

Switch Amplifier

EG4-R

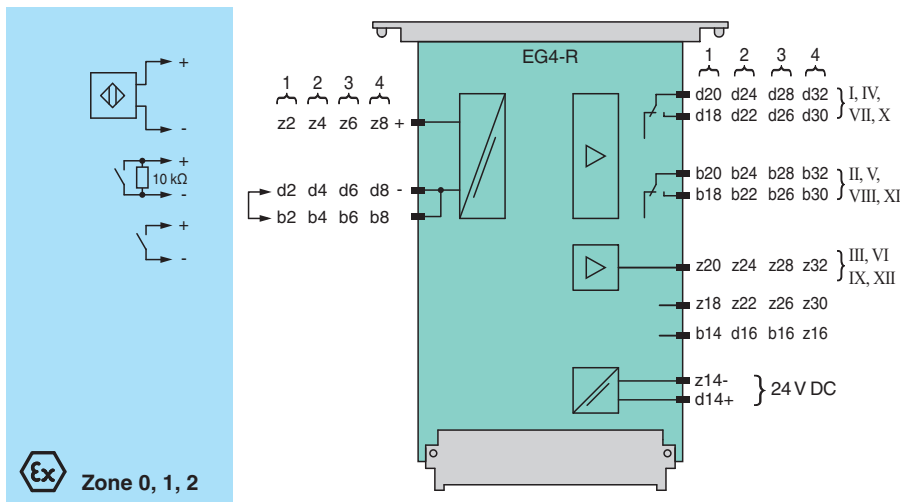
- 4-channel isolated barrier
- 24 V DC supply
- Dry contact or NAMUR inputs
- Relay output and active transistor output
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC 61508



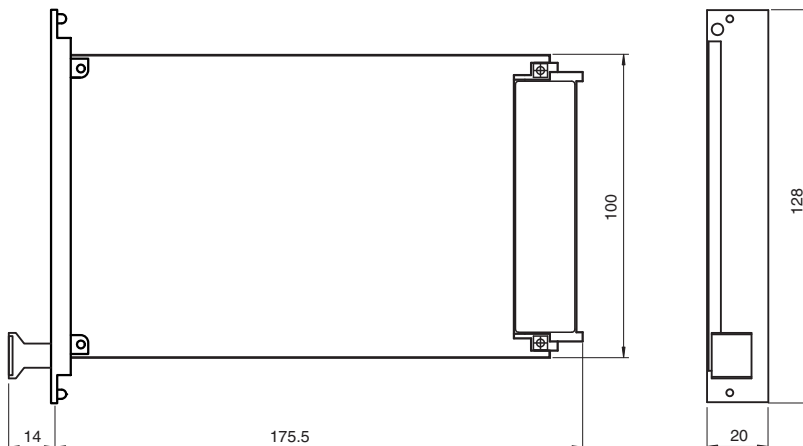
Function

This isolated barrier is used for intrinsic safety applications. The device transfers digital signals (NAMUR sensors or dry contacts) from a hazardous area to a safe area. Each proximity sensor or switch controls a relay output for the safe area load. The mode of operation and the line fault detection can be determined for each individual channel. This allows a desired mix of sensors and mechanical contacts with or without LB/SC. A fault is signaled by LEDs acc. to NAMUR NE44.

Connection



Dimensions



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

General specifications		
Signal type	Digital Input	
Supply		
Connection	d14+, z14-	
Rated voltage	U_r	20.4 ... 27.6 V DC
Ripple	≤ 10 %	
Rated current	I_r	approx. 130 mA
Input		
Input (intrinsically safe)		
Number of channels	4	
Connection	channel 1: d2-, z2+ channel 2: d4-, z4+ channel 3: d6-, z6+ channel 4: d8-, z8+	
Rated values	acc. to EN 60947-5-6 (NAMUR)	
Open circuit voltage/short-circuit current	approx. 8 V DC / approx. 8 mA	
Switching point/switching hysteresis	1.2 ... 2.1 mA / approx. 0.2 mA	
Line fault detection	breakage $I \leq 0.1$ mA	
Pulse/Pause ratio	≥ 0.5 ms / ≥ 0.5 ms	
Input (non-intrinsically safe)	mode of operation reversible	
Connection	channel 1: z18 channel 2: z22 channel 3: z 26 channel 4: z30	
Input current	1 mA	
Signal level	1-signal: 15 ... 30 V DC 0-signal: 0 ... 5 V DC or open input	
Input delay	5 ... 20 ms (typical 10 ms)	
Output		
Connection	channel 1: output I: d20, d18, output II: b20, b18, output III: z20 channel 2: output IV: d24, d22, output V: b24, b22, output VI: z24 channel 3: output VII: d28, d26, output VIII: b28, b26, output IX: z28 channel 4: output X: d32, d30, output XI: b32, b30, output XII: z32	
Switching current	output III, VI, IX, XII : 10 mA , short-circuit protected	
Output	output III, VI, IX, XII : electronic output, active	
Signal level	output III, VI, IX, XII : 1-signal: (L+) -5 V/0.9 V 0-signal: blocked output (off-state current ≤ 10 μA)	
Contact loading	in conjunction with SIL2 applications output I, II, IV, V, VII, VIII, X, XI: 50 V AC/1 A/cos φ = 1/0.5 A/cos φ = 0.3; 40 V DC/1 A/50 W resistive load	
Energized/De-energized delay	output I, II, IV, V, VII, VIII, X, XI: < 12 ms / < 10 ms	
Mechanical life	output I, II, IV, V, VII, VIII, X, XI: 2 x 10 ⁵ switching cycles	
Transfer characteristics		
Switching frequency	output I, II, IV, V, VII, VIII, X, XI: ≤ 25 Hz output III, VI, IX, XII 1 kHz ≤ max. 1 kHz	
Galvanic isolation		
Output/power supply	reinforced insulation acc. to EN 50178, rated insulation voltage 50 V _{eff}	
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC	The device has been used for the same applications for several years. It therefore features an appropriate electromagnetic field immunity. The device must not be used in new plants.	
Conformity		
Insulation coordination	EN 50178	
Degree of protection	IEC 60529	
Ambient conditions		
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)	
Mechanical specifications		

