

NX-AD/DA

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

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



Features

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

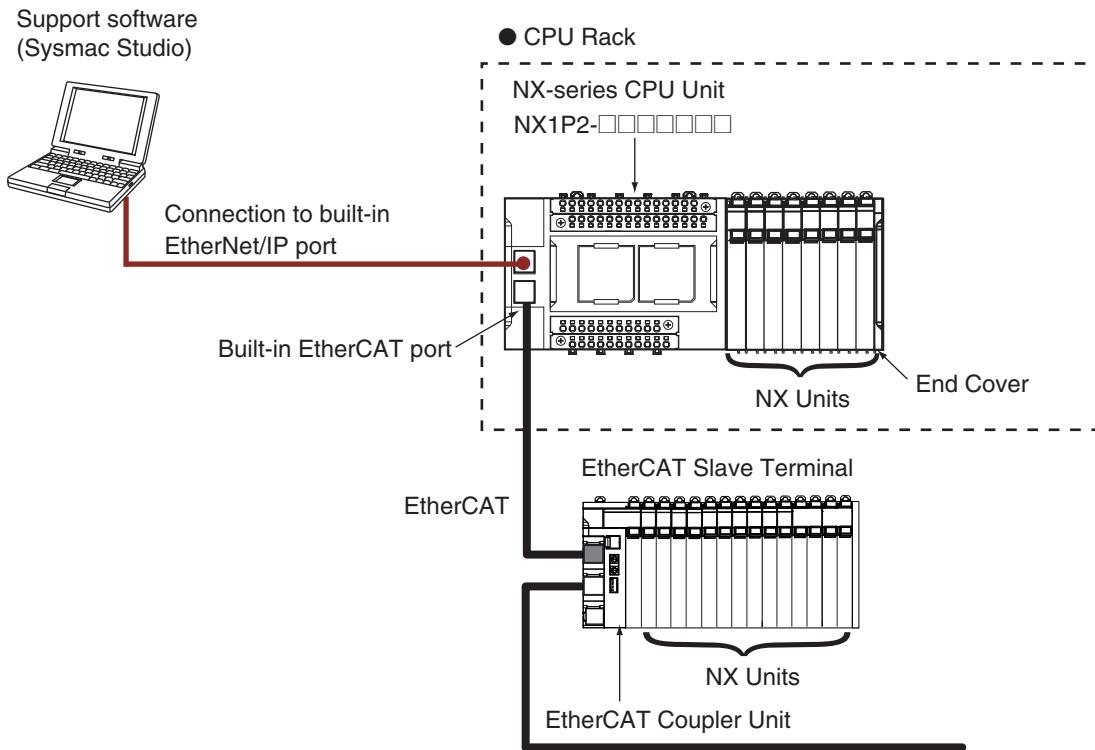
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System Configurations

Connected to a CPU Unit or Communication Control Unit

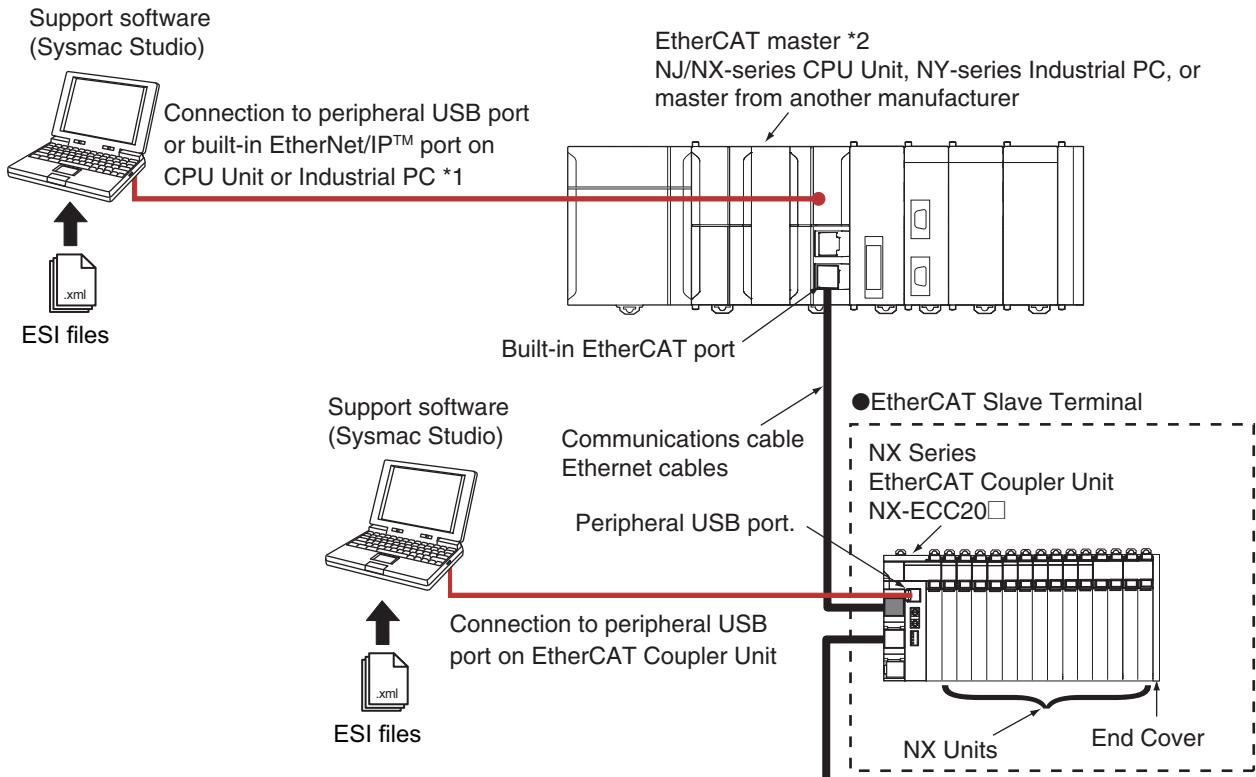
The following figure shows a system configuration when NX Units are connected to an NX-series CPU Unit.



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

Connected to an EtherCAT Coupler Unit

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



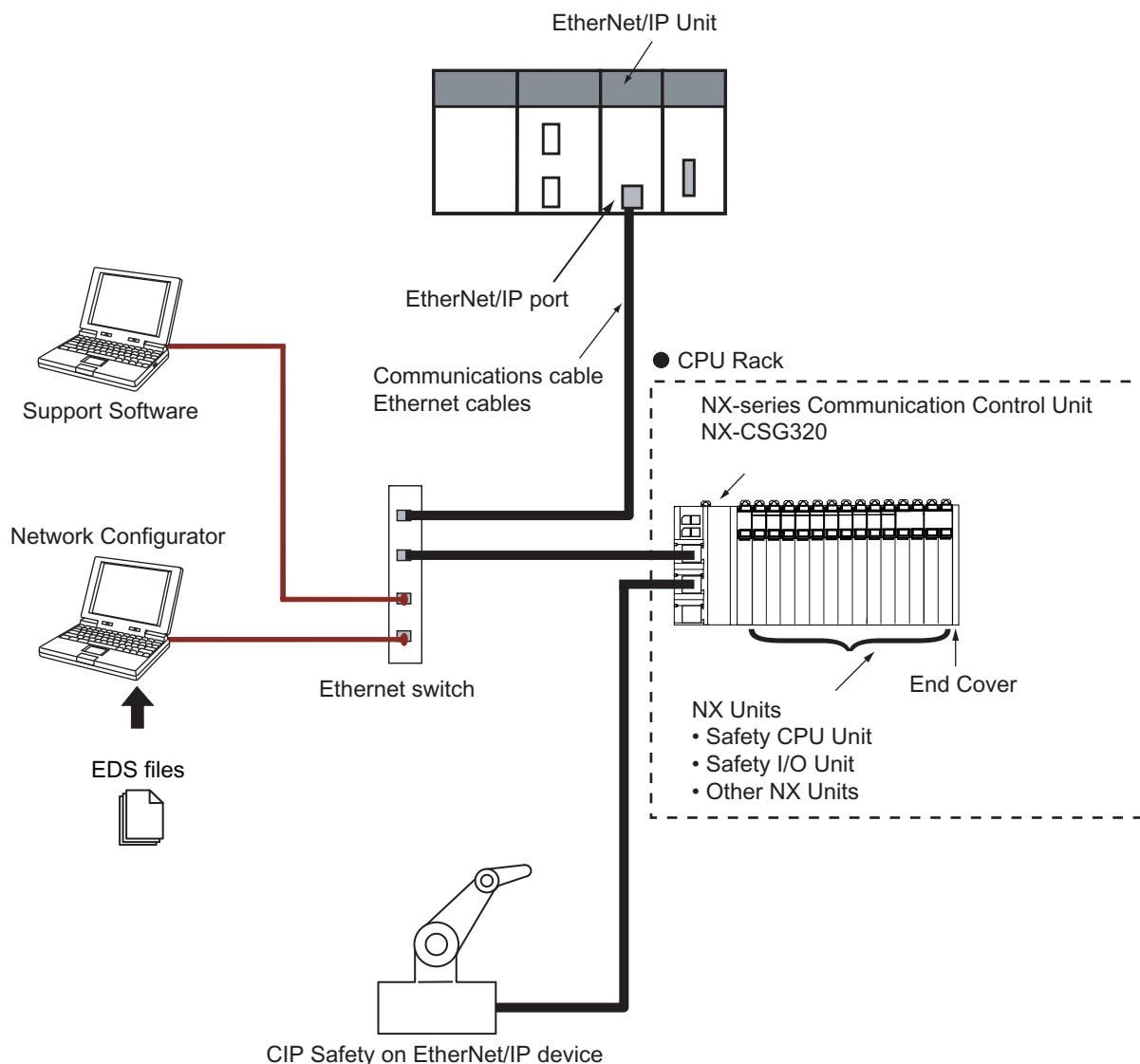
*1. The connection method for the Sysmac Studio depends on the model of the CPU Unit or Industrial PC.

*2. An EtherCAT Slave Terminal cannot be connected to any of the OMRON CJ1W-NC□81/□82 Position Control Units even though they can operate as EtherCAT masters.

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

System Configuration in the Case of a Communication Control Unit

The following figure shows a system configuration when a group of NX Units is connected to an NX-series Communication Control Unit. To configure a Safety Network Controller, mount the Safety CPU Unit, which is one of the NX Units, to the CPU Rack of the Communication Control Unit.



