NX-series Analog Input Unit

NX-AD

CSM_NX-AD_DS_E_2_1

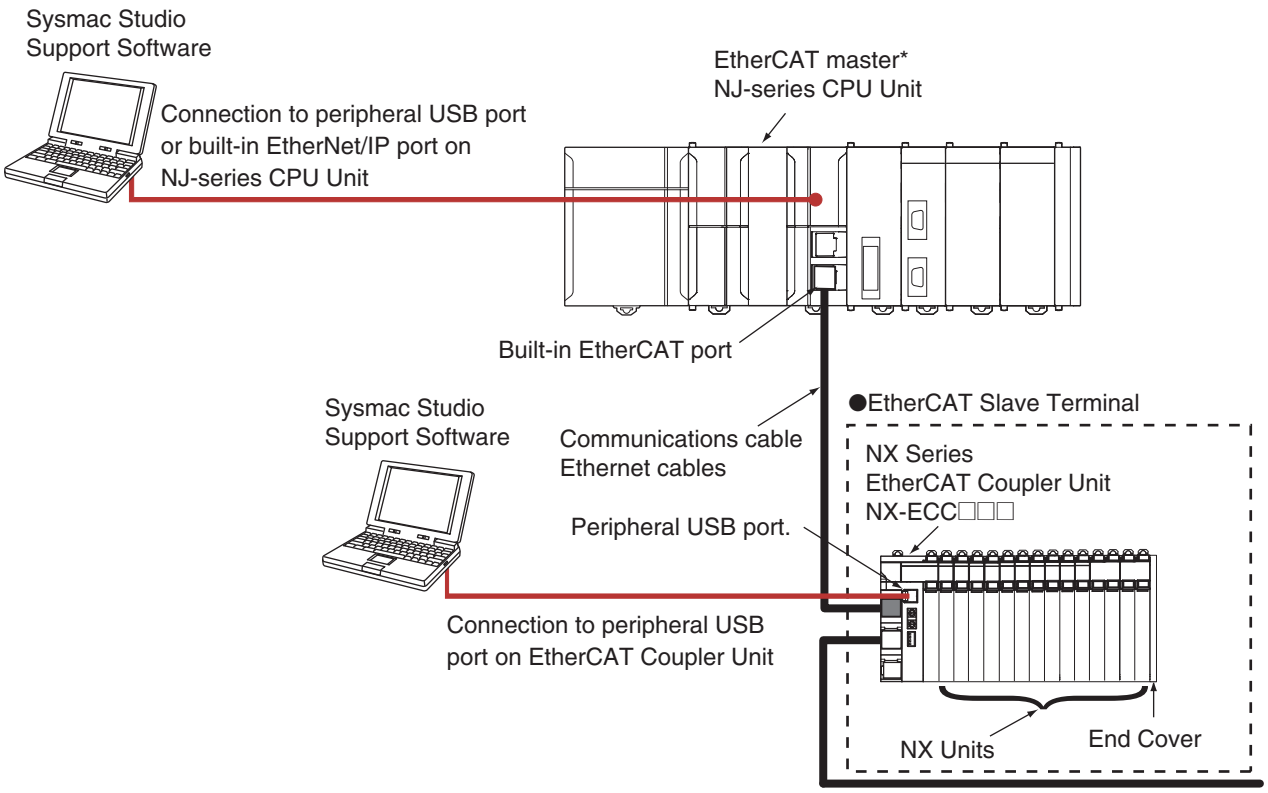
Analog Inputs to meet all machine control needs; from general-purpose inputs to high-speed synchronous, high-resolution units

- Analog Input Units for the NX-series modular I/O system.
- Connect to other NX-series I/O Units and EtherCAT Coupler units using the high-speed NX-bus.
- Separate modules for voltage- and current inputs.

Features

- Up to eight analog inputs per unit.
- Free-run refreshing or synchronous I/O refreshing can be selected using the NX-series EtherCAT Coupler.
- Input update cycles of 10μs per channel, and a resolution of 1/30000, ideal for high-speed measurement and, high-precision control.
- All basic models are available as single-ended and differential-input types.
- The screwless terminal block is detachable for easy commissioning and maintenance.
- Screwless push-in terminal block significantly reduces wiring work.
- All models are just 12 mm wide, saving space in your cabinet.

System Configuration



* OMRON CJ1W-NC□81/□82 Position Control Units cannot be connected to the EtherCAT Slave Terminal even though they support EtherCAT.

Sysmac® is a trademark or registered trademark of OMRON Corporation in Japan and other countries for OMRON factory automation products.
EtherCAT® is a registered trademark of Beckhoff Automation GmbH for their patented technology. Other company names and product names in this document are the trademarks or registered trademarks of their respective companies.

Ordering Information

International Standards

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

Analog Input Unit

Unit type	Product Name	Specification									NX Unit power consumption	Model	Standards
		Capacity	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			
NX Series Analog Input Unit	Voltage Input Unit	2 points	-10 to +10V	1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 μs/ point	1MΩ min.	Free-Run refreshing	1.05W max.	**NX-AD2603**	UC1, N, L, CE, KC
							Differential Input				1.05W max.	**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	1.05W max.	**NX-AD2608**	
		4 points		1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 μs/ point		Free-Run refreshing	1.10W max.	**NX-AD3603**	
							Differential Input				1.10W max.	**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	1.10W max.	**NX-AD3608**	
		8 points		1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 μs/ point		Free-Run refreshing	1.15W max.	**NX-AD4603**	
							Differential Input				1.15W max.	**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	1.15W max.	**NX-AD4608**	
	Current Input Unit	2 points	4 to 20mA	1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 μs/ point	250Ω	Free-Run refreshing	0.90W max.	**NX-AD2203**	
							Differential Input				0.90W max.	**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	0.90W max.	**NX-AD2208**	
		4 points		1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 μs/ point		Free-Run refreshing	0.90W max.	**NX-AD3203**	
							Differential Input				0.90W max.	**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	0.95W max.	**NX-AD3208**	
		8 points		1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 μs/ point	85Ω	Free-Run refreshing	1.05W max.	**NX-AD4203**	
							Differential Input				1.05W max.	**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	1.10W max.	**NX-AD4208**	

