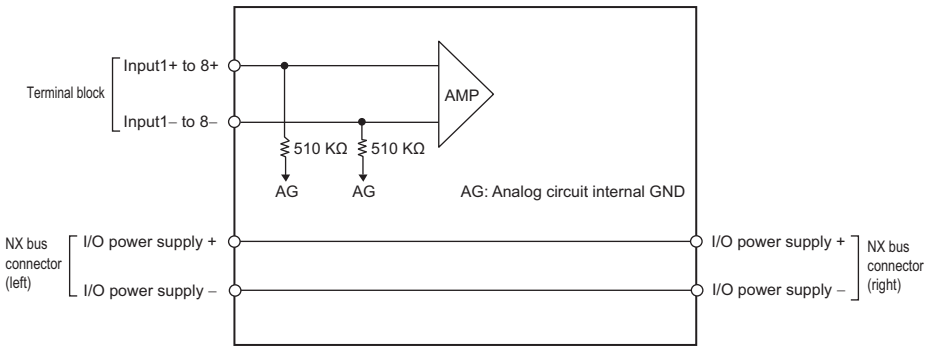
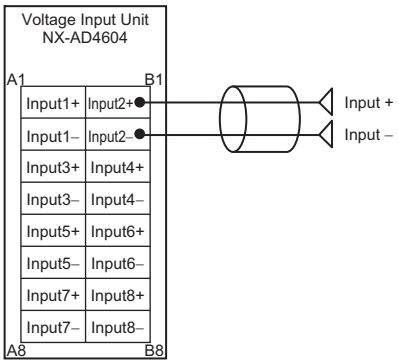
Analog Input Unit (voltage input type) 4 points NX-AD3608

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD3608
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			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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	 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.			

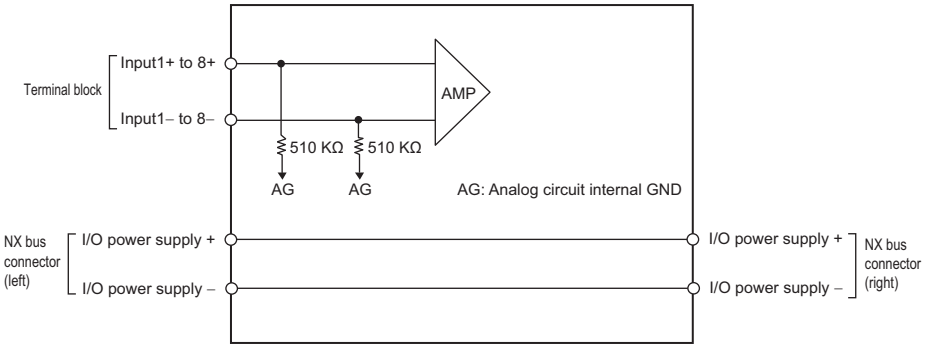
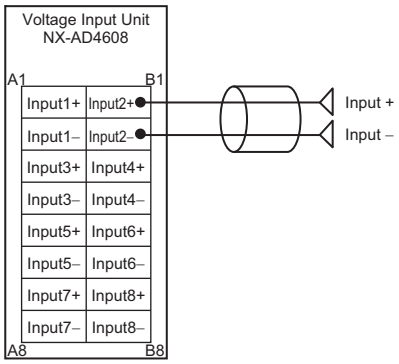
Analog Input Unit (voltage input type) 8 points NX-AD4603

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			
Indicator	TS indicator 	**Input method**		Single-ended input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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				
Input disconnection detection	Not supported.			

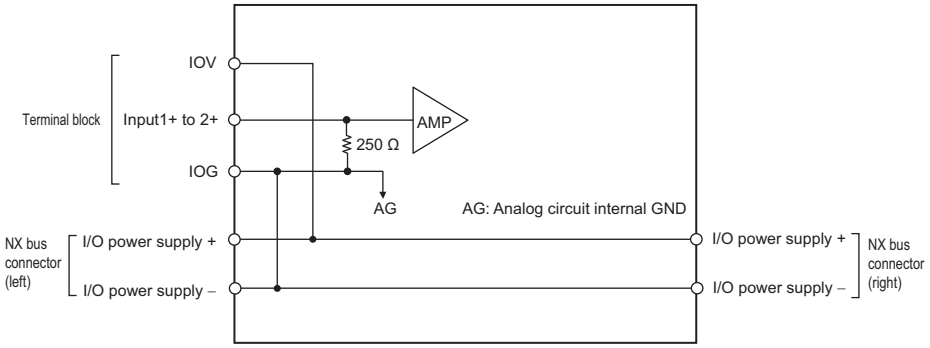
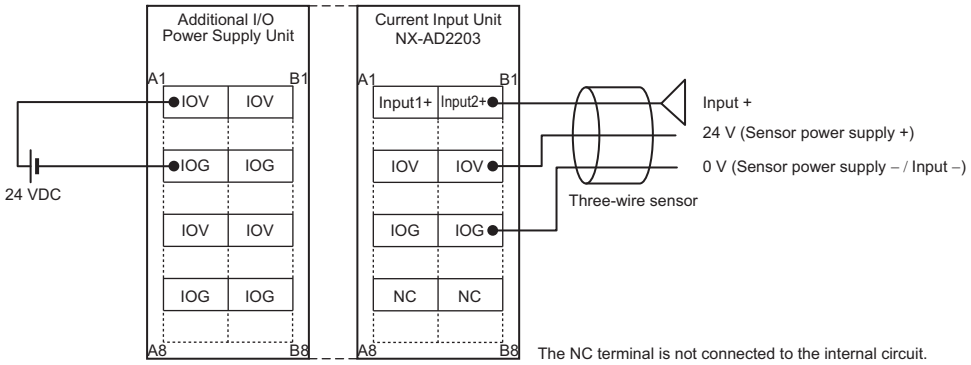
Analog Input Unit (voltage input type) 8 points NX-AD4604

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			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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				
Input disconnection detection	Not supported.			

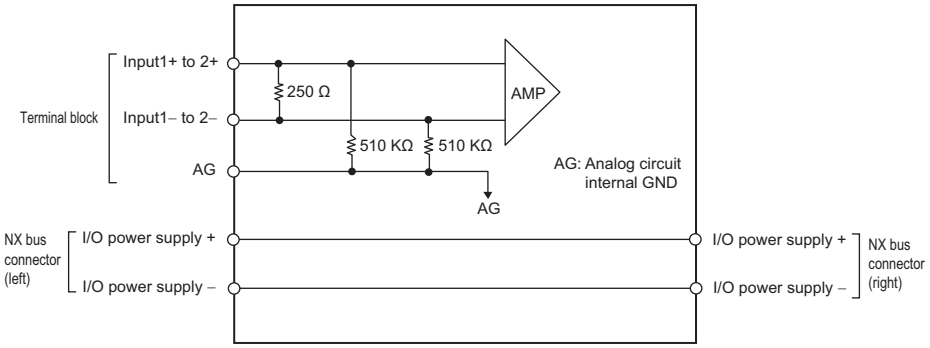
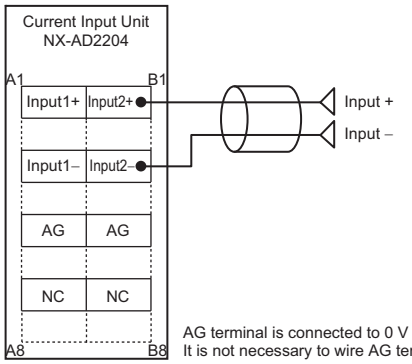
Analog Input Unit (voltage input type) 8 points NX-AD4608

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD4608
Number of points	8 points	**External connection terminals**		Screwless clamping terminal block (16 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		-10 to +10 V
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±15 V
		Input impedance		1 MΩ min.
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				
Input disconnection detection	Not supported.			

