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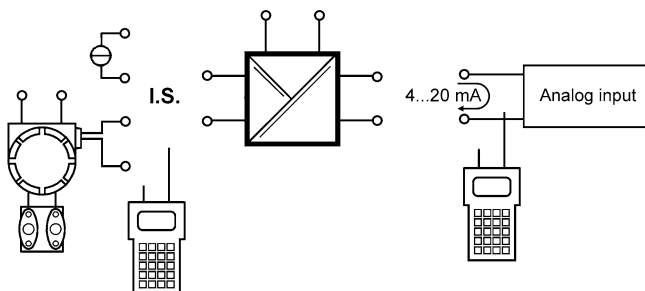
Isolating Repeater HART Input Type 9163

- Suitable for 4-wire HART transmitters and (HART) mA-sources
- Intrinsically safe input [EEx ia] IIC
- 1 and 2 channels
- Bi-directional transmission of HART-signals
- Galvanic isolation between input, output and power supply
- Open-circuit and short-circuit monitoring and messaging (can be switched off)
- Installation possible in Zone 2



Basic function: Analog input 0/4 mA ... 20 mA, 1 and 2 channels
The Isolating Repeaters HART input are used for intrinsically safe operation of 4-wire transmitters or for connection of intrinsically safe mA sources.

The modules transmit a HART communication signal bi-directionally.



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Selection table				
Version	Channels	Input	Output A	Ordering code
Isolating Repeater HART Input Type 9163	1	0/4 mA ... 20 mA with HART	0/4 mA ... 20 mA with HART	9163/13-11-11.
	2	0/4 mA ... 20 mA with HART	0/4 mA ... 20 mA with HART	9163/23-11-11.
Add. to ordering code				
		Screw terminal		9163/.....s
		Spring clamp terminal		9163/.....k
		Insulation displacement connectors		9163/.....q

Technical Data				
Certificates	BVS 04 ATEX E 127 X			
Other certificates	USA (FM, UL), Canada (CSA), Russia (VNIIEF), Brazil (UL do Brasil), Ukraine (ISCVE)			
Explosion protection	⊕ II (1) GD [EEx ia] IIC/IIB and ⊕ II 3 G EEx nAC II T4			
Installation	In Zone 2, Div. 2 and in the safe area			
Safe maximum values (CENELEC)	Max. voltage U_o			negligible
	Max. current I_o			negligible
	Max. connectable voltage U_i			30 V
	Max. connectable current I_i			150 mA
	Max. connectable power P_i			1 W
	Internal capacitance C_i and inductance L_i			negligible
	Insulation voltage U_m			253 V AC
	Further information and combinations of values, see certification.			
Power supply	Nominal voltage U_N			24 V DC
	Voltage range			18 V ... 31.2 V
	Residual ripple within voltage range	≤		3,6 V _{pp}
	Nominal current (U_N , 20 mA) 1 / 2 channels			60 mA / 80 mA
	Power consumption (U_N , 20 mA) 1 / 2 channels			1.5 W / 1.9 W
	Power losses (at U_N , $R_L = 250 \Omega$) 1 / 2 channels			1.4 W / 1.7 W
	Indication			LED green „PWR“
	Polarity reversal protection			yes
	Undervoltage monitoring			yes (no faulty module / output states)
Galvanic isolation	Test voltage under regulations EN 50020			
	I.S. input to output			1.5 kV AC
	I.S. input to power supply			1.5 kV AC
	Error-contact to I.S. input			1.5 kV AC
	I.S. inputs to each other			500 V AC
	Test voltage under regulations EN 50178			
	Output to power supply			350 V AC
	Outputs to each other			350 V AC
	Error-contact to power supply and outputs			350 V AC
I.S. input	Input signal			0/4 mA ... 20 mA with HART
	Function area			0 mA ... 24 mA
	Max. input current			50 mA
	Input resistance (AC-Impedance HART)	≈		300 Ω
	Input resistance DC	≤		150 Ω
	Communication signal			HART transmission bi-directional, 0.5 kHz ... 10 kHz
Output	Output signal			0/4 mA ... 20 mA with HART
	Load resistance R_L			0 Ω ... 600 Ω (terminal 1+/- or 5+/-) 0 Ω ... 479 Ω (terminal 3+/- or 4+/-) (with internal 221 Ω resistor for HART)
	Residual ripple	≤		40 μ A _{eff}
	No-load voltage	≤		15.5 V
	Communication signal			HART transmission bi-directionale 0.5 kHz ... 10 kHz
	Response time (10 % ... 90 %)	≤		20 ms



