



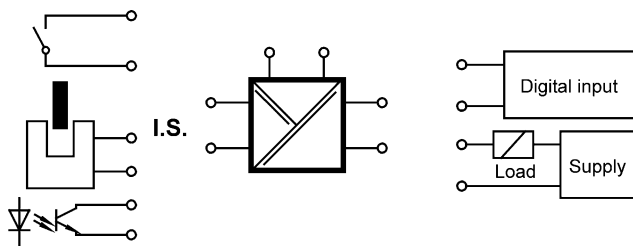
10543E00

Switching Repeater Type 9170

- Intrinsically safe input [EEx ia] IIC
- 1 and 2 channels
- Galvanic isolation between input, output and power supply
- Open-circuit / short-circuit monitoring and messaging (can be switched off)
- Inversion of output signal can be set
- Transmission frequency up to 10 kHz
- Installation possible in Zone 2 and Div. 2
- Can be used up to SIL 2 (relay - output) or SIL 3 (electronic - output) (IEC 61508)

STAHL

Basic function: binary / digital input, 1 and 2 channels.
The switching repeaters are suitable typically for intrinsically safe operation of contacts, proximity switches to EN 60947-5-6 (NAMUR), optocoupler outputs etc.



09362E02

Selection table				
Version	Channels	Power supply	Output / channel	Ordering code
Switching Repeater Type 9170	1	24 V DC	2 changeover (125 V / 1 A)	9170/10-11-11.
			1 changeover (250 V / 4 A)	9170/10-12-11.
			1 electronic output (35 V / 50 mA)	9170/10-14-11.
	2	24 V DC	1 changeover (125 V / 1 A)	9170/20-10-11.
			2 normally open (125 V / 1 A)	9170/20-11-11.
			1 changeover (250 V / 4 A)	9170/20-12-11.
			1 electronic output (35 V / 50 mA)	9170/20-14-11.
	1	120 V ... 230 V AC	2 changeover (125 V / 1 A)	9170/10-11-21.
			1 changeover (250 V / 4 A)	9170/10-12-21.
			2 changeover (250 V / 4 A)	9170/10-13-21.
	2	120 V ... 230 V AC	1 changeover (125 V / 1 A)	9170/20-10-21.
			2 normally open (125 V / 1 A)	9170/20-11-21.
		1 changeover (250 V / 4 A)	9170/20-12-21.	
Add. to ordering code				
	Screw terminal			9170/.....s
	Spring clamp terminal			9170/.....k
	Insulation displacement connectors			9170/.....q

Technical Data			
Certificates	DMT 02 ATEX E 195 X		
Other certificates	USA (FM, UL), Canada (CSA), Russia (VNIIEF), Belarus (Promatomnadzor), Shipping (DNV), Brazil (UL do Brasil)		
Explosion protection	⊕ II (1) GD [EEx ia] IIC/IIB and ⊕ II 3 G EEx nAC II T4 ¹⁾		
Installation	in Zone 2, Div 2 ¹⁾ and in safe area		
	¹⁾ Zone 2 and Div. 2 only for types 9170/0-10-11., 9170/0-11-11. and 9170/0-14-11.		
Safe maximum values (CENELEC)	Inputs	channels single	2 channels parallel
	Max. voltage U _o	10.6 V	10.6 V
	Max. current I _o	24 mA	48 mA
	Max. power P _o	64 mW	128 mW
	Max. connectable capacitance IIC/IIB	2.32 µF / 16.2 µF	2.32 µF / 16.2 µF
	Max. connectable inductance IIC/IIB	63 mH / 230 mH	16 mH / 61 mH
	Intern. capacitance C _i and inductance L _i	2.42 nF / negligible	4.84 nF / negligible
	Insulation voltage U _m	250 V	250 V
	Further information and combinations of values, see certification.		
Power supply		9170/0-1.-11.	9170/0-14-11.
	Nominal voltage U _N	24 V DC	24 V DC
	Voltage range	18 V ... 31.2 V	18 V ... 31.2 V
	Residual ripple	< 3.26 V _{SS}	< 3.26 V _{SS}
	Nominal current at U _N 1 / 2 channels	33 mA / 55 mA	26 mA / 36 mA
	Power consumption at U _N 1 / 2 channels	0.8 W / 1.3 W	0.6 W / 1.9 W
	Max. power losses 1 / 2 channels	0.8 W / 1.3 W	0.6 W / 1.9 W
	Polarity reversal protection	yes	yes
		9170/0-1.-21. (120 V AC)	9170/0-1.-21. (230 V AC)
	Nominal voltage U _N	120 V ... 230 V AC	120 V ... 230 V AC
	Voltage range	96 V ... 253 V	96 V ... 253 V
	Frequency range	48 Hz ... 62 Hz	48 Hz ... 62 Hz
	Nominal current at U _N 1 / 2 channels	12 mA / 18 mA	12 mA / 18 mA
	Power consumption at U _N 1 / 2 channels	1.4 VA / 2.2 VA	1.8 VA / 2.8 VA
	Max. power losses 1 / 2 channels	1.0 W / 1.6 W	1.3 W / 2.0 W
	Indication	LED green „PWR“	
	Undervoltage monitoring	yes (no faulty module / output states)	



