Isolator Barriers
Switching repeater
Ex i field circuit
9170/21-12-21s Art. No. 203281

- Extensive portfolio – outputs with relays or electronics
- Wire breakage and short-circuit monitoring
- Robust design for challenging environments

MY R. STAHL **9170A**

9170 series Ex i switching repeaters can be used for operating contacts, NAMUR proximity sensors or optocouplers. Models are available with one or two channels. The intrinsically safe digital input is always galvanically separated from the output and auxiliary power. The channels in the two-channel devices are galvanically separated. Certain variants transmit frequencies of up to 10 kHz and the output signal can be inverted.

Technical Data

Explosion Protection	
Ex interface zone	0, 1, 2, 20, 21, 22
IECEx gas certificate	IECEx BVS 09.0041 X
IECEx gas explosion protection	[Ex ia Ga] IIC
IECEx dust certificate	IECEx BVS 09.0041 X
IECEx dust explosion protection	[Ex ia Da] IIIC
IECEX firedamp certificate	IECEx BVS 09.0041X
IECEx firedamp protection	[Ex ia Ma] I
ATEX gas certificate	DMT 02 ATEX E 195 X
ATEX gas explosion protection	Ⓔx II (1) G [Ex ia Ga] IIC
ATEX dust certificate	DMT 02 ATEX E 195 X
ATEX dust explosion protection	Ⓔx II (1) D [Ex ia Da] IIIC
ATEX firedamp certificate	DMT 02 ATEX E 195 X
ATEX firedamp protection	Ⓔx I (M1) [Ex ia Ma] I
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking cFMus	AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, [AEx/Ex ia] IIC T4 at Ta = 70°C See Doc. 91 706 02 31 1
Certificates	ATEX (BVS), Brazil (ULB), Canada (FM), Canada (UL), China (NEPSI), IECEx (BVS), India (PESO), Korea (KGS), SIL (exida), USA (FM), USA (UL)
Ship approval	CCS, EU RO MR (DNV)
Declaration of conformity	ATEX (EUK), China (CCC)
Installation	In safe areas
Further information	see respective certificate and operating instructions

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Safety Data	
Max. voltage U_o/V_{oc}	9.6 V
Max. current I_o/I_{sc}	10 mA
Max. power P_o	24 mW
Max. permissible external capacitance C_o/C_a for IIC	3.6 µF
Max. permissible external inductance L_o/La for IIC	350 mH
Max. permissible external capacitance C_o/C_a for IIB	26 µF
Max. permissible external inductance L_o/La for IIB	1000 mH
Max. perm. ext. capacit. IIIC	26 µF
Max. permis. ext. induct. IIIC	1000 mH
Max. permissible ext. capac. I	99 µF
Max. permissible external inductance L_o for I	1000 mH
Max. voltage Uo parallel	9.6 V
Max. current Io parallel	20 mA
Max. power Po parallel	48 mW
Safety-related max. voltage	253 V
Functional Safety	
Further information	See safety manual and test report
Electrical Data	
Number of channels	2
LFD relay	No
Max. short-circuit current	8.2 mA
Auxiliary Power	
Auxiliary power	120/230 V AC
Auxiliary power voltage range	96 ... 253 V
Nominal current	18 mA
Power consumption	2.8 W
Max. power dissipation	2 W
Undervoltage monitoring	Yes
Operation indication	Green "PWR" LED
HE frequency range	48 ... 62 Hz
Galvanic Isolation	
Test voltage as per standard	EN IEC 60079-11
Ex i input to output	1.5 kV AC
Ex i input to auxiliary power	1.5 kV AC
Ex i input to fault message contact	1.5 kV AC
Ex i input to Ex i input	500 V AC
Test voltage as per standard	EN 50178
Output to auxiliary power	1,1 kV AC
Output to output	1,1 kV AC
Input	
Input signal	As per EN 60947-5-6 (NAMUR)