Option

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

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

Accessories

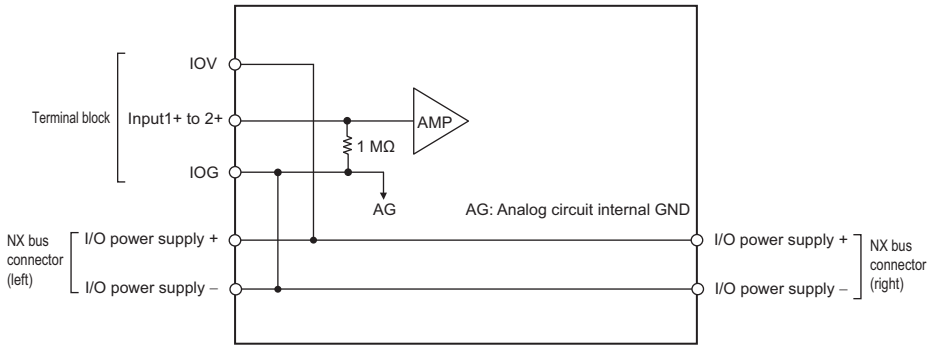
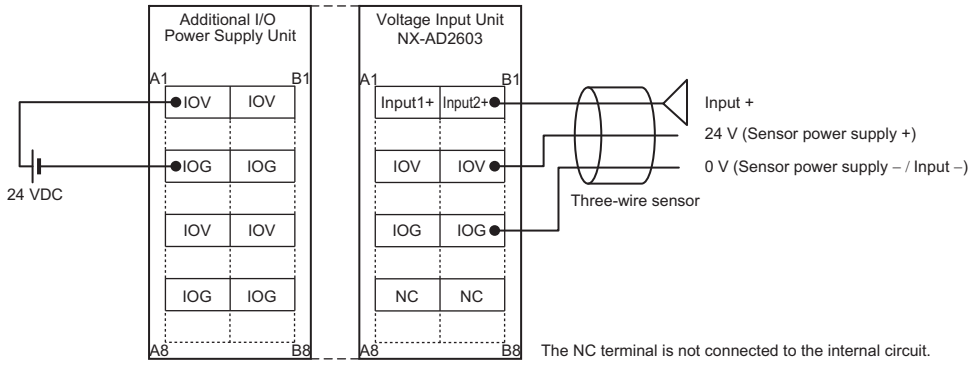
Not included.

General Specification

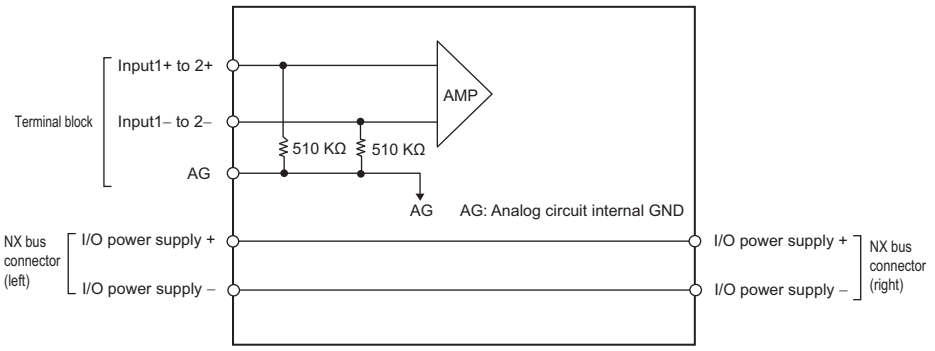
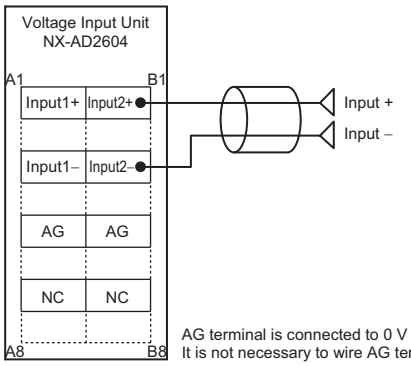
Item		Specification
Enclosure		Mounted in a panel
Grounding method		Ground to 100 Ω or less
Operating environment	Ambient operating temperature	0 to 55°C
	Ambient operating humidity	10% to 95% (with no condensation or icing)
	Atmosphere	Must be free from corrosive gases.
	Ambient storage temperature	−25 to 70°C (with no condensation or icing)
	Altitude	2,000 m max.
	Pollution degree	2 or less: Conforms to JIS B3502 and IEC 61131-2.
	Noise immunity	2 kV on power supply line (Conforms to IEC61000-4-4.)
	Overvoltage category	Category II: Conforms to JIS B3502 and IEC 61131-2.
	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 and ANSI/ISA 12.12.01 EC: EN 61131-2 and C-Tick, KC Registration, NK, LR

Analog Input Unit Specifications

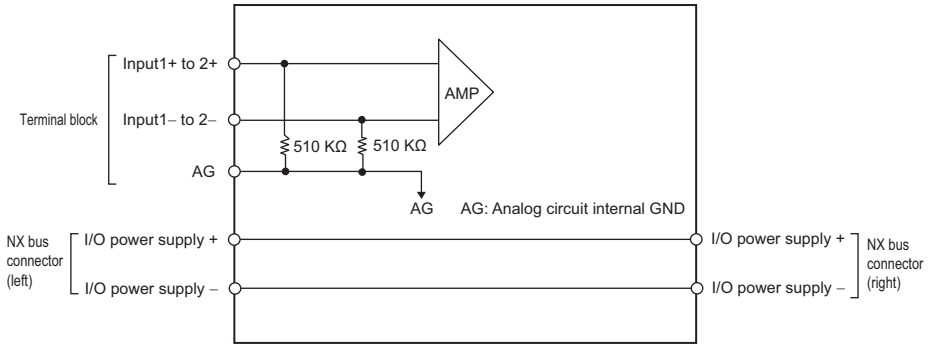
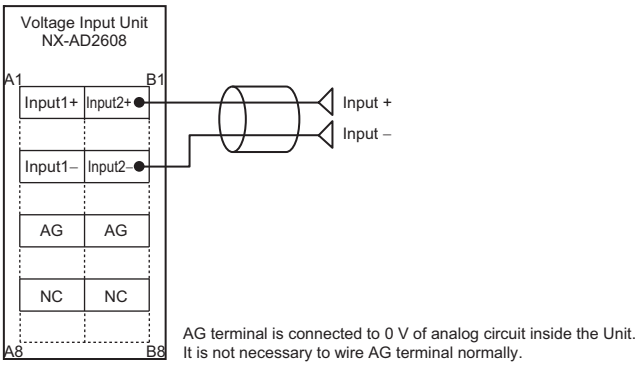
Analog Input Unit (voltage input type) 2 points NX-AD2603

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD2603
Capacity	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	1.05 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Not supported.			

