

1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn



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



### Basic features

Approval/Conformity	cULus CE EAC WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Reference reflector	BOS R-1
Scope of delivery	2x nut M18x1 User manual
Series	18M
Style	Cylinder Straight optics

### Display/Operation

Adjuster	1-turn potentiometer
Display	LED green: Power Error - LED green, flashing LED yellow: Light received Limit range - LED yellow, flashing
Setting	Sensitivity (Sn)

### Electrical connection

Connection	Connector, M12x1-Male, 4-pin
Contact, surface protection	Gold plated
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

### Electrical data

Load capacitance max. at Ue	0.2 $\mu$ F
No-load current I <sub>o</sub> max. at Ue	50 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Protection class	II
Rated insulation voltage U <sub>i</sub>	75 V DC
Rated operating current I <sub>e</sub>	100 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Ready delay t <sub>v</sub> max.	20 ms
Residual current I <sub>r</sub> max.	30 $\mu$ A
Ripple max. (% of U <sub>e</sub> )	15 %
Switching frequency	800 Hz
Turn-off delay t <sub>off</sub> max.	0.63 ms
Turn-on delay t <sub>on</sub> max.	0.63 ms
Utilization category	DC -13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2.5 V

### Environmental conditions

Ambient temperature	-5...55 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 gn, 11 ms, 3x6 Half-sinus, 100 gn, 2 ms, 3x8000
EN 60068-2-6, Vibration	10...55 Hz, amplitude 1 mm, 3x30 min 10...2000 Hz, amplitude 1 mm, 30 gn, 3x5 h
Protection degree	IP67

**Functional safety**

MTTF (40 °C) 872 a

**Material**

Housing material Brass, nickel plated  
 Housing material, surface protection nickel plated  
 Material sensing surface Glass, anti-glare  
 Surface protection nickel plated

**Mechanical data**

Dimension Ø 18 x 75 mm  
 Mounting Nut M18x1  
 Tightening torque max. 15 Nm  
 30 Nm

**Optical features**

Ambient light max. 10000 Lux  
 Beam characteristic Divergent  
 LED group per IEC 62471 Exempt Group  
 Light spot size Ø 300 mm at 7 m  
 Light type LED infrared  
 Polarizing filter no  
 Principle of optical operation Retroreflective sensor  
 Switching function, optical Light-on  
 dark-on  
 Wave length 850 nm

**Output/Interface**

Switching output PNP normally open (NO)  
 PNP NC Pins 4-2

**Range/Distance**

Range 0...10 m  
 Rated operating distance Sn 10 m Adjustable

**Remarks**

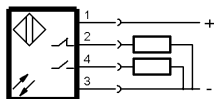
The sensor is functional again after the overload has been eliminated.  
 For additional information, refer to user's guide.  
 Order accessories separately.  
 For more information about MTTF and B10d see MTTF / B10d Certificate

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**



**Opto Symbols**