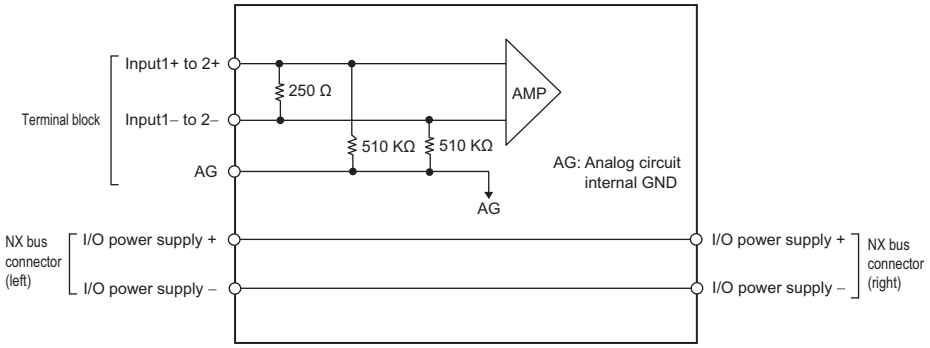
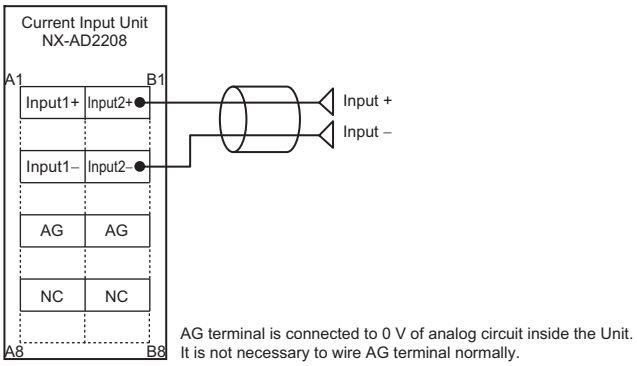
Analog Input Unit (current input type) 2 points NX-AD2203

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			
Indicator	TS indicator 	**Input method**		Single-ended input
		Input range		4 to 20 mA
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±30 mA
		Input impedance		250 Ω
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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				
Input disconnection detection	Supported.			

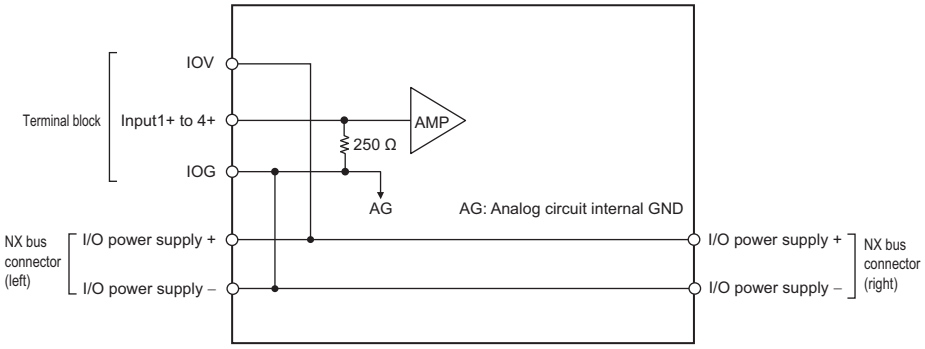
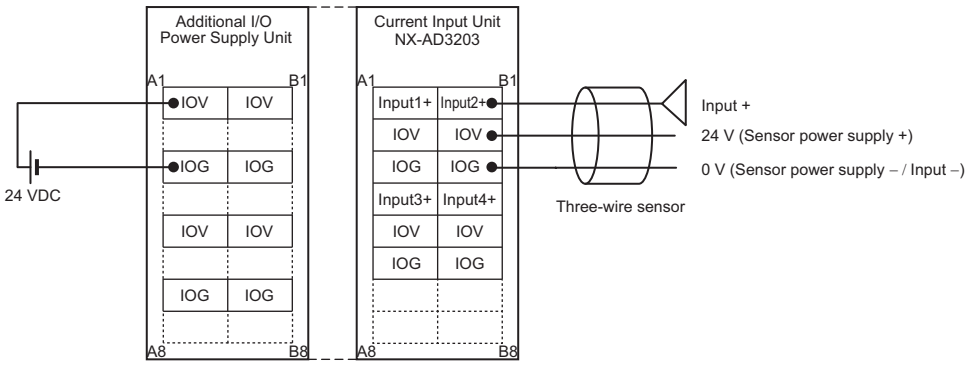
Analog Input Unit (current input type) 2 points NX-AD2204

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		
Indicator	TS indicator 	**Input method**	Differential Input
		Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
		Absolute maximum rating	±30 mA
		Input impedance	250 Ω
		Resolution	1/8000 (full scale)
		Overall accuracy 25°C	±0.2% (full scale)
		Overall 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 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			
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	 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	Supported.		

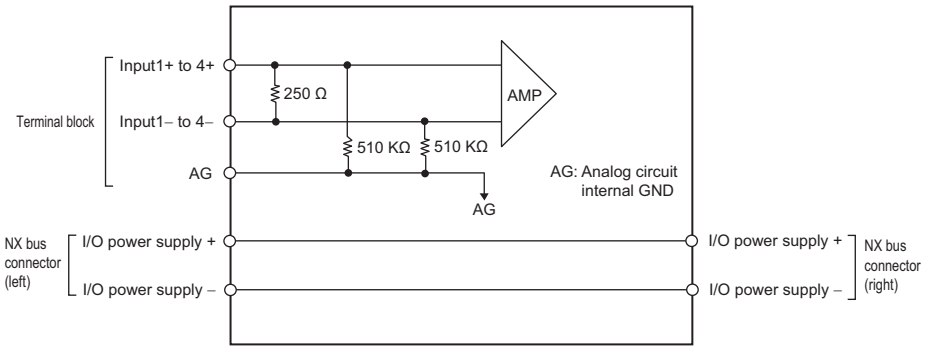
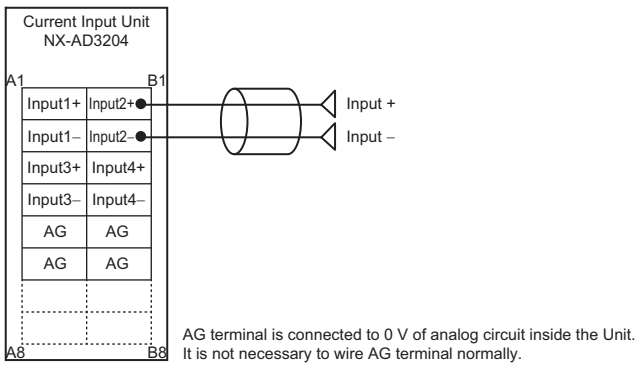
Analog Input Unit (current input type) 2 points NX-AD2208

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		
Indicator	TS indicator 	**Input method**	Differential Input
		Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
		Absolute maximum rating	±30 mA
		Input impedance	250 Ω
		Resolution	1/30000 (full scale)
		Overall accuracy **25°C**	±0.1% (full scale)
		Overall 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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**	510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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			
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	 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	Supported.		