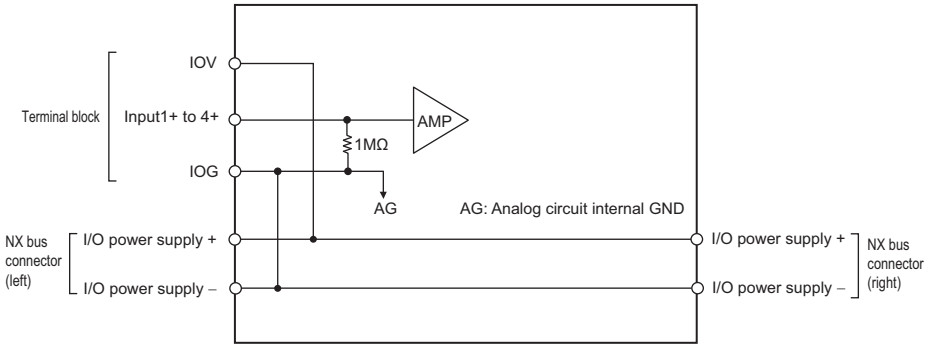
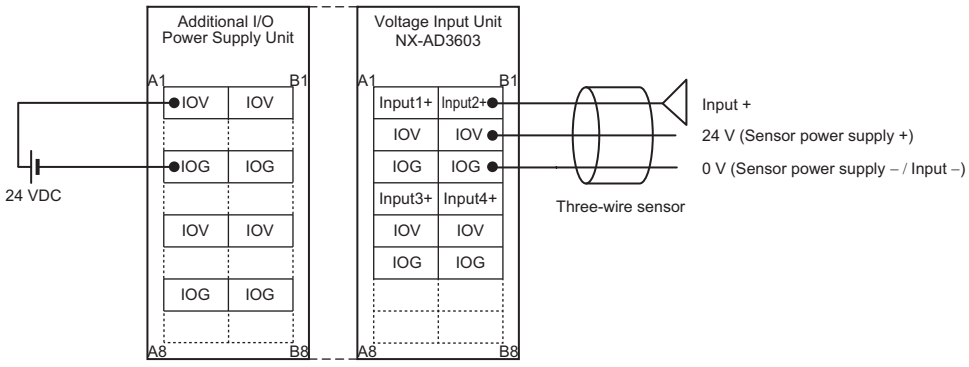
Analog Input Unit (voltage input type) 2 points NX-AD2604

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD2604
Capacity	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	1.05 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

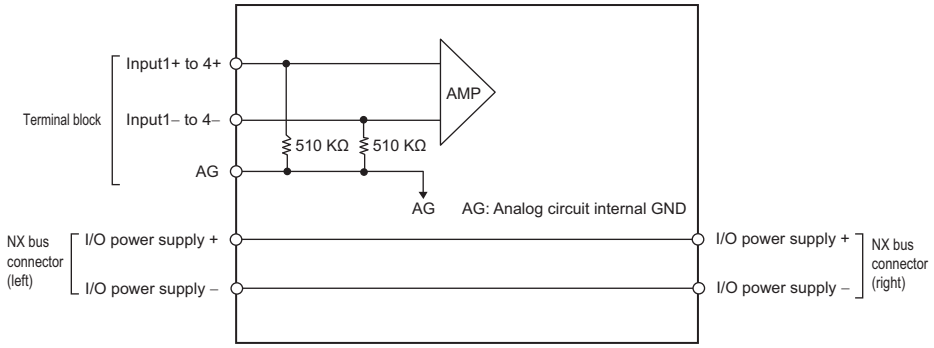
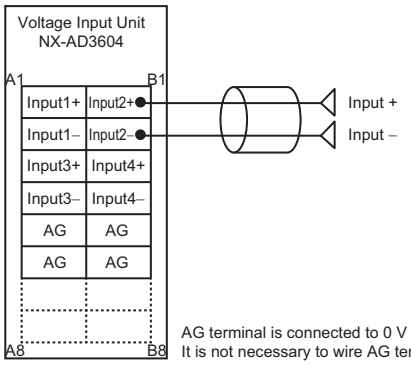
Analog Input Unit (voltage input type) 2 points NX-AD2608

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD2608
Capacity	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	1.05 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

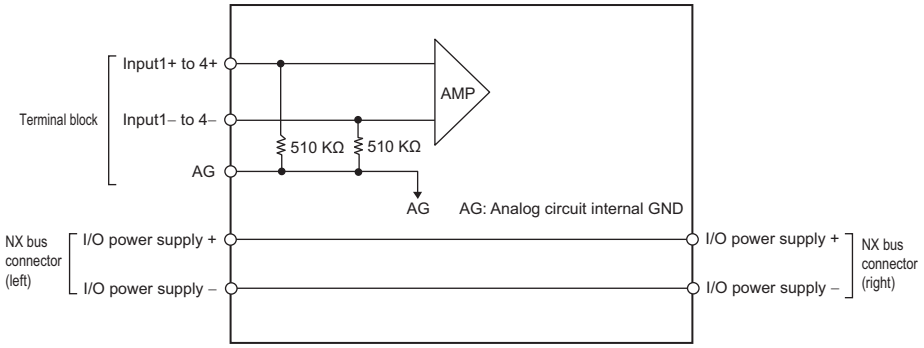
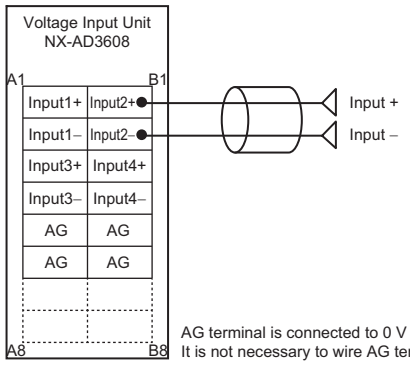
Analog Input Unit (voltage input type) 4 points NX-AD3603

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD3603
Capacity	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	1.10 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Not supported.			

