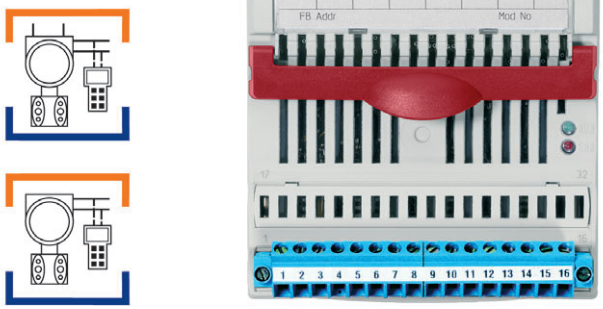
Analog Input Module HART Ex i / I.S. Inputs, 8 Channels

Type 9461/12-08-11



02085E00

- 8 channels for 2-wire HART transmitters
- Intrinsically safe inputs Ex ia IIC
- Galvanic separation between inputs and system
- Open-circuit and short-circuit monitoring for each field circuit
- Module can be replaced in operation (hot swap)
- New version: Type 9468/32

The Analog Input Module HART is used for the connection and supply of up to 8 x 2-wire HART transmitters with 0 ... 20 mA or 4 ... 20 mA signals. Each input is individually monitored for open and short circuits.
Inputs and power supplies are short-circuit proof and intrinsically safe.
The interface of the Analog Input Module with the internal data bus of the BusRail is designed with redundancy.
The integrated HART multiplexer permits bidirectional HART communication between HART field devices and the automation and engineering system.
Analog transmitters (non-HART) can also be operated.

	ATEX / IECEx					
Zone	0	1	2	20	21	22
Ex interface	x	x	x	x	x	x
Installation in		x	x		x*)	x*)

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	x	x	x	x	x	x
Installation in		x	x		x*)	x*)

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	x	x	x	x	x	x
Installation in	x	x	x*)	x*)	x*)	x*)

*) Restrictions see table explosion protection

WebCode 9461A

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Selection Table

Version	Description	Order number	Weight kg / lbs
Analog Input Module HART	8 channels for 2-wire HART transmitters	**9461/12-08-11**	0.400 / 0.882
Note	Please order terminal separately - see Accessories		

Explosion Protection	
Global (IECEx)	
Gas	PTB 06.0001X Ex ib [ia] IIC/IIB T4
Europe (ATEX)	
Gas and dust	PTB 99 ATEX 2175 ⟨Ex⟩ II 2 (1) G Ex ib [ia] IIC T4 ⟨Ex⟩ II (1) D [Ex ia] IIIC
Certificates	
Certificates	IECEx, ATEX, Brazil (Inmetro), Canada (CSA), Kazakhstan (GOST K), Russia (GOST R), Serbia (SRPS), USA (FM), Belarus (operating authorisation)
Ship approval	ABS, BV, ClassNK, DNV, GL, LR
Safety data	
Maximum values for	
Max. voltage U_o / V_{oc}	26.2 V
Max. current I_o / I_{sc}	91 mA
Max. power P_o	591 mW
Cable parameters (ATEX) (for inductive or capacitive circuits)	
Max. connectable capacitance C_o / C_a	
IIC	97 nF
IIB	0.75 µF
Max. connectable inductance L_o / L_a	
IIC	2.38 mH
IIB	14 mH
Max. internal capacity C_i	0
Max. internal inductance L_i	37 µH
Further information	see respective certificate and operating instructions
Further parameters	
Installation in	Zones 1 & 2, Div. 1 & 2, Zones 21 & 22
Further information	see respective certificate and operating instructions

Technical Data

Electrical data

Ex i / I.S. inputs

Number of channels	8 (for 2-wire transmitters with / without HART)
Signal	
Signal range	0 .. 20 mA, 4 .. 20 mA + HART (adjustable parameters for each channel)
Minimum signal	0 mA
Maximum signal	23.5 mA
Supply voltage	16.0 V at 20 mA for 2-wire transmitters
Signal transmission	

	Filter time constant (adjustable parameters)		
	small	medium	50 Hz, 60 Hz
Resolution in the range 4 ... 20 mA	12.75 bit	12.75 bit	12.75 bit
Max. delay from the input to the internal bus, 0 ... 90 % of the signal span	32 ms	120 ms	840 ms

Note: For HART operation, the time setting medium or 50 Hz, 60 Hz is recommended

Maximum short-circuit current	35 mA
Galvanic separation	
between power supply and system components	1500 V AC
between two input / output modules	500 V AC
between inputs and system components	500 V AC

The inputs and outputs of an I/O module have a common negative conductor.

