

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

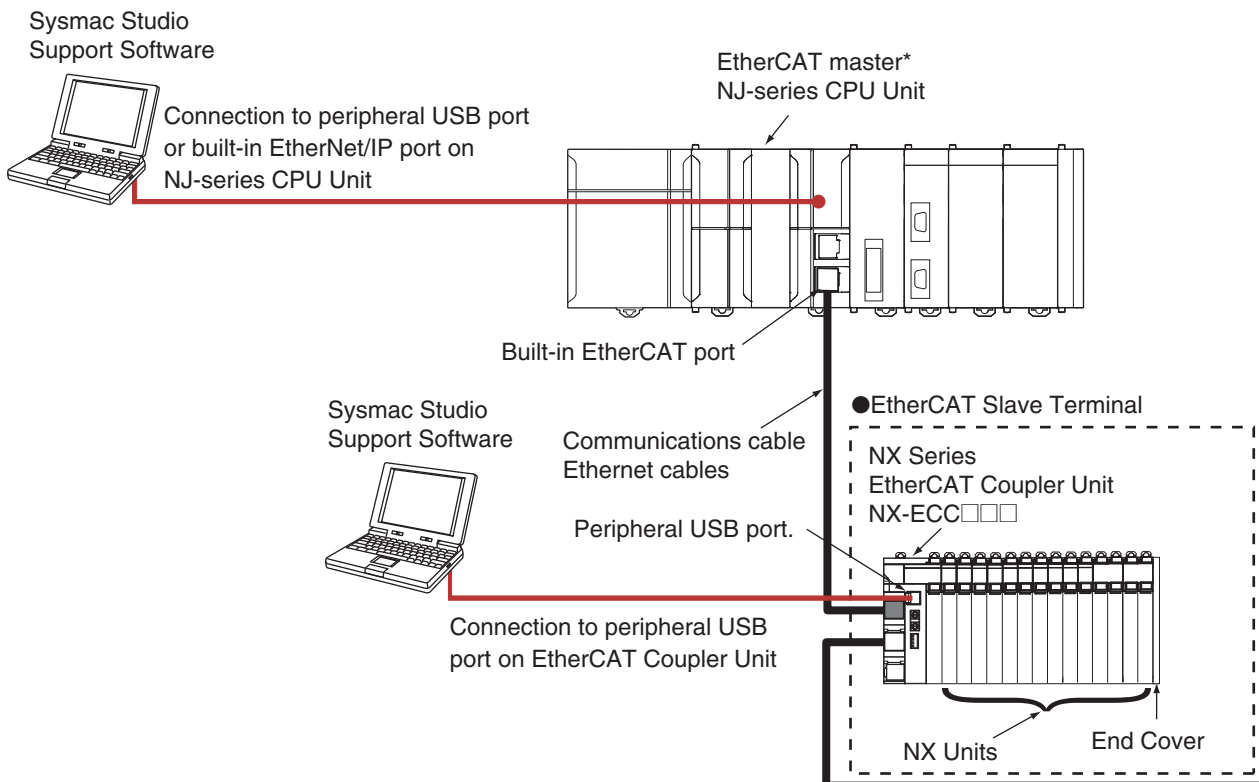
- Analog Input Units for the NX-series modular I/O system.
- Connect to other NX-series I/O Units and EtherCAT Coupler units using the high-speed NX-bus.
- Separate modules for voltage- and current inputs.



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 10 μ s 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.

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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.		
		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		
						Free-Run refreshing				1.10W max.		NX-AD3603	
		4 points		1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 μs/point		Free-Run refreshing	1.10W max.	NX-AD3604	
							Differential Input				1.10W max.		
		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		
	Free-Run refreshing		1.15W max.			NX-AD4603							
	8 points	1/8000	-4000 to 4000	±0.2% (full scale)	Single-ended input	250 μs/point	Free-Run refreshing	1.15W max.	NX-AD4604				
					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					
				Free-Run refreshing			0.90W max.		NX-AD2203				
	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.		
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			
					Free-Run refreshing			0.90W max.			NX-AD3203		
4 points		1/8000		0 to 8000	±0.2% (full scale)	Single-ended input	250 μs/point	Free-Run refreshing		0.90W max.	NX-AD3204		
						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			
					Free-Run refreshing			1.05W max.			NX-AD4203		
8 points	1/8000	0 to 8000	±0.2% (full scale)	Single-ended input	250 μs/point	Free-Run refreshing	1.05W max.	NX-AD4204					
				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						
			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.

