

# NSG 001

## IP Interface for Analog Systems



08/08 NAI0 001

03/03 NSG 001

### Features and Functions

- Interface to analog systems, with galvanic isolation
- 3 potential-free inputs and outputs
- Expandable to up to 27 potential-free inputs and outputs
- Alternative wiring: bidirectional inputs/outputs
- 4-wire AF interface with adjustable AF level
- Continuous monitoring of network interface
- PoE and/or external power supply
- Integrated web interface for setting and service functions

The IP interface of the NSG 001 series is used to connect an INDUSTRONIC INTRON-D *plus* communication and public address system to analog systems from different manufacturers. It consists of the basic electronics 03/03 NSG 001 which can be expanded by 3 I/O modules of the NAI0 series. The IP interface can be easily installed into a central exchange cabinet or an appropriate housing.

Connection to an IP network is established via an Ethernet connection (LAN). Galvanic isolation between network and analog side prevents cross currents between network and the interconnected systems and thus ensures a flexible and safe integration.

The integrated web interface facilitates commissioning and maintenance. It can be remotely accessed and controlled via a standard web browser. The AF levels between the two interconnected systems can be displayed and adjusted via web interface, for example.


## Modular Design


For the basic version 3 potential-free inputs and outputs are available. Furthermore, up to 3 I/O modules can be connected and thus 27 inputs and outputs can be used. This way, the IP interface provides highest flexibility for different customer and project requirements.




Basic version for analog system interconnection with 3 potential-free inputs and outputs:

Type: 03/03 NSG 001

+  1 x 08/08 NAIO 011 = Expansion of up to 11 potential-free inputs and outputs  
Type: 11/11 NSG 001

+  1 x 08/08 NAIO 011 = Expansion of up to 19 potential-free inputs and outputs  
Type: 19/19 NSG 001

+  1 x 08/08 NAIO 011 = Expansion of up to 27 potential-free inputs and outputs  
Type: 27/27 NSG 001

## Basic Electronics NSG



<b>Type</b>	03/03 NSG 001
<b>Description</b>	Basic electronics with 3 potential-free inputs and outputs each or alternatively 3 bidirectional inputs/outputs, RS485 interface for expansion with NAI0, 4-wire AF interface, mini USB service port, Ethernet connection, PoE or external power supply

### Mechanical Data

• Installation	Central exchange cabinet or appropriate housing
• Mounting	DIN rail acc. to EN 50022
• Width x height x depth	125 mm x 182 mm x 60 mm (4.9" x 7.2" x 2.4")
• Weight	Approx. 0.4 kg (approx. 0.9 lbs)

### Electrical Data

• Power supply	PoE according to IEEE 802.3af, 15 W or external power supply (42 VDC to 57 VDC, 0.3 A at 48 VDC)
• Quiescent, max. current consumption	60 mA, 270 mA
• Frequency range	200 Hz to 16,000 Hz (+/-3 dB)
• AF input voltage	Min. 0.4 V <sub>SS</sub> to max. 4.5 V <sub>SS</sub> (adjustable)
• Input impedance	> 2 kOhms
• Recommended output impedance of the analog counterpart	< 1 kOhms
• Potential-free inputs	3
• Input voltage level of each input	Off: 0 VDC to 5 VDC On: 10 VDC to 72 VDC (current consumption max. 4 mA)
• AF output voltage	Min. 0.4 V <sub>SS</sub> to max. 4.5 V <sub>SS</sub> (adjustable)
• Output impedance	50 Ohms
• Potential-free outputs	3
• Max. voltage and current value for each output	72 VDC, 100 mA
• Supply voltage for RS485 components	5 VDC, 1 A
• Auxiliary output voltage	48 VDC, 50 mA (operating voltage potential)

### Interfaces

- 1 x RJ45 port 10/100 MBit/s (LAN + PoE)
- 1 x 2-pole, pluggable screw terminal for external power supply, 1.5 mm<sup>2</sup> nominal cross section
- 1 x 4-pole, pluggable screw terminal for RS485 expansions (NAIO), 1.5 mm<sup>2</sup> nominal cross section
- 2 x 6-pole, pluggable screw terminal with 1 input/output each, 1.5 mm<sup>2</sup> nominal cross section
- 1 x 8-pole, pluggable screw terminal with 1 input/output each and 4-wire AF interface, 1.5 mm<sup>2</sup> nominal cross section
- 1 x Mini USB service port

## I/O Module NAIO



<b>Type</b>	08/08 NAIO 011
<b>Description</b>	I/O module to expand the IP interface, 8 potential-free inputs and outputs or alternatively 8 bidirectional inputs/outputs, up to 3 I/O modules cascable

### Mechanical Data

• Installation	Central exchange cabinet or appropriate housing
• Mounting	DIN rail acc. to EN 50022
• Width x height x depth	125 mm x 104 mm x 42 mm (4.9" x 4.1" x 1.7")
• Weight	Approx. 0.2 kg (approx. 0.45 lbs)

### Electrical Data

• Nominal voltage	5 VDC
• Quiescent, max. current consumption	25 mA, 40 mA
• Potential-free inputs	8 (with the same reference potential)
• Input voltage level of each input	Off: 0 VDC to 5 VDC On: 10 VDC to 72 VDC (current consumption max. 4 mA)
• Potential-free outputs	8 (with the same reference potential)
• Max. voltage and current value for each output	72 VDC, 100 mA