Input	
Input current for ON	≥ 2.1 mA
Input current for OFF	≤ 1.2 mA
Hysteresis	Approx. 0.2 mA
Input internal resistance R_i	1000 Ω
Input for open-circuit voltage U_a	8,2 V
Short-circuit current	≤ 8.2 mA
Output	
Output per channel	1 change-over contact – power relay
Output	Change-over contact – power relay
Min. output load condition	12 V / 0.1 mA
Max. output DC load condition	250 V / 2 A
Max. output AC load condition	250 V / 4 A
Output switching capacity	50 W / 1000 VA
Output switching frequency	6 Hz
Switching delay ON/OFF	10 ms
Switching delay OFF/ON	10 ms
INV switch user adjustment	Activated/deactivated
Output electrical service life	1 x 10^5 operating cycles at 250 V/4 A
Electrical service life note	Resistive load
Output mechanical service life	15 x 10^6 operating cycles
Recommended back-up fuse	≤ F 4 A AC/2 A DC
Switching state indication	Yellow "OUT" LED; per channel
LF switch user adjustment	Activated/deactivated
Wire breakage error detection input	I_E < 0.05 to 0.35 mA
Short circuit error detection input	R_E < 100 to 360 ohm
Behaviour of output during LF	OFF
Line fault indication	Red "LF" LED; per channel
Line fault and loss of power signalization	-
Ambient Conditions	
Ambient temperature °C	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Ambient temperature °F	-4 °F ... +158 °F (Single device) -4 °F ... +140 °F (Group assembly)
Note	Installation conditions influence the ambient temperature. Please observe the "Cabinet installation guide".
Storage temperature °C	-40 °C ... +80 °C
Storage temperature °F	-40 °F ... +176 °F
Max. relative humidity	95%
Use at the height of	< 2000 m
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 For use in industrial areas; NAMUR NE 21
Mechanical Data	
Degree of protection (IP)	IP30
Degree of protection (IP) terminals	IP20
Fire resistance (UL 94)	V0

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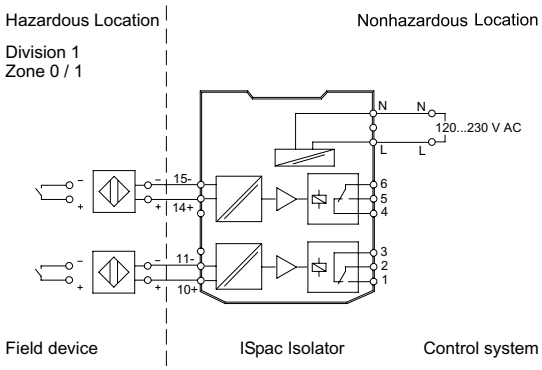
Mechanical Data

Enclosure material	Polyamide
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Height in inches	4.51 in
Length	108 mm
Length in inches	4.25 in
Weight	225 g
Weight	0.5 lb

Mounting / Installation

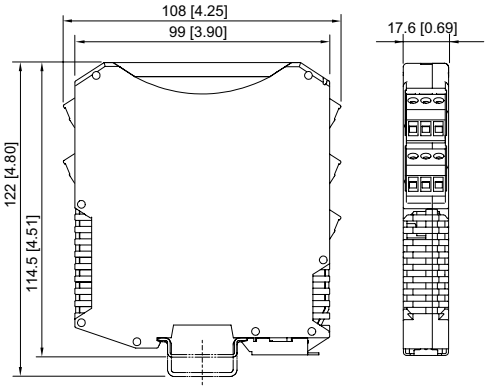
Mounting type	DIN rail NS35/15, NS35/7.5
Mounting orientation	Vertical Horizontal
Connection type	Screw terminal
Min. rigid conductor cross section	0.2 mm²
Max. rigid conductor cross section	2.5 mm²
Min. flex conductor cross section	0.2 mm²
Max. flex conductor cross section	2.5 mm²
Connection cross-section AWG	24 ... 14

Technical Drawings – Subject to Alterations



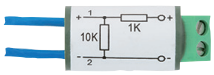
Connection diagram 9170/21-11-21

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



ISpac Series 9143, 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, ISbus Series 9412 with screw terminal

Accessories

Resistive coupling element		Art. No.
	Additional connection of contacts also in hazardous areas to enable short-circuit and wire breakage detection. Mounting on DIN rail.	247644
	Additional connection of contacts also in hazardous areas to enable short-circuit and wire breakage detection	105944

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.