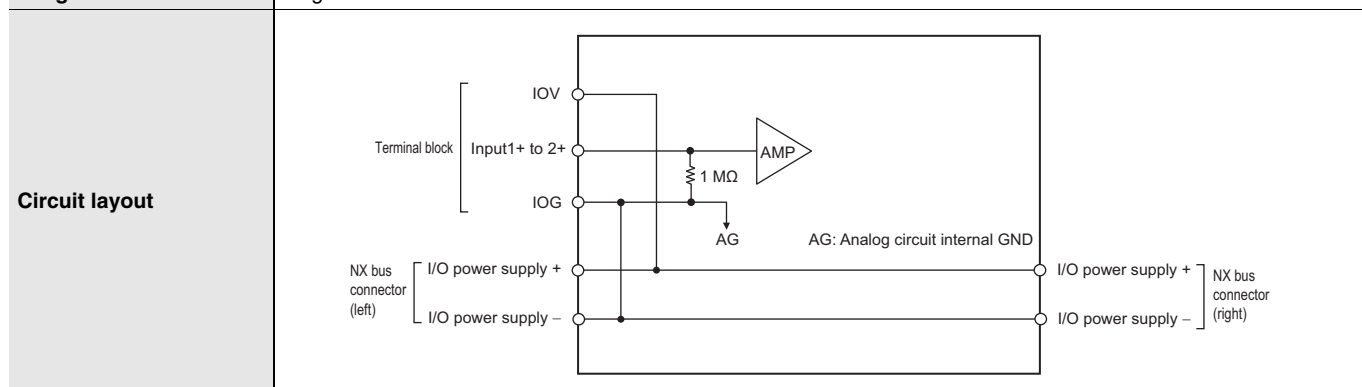
General Specification

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	Conforms 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	

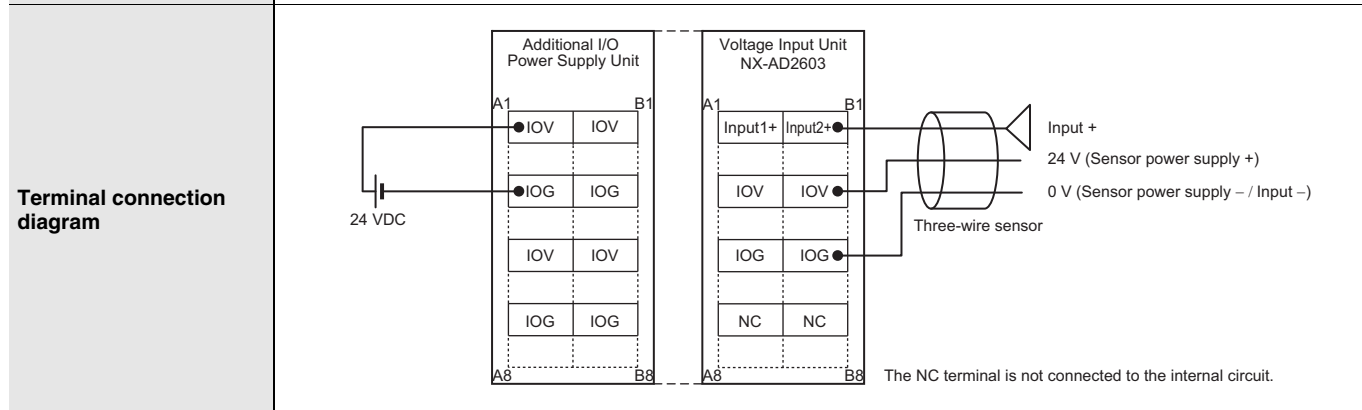
Analog Input Unit Specifications

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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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		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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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		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.			