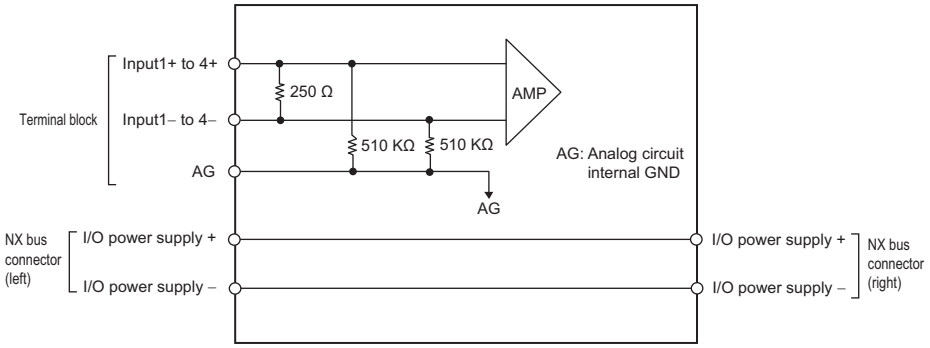
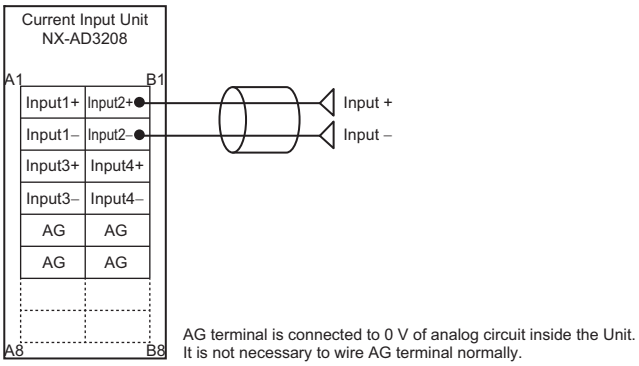
Analog Input Unit (current input type) 4 points NX-AD3203

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD3203
Number of points	4 points	**External connection terminals**		Screwless clamping terminal block (12 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Single-ended input
		Input range		4 to 20 mA
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±30 mA
		Input impedance		250 Ω
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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				
Input disconnection detection	Supported.			

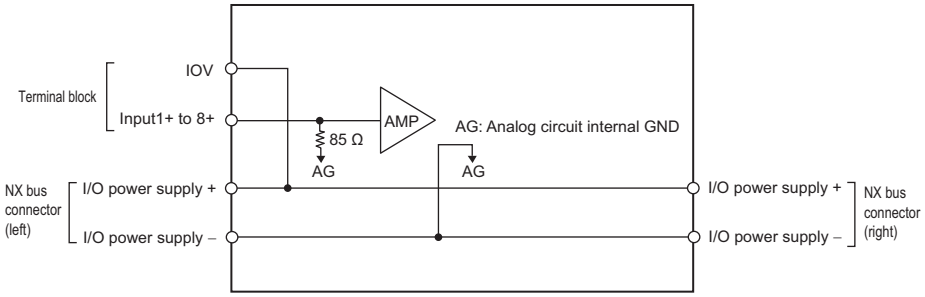
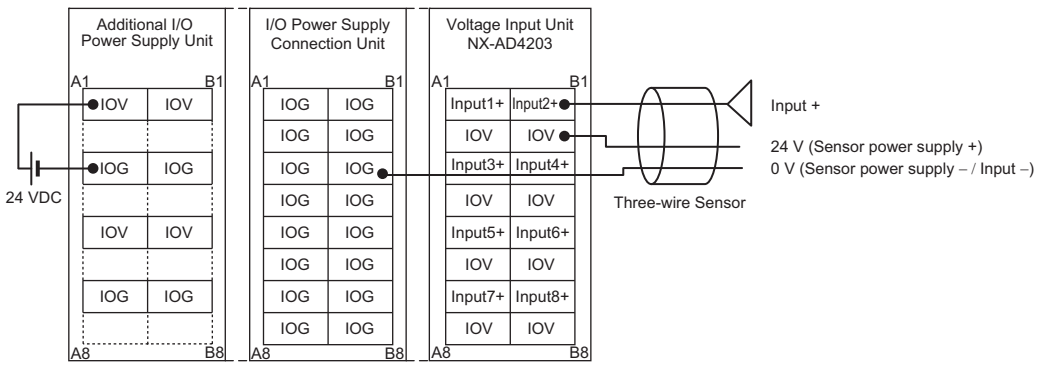
Analog Input Unit (current input type) 4 points NX-AD3204

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD3204
Number of points	4 points	**External connection terminals**		Screwless clamping terminal block (12 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		4 to 20 mA
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±30 mA
		Input impedance		250 Ω
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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	 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	Supported.			

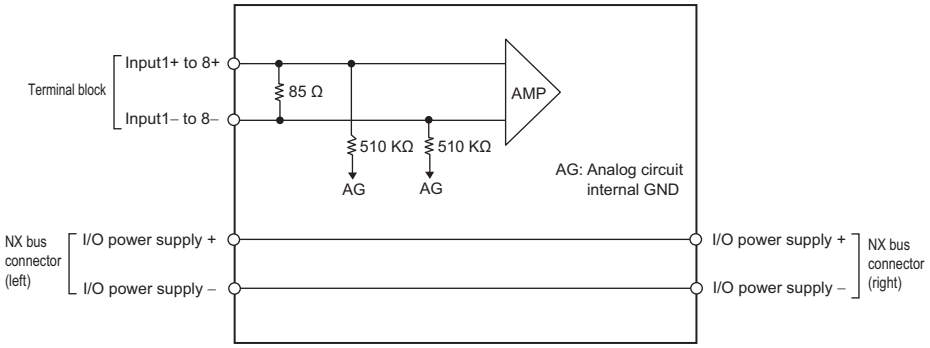
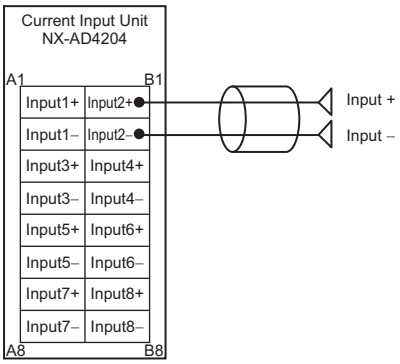
Analog Input Unit (current input type) 4 points NX-AD3208

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			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		4 to 20 mA
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±30 mA
		Input impedance		250 Ω
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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	 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	Supported.			

