

Safety Analog Input Module HART Ex i / I.S. Inputs, 8/6 Channels Series 9462

- For all applications up to SIL 2 via PROFIsafe protocol (V1 or V2)
- For SIL type 2-wire HART transmitters
- 6 or 8 channels
- Intrinsically safe inputs Ex ia IIC
- Galvanic isolation between inputs and system
- Open-circuit and short-circuit monitoring for each field circuit
- Status LEDs for RUN and ERROR, display for text messages

Zone	0	1	2	20	21	22
Ex interface	X	X	X	X	X	X
Installation in		X	X		X ^{*)}	X ^{*)}

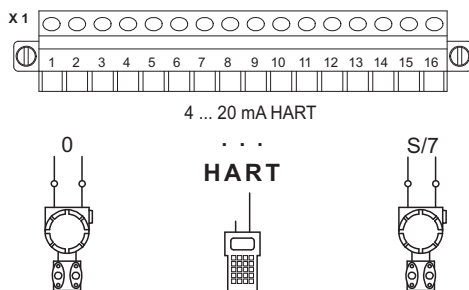
^{*)}suitable enclosure necessary



The Safety Analog Input Module HART is used for fail-safe operation of intrinsically safe 2-wire HART transmitters. It can be used in circuits with a functional safety (EN/IEC 61508) of up to SIL 2. The module communicates with the automation system as PROFIsafe slave and can be combined with I/O modules that are not relevant for safety.

In addition, the integrated HART multiplexer allows bidirectional HART communication between HART field devices and the automation and engineering system.

Analog transmitters (non-HART) can also be operated.



07423E00

Selection Table

Version		Order number	Weight kg / lbs
Safety Analog Input Module HART	8 channels for SIL-type 2-wire HART transmitters	9462/12-08-11	0.380 / 0.838
	6 channels for SIL-type 2-wire HART transmitters	9462/12-06-11	0.380 / 0.838

Explosion Protection

Version	9462/12-08-11 (8 inputs)	9462/12-06-11 (6 inputs)																
Certificates																		
Europe (ATEX)	PTB 99 ATEX 2175	PTB 99 ATEX 2175																
Marking																		
Europe (ATEX)	Ⓜ II 2 (1) G Ex ib [ia] IIC/IIB T4, Ⓜ II (1) D [Ex iaD]	Ⓜ II 2 (1) G Ex ib [ia] IIC/IIB T4, Ⓜ II (1) D [Ex iaD]																
Safety data																		
Maximum values																		
Max. voltage	$U_o / V_{oc} = 26.2 \text{ V}$	$U_o / V_{oc} = 26.2 \text{ V}$																
Max. current	$I_o / I_{sc} = 91 \text{ mA}$	$I_o / I_{sc} = 90 \text{ mA}$																
Max. power	$P_o = 589 \text{ mW}$	$P_o = 589 \text{ mW}$																
Max. capacitance for IIC	$C_o / C_a = 97 \text{ nF}$	$C_o / C_a = 97 \text{ nF}$																
Max. inductance for IIC	$L_o / L_a = 2.1 \text{ mH}$	$L_o / L_a = 2.1 \text{ mH}$																
Further information	see certificates	see certificates																
Functional safety (IEC 61508)																		
Test report	Exida FMEDA Stahl 05/08-05R011	Exida FMEDA Stahl 05/08-05R011																
Max. SIL	2	2																
Safe state	"Alarm Code" or "No communication"	"Alarm Code" or "No communication"																
Safe Failure Fraction SFF	98 %	98 %																
MTBF (to SN 29500)	143 years (at 40 °C / 104 °F)	143 years (at 40 °C / 104 °F)																
PFD _{AVG} at T _[Proof]	<table border="0"> <tr> <td>T[Proof]</td> <td>1 year</td> <td>3 years</td> <td>5 years</td> </tr> <tr> <td>PFD_{AVG}</td> <td>5.45×10^{-5}</td> <td>1.63×10^{-4}</td> <td>2.72×10^{-4}</td> </tr> </table>	T[Proof]	1 year	3 years	5 years	PFD _{AVG}	5.45×10^{-5}	1.63×10^{-4}	2.72×10^{-4}	<table border="0"> <tr> <td>T[Proof]</td> <td>1 year</td> <td>3 years</td> <td>5 years</td> </tr> <tr> <td>PFD_{AVG}</td> <td>5.45×10^{-5}</td> <td>1.63×10^{-4}</td> <td>2.72×10^{-4}</td> </tr> </table>	T[Proof]	1 year	3 years	5 years	PFD _{AVG}	5.45×10^{-5}	1.63×10^{-4}	2.72×10^{-4}
T[Proof]	1 year	3 years	5 years															
PFD _{AVG}	5.45×10^{-5}	1.63×10^{-4}	2.72×10^{-4}															
T[Proof]	1 year	3 years	5 years															
PFD _{AVG}	5.45×10^{-5}	1.63×10^{-4}	2.72×10^{-4}															
Further information	see safety manual and test report	see safety manual and test report																




