

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
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

Ambient light max.	5000 Lux
Beam characteristic	Focus, typical at 15 mm
Light spot size	Ø 3 mm at 15 mm
Light type	LED, red light
Principle of optical operation	Diffuse sensor, HGA fixed
Special optical feature	Background suppression
Switching function, optical	Light-on

Wave length 660 nm

Output/Interface

Switching output PNP normally open (NO) Pin 4

Range/Distance

Range 1...30 mm  
Rated operating distance Sn 30 mm

Remarks

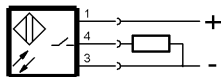
Order accessories separately.  
For additional information, refer to user's guide.  
Reference object (target): gray card, 100 x 100, 90 % remission, axial approach.  
The sensor is functional again after the overload has been eliminated.  
For more information about MTTF and B10d see MTTF / B10d Certificate

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

