

**Isolating Repeater Loop Powered for Load Resistance max. 800 Ohm**  
**Field Circuit Non-Ex i**  
 Type 9167/3-11-50



www.stahl.de



- > For HART output signals 0/4 ... 20 mA
- > Galvanic isolation between inputs and outputs
- > Without power supply
- > Very low internal resistance
- > HART communication signal transmitting, bidirectionally
- > For use up to SIL 3 (IEC 61508)

**A3**



06294E00

Basic function of the analogue output 0/4 mA ... 20 mA, 1 and 2 channels.

The isolating repeaters without power supply are used for operation of control valves, i/p transformers, analogue and digital indicators, flame and gas detectors etc.

The devices transmit a superimposed HART communication signal bidirectionally.

A separate power supply is not necessary.



Zone	ATEX / GOST					
	0	1	2	20	21	22
Installation in			x <sup>1)</sup>			x <sup>1)</sup>

<sup>1)</sup> Restrictions see table explosion protection

**WebCode 9167B**

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**Selection Table**

Version	Channels	max. load resistance $R_L$	Order number
Isolating repeater loop powered for load resistance max. 800 $\Omega$ (field circuit Non-Ex i) Type 9167/3	1	800 $\Omega$	<b>9167 / 13-11-50s</b>
	2	800 $\Omega$	<b>9167 / 23-11-50s</b>
Note The order numbers listed in the table are for transducers equipped with screw terminals. For transducers equipped with spring clamp terminals, replace the ending "s" for screw terminals with "k" for spring clamp terminals.			

**Explosion Protection**

<b>Global (IECEX)</b>	
Gas	IECEX BVS 11.0089X Ex nA II T4 Gc
<b>Europe (ATEX)</b>	
Gas	BVS 04 ATEX E 082 X Ⓔ II 3 G Ex nA II T4
<b>Russia (Gost-R)</b>	
Gas	2ExnAII T4X
<b>Certificates and approvals</b>	
Certificates	IECEX, ATEX, India (PESO), Kazakhstan (GOST-K), Russia (GOST-R), Serbia (SRPS), Ukraine (GOST-U), Belarus (GOST-B)
Other approvals	ship approval (DNV)
<b>Further parameters</b>	
Installation	in Zone 2 and in the safe area
Further information	see respective certificate and operating instructions
<b>Functional safety (IEC 61508)</b>	
Test report	Exida Stahl 04/04-03-R005
Max. SIL	3
Safe Failure Fraction SFF	97 %
MTBF	1019 years
PFD <sub>AVG</sub> at T <sub>[Proof]</sub>	T <sub>[Proof]</sub> 1 year    5 years    10 years
	PFD <sub>AVG</sub> 1.17 x 10 <sup>-5</sup> 5.87 x 10 <sup>-5</sup> 1.17 x 10 <sup>-4</sup>
Further information	see test report

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**Technical Data**

**Electrical data**

Auxiliary power	
Supply	without
Max. power losses per channel	
20 mA	0.2W
40 mA	0.6W
Galvanic isolation	
Test voltages	
Output to input	1.5 kV AC
Outputs interconnected	350 V AC
Acc. to standard	EN 50178
Inputs to each other	500 V AC
Input from nonhazardous location	
Input signal $I_E$	0/4 ... 20 mA with HART
Input_Function range	0 ... 40 mA
Internal resistance $R_j$	
(at 20 mA)	380 $\Omega$
(at 40 mA)	330 $\Omega$
additional constant voltage drop $\Delta U$	1 V
Own consumption	$\leq 10 \mu\text{A}$
Input voltage $U_E$	$\leq 31.2 \text{ V}$
Max. effective voltage $U_{E \text{ eff}}$	23.6 V
Polarity reversal protection	yes
Output	
Output signal	0/4 ... 20 mA with HART
Function range	0 ... 40 mA
Max. Load resistance $R_L$	800 $\Omega$
(at $I_{\text{out}} = 20 \text{ mA}$ , $U_{E \text{ eff}}$ )	
Residual ripple of current	$\leq 0.5 \%$
No-load voltage	25 V
Short-circuit current	$\leq 60 \text{ mA}$
Response time (10 ... 90 %)	$\leq 1 \text{ ms}$
Fault detection output	
Open-circuit	0 mA
Behaviour of output current at open-circuit	$\leq 1.0 \text{ mA}$
Fault limits	
Linearity fault at $R_L = 0 \Omega$	$\leq 0.25 \%$
Temperature effect	$\leq 0.1 \%$ / 10 K
Influence of load resistance	$\leq 0.1 \%$ / 10 $\Omega$
Cross-talk channel 1 / channel 2	cannot be measured
Electromagnetic compatibility	Tested under the following standards and regulations: EN 61326-1 (Use in industrial environment) NAMUR NE 21

**Ambient conditions**

Ambient temperature	
Single device	-20 ... +70 °C / -4 ... +158 °F
Group assembly	-20 ... +60 °C / -4 ... +140 °F
	The installation conditions affect the ambient temperature.
	Observe operating instructions
Storage temperature	-40 ... +80 °C / -40 ... +176 °F
Relative humidity (no condensation)	$\leq 95 \%$

