

Isolators

Isolating repeater

Ex i field circuit ISpac

9165/16-11-10s Art. No. 207909



- Compact one- and two-channel Ex i output isolating repeater
- Wire-breakage and short-circuit monitoring system, which can be disconnected and features a signalling contact
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode 9165A



9165 series Ex i isolating repeaters can be used for the intrinsically safe operation of control valves, I/P transducers or indicators. They transmit superimposed HART communication signals in both directions. The input, output and auxiliary power are galvanically separated from one another. The two channels in the two-channel variants are galvanically separated from one another.

Technical Data

Explosion Protection

Application range (zones)	2
Ex interface zone	1 2 20 21 22
Installation in Div. NEC 500	(Class I, II, III) 2
Ex interface in Div. NEC 500	(Class I, II, III) 1, 2
Certificate IECEX Gas	IECEX BVS 10.0011 X
Certificate ATEX Gas	DMT 03 ATEX E 012 X
Certificate IECEX Dust	IECEX BVS 10.0011 X
Certificate ATEX Dust	DMT 03 ATEX E 012 X
Gas explosion protection IECEX	Ex nA nC [ia Ga] IIC T4 Gc
Gas explosion protection ATEX	Ex II 3 (1) G Ex nA nC [ia Ga] IIC T4 Gc
Dust explosion protection IECEX	[Ex ia Da] IIIC
Dust explosion protection ATEX	Ex II (1) D [Ex ia Da] IIIC
Certificates	ATEX (BVS), Canada (FM), EAC (STV), IECEX (BVS), India (PESO), Korea (KTL), Russia (Meteorological certificate), SIL (exida), USA (FM)
Ship approval	CCS, DNVGL
EAC certificate	TS RU S-DE.GB04.B.00353

Safety Data

Max. voltage U_o	25.6 V
Max. current I_o	96 mA
Max. power P_o	605 mW
Max. permissible external capacitance C_o for IIC	0.103 μ F
Max. permissible external capacitance C_o for IIB	0.8 μ F

Safety Data

Max. permissible external inductance L_o for IIC	1.9 mH
Max. permissible external inductance L_o for IIB	11 mH
Internal capacitance C_i	Negligible
Internal inductance L_i	Negligible
Safety-related max. voltage	253 V

Functional Safety

SIL	2
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Electrical Data

Number of channels	1
Nominal voltage	24 В пост. тока
Power consumption_W	1,3 W
Max. power dissipation	1.1 W
Load resistance R_L	0 ... 800 Ohm
Open-circuit voltage U_a	0 V
Message of line fault and auxiliary power failure	-
Auxiliary power	24 V DC
Voltage range auxiliary power	18 – 31,2 V
Voltage range residual ripple	$\leq 3,6 V_{SS}$
Nominal current	55 mA
Power consumption	1.3 W
Polarity reversal protection	Yes
Input	4 ... 20 mA with HART
Input signal	4 – 20 mA with HART
Input functional range	4 – 24 mA
Input resistance	400 ohms
Output	4 ... 20 mA with HART
Output signal	4 ... 20 mA with HART
Output functional range	4 – 24 mA
Max. load resistance R_L	800 Ω
Settling time 10-90%	$\leq 100 \mu s$
LFD relay	No

Ambient Conditions

Min. ambient temperature	-20 °C
Min. ambient temp. note	Single device
Max. ambient temperature	+70 °C
Max. ambient temp. note	Single device
Min. ambient temperature 2	-20 °C
Min. ambient temp. note 2	Group assembly
Max. ambient temperature 2	+60 °C
Max. ambient temp. note 2	Group assembly
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)

Ambient Conditions

Min. storage temperature	-40 °C
Max. storage temperature	+80 °C
Storage temperature	-40 °C ... +80 °C
Maximum relative humidity	95%
Use at the height of	2000 m
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 Use in industrial environment

