# NX-series Analog Output Unit

## Analog Outputs to meet all machine control needs; from general-purpose outputs to highspeed synchronous, highresolution control outputs

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



## Features

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

## **System Configuration**



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

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## **Ordering Information**

#### **International Standards**

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

## Analog Output Unit

|                          |                           |          |                |            | Specificati                                               | on                             |                       |                                                                          |                                 |                                                                          |            |           |
|--------------------------|---------------------------|----------|----------------|------------|-----------------------------------------------------------|--------------------------------|-----------------------|--------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------|------------|-----------|
| Unit<br>type             | Product<br>Name           | Capacity | Input<br>range | Resolution | Output setting<br>value, decimal<br>number<br>(0 to 100%) | Over all<br>accuracy<br>(25°C) | Conversion<br>time    | I/O<br>refreshing<br>method                                              | NX Unit<br>power<br>consumption | Model                                                                    | Standards  |           |
|                          |                           |          |                | 1/8000     | -4000 to 4000                                             | ±0.3%<br>(full scale)          | 250 μs/point          | Free-Run refreshing                                                      | 1.10W max.                      | NX-DA2603                                                                |            |           |
|                          | Voltage<br>Output<br>Unit | 2 points | -10 to         | 1/30000    | -15000 to<br>15000                                        | ±0.1%<br>(full scale)          | 10 μs/point           | Selectable<br>Synchronous<br>I/O refreshing<br>or Free-Run<br>refreshing | 1.10W max.                      | NX-DA2605                                                                |            |           |
|                          |                           |          |                | +10V       | 1/8000                                                    | -4000 to 4000                  | ±0.3%<br>(full scale) | 250 μs/point                                                             | Free-Run<br>refreshing          | 1.25W max.                                                               | NX-DA3603  |           |
| NX<br>Series             |                           | 4 points | 4 points       | 4 points   |                                                           | 1/30000                        | -15000 to<br>15000    | ±0.1%<br>(full scale)                                                    | 10 μs/point                     | Selectable<br>Synchronous<br>I/O refreshing<br>or Free-Run<br>refreshing | 1.25W max. | NX-DA3605 |
| Analog<br>Output<br>Unit |                           |          |                |            | 1/8000                                                    | 0 to 8000                      | ±0.3%<br>(full scale) | 250 μs/point                                                             | Free-Run<br>refreshing          | 1.75W max.                                                               | NX-DA2203  | CE,KC     |
|                          | Current<br>Output<br>Unit | 2 points | 4 to           | 1/30000    | 0 to 30000                                                | ±0.1%<br>(full scale)          | 10 μs/point           | Selectable<br>Synchronous<br>I/O refreshing<br>or Free-Run<br>refreshing | 1.75W max.                      | NX-DA2205                                                                |            |           |
|                          |                           |          | 20mA           | 1/8000     | 0 to 8000                                                 | ±0.3%<br>(full scale)          | 250 μs/point          | Free-Run refreshing                                                      | 1.80W max.                      | NX-DA3203                                                                |            |           |
|                          |                           | 4 points |                | 1/30000    | 0 to 30000                                                | ±0.1%<br>(full scale)          | 10 μs/point           | Selectable<br>Synchronous<br>I/O refreshing<br>or Free-Run<br>refreshing | 1.80W max.                      | NX-DA3205                                                                |            |           |

## Option

| Product Name                    |                                                          | Specification                     |                            |                                 |           | Standards |
|---------------------------------|----------------------------------------------------------|-----------------------------------|----------------------------|---------------------------------|-----------|-----------|
| Unit/Terminal Block Coding Pins | For 10 Units<br>(Terminal Block: 30 pins, Unit: 30 pins) |                                   |                            |                                 | NX-AUX02  |           |
|                                 |                                                          | Specification                     |                            |                                 |           |           |
| Product Name                    | No. of terminals                                         | Terminal<br>number<br>indications | Ground<br>terminal<br>mark | Terminal<br>current<br>capacity | Model     | Standards |
| Terminal Block                  | 8                                                        | A/B                               | Nene                       | 10.4                            | NX-TBA082 |           |
| Terminal Block                  | 12                                                       | A/D                               | None                       | 10 A                            | NX-TBA122 |           |

#### Accessories

Not included.

