

1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn



IND. CONT. EQ.
 81U2
 Class 2 Type 1



Basic features

Approval/Conformity	CE cULus EAC WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	12M
Style	Cylinder Straight optics

Display/Operation

Adjuster	Potentiometer 270°
Display	LED green: Power Limit range - LED yellow, flashing LED yellow: Light received
Setting	Rated switching distance (Sn)

Electrical connection

Cable diameter D	4.70 mm
Cable length L	2 m
Conductor cross-section	0.34 mm ²
Connection	Cable, 2.00 m, PVC
Number of conductors	3
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

Electrical data

Load capacitance max. at Ue	0.2 µF
Operating voltage U _b	10...30 VDC
Rated insulation voltage U _i	75 V DC
Rated operating current I _e	100 mA
Rated operating voltage U _e DC	24 V
Ripple max. (% of U _e)	15 %
Switching frequency	1000 Hz
Turn-off delay t _{off} max.	0.5 ms
Turn-on delay t _{on} max.	0.5 ms
Utilization category	DC -13
Voltage drop U _d max. at I _e	1.5 V

Environmental conditions

Ambient temperature	-5...55 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 gn, 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 1 mm, 3x30 min
Protection degree	IP67

Functional safety

MTTF (40 °C)	1428 a
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Material

Housing material	Brass, nickel plated
Material jacket	PVC
Material sensing surface	PMMA
Surface protection	nickel plated

Mechanical data

Dimension	Ø 12 x 60 mm
Mounting	Nut M12x1
Tightening torque max.	7 Nm
	15 Nm

Optical features

Ambient light max.	10000 Lux
Beam characteristic	Divergent
LED group per IEC 62471	Exempt Group
Light spot size	45 x 45 mm at 400 mm
Light type	Infrared
Principle of optical operation	Diffuse sensor, energetic
Switching function, optical	Light-on
Wave length	850 nm

Output/Interface

Switching output	PNP normally open (NO)
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Range/Distance

Hysteresis H max. (% of Sr)	10.0 %
Range	1...400 mm
Rated operating distance S _n	400 mm Adjustable
Temperature drift max. (% of Sr)	10 %

Remarks

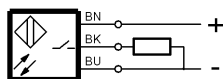
Order accessories separately.

For additional information, refer to user's guide.

Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.

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

Wiring Diagrams



Opto Symbols