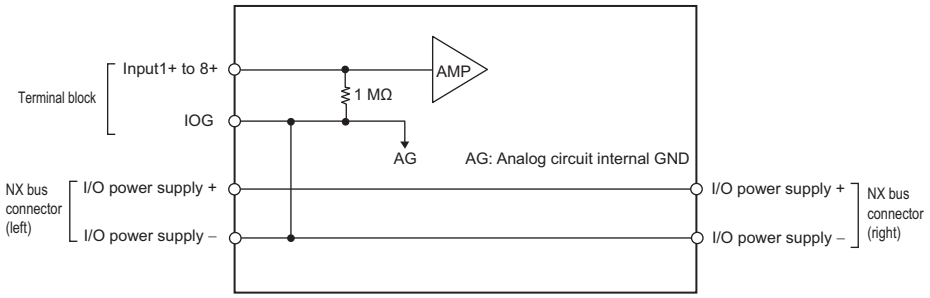
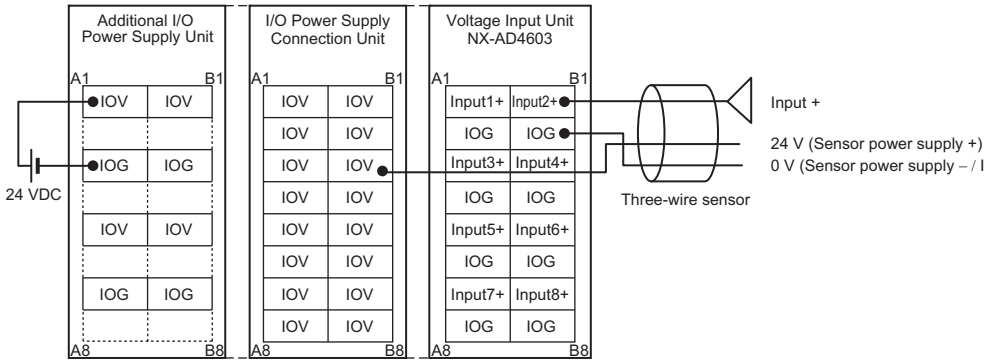
Analog Input Unit (voltage input type) 4 points NX-AD3604

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD3604
Capacity	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	1.10 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

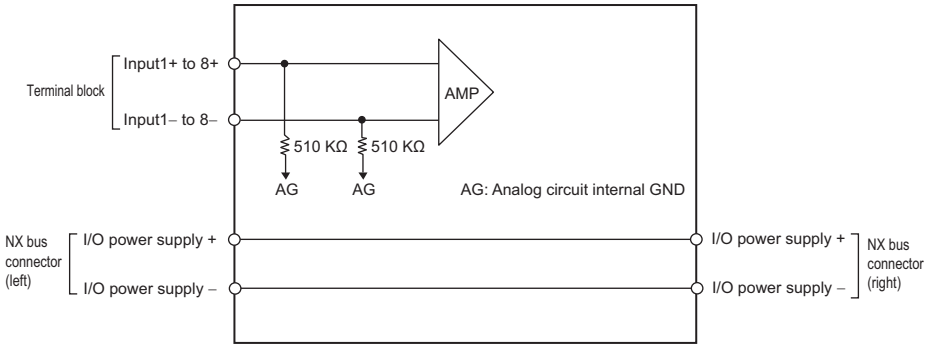
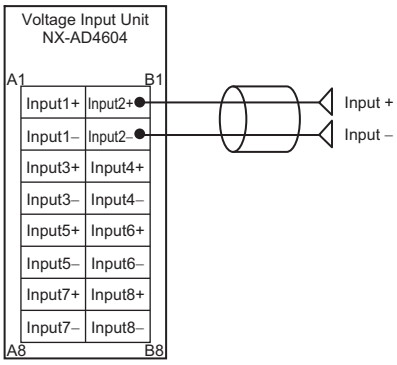
Analog Input Unit (voltage input type) 4 points NX-AD3608

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD3608
Capacity	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	1.10 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

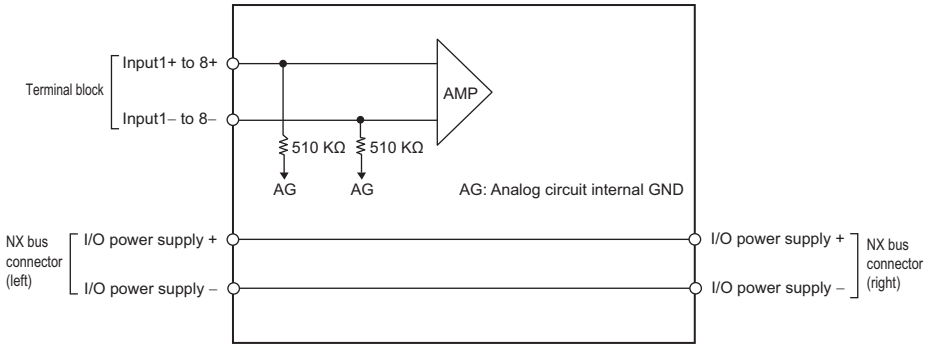
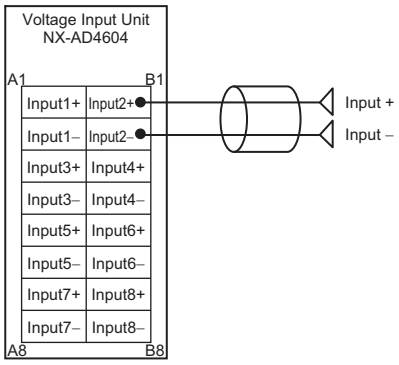
Analog Input Unit (voltage input type) 8 points NX-AD4603

Unit name	Analog Input Unit (voltage input type)	**Model**	NX-AD4603
Capacity	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)
		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**	IOG: 0.1 A/terminal max.
NX Unit power consumption	1.15 W max.	**I/O current consumption**	No consumption
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Input disconnection detection	Not supported.		

