



Model Number

RL61-8-4000-Z/92/136

Diffuse mode sensor
with 4-pin, M12 x 1 connector

Features

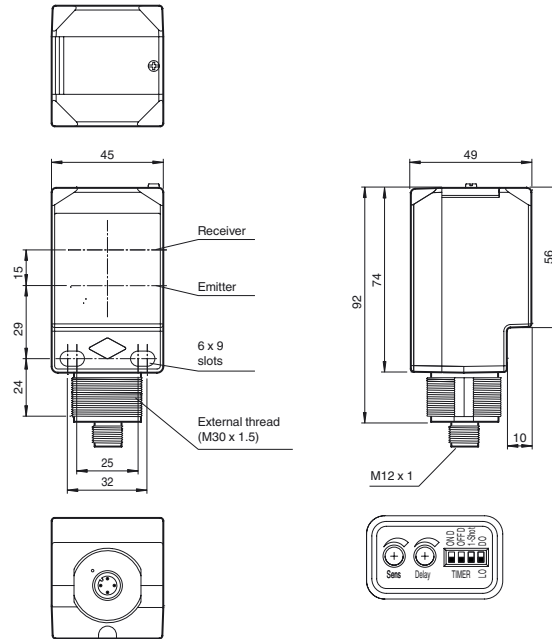
- Cost-optimized series for standard tasks in a special design
- Compact design
- Wide range of mounting options thanks to cubic housing design with M30 thread
- 360° high visibility LEDs
- Programmable ON-delay, OFF-delay, and One-shot timers
- 4-in-1 output (push-pull)

Product information

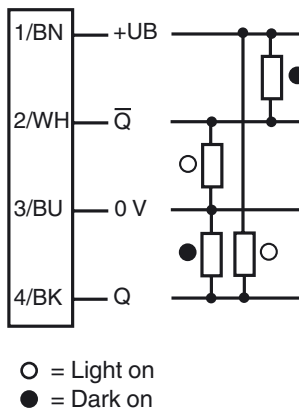
The Series 61 sensor family is a comprehensive product line, offering five sensing modes. Each sensor is equipped with four LEDs that are highly visible from all directions, indicating Power-On, target presence and marginal excess gain. The widely recognized, polycarbonate housing provides a IP67 protection degree rating. Color-coded labels are clearly printed on the housing to easily identify the sensing mode. DC models offer a 4-in-1 output while AC/DC models have a SPDT relay output rated to 3 A. All versions come standard with an integral multifunction timer, sensitivity adjustment and Light-ON/Dark-ON switch. Series 61 sensors are cross-talk protected and have a high degree of resistance to ambient lighting. Each sensor can be mounted via front and rear slots, rear dovetail guide or M30 x 1.5 mounting base. Additionally, cabled sensor models provide 1/2" - 14 NPT internal threads for use with flexible conduit.

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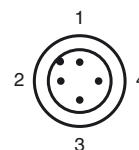
Dimensions



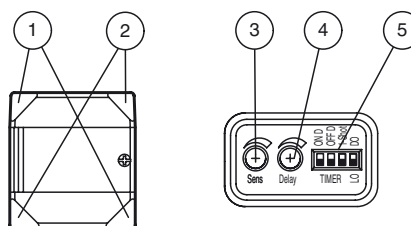
Electrical connection



Pinout



Indicators/operating means



| | | |
|---|------------------------|--------|
| 1 | Operating display | green |
| 2 | Signal display | yellow |
| 3 | Sensing range adjuster | |
| 4 | Time adjuster | |
| 5 | DIP-switches | |

Technical data**General specifications**

| | |
|----------------------------|--|
| Detection range | 0 ... 4000 mm adjustable |
| Adjustment range | 270 ... 4000 mm |
| Reference target | standard white 200 mm x 200 mm |
| Light source | IREL |
| Light type | modulated infrared light , 850 nm |
| Diameter of the light spot | approx. 45 mm at a distance of 4000 mm |
| Angle of divergence | 0.7 ° |
| Ambient light limit | 5000 Lux ; according EN 60947-5-2 |

Indicators/operating means

| | |
|-------------------|---|
| Operating display | 2 LEDs green |
| Function display | 2 LEDs yellow ON: object inside the sensing range OFF: object outside the sensing range |
| Controls | Light/Dark switch |
| Controls | Detection range adjuster |
| Controls | Time adjuster (0 ... 50 ms) |

Electrical specifications

| | | |
|------------------------|-------|--|
| Operating voltage | U_B | 10 ... 30 V DC |
| Ripple | | 10 % |
| No-load supply current | I_0 | ≤ 35 mA |
| Protection class | | II , rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit basis insulation of input circuit according to EN 50178, rated insulation voltage 240 V AC |

Output

| | | |
|---------------------|---|---|
| Switching type | light/dark on, switchable | |
| Signal output | 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected | |
| Switching voltage | max. 30 V DC | |
| Switching current | max. 100 mA | |
| Voltage drop | U_d | ≤ 2.5 V |
| Switching frequency | f | 500 Hz |
| Response time | | ≤ 1 ms |
| Timer function | | DIP-switch for selection of operating modes |