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

Model Number Structure

NX-□□□□□
 (1) (2) (3) (4)

(1) Unit type

| No. | Specification |
|-----|---------------|
| AD | Analog input |
| DA | Analog output |

(2) Number of points

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

(3) I/O range

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

(4) Other specifications

Analog Input Units

| No. | Resolution | Conversion time | Input method | I/O refreshing method | |
|-----|------------|-----------------|--------------|-----------------------------|---|
| | | | | Free-Run refreshing *1 only | Switching synchronous I/O refreshing *2 and Free-Run refreshing |
| 03 | 1/8000 | 250 µs/point | Single-ended | Yes | --- |
| 04 | 1/8000 | 250 µs/point | Differential | Yes | --- |
| 08 | 1/30000 | 10 µs/point | Differential | --- | Yes |

*1 Free-Run refreshing

*2 Synchronous I/O refreshing

Analog Output Units

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

*1 Free-Run refreshing

*2 Synchronous I/O refreshing

Ordering Information

Applicable standards

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

Analog Input Units

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

Analog Output Units

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

Optional Products

| Product name | Specification | | | | Model |
|---------------------------------|--|-----------------------------|----------------------|---------------------------|----------|
| Unit/Terminal Block Coding Pins | For 10 Units (Terminal Block: 30 pins, Unit: 30 pins) | | | | NX-AUX02 |
| Product name | Specification | | | | Model |
| Terminal Block | No. of terminals | Terminal number indications | Ground terminal mark | Terminal current capacity | |
| | | | | | |
| | | | | | |

Accessories

Not included.

General Specifications

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

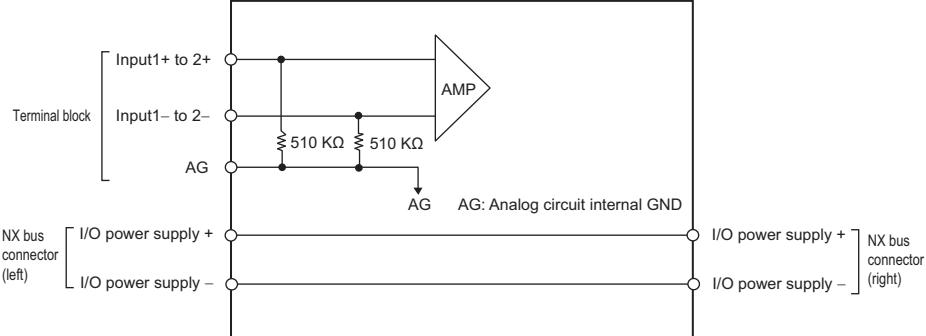
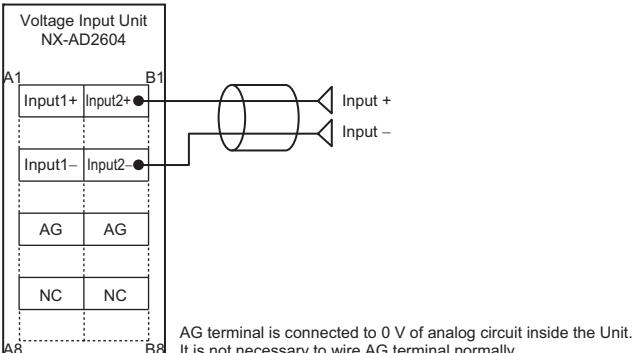
* Refer to the OMRON website (www.ia.omron.com) or ask your OMRON representative for the most recent applicable standards for each model.

Analog Input Unit Specifications

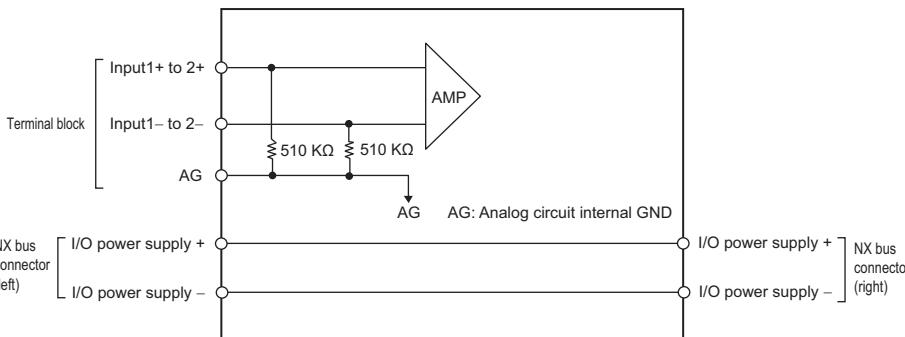
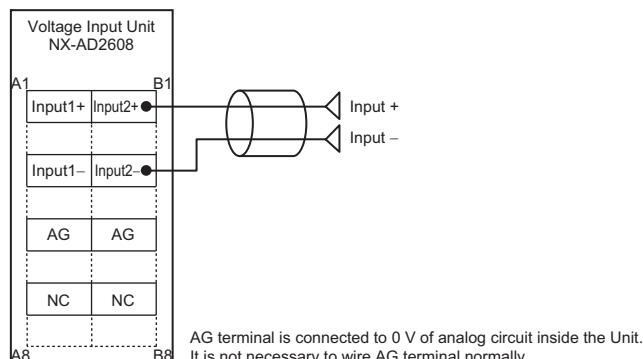
Analog Input Unit (voltage input type) 2 points NX-AD2603

| | | | | | | |
|--|---|--|--|---|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD2603 | | |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) | | |
| I/O refreshing method | Free-Run refreshing | | | | | |
| Indicator |  | 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 M Ω min. | | | |
| | | Resolution | 1/8000 (full scale) | | | |
| | | Overall accuracy | 25°C | $\pm 0.2\%$ (full scale) | | |
| | | 0 to 55°C | | $\pm 0.4\%$ (full scale) | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 250 μ s/point | | | |
| | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | | |
| Insulation resistance | 20 M Ω min. between isolated circuits (at 100 VDC) | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | | |
| I/O power supply method | Supply from the NX bus | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. | | | |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.05 W max. | I/O current consumption | No consumption | | | |
| Weight | 70 g max. | | | | | |
| Circuit layout | | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | |
| Terminal connection diagram | <p>The NC terminal is not connected to the internal circuit.</p> | | | | | |
| Input disconnection detection | Not supported. | | | | | |

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

| | | | | | | |
|--|---|--|--|---|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD2604 | | |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) | | |
| I/O refreshing method | Free-Run refreshing | | | | | |
| Indicator |  | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.05 W max. | I/O current consumption | No consumption | | | |
| Weight | 70 g max. | | | | | |
| Circuit layout |  | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | |
| Terminal connection diagram |  | | | | | |
| Input disconnection detection | Not supported. | | | | | |

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

| | | | | | |
|--|---|--|--|--|--|
| Unit name | Analog Input Unit (voltage input type) | Model | NX-AD2608 | | |
| Number of points | 2 points | External connection terminals | Screwless clamping terminal block (8 terminals) | | |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | | |
| Indicator |  | 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 to 55°C ±0.2% (full scale) | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 10 µs/point | | |
| | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | |
| | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | |
| | | Current capacity of I/O power supply terminal | Without I/O power supply terminals | | |
| | | I/O current consumption | No consumption | | |
| | | | | | |
| Weight | | 70 g max. | | | |
| Circuit layout | |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | |
| Terminal connection diagram |  | | | | |
| Input disconnection detection | Not supported. | | | | |

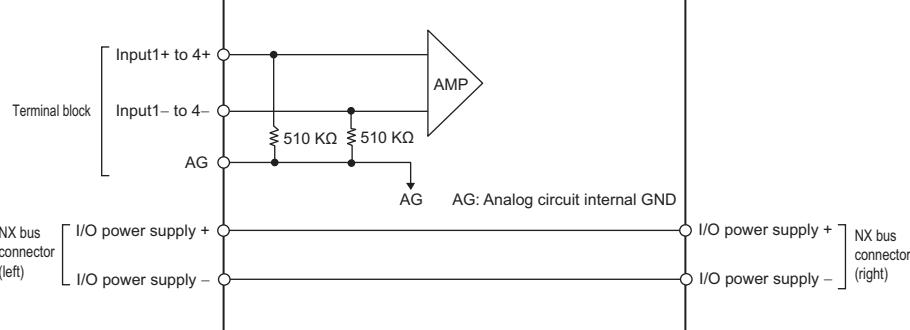
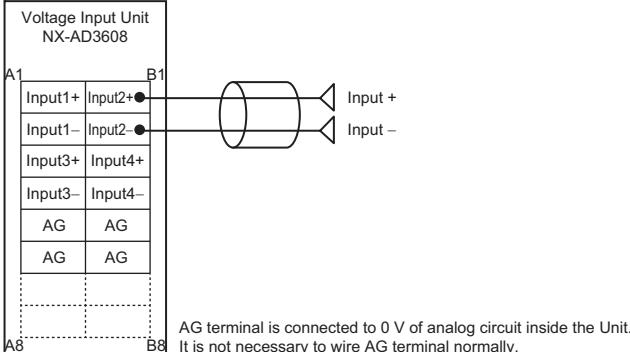
Analog Input Unit (voltage input type) 4 points NX-AD3603

| | | | | |
|--|---|--------------------------------|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD3603 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  TS indicator AD3603 TS | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.10 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram | | | | |
| Input disconnection detection | Not supported. | | | |

