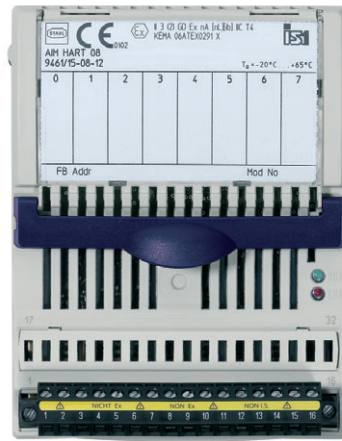
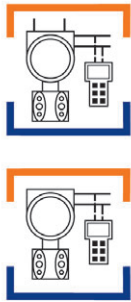


Analog Input Module HART Ex n Inputs, 8 Channels

Series 9461/15



www.stahl.de



- > 8 channels for 2-wire HART transmitters
- > Inputs for Ex nL, Ex nA and Nonincendive
- > Galvanic separation between inputs and system
- > Open-circuit and short-circuit monitoring for each field circuit
- > Module can be replaced in operation (hot swap)



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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 energy limited. The interface of the Analog Input Module with the internal data bus of the BusRail has integrated redundancy.

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.



	ATEX						NEC 505						NEC 506						NEC 500					
	0	1	2	20	21	22	Zone	0	1	2	20	21	22	Division	1	2	1	2	1	2				
Ex interface			x			x	Ex interface			x			x	Ex interface		x		x			x			
Installation in			x			x	Installation in			x			x	Installation in		x		x			x			

WebCode 9461C

Analog Input Module HART Ex n Inputs, 8 Channels

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Selection Table

Version	Description	Order number	Weight kg
Analog Input Module HART	8 channels for 2-wire HART transmitters	9461/15-08-12	0.241
Note		Please order terminal separately - see Accessories	

Explosion Protection

Europe (ATEX)

Gas and dust	KEMA 06 ATEX 0291 X ⊕ II 3 (2) GD Ex nA [nL] [ib] IIC T4
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Certifications and certificates

Certificates	ATEX, India (PESO), Canada (CSA), Kazakhstan (GOST K), Serbia (SRPS), USA (FM), Belarus (operating authorisation)
Ship approval	ABS, BV, ClassNK, DNV, GL, LR, RS

Safety data

Maximum values for	
Max. voltage U_o	23.8 V
Max. voltage U_i	32 V
Max. current I_o	36 mA
Max. current I_i	any
Max. power P_o	567 mW
Max. power P_i	any
Cable parameters (ATEX) (for inductive or capacitive circuits)	
Max. connectable capacitance C_o	
IIC	94 nF
IIB	0.88 μ F
Max. connectable inductance L_o	
IIC	2 mH
IIB	20 mH
Max. internal capacity C_i	2.5 nF
Max. internal inductance L_i	0
Further information	see respective certificate and operating instructions

Further parameters

Installation in	Zone 2, Div. 2
Further information	see respective certificate and operating instructions

Technical Data

Electrical data

Ex n inputs	
Number of channels	8 (for 2-wire transmitter 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

Analog Input Module HART Ex n Inputs, 8 Channels

Series 9461/15



Technical Data

Electrical data				
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
Maximum delay from input to internal bus, 0 ... 90 % of 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	1500 V AC			
between inputs and system components	1500 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			
Measurement deviation		Filter time constant (adjustable parameters)		50 Hz, 60 Hz
		small	medium	
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	<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 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 W			
Maximum power dissipation	3.6 W			

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Analog Input Module HART Ex n Inputs, 8 Channels

Series 9461/15

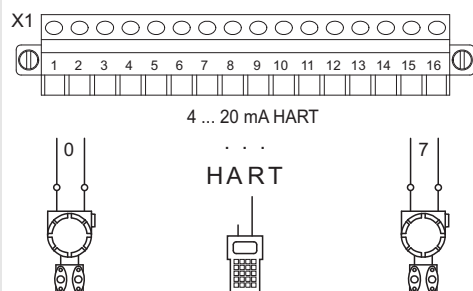


Technical Data

Electrical data

Electrical connection
Ex n field signals
Connection diagram

Plug-in terminals 16-pole with catch, 2.5 mm², screw or spring type



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Ambient conditions

Ambient temperature	-20 ... +65 °C
Storage temperature	-40 ... +70 °C
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


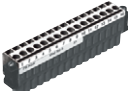
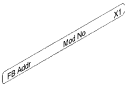
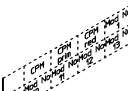


Installation conditions	
Mounting type	on 35 mm DIN rail NS 35/15
Mounting orientation	horizontal and vertical
Engineering notes	<ul style="list-style-type: none"> • Versions 946./5 only for installation in Zone 2 or in safe area. • Mixing of Zone 1 modules (946./2) and Zone 2 modules (946./5) on same BusRail is allowed. • For separation between intrinsically safe and non-intrinsically safe circuits (≥ 50 mm / 2 in), a partition (162740) is required.

Analog Input Module HART Ex n Inputs, 8 Channels

Series 9461/15

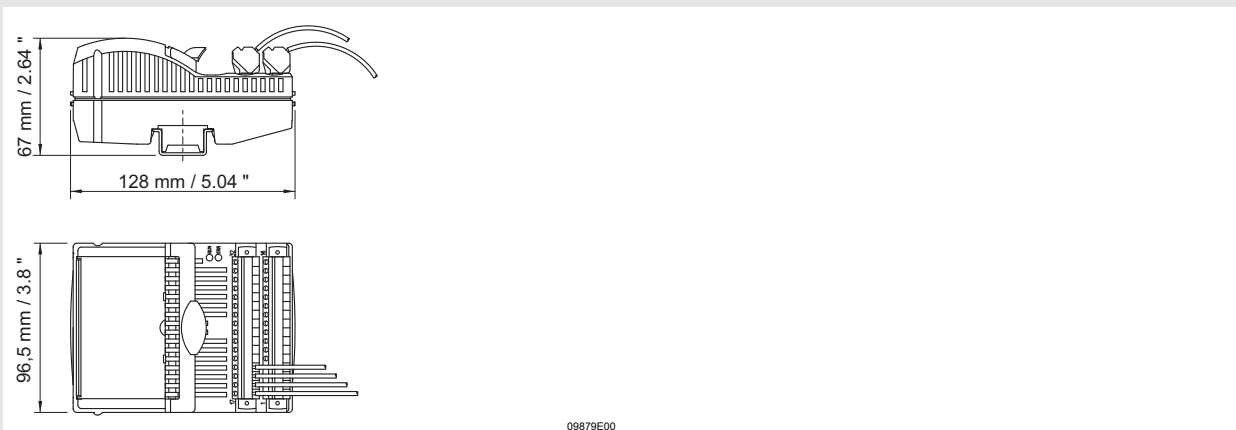


Accessories and Spare Parts

Designation	Figure	Description	Art. no.
Plug-in terminal	 09898E00	Screw connection, 2.5 mm ² with screw lock, 16 pin, black, for connecting Ex nL/Ex nA field signals Labelling: 1 ... 16	162708
	 09899E00	Spring connection, 2.5 mm ² with screw lock and test jacks, 16 pin, black, for connecting Ex nL/Ex nA field signals Labelling: 1 ... 16	162710
Labelling strips	 05868E00	"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 distance	162740

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



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