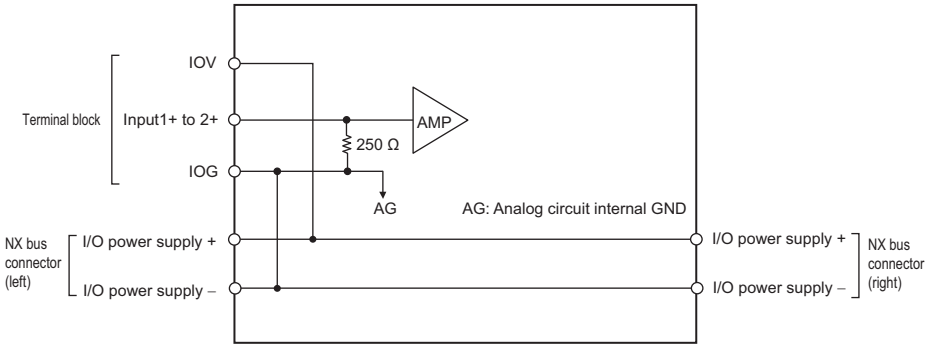
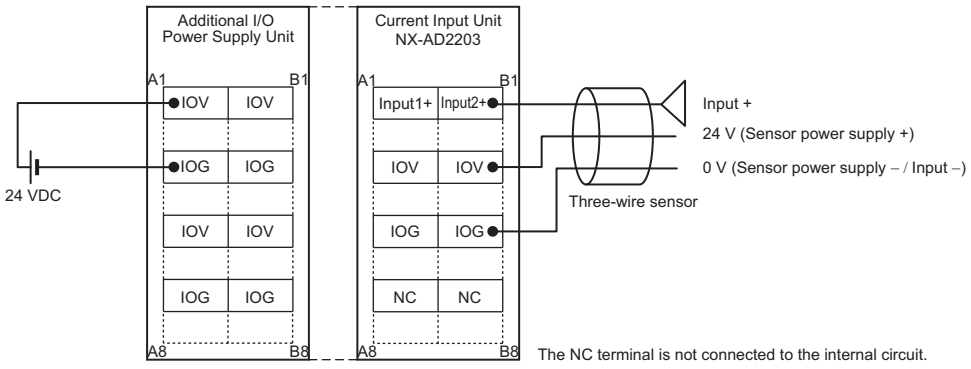
Analog Input Unit (voltage input type) 8 points NX-AD4604

Unit name	Analog Input Unit (voltage input type)	**Model**		NX-AD4604
Capacity	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	1.15 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Not supported.			

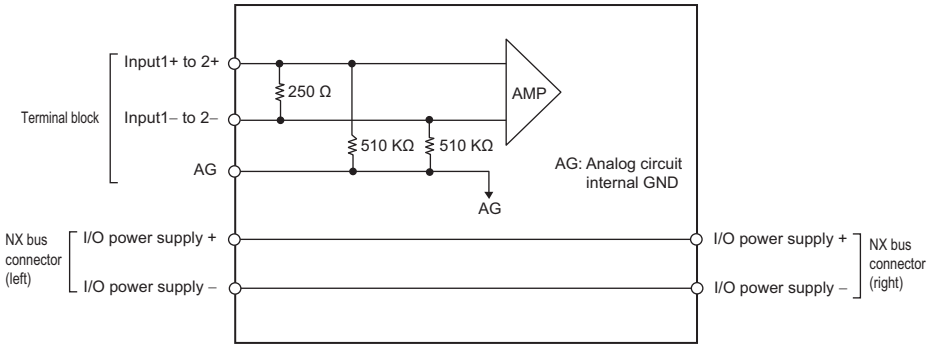
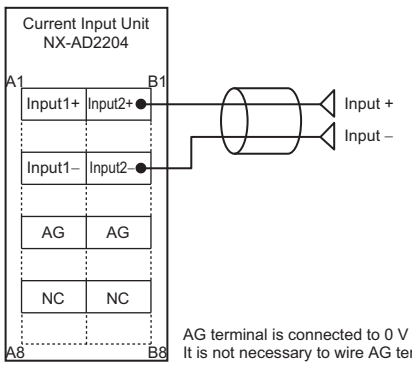
Analog Input Unit (voltage input type) 8 points NX-AD4608

Unit name	Analog Input Unit (voltage input type)	**Model**	NX-AD4608
Capacity	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)
		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	1.15 W max.	**I/O current consumption**	No consumption
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions		
Terminal connection diagram			
Input disconnection detection	Not supported.		

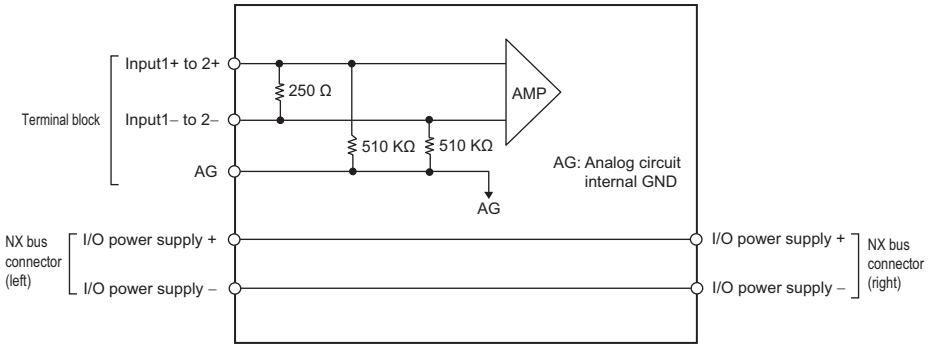
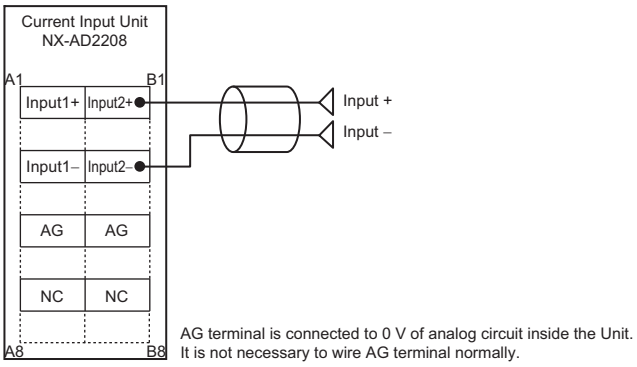
Analog Input Unit (current input type) 2 points NX-AD2203

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD2203
Capacity	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 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	0.90 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Supported.			