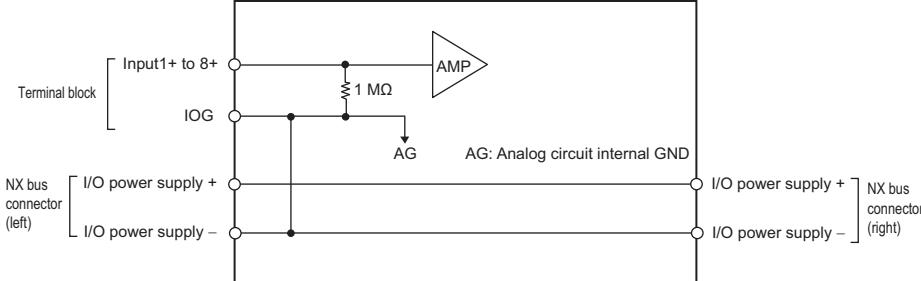
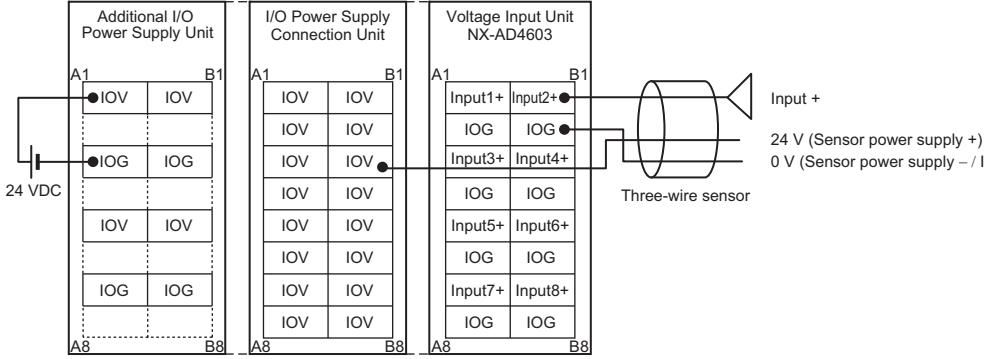
Analog Input Unit (voltage input type) 4 points NX-AD3604

| | | | | | | |
|--|---|--|--|--|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD3604 | | |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) | | |
| I/O refreshing method | Free-Run refreshing | | | | | |
| Indicator | TS indicator AD3604 ■ TS | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.10 W max. | I/O current consumption | No consumption | | | |
| Weight | 70 g max. | | | | | |
| Circuit layout | | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | |
| Terminal connection diagram | <p>AG terminal is connected to 0 V of analog circuit inside the Unit. It is not necessary to wire AG terminal normally.</p> | | | | | |
| Input disconnection detection | Not supported. | | | | | |

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

| | | | | |
|--|---|--------------------------------|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD3608 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | |
| Indicator |  TS indicator AD3608 ■ TS | 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) |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Conversion time | 10 µs/point |
| | | | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.10 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram |  | | | |
| Input disconnection detection | Not supported. | | | |

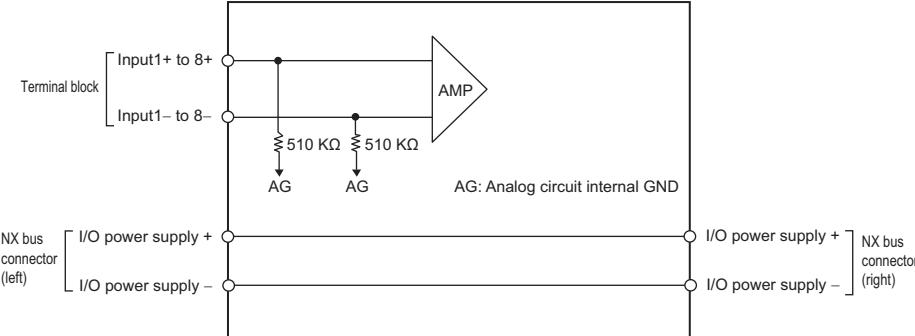
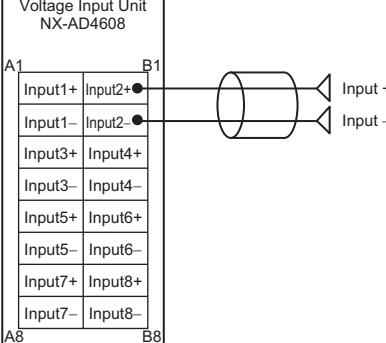
Analog Input Unit (voltage input type) 8 points NX-AD4603

| | | | | |
|--|---|--------------------------------|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD4603 |
| Number of points | 8 points | | External connection terminals | Screwless clamping terminal block (16 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  TS indicator AD4603 ■ TS | Input method | Single-ended input | |
| | | Input range | -10 to +10 V | |
| | | Input conversion range | -5 to 105% (full scale) | |
| | | Absolute maximum rating | ±15 V | |
| | | Input impedance | 1 MΩ min. | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.2% (full scale) |
| | | 0 to 55°C | | ±0.4% (full scale) |
| | | Conversion time | 250 µs/point | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.15 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram |  | | | |
| Input disconnection detection | Not supported. | | | |

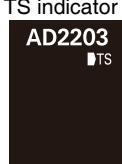
Analog Input Unit (voltage input type) 8 points NX-AD4604

| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD4604 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------------|--|--|------------------------------|--|--|--|----|----|----|----|---------|---------|--|--|---------|---------|--|--|---------|---------|--|--|---------|---------|--|--|---------|---------|--|--|---------|---------|--|--|---------|---------|--|--|---------|---------|--|--|
| Number of points | 8 points | | External connection terminals | Screwless clamping terminal block (16 terminals) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I/O refreshing method | Free-Run refreshing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indicator | TS indicator AD4604 TS | 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) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Conversion time | 250 µs/point | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.15 W max. | | I/O current consumption | No consumption | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weight | 70 g max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Circuit layout | <p>Terminal block</p> <p>AMP</p> <p>AG: Analog circuit internal GND</p> <p>NX bus connector (left)</p> <p>I/O power supply +</p> <p>I/O power supply -</p> <p>I/O power supply +</p> <p>I/O power supply -</p> <p>NX bus connector (right)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal connection diagram | <table border="1"> <thead> <tr> <th colspan="4">Voltage Input Unit NX-AD4604</th> </tr> <tr> <th>A1</th> <th>B1</th> <th>A8</th> <th>B8</th> </tr> </thead> <tbody> <tr> <td>Input1+</td> <td>Input2+</td> <td></td> <td></td> </tr> <tr> <td>Input1-</td> <td>Input2-</td> <td></td> <td></td> </tr> <tr> <td>Input3+</td> <td>Input4+</td> <td></td> <td></td> </tr> <tr> <td>Input3-</td> <td>Input4-</td> <td></td> <td></td> </tr> <tr> <td>Input5+</td> <td>Input6+</td> <td></td> <td></td> </tr> <tr> <td>Input5-</td> <td>Input6-</td> <td></td> <td></td> </tr> <tr> <td>Input7+</td> <td>Input8+</td> <td></td> <td></td> </tr> <tr> <td>Input7-</td> <td>Input8-</td> <td></td> <td></td> </tr> </tbody> </table> <p>Input +</p> <p>Input -</p> | | | | Voltage Input Unit NX-AD4604 | | | | A1 | B1 | A8 | B8 | Input1+ | Input2+ | | | Input1- | Input2- | | | Input3+ | Input4+ | | | Input3- | Input4- | | | Input5+ | Input6+ | | | Input5- | Input6- | | | Input7+ | Input8+ | | | Input7- | Input8- | | |
| Voltage Input Unit NX-AD4604 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1 | B1 | A8 | B8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input1+ | Input2+ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input1- | Input2- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input3+ | Input4+ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input3- | Input4- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input5+ | Input6+ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input5- | Input6- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input7+ | Input8+ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input7- | Input8- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input disconnection detection | Not supported. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

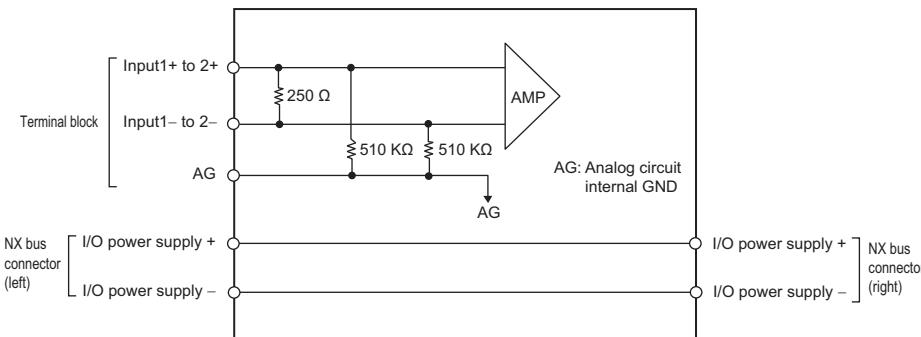
Analog Input Unit (voltage input type) 8 points NX-AD4608

| | | | | | | |
|--|---|--|--|--|--|--|
| Unit name | Analog Input Unit (voltage input type) | | Model | NX-AD4608 | | |
| Number of points | 8 points | | External connection terminals | Screwless clamping terminal block (16 terminals) | | |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | | | |
| Indicator |  | 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 M Ω min. | | | |
| | | Resolution | 1/30000 (full scale) | | | |
| | | Overall accuracy | 25°C | $\pm 0.1\%$ (full scale) | | |
| | | | 0 to 55°C | $\pm 0.2\%$ (full scale) | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 10 μ s/point | | | |
| | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | | |
| | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | | |
| | | Current capacity of I/O power supply terminal | Without I/O power supply terminals | | | |
| | | I/O current consumption | No consumption | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Weight | 70 g max. | | | | | |
| Circuit layout |  | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | |
| Terminal connection diagram |  | | | | | |
| Input disconnection detection | Not supported. | | | | | |

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

| | | | | |
|--|---|--------------------------------|--|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD2203 |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  | Input method | Single-ended input | |
| | | Input range | 4 to 20 mA | |
| | | Input conversion range | -5 to 105% (full scale) | |
| | | Absolute maximum rating | $\pm 30 \text{ mA}$ | |
| | | Input impedance | $250 \Omega \text{ min.}$ | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | $\pm 0.2\%$ (full scale) |
| | | 0 to 55°C | | $\pm 0.4\%$ (full scale) |
| | | Conversion time | 250 $\mu\text{s}/\text{point}$ | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 M Ω min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram | <p>The NC terminal is not connected to the internal circuit.</p> | | | |
| Input disconnection detection | Supported. | | | |

