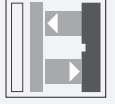




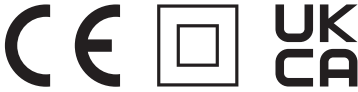
## Background suppression sensor

RL28-8-H-2000-IR/47/105/106



- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Minimal black-white difference through the infrared transmission LED
- Version with heated front panel

Background suppression sensor



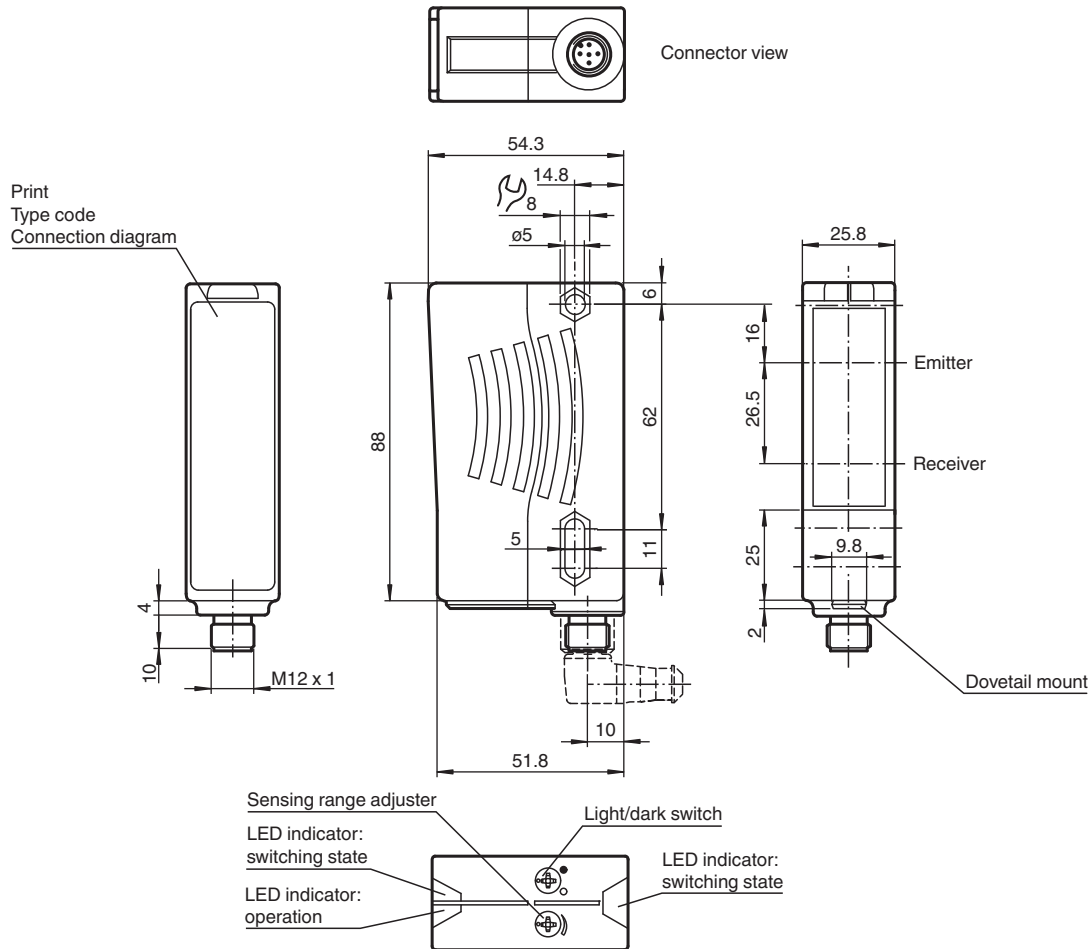
### Function

The series 28 family of sensors can be universally used. It has a large range of models that allows it to be integrated into any automation environment. The sensors are contained in sturdy water resistant plastic housings with multiple fastening options and scratch resistant optical cover. Features such as a timer function, and functions including a light/dark switch, sensitivity adjuster and highly visible status LEDs make for less effort on the part of the user and streamline installation, setup and operation. Just about any task associated with positioning, moving, conveying and monitoring can be accomplished with these sensors.

### Application

- Object tracking in material handling, and the packaging sector
- Material flow monitoring
- Bin occupancy check in storage technology
- Fine positioning in high-bay warehouses
- Presence and height monitoring on pallet conveyors
- Single-beam protection for automatic industrial gates and elevator doors
- Protection at automatic gates

## Dimensions



## Technical Data

### General specifications

Detection range	20 ... 2000 mm
Detection range min.	20 ... 200 mm
Detection range max.	20 ... 2000 mm
Background suppression	max. + 10 % of the upper limit of the detection range
Light source	IRED
Light type	modulated infrared light , 880 nm
Black-white difference (6 %/90 %)	< 40 %
Diameter of the light spot	approx. 70 mm at a distance of 2000 mm
Opening angle	transmitter 2° receiver 2°
Ambient light limit	50000 Lux

### Functional safety related parameters

MTTF <sub>d</sub>	720 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Indicators/operating means