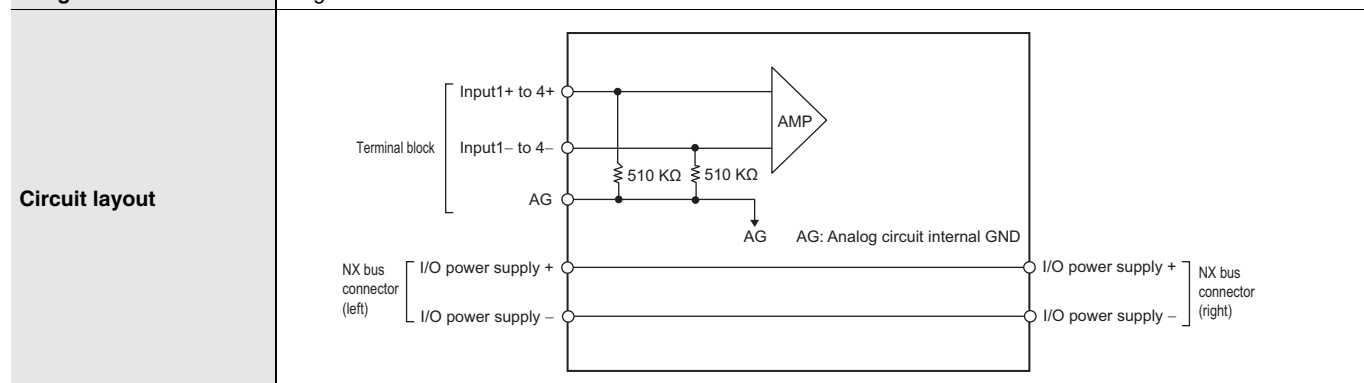
Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



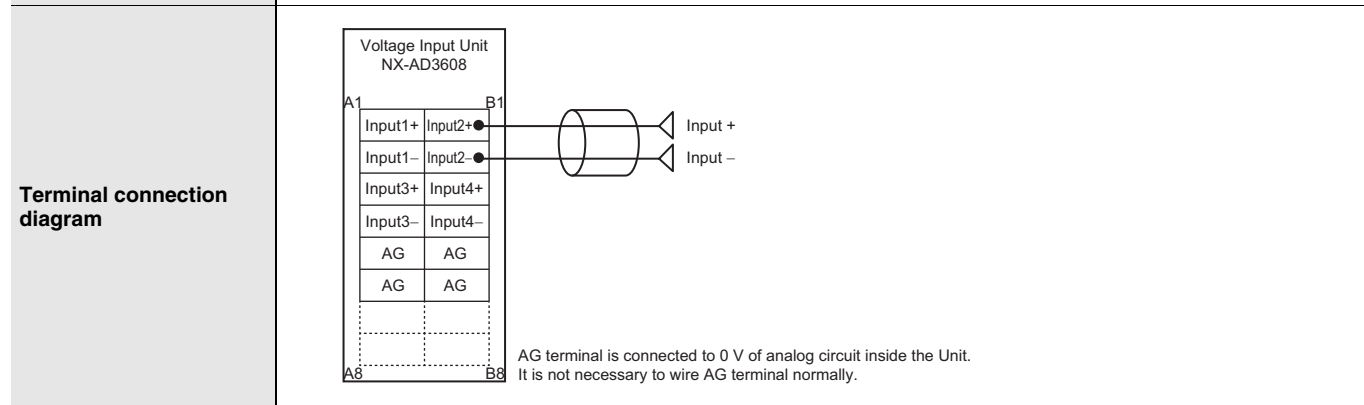
Input disconnection detection
 Not supported.

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		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	<table border="1"> <tr> <td>25°C</td> <td>±0.1% (full scale)</td> </tr> <tr> <td>0 to 55°C</td> <td>±0.2% (full scale)</td> </tr> </table>	25°C	±0.1% (full scale)	0 to 55°C	±0.2% (full scale)
		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.						