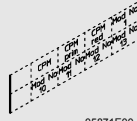

Technical Data

Version	9462/12-08-11 (8 inputs)	9462/12-06-11 (6 inputs)
Ex i / I.S. inputs		
Number of channels	8 (for 2-wire transmitters with / without HART)	6 (for 2-wire transmitters with / without HART)
Signal		
Signal range	4 mA ... 20 mA + HART	4 mA ... 20 mA + HART
Minimum signal	2.4 mA	2.4 mA
Maximum signal	22.8 mA	22.8 mA
Supply voltage	$\geq 16 \text{ V}$ at 20 mA for 2-wire transmitters at 23 °C / 73.4 °F $\geq 15 \text{ V}$ at 20 mA for 2-wire transmitters at 65 °C / 149 °F	$\geq 16 \text{ V}$ at 20 mA for 2-wire transmitters at 23 °C / 73.4 °F $\geq 15 \text{ V}$ at 20 mA for 2-wire transmitters at 65 °C / 149 °F
Filter time constant	medium	medium
Resolution in the range 4 mA ... 20 mA	12.75 bit	12.75 bit
Maximum delay from the input to the internal bus, 0 ... 90 % of the signal span	120 ms	120 ms
Maximum short-circuit current	35 mA	35 mA



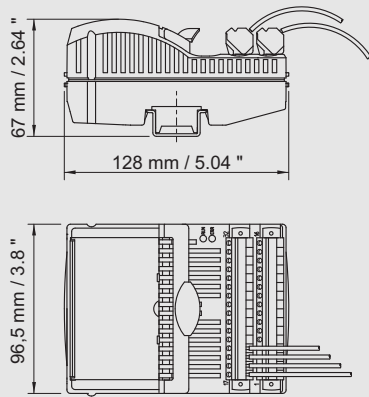
Technical Data		
Version	9462/12-08-11 (8 inputs)	9462/12-06-11 (6 inputs)
Galvanic isolation		
between power supply and system components	1500 V AC	1500 V AC
between two input / output modules	500 V AC	500 V AC
between inputs and system components	500 V AC	500 V AC
	The inputs and outputs of an I/O module have a common negative conductor	The inputs and outputs of an I/O module have a common negative conductor
Measuring accuracy		
Note	All values in % of the signal span, at 23 °C / 73.4 °F	All values in % of the signal span, at 23 °C / 73.4 °F
Max. measurement deviation		
Functional	0.1 %	0.1 %
Safety-relevant	2 %	2 %
Ambient temperature effect	0.1 % / 10 K	0.1 % / 10 K
Settings		
Functional parameters	None	None
Safety parameters	<ul style="list-style-type: none"> PROFIsafe slave address CRC length 2, 3, 4 bytes 	<ul style="list-style-type: none"> PROFIsafe slave address CRC length 2, 3, 4 bytes
Value to fieldbus during open circuit, short circuit	Alarm code	Alarm code
Diagnostics		
Retrievable parameters	Manufacturer, type, version, serial number	Manufacturer, type, version, serial number
Module faults	<ul style="list-style-type: none"> Internal primary bus faults Internal redundant bus faults No response Module does not correspond to configuration Hardware fault 	<ul style="list-style-type: none"> Internal primary bus faults Internal redundant bus faults No response Module does not correspond to configuration Hardware fault
Signal faults per channel		
Message	Alarm code	Alarm code
Open circuit	< 2.4 mA *)	< 2.4 mA *)
Short circuit	> 22.8 mA *)	> 22.8 mA *)
Measuring range	Over range / under range	Over range / under range
	*)Note: Connect a resistor of approx. 4,7 kΩ +/- 1 kΩ to unused inputs in order to avoid error messages.	*)Note: Connect a resistor of approx. 4,7 kΩ +/- 1 kΩ to unused inputs in order to avoid error messages.
Operator interface		
Operation	Green LED "RUN"	Green LED "RUN"
Fault	Red LED "ERR"	Red LED "ERR"
LCD display	Operating and status messages; 2 x 16 characters and 2 operating keys	Operating and status messages; 2 x 16 characters and 2 operating keys
Power supply		
Maximum power consumption	6.6 W	6 W
Maximum power dissipation	3.7 W	3.6 W
Mechanical data		
Module enclosure	Polyamide 6GF	Polyamide 6GF
Fire protection class (UL 94)	V2	V2
Degree of protection (IEC 60529)		
Modules	IP30	IP30
Connections	IP20	IP20