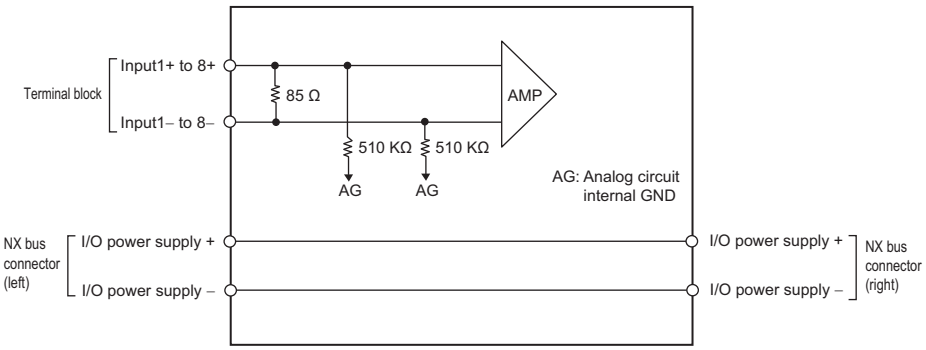
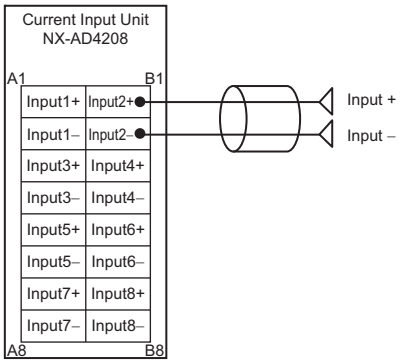
Analog Input Unit (current input type) 8 points NX-AD4203

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		
Indicator	TS indicator 	**Input method**	Single-ended input
		Input range	4 to 20 mA
		Input conversion range	-5 to 105% (full scale)
		Absolute maximum rating	±30 mA
		Input impedance	85 Ω
		Resolution	1/8000 (full scale)
		Overall accuracy 25°C	±0.2% (full scale)
		Overall 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 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			
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			
Input disconnection detection	Supported.		

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

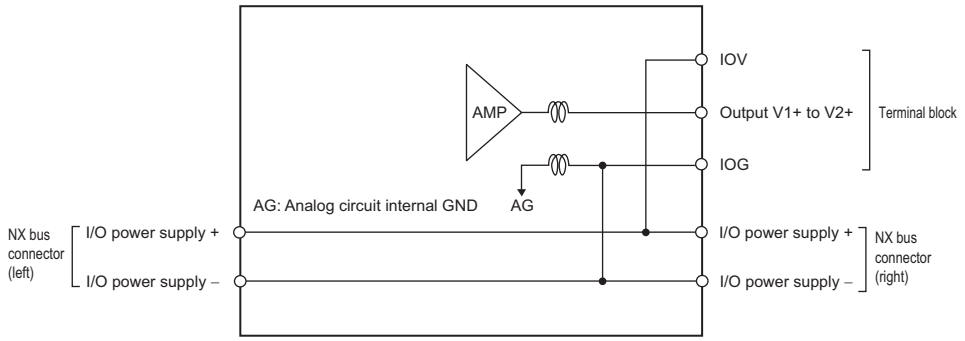
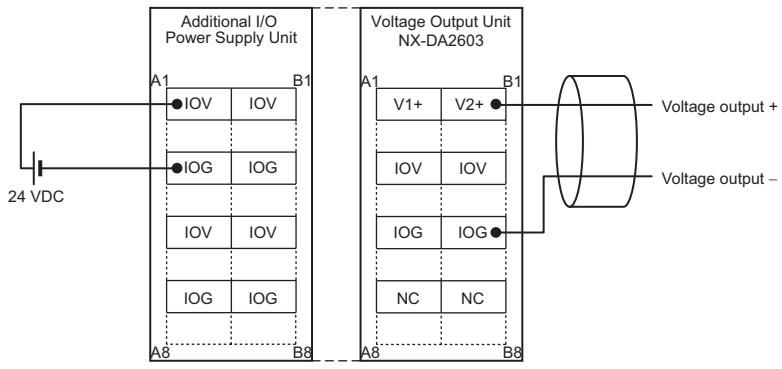
Unit name	Analog Input Unit (current input type)	**Model**		NX-AD4204
Number of points	8 points	**External connection terminals**		Screwless clamping terminal block (16 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		4 to 20 mA
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±30 mA
		Input impedance		85 Ω
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.2% (full scale)
			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 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				
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				
Input disconnection detection	Supported.			

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

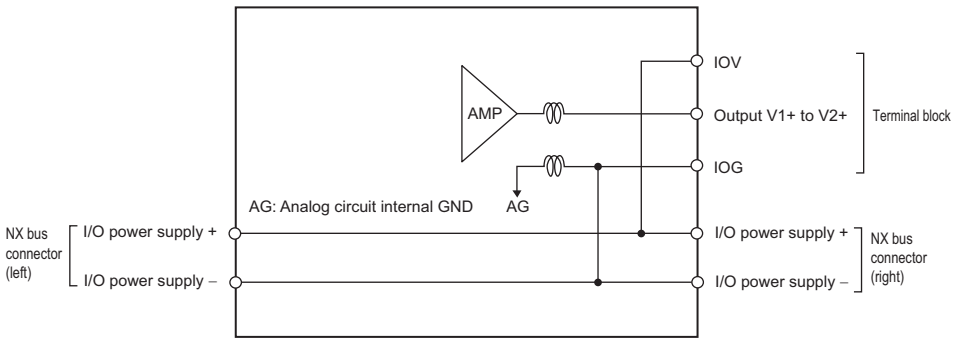
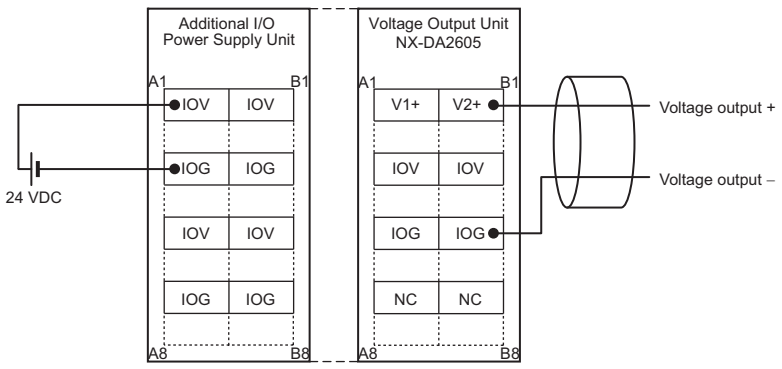
Unit name	Analog Input Unit (current input type)	**Model**		NX-AD4208
Number of points	8 points	**External connection terminals**		Screwless clamping terminal block (16 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing			
Indicator	TS indicator 	**Input method**		Differential Input
		Input range		4 to 20 mA
		Input conversion range		-5 to 105% (full scale)
		Absolute maximum rating		±30 mA
		Input impedance		85 Ω
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				
Input disconnection detection	Supported.			