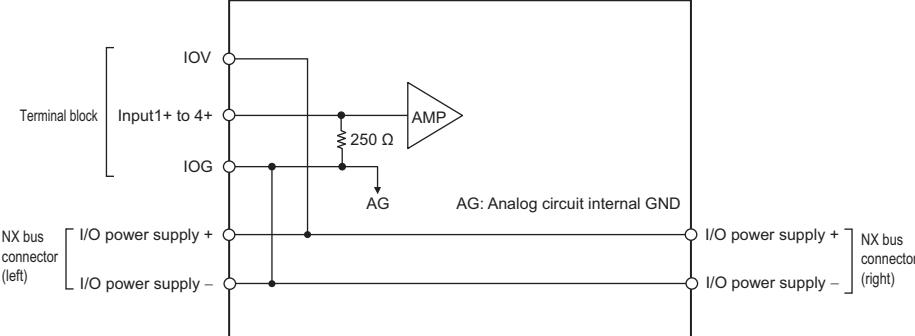
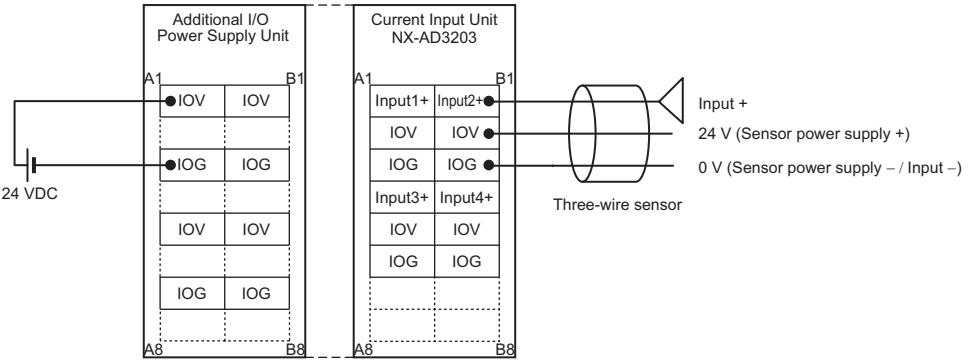
Analog Input Unit (current input type) 2 points NX-AD2204

| | | | | | | |
|--|---|--|--|---|--|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD2204 | | |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) | | |
| I/O refreshing method | Free-Run refreshing | | | | | |
| Indicator |  TS indicator AD2204 ■ TS | 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) | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 250 μs/point | | | |
| | | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max. | I/O current consumption | No consumption | | | |
| Weight | 70 g max. | | | | | |
| Circuit layout |  | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | |
| Terminal connection diagram | | | | | | |
| Input disconnection detection | Supported. | | | | | |

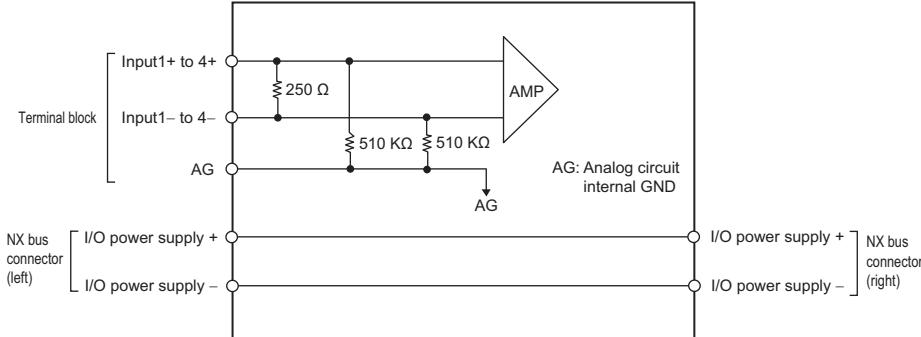
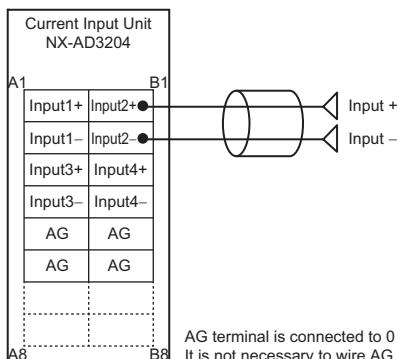
Analog Input Unit (current input type) 2 points NX-AD2208

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|---|----|---------|---------|--|--|---------|---------|--|--|----|----|--|--|----|----|--|--|----|----|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD2208 | | | | | | | | | | | | | | | | | | | | |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) | | | | | | | | | | | | | | | | | | | | |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | | | | | | | | | | | | | | | | | | | | | |
| Indicator |  TS indicator AD2208 TS | Input method | Differential Input | | | | | | | | | | | | | | | | | | | | | |
| | | Input range | 4 to 20 mA | | | | | | | | | | | | | | | | | | | | | |
| | | Input conversion range | -5 to 105% (full scale) | | | | | | | | | | | | | | | | | | | | | |
| | | Absolute maximum rating | $\pm 30 \text{ mA}$ | | | | | | | | | | | | | | | | | | | | | |
| | | Input impedance | 250Ω | | | | | | | | | | | | | | | | | | | | | |
| | | Resolution | 1/30000 (full scale) | | | | | | | | | | | | | | | | | | | | | |
| | | Overall accuracy | 25°C | $\pm 0.1\%$ (full scale) | | | | | | | | | | | | | | | | | | | | |
| | | 0 to 55°C | $\pm 0.2\%$ (full scale) | | | | | | | | | | | | | | | | | | | | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 10 $\mu\text{s}/\text{point}$ | | | | | | | | | | | | | | | | | | | | | |
| | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | | | | | | | | | | | | | | | | | | | | |
| | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | | | | | | | | | | | | | | | | | | | | |
| | | Current capacity of I/O power supply terminal | Without I/O power supply terminals | | | | | | | | | | | | | | | | | | | | | |
| | | I/O current consumption | No consumption | | | | | | | | | | | | | | | | | | | | | |
| | | Weight | 70 g max. | | | | | | | | | | | | | | | | | | | | | |
| | | Circuit layout | <p>Terminal block</p> <p>Input1+ to 2+</p> <p>Input1- to 2-</p> <p>AG</p> <p>AMP</p> <p>AG: Analog circuit internal GND</p> <p>I/O power supply +</p> <p>I/O power supply -</p> <p>NX bus connector (left)</p> <p>I/O power supply +</p> <p>I/O power supply -</p> <p>NX bus connector (right)</p> | | | | | | | | | | | | | | | | | | | | | |
| Installation orientation and restrictions | Installation orientation: <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. | | | | | | | | | | | | | | | | | | | | | | | |
| | Restrictions: No restrictions | | | | | | | | | | | | | | | | | | | | | | | |
| Terminal connection diagram | <p>Current Input Unit NX-AD2208</p> <table border="1"> <tr><td>A1</td><td>B1</td></tr> <tr><td>Input1+</td><td>Input2+</td></tr> <tr><td> </td><td> </td></tr> <tr><td>Input1-</td><td>Input2-</td></tr> <tr><td> </td><td> </td></tr> <tr><td>AG</td><td>AG</td></tr> <tr><td> </td><td> </td></tr> <tr><td>NC</td><td>NC</td></tr> <tr><td> </td><td> </td></tr> <tr><td>A8</td><td>B8</td></tr> </table> <p>AG terminal is connected to 0 V of analog circuit inside the Unit. It is not necessary to wire AG terminal normally.</p> | A1 | | | B1 | Input1+ | Input2+ | | | Input1- | Input2- | | | AG | AG | | | NC | NC | | | A8 | B8 | |
| A1 | B1 | | | | | | | | | | | | | | | | | | | | | | | |
| Input1+ | Input2+ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| Input1- | Input2- | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| AG | AG | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| NC | NC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| A8 | B8 | | | | | | | | | | | | | | | | | | | | | | | |
| Input disconnection detection | Supported. | | | | | | | | | | | | | | | | | | | | | | | |

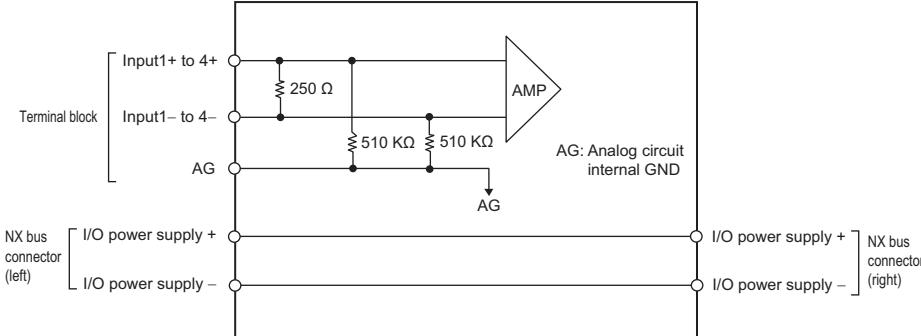
Analog Input Unit (current input type) 4 points NX-AD3203

| | | | | | |
|--|---|--|--|--|--|
| Unit name | Analog Input Unit (current input type) | Model | NX-AD3203 | | |
| Number of points | 4 points | External connection terminals | Screwless clamping terminal block (12 terminals) | | |
| I/O refreshing method | Free-Run refreshing | | | | |
| Indicator |  | 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 to 55°C ±0.4% (full scale) | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 250 μs/point | | |
| | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | |
| | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | |
| | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. | | |
| | | I/O current consumption | No consumption | | |
| | | | | | |
| Weight | | 70 g max. | | | |
| Circuit layout | |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | |
| Terminal connection diagram |  | | | | |
| Input disconnection detection | Supported. | | | | |

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

| | | | | |
|--|---|--------------------------------|--|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD3204 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  | Input method | Differential Input | |
| | | Input range | 4 to 20 mA | |
| | | Input conversion range | -5 to 105% (full scale) | |
| | | Absolute maximum rating | $\pm 30 \text{ mA}$ | |
| | | Input impedance | 250Ω min. | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | $\pm 0.2\%$ (full scale) |
| | | 0 to 55°C | $\pm 0.4\%$ (full scale) | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Conversion time | 250 $\mu\text{s}/\text{point}$ |
| | | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 M Ω min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | No supply | | Current capacity of I/O power supply terminal | Without I/O power supply terminals |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.25 W max. Connected to a Communications Coupler Unit 0.90 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram |  <p>AG terminal is connected to 0 V of analog circuit inside the Unit. It is not necessary to wire AG terminal normally.</p> | | | |
| Input disconnection detection | Supported. | | | |