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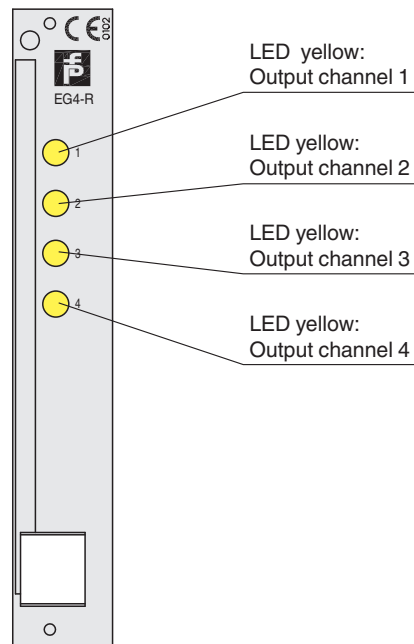
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Technical Data

Degree of protection	IP20	
Connection	48-pin plug connector acc. to DIN 41612 , series 2 , type F , z, b and d provided	
Mass	approx. 300 g	
Dimensions	20 x 128 x 193 mm (0.8 x 5 x 7.5 inch)	
Construction type	Eurocard 100 x 160 mm (3.9 x 6.3 inch) acc. to DIN 41494, front panel 4TE	
Mounting	in 19" rack	
Coding	a3/c7	
Data for application in connection with hazardous areas		
EC-Type Examination Certificate	PTB 00 ATEX 2210 , for additional certificates see www.pepperl-fuchs.com	
Group, category, type of protection	Ⓔ II (1)GD [EEx ia] IIC	
Input	EEx ia IIC	
Voltage	U _o	12.7 V
Current	I _o	20 mA
Power	P _o	62 mW (linear characteristic)
Output		
Contact loading	output I, II, IV, V, VII, VIII, X, XI: 50 V AC/2 A/cos φ = 1/1 A/cos φ = 0.3; 40 V DC/2 A/100 W resistive load	
Galvanic isolation		
Input/Output	safe galvanic isolation acc. to EN 50020, voltage peak value 375 V	
Input/power supply	safe galvanic isolation acc. to EN 50020, voltage peak value 375 V	
Directive conformity		
Directive 94/9/EC	EN 50014:1997, EN 50020:1994	
General information		
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .	

Assembly

Front view



Configuration

Line fault detection

Line fault detection can be disabled by bridging. Connections see technical data and connection diagram. If necessary, the unit can also be supplied with a factory installed plug-in jumper for the line fault detection setting.

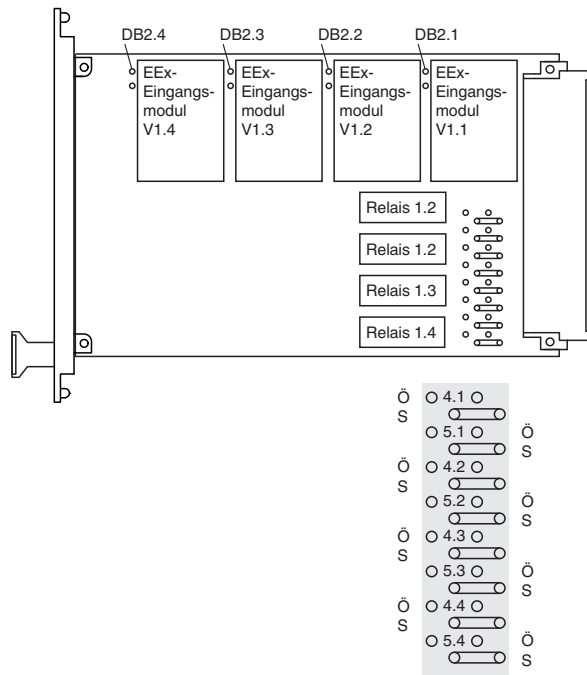
Mode of operation

1-Signal: no reversal of operating mode from input to output

0-Signal: reversal of operating mode from input to output

Connections see technical data and connection diagram. If necessary, the operating mode can also be selected by a factory installed plug-in jumper on the card.

Configuration



Programming facilities on the card

Jumpers:

plug-in design optional

2.1 (open)	Lead breakage monitoring channel 1: active
2.2 (open)	Lead breakage monitoring channel 2: active
2.3 (open)	Lead breakage monitoring channel 3: active
2.4 (open)	Lead breakage monitoring channel 4: active

Plug-in jumpers:

4.1 ... 4.4, 5.1 ... 5.4	programming the relay outputs as A-contacts (normally closed) or B-contacts (normally open) channels 1, 2, 3, 4
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Factory settings:

- Jumpers 1.1 ... 3.1 open
- Plug-in jumpers of the relay outputs as A-contacts (normally closed)

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