Analog Output Unit Specifications

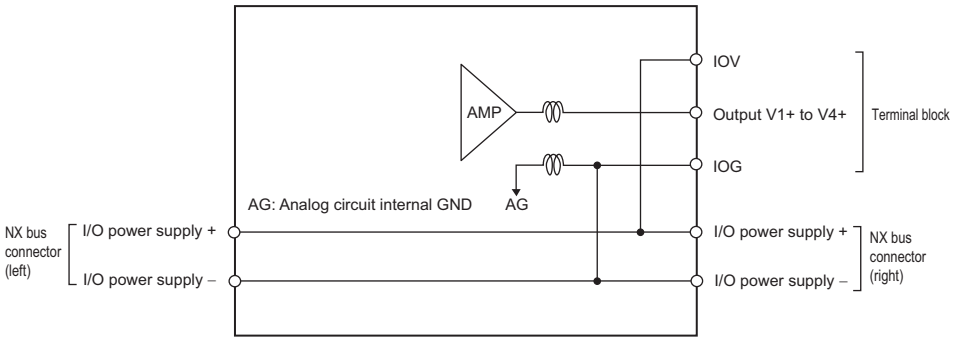
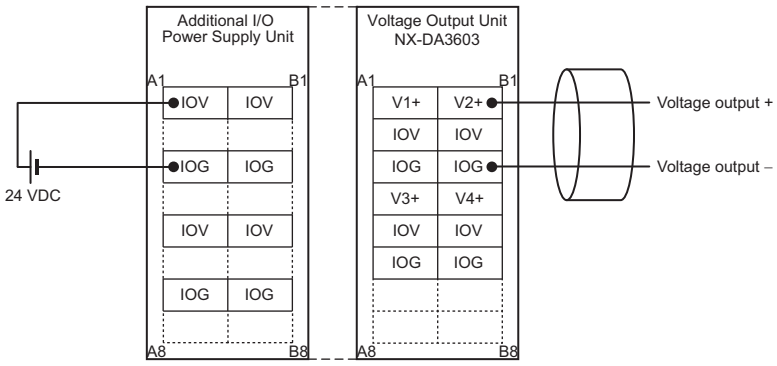
Analog Output Unit (voltage output type) 2 points NX-DA2603

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			
Indicator	TS indicator 	**Output range**		-10 to +10 V
		Output conversion range		-5 to 105% (full scale)
		Allowable load resistance		5 kΩ min.
		Output impedance		0.5 Ω max.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.3% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				

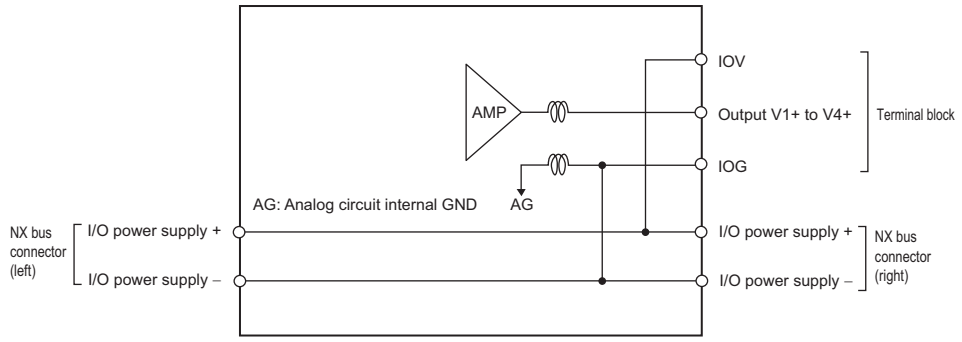
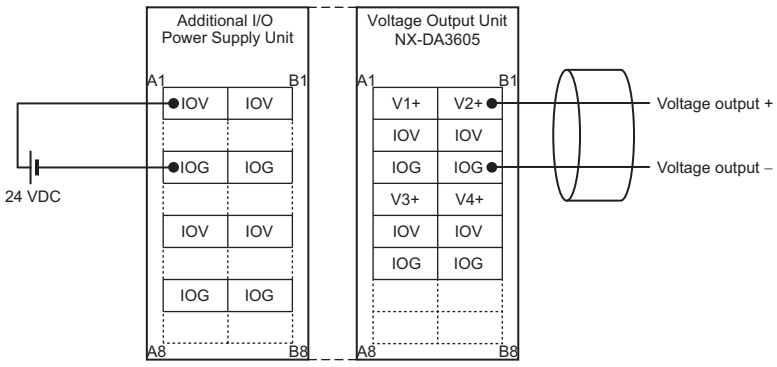
Analog Output Unit (voltage output type) 2 points NX-DA2605

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			
Indicator	TS indicator DA2605 TS	**Output range**		-10 to +10 V
		Output conversion range		-5 to 105% (full scale)
		Allowable load resistance		5 kΩ min.
		Output impedance		0.5 Ω max.
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				

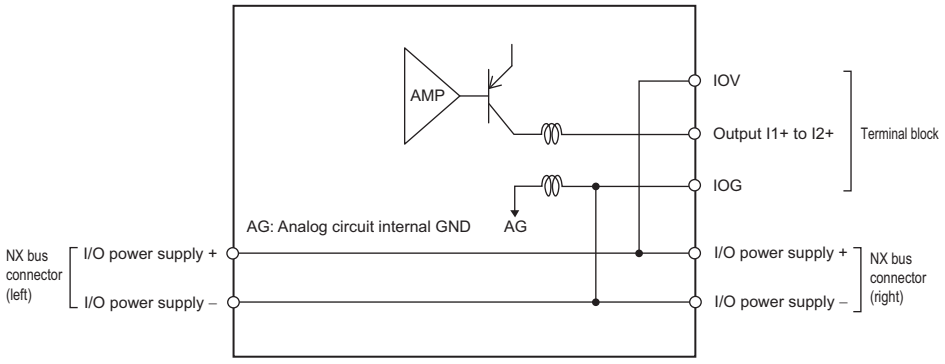
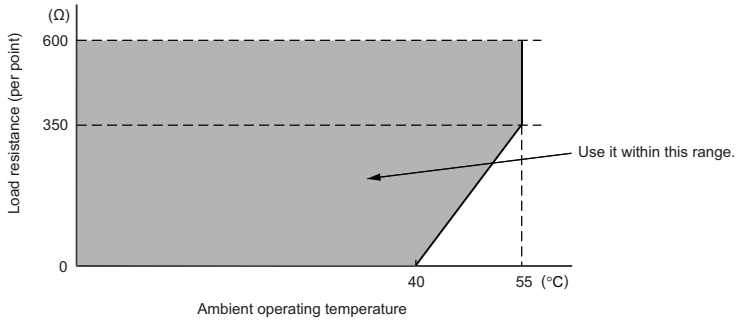
Analog Output Unit (voltage output type) 4 points NX-DA3603