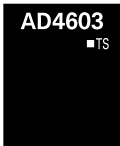


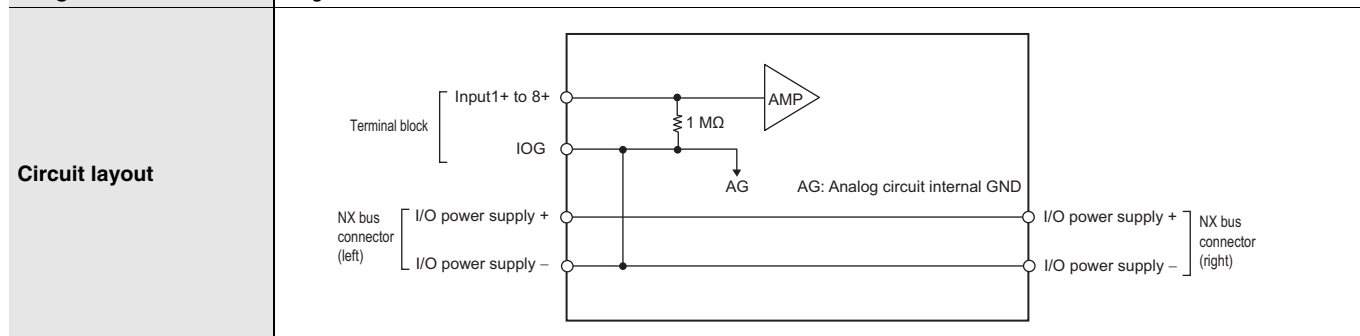
Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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)
			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	I/OG: 0.1 A/terminal max.	
NX Unit power consumption	1.15 W max.	I/O current consumption	No consumption	
Weight	70 g max.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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	<table border="1"> <tr> <td>25°C</td> <td>±0.2% (full scale)</td> </tr> <tr> <td>0 to 55°C</td> <td>±0.4% (full scale)</td> </tr> </table>	25°C	±0.2% (full scale)
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.				

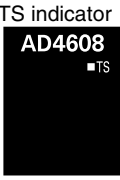


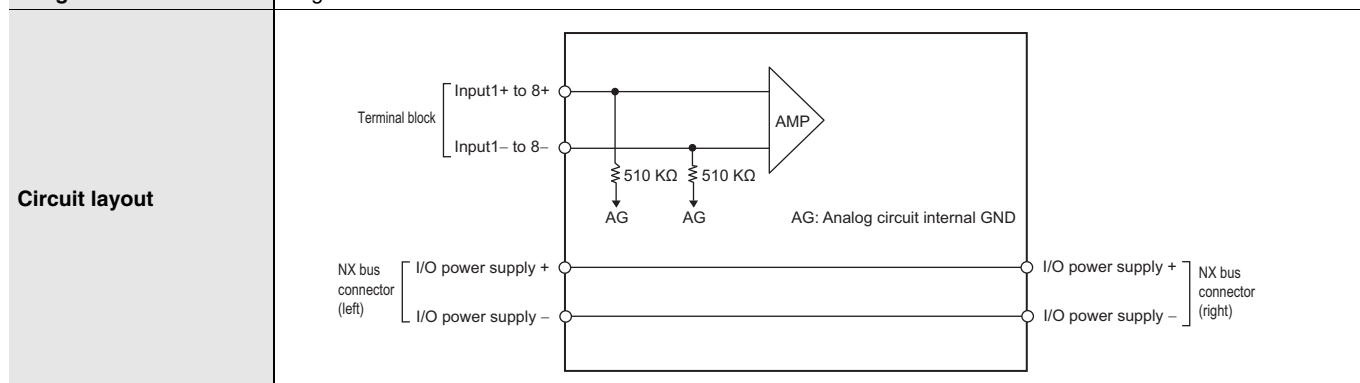
Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



