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Isolating Repeater Loop Powered (Field Circuit Ex i) Type 9167

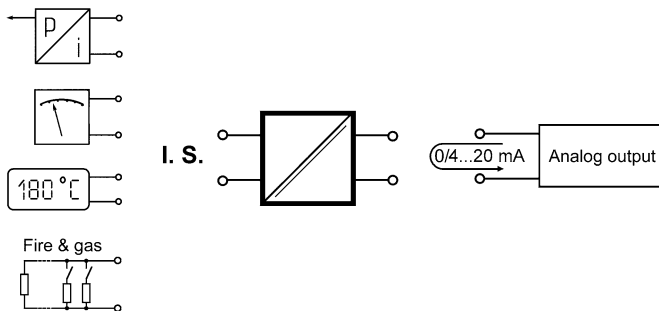
- For HART output signals
0/4 mA ... 20 mA
- Intrinsically safe output
[EEx ia] IIC/IIB
- 1 and 2 channels
- Galvanic isolation between
inputs and outputs
- Without power supply
- Very low internal resistance
- HART communication signal
transmitting, be-directionally
- Installation possible in Zone 2
and Div. 2
- Can be used up to SIL 3
(IEC 61508)

STAHL

The Isolating Repeaters loop powered are used for intrinsically safe operation of control valves, i/p-converters, analog and digital indicators, fire & gas detectors etc.

The modules transmit the HART communication signal be-directionally.

A separate power supply is not required.



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Selection table				
Version	Channels	I.S. output U_o / I_o / P_o	max. load resistance R_L	Ordering code
Isolating repeater, loop powered Type 9167	1	15.7 V / 60 mA / 233 mW	360 Ω	9167/11-11-00.
		25 V / 99 mA / 613 mW	800 Ω	9167/13-11-00.
		18.8 / 107 mA / 503 mW	590 Ω	9167/14-11-00.
	2	15.7 V / 60 mA / 233 mW	360 Ω	9167/21-11-00.
		25 V / 99 mA / 613 mW	800 Ω	9167/23-11-00.
		18.8 / 107 mA / 503 mW	590 Ω	9167/24-11-00.

Add. to ordering code		
Screw terminal		9167/.....s
Spring clamp terminal		9167/.....k
Insulation displacement connectors		9167/.....q

Technical Data				
Certificates	BVS 04 ATEX E 082 X			
Other certificates	USA (FM, UL), Canada (CSA), Russia (VNIIEF), Brazil (UL do Brasil)			
Explosion protection	Ⓔ II (1) GD [Ex ia] IIC/IIB and Ⓔ II 3 G EEx nA II T4			
Installation	In Zone 2, Div. 2 and in the safe area			
Safe maximum values (CENELEC)		9167.1-11-00.	9167.3-11-00.	9167.4-11-00.
	Max. voltage U_o	15.7 V	25 V	18.8 V
	Max. current I_o	60 mA	99 mA	107 mA
	Max. power P_o	233 mW	613 mW	503 mW
	Max. connectable capacitance C_o IIC / IIB	487 nF / 2950 nF	110 nF / 840 nF	266 nF / 1620 nF
	Max. connectable inductance L_o IIC / IIB	10 mH / 40 mH	2.5 mH / 11 mH	3 mH / 12 mH
	Internal capacitance C_i	negligible	negligible	negligible
	Internal inductance L_i	negligible	negligible	negligible
Insulation voltage U_m	253 V AC	253 V AC	253 V AC	
Power supply				
Supply	without			
max. power losses (20 mA / 40 mA) per channel	0.2 W / 0.6			
Galvanic isolation	Test voltage under regulations EN 50020			
	I.S. output to input I.S. outputs to each other	1.5 kV AC 350 V AC		
	Test voltage under regulations EN 50178			
	Inputs to each other	500 V AC		