## **General Specification**

|                          | Item                          | Specification                                                                                                                                                                                                  |  |  |
|--------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Enclosure                |                               | Mounted in a panel                                                                                                                                                                                             |  |  |
| Grounding method         |                               | Ground to 100 $\Omega$ or less                                                                                                                                                                                 |  |  |
|                          | Ambient operating temperature | 0 to 55°C                                                                                                                                                                                                      |  |  |
|                          | Ambient operating humidity    | 10% to 95% (with no condensation or icing)                                                                                                                                                                     |  |  |
|                          | Atmosphere                    | Must be free from corrosive gases.                                                                                                                                                                             |  |  |
|                          | Ambient storage temperature   | -25 to 70°C (with no condensation or icing)                                                                                                                                                                    |  |  |
|                          | Altitude                      | 2,000 m max.                                                                                                                                                                                                   |  |  |
|                          | Pollution degree              | 2 or less: Conforms to JIS B3502 and IEC 61131-2.                                                                                                                                                              |  |  |
| Operating<br>environment | Noise immunity                | 2 kV on power supply line (Conforms to IEC61000-4-4.)                                                                                                                                                          |  |  |
| environment              | Overvoltage category          | Category II: Conforms to JIS B3502 and IEC 61131-2.                                                                                                                                                            |  |  |
|                          | EMC immunity level            | Zone B                                                                                                                                                                                                         |  |  |
|                          | Vibration resistance          | Conforms to IEC 60068-2-6.<br>5 to 8.4 Hz with 3.5-mm amplitude, 8.4 to 150 Hz, acceleration of 9.8 m/s <sup>2</sup> , 100 min each<br>in X, Y, and Z directions<br>(10 sweeps of 10 min each = 100 min total) |  |  |
|                          | Shock resistance              | IConforms to IEC 60068-2-27. 147 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions                                                                                                                     |  |  |
| Applicable sta           | andards                       | cULus: Listed UL508 and ANSI/ISA 12.12.01<br>EC: EN 61131-2 and C-Tick, KC Registration, NK, LR                                                                                                                |  |  |

## Analog Output Unit Specifications

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

| Unit name                                    | Analog Output Unit (voltage output type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Model                         | NX-DA2603                                                                                                            |  |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------|--|
| Capacity                                     | 2 points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | External connection terminals | Screwless clamping terminal block (8 terminals)                                                                      |  |
| I/O refreshing method                        | Free-Run refreshing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                               |                                                                                                                      |  |
|                                              | TS indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Output range                  | -10 to +10 V                                                                                                         |  |
|                                              | AD2603<br>■TS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Output conversion<br>range    | -5 to 105% (full scale)                                                                                              |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Allowable load resistance     | 5 k $\Omega$ min.                                                                                                    |  |
| Indicator                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Output impedance              | 0.5 Ω max.                                                                                                           |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Resolution                    | 1/8000 (full scale)                                                                                                  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Overall 25°C                  | ±0.3% (full scale)                                                                                                   |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | accuracy 0 to 55°C            | ±0.5% (full scale)                                                                                                   |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Conversion time               | 250 μs/point                                                                                                         |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Isolation method              | Between the input and the NX bus: Power<br>= Transformer, Signal = Digital isolator (no<br>isolation between inputs) |  |
| Insulation resistance                        | 20 $M\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Dielectric strength           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                     |  |
| I/O power supply<br>method                   | Supply from the NX bus Current capacity of I/O power supply terminal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                               | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                                                                |  |
| NX Unit power<br>consumption                 | 1.10 W max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/O current consumption       | No consumption                                                                                                       |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                                                                                                                      |  |
| Circuit layout                               | NX bus<br>connector<br>(left) I/O power supply +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | uit internal GND AG           | IOV<br>Output V1+ to V2+<br>IOG<br>I/O power supply +<br>I/O power supply -<br>I/O power supply -                    |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orient<br>Restrictions: No restrictions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ations.                       |                                                                                                                      |  |
| Terminal connection<br>diagram               | Additional I/O<br>Power Supply Unit<br>A<br>0 OV 10V<br>24 VDC<br>OG 10G<br>10G 10G<br>Additional I/O<br>Voltage Output Unit<br>NX-DA2603<br>A<br>V1+ V2+ 0<br>IOV 10V<br>IOV 10V<br>IOS 10G<br>IOG 1 |                               |                                                                                                                      |  |

