

1) Optical axis emitter, 2) Optical axis receiver, 3) Display and control panel, 4) rotatable 270°



## Basic features

<b>Approval/Conformity</b>	CE UKCA cULus WEEE
<b>Basic standard</b>	IEC 60947-5-2
<b>Principle of operation</b>	Photoelectric sensor
<b>Series</b>	21M
<b>Style</b>	Square Connection can be rotated

## 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

## Display/Operation

<b>Adjuster</b>	Potentiometer 270°
<b>Display</b>	Output function- LED yellow LED green: Power
<b>Setting</b>	Sensitivity (Sn)

Photoelectric Sensors  
**BOS 21M-PA-LR10-S4**  
Order Code: BOS00TL

**BALLUFF**

### Electrical data

Load capacitance max. at Ue	1 µF
No-load current I <sub>o</sub> max. at Ue	35 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> )	8 %
Switching frequency	2000 Hz
Turn-off delay t <sub>off</sub> max.	0.25 ms
Turn-on delay t <sub>on</sub> max.	0.25 ms
Utilization category	DC -13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2 V

### Environmental conditions

Ambient temperature	-10...50 °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)	308 a
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### Interface

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

Order accessories separately.

For additional information, refer to user's guide.

Polarizing filters prevent spurious switching due to reflecting and shiny parts.

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.

The sensor is functional again after the overload has been eliminated.

Actuation object (target): gray card, 200 x 200, 90 % remission, lateral approach, approach direction vertical to lens axis plane.

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.

### Material

Housing material	Zinc, Die casting, Powder coated
Material sensing surface	Aluminium
Material sensing surface	PMMA
Surface protection	Powder coated

### Mechanical data

Dimension	15 x 50 x 42.5 mm
Mounting part	Screw M4

### Optical features

Ambient light max.	5000 Lux
Average power P <sub>o</sub> max.	390 µW
Beam characteristic	Collimated
Blind zone	100 mm
Laser class per IEC 60825-1	1
Light type	Laser red light
Polarizing filter	yes
Principle of optical operation	Retroreflective sensor
Pulse frequency	33.5 kHz
Switching function, optical	Light-on dark-on
Wave length	650 nm

### Range/Distance

Range	0...20 m
Rated operating distance S <sub>n</sub>	20 m Adjustable

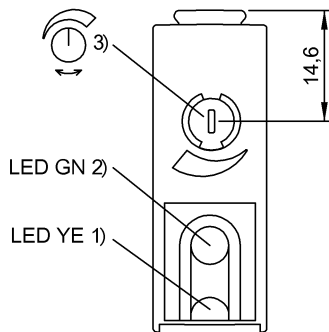
## Connector Drawings



## Wiring Diagrams



## Help Views

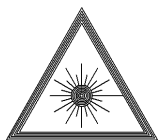


- 1) Output function
- 2) Operating voltage
- 3) Sensitivity

## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1