

1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception



IND. CONT. EQ  
 4R97  
 for use in the secondary of  
 a class 2 source of supply



### Basic features

Approval/Conformity	CE cULus WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Reference reflector	BOS R-9
Series	R020K
Style	Square Connection 60°

### Display/Operation

Display	LED green: Power LED yellow: Light received
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### Electrical connection

Cable diameter D	2.40 mm
Cable length L	0.2 m
Connection	Cable with connector, M8x1-Male, 4-pin, 0.20 m, PVC
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

### Electrical data

No-load current $I_0$ max. at $U_e$	20 mA
Operating voltage $U_b$	10...30 VDC
Protection class	III
Rated insulation voltage $U_i$	50 V DC
Rated operating current $I_e$	50 mA
Rated operating voltage $U_e$ DC	24 V
Ripple max. (% of $U_e$ )	20 %
Switching frequency	800 Hz
Turn-off delay $t_{off}$ max.	0.63 ms
Turn-on delay $t_{on}$ max.	0.63 ms
Voltage drop $U_d$ max. at $I_e$	2.5 V

### Environmental conditions

Ambient temperature	-25...50 °C
Protection degree	IP67

### Functional safety

MTTF (40 °C)	3487 a
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### Material

Housing material	ABS
Material jacket	PVC
Material sensing surface	PMMA

### Mechanical data

Dimension	7.7 x 26.8 x 13.5 mm
Mounting	Screw M3

## Optical features

<b>Ambient light max.</b>	5000 Lux
<b>Beam characteristic</b>	Divergent
<b>Blind zone</b>	25 mm
<b>Light spot size</b>	Ø 10 mm at 100 mm
<b>Light type</b>	LED, red light
<b>Polarizing filter</b>	yes
<b>Principle of optical operation</b>	Retroreflective sensor
<b>Switching function, optical</b>	dark-on

**Wave length** 660 nm

## Output/Interface

**Switching output** PNP normally open (NO) Pin 4

## Range/Distance

**Range** 0...3 m  
**Rated operating distance Sn** 3 m

## Remarks

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

Order accessories separately.

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

For additional information, refer to user's guide.

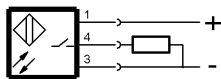
For more information about MTTF and B10d see MTTF / B10d Certificate

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