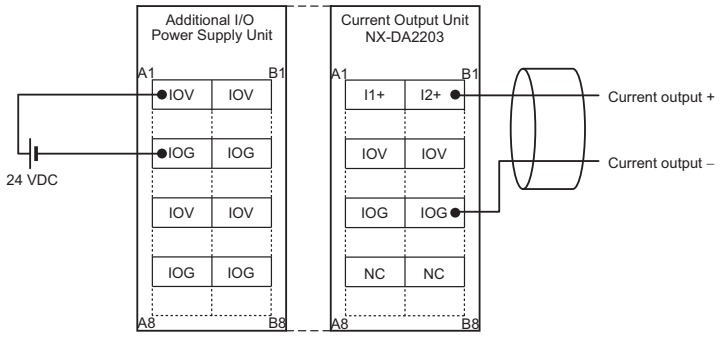
Unit name	Analog Output Unit (voltage output type)	**Model**		NX-DA3603
Number of points	4 points	**External connection terminals**		Screwless clamping terminal block (12 terminals)
I/O refreshing method	Free-Run refreshing			
Indicator	TS indicator 	**Output range**		-10 to +10 V
		Output conversion range		-5 to 105% (full scale)
		Allowable load resistance		5 kΩ min.
		Output impedance		0.5 Ω max.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.3% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				

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

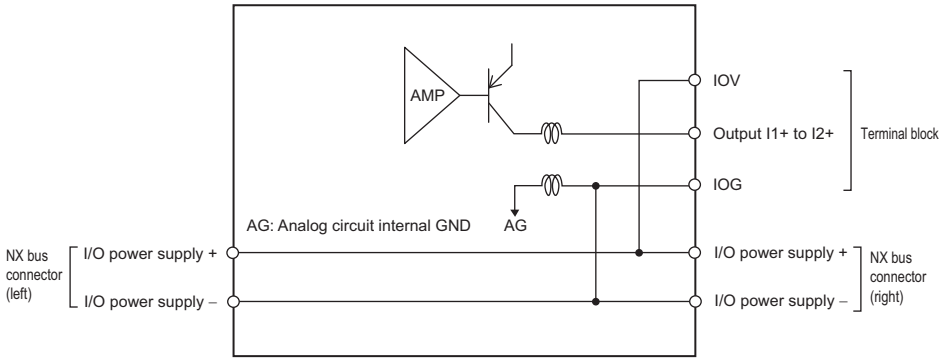
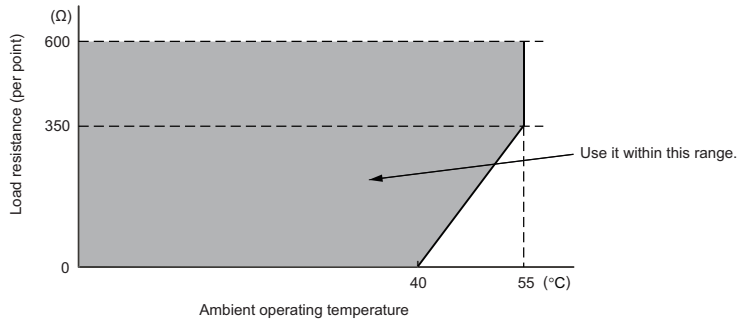
Unit name	Analog Output Unit (voltage output type)	**Model**		NX-DA3605
Number of points	4 points	**External connection terminals**		Screwless clamping terminal block (12 terminals)
I/O refreshing method	Selectable Synchronous I/O refreshing or Free-Run refreshing			
Indicator	TS indicator 	**Output range**		-10 to +10 V
		Output conversion range		-5 to 105% (full scale)
		Allowable load resistance		5 kΩ min.
		Output impedance		0.5 Ω max.
		Resolution		1/30000 (full scale)
		Overall accuracy	**25°C**	±0.1% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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				

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			
Indicator	TS indicator 	**Output range**		4 to 20 mA
		Output conversion range		-5 to 105% (full scale)
		Allowable load resistance		600 Ω max.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.3% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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. 			

