Features

- 1-channel isolated barrier
- 115/230 V AC supply
- Input for dry contacts or SN/S1N sensors
- Relay contact output
- Error message output
- For usage in accordance with ISO 13849-1
- Line fault detection (LFD)
- Up to SIL3 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications. It transfers digital signals (SN/S1N proximity sensors and approved mechanical contacts) from a hazardous area to a safe area. It has additional protective circuitry to maintain a reliable safety function.

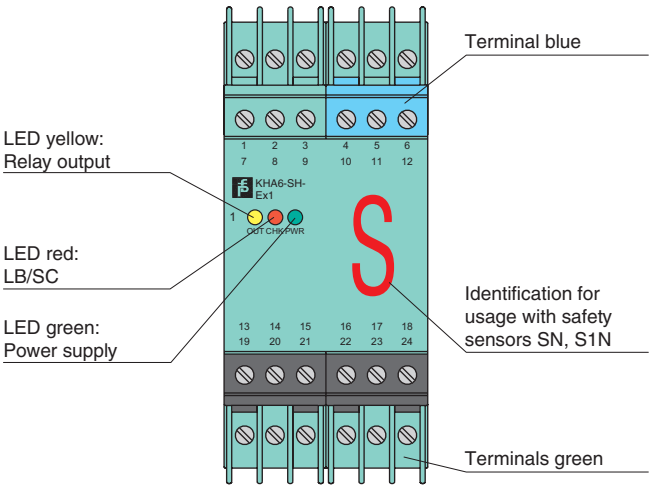
The proximity sensor or switch controls 1 safety output with 3 form A normally open relay contacts (one is in series to the 2 output relay contacts for the safety function), 1 standard output with 1 form A normally open relay contact, and 1 error message output with a passive transistor. Lead breakage (LB) and short circuit (SC) conditions are continuously monitored.

During an error condition, fault output energizes and outputs I and II de-energize.

For safety applications, terminals 13 and 14 (output I) must be used.

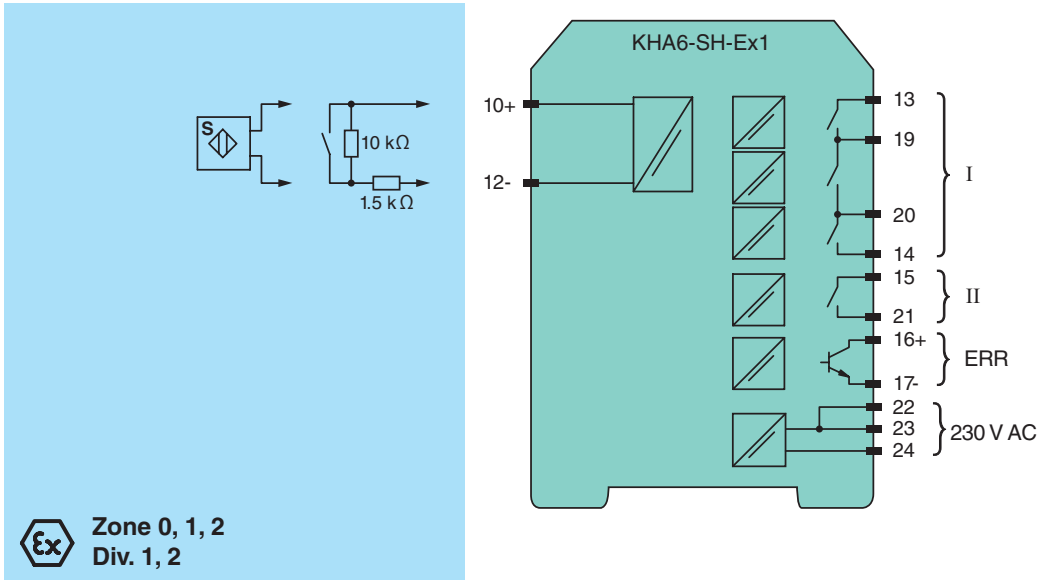
Assembly

Front view



SIL3

Connection



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General specifications	
Signal type	Digital Input
Supply	
Connection	terminals 22, 23, 24
Rated voltage	85 ... 253 V AC , 45 ... 65 Hz
Rated current	30 mA ± 5 mA
Power loss	2.2 W
Power consumption	≤ 2.3 W
Input	
Connection	terminals 10+, 12-
Open circuit voltage/short-circuit current	approx. 8.4 V DC / approx. 11.7 mA
Lead resistance	≤ 50 Ω, in hazardous area cable capacitances and inductivities are to be taken into account
Switching point	
Relay de-energized	I < 2.1 mA and I > 5.9 mA
Relay energized	2.8 mA < I < 5.3 mA
Response delay	≤ 1 ms
Output	
Connection	output I: terminals 13, 14 ; output II: terminals 15, 21 ; output III: terminals 16+, 17-
Output I	signal , safety oriented ; relay
Output I, II	
Contact loading	253 V AC/1 A/cos ϕ ≥ 0.7; 24 V DC/1 A resistive load
Mechanical life	50 x 10^6 switching cycles
Output II	signal , not safety oriented ; relay
Output III	fault signal , not safety oriented ; electronic output, passive
Rated voltage	10 ... 30 V DC
Signal level	1-signal: (L+) -2.5 V (7 mA, short-circuit proof) / 0-signal: blocked output (Leakage current ≤ 10 mA)
Transfer characteristics	
Switching frequency	5 Hz
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Low voltage	
Directive 2006/95/EC	EN 50178:1997
Conformity	
Electromagnetic compatibility	EN 50081-2, EN 50082-2, NE 21
Protection degree	IEC 60529
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 280 g
Dimensions	40 x 93 x 115 mm (1.6 x 3.7 x 4.5 in) , housing type E
Data for application in connection with Ex-areas	
EC-Type Examination Certificate	PTB 00 ATEX 2043 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	⟨Ex⟩ II (1)GD [EEx ia] IIC [circuit(s) in zone 0/1/2]
Input	EEx ia IIC
Voltage U_o	9.56 V
Current I_o	16.8 mA
Power P_o	41 mW (linear characteristic)
Supply	
Maximum safe voltage U_m	253 V AC/DC (Attention! The rated voltage can be lower.)
Type of protection [EEx ia]	
Output	
Contact loading	253 V AC/1 A/cos ϕ ≥ 0.7; 24 V DC/1 A resistive load
Maximum safe voltage U_m	output I/output II: 253 V AC/DC (Attention! U_m is no rated voltage.)
Electrical 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, EN 50020
General information	

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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.

Function

Unlike an SN/S1N series NAMUR proximity sensor, a mechanical contact, requires a 10 kΩ resistor to be placed across the contact in addition to a 1.5 kΩ resistor in series.

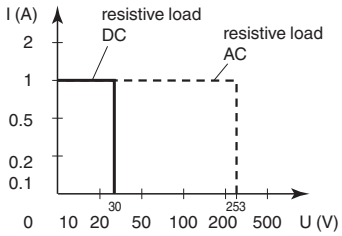
The input (terminals 10, 12) may generally be operated only with **potentially free** (passive) switches.

Single channel safe operations **must** occur via terminals 13 and 14. The center tap of the contacts (terminals 19, 20) can **also** be used if an safe operation is to occur a redundant branch.

If the device is used for safety operations the information in the test documents should be observed. The output III error message delivers a "1"-signal when the control circuit experiences lead breakage (LB) or a short circuit (LK).

The device (housing type E) has integrated terminals.

Maximal switching power of the output



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