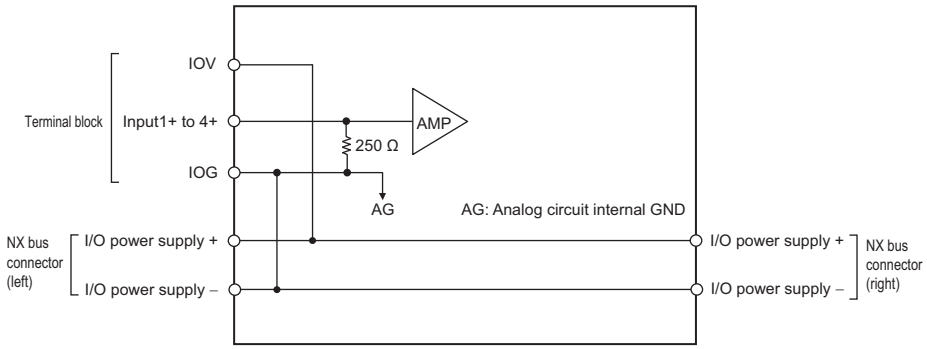
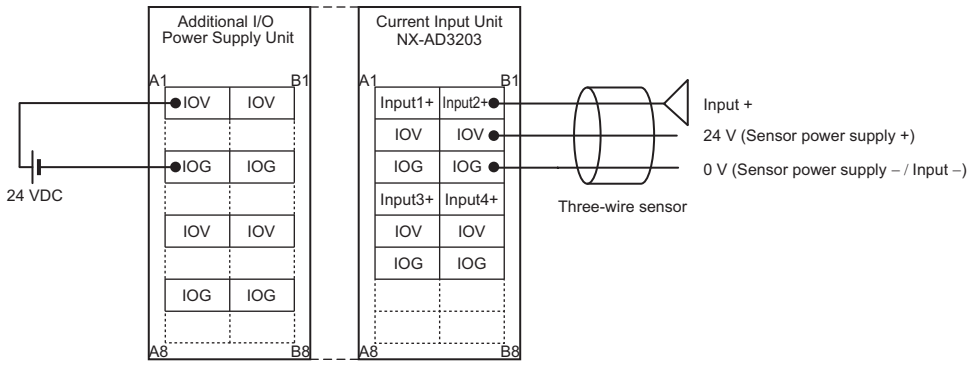
Analog Input Unit (current input type) 2 points NX-AD2204

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD2204
Capacity	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 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	0.90 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

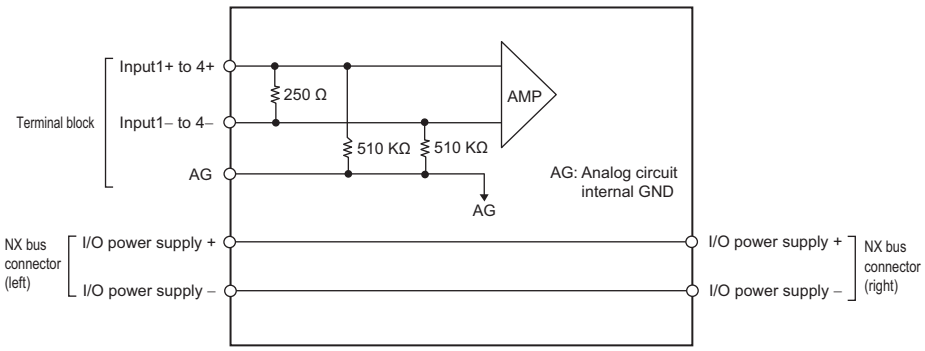
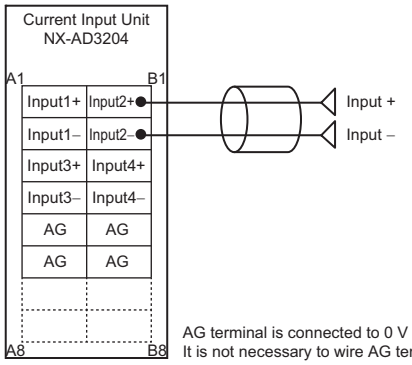
Analog Input Unit (current input type) 2 points NX-AD2208

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD2208
Capacity	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)
			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	0.90 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

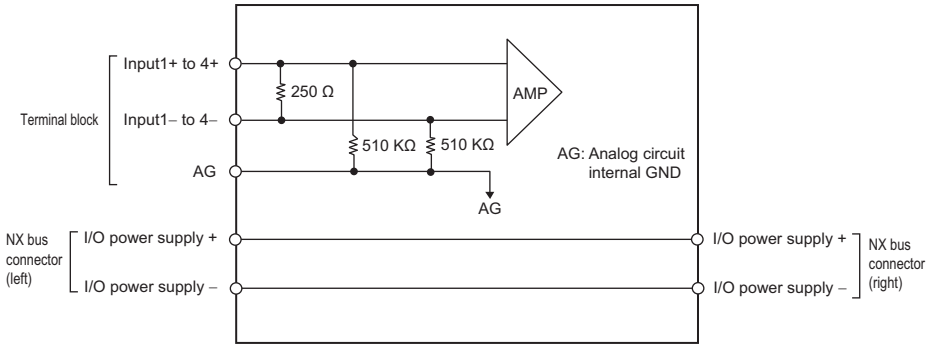
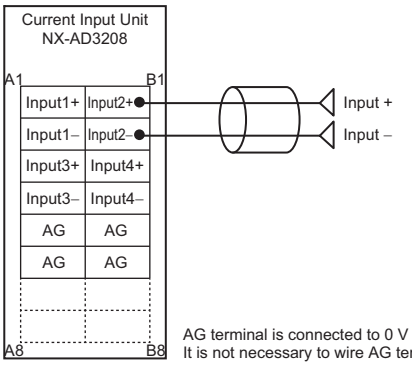
Analog Input Unit (current input type) 4 points NX-AD3203

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD3203
Capacity	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 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	0.90 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Supported.			

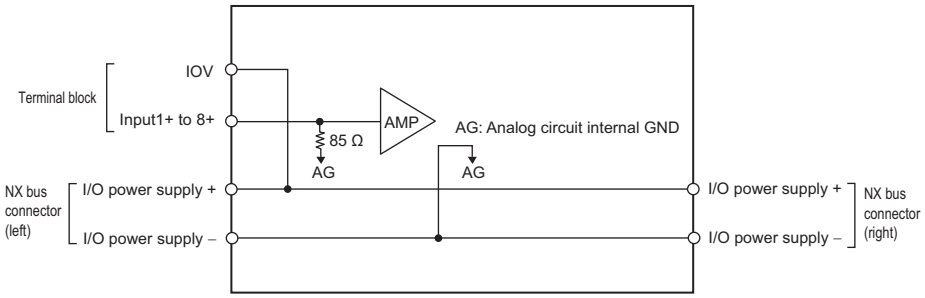
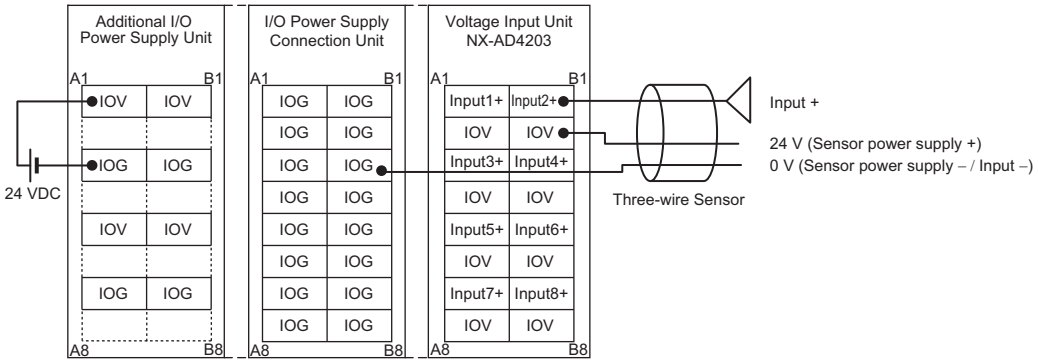
Analog Input Unit (current input type) 4 points NX-AD3204