Terminal connection diagram	

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

<table>
<tr><td>Unit name</td><td>Analog Output Unit (current output type)</td><td colspan="2">Model</td><td>NX-DA2205</td></tr>
<tr><td>Number of points</td><td>2 points</td><td colspan="2">External connection terminals</td><td>Screwless clamping terminal block (8 terminals)</td></tr>
<tr><td>I/O refreshing method</td><td colspan="4">Selectable Synchronous I/O refreshing or Free-Run refreshing</td></tr>
<tr><td rowspan="6">Indicator</td><td rowspan="6">TS indicator
  </td><td colspan="2">Output range</td><td>4 to 20 mA</td></tr>
<tr><td colspan="2">Output conversion range</td><td>-5 to 105% (full scale)</td></tr>
<tr><td colspan="2">Allowable load resistance</td><td>600 Ω max.</td></tr>
<tr><td colspan="2">Resolution</td><td>1/30000 (full scale)</td></tr>
<tr><td rowspan="2">Overall accuracy</td><td>25°C</td><td>±0.1% (full scale)</td></tr>
<tr><td>0 to 55°C</td><td>±0.3% (full scale)</td></tr>
<tr><td colspan="2">Conversion time</td><td>10 μs/point</td></tr>
<tr><td>Dimensions</td><td>12 (W) x 100 (H) x 71 (D)</td><td colspan="2">Isolation method</td><td>Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)</td></tr>
<tr><td>Insulation resistance</td><td>20 MΩ min. between isolated circuits (at 100 VDC)</td><td colspan="2">Dielectric strength</td><td>510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.</td></tr>
<tr><td>I/O power supply method</td><td>Supply from the NX bus</td><td colspan="2">Current capacity of I/O power supply terminal</td><td>IOV: 0.1 A/terminal max.,
IOG: 0.1 A/terminal max.</td></tr>
<tr><td>NX Unit power consumption</td><td>• Connected to a CPU Unit or Communication Control Unit
2.10 W max.
• Connected to a Communications Coupler Unit
1.75 W max.</td><td colspan="2">I/O current consumption</td><td>No consumption</td></tr>
<tr><td>Weight</td><td colspan="4">70 g max.</td></tr>
<tr><td>Circuit layout</td><td colspan="4">  </td></tr>
<tr><td>Installation orientation and restrictions</td><td colspan="4">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.
  </td></tr>
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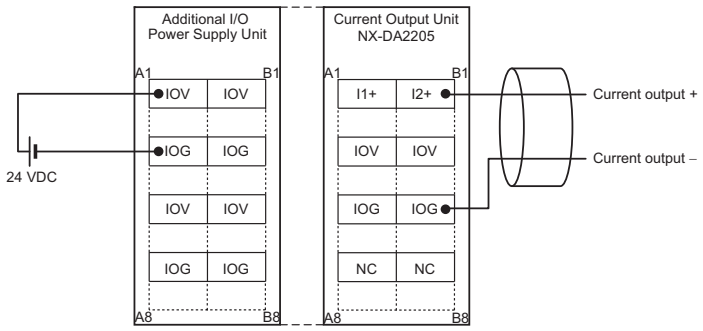
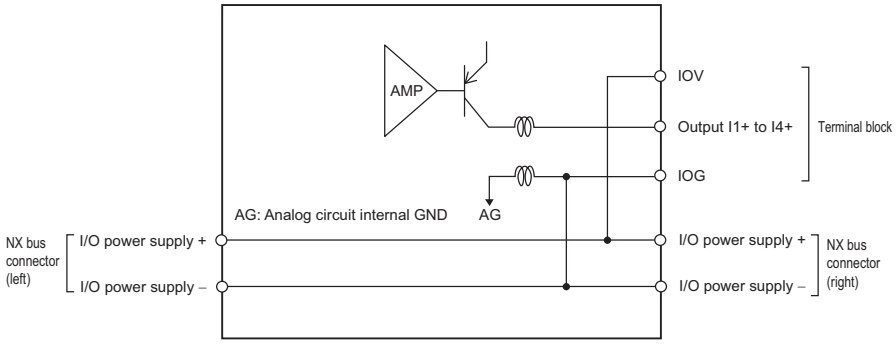
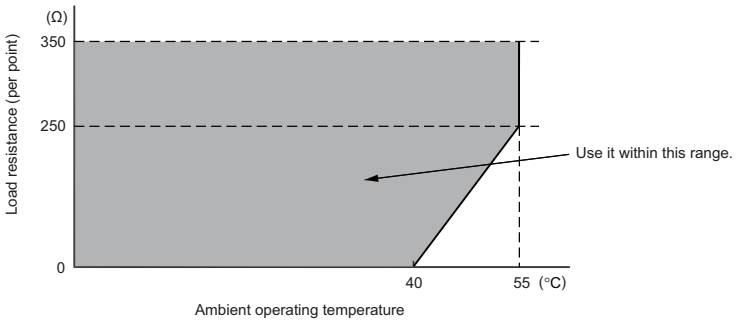
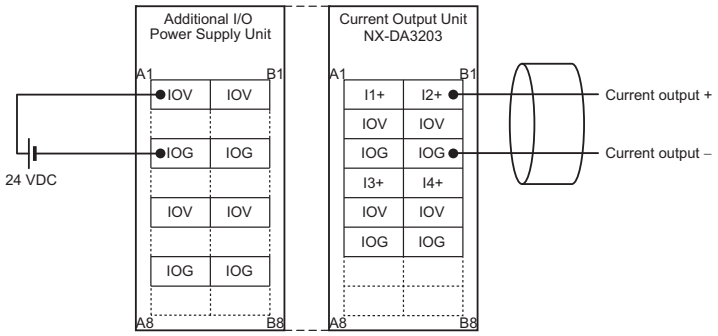
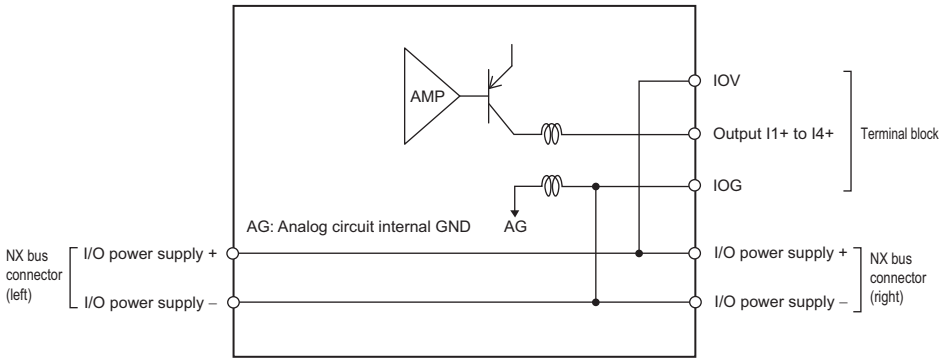
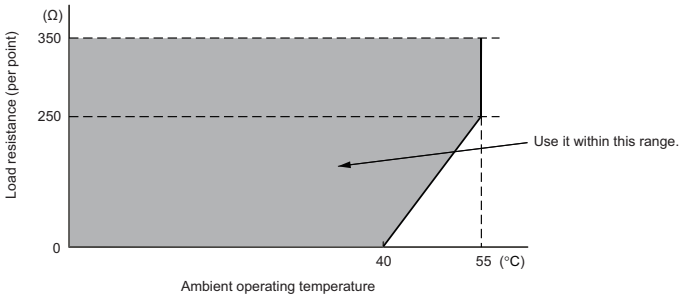
Terminal connection diagram	

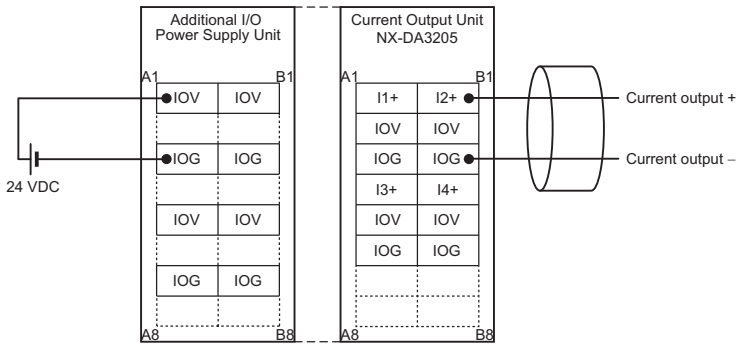
Analog Output Unit (current output type) 4 points NX-DA3203

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			
Indicator	TS indicator 	**Output range**		4 to 20 mA
		Output conversion range		-5 to 105% (full scale)
		Allowable load resistance		350 Ω max.
		Resolution		1/8000 (full scale)
		Overall accuracy	**25°C**	±0.3% (full scale)
			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 MΩ min. between isolated circuits (at 100 VDC)	**Dielectric strength**		510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.
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				
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. 			