| Unit name                                    | Analog Output Unit (voltage output type)                                                                                                                                                                                                                                     | Model                                            | NX-DA2605                                                                                                            |  |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--|
| Capacity                                     | 2 points                                                                                                                                                                                                                                                                     | External connection terminals                    | Screwless clamping terminal block (8 terminals)                                                                      |  |
| I/O refreshing method                        | Selectable Synchronous I/O refreshing or F                                                                                                                                                                                                                                   | ree-Run refreshing                               |                                                                                                                      |  |
|                                              | TS indicator                                                                                                                                                                                                                                                                 | Output range                                     | -10 to +10 V                                                                                                         |  |
|                                              | DA2605<br>TS                                                                                                                                                                                                                                                                 | Output conversion<br>range                       | -5 to 105% (full scale)                                                                                              |  |
|                                              |                                                                                                                                                                                                                                                                              | Allowable load resistance                        | 5 k $\Omega$ min.                                                                                                    |  |
| Indicator                                    |                                                                                                                                                                                                                                                                              | Output impedance                                 | 0.5 Ω max.                                                                                                           |  |
|                                              |                                                                                                                                                                                                                                                                              | Resolution                                       | 1/30000 (full scale)                                                                                                 |  |
|                                              |                                                                                                                                                                                                                                                                              | Overall 25°C                                     | ±0.1% (full scale)                                                                                                   |  |
|                                              |                                                                                                                                                                                                                                                                              | accuracy 0 to 55°C                               | ±0.3% (full scale)                                                                                                   |  |
|                                              |                                                                                                                                                                                                                                                                              | Conversion time                                  | 10 μs/point                                                                                                          |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                    | Isolation method                                 | Between the input and the NX bus: Power<br>= Transformer, Signal = Digital isolator (no<br>isolation between inputs) |  |
| Insulation resistance                        | 20 M $\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                    | Dielectric strength                              | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                     |  |
| I/O power supply<br>method                   | Supply from the NX bus                                                                                                                                                                                                                                                       | Current capacity of I/O<br>power supply terminal | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                                                                |  |
| NX Unit power<br>consumption                 | 1.10 W max.                                                                                                                                                                                                                                                                  | I/O current consumption                          | No consumption                                                                                                       |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                    |                                                  |                                                                                                                      |  |
| Circuit layout                               | NX bus<br>connector<br>(left) I/O power supply +                                                                                                                                                                                                                             | uit internal GND AG                              | IOV<br>Output V1+ to V2+<br>IOG<br>I/O power supply +<br>I/O power supply -<br>NX bus<br>connector<br>(right)        |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orienta<br>Restrictions: No restrictions                                                                                                                                                                                             | ations.                                          |                                                                                                                      |  |
| Terminal connection<br>diagram               | Additional I/O<br>Power Supply Unit     Voltage Output Unit<br>NX-DA2605       4     00V       00G     10G       10V     10V       10V     10V       10V     10V       10G     10G       10G     10G       10G     10G       10G     10G       10G     10G       10G     10G |                                                  |                                                                                                                      |  |

