

1) Optical axis receiver, 2) Optical axis emitter, 3) Power/short-circuit, 4) Output function/Error, 5) Sn



### Basic features

Approval/Conformity	CE UKCA cULus WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	18M
Style	Cylinder Straight optics

### Display/Operation

Adjuster	10-turn potentiometer
Display	Output function- LED yellow LED green: Power Error - LED yellow, flashing Short circuit - LED green, flashing
Setting	Rated switching distance (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	0.1 µF
No-load current I <sub>o</sub> max. at Ue	30 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.	200 ms
Residual current I <sub>r</sub> max.	10 µA
Ripple max. (% of U <sub>e</sub> )	15 %
Switching frequency	500 Hz
Turn-off delay t <sub>off</sub> max.	1 ms
Turn-on delay t <sub>on</sub> max.	1 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 g <sub>n</sub> , 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 1 mm, 3x30 min
IP rating	IP67

### Functional safety

MTTF (40 °C)	455 a
--------------	-------

## Interface

Switching output PNP normally open (NO) Pin 4

## Material

Housing material Brass, nickel-plated  
 Material sensing surface PMMA  
 Surface protection nickel-plated

## Mechanical data

Dimension  $\varnothing$  18 x 75 mm  
 Distance deviation 6 % max. (% of Sr) 16.0 %  
 Mounting part Nut M18x1  
 Tightening torque max. 15 Nm  
 30 Nm

## Optical features

Ambient light max. 10000 Lux  
 Average power  $P_o$  max. 1 mW  
 Beam characteristic Focus, typical at 100 mm  
 Laser class per IEC 60825-1 2  
 Light spot size 0.05 x 0.1 mm at focal point  
 Light type Laser red light  
 Principle of optical operation Diffuse sensor, triangulation  
 Pulse duration  $t$  max. 10000  $\mu$ s  
 Pulse frequency 7.1 kHz  
 Pulse power  $P_p$  max. 4.0 mW  
 Smallest part typ. 50  $\mu$ m at focal point  
 Special optical feature Background suppression  
 Switching function, optical Light-on  
 Wave length 660 nm

## Range/Distance

Distance deviation 18 % max. (% of Sr) 8 %  
 Hysteresis H max. (% of Sr) 5.0 %  
 Range 30...150 mm  
 Rated operating distance  $S_n$  150 mm, Adjustable  
 Repeat accuracy max. (% of Sr) 1.0 %  
 Temperature drift max. (% of Sr) 15 %

## Remarks

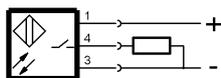
Order accessories separately.  
 For additional information, refer to user's guide.  
 The sensor is functional again after the overload has been eliminated.  
 Reference object (target): gray card, 100 x 100, 90 % remission, axial approach.  
 For more information about MTTF and B10d see MTTF / B10d 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.

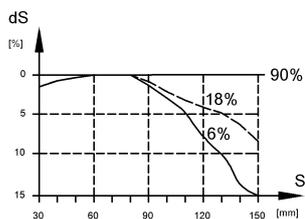
## Connector Drawings



## Wiring Diagrams (Schematic)



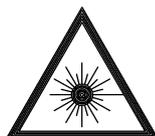
## Technical Drawings



## Opto Symbols



## Warning Symbols



LASER BEAM - DO NOT STARE INTO THE LIGHT BEAM!

LASER CLASS 2 per IEC60825-1: 2003-10