Accuracy of measurement	
Note	All values in % of the signal span, at 23 °C / 73.4 °F
Measurement deviation	

	Filter time constant (adjustable parameters)		
	small	medium	50 Hz, 60 Hz
Maximum measurement deviation	0.075 %	0.05 %	0.05 %

Ambient temperature influence	0.1 % / 10 K
Settings	
Open-circuit and short-circuit monitoring	ON, OFF (for each channel)
Value to fieldbus during open circuit, short circuit	–10 %, 0 %, 100 % of the signal, alarm code, hold last value
Diagnostics	
Retrievable parameters	Manufacturer, type, version, serial number
Module faults	• Internal primary bus faults • Internal redundant bus faults • No response • Module does not correspond to configuration • Hardware fault
Signal errors for each channel	
Open circuit	< < 2.4 / < 3.6 mA (adjustable parameters, 4 ... 20 mA)
Short circuit	> > 23.5 / > 22.8 / > 21 mA (adjustable parameters, 0/4 ... 20 mA)
Measuring range	Over range / under range
Operator interface	
Operation	LED green "RUN"
Fault	LED red "ERR"
Auxiliary power	
Maximum power consumption	6.6 W
Maximum power dissipation	3.7 W

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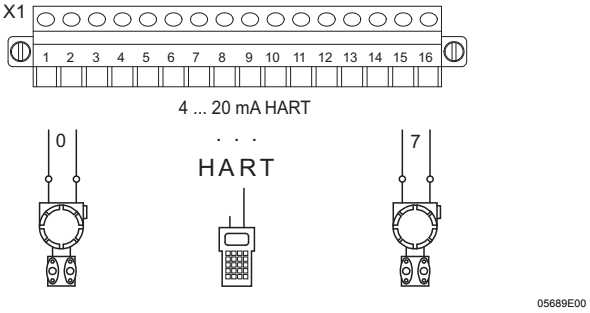
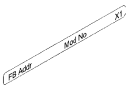
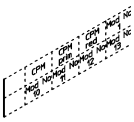
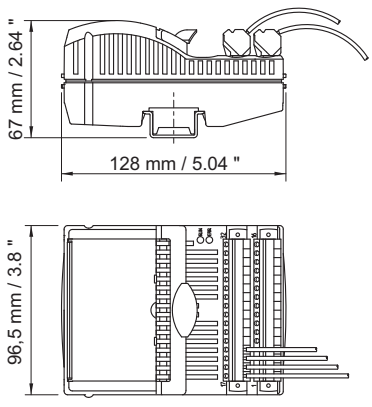
Technical Data	
Electrical data	
Electrical connection	
Ex i field signals	Plug-in terminals 16-pole with catch, 2.5 mm² / up to 14 AWG, screw or spring type
Connection diagram	
Ambient conditions	
Ambient temperature	-20 ... +65 °C / -4 ... +149 °F
Storage temperature	-40 ... +70 °C / -40 ... +158 °F
Maximum relative humidity	95 % (no condensation)
Sinusoidal vibration (IEC EN 60068-2-6)	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz
Semi-sinusoidal shock (IEC EN 60068-2-27)	15 g (3 shocks per axis and direction)
Electromagnetic compatibility	Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21
Mechanical data	
Module enclosure	Polyamide 6GF
Fire resistance (UL 94)	V2
Degree of protection (IEC 60529)	
Modules	IP30
Connections	IP20
Mounting / installation	
Installation conditions	
Mounting type	on 35 mm DIN rail NS 35/15
Mounting orientation	horizontal and vertical

Accessories and Spare Parts

Designation	Figure	Description	Art. no.
Plug-in terminal	 02079E00	2.5 mm² / 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**
	 02077E00	2.5 mm² / 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	 05869E00	"FB Addr ... Mod No ..." for pluggable terminal, sheet with 26 strips	**162788**
Designation strips	 05871E00	For BusRail, for 1 BusRail with 16 I/O modules	**162793**
Warning sign	 05872E00	"Clean modules only with a damp cloth."	**162796**
Partition	 02078E00	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



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