



#### Basic features

Additional features	Function monitoring
Approval/Conformity	CE UKCA WEEE
Base type deviation	Diagnostic function, Lg
Basic standard	IEC 60947-5-2

#### Display/Operation

Function indicator	no
Power indicator	no

#### Electrical connection

Connection	M12x1-Male, 4-pin, A-coded
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

#### Electrical data

Load capacitance max. at Ue	0.15 $\mu$ F
Min. operating current I <sub>m</sub>	1 mA
No-load current I <sub>o</sub> max., damped	25 mA
No-load current I <sub>o</sub> max., undamped	25 mA
Operating voltage U <sub>b</sub>	20...30 VDC
Output resistance R <sub>a</sub>	Open collector
Rated insulation voltage U <sub>i</sub>	75 V DC
Rated operating current I <sub>e</sub>	130 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Rated short circuit current	100 A
Ready delay t <sub>v</sub> max.	50 ms
Residual current I <sub>r</sub> max.	80 $\mu$ A
Ripple max. (% of U <sub>e</sub> )	15 %
Switching frequency	300 Hz
Utilization category	DC-12
Voltage drop static max.	2.5 V

#### Environmental conditions

Ambient temperature	-25...70 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 g <sub>n</sub> , 11 ms
EN 60068-2-6, Vibration	55 Hz, amplitude 1 mm, 3x30 min
IP rating	IP67

#### Functional safety

MTTF (40 °C)	990 a
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#### Interface

Switching output	PNP normally open (NO)
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#### Material

Housing material	Brass, nickel-plated
Material sensing surface	PA 12

#### Mechanical data

Dimension	Ø 12 x 91.5 mm
Installation	non-flush
Mounting length	60.00 mm
Size	M12x1
Tightening torque	10 Nm

#### Range/Distance

Assured operating distance Sa	2.9 mm
Hysteresis H max. (% of Sr)	15.0 %
Rated operating distance Sn	3.7 mm
Real switching distance sr	3.7 mm
Repeat accuracy max. (% of Sr)	5.0 %
Temperature drift max. (% of Sr)	10 %
Tolerance Sr	-10 %/+20 %

#### Remarks

Max. cable length: 50 m.  
Test pulses  $\leq$  0.5 ms typ. 160 Hz are superimposed on the output signal which are missing when there is a fault (single fault) in the sensor.  
The sensor is functional again after the overload has been eliminated.  
For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

#### Connector Drawings



#### Wiring Diagrams

