

1) Optical axis receiver, 2) Optical axis emitter, 3) Power/short-circuit, 4) Light reception/limit area, 5) Sn



### Basic features

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

### Display/Operation

<b>Adjuster</b>	button
<b>Display</b>	LED green: Power Limit range - LED yellow, flashing Short circuit - LED green, flashing LED yellow: Light received
<b>Setting</b>	Rated switching distance (Sn) Light-on/dark-on

### Electrical connection

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

### Electrical data

<b>Load capacitance max. at Ue</b>	0.3 $\mu$ F
<b>No-load current I<sub>o</sub> max. at Ue</b>	40 mA
<b>Operating voltage U<sub>b</sub></b>	18...30 VDC
<b>Protection class</b>	II
<b>Rated insulation voltage U<sub>i</sub></b>	250 V AC
<b>Rated operating current I<sub>e</sub></b>	100 mA
<b>Rated operating voltage U<sub>e</sub> DC</b>	24 V
<b>Ready delay t<sub>v</sub> max.</b>	100 ms
<b>Residual current I<sub>r</sub> max.</b>	10 $\mu$ A
<b>Ripple max. (% of U<sub>e</sub>)</b>	15 %
<b>Switching frequency</b>	500 Hz
<b>Turn-off delay t<sub>off</sub> max.</b>	1 ms
<b>Turn-on delay t<sub>on</sub> max.</b>	1 ms
<b>Utilization category</b>	DC -13
<b>Voltage drop U<sub>d</sub> max. at I<sub>e</sub></b>	1.5 V

### Environmental conditions

<b>Ambient temperature</b>	-5...55 °C
<b>Contamination scale</b>	3
<b>EN 60068-2-27, Shock</b>	Half-sinus, 30 g <sub>n</sub> , 11 ms, 3x6
<b>EN 60068-2-6, Vibration</b>	10...55 Hz, amplitude 0.5 mm, 3x30 min
<b>IP rating</b>	IP67

### Functional safety

<b>MTTF (40 °C)</b>	509 a
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Photoelectric Sensors  
**BOS 18M-PI-RD30-S4**  
Order Code: BOS01UA

**BALLUFF**

### IO-Link

IO-Link Profil IDs 0x0001 SSP0

### Interface

<b>Baud rate</b>	38.4 kBaud
<b>Function class, smart sensor</b>	Switching signal channel Teach channel Diagnostics Identification
<b>Interface</b>	IO-Link 1.1
<b>Interface setting option</b>	Key disable on/off Sensor name in application Teach method 2-point/dyn. BDC mode 1-pt./2-pt./window Light-on/dark-on
<b>Process data OUT</b>	Teaching active/inactive Limit range yes/no Switching state active/inactive Error active/inactive
<b>Process data cycle min.</b>	3 ms
<b>Profile</b>	Smart Sensor
<b>Switching output</b>	PNP normally open/normally closed (NO/NC)

### Material

<b>Housing material</b>	Brass, nickel-plated
<b>Material sensing surface</b>	Glass
<b>Surface protection</b>	nickel-plated

### Mechanical data

<b>Dimension</b>	Ø 18 x 75 mm
<b>Mounting part</b>	Nut M18x1
<b>Tightening torque max.</b>	15 Nm 30 Nm

### Optical features

<b>Ambient light max.</b>	10000 Lux
<b>Beam characteristic</b>	Divergent
<b>LED group per IEC 62471</b>	Exempt Group
<b>Light spot size</b>	Ø 50 mm at 600 mm
<b>Light type</b>	LED, red light
<b>Principle of optical operation</b>	Diffuse sensor, energetic
<b>Switching function, optical</b>	Light/dark switching
<b>Wave length</b>	626 nm

### Range/Distance

<b>Hysteresis H max. (% of Sr)</b>	10.0 %
<b>Range</b>	1...500 mm
<b>Rated operating distance Sn</b>	500 mm Adjustable
<b>Temperature drift max. (% of Sr)</b>	10 %

### Remarks

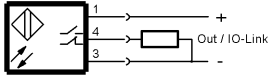
The sensor is functional again after the overload has been eliminated.  
Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.  
Only for applications per NFPA 79 (machines with a supply voltage of maximum 600 V). Use an R/C (CYJV2) cable with suitable properties for attaching the device.  
For additional information, refer to user's guide.  
Order accessories separately.  
Do not press key using a pointed tool.  
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