### Interfaces

- 1 x 10-pole screw terminal for cascading the NAIO modules, 0.75 mm<sup>2</sup> nominal cross section
- 2 x 12-pole screw terminal with inputs/outputs and reference potentials, 1.5 mm<sup>2</sup> nominal cross section

## Technical Data

### Network Requirements

- Power over Ethernet (PoE) recommended
- IPv4 network
- Support of UDP, SCTP, RTP and RTCP protocols
- Quality of Service (QoS)
  - Ideal latency < 20 ms (max. 50 ms)
  - Jitter max. 10 ms
- 10Base-T/100Base-TX Ethernet (IEEE 802.3), 100 MBit/s recommended
- 200 kBit/s basic bandwidth and 200 kBit/s per active audio channel

### Environmental Requirements and Standards

- |  |  |
|--|--|
| • Ambient temperature during operation | -20 °C to +55 °C<br>(-4 °F to +131 °F) |
| • Relative humidity (non-condensing)   | Max. 95 %                              |
| • EMC                                  | IEC/EN 61000-6-2<br>IEC/EN 61000-6-4   |

Order Data	Basic Electronics NSG	NAIO	Inputs/Outputs	Type	Type Number
1	-	03/03	03/03 NSG 001	302-056-000	
1	1	11/11	11/11 NSG 001	302-056-100	
1	2	19/19	19/19 NSG 001	302-056-200	
1	3	27/27	27/27 NSG 001	302-056-300	

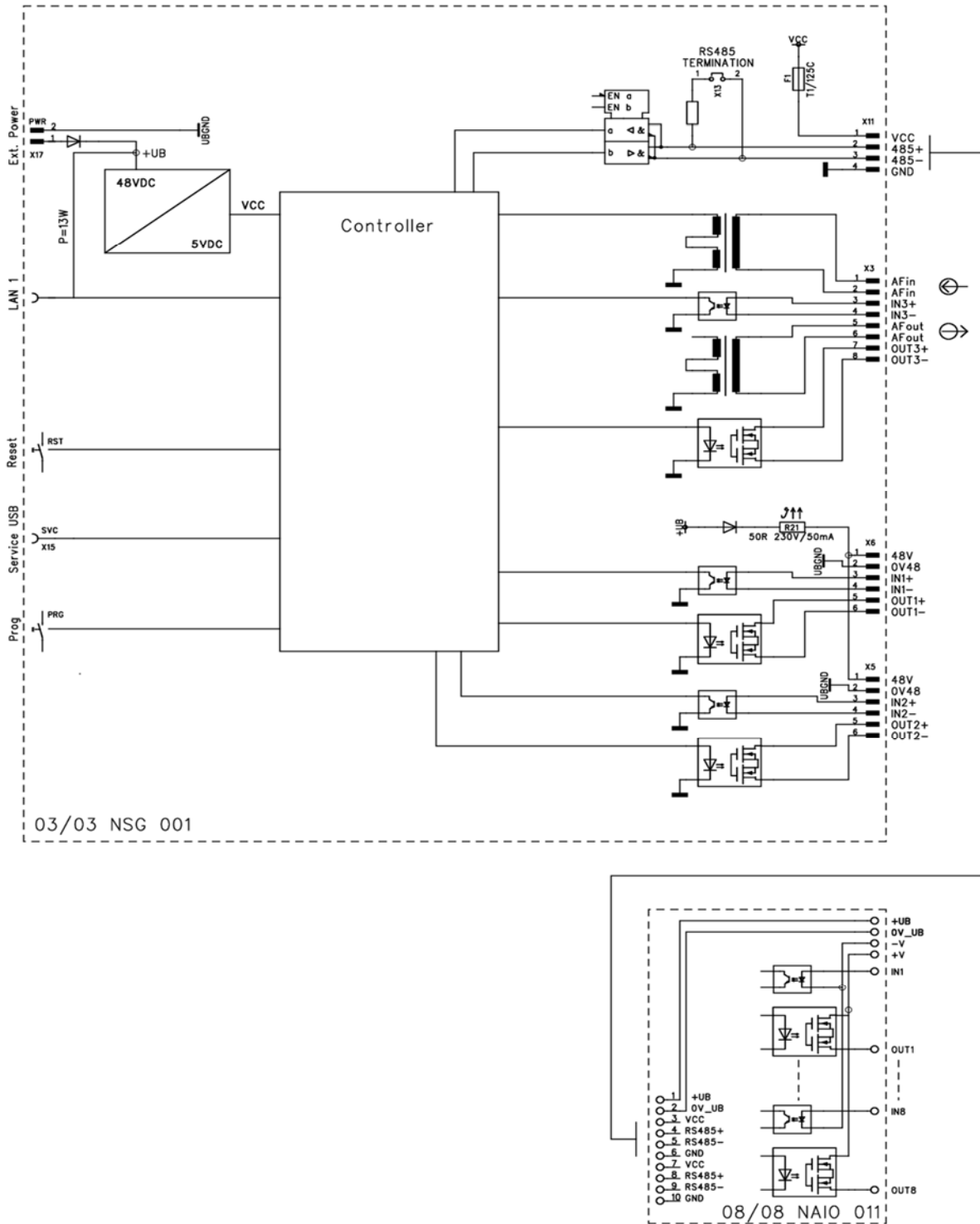


Fig. 1: Block diagram NSG

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Subject to technical modifications