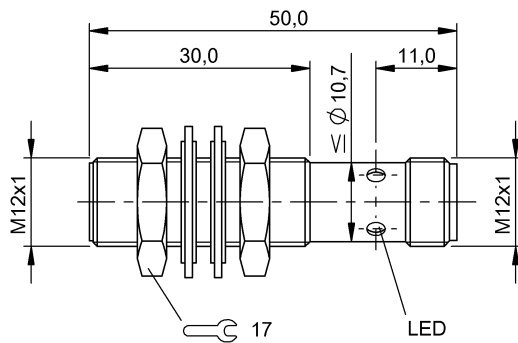




IND. CONT. EQ.  
81U2  
Class 2 Type 1



### Basic features

|                     |                            |
|---------------------|----------------------------|
| Approval/Conformity | cULus<br>CE<br>EAC<br>WEEE |
| Basic standard      | IEC 60947-5-2              |

### Display/Operation

|                    |     |
|--------------------|-----|
| Function indicator | yes |
| 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                   | 0.5 $\mu$ F   |
| Min. operating current I <sub>m</sub>         | 0 mA          |
| No-load current I <sub>o</sub> max., damped   | 10 mA         |
| No-load current I <sub>o</sub> max., undamped | 4 mA          |
| Operating voltage U <sub>b</sub>              | 10...30 VDC   |
| Output resistance R <sub>a</sub>              | 33.0 kOhm + D |
| Protection class                              | II            |
| Rated insulation voltage U <sub>i</sub>       | 250 V DC      |
| Rated operating current I <sub>e</sub>        | 200 mA        |
| Rated operating voltage U <sub>e</sub> DC     | 24 V          |
| Rated short circuit current                   | 100 A         |
| Ready delay t <sub>v</sub> max.               | 15 ms         |
| Residual current I <sub>r</sub> max.          | 30 $\mu$ A    |
| Ripple max. (% of U <sub>e</sub> )            | 15 %          |
| Switching frequency                           | 5000 Hz       |
| Utilization category                          | DC -13        |
| Voltage drop static max.                      | 2 V           |

### Environmental conditions

|                         |                                 |
|-------------------------|---------------------------------|
| Ambient temperature     | -25...70 °C                     |
| Contamination scale     | 3                               |
| EN 60068-2-27, Shock    | Half-sinus, 30 gn, 11 ms        |
| EN 60068-2-6, Vibration | 55 Hz, amplitude 1 mm, 3x30 min |
| Protection degree       | IP68                            |

### Functional safety

|              |       |
|--------------|-------|
| MTTF (40 °C) | 830 a |
|--------------|-------|

**Material**

|                          |                      |
|--------------------------|----------------------|
| Housing material         | Brass, nickel plated |
| Material sensing surface | PBT                  |

**Mechanical data**

|                   |                    |
|-------------------|--------------------|
| Dimension         | Ø 12 x 50 mm       |
| Installation      | for flush mounting |
| Size              | M12x1              |
| Tightening torque | 15 Nm              |

**Output/Interface**

|                  |                        |
|------------------|------------------------|
| Switching output | PNP normally open (NO) |
|------------------|------------------------|

**Range/Distance**

|                                  |        |
|----------------------------------|--------|
| Assured operating distance Sa    | 1.6 mm |
| Hysteresis H max. (% of Sr)      | 15.0 % |
| Rated operating distance Sn      | 2 mm   |
| Real switching distance sr       | 2 mm   |
| Repeat accuracy max. (% of Sr)   | 5.0 %  |
| Temperature drift max. (% of Sr) | 10 %   |
| Tolerance Sr                     | ±10 %  |

**Remarks**

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**