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

| Unit name                                    | Analog Output Unit (voltage output type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Model                                                                                                                       | NX-DA3603                                                                                                            |  |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--|
| Capacity                                     | 4 points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | External connection terminals                                                                                               | Screwless clamping terminal block (12 terminals)                                                                     |  |
| I/O refreshing method                        | Free-Run refreshing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | terminais                                                                                                                   | terminals)                                                                                                           |  |
| <u> </u>                                     | TS indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Output range                                                                                                                | -10 to +10 V                                                                                                         |  |
|                                              | AD3603                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Output conversion range                                                                                                     | -5 to 105% (full scale)                                                                                              |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Allowable load resistance                                                                                                   | 5 kΩ min.                                                                                                            |  |
| Indicator                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Output impedance                                                                                                            | 0.5 Ω max.                                                                                                           |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Resolution                                                                                                                  | 1/8000 (full scale)                                                                                                  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Overall 25°C                                                                                                                | ±0.3% (full scale)                                                                                                   |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | accuracy 0 to 55°C                                                                                                          | ±0.5% (full scale)                                                                                                   |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Conversion time                                                                                                             | 250 μs/point                                                                                                         |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Isolation method                                                                                                            | Between the input and the NX bus: Power<br>= Transformer, Signal = Digital isolator (no<br>isolation between inputs) |  |
| Insulation resistance                        | 20 M $\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Dielectric strength                                                                                                         | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                     |  |
| I/O power supply<br>method                   | Supply from the NX bus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Current capacity of I/O<br>power supply terminal                                                                            | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                                                                |  |
| NX Unit power<br>consumption                 | 1.25 W max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | I/O current consumption                                                                                                     | No consumption                                                                                                       |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                             |                                                                                                                      |  |
| Circuit layout                               | NX bus<br>connector<br>(left) I/O power supply -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | uit internal GND AG                                                                                                         | IOV<br>Output V1+ to V4+<br>IOG<br>I/O power supply +<br>I/O power supply -<br>I/O power supply -                    |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orienta<br>Restrictions: No restrictions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ations.                                                                                                                     |                                                                                                                      |  |
| Terminal connection<br>diagram               | Additional I/O<br>Power Supply Unit<br>A1<br>B1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>B1<br>A1<br>A1<br>B1<br>A1<br>A1<br>B1<br>A1<br>A1<br>B1<br>A1<br>A1<br>A1<br>A1<br>A1<br>A1<br>A1<br>A1<br>A1<br>A | Voltage Output Unit<br>NX-DA3603<br>V B1<br>IOV IOV<br>IOG IOG<br>V3+ V4+<br>IOV IOV<br>IOG IOG<br>IOG IOG<br>IOG IOG<br>B8 | Voltage output +                                                                                                     |  |

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

| Linit manua                                  |                                                                                                                                                                                                                                                                                                                                                                                                              | Madal                                         |                                                                                                                      |  |  |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--|--|
| Unit name                                    | Analog Output Unit (voltage output type)                                                                                                                                                                                                                                                                                                                                                                     | Model                                         | NX-DA3605                                                                                                            |  |  |
| Capacity                                     | 4 points                                                                                                                                                                                                                                                                                                                                                                                                     | External connection terminals                 | Screwless clamping terminal block (12 terminals)                                                                     |  |  |
| I/O refreshing method                        | Selectable Synchronous I/O refreshing or F                                                                                                                                                                                                                                                                                                                                                                   | ree-Run refreshing                            |                                                                                                                      |  |  |
|                                              | TS indicator                                                                                                                                                                                                                                                                                                                                                                                                 | Output range                                  | -10 to +10 V                                                                                                         |  |  |
|                                              | DA3605<br>TS                                                                                                                                                                                                                                                                                                                                                                                                 | Output conversion<br>range                    | -5 to 105% (full scale)                                                                                              |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | Allowable load resistance                     | 5 k $\Omega$ min.                                                                                                    |  |  |
| Indicator                                    |                                                                                                                                                                                                                                                                                                                                                                                                              | Output impedance                              | 0.5 Ω max.                                                                                                           |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | Resolution                                    | 1/30000 (full scale)                                                                                                 |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | Overall 25°C                                  | ±0.1% (full scale)                                                                                                   |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | accuracy 0 to 55°C                            | ±0.3% (full scale)                                                                                                   |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                              | Conversion time                               | 10 μs/point                                                                                                          |  |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                                                                                                                                                    | Isolation method                              | Between the input and the NX bus: Power<br>= Transformer, Signal = Digital isolator (no<br>isolation between inputs) |  |  |
| Insulation resistance                        | 20 $M\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                                                                                                                                                     | Dielectric strength                           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                     |  |  |
| I/O power supply method                      | Supply from the NX bus                                                                                                                                                                                                                                                                                                                                                                                       | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                                                                |  |  |
| NX Unit power<br>consumption                 | 1.25 W max.                                                                                                                                                                                                                                                                                                                                                                                                  | I/O current consumption                       | No consumption                                                                                                       |  |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                                                                                                                                                    | ·                                             |                                                                                                                      |  |  |
| Circuit layout                               | NX bus<br>connector<br>(left) I/O power supply -                                                                                                                                                                                                                                                                                                                                                             | it internal GND AG                            | IOV<br>Output V1+ to V4+<br>IOG<br>I/O power supply +<br>I/O power supply -<br>NX bus<br>connector<br>(right)        |  |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orientations.<br>Bestrictions: No restrictions                                                                                                                                                                                                                                                                                                                       |                                               |                                                                                                                      |  |  |
| Terminal connection<br>diagram               | Restrictions: No restrictions         Additional I/O<br>Power Supply Unit<br>A1       Voltage Output Unit<br>NX-DA3605         A1       B1<br>V1+       V2+<br>V2+       Voltage output +         0OG       10G       10G       10G       10G         24 VDC       10V       10V       10V       10V         10G       10G       10G       10G       10G         10G       10G       10G       10G       10G |                                               |                                                                                                                      |  |  |

