

1) Optical axis emitter, 2) Optical axis receiver, 3) Output function



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



### Basic features

Approval/Conformity	cULus CE EAC WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Reference reflector	BOS R-22
Series	Q08M
Style	Square Connection 90°

### Display/Operation

Display	Limit range - LED yellow, flashing LED yellow: Light received
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### Electrical connection

Cable length L	0.2 m
Connection	Cable with connector, M8x1-Male, 3-pin, 0.20 m, PUR
Contact, surface protection	Gold plated
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

### Electrical data

Load capacitance max. at Ue	0.1 µF
No-load current I <sub>o</sub> max. at Ue	10 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Output resistance R <sub>a</sub>	33.0 kOhm
Rated insulation voltage U <sub>i</sub>	75 V DC
Rated operating current I <sub>e</sub>	100 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Ready delay t <sub>v</sub> max.	150 ms
Residual current I <sub>r</sub> max.	50 µA
Ripple max. (% of U <sub>e</sub> )	10 %
Switching frequency	400 Hz
Turn-off delay t <sub>off</sub> max.	1.25 ms
Turn-on delay t <sub>on</sub> max.	1.25 ms
Utilization category	DC -13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	1.2 V

### Environmental conditions

Ambient temperature	-5...55 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 gn, 11 ms, 3x6 Half-sinus, 100 gn, 2 ms, 3x8000
EN 60068-2-6, Vibration	10...55 Hz, amplitude 1 mm, 3x30 min 10...2000 Hz, amplitude 1 mm, 30 gn, 3x5 h
Protection degree	IP67

## Material

Housing material	Zinc, Die casting, nickel plated
Material jacket	PUR
Material sensing surface	PMMA
Surface protection	nickel plated

## Mechanical data

Dimension	8 x 59 x 8 mm
Mounting	Screw M3

## Optical features

Ambient light max.	5000 Lux
Average power Po max.	390 µW
Beam characteristic	Divergent
Blind zone	25 mm
Laser class per IEC 60825-1	1
Light spot size	Ø 3.0 mm Light exit
Light type	Laser red light
Polarizing filter	yes
Principle of optical operation	Retroreflective sensor
Pulse duration t max.	10.0 µs
Pulse frequency	10.8 kHz
Pulse power Pp max.	3.1 mW
Smallest part typ.	0.4 mm at 100 mm. R0 = 500 mm
Switching function, optical	dark-on
Wave length	655 nm

## Output/Interface

Switching output	PNP normally open (NO)
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## Range/Distance

Range	0...1 m
Rated operating distance Sn	1 m

## Remarks

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

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

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

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.

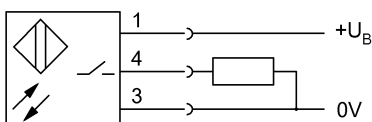
For additional information, refer to user's guide.

Order accessories separately.

## Connector Drawings



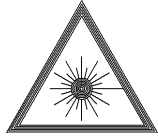
## Wiring Diagrams



## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1