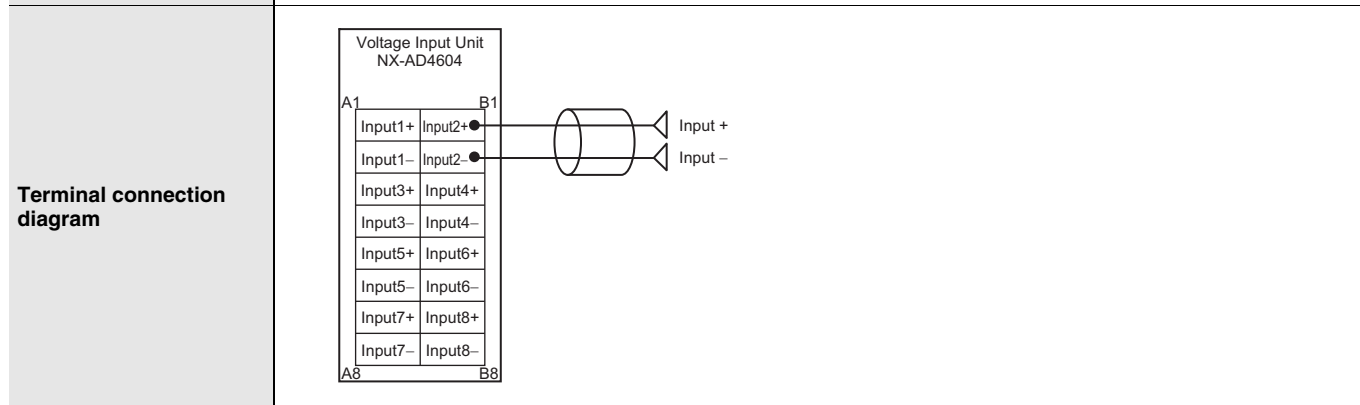
Input disconnection detection
 Not supported.

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		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	1.15 W max.	I/O current consumption	No consumption	
Weight	70 g max.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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.			




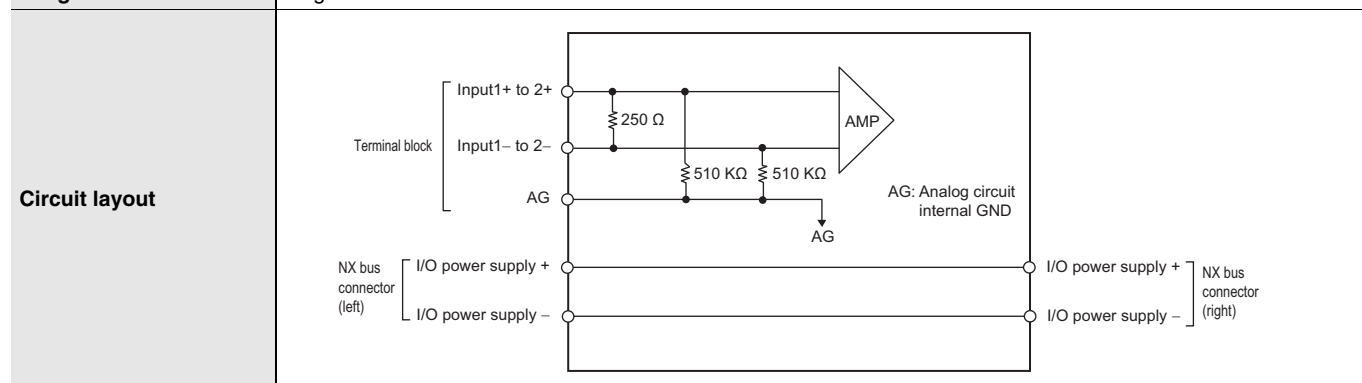
Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



