



Model Number

RL61-8-H-500-IR-Z/115/136

Background suppression sensor with fixed cable

Features

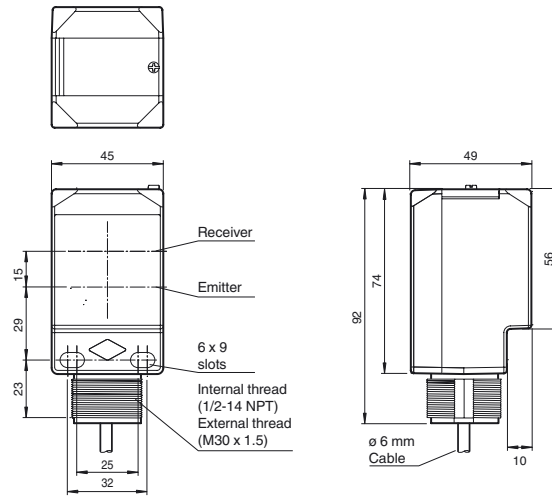
- Cost-optimized series for standard tasks in a special design
- Compact design
- Wide range of mounting options thanks to cubic housing design with M30 thread
- 360° high visibility LEDs
- Programmable ON-delay, OFF-delay, and One-shot timers
- 4-in-1 output (push-pull)
- Version with infrared light

Product information

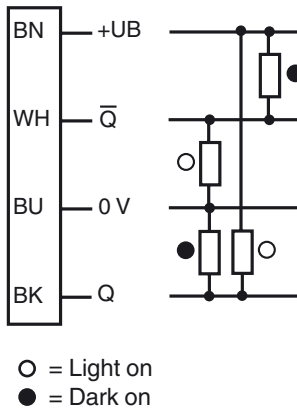
The Series 61 sensor family is a comprehensive product line, offering five sensing modes. Each sensor is equipped with four LEDs that are highly visible from all directions, indicating Power-On, target presence and marginal excess gain. The widely recognized, polycarbonate housing provides a IP67 protection 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.

Release date: 2013-01-04 17:42 Date of issue: 2013-01-04 911635_eng.xml

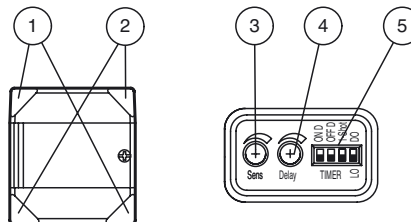
Dimensions



Electrical connection



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 | 20 ... 500 mm |
| Detection range min. | 20 ... 200 mm |
| Detection range max. | 20 ... 500 mm |
| Adjustment range | 200 ... 500 mm |
| Background suppression | max. + 10 % of the upper limit of the detection range |
| Light source | IREL |
| Light type | modulated infrared light , 850 nm |
| Black/White difference (6 %/90 %) | < 8 % at 500 mm sensor range |
| Diameter of the light spot | approx. 6 mm at a distance of 500 mm |
| Angle of divergence | 0.7 ° |
| Ambient light limit | 30000 Lux |

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 | 2 m fixed cable |
| Material | |
| Housing | PC (Polycarbonate) |
| Optical face | PMMA |
| Mass | approx. 120 g |

Compliance with standards and directives

| | |
|---------------------|---|
| Standard conformity | |
| Product standard | EN 60947-5-2:2007 IEC 60947-5-2:2007 |
| Standards | EN 50178, UL 508 |

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. |

Accessories**MPZB01**

Mounting bracket with vertical slots

MPZB02

Mounting bracket with circular slots

MPZB06

Ball and Swivel Mounting Bracket

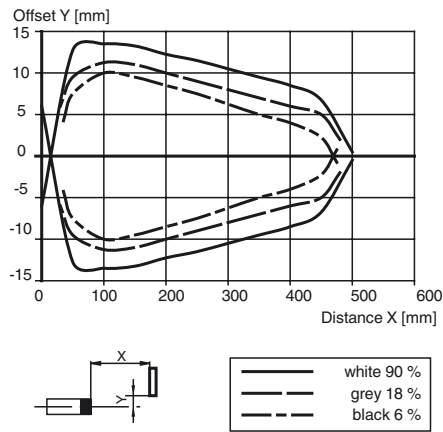
MPZB07

Ball and Swivel Vertical Mounting Plate

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

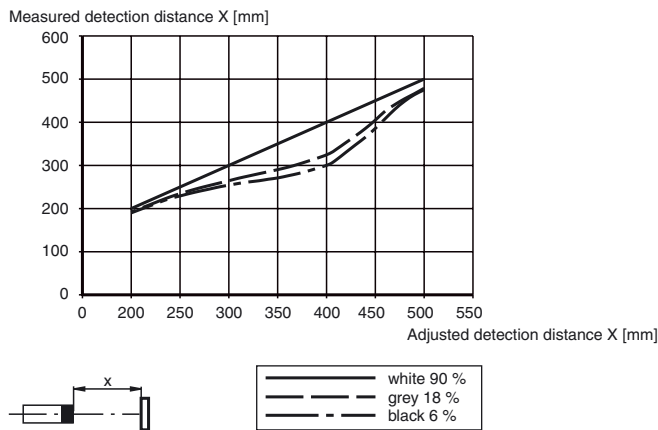
Curves/Diagrams

Movement Characteristic



Difference in detection distance

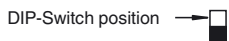
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Release date: 2013-01-04 17:42 Date of issue: 2013-01-04 911635_eng.xml

Timer Functions

| Switching Type | Detection Status | Light Received | No Light Received |
|---|------------------------|----------------|-------------------|
| L.ON | Operation Mode | | |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | No Delay (Timer OFF) | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | ON Delay | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | OFF Delay | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | One-Shot Delay | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | ON Delay and OFF Delay | ON | OFF |
| D.ON | Operation Mode | | |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | No Delay (Timer OFF) | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | ON Delay | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | OFF Delay | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO Timer LO | One-Shot Delay | ON | OFF |
| OFF ON OFF ON OFF D 1-Shot DO DO 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 transmitter and receiver are located in the same housing of Diffuse Mode sensors with Background Suppression. The suppression of objects outside the sensing range is achieved by arranging the angle between the transmitter and receiver (2 receiver elements).

Objects are detected independently of their surface structures, brightness and color, as well as the brightness of the background.

Mounting instructions:

The sensors can be fastened directly with fixing screws or with a mounting bracket (not included with delivery).

The surface underneath must be flat to prevent the housing from moving when the sensor is tightened into position. We recommend securing the nut and screw in place with lock washers to prevent the sensor from going out of adjustment.

Adjustment:

After the operating voltage is applied, the green LEDs light up.

Align the sensor to the background. If the yellow LEDs are lit, the sensing range should be reduced with the sensing range adjuster until the yellow LEDs turn off.

Object detection:

Place the object to be detected at the desired maximum sensing range and align the light spot to it. If the object is detected, the yellow LED lights up.

If they do not light up, the sensing range must be adjusted on the potentiometer until the yellow LEDs light up indicating that an object is detected.

Cleaning:

We recommend cleaning the optical surface and checking all of the connections at regular intervals.