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

| -                                            |                                                                                                                                                                                                                                                                              | 1                                                |                                                                                                                         |  |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--|
| Unit name                                    | Analog Output Unit (current output type)                                                                                                                                                                                                                                     | Model                                            | NX-DA2203                                                                                                               |  |
| Capacity                                     | 2 points                                                                                                                                                                                                                                                                     | External connection<br>terminals                 | Screwless clamping terminal block (8 terminals)                                                                         |  |
| I/O refreshing method                        | Free-Run refreshing                                                                                                                                                                                                                                                          |                                                  | L                                                                                                                       |  |
|                                              | TS indicator                                                                                                                                                                                                                                                                 | Output range                                     | 4 to 20 mA                                                                                                              |  |
|                                              | DA2203<br>TS                                                                                                                                                                                                                                                                 | Output conversion<br>range                       | -5 to 105% (full scale)                                                                                                 |  |
| Indicator                                    |                                                                                                                                                                                                                                                                              | Allowable load resistance                        | 600 Ω min.                                                                                                              |  |
|                                              |                                                                                                                                                                                                                                                                              | Resolution                                       | 1/8000 (full scale)                                                                                                     |  |
|                                              |                                                                                                                                                                                                                                                                              | Overall 25°C                                     | ±0.3% (full scale)                                                                                                      |  |
|                                              |                                                                                                                                                                                                                                                                              | accuracy 0 to 55°C                               | ±0.6% (full scale)                                                                                                      |  |
|                                              |                                                                                                                                                                                                                                                                              | Conversion time                                  | 250 μs/point                                                                                                            |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                    | Isolation method                                 | Between the input and the NX bus: Power<br>= Transformer, Signal = Digital isolator (no<br>isolation between inputs)    |  |
| Insulation resistance                        | 20 M $\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                    | Dielectric strength                              | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                        |  |
| I/O power supply<br>method                   | Supply from the NX bus                                                                                                                                                                                                                                                       | Current capacity of I/O<br>power supply terminal | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                                                                   |  |
| NX Unit power<br>consumption                 | 1.75 W max.                                                                                                                                                                                                                                                                  | I/O current consumption                          | No consumption                                                                                                          |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                    |                                                  |                                                                                                                         |  |
| Circuit layout                               | NX bus<br>connector<br>(left) I/O power supply +                                                                                                                                                                                                                             | uit internal GND                                 | IOV<br>Output I1+ to I2+<br>IOG<br>I/O power supply +<br>I/O power supply -<br>I/O power supply -<br>I/O power supply - |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orientations.<br>Restrictions:<br>For upright installation: No restrictions<br>For any installation other than upright: Restricted as shown in the graph below.<br>(a)<br>(b)<br>(c)<br>(c)<br>(c)<br>(c)<br>(c)<br>(c)<br>(c)<br>(c |                                                  |                                                                                                                         |  |
| Terminal connection<br>diagram               | Additional I/O<br>Power Supply Unit<br>A1 B1 A1<br>O IOV IOV<br>24 VDC IOV<br>IOC IOC<br>A8 B8 A8                                                                                                                                                                            |                                                  | urrent output +<br>urrent output –                                                                                      |  |