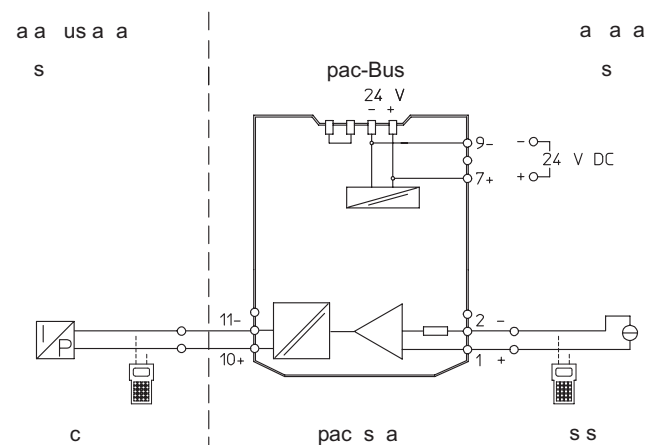
Mechanical Data

Degree of protection (IP)	IP30
Degree of protection (IP) Terminals	IP20
Connection cross-section	0.25-2.5 mm ² flex. c.end sl. 0.2-2.5 mm ² rigid 0.2-2.5 mm ² flexible
Enclosure material	Polyamide
Grid dimension	17.6 mm
Fire resistance (UL 94)	V0
Weight	0.18 kg

Mounting / Installation

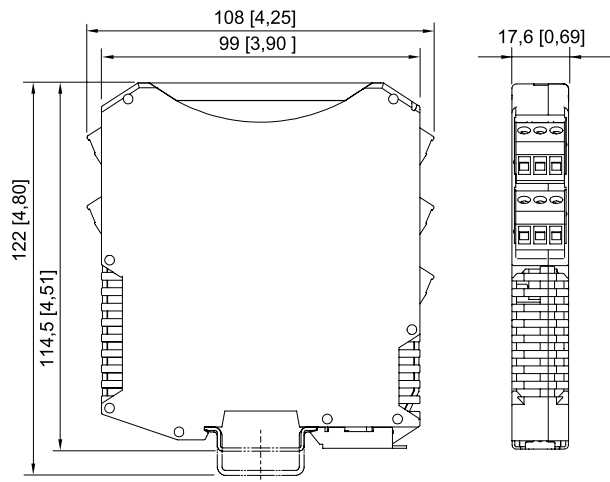
Mounting type	DIN rail (NS35/15,NS35/7.5)
Mounting position	Horizontal Vertical
Connection type	Screw terminal

Technical Drawings



Connection Diagram

Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



ISpac Series 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193 with screw terminal

Accessories and Spare Parts

Screw terminal		Art. No.
	3-pole plug, screw connector Screw thread: M3 Stripping length: 7 mm Colour: Green	112817
	3-pole plug, screw connector Screw thread: M3 Stripping length: 7 mm Colour: black	112816
	3-pole plug, screw connector Screw thread: M3 Stripping length: 7 mm Colour: blue	112818
Screw terminal with test plug socket		Art. No.
	3-pole plug with test tap, screw connector Screw thread: M3 Stripping length: 7 mm Colour: Black	113005
	3-pole plug with test tap, screw connector Screw thread: M3 Stripping length: 7 mm Colour: blue	113004
Spring clamp terminal		Art. No.
	3-pole plug with test tap, spring clamp terminal Stripping length: 10 mm Colour: Green	112825

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Spring clamp terminal

Art. No.



3-pole plug with test tap, spring clamp terminal
Stripping length: 10 mm
Colour: black

112824

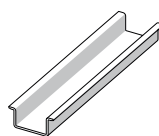


3-pole plug with test tap, spring clamp terminal
Stripping length: 10 mm
Colour: blue

112826

DIN rail

Art. No.

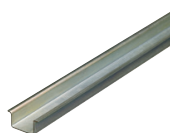


NS35/15 (meter length)

103714

DIN-Rail (EN 50 022)

Art. No.



NS 35 / 7.5 (meter length)

103707

ISpac Dummy-Module

Art. No.



The Dummy module is used for the connection of unused cable.
There is no electrical connection between input and output terminal.

160674

Front cover

Art. No.



yellow, transparent.
Clear marking of the device for SIL applications.
(Packaging unit: 10 pieces)

200914

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.