



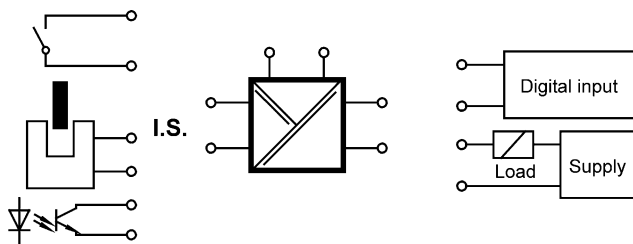
10543E00

### 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

# Zone 2

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.	
<b>Add. to ordering code</b>				
	Screw terminal			9170/.....s
	Spring clamp terminal			9170/.....k
	Insulation displacement connectors			9170/.....q

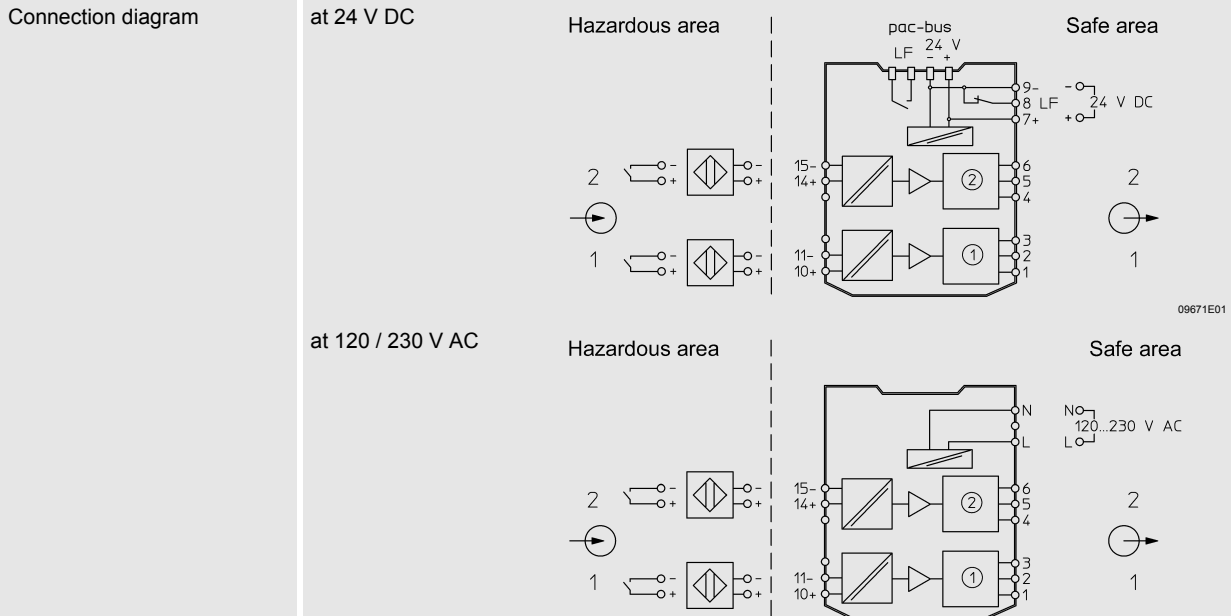
Technical Data			
Certificates	DMT 02 ATEX E 195 X		
Other certificates	USA (FM, UL), Canada (CSA), Russia (VNIIEF), Belarus (Promatomnadzor), Shipping (DNV), Brazil (UL do Brasil)		
Explosion protection	⊕ II (1) GD [EEx ia] IIC/IIB and ⊕ II 3 G EEx nAC II T4 <sup>1)</sup>		
Installation	in Zone 2, Div 2 <sup>1)</sup> and in safe area		
	<sup>1)</sup> 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 $\mu$ F / 16.2 $\mu$ F	2.32 $\mu$ F / 16.2 $\mu$ F
	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) $\geq 2.1 \text{ mA} / \leq 1.2 \text{ mA}$ approx. 0.2 mA 8.2 V 8.2 mA 1000 $\Omega$		
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 $\mu\text{A}$	12 V / 100 $\mu\text{A}$	
	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	$5 \times 10^5$ cycles	$1 \times 10^5$ cycles	> $10^9$ cycles
	Mechanical life time	$1 \times 10^8$ cycles	$15 \times 10^6$ cycles	--
	recommended back-up fuse	$\leq F 1 \text{ A AC / DC}$	$\leq F 4 \text{ A AC / 2 A DC}$	--
	maximum switching frequency	15 Hz	6 Hz	10 kHz
	Switching delay ON / OFF	5 ms	10 ms	15 $\mu\text{s}$
	Switching delay OFF / ON	5 ms	10 ms	30 $\mu\text{s}$
	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 $\Omega$ ... 360 $\Omega$ 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)	$\leq$	95 %	