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



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

| Unit name                                    | Analog Output Unit (current output type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Model                                            | NX-DA3203                                                                                                                                 |  |  |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Capacity                                     | 4 points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | External connection terminals                    | Screwless clamping terminal block (12 terminals)                                                                                          |  |  |
| I/O refreshing method                        | Free-Run refreshing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |                                                                                                                                           |  |  |
|                                              | TS indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Output range                                     | 4 to 20 mA                                                                                                                                |  |  |
|                                              | DA3203                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Output conversion<br>range                       | -5 to 105% (full scale)                                                                                                                   |  |  |
| Indicator                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Allowable load resistance                        | 350 $\Omega$ min.                                                                                                                         |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Resolution                                       | 1/8000 (full scale)                                                                                                                       |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Overall 25°C                                     | ±0.3% (full scale)                                                                                                                        |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | accuracy 0 to 55°C                               | ±0.6% (full scale)                                                                                                                        |  |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Conversion time                                  | 250 μs/point                                                                                                                              |  |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Isolation method                                 | Between the input and the NX bus: Power<br>= Transformer, Signal = Digital isolator (no<br>isolation between inputs)                      |  |  |
| Insulation resistance                        | 20 $M\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Dielectric strength                              | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max.                                                          |  |  |
| I/O power supply<br>method                   | Supply from the NX bus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Current capacity of I/O<br>power supply terminal | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                                                                                     |  |  |
| NX Unit power<br>consumption                 | 1.80 W max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | I/O current consumption                          | No consumption                                                                                                                            |  |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                  |                                                                                                                                           |  |  |
| Circuit layout                               | NX bus I/O power supply +<br>Connector (left) I/O power supply –                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | AMP ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (        | <pre>IOV Output I1+ to I4+ IOG I/O power supply + I/O power supply - I/O power supply - I/O power supply -</pre> NX bus connector (right) |  |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orientations.<br>Restrictions:<br>For upright installation: No restrictions<br>For any installation other than upright: Restricted as shown in the graph below.<br>(1) (1) (350<br>(2) (2) (350<br>(2) (2) (3) (2) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                  |                                                                                                                                           |  |  |
| Terminal connection<br>diagram               | Ambient operating temperature<br>Additional I/O<br>Power Supply Unit<br>A<br>A<br>B<br>Current Output Unit<br>NX-DA3203<br>A<br>A<br>B<br>Current output +<br>IOV IOV<br>IOV IOV<br>IOG IOG<br>24 VDC<br>IOG IOG<br>IOG I |                                                  |                                                                                                                                           |  |  |

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

| Unit name                                    | Analog Output Unit (current output type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Model                                         | NX-DA3205                                                                        |  |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------|--|
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | External connection                           | Screwless clamping terminal block (12                                            |  |
| Capacity                                     | 4 points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | terminals terminals)                          |                                                                                  |  |
| I/O refreshing method                        | Selectable Synchronous I/O refreshing or F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -                                             |                                                                                  |  |
|                                              | TS indicator<br>DA3205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Output range<br>Output conversion             | 4 to 20 mA                                                                       |  |
|                                              | ■TS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | range                                         | -5 to 105% (full scale)                                                          |  |
| Indicator                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Allowable load resistance                     | 350 $\Omega$ min.                                                                |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Resolution                                    | 1/30000 (full scale)                                                             |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Overall 25°C                                  | ±0.1% (full scale)                                                               |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | accuracy 0 to 55°C<br>Conversion time         | ±0.3% (full scale)<br>10 μs/point                                                |  |
|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                               | Between the input and the NX bus: Power                                          |  |
| Dimensions                                   | 12 (W) x 100 (H) x 71 (D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Isolation method                              | = Transformer, Signal = Digital isolator (no isolation between inputs)           |  |
| Insulation resistance                        | 20 $M\Omega$ min. between isolated circuits (at 100 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Dielectric strength                           | 510 VAC between isolated circuits for 1 minute at a leakage current of 5 mA max. |  |
| I/O power supply<br>method                   | Supply from the NX bus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Current capacity of I/O power supply terminal | IOV: 0.1 A/terminal max.,<br>IOG: 0.1 A/terminal max.                            |  |
| NX Unit power<br>consumption                 | 1.80 W max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | I/O current consumption                       | No consumption                                                                   |  |
| Weight                                       | 70 g max.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |                                                                                  |  |
| Circuit layout                               | NX bus<br>(left)<br>I/O power supply +<br>I/O power supply -<br>NX bus<br>Connector<br>(left)<br>I/O power supply -<br>I/O power supply -<br>NX bus<br>Connector<br>(left)<br>I/O power supply -<br>I/O power supply -<br>NX bus<br>Connector<br>(left)<br>I/O power supply -<br>I/O power s |                                               |                                                                                  |  |
| Installation orientation<br>and restrictions | Installation orientation: Possible in 6 orientations.<br>Restrictions:<br>For any installation other than upright: Restricted as shown in the graph below.<br>$u_{ggg} = \frac{(n)}{250} - \frac{1}{40} - \frac{1}{55} (C)$ Use it within this range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |                                                                                  |  |
| Terminal connection<br>diagram               | Ambient operating temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |                                                                                  |  |

