

1) Mode settings, 2) Optical axis receiver, 3) Optical axis emitter, 4) Power indicator, 5) stability, 6) Sensitivity



### Basic features

|                               |                             |
|-------------------------------|-----------------------------|
| <b>Approval/Conformity</b>    | cULus<br>CE<br>UKCA<br>WEEE |
| <b>Principle of operation</b> | Photoelectric sensor        |
| <b>Series</b>                 | R090K                       |
| <b>Style</b>                  | Square<br>Connection 90°    |

### Display/Operation

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

### Electrical connection

|                                    |                        |
|------------------------------------|------------------------|
| <b>Connection</b>                  | Connector, M8x1, 4-pin |
| <b>Polarity reversal protected</b> | yes                    |
| <b>Short-circuit protection</b>    | yes                    |

### Electrical data

|  |             |
|--|-------------|
| <b>No-load current <math>I_0</math> max. at <math>U_e</math></b> | 20 mA       |
| <b>Operating voltage <math>U_b</math></b>                        | 10...30 VDC |
| <b>Rated operating current <math>I_e</math></b>                  | 100 mA      |
| <b>Rated operating voltage <math>U_e</math> DC</b>               | 24 V        |
| <b>Ready delay <math>t_v</math> max.</b>                         | 300 ms      |
| <b>Ripple max. (% of <math>U_e</math>)</b>                       | 10 %        |
| <b>Switching frequency</b>                                       | 1000 Hz     |
| <b>Turn-off delay <math>t_{off}</math> max.</b>                  | 0.5 ms      |
| <b>Turn-on delay <math>t_{on}</math> max.</b>                    | 0.5 ms      |
| <b>Voltage drop <math>U_d</math> max. at <math>I_e</math></b>    | 2 V         |

### Environmental conditions

|                            |             |
|----------------------------|-------------|
| <b>Ambient temperature</b> | -30...55 °C |
| <b>IP rating</b>           | IP67        |

Photoelectric Sensors  
**BOS R090K-NU-RR10-S75**  
Order Code: BOS02A5

# BALLUFF

## Functional safety

MTTF (40 °C) 90 a

## Interface

Switching output NPN normally open/normally closed (NO/NC)

## Material

Housing material PC  
PBT  
Material sensing surface PMMA

## Mechanical data

Dimension 10.7 x 43.5 x 19.5 mm  
Mounting part Screw M3  
Tightening torque max. 0.5 Nm

## Optical features

Ambient light max. 10000 Lux  
Beam characteristic Divergent  
Light spot size Ø 105 mm at 2 m  
Light type LED, red light  
Principle of optical operation Retroreflective sensor  
Switching function, optical dark-on/light-on  
Wave length 660 nm

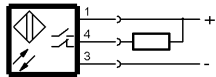
## Range/Distance

Range 0...5 m  
Rated operating distance  $S_n$  5 m

## Connector Drawings



## Wiring Diagrams



## Opto Symbols