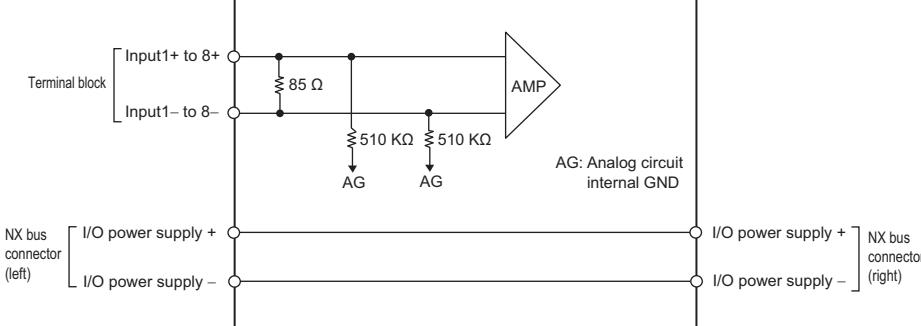
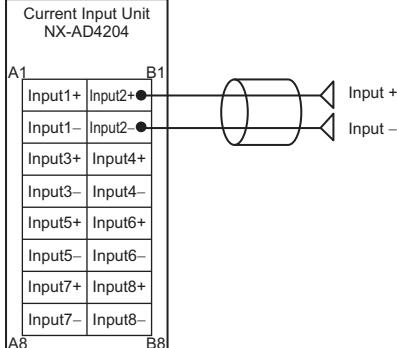
Analog Input Unit (current input type) 4 points NX-AD3208

| | | | | |
|--|---|--------------------------------|--|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD3208 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | |
| Indicator |  TS indicator AD3208 TS | 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) |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Conversion time | 10 µs/point |
| | | | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.30 W max. Connected to a Communications Coupler Unit 0.95 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram | | | | |
| Input disconnection detection | Supported. | | | |

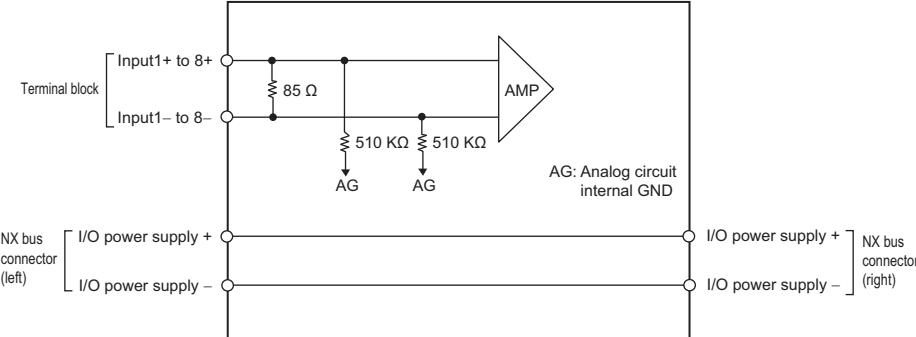
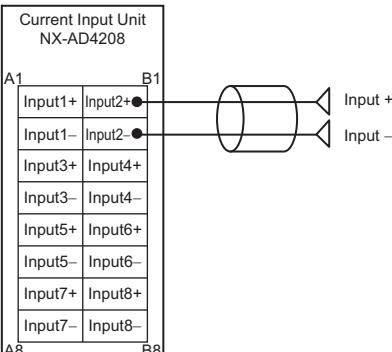
Analog Input Unit (current input type) 8 points NX-AD4203

| | | | | |
|--|--|--------------------------------|--|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD4203 |
| Number of points | 8 points | | External connection terminals | Screwless clamping terminal block (16 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  TS indicator AD4203 ■ TS | 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) |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Conversion time | 250 μs/point |
| | | | 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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.05 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout | <p>The diagram illustrates the internal circuit layout of the NX-AD4203. It shows the connection of the IOV terminal block to the I/O power supply connection. The I/O power supply connection is connected to the NX bus connector (left) and the I/O power supply + and - terminals. The signal path from the IOV terminal block through the I/O power supply connection to the NX bus connector (right) is shown, along with the connection to the I/O power supply + and - terminals. An amplifier (AMP) is connected to the signal path, and the AG (Analog circuit internal GND) is also connected to the signal path.</p> | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram | <p>The diagram provides a detailed terminal connection diagram for the NX-AD4203. It maps the pins A1-B1 and A8-B8 across three units: Additional I/O Power Supply Unit, I/O Power Supply Connection Unit, and Voltage Input Unit NX-AD4203. The connections are as follows:</p> <ul style="list-style-type: none"> Additional I/O Power Supply Unit: Pin A1 connects to IOV and IOG; Pin B1 connects to IOV and IOG. I/O Power Supply Connection Unit: Pin A1 connects to IOG and IOG; Pin B1 connects to IOG and IOG. Voltage Input Unit NX-AD4203: Pin A1 connects to Input1+ and Input2+; Pin B1 connects to Input1+ and Input2+. Pin A8 connects to Input3+, Input4+, Input5+, Input6+, Input7+, and Input8+; Pin B8 connects to Input3+, Input4+, Input5+, Input6+, Input7+, and Input8+. <p>The diagram also shows the connection to a Three-wire Sensor, which requires Input +, 24 V (Sensor power supply +), and 0 V (Sensor power supply - / Input -).</p> | | | |
| Input disconnection detection | Supported. | | | |

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

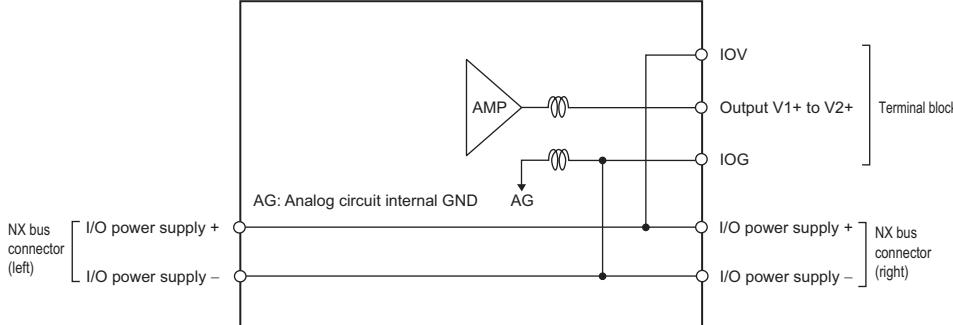
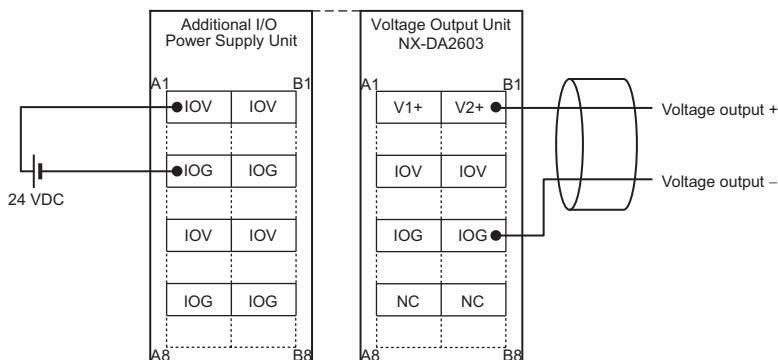
| | | | | | | |
|--|---|--|--|--|--|--|
| Unit name | Analog Input Unit (current input type) | | Model | NX-AD4204 | | |
| Number of points | 8 points | | External connection terminals | Screwless clamping terminal block (16 terminals) | | |
| I/O refreshing method | Free-Run refreshing | | | | | |
| Indicator |  | 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 | $\pm 0.2\%$ (full scale) | | |
| | | | 0 to 55°C | $\pm 0.4\%$ (full scale) | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Conversion time | 250 μ s/point | | | |
| | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | | |
| Insulation resistance | 20 M Ω min. between isolated circuits (at 100 VDC) | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | | |
| I/O power supply method | No supply | Current capacity of I/O power supply terminal | Without I/O power supply terminals | | | |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.05 W max. | I/O current consumption | No consumption | | | |
| Weight | 70 g max. | | | | | |
| Circuit layout |  | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | |
| Terminal connection diagram |  | | | | | |
| Input disconnection detection | Supported. | | | | | |

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

| | | | |
|--|---|--|--|
| Unit name | Analog Input Unit (current input type) | Model | NX-AD4208 |
| Number of points | 8 points | External connection terminals | Screwless clamping terminal block (16 terminals) |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | |
| Indicator |  | 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 | ±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 | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.45 W max. Connected to a Communications Coupler Unit 1.10 W max. | I/O current consumption | No consumption |
| Weight | 70 g max. | | |
| Circuit layout |  | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | |
| Terminal connection diagram |  | | |
| Input disconnection detection | Supported. | | |

Analog Output Unit Specifications

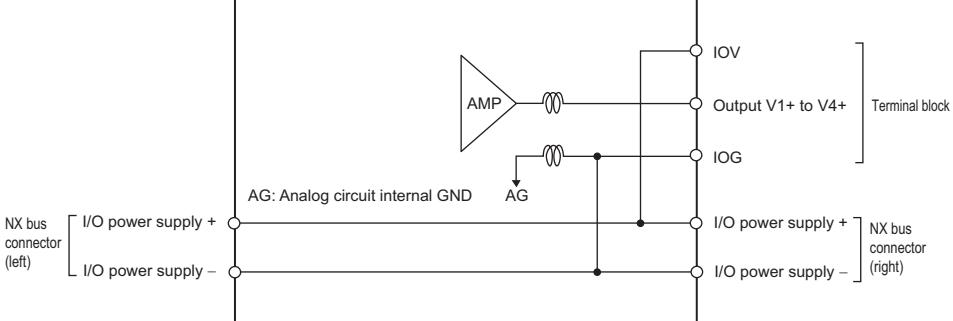
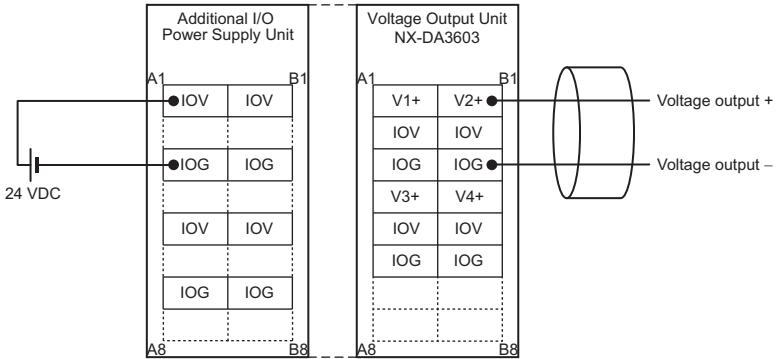
Analog Output Unit (voltage output type) 2 points NX-DA2603