### Technical Data

Mechanical data	Screw terminals	Spring clamp terminals	Insulation displacement connectors
Connection one wire			
- rigid	0.2 ... 2.5 mm <sup>2</sup>	0.2 ... 2.5 mm <sup>2</sup>	--
- flexible	0.2 ... 2.5 mm <sup>2</sup>	0.2 ... 2.5 mm <sup>2</sup>	0.5 ... 1 mm <sup>2</sup>
- flexible, end covering sleeves (without / with plastic sleeving)	0.25 ... 2.5 mm <sup>2</sup>	0.25 ... 2.5 mm <sup>2</sup>	--
Connection two wires			
- rigid	0.2 ... 1 mm <sup>2</sup>	--	--
- flexible	0.2 ... 1.5 mm <sup>2</sup>	--	--
- flexible, end covering sleeves	0.25 ... 1 mm <sup>2</sup>	0.5 ... 1 mm <sup>2</sup>	--
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)	V0		



Configuration output

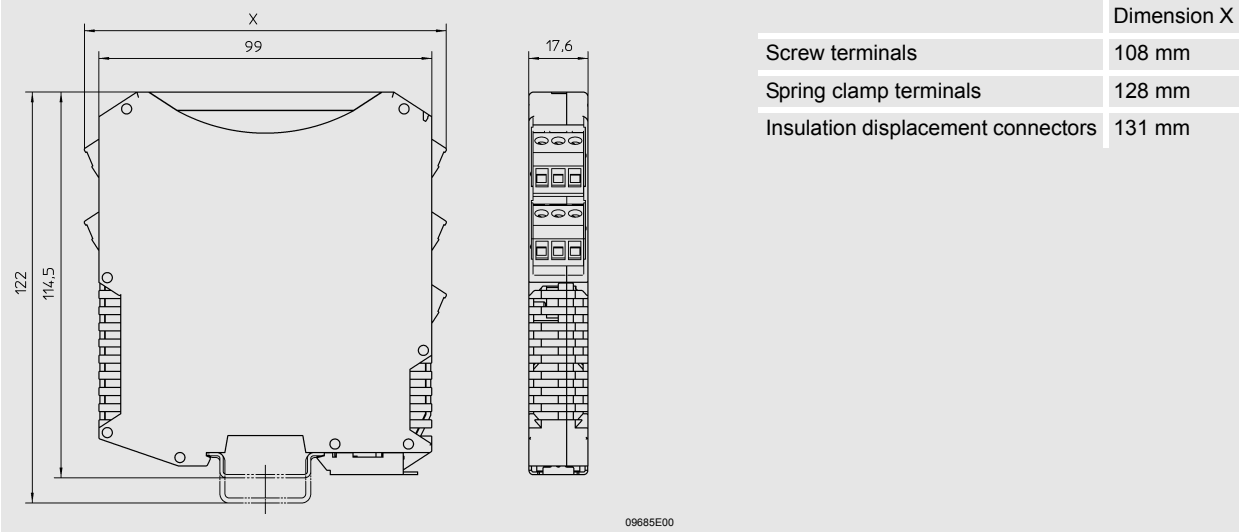
9170/...	/20-11-.1.	/10-11-.1. /10-13-21.	/20-10-.1. /20-12-.1.	/10-12-.1.	/20-14-.1.	/10-14-.1.
Channel 2 ②						
Channel 1 ①						

### Accessories and spare parts

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



**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.

