Retroreflective sensor with polarization filter

Model Number
RL39-54/32/40a/73c/82a
Retroreflective sensor with 4-pin, M12 x 1 connector

Features
• Glare protected with polarization filter
• Visible red light
• Light/dark ON, switchable
• Degree of protection IP67

Dimensions

Electrical connection
Option:

Pinout

Wire colors in accordance with EN 60947-5-2

1  BN  (brown)
2  WH  (white)
3  BU  (blue)
4  BK  (black)
### Technical data

#### General specifications
- **Effective detection range**: 0 ... 5 m
- **Reflector distance**: 0.1 ... 5 m
- **Threshold detection range**: 6 m
- **Reference target**: H50 reflector
- **Light source**: LED red
- **Light type**: modulated visible red light
- **Polarization filter**: yes
- **Ambient light limit**: IEC / EN 60947-5-2, 10000 Lux

#### Functional safety related parameters
- **MTTFd**: 800 a
- **Mission Time (TM)**: 20 a
- **Diagnostic Coverage (DC)**: 0 %

#### Indicators/operating means
- **Function indicator**: LED yellow: switching state
- **LED red**: pre-fault indication
- **Control elements**: Sensing range adjuster, light-on/dark-on changeover switch

#### Electrical specifications
- **Operating voltage**: \( U_{B} \) 10 ... 30 V DC
- **Ripple**: 10 %
- **No-load supply current**: \( I_{0} \) ≤ 20 mA
- **Time delay before availability**: \( t_{v} \) ≤ 300 ms

#### Output
- **Pre-fault indication output**: 1 PNP, active when falling short of the stability control
- **Switching type**: light/dark on
- **Signal output**: 1 PNP output, short-circuit protected, reverse polarity protected, open collector
- **Switching voltage**: max. 30 V DC
- **Switching current**: max. 200 mA, resistive load
- **Voltage drop**: \( U_{D} \) ≤ 3 V
- **Switching frequency**: \( f \) ≤ 300 Hz
- **Response time**: ≤ 1.5 ms

#### Ambient conditions
- **Ambient temperature**: -25 ... 55 °C (-13 ... 131 °F)
- **Storage temperature**: -40 ... 70 °C (-40 ... 158 °F)

#### Mechanical specifications
- **Housing width**: 25 mm
- **Housing height**: 64 mm
- **Housing depth**: 75 mm
- **Degree of protection**: IP67
- **Connection**: 4-pin, M12 x 1 connector
- **Material**: Housing: PBT
- **Optical face**: PMMA
- **Mass**: approx. 100 g

#### General information
- **Scope of delivery**: Mounting aid, Reflector

#### Compliance with standards and directives

#### Approvals and certificates
- **CCC approval**: CCC approval / marking not required for products rated ≤36 V
- **Approvals**: CE
Conventional use:
The reflex light beam switch contains the emitter and receiver in a single housing. The light from transmitter is beamed back from a reflector to the receiver. If an object interrupts the light beam the switching function is initiated.

Mounting instructions:
The sensor can be fastened over the through-holes directly or with the included mounting bracket. The base surface must be flat to avoid distorting the housing during mounting. It is advisable to secure the bolts and screws with washers to prevent misalignment of the sensor.

Instructions for adjustment:
Connect the sensor to operating voltage, the LED green lights up constantly. Mount suitable reflector opposite light beam switch and align roughly. The exact adjustment takes by swivelling the sensor horizontally and vertically. With optimum light reception the yellow LED lights up constantly. In case of bad alignment, the red LED lights up.

Object detection check:
Move the object into the light beam. If the object is recorded, the yellow LED goes off. If it isn’t going off, reduce the sensitivity with the potentiometer until it goes off. It should light up constantly again when the object is removed. The red LED lights up if reception deteriorates (e.g. soiled lenses or by maladjustment ) and when falling short of the stability control.

Iustration:
We recommend that you clean the optical interfaces and check the plug-in connections and screw connections at regular intervals.