| | | | | |
|--|--|----------------------------------|--|--|
| Unit name | Analog Output Unit (voltage output type) | | Model | NX-DA2603 |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  | Output range | -10 to +10 V | |
| | | Output conversion range | -5 to 105% (full scale) | |
| | | Allowable load resistance | 5 kΩ min. | |
| | | Output impedance | 0.5 Ω max. | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.3% (full scale) |
| | | 0 to 55°C | | ±0.5% (full scale) |
| Conversion time | | 250 μs/point | | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.40 W max. Connected to a Communications Coupler Unit 1.10 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  <p>The diagram illustrates the internal circuit layout. It shows two power supply lines from the NX bus connector: I/O power supply + and I/O power supply -. These lines connect to an Analog circuit internal GND (AG). From AG, two lines branch out: one to the I/O power supply + terminal block and another to the I/O power supply - terminal block. The I/O power supply + line also connects to the positive output line (V1+) of the voltage output stage. The I/O power supply - line connects to the negative output line (V2-) of the voltage output stage. The voltage output stage consists of an operational amplifier (AMP) with a feedback resistor and a load resistor. The output lines V1+ and V2- are labeled as Output V1+ to V2+.</p> | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram |  <p>The diagram shows the terminal connection for the Additional I/O Power Supply Unit and the Voltage Output Unit NX-DA2603. The Additional I/O Power Supply Unit has pins A1, B1, A8, and B8. The pins are grouped as follows: A1-B1 (top row), A8-B8 (bottom row), and intermediate pairs (IOV, IOG). The Voltage Output Unit NX-DA2603 has pins A1, B1, A8, and B8. The pins are grouped as follows: A1-B1 (top row), A8-B8 (bottom row), and intermediate pairs (V1+, V2+, IOV, IOG, NC). The connections are as follows: Pin A1 of the power supply unit connects to Pin A1 of the output unit; Pin B1 of the power supply unit connects to Pin B1 of the output unit; Pin A8 of the power supply unit connects to Pin A8 of the output unit; Pin B8 of the power supply unit connects to Pin B8 of the output unit. The intermediate pins (IOV, IOG, V1+, V2+, NC) are connected in a specific sequence to provide power and ground for the output stage.</p> | | | |

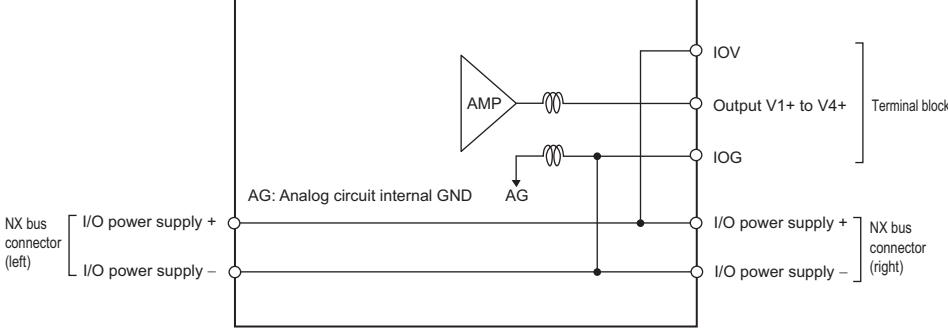
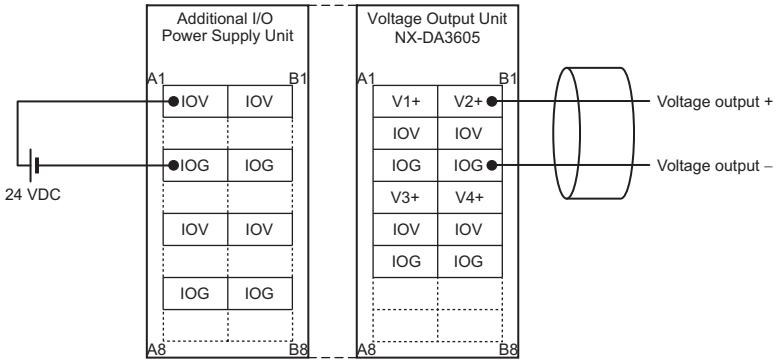
Analog Output Unit (voltage output type) 2 points NX-DA2605

| | | | | | | | |
|--|---|--|--|---|--|--|--|
| Unit name | Analog Output Unit (voltage output type) | | Model | NX-DA2605 | | | |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) | | | |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | | | | |
| Indicator | TS indicator DA2605 TS | Output range | -10 to +10 V | | | | |
| | | Output conversion range | -5 to 105% (full scale) | | | | |
| | | Allowable load resistance | 5 kΩ min. | | | | |
| | | Output impedance | 0.5 Ω max. | | | | |
| | | Resolution | 1/30000 (full scale) | | | | |
| | | Overall accuracy | 25°C | ±0.1% (full scale) | | | |
| | | 0 to 55°C | | ±0.3% (full scale) | | | |
| | | Conversion time | 10 µs/point | | | | |
| Dimensions | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) | | | | |
| Insulation resistance | | | Dielectric strength | | | | |
| I/O power supply method | | Current capacity of I/O power supply terminal | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. | | | | |
| NX Unit power consumption | | | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. | | | | |
| Weight | 70 g max. | | | | | | |
| Circuit layout | | | | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | | | | |
| Terminal connection diagram | | | | | | | |

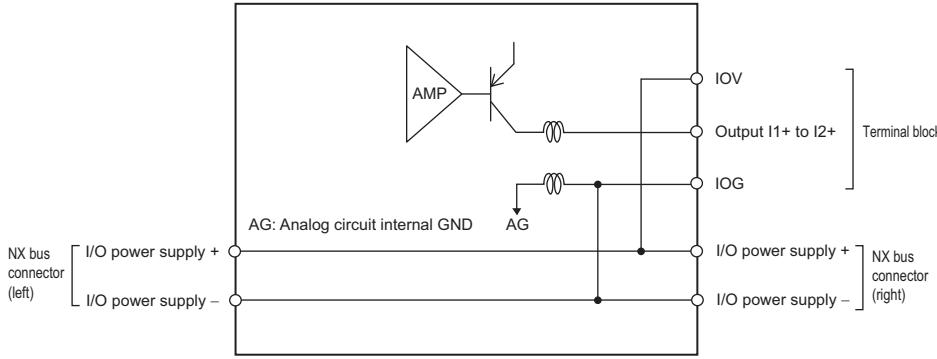
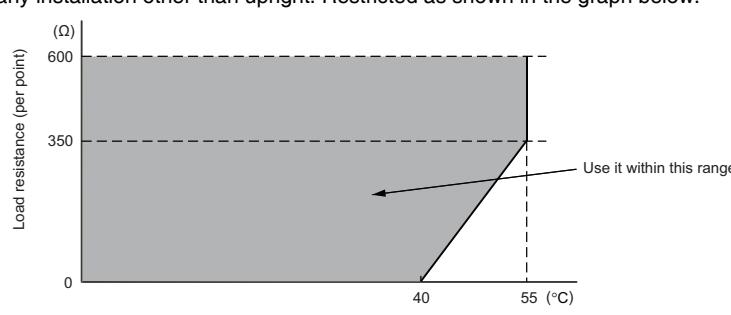
Analog Output Unit (voltage output type) 4 points NX-DA3603

| | | | | |
|--|---|----------------------------------|--|--|
| Unit name | Analog Output Unit (voltage output type) | | Model | NX-DA3603 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  | Output range | -10 to +10 V | |
| | | Output conversion range | -5 to 105% (full scale) | |
| | | Allowable load resistance | 5 kΩ min. | |
| | | Output impedance | 0.5 Ω max. | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.3% (full scale) |
| | | | 0 to 55°C | ±0.5% (full scale) |
| | | Conversion time | 250 μs/point | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.35 W max. Connected to a Communications Coupler Unit 1.25 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram |  | | | |

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

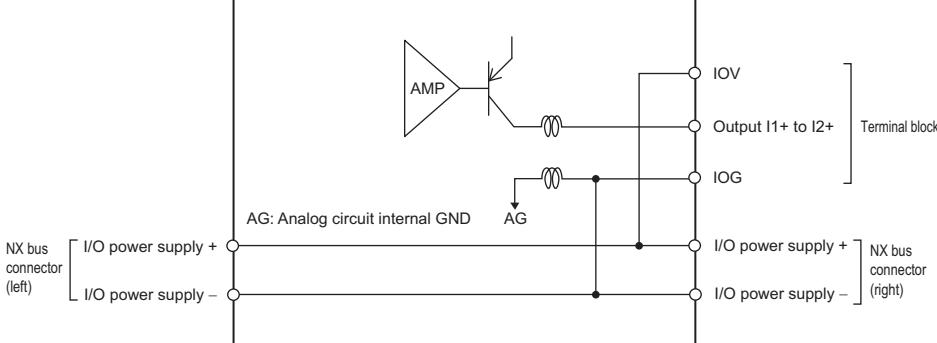
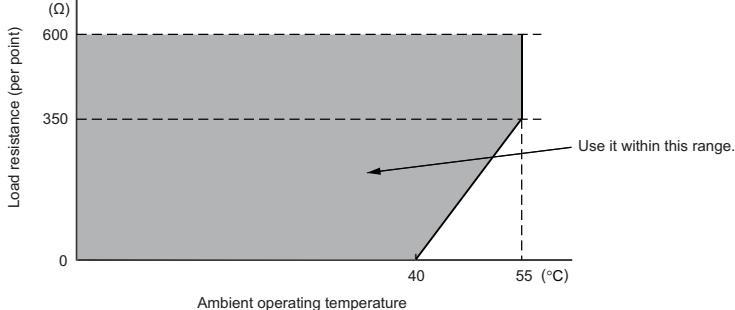
| | | | | |
|--|---|----------------------------------|--|--|
| Unit name | Analog Output Unit (voltage output type) | | Model | NX-DA3605 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | |
| Indicator |  | Output range | -10 to +10 V | |
| | | Output conversion range | -5 to 105% (full scale) | |
| | | Allowable load resistance | 5 kΩ min. | |
| | | Output impedance | 0.5 Ω max. | |
| | | Resolution | 1/30000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.1% (full scale) |
| | | 0 to 55°C | | ±0.3% (full scale) |
| | | Conversion time | 10 µs/point | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 1.60 W max. Connected to a Communications Coupler Unit 1.25 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions: No restrictions</p> | | | |
| Terminal connection diagram |  | | | |