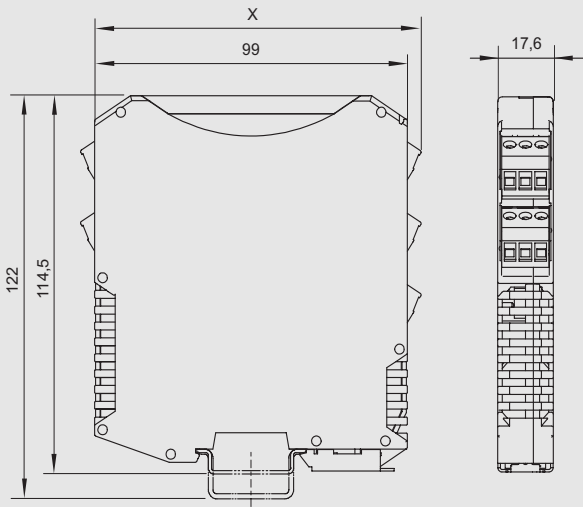
Technical Data

Error detection I.S. input	Open-circuit Short-circuit Behaviour of output Output current at $I_E = 0$	< < = $I_A =$	2 mA 22 mA Input signal 0 mA
Error detection output	Open-circuit	<	2 mA
Error messaging I.S. input / output	Settings (switch LF) Error detection Error messaging and power supply failure		activated / deactivated LED red „LF“ each channel - contact (30 V, 100 mA), closed to ground in case of error - pac-Bus, floating contact (30 V, 100 mA)
Error limits	Accuracy, typical data expressed as % of calibrated span at U_N , 23 °C Linearity error Offset error Temperature influence Power supply effect within voltage range Load resistance effect Cross-talk channel 1 / channel 2	 ≤ ≤ ≤ ≤ ≤ ≤	 0.1 % 0.1 % 0.1 % / 10 K 0.01 % 0.02 % 0.01 %
Electromagnetic compatibility	Tested under the following standards and regulations: EN 61326 (IEC/EN 61000-4-1...6 and 11; EN 55022 Class B)		
Ambient conditions	Ambient temperature Storage temperature Relative humidity (no condensation)		- 20 °C ... + 60 °C / + 70 °C (watch instructions) - 40 °C ... + 80 °C ≤ 95 %
Connection diagram	<p>The diagram illustrates the internal circuitry of the isolating repeater, divided into a 'Hazardous area' and a 'Safe area' by a dashed vertical line. On the hazardous side, there are two input channels (1 and 2) with terminals 10+, 11-, 14+, and 15-. On the safe side, there are two output channels (1 and 2) with terminals 1, 2, 3, 4, 5, 6, 7+, 8, and 9-. A central 'pac-bus' is connected to a 24V source and an LF switch. The circuit includes two operational amplifiers, resistors (221Ω), and load resistors (RL). A 24V DC source is also shown on the right side.</p>		
Mechanical data	Screw terminals	Spring clamp terminals	Insulation displacement connectors
Dimensions (devices) in mm	17.6 x 108 x 114	17.6 x 128 x 114	17.6 x 131 x 114
Wire leads	3-pole	3-pole	3-pole
- rigid	0.2 ... 2.5 mm ²	0.2 ... 2.5 mm ²	--
- flexible	0.2 ... 2.5 mm ²	0.2 ... 2.5 mm ²	0.5 ... 1 mm ²
- flexible, end covering sleeves (without / with plastic sleeving)	0.25 ... 2.5 mm ²	0.25 ... 2.5 mm ²	--
- 2 leads			
rigid	0.2 ... 1 mm ²	--	--
flexible	0.2 ... 1.5 mm ²	--	--
flexible, end covering sleeves	0.25 ... 1 mm ²	0.5 ... 1 mm ²	--
Weight	approx. 160 g		
Mounting type	on DIN rail acc. to EN 50022 (NS35/15; NS35/7.5) or in pac-Carrier		
Mounting position	horizontal or vertical		
Casing protection class	IP 30		
Terminal protection class	IP 20		
Casing material	PA6.6		
Fire protecting class (UL-94)	V0		



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Dimension drawings (all dimensions in mm) - subject to alterations



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	Dimension X
Screw terminals	108 mm
Spring clamp terminals	128 mm
Insulation displacement connectors	131 mm

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.