Unit name	Analog Input Unit (current input type)	**Model**	NX-AD3204
Capacity	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 min.
		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	0.90 W max.	**I/O current consumption**	No consumption
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: 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.		

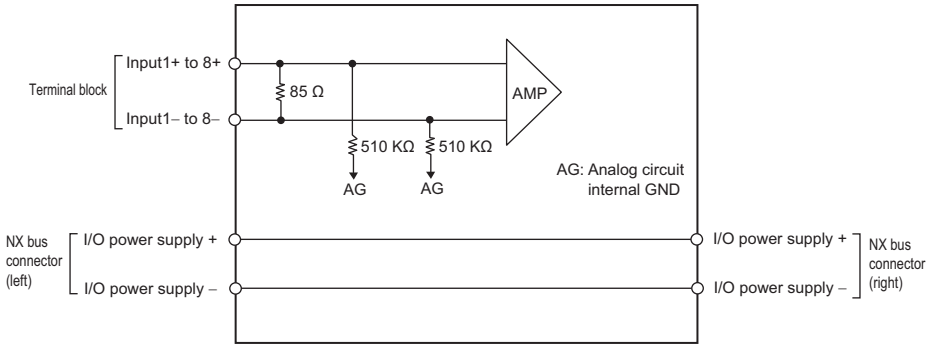
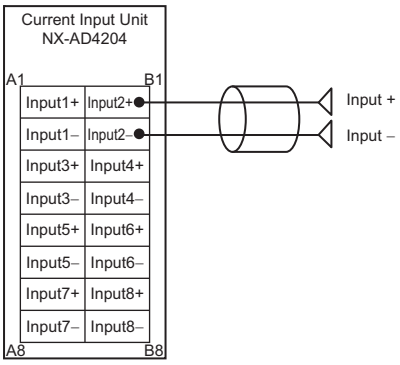
Analog Input Unit (current input type) 4 points NX-AD3208

Unit name	Analog Input Unit (current input type)	**Model**		NX-AD3208
Capacity	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 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	0.95 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: 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.			

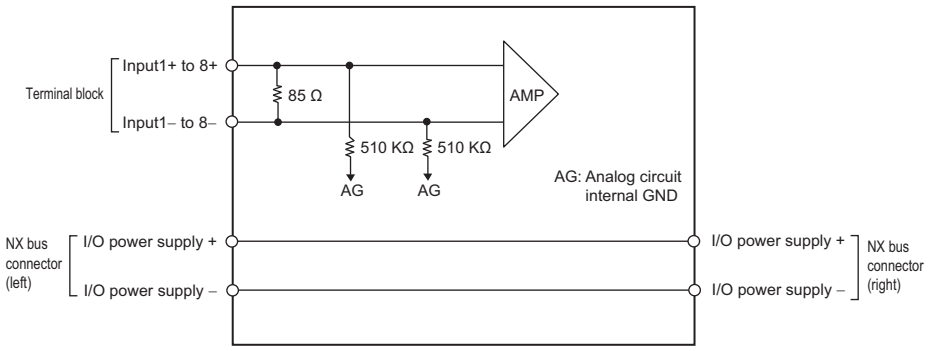
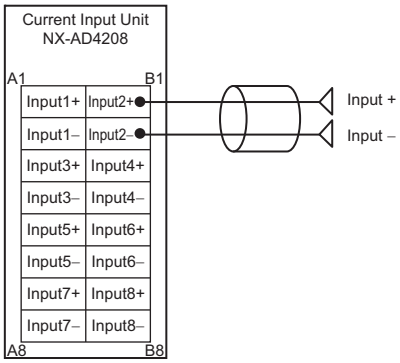
Analog Input Unit (current input type) 8 points NX-AD4203

Unit name	Analog Input Unit (current input type)	**Model**	NX-AD4203
Capacity	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	1.05 W max.	**I/O current consumption**	No consumption
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: 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
Capacity	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)
		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	1.05 W max.	**I/O current consumption**	No consumption
Weight	70 g max.		
Circuit layout			
Installation orientation and restrictions	Installation orientation: 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
Capacity	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	1.10 W max.	**I/O current consumption**		No consumption
Weight	70 g max.			
Circuit layout				
Installation orientation and restrictions	Installation orientation: Possible in 6 orientations. Restrictions: No restrictions			
Terminal connection diagram				
Input disconnection detection	Supported.			

Version Information

NX Unit		Corresponding unit versions/versions		
Model	**Unit Version**	**EtherCAT Coupler Units NX-ECC201/ECC202 ***	**NJ-series CPU Units NJ501-□□□□/NJ301-□□□□**	**Sysmac Studio**
NX-AD□□□□	Ver.1.0	Version 1.0 or later	Version 1.05 or later	Version 1.06 or higher

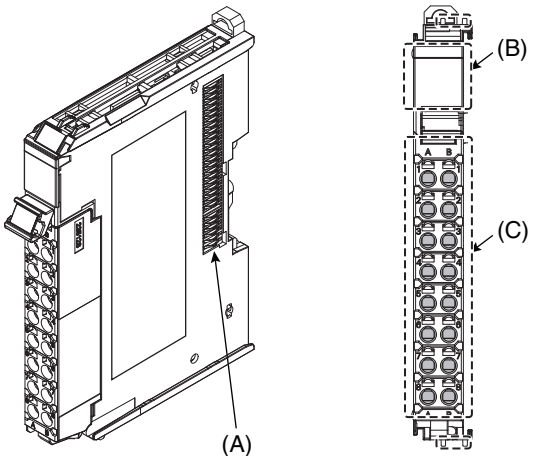
* For the NX-ECC202, there is no unit version of 1.1 or earlier.