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

| | | | | |
|--|---|----------------------------------|--|--|
| Unit name | Analog Output Unit (current output type) | | Model | NX-DA2203 |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  | Output range | 4 to 20 mA | |
| | | Output conversion range | -5 to 105% (full scale) | |
| | | Allowable load resistance | 600 Ω min. | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.3% (full scale) |
| | | | 0 to 55°C | ±0.6% (full scale) |
| | | Conversion time | 250 μs/point | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.75 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions:</p> <p>For upright installation: No restrictions</p> <p>For any installation other than upright: Restricted as shown in the graph below.</p>  | | | |

| | |
|------------------------------------|--|
| Terminal connection diagram | <p>The diagram illustrates the terminal connections for the NX-AD/DA module. It shows two main components: the Additional I/O Power Supply Unit and the Current Output Unit NX-DA2203.</p> <p>Power Supply: A 24 VDC power source is connected to terminals A1 and B1 of the Additional I/O Power Supply Unit. Terminals A8 and B8 are also shown at the bottom of this unit.</p> <p>Current Output Unit NX-DA2203: This unit has two current output channels, I1+ and I2+, located at terminals A1 and B1. Terminals A6 and B6 are also shown at the bottom of this unit.</p> <p>Connections: The output terminals I1+ and I2+ are connected to a current output interface, which consists of a resistor and a current sensor. The positive output is labeled "Current output +" and the negative output is labeled "Current output -".</p> <p>Terminology: IOV (Input Output Voltage) and IOG (Input Output Ground) are used to denote specific pins or groups of pins in the terminal blocks.</p> |
|------------------------------------|--|

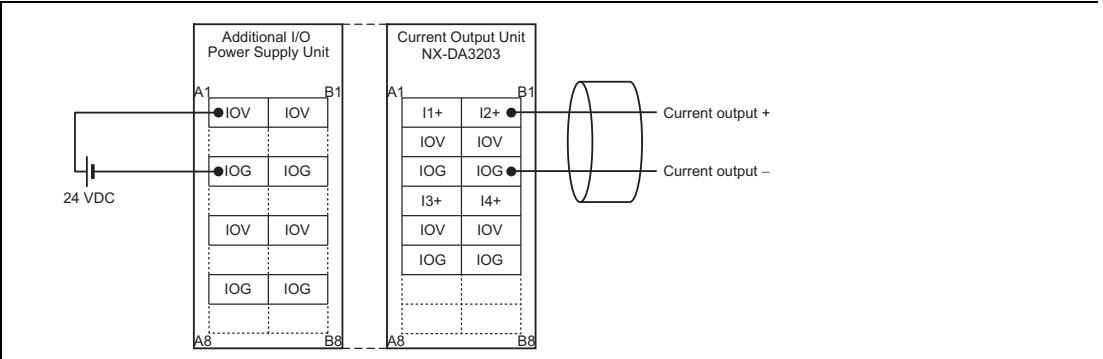
Analog Output Unit (current output type) 2 points NX-DA2205

| | | | | |
|--|---|----------------------------------|--|--|
| Unit name | Analog Output Unit (current output type) | | Model | NX-DA2205 |
| Number of points | 2 points | | External connection terminals | Screwless clamping terminal block (8 terminals) |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | | |
| Indicator |  | Output range | 4 to 20 mA | |
| | | Output conversion range | -5 to 105% (full scale) | |
| | | Allowable load resistance | 600 Ω min. | |
| | | Resolution | 1/30000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.1% (full scale) |
| | | | 0 to 55°C | ±0.3% (full scale) |
| | | Conversion time | 10 µs/point | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.75 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout |  | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions:</p> <p>For upright installation: No restrictions</p> <p>For any installation other than upright: Restricted as shown in the graph below.</p>  | | | |

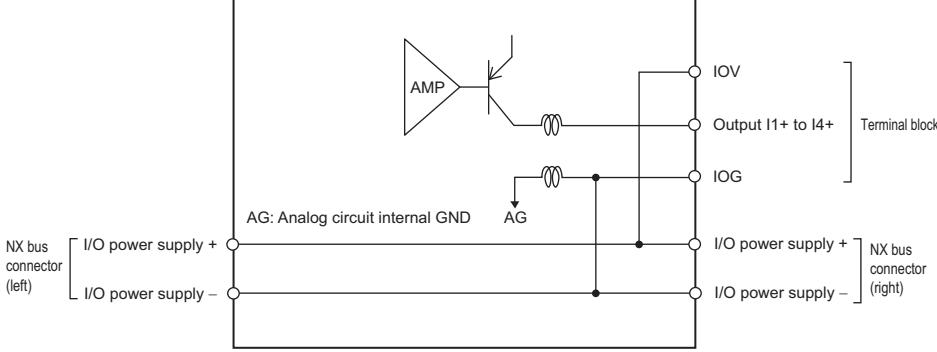
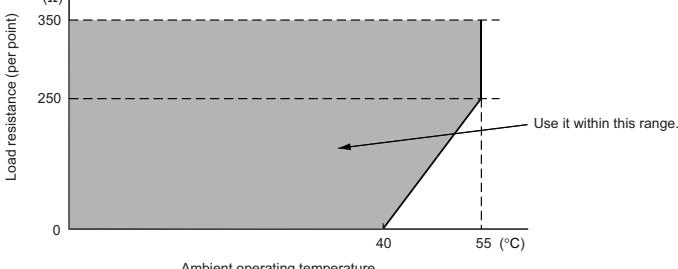
| | |
|------------------------------------|--|
| Terminal connection diagram | <p>The diagram illustrates the terminal connection for the NX-AD/DA module. It consists of two main parts: the Additional I/O Power Supply Unit and the Current Output Unit NX-DA2205.</p> <p>Additional I/O Power Supply Unit: This unit has 8 input/output terminals labeled A1 through B8. Terminals A1 and B1 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminals A2 and B2 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminals A3 and B3 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminals A4 and B4 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminals A5 and B5 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminals A6 and B6 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminals A7 and B7 are connected to the positive (+) and negative (-) terminals of a 24 VDC power source. Terminal A8 is connected to the positive (+) terminal of a 24 VDC power source. Terminal B8 is connected to the negative (-) terminal of a 24 VDC power source.</p> <p>Current Output Unit NX-DA2205: This unit has 8 terminals labeled A1 through B8. Terminals A1 and B1 are connected to the positive (+) and negative (-) terminals of a current output source. Terminals A2 and B2 are connected to the positive (+) and negative (-) terminals of a current output source. Terminals A3 and B3 are connected to the positive (+) and negative (-) terminals of a current output source. Terminals A4 and B4 are connected to the positive (+) and negative (-) terminals of a current output source. Terminals A5 and B5 are connected to the positive (+) and negative (-) terminals of a current output source. Terminals A6 and B6 are connected to the positive (+) and negative (-) terminals of a current output source. Terminals A7 and B7 are connected to the positive (+) and negative (-) terminals of a current output source. Terminal A8 is connected to the positive (+) terminal of a current output source. Terminal B8 is connected to the negative (-) terminal of a current output source.</p> |
|------------------------------------|--|

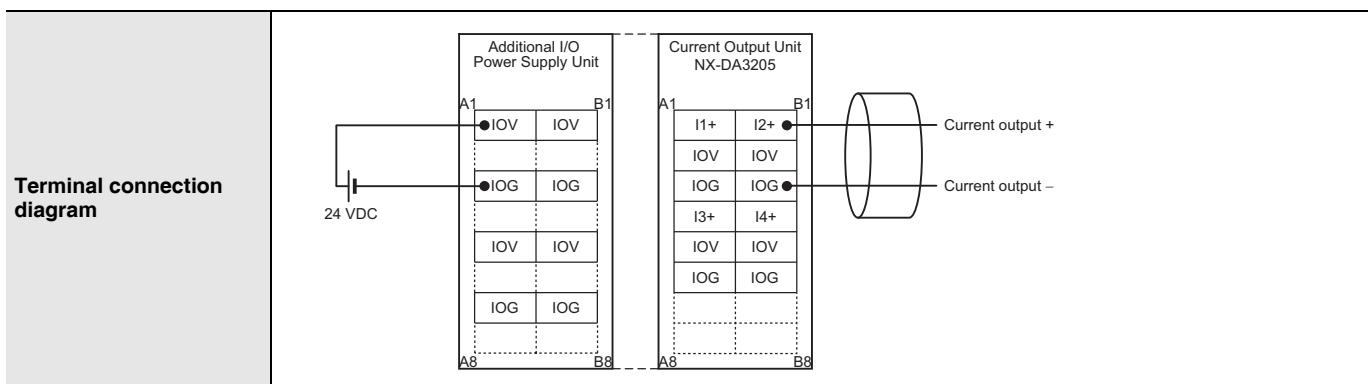
Analog Output Unit (current output type) 4 points NX-DA3203

| | | | | |
|--|--|----------------------------------|--|--|
| Unit name | Analog Output Unit (current output type) | | Model | NX-DA3203 |
| Number of points | 4 points | | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Free-Run refreshing | | | |
| Indicator |  | Output range | 4 to 20 mA | |
| | | Output conversion range | -5 to 105% (full scale) | |
| | | Allowable load resistance | 350 Ω min. | |
| | | Resolution | 1/8000 (full scale) | |
| | | Overall accuracy | 25°C | ±0.3% (full scale) |
| | | | 0 to 55°C | ±0.6% (full scale) |
| | | Conversion time | 250 μs/point | |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.80 W max. | | I/O current consumption | No consumption |
| Weight | 70 g max. | | | |
| Circuit layout | | | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions:</p> <p>For upright installation: No restrictions</p> <p>For any installation other than upright: Restricted as shown in the graph below.</p> | | | |

| Terminal connection diagram |  <p>The diagram illustrates the terminal connections for the NX-AD/DA module. It shows two main components: the Additional I/O Power Supply Unit and the Current Output Unit NX-DA3203.</p> <p>Additional I/O Power Supply Unit: This unit has 8 input terminals (A1-A8) and 8 output terminals (B1-B8). The connections are as follows:</p> <ul style="list-style-type: none">A1: IOV (Input)B1: IOV (Output)A2: IOG (Input)B2: IOG (Output)A3: IOV (Input)B3: IOV (Output)A4: IOG (Input)B4: IOG (Output) <p>Current Output Unit NX-DA3203: This unit also has 8 input terminals (A1-A8) and 8 output terminals (B1-B8). The connections are as follows:</p> <ul style="list-style-type: none">A1: I1+ (Input)B1: I2+ (Output)A2: IOV (Input)B2: IOV (Output)A3: IOG (Input)B3: IOG (Output)A4: I3+ (Input)B4: I4+ (Output)A5: IOV (Input)B5: IOV (Output)A6: IOG (Input)B6: IOG (Output) <p>Power Supply: A 24 VDC power source is connected to terminals A1 and B1 of the Additional I/O Power Supply Unit.</p> <p>Current Output: The current output terminals I1+ and I2+ are connected to a load, represented by a resistor symbol. The current output terminals I3+ and I4+ are also connected to a load.</p> |
|-----------------------------|---|
|-----------------------------|---|