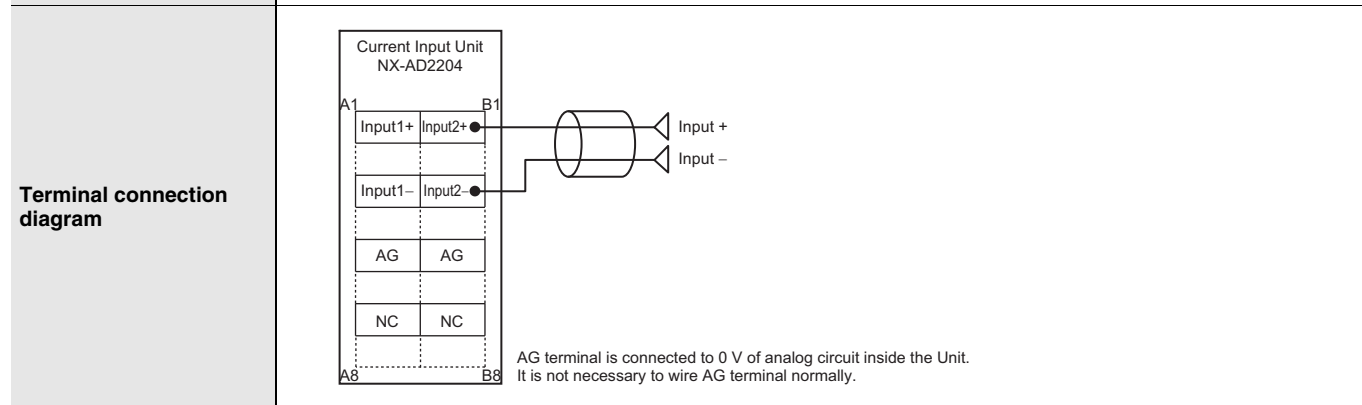
Input disconnection detection
 Supported.

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		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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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		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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



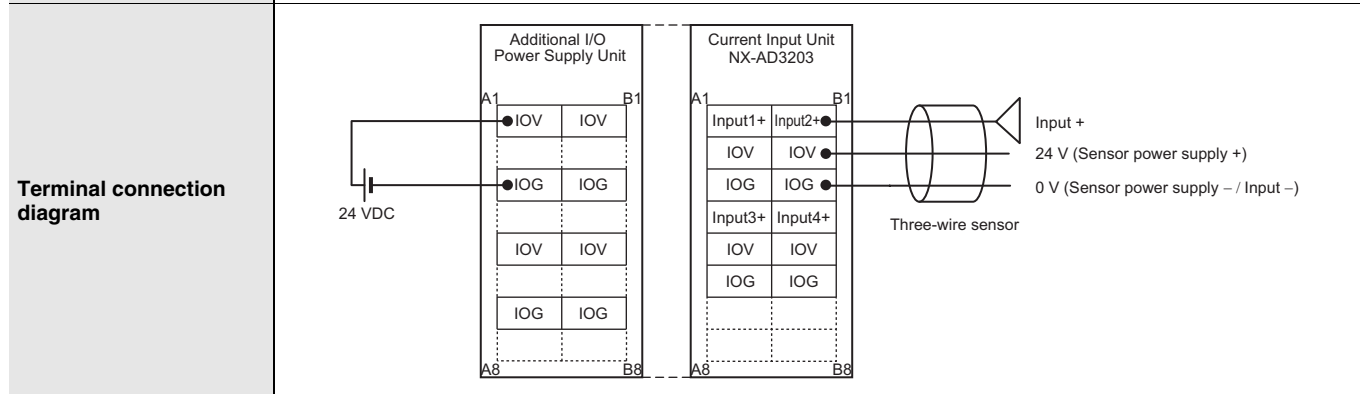
Input disconnection detection
 Supported.

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		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	<table border="1"> <tr> <td>25°C</td> <td>±0.2% (full scale)</td> </tr> <tr> <td>0 to 55°C</td> <td>±0.4% (full scale)</td> </tr> </table>	25°C	±0.2% (full scale)	0 to 55°C	±0.4% (full scale)
		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.						



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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)
			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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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		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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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		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)
			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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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)
			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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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		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.			



Installation orientation and restrictions
 Installation orientation: Possible in 6 orientations.
 Restrictions: No restrictions



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



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)	
Ground terminals	Phoenix Contact	AI1,5-10		
		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 mm² and cannot be used in the screwless clamping terminal block.

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

Finished Dimensions of Ferrules



Using Twisted Wires/Solid Wires

If you use the twisted wires or the solid wires, 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



Dimensions

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.

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