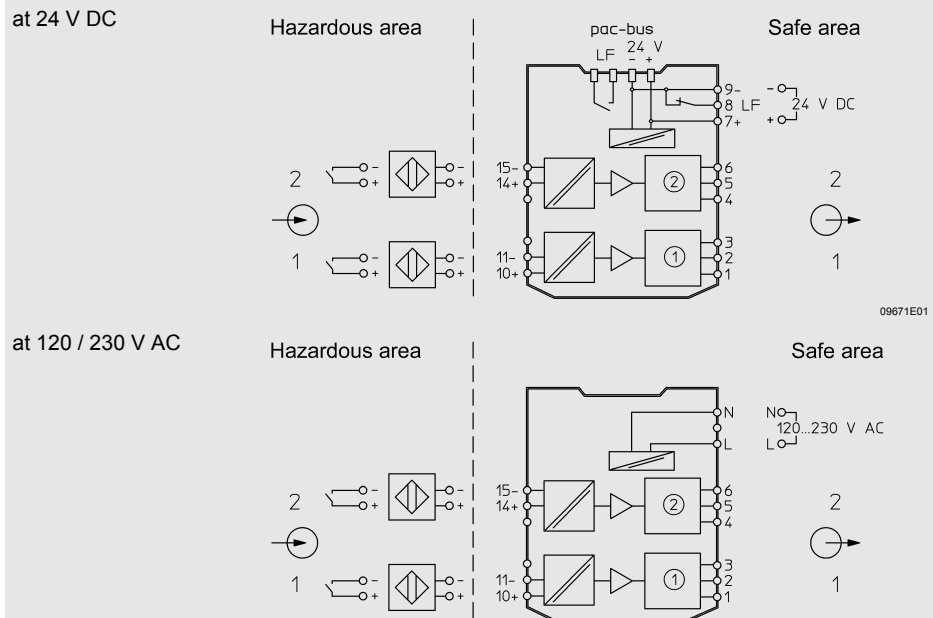
Technical Data				
I.S. input	Input signal current for ON / OFF Hysteresis No-load voltage Short-circuit current Input resistance R _i	on regulations EN 60947-5-6 (NAMUR) ≥ 2.1 mA / ≤ 1.2 mA approx. 0.2 mA 8.2 V 8.2 mA 1000 Ω		
Output		9170/0-10-.1. 9170/0-11-.1.	9170/0-12-.1. 9170/10-13-21.	9170/0-14-11.
	Versions	Signal relay	Power relay	Electronic
	minimum load	1 V / 100 μA	12 V / 100 μA	
	maximum load DC	125 V / 1 A	250 V / 2 A	35 V / 50 mA ADC
	maximum load AC	125 V / 1 A	250 V / 4 A	--
	maximum switching power	25 W / 50 VA	50 W / 1000 VA	1.75 W
	Overload protected	--	--	yes
	Voltage drop	--	--	< 2
	electrical life time	at 24 V / 1 A	at 250 V / 4 A	at 35 V / 50 mA
	resistive load	5 x 10 ⁵ cycles	1 x 10 ⁵ cycles	> 10 ⁹ cycles
	Mechanical life time	1 x 10 ⁸ cycles	15 x 10 ⁶ cycles	--
	recommended back-up fuse	≤ F 1 A AC / DC	≤ F 4 A AC / 2 A DC	--
	maximum switching frequency	15 Hz	6 Hz	10 kHz
	Switching delay ON / OFF	5 ms	10 ms	15 μs
	Switching delay OFF / ON	5 ms	10 ms	30 μs
	Settings (switch INV)	Inversion of operating mode		
	Indication	LED yellow „OUT“ perchannel		
Error detection I.S. input	Open-circuit (EN 60947-5-6) Short-circuit (EN 60947-5-6) Behaviour of output Settings (Switch LF) Error detection Error messaging and power supply failure	I _E < R _E <	0.05 mA ... 0.35 mA 100 Ω ... 360 Ω OFF activated / deactivated LED red „LF“ each channel - Contact (30 V / 100 mA) *) close to ground in case of error - pac-Bus, floating contact (30 V / 100 mA) *)	
	*) not at 9170/0-1.-21			
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	
	I.S. Inputs to each other		500 V AC	
	I.S. input to error-contact		1.5 kV AC	
	Test voltage under regulations EN 50178			
	Output to power supply		1.1 kV AC	
	Outputs to each other		1.1 kV AC	
	Error-contact to power supply		350 V AC	
	Error-contact to outputs		1.1 kV AC	
Electromagnetic compatibility	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 ... + 60 °C / + 70 °C (watch instructions)	
	Storage temperature		- 40 °C ... + 80 °C	
	Relative humidity (no condensation)	≤	95 %	

