

1) Display and control panel, 2) rotatable 270°, 3) Optical axis emitter, 4) Optical axis receiver



Basic features

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

Electrical connection

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

Display/Operation

| | |
|----------|--|
| Adjuster | 10-turn potentiometer |
| Display | Output function- LED yellow LED green: Power Error - LED yellow, flashing Short circuit - LED green, flashing |
| Setting | Rated switching distance (Sn) |

Electrical data

| | |
|--|-------------|
| Load capacitance max. at Ue | 0.2 µF |
| No-load current I _o max. at Ue | 40 mA |
| Operating voltage U _b | 10...30 VDC |
| Protection class | II |
| Rated insulation voltage U _i | 250 V AC |
| Rated operating current I _e | 100 mA |
| Rated operating voltage U _e DC | 24 V |
| Ready delay t _v max. | 50 ms |
| Residual current I _r max. | 500 µA |
| Ripple max. (% of U _e) | 15 % |
| Switching frequency | 500 Hz |
| Turn-off delay t _{off} max. | 1 ms |
| Turn-on delay t _{on} max. | 1 ms |
| Utilization category | DC -13 |
| Voltage drop U _d max. at I _e | 2 V |

Environmental conditions

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

Functional safety

| | |
|--------------|-------|
| MTTF (40 °C) | 205 a |
|--------------|-------|

Interface

| | |
|------------------|---|
| Switching output | PNP normally closed (NC) PNP normally open (NO) Pins 4-2 |
|------------------|---|

Remarks

Order accessories separately.

For additional information, refer to user's guide.

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

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.

Reference object (target): gray card, 100 x 100, 90 % remission, axial approach.

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 Aluminium |
| Material sensing surface | Glass |
| Surface protection | Powder coated |

Mechanical data

| | |
|---------------|-------------------|
| Dimension | 15 x 51 x 42.5 mm |
| Mounting part | Screw M4 |

Optical features

| | |
|-----------------------------------|-------------------------------|
| Ambient light max. | 10000 Lux |
| Average power P _o max. | 390 µW |
| Beam characteristic | Focus, typical at 400 mm |
| Laser class per IEC 60825-1 | 1 |
| Light spot size | Ø 3 mm at 200 mm |
| Light type | Laser red light |
| Principle of optical operation | Diffuse sensor, triangulation |
| Pulse duration t max. | 10000 µs |
| Pulse frequency | 5.7 kHz |
| Pulse power P _p max. | 4.0 mW |
| Smallest part typ. | 50 µm at focal point |
| Special optical feature | Background suppression |
| Switching function, optical | Light/dark switching |
| Wave length | 655 nm |

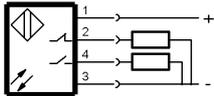
Range/Distance

| | |
|---|--------------------|
| Distance deviation 18 % max. (% of Sr) | typ. 5 % |
| Hysteresis H max. (% of Sr) | 5.0 % |
| Range | 1...250 mm |
| Rated operating distance S _n | 250 mm, Adjustable |
| Repeat accuracy max. (% of Sr) | 1.0 % |
| Temperature drift max. (% of Sr) | 10 % |

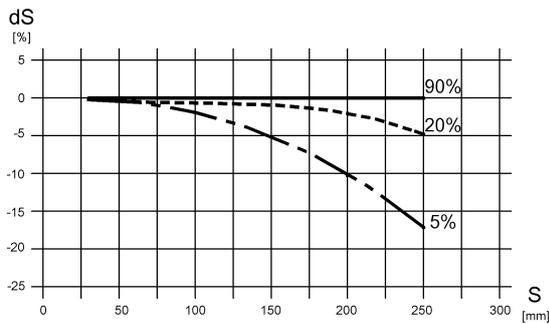
Connector Drawings



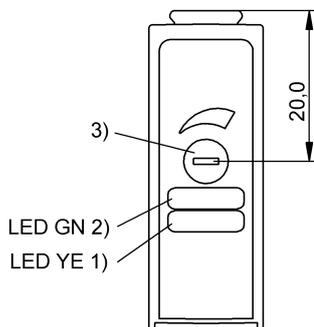
Wiring Diagrams (Schematic)



Technical Drawings



Help Views

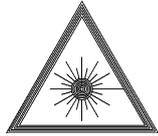


- 1) Output function/Error
- 2) Power/short-circuit
- 3) Sn

Opto Symbols



Warning Symbols



LASER CLASS 1 per IEC 60825-1: 2014-05