

### 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 <sup>*)</sup>	X <sup>*)</sup>

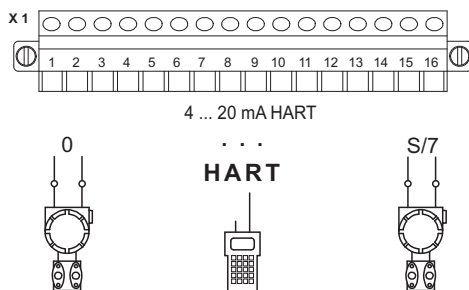
<sup>\*)</sup>suitable enclosure necessary



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	<b>9462/12-08-11</b>	0.380 / 0.838
	6 channels for SIL-type 2-wire HART transmitters	<b>9462/12-06-11</b>	0.380 / 0.838




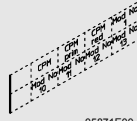


Explosion Protection			
Version	9462/12-08-11 (8 inputs)		9462/12-06-11 (6 inputs)
Certificates			
Europe (ATEX)	PTB 99 ATEX 2175		PTB 99 ATEX 2175
Marking			
Europe (ATEX)	Ⓢ II 2 (1) G Ex ib [ia] IIC/IIB T4, Ⓢ II (1) D [Ex iaD]		Ⓢ II 2 (1) G Ex ib [ia] IIC/IIB T4, Ⓢ II (1) D [Ex iaD]
Safety data			
Maximum values			
Max. voltage	U <sub>o</sub> / V <sub>oc</sub> = 26.2 V		U <sub>o</sub> / V <sub>oc</sub> = 26.2 V
Max. current	I <sub>o</sub> / I <sub>sc</sub> = 91 mA		I <sub>o</sub> / I <sub>sc</sub> = 90 mA
Max. power	P <sub>o</sub> = 589 mW		P <sub>o</sub> = 589 mW
Max. capacitance for IIC	C <sub>o</sub> / C <sub>a</sub> = 97 nF		C <sub>o</sub> / C <sub>a</sub> = 97 nF
Max. inductance for IIC	L <sub>o</sub> / L <sub>a</sub> = 2.1 mH		L <sub>o</sub> / L <sub>a</sub> = 2.1 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 <sub>AVG</sub> at T <sub>[Proof]</sub>	T[Proof]    1 year        3 years        5 years PFD <sub>AVG</sub> 5.45 x 10 <sup>-5</sup> 1.63 x 10 <sup>-4</sup> 2.72 x 10 <sup>-4</sup>		T[Proof]    1 year        3 years        5 years PFD <sub>AVG</sub> 5.45 x 10 <sup>-5</sup> 1.63 x 10 <sup>-4</sup> 2.72 x 10 <sup>-4</sup>
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	≥ 16 V at 20 mA for 2-wire transmitters at 23 °C / 73.4 °F ≥ 15 V at 20 mA for 2-wire transmitters at 65 °C / 149 °F		≥ 16 V at 20 mA for 2-wire transmitters at 23 °C / 73.4 °F ≥ 15 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



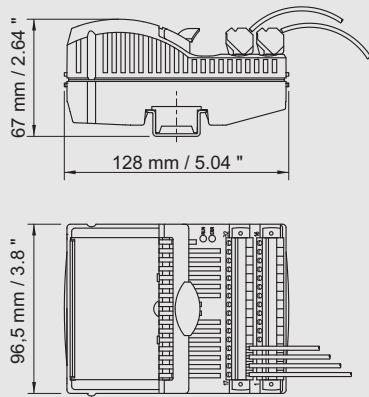
Technical Data		
Version	9462/12-08-11 (8 inputs)	9462/12-06-11 (6 inputs)
<b>Galvanic isolation</b>		
between power supply and system components	1500 V AC	1500 V AC
between two input / output modules	500 V AC	500 V AC
between inputs and system components	500 V AC	500 V AC
	The inputs and outputs of an I/O module have a common negative conductor	The inputs and outputs of an I/O module have a common negative conductor
<b>Measuring accuracy</b>		
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
<b>Max. measurement deviation</b>		
Functional	0.1 %	0.1 %
Safety-relevant	2 %	2 %
Ambient temperature effect	0.1 % / 10 K	0.1 % / 10 K
<b>Settings</b>		
Functional parameters	None	None
Safety parameters	<ul style="list-style-type: none"> <li>PROFIsafe slave address</li> <li>CRC length 2, 3, 4 bytes</li> </ul>	<ul style="list-style-type: none"> <li>PROFIsafe slave address</li> <li>CRC length 2, 3, 4 bytes</li> </ul>
Value to fieldbus during open circuit, short circuit	Alarm code	Alarm code
<b>Diagnostics</b>		
Retrievable parameters	Manufacturer, type, version, serial number	Manufacturer, type, version, serial number
Module faults	<ul style="list-style-type: none"> <li>Internal primary bus faults</li> <li>Internal redundant bus faults</li> <li>No response</li> <li>Module does not correspond to configuration</li> <li>Hardware fault</li> </ul>	<ul style="list-style-type: none"> <li>Internal primary bus faults</li> <li>Internal redundant bus faults</li> <li>No response</li> <li>Module does not correspond to configuration</li> <li>Hardware fault</li> </ul>
<b>Signal faults per channel</b>		
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.
<b>Operator interface</b>		
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
<b>Power supply</b>		
Maximum power consumption	6.6 W	6 W
Maximum power dissipation	3.7 W	3.6 W
<b>Mechanical data</b>		
Module enclosure	Polyamide 6GF	Polyamide 6GF
Fire protection class (UL 94)	V2	V2
<b>Degree of protection (IEC 60529)</b>		
Modules	IP30	IP30
Connections	IP20	IP20

Technical Data		
<b>Version</b>	<b>9462/12-08-11 (8 inputs)</b>	<b>9462/12-06-11 (6 inputs)</b>
Electrical connection		
Ex i / I.S. field signals	Plug-in terminals 16-pole with catch, 2.5 mm <sup>2</sup> / up to 14 AWG, screw or spring type	Plug-in terminals 16-pole with catch, 2.5 mm <sup>2</sup> / 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"> <li>• Safety modules and non-safety modules can be combined on a BusRail</li> <li>• Zone 1 modules (946./2) and Zone 2 modules (946./5) can be combined on a BusRail</li> <li>• A partition (162740) is required to separate intrinsically safe and non-intrinsically safe circuits (≥ 50 mm / 2 in)</li> </ul>	

Accessories and Spare Parts			
Designation	Illustration	Description	Order number
Plug-in terminal		2.5 mm <sup>2</sup> / 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	<b>162702</b>
		2.5 mm <sup>2</sup> / 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	<b>162695</b>
Labelling strips		„FB No ... Mod No ...“ for plug-in terminals, sheet with 26 labels	<b>162788</b>
Designation strips		For BusRail, for 1 BusRail with 16 I/O modules	<b>162793</b>
Warning sign		„Only clean modules with damp cloths“	<b>162796</b>
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	<b>162740</b>



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



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