Ambient conditions

| | |
|---------------------|--------------------------------|
| Ambient temperature | -40 ... 55 °C (-40 ... 131 °F) |
| Storage temperature | -40 ... 70 °C (-40 ... 158 °F) |

Mechanical specifications

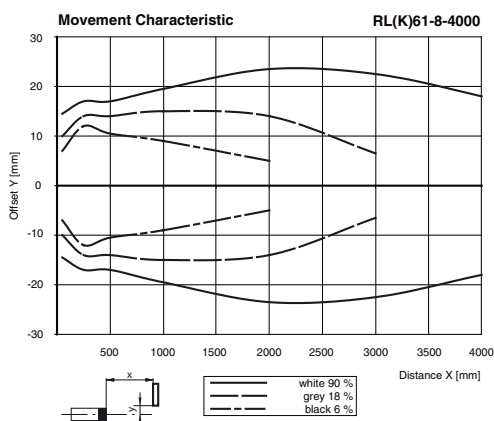
| | |
|-------------------|--------------------------|
| Protection degree | IP67 |
| Connection | connector M12 x 1, 4-pin |
| Material | |
| Housing | PC (Polycarbonate) |
| Optical face | PMMA |
| Mass | 120 g |

Compliance with standards and directives

| | |
|---------------------|---|
| Standard conformity | |
| Product standard | EN 60947-5-2:2007 IEC 60947-5-2:2007 |

Approvals and certificates

| | |
|--------------|--|
| UL approval | cULus |
| CCC approval | Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval. |

Curves/Diagrams**Accessories****MPZB01**

Mounting bracket with vertical slots

MPZB02

Mounting bracket with circular slots

MPZB06

Ball and Swivel Mounting Bracket

MPZB07

Ball and Swivel Vertical Mounting Plate

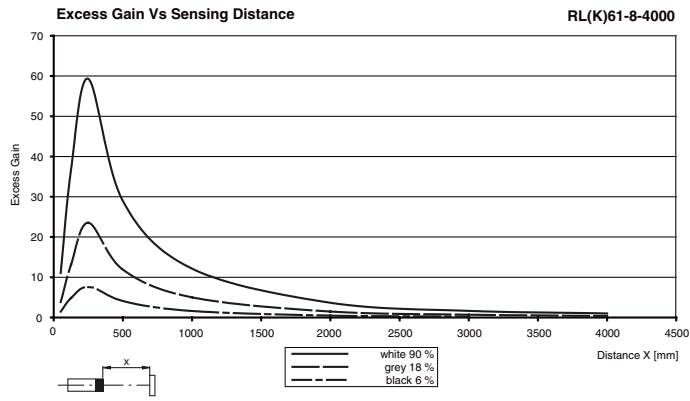
V1-G-2M-PUR

Cable socket, M12, 4-pin, PUR cable

V1-W-2M-PUR











Cable socket, M12, 4-pin, PUR cable

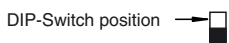
Other suitable accessories can be found at www.pepperl-fuchs.com



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Timer Functions

| Switching Type | Detection Status | Light Received | No Light Received |
|---|------------------------|----------------|-------------------|
| L.ON | Operation Mode | | |
| OFF ON  Timer LO | No Delay (Timer OFF) | ON | OFF |
|  Timer LO | ON Delay | ON | OFF |
|  Timer LO | OFF Delay | ON | OFF |
|  Timer LO | One-Shot Delay | ON | OFF |
|  Timer LO | ON Delay and OFF Delay | ON | OFF |
| D.ON | Operation Mode | | |
|  Timer LO | No Delay (Timer OFF) | ON | OFF |
|  Timer LO | ON Delay | ON | OFF |
|  Timer LO | OFF Delay | ON | OFF |
|  Timer LO | One-Shot Delay | ON | OFF |
|  Timer LO | ON Delay and OFF Delay | ON | OFF |



Time (T) is adjustable from 0 to 50 ms

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Adjustment Instructions

Intended use:

The diffuse mode sensor contains the emitter and receiver in a single housing. The light from transmitter is reflected back from the target object and is evaluated by the receiver. The sensing range depends on the object color and finish. With dark or very small objects, the sensing range is reduced.

Mounting instructions:

The sensor can be mounted using the through-holes or with a mounting bracket (not included with delivery). The base surface must be flat to avoid distorting the sensor housing during mounting. It is advisable to secure the bolts and screws with washers so that the sensor does not become misaligned.

Adjustment Instructions:

Adjust the sensor on the background. If the yellow LED illuminates, reduce the sensing range using the potentiometer until the yellow LED turns off.

Object detection:

Move the target into the light beam. Position the light spot on the object. If the object is detected, the yellow LED lights up. If it does not light up, further adjust the sensing range with the potentiometer until the yellow LED lights up.

Cleaning:

We recommend that you clean the optical interfaces and check all connections at regular intervals.