Technical Data		
Version	9462/12-08-11 (8 inputs)	9462/12-06-11 (6 inputs)
Electrical connection		
Ex i / I.S. field signals	Plug-in terminals 16-pole with catch, 2.5 mm ² / up to 14 AWG, screw or spring type	Plug-in terminals 16-pole with catch, 2.5 mm ² / up to 14 AWG, screw or spring type
Installation conditions		
Mounting type	on 35 mm DIN rail NS 35/15	on 35 mm DIN rail NS 35/15
Installation position	horizontal and vertical	horizontal and vertical
Ambient conditions		
Ambient temperature	- 20 ... + 65 °C / - 4 ... + 149 °F	- 20 ... + 65 °C / - 4 ... + 149 °F
Storage temperature	- 40 ... + 70 °C / - 40 ... + 158 °F	- 40 ... + 70 °C / - 40 ... + 158 °F
Maximum relative humidity	95 % (no condensation)	95 % (no condensation)
Vibration, sinusoidal (IEC EN 60068-2-6)	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz
Shock, semi-sinusoidal (IEC EN 60068-2-27)	15 g (3 shocks per axis and direction)	15 g (3 shocks per axis and direction)
Electromagnetic compatibility	Tested according to the following standards and regulations: EN 61 326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21	Tested according to the following standards and regulations: EN 61 326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21
Engineering notes	<ul style="list-style-type: none"> • Safety modules and non-safety modules can be combined on a BusRail • Zone 1 modules (946./.2) and Zone 2 modules (946./.5) can be combined on a BusRail • A partition (162740) is required to separate intrinsically safe and non-intrinsically safe circuits (≥ 50 mm / 2 in) 	

Accessories and Spare Parts			
Designation	Illustration	Description	Order number
Plug-in terminal		2.5 mm ² / 14 AWG with catch, 16-pole, screw connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits Designation: 1 ... 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 ... 32	162702
		2.5 mm ² / 14 AWG with catch, 16-pole, spring connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits including test jacks Designation: 1 ... 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 ... 32	162695
Labelling strips		„FB No ... Mod No ...“ for plug-in terminals, sheet with 26 labels	162788
Designation strips		For BusRail, for 1 BusRail with 16 I/O modules	162793
Warning sign		„Only clean modules with damp cloths“	162796
Partition		For assembly between intrinsically safe and non-intrinsically safe connectors of the I/O modules, in order to adhere to the required 50 mm / 2 in distance	162740



Dimensional Drawings (All Dimensions in mm / inches) - Subject to Alterations



09879E00

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

Representante oficial de:



[Argentina – Uruguay – Paraguay – Bolivia – Ecuador.]



Calle 49 N° 5764 - Villa Ballester (B1653AOX) - Prov. de Buenos Aires - ARGENTINA
Tel: (+54 11) 4768-4242 / Fax: (+54 11) 4849-1212
Mail: ventas@nakase.com.ar / Web: www.nakase.com.ar