Terminal connection diagram	

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

<table>
<tr><td>Unit name</td><td>Analog Output Unit (current output type)</td><td colspan="2">Model</td><td>NX-DA3205</td></tr>
<tr><td>Number of points</td><td>4 points</td><td colspan="2">External connection terminals</td><td>Screwless clamping terminal block (12 terminals)</td></tr>
<tr><td>I/O refreshing method</td><td colspan="4">Selectable Synchronous I/O refreshing or Free-Run refreshing</td></tr>
<tr><td rowspan="6">Indicator</td><td rowspan="6">TS indicator
  </td><td colspan="2">Output range</td><td>4 to 20 mA</td></tr>
<tr><td colspan="2">Output conversion range</td><td>-5 to 105% (full scale)</td></tr>
<tr><td colspan="2">Allowable load resistance</td><td>350 Ω max.</td></tr>
<tr><td colspan="2">Resolution</td><td>1/30000 (full scale)</td></tr>
<tr><td rowspan="2">Overall accuracy</td><td>25°C</td><td>±0.1% (full scale)</td></tr>
<tr><td>0 to 55°C</td><td>±0.3% (full scale)</td></tr>
<tr><td colspan="2">Conversion time</td><td>10 μs/point</td></tr>
<tr><td>Dimensions</td><td>12 (W) x 100 (H) x 71 (D)</td><td colspan="2">Isolation method</td><td>Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs)</td></tr>
<tr><td>Insulation resistance</td><td>20 MΩ min. between isolated circuits (at 100 VDC)</td><td colspan="2">Dielectric strength</td><td>510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.</td></tr>
<tr><td>I/O power supply method</td><td>Supply from the NX bus</td><td colspan="2">Current capacity of I/O power supply terminal</td><td>IOV: 0.1 A/terminal max.,
IOG: 0.1 A/terminal max.</td></tr>
<tr><td>NX Unit power consumption</td><td>• Connected to a CPU Unit or Communication Control Unit
2.10 W max.
• Connected to a Communications Coupler Unit
1.80 W max.</td><td colspan="2">I/O current consumption</td><td>No consumption</td></tr>
<tr><td>Weight</td><td colspan="4">70 g max.</td></tr>
<tr><td>Circuit layout</td><td colspan="4">  </td></tr>
<tr><td>Installation orientation and restrictions</td><td colspan="4">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.
  </td></tr>
</table>

Terminal connection diagram	

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□□□□ NX-DA□□□□	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

NX Unit		Corresponding unit versions/versions		
Model	Unit version	EtherCAT Coupler Unit	CPU Unit or Industrial PC	Sysmac Studio
NX-AD□□□□ NX-DA□□□□	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					
Model	Unit version	Application with an NJ/NX/NY-series Controller *1			Application with a CS/CJ/CP-series PLC *2		
		EtherNet/IP Coupler Unit	CPU Unit or Industrial PC	Sysmac Studio	EtherNet/IP Coupler Unit	Sysmac Studio	NX-IO Configurator *3
NX-AD□□□□ NX-DA□□□□	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

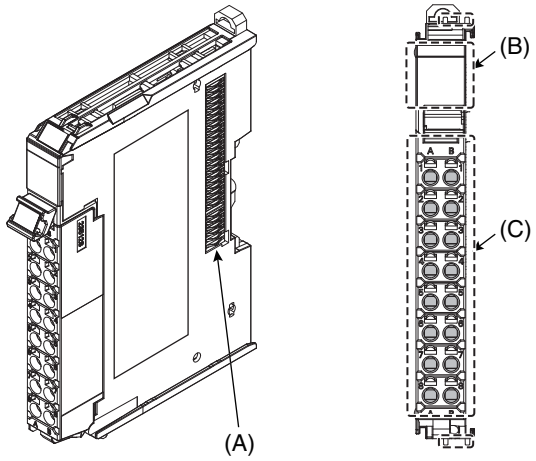
NX Unit		Corresponding unit versions/versions	
Model	Unit version	Communication Control Unit	Sysmac Studio
NX-AD□□□□ NX-DA□□□□	Ver.1.0	Ver.1.00	Ver.1.24

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

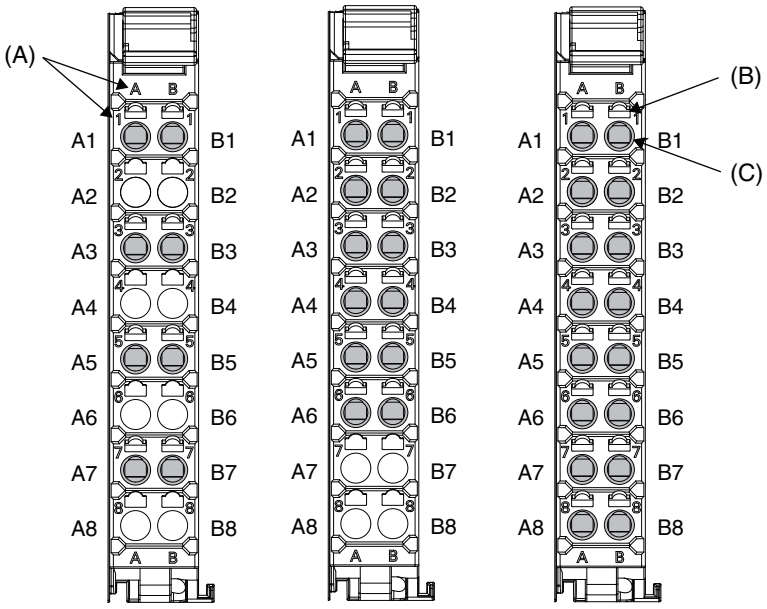
Screwless Clamping Terminal Block Type

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

Unit model	Terminal Blocks				
	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.

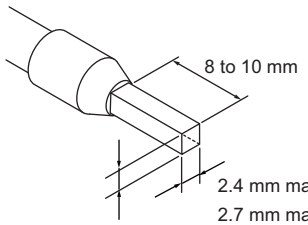
The applicable ferrules, wires, and crimping tool are given in the following table.

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

* Some AWG 14 wires exceed 2.0 mm^2 and cannot be used in the screwless clamping terminal block.

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

Finished Dimensions of Ferrules



1.6 mm max. (except ground terminals)
2.0 mm max. (ground terminals)

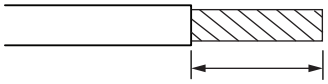
2.4 mm max. (except ground terminals)
2.7 mm max. (ground terminals)

Using Twisted Wires/Solid Wires

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

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

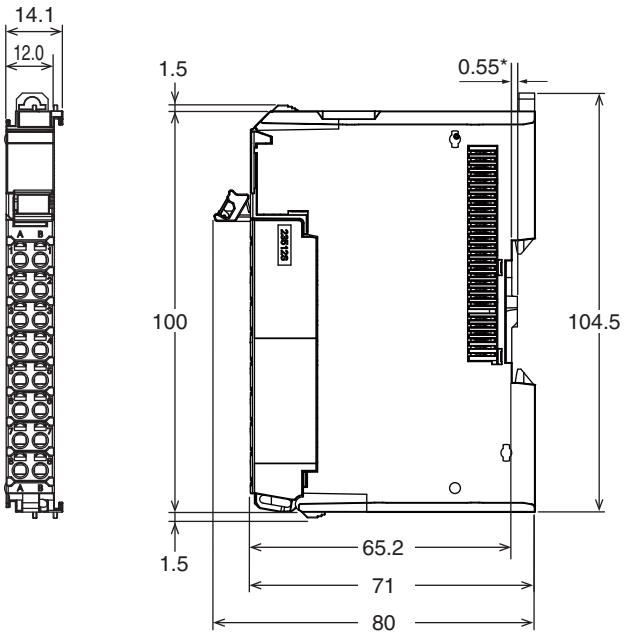
<Additional Information> If more than 2 A will flow on the wires, use plated wires or use ferrules.

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-DA□□□□	NX-series Analog I/O Units User's Manual for Analog Input Units and Analog Output Units	Learning how to use NX-series 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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