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

| | | | |
|--|---|--|--|
| Unit name | Analogue Output Unit (current output type) | Model | NX-DA3205 |
| Number of points | 4 points | External connection terminals | Screwless clamping terminal block (12 terminals) |
| I/O refreshing method | Selectable Synchronous I/O refreshing or Free-Run refreshing | | |
| Indicator |  | Output range | 4 to 20 mA |
| | | Output conversion range | -5 to 105% (full scale) |
| | | Allowable load resistance | 350 Ω min. |
| | | Resolution | 1/30000 (full scale) |
| | | Overall accuracy | 25°C ±0.1% (full scale) 0 to 55°C ±0.3% (full scale) |
| | | Conversion time | 10 µs/point |
| Dimensions | 12 (W) x 100 (H) x 71 (D) | Isolation method | Between the input and the NX bus: Power = Transformer, Signal = Digital isolator (no isolation between inputs) |
| Insulation resistance | 20 MΩ min. between isolated circuits (at 100 VDC) | Dielectric strength | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |
| I/O power supply method | Supply from the NX bus | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max., IOG: 0.1 A/terminal max. |
| NX Unit power consumption | <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit 2.10 W max. Connected to a Communications Coupler Unit 1.80 W max. | I/O current consumption | No consumption |
| Weight | 70 g max. | | |
| Circuit layout |  | | |
| Installation orientation and restrictions | <p>Installation orientation:</p> <ul style="list-style-type: none"> Connected to a CPU Unit or Communication Control Unit: Possible in upright installation. Connected to a Communications Coupler Unit: Possible in 6 orientations. <p>Restrictions:</p> <p>For upright installation: No restrictions</p> <p>For any installation other than upright: Restricted as shown in the graph below.</p>  | | |



Version Information

Connected to a CPU Unit

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

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

Note: Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

Connected to an EtherCAT Coupler Unit

| NX Unit | | Corresponding unit versions/versions | | |
|-----------|--------------|--------------------------------------|---------------------------|---------------|
| Model | Unit version | EtherCAT Coupler Unit | CPU Unit or Industrial PC | Sysmac Studio |
| NX-AD□□□□ | Ver.1.0 | Ver.1.0 | Ver.1.05 | Ver.1.06 |
| NX-DA□□□□ | | | | |

Note: Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

Connected to an EtherNet/IP Coupler Unit

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

Note: Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

- *1 Refer to the user's manual for the EtherNet/IP Coupler Units for information on the unit versions of EtherNet/IP Units that are compatible with EtherNet/IP Coupler Units.
- *2 Refer to the user's manual for the EtherNet/IP Coupler Units for information on the unit versions of CPU Units and EtherNet/IP Units that are compatible with EtherNet/IP Coupler Units.
- *3 For connection to an EtherNet/IP Coupler Unit with unit version 1.0, connection is supported only for a connection to the peripheral USB port on the EtherNet/IP Coupler Unit. You cannot connect by any other path. If you need to connect by another path, use an EtherNet/IP Coupler Unit with unit version 1.2 or later.

Connected to Communication Control Units

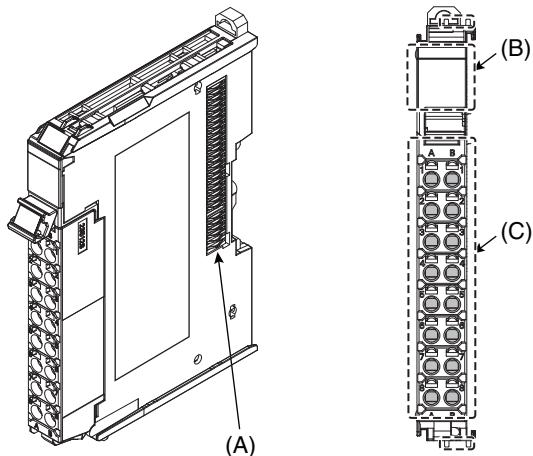
| NX Unit | | Corresponding unit versions/versions | |
|-----------|--------------|--------------------------------------|---------------|
| Model | Unit version | Communication Control Unit | Sysmac Studio |
| NX-AD□□□□ | Ver.1.0 | Ver.1.00 | Ver.1.24 |
| NX-DA□□□□ | | | |

Note: Some Units do not have all of the versions given in the above table. If a Unit does not have the specified version, support is provided by the oldest available version after the specified version. Refer to the user's manuals for the specific Units for the relation between models and versions.

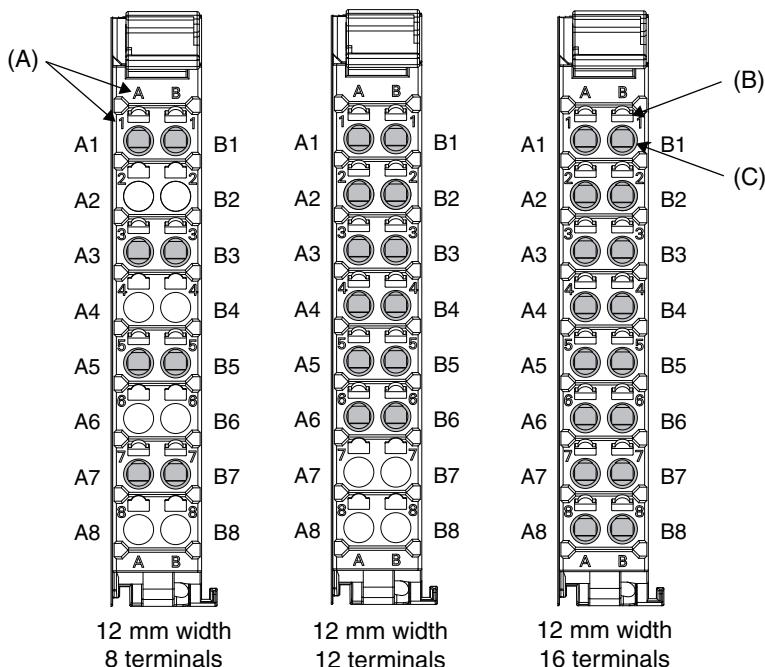
External Interface

Screwless Clamping Terminal Block Type

12 mm Width



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

Terminal Blocks

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

Applicable Terminal Blocks for Each Unit Model

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

Applicable Wires

Using Ferrules

If you use ferrules, attach the twisted wires to them.

Observe the application instructions for your ferrules for the wire stripping length when attaching ferrules.

Always use plated one-pin ferrules. Do not use unplated ferrules or two-pin ferrules.

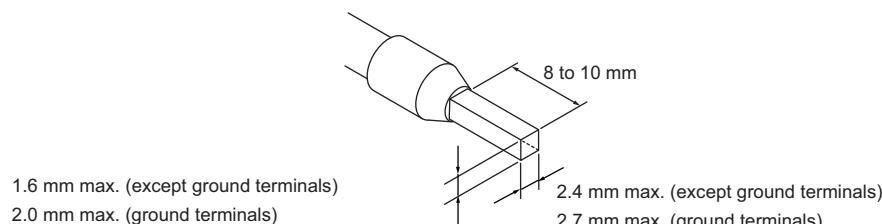
The applicable ferrules, wires, and crimping tool are given in the following table.

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

* Some AWG 14 wires exceed 2.0 mm² and cannot be used in the screwless clamping terminal block.

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

Finished Dimensions of Ferrules



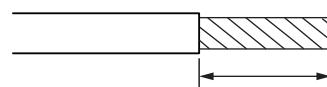
Using Twisted Wires/Solid Wires

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

| Terminals | | Wire type | | | | Wire size | Conductor length (stripping length) |
|---------------------------------------|----------------------------------|---------------|--------------|--------------|--------------|--|-------------------------------------|
| | | Twisted wires | | Solid wire | | | |
| Classification | Current capacity | Plated | Unplated | Plated | Unplated | | |
| All terminals except ground terminals | 2 A or less | Possible | Possible | Possible | Possible | 0.08 to 1.5 mm ² AWG28 to 16 | 8 to 10 mm |
| | Greater than 2 A and 4 A or less | | Not Possible | Possible *1 | Not Possible | | |
| | Greater than 4 A | Possible *1 | Not Possible | Not Possible | Not Possible | | |
| Ground terminals | --- | Possible | Possible | Possible *2 | Possible *2 | 2.0 mm ² | 9 to 10 mm |

*1. Secure wires to the screwless clamping terminal block. Refer to the Securing Wires in the USER'S MANUAL for how to secure wires.

*2. With the NX-TB□□□1 Terminal Block, use twisted wires to connect the ground terminal. Do not use a solid wire.



Conductor length (stripping length)

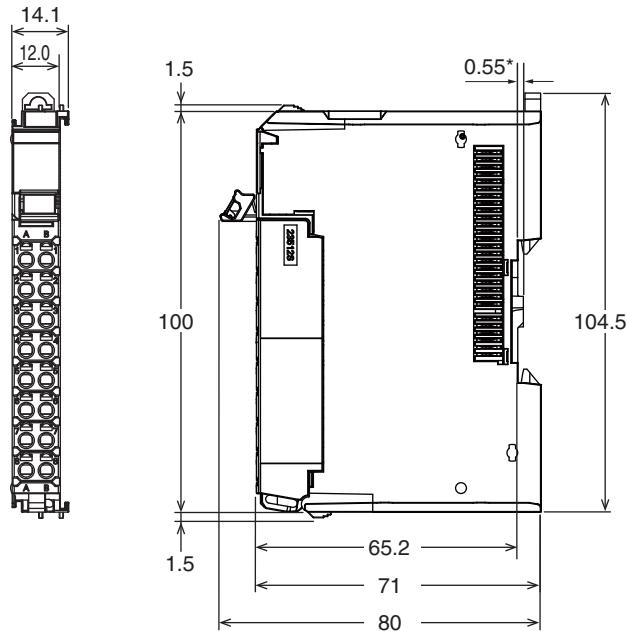
<Additional Information> If more than 2 A will flow on the wires, use plated wires or use ferrules.

Dimensions

(Unit/mm)

Screwless Clamping Terminal Block Type

12 mm Width



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

Related Manual

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

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