



## Model Number

**RLK61-8-H-2000-IR-Z/31/115**

Background suppression sensor  
with fixed cable

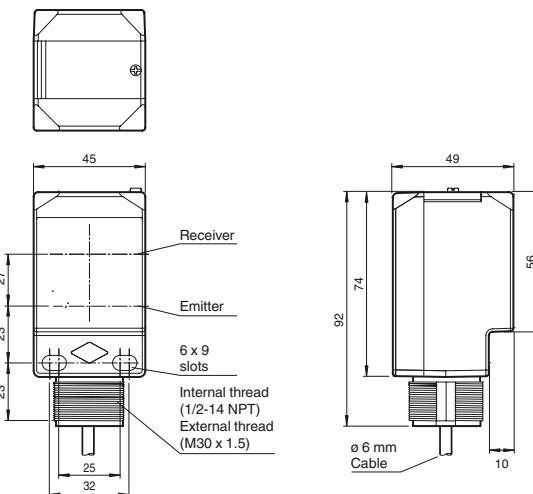
## Features

- 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
- Version for universal voltages
- Relay output

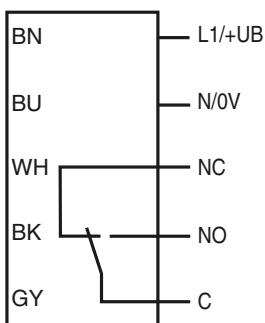
## Product information

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.

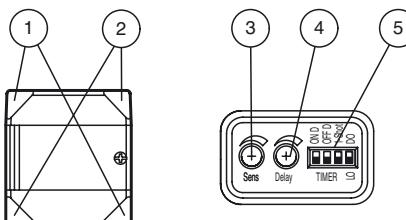
## Dimensions



## 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 ... 2000 mm
Detection range min.	20 ... 500 mm
Detection range max.	20 ... 2000 mm
Adjustment range	500 ... 2000 mm
Background suppression	max. + 10 % of the upper limit of the detection range
Light source	IRED
Light type	modulated infrared light , 850 nm
Black/White difference (6 %/90 %)	< 40 %
Diameter of the light spot	approx. 24 mm at a distance of 2000 mm
Angle of divergence	0.7 °
Optical face	frontal
Ambient light limit	5000 Lux ; according EN 60947-5-2

**Indicators/operating means**

Operation indicator	2 LEDs green
Function indicator	2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range
Control elements	Light-on/dark-on changeover switch
Control elements	Sensing range adjuster
Control elements	Time adjuster ( 0 ... 10 s )

**Electrical specifications**

Operating voltage	$U_B$	24 ... 240 V AC 12 ... 240 V DC
No-load supply current	$I_0$	$\leq 35 \text{ mA}$
Protection class		II , rated voltage $\leq 250 \text{ V AC}$ 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
Power consumption	$P_0$	$\leq 2 \text{ VA}$

**Output**

Switching type	light/dark on, switchable
Signal output	1 SPDT relay
Switching voltage	max. 250 V AC/DC
Switching current	max. 3 A
Switching power	DC: max. 150 W AC: max. 750 VA
Switching frequency	$f$ 20 Hz $\leq 25 \text{ ms}$
Response time	$\leq 25 \text{ ms}$
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**

Degree of protection	IP67
Connection	2 m fixed cable , 5-wire
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 240 g
Tightening torque, fastening screws	$\leq 2 \text{ Nm}$
Cable length	2 m

**Compliance with standards and directives**

Directive conformity	
EMC Directive 2004/108/EC	EN 60947-5-2:2007+A1:2012
Standard conformity	
Product standard	EN 60947-5-2:2007 IEC 60947-5-2:2007

Standards	EN 50178, UL 508
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**Approvals and certificates**

EAC conformity	TR CU 020/2011 TR CU 004/2011
UL approval	cULus Listed, Type 1 enclosure For overcurrent protection, install a fuse with a rated current of max. 5 A and min. 240 V AC/DC
CCC approval	Certified by China Compulsory Certification (CCC)

**Accessories****MPZB01**

Mounting bracket with vertical slots

**MPZB02**

Mounting bracket with circular slots

**MPZB06**

Ball and Swivel Mounting Bracket

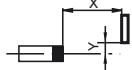
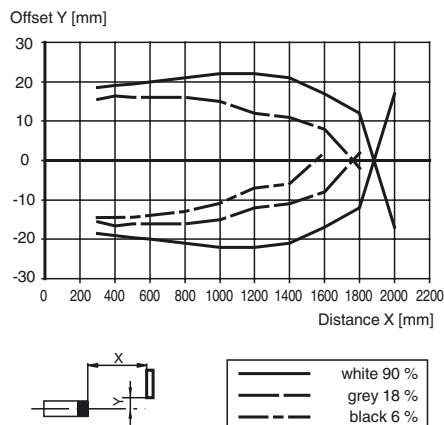
**MPZB07**

Ball and Swivel Vertical Mounting Plate

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

## Curves/Diagrams

## Movement Characteristic



## Timer Functions

Switching Type	Detection Status	Operation Mode		Light Received	No Light Received
		L.ON	OFF		
OFF/ON	ON D OFF D 1-Shot DO Timer LO	No Delay (Timer OFF)		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	ON Delay		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	OFF Delay		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	One-Shot Delay		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	ON Delay and OFF Delay		ON	OFF
Switching Type	Detection Status	Operation Mode		Light Received	No Light Received
		D.ON	OFF		
OFF/ON	ON D OFF D 1-Shot DO Timer LO	No Delay (Timer OFF)		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	ON Delay		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	OFF Delay		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	One-Shot Delay		ON	OFF
OFF/ON	ON D OFF D 1-Shot DO Timer LO	ON Delay and OFF Delay		ON	OFF

DIP-Switch position → 

Time (T) is adjustable from 0 to 10 s

## 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.