Model Number
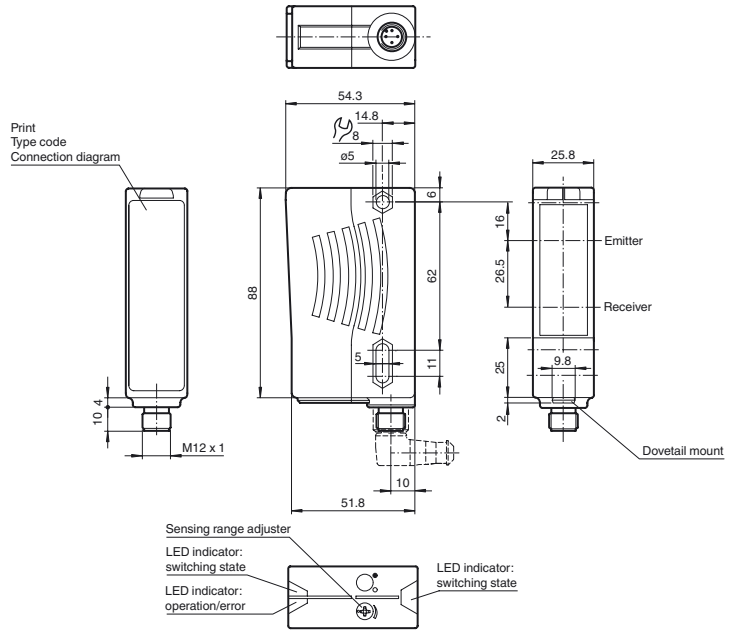
RL28-8-H-400-RT-B3B/73c

Background suppression sensor
with 4-pin, M12 x 1 plastic connector

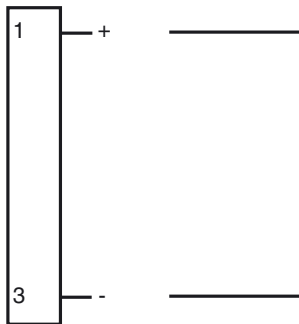## Features

- Sensor with AS interface according to Spec. 2.11
- Ultra bright LEDs for power on and switching state
- Good alignability due to red transmission LED
- Not sensitive to ambient light, even with switched energy saving lamps
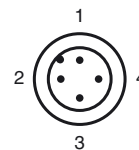- Waterproof, protection degree IP67
- Protection class II

Dimensions

Print
Type code
Connection diagram

54.3
14.8
8
ø5
6
88
62
16
26.5
25.8
Emitter
Receiver
25
9.8
5
11
2
Dovetail mount
10.4
M12 x 1
10
51.8

Sensing range adjuster
LED indicator: switching state
LED indicator: operation/error
LED indicator: switching state

Electrical connection

1 +
3 -

○ = Light on
● = Dark on

Pinout

1
2   4
3

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Release date: 2011-08-26 10:22   Date of issue: 2011-08-26   134247_eng.xml

Technical data

General specifications

Detection range	20 ... 400 mm
Detection range min.	20 ... 150 mm
Detection range max.	20 ... 400 mm
Background suppression	max. + 10 % of the upper limit of the detection range
Light source	LED
Light type	modulated visible red light , 660 nm
Black/White difference (6 %/90 %)	< 10 %
Diameter of the light spot	approx. 12 mm at a distance of 400 mm
Angle of divergence	Emitter 1.2°, Receiver 2°
Ambient light limit	50000 Lux

Functional safety related parameters

$MTTF_d$	1480 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	60 %

Indicators/operating means

Operating display	dual-LED green/red green: AS-Interface voltage, normal operation red: communication error or address 0 red/green flashing: peripherie fault
Function display	2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range

Electrical specifications

Operating voltage	U_B	26.5 ... 31.6 V via AS-Interface network , min. 18.5 V
No-load supply current	I_0	≤ 40 mA

Input

Test input	Data bit D2: 0: emitter on 1: emitter off

Output

Switching type		light/dark on switchable via AS-i bus system
Signal output		AS-Interface
Switching frequency	f	250 Hz
Response time		2 ms
Timer function		Impulsed off-delay IAB, 50 ms, switchable via AS-Interface

Ambient conditions

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 75 °C (-40 ... 167 °F)

Mechanical specifications

Protection degree	IP67
Connection	connector M12 x 1, 4-pin
Material	
Housing	Plastic ABS
Optical face	plastic
Mass	70 g

