

1) Optical axis receiver, 2) Optical axis emitter, 3) Sensitivity, 4) Output function, 5) Light-on/dark-on, 6) stability



## Basic features

|                        |                             |
|------------------------|-----------------------------|
| Approval/Conformity    | cULus<br>CE<br>WEEE<br>UKCA |
| Basic standard         | IEC 60947-5-2               |
| Principle of operation | Photoelectric sensor        |
| Reference reflector    | BOS R-22                    |
| Series                 | 5K                          |
| Style                  | Square<br>Connection 90°    |
| Trademark              | Global                      |

## Display/Operation

|          |  |
|----------|--|
| Adjuster | Potentiometer 270° (2x)                              |
| Display  | Output function- LED yellow<br>Stability - LED green |
| Setting  | Light-on/dark-on<br>Sensitivity (Sn)                 |

## Electrical connection

|                             |                             |
|-----------------------------|-----------------------------|
| Connection                  | Connector, M8x1-Male, 4-pin |
| Polarity reversal protected | yes                         |
| Short-circuit protection    | yes                         |

## Electrical data

|                                     |             |
|-------------------------------------|-------------|
| No-load current $I_o$ max. at $U_e$ | 35 mA       |
| Operating voltage $U_b$             | 10...30 VDC |
| Rated operating current $I_e$       | 100 mA      |
| Rated operating voltage $U_e$ DC    | 24 V        |
| Ripple max. (% of $U_e$ )           | 10 %        |
| Switching frequency                 | 2000 Hz     |
| Turn-off delay $t_{off}$ max.       | 0.25 ms     |
| Turn-on delay $t_{on}$ max.         | 0.25 ms     |
| Voltage drop $U_d$ max. at $I_e$    | 1.5 V       |

Photoelectric Sensors  
BOS 5K-PU-LR10-S75  
Order Code: BOS01JW

# BALLUFF

## Environmental conditions

|                         |   |
|-------------------------|---|
| Ambient temperature     | -10...55 °C                                 |
| EN 60068-2-27, Shock    | Half-sinus, 50 g <sub>n</sub> , 11 ms, 3x10 |
| EN 60068-2-6, Vibration | 10...55 Hz, amplitude 1.5 mm, 3x2 h         |
| IP rating               | IP67  |

## Functional safety

|              |     |
|--------------|-----|
| MTTF (40 °C) | 3 a |
|--------------|-----|

## Interface

|                  |   |
|------------------|---|
| Switching output | PNP normally open/normally closed (NO/NC) |
|------------------|---|

## Material

|                          |           |
|--------------------------|-----------|
| Housing material         | PC<br>PBT |
| Material sensing surface | PMMA      |

## Mechanical data

|                        |                       |
|------------------------|-----------------------|
| Dimension              | 10.8 x 43.5 x 19.5 mm |
| Mounting part          | Screw M3              |
| Tightening torque max. | 0.5 Nm                |

## Remarks

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

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

Order accessories separately.

For additional information, refer to user's guide.

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.

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

When using as a UL product the ambient temperature  $T_a$  max. must not exceed 50°C.

To meet the EMC requirements of EN 60947-5-2 the mounting bracket must not be grounded.

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.

## Optical features

|                                |                           |
|--------------------------------|---------------------------|
| Ambient light max.             | 5000 Lux                  |
| Average power $P_o$ max.       | 390 $\mu$ W               |
| Beam characteristic            | Divergent                 |
| Blind zone                     | 300 mm                    |
| Laser class per IEC 60825-1    | 1                         |
| Light spot size                | $\varnothing$ 5 mm at 3 m |
| Light type                     | Laser red light           |
| Polarizing filter              | yes                       |
| Principle of optical operation | Retroreflective sensor    |
| Pulse duration $t$ max.        | 1.4 $\mu$ s               |
| Pulse frequency                | 28.6 kHz                  |
| Pulse power $P_p$ max.         | 4.5 mW                    |
| Switching function, optical    | dark-on/light-on          |
| Wave length                    | 650 nm                    |

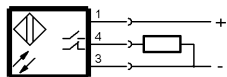
## Range/Distance

|                                |                  |
|--------------------------------|------------------|
| Range                          | 0...10 m         |
| Rated operating distance $S_n$ | 10 m, Adjustable |

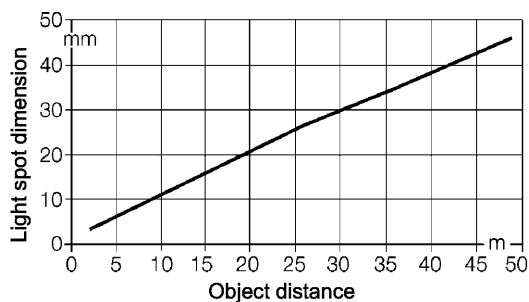
## Connector Drawings



## Wiring Diagrams (Schematic)



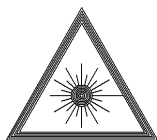
## Technical Drawings



## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1