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)			

Connection diagram



Configuration output

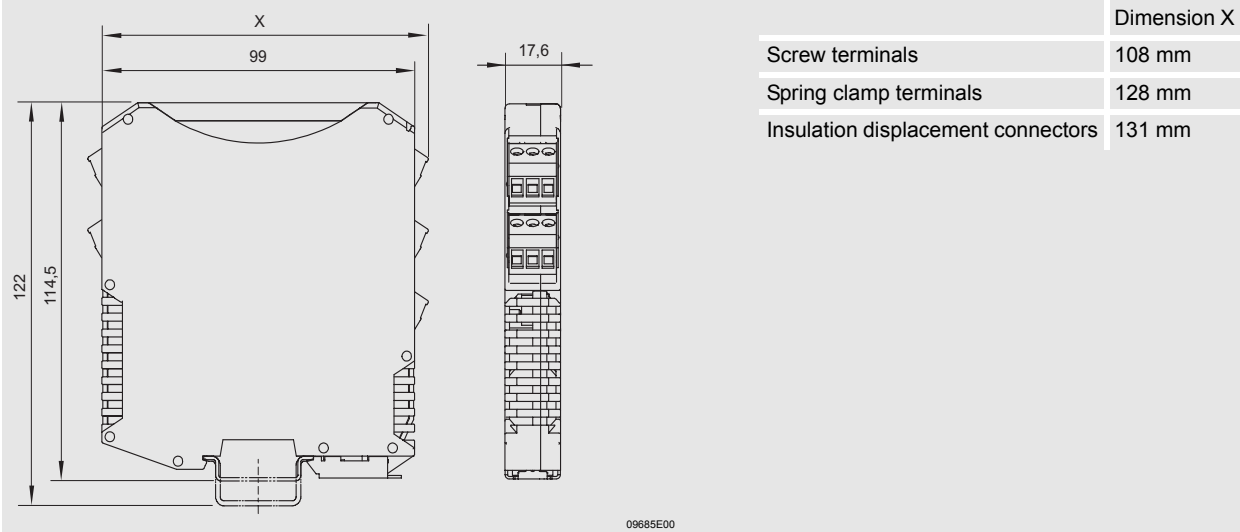
9170/...	/20-11-.1.	/10-11-.1. /10-13-21.	/20-10-.1. /20-12-.1.	/10-12-.1.	/20-14-.1.	/10-14-.1.
Channel 2 ②						
Channel 1 ①						

Accessories and spare parts

Designation	Description	Ordering code
Resistance coupling element	Allows to detect short circuit or open circuit if simple contact is applied.	3296050



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



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.