

1) Optical axis, 2) Display and control panel, 3) rotatable 270°



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



### Basic features

<b>Approval/Conformity</b>	cULus CE EAC WEEE
<b>Basic standard</b>	IEC 60947-5-2
<b>Principle of operation</b>	Photoelectric sensor
<b>Series</b>	21M
<b>Style</b>	Square Connection can be rotated

### Electrical connection

<b>Connection</b>	Connector, M12x1-Male, 4-pin
<b>Contact, surface protection</b>	Gold plated
<b>Polarity reversal protected</b>	yes
<b>Protection against device mix-ups</b>	yes
<b>Short-circuit protection</b>	yes

### Display/Operation

<b>Adjuster</b>	Potentiometer 270°
<b>Display</b>	Output function- LED yellow
<b>Setting</b>	Sensitivity (Sn)

### Electrical data

Load capacitance max. at Ue	1 µF
No-load current I <sub>o</sub> max. at Ue	35 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Protection class	II
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.	200 ms
Residual current I <sub>r</sub> max.	10 µA
Ripple max. (% of U <sub>e</sub> )	8 %
Switching frequency	1000 Hz
Turn-off delay t <sub>off</sub> max.	0.5 ms
Turn-on delay t <sub>on</sub> max.	0.5 ms
Utilization category	DC -13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2 V

### Environmental conditions

Ambient temperature	-25...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)	608 a
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### Remarks

Order accessories separately.  
 For additional information, refer to user's guide.  
 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.  
 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.  
 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.

### Material

Housing material	Zinc, Die casting, Powder coated
Material sensing surface	Aluminum
Material sensing surface	Glass
Surface protection	Powder coated

### Mechanical data

Dimension	15 x 50 x 42.5 mm
Mounting	Screw M4

### Optical features

Ambient light max.	10000 Lux
Light type	LED, red light
Polarizing filter	yes
Principle of optical operation	Retroreflective sensor
Special optical feature	Coaxial optics Transparency detection
Switching function, optical	Light-on dark-on
Wave length	650 nm

### Output/Interface

Switching output	PNP normally open (NO) PNP NC Pins 4-2
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### Range/Distance

Range	0...2 m
Rated operating distance S <sub>n</sub>	2 m Adjustable

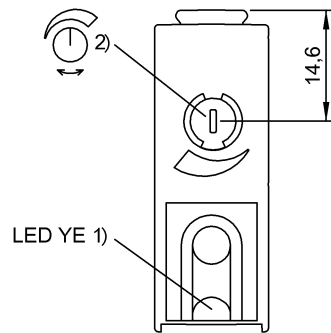
### Connector Drawings



## Wiring Diagrams



## Help Views



- 1) stability
- 2) Sensitivity

## Opto Symbols