External Interface

Analog Input Unit

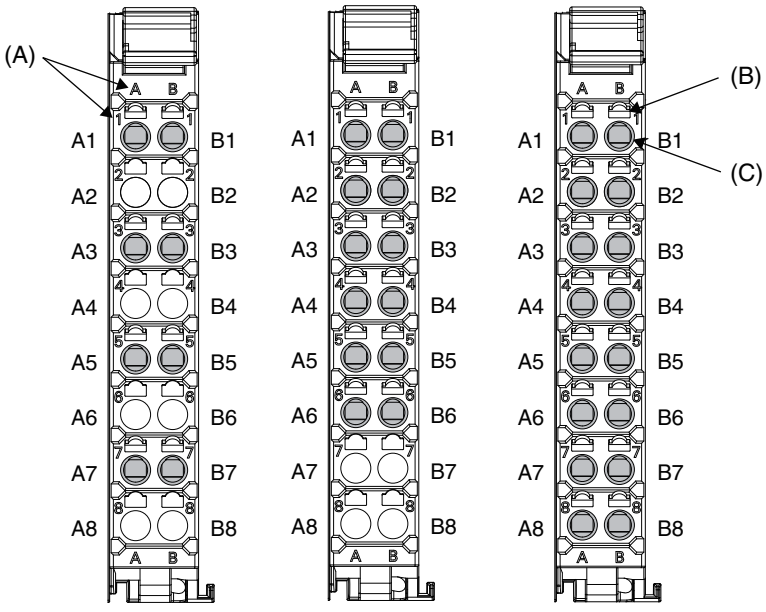
NX-AD□□□□

12mm Width



Symbol	Name	Function
(A)	NX bus connector	This connector is used to connect each Unit.
(B)	Indicators	The indicators show the current operating status of the Unit.
(C)	Terminal block	The terminal block is used to connect external devices. The number of terminals depends on the type of Unit.

Terminal Blocks



12 mm width 8-terminal type | 12 mm width 12-terminal type | 12 mm width 16-terminal type

Symbol	Name	Function
(A)	Terminal number indications	Terminal numbers for which A to D indicate the column, and 1 to 8 indicate the line are displayed. The terminal number is a combination of column and line, so A1 to A8 and B1 to B8 are displayed. The terminal number indications are the same regardless of the number of terminals on the terminal block.
(B)	Release holes	Insert a flat-blade screwdriver into these holes to connect and remove the wires.
(C)	Terminal holes	The wires are inserted into these holes.

Applicable Terminal Blocks for Each Unit Model

Unit model	Terminal Blocks				
	Model	No. of terminals	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

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 one-pin ferrules. Do not use two-pin ferrules.

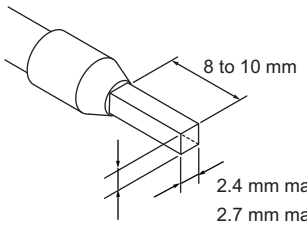
The applicable ferrules, wires, and crimping tool are given in the following table.

Terminal types	Manufacturer	Ferrule model number	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



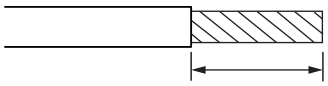
1.6 mm max. (except ground terminals)
2.0 mm max. (ground terminals)

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, the applicable wire range and conductor length (stripping length) are as follows.

Terminal types	Applicable wires	Conductor length (stripping length)
Ground terminals	2.0 mm^2	9 to 10 mm
Terminals other than ground terminals	0.08 to 1.5 mm^2 AWG28 to 16	8 to 10 mm



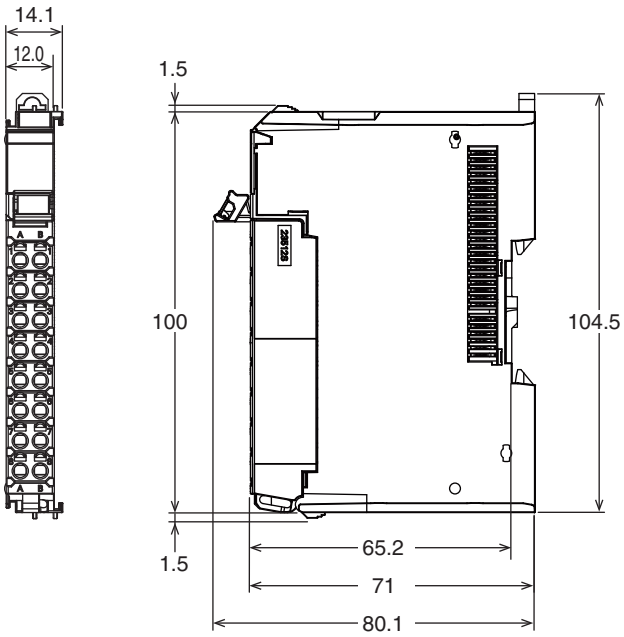
Conductor length (stripping length)

Dimensions

(Unit/mm)

Analog Input Unit

NX-AD□□□□
12 mm Width



Related Manuals

Cat. No.	Model number	Manual name	Application	Description
W522	NX-AD□□□□ NX-DA□□□□ NX-TS□□□□	NX-series Analog I/O Units User's Manual	Learning how to use NX-series Analog I/O Units and Temperature Input Units	The hardware, setup methods, and functions of the NX-series Analog I/O Units and Temperature Input Units are described.

Terms and Conditions Agreement

Read and understand this catalog.
Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.
(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.
(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE
PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.
Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.
See http://www.omron.com/global/ or contact your Omron representative for published information.

Limitation on Liability; Etc.
OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.
Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.
Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.
NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.
Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.
Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.
Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.
Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

2013.9

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

http://www.ia.omron.com/

(c)Copyright OMRON Corporation 2013 All Right Reserved.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Omron:

NX-AD4208 NX-AD4204 NX-AD4203 NX-AD2604 NX-AD2603 NX-AD2608 NX-AD3603 NX-AD2203 NX-AD3604 NX-AD2204 NX-AD3608 NX-AD4603 NX-AD4608 NX-AD4604 NX-AD3208 NX-AD3204 NX-AD3203 NX-AD2208

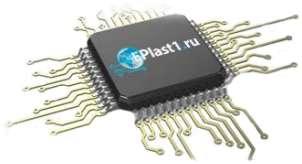
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.