Compliance with standards and directives

Standard conformity	
Product standard	EN 60947-5-2:2007
Standards	EN 50295 AS-i Complete Spec 2.11

Approvals and certificates

Protection class	II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
CCC approval	Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

Accessories

VBP-HH1
Handheld programming device

OMH-05
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-07
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-21
Mounting bracket

OMH-22
Mounting bracket

OMH-MLV11-K
dove tail mounting clamp

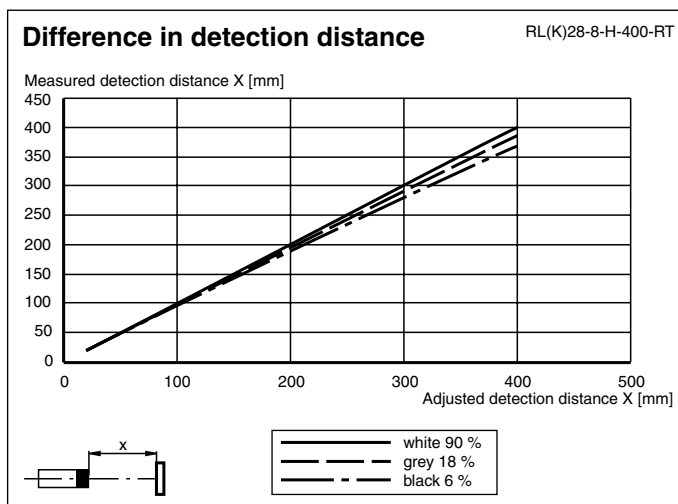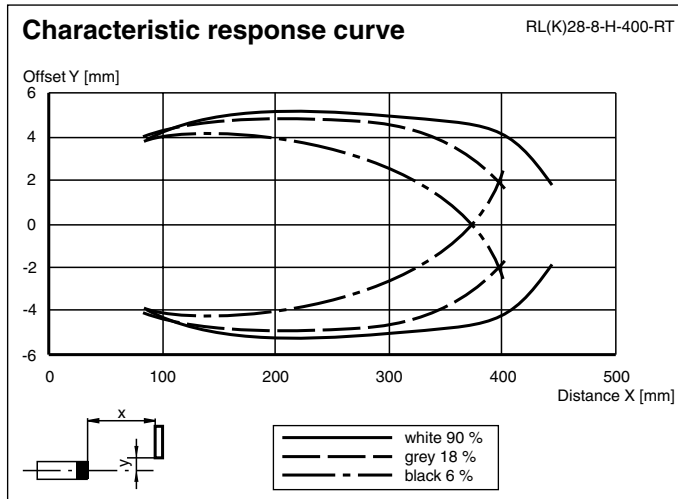**OMH-RLK29**
Mounting bracket

OMH-RLK29-HW
Mounting bracket for rear wall mounting

OMH-RL28-C
Protective cover

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

Curves/Diagrams

Characteristic response curve

RL(K)28-8-H-400-RT

Offset Y [mm]

Distance X [mm]

	white 90 %
	grey 18 %
	black 6 %

Difference in detection distance

RL(K)28-8-H-400-RT

Measured detection distance X [mm]

Adjusted detection distance X [mm]

	white 90 %
	grey 18 %
	black 6 %

AS-Interface programming

<F id="261">Addresspreset to 00, can be changed via Busmaster or programming devices

IO-Code   3
ID-Code   A
ID2   1

- **Data bit**
  <F id="263">Bitfunction
  D0   Switch output (0=object detected, 1=no object detected) applies to P1=0
  D1   not used
  D2   Test function (0=emitter ON, 1=emitter OFF)
  D3   not used
- **Parameter bit**
  <F id="263">Bitfunction (1/0)
  P0not used
  P1   Light/dark-changeover switch (0=DS, 1=HS)
  P2   Time function IAB, 50 ms (0=time ON, 1=time OFF)
  P3   not used

Additional information

Intended use:

The transmitter and receiver are located in the same housing for direct detection sensors with background masking. Marking of objects outside the detection 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 colour, as well as the brightness of the background.

Mounting instructions:

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

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

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Adjustment:

After the operating voltage is applied, the LED is lit green.

Align the sensor to the background. If the yellow LED is lit, the detection range should be reduced with the detection range adjuster until the yellow LED goes out.

Object direction:

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

If it does not light up, the detection range must be adjusted on the potentiometer until it lights up when an object is detected.

Cleaning:

We recommend cleaning the optical surface and checking the screwed connection and other connections at regular intervals.