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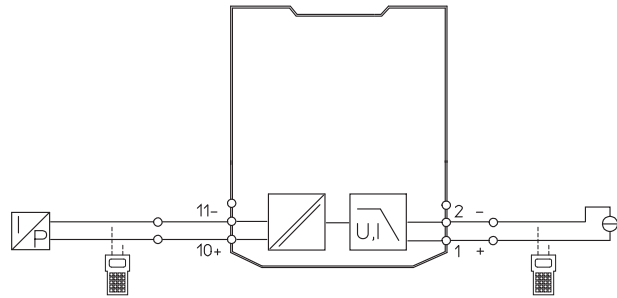
**Technical Data**

**Electrical connection**

Connection diagram

**1 channel**  
**9167/1.-.-.-.-**

Safe area  
 Division 2  
 Zone 2



Field device

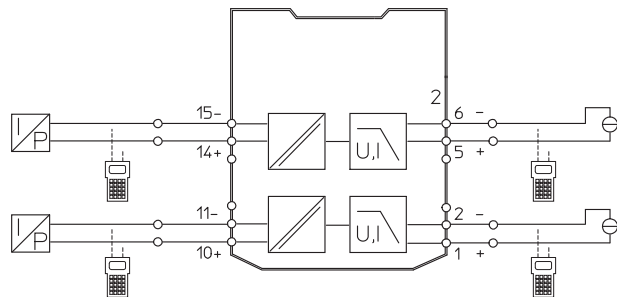
ISpac Isolator

Control system

07033E01

**2 channels**  
**9167/2.-.-.-.-**

Safe area  
 Division 2  
 Zone 2



Field device

ISpac Isolator

Control system

07034E01

**Technical Data**

**Mechanical data**

Connection

Screw terminals

Spring clamp terminals

Connection single-wire

- rigid
- flexible
- flexible, end covering sleeves (without / with plastic sleeving)

0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
 0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
 0.25 ... 2.5 mm<sup>2</sup> / 22 ... 14 AWG

0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
 0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
 0.25 ... 2.5 mm<sup>2</sup> / 22 ... 14 AWG

Connection two wires

- rigid
- flexible
- flexible, end covering sleeves

0.2 ... 1 mm<sup>2</sup> / 24 ... 14 AWG  
 0.2 ... 1.5 mm<sup>2</sup> / 24 ... 16 AWG  
 0.25 ... 1 mm<sup>2</sup> / 22 ... 16 AWG

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 0.5 ... 1 mm<sup>2</sup> / 20 ... 16 AWG

Weight

approx. 160 g

Installation type

on DIN rail (NS35/15, NS35/7.5) or in pac-Carrier

Installation position

vertical or horizontal

Enclosure

IP30

Terminals

IP20

Enclosure material

PA 6.6

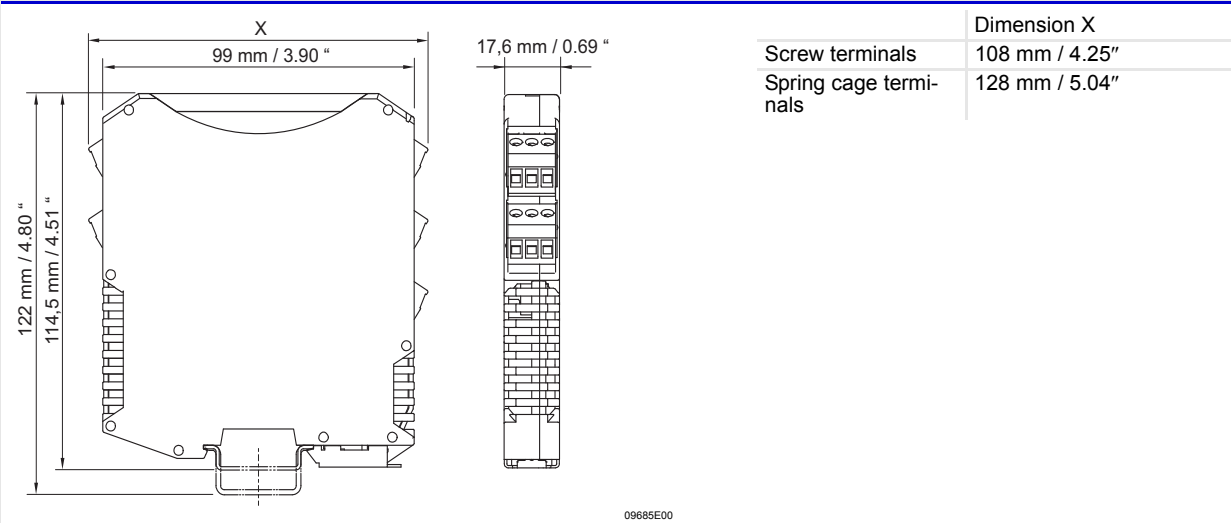
Fire resistance (UL-94)

V0

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**Dimensional Drawings** (All Dimensions in mm / inch) - 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.