Technical Data

		9167/1-11-00.	9167/3-11-00.	9167/4-11-00.
Input	Input signal I_E (for specified accuracy)	0/4 mA ... 20 mA with HART	0/4 mA ... 20 mA with HART	0/4 mA ... 20 mA with HART
	Functional range	0 mA ... 40 mA	0 mA ... 40 mA	0 mA ... 40 mA
	Internal resistance R_i (at 20 mA)	410 Ω	380 Ω	320 Ω
	Internal resistance R_i (at 40 mA)	360 Ω	330 Ω	270 Ω
	additional constant voltage drop ΔU	1 V	1 V	1 V
	Self consumption	$\leq 10 \mu A$	$\leq 10 \mu A$	$\leq 10 \mu A$
	Input voltage U_E	$\leq 31.2 V$	$\leq 31.2 V$	$\leq 31.2 V$
	Max. effective voltage $U_{E\text{eff}}$	15.4 V	23,6 V	18.2 V
	Pole reversal protection	yes	yes	yes
I.S. output	Output signal I_A	0/4 mA ... 20 mA with HART	0/4 mA ... 20 mA with HART	0/4 mA ... 20 mA with HART
	Functional range	0 mA ... 40 mA	0 mA ... 40 mA	0 mA ... 40 mA
	Max. Load resistance R_L (at $I_A = 20 \text{ mA}$, $U_{E\text{eff}}$)	360 Ω	800 Ω	590 Ω
	Current residual ripple	$\leq 0.5 \%$	$\leq 0.5 \%$	$\leq 0.5 \%$
	No-Load voltage	15.7 V	25 V	18.8 V
	Short circuit current	$\leq 60 \text{ mA}$	$\leq 60 \text{ mA}$	$\leq 60 \text{ mA}$
	Response time (10 % ... 90 %)	$\leq 1 \text{ ms}$	$\leq 1 \text{ ms}$	$\leq 1 \text{ ms}$
Error detection I.S. output	Open-circuit Behaviour of output current at open-circuit	0 mA $\leq 1.0 \text{ mA}$		
Error limits	Accuracy, typical data expressed as % of calibrated span at 23 °C			
	Linearity error at $R_L = 0 \Omega$	$\leq 0.25 \%$		
	Temperature influence	$\leq 0.1 \%$ / 10 K		
	Load resistance effect	$\leq -0.1 \%$ / 100 Ω		
Electromagnetic compatibility	Cross-talk channel 1 / channel 2	can not be measured		
	Tested under the following standards and regulations: EN 61326 (IEC/EN 61000-4-1...6 and 11; EN 55022 Class B); NAMUR NE 21 (IEC/EN 61000-4-1...6, 8 and 11; EN 55022 Class B)			
Ambient conditions	Ambient temperature	- 20 °C ... + 70 °C (watch instructions)		
	Storage temperature	- 40 °C ... + 80 °C		
	Relative humidity (no condensation)	$\leq 95 \%$		
Connection diagram	Hazardous area			
	Safe area			

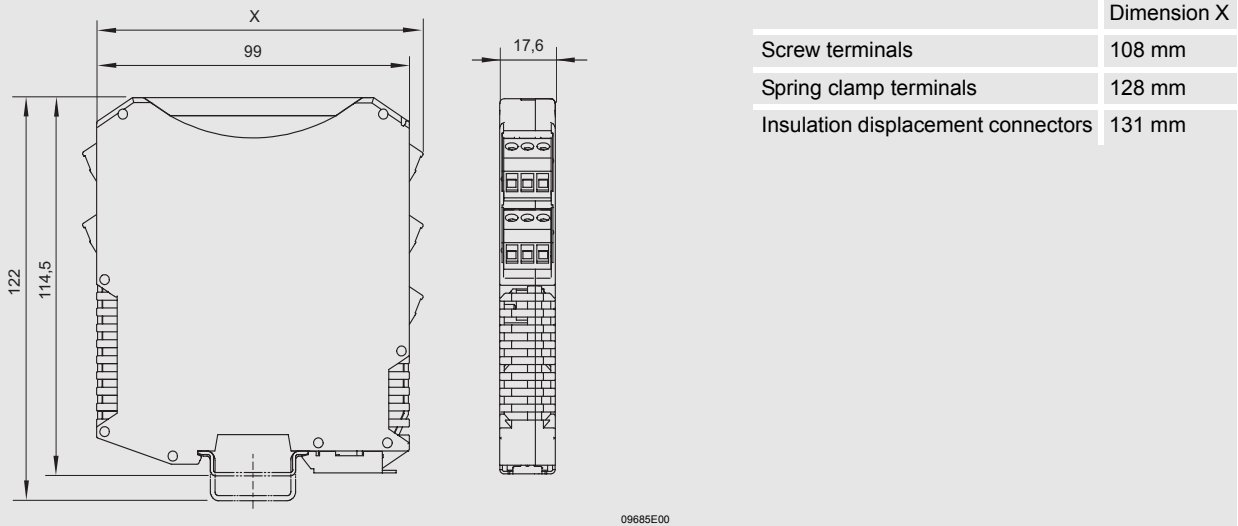
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Technical Data

Mechanical data	Screw terminals	Spring clamp terminals	Insulation displacement connectors
Connection one wire			
- 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	--
Connection two wires			
- 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 horizontal or vertical		
Mounting position	IP 30		
Casing protection class	IP 20		
Terminal protection class	PA 6.6		
Casing material	V0		
Fire protecting class (UL-94)			

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



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