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

## **Version Information**

| NX    | Unit         | Cor                                          | responding unit versions/versi | ions                   |
|-------|--------------|----------------------------------------------|--------------------------------|------------------------|
| Model | Unit Version | EtherCAT Coupler Units<br>NX-ECC201/ECC202 * | NJ-series CPU Units<br>NJ501-  | Sysmac Studio          |
| NX-DA | Ver.1.0      | Version 1.0 or later                         | Version 1.05 or later          | Version 1.06 or higher |

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

## **External Interface**

### **Analog Output Unit**

NX-DA



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

#### **Terminal Blocks**



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

#### **Applicable Terminal Blocks for Each Unit Model**

|            | Terminal Blocks |                  |                                |                         |                              |  |
|------------|-----------------|------------------|--------------------------------|-------------------------|------------------------------|--|
| Unit model | Model           | No. of terminals | Terminal number<br>indications | Ground terminal<br>mark | Terminal current<br>capacity |  |
| 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 one-pin ferrules. Do not use two-pin ferrules.

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

| Terminal types                              | Manufacturer    | Ferrule model<br>number | Applicable wire<br>(mm <sup>2</sup> (AWG)) | Crimping tool                                                            |
|---------------------------------------------|-----------------|-------------------------|--------------------------------------------|--------------------------------------------------------------------------|
| Terminals other<br>than ground<br>terminals | Phoenix Contact | AI0,34-8                | 0.34 (#22)                                 | Phoenix Contact (The figure in parentheses is the applicable wire size.) |
|                                             |                 | AI0,5-8                 | 0.5 (#20)                                  | CRIMPFOX 6 (0.25 to 6 mm <sup>2</sup> , AWG24 to 10)                     |
|                                             |                 | Al0,5-10                |                                            |                                                                          |
|                                             |                 | AI0,75-8                | 0.75 (#18)                                 |                                                                          |
|                                             |                 | AI0,75-10               |                                            |                                                                          |
|                                             |                 | AI1,0-8                 | 1.0 (#18)                                  | -                                                                        |
|                                             |                 | AI1,0-10                |                                            |                                                                          |
|                                             |                 | Al1,5-8                 | 1.5 (#16)                                  |                                                                          |
|                                             |                 | AI1,5-10                | 1 .                                        |                                                                          |
| Ground terminals                            |                 | Al2,5-10                | 2.0 *                                      |                                                                          |
| Terminals other                             | Weidmuller      | H0.14/12                | 0.14 (#26)                                 | Weidmuller (The figure in parentheses is the applicable wire size.)      |
| than ground                                 |                 | H0.25/12                | 0.25 (#24)                                 | PZ6 Roto (0.14 to 6 mm <sup>2</sup> , AWG 26 to 10)                      |
| terminals                                   |                 | 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)                                  | 1                                                                        |
|                                             |                 | H1.5/16                 | 1                                          |                                                                          |

\* Some AWG 14 wires exceed 2.0 mm<sup>2</sup> and cannot be used in the screwless clamping terminal block.

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

Finished Dimensions of Ferrules



1.6 mm max. (except ground terminals)

2.0 mm max. (ground terminals)

2.7 mm max. (ground terminals)

#### **Using Twisted Wires/Solid Wires**

If you use the twisted wires or the solid wires, the applicable wire range and conductor length (stripping length) are as follows.

| Terminal types                        | Applicable wires                           | Conductor length (stripping length) |
|---------------------------------------|--------------------------------------------|-------------------------------------|
| Ground terminals                      | 2.0 mm <sup>2</sup>                        | 9 to 10 mm                          |
| Terminals other than ground terminals | 0.08 to 1.5 mm <sup>2</sup><br>AWG28 to 16 | 8 to 10 mm                          |

Conductor length (stripping length)

## NX-DA

(Unit/mm)

## Dimensions

## Analog Output Unit NX-DA



## **Related Manuals**

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

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