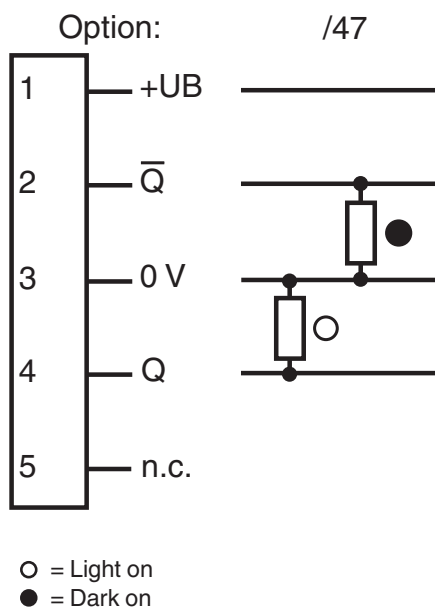
Operation indicator	LED green
Function indicator	2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range
Control elements	Sensing range adjuster , Light-on/dark-on changeover switch

### Electrical specifications

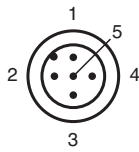
## Technical Data

Operating voltage	$U_B$	24 V DC $\pm$ 20 %
Ripple		10 %
No-load supply current	$I_0$	$\leq$ 75 mA
<b>Output</b>		
Switching type		light/dark on switchable
Signal output		2 PNP, complementary, short-circuit protected, reverse polarity protected , open collectors
Switching voltage		max. 30 V DC
Switching current		max. 200 mA
Switching frequency	f	250 Hz
Response time		2 ms
<b>Conformity</b>		
Product standard		EN 60947-5-2
<b>Approvals and certificates</b>		
Protection class		II, rated voltage $\leq$ 250 V AC with pollution degree 1-2 according to IEC 60664-1
UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Storage temperature		-40 ... 60 °C (-40 ... 140 °F)
<b>Mechanical specifications</b>		
Housing width		25.8 mm
Housing height		88 mm
Housing depth		54.3 mm
Degree of protection		IP67
Connection		5-pin, M12 x 1 connector
Material		
Housing		Plastic ABS
Optical face		Plastic pane
Mass		70 g
Note		Heated lens

## Connection Assignment



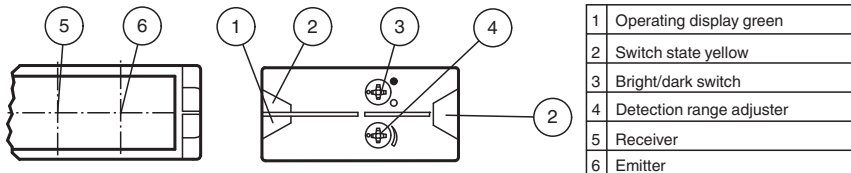
## Connection Assignment



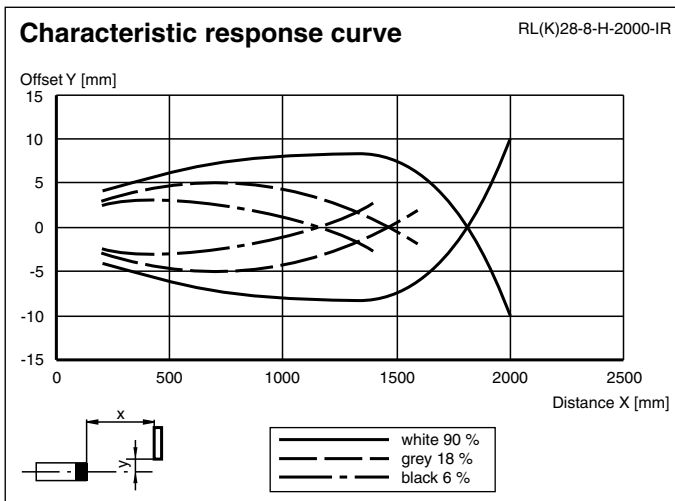
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

## Assembly

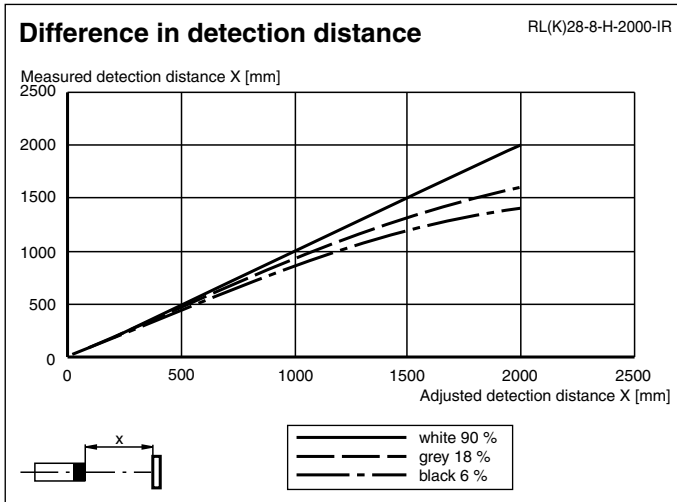


## Characteristic Curve



Release date: 2023-04-04 Date of issue: 2023-04-04 Filename: 183415\_eng.pdf

**Characteristic Curve**



**Application**



**Additional Information**

**System Description**

The triangulation sensor with background suppression (BGS) contains both an emitter and a receiver in a single housing. Targeted blanking of objects outside the scanning range is made possible by a corresponding angle arrangement between emitter and receiver (2 receiver elements). The triangulation sensor (BGS) detects objects regardless of their surface structure, brightness and color, as well as the brightness of the background.

**Mounting**

The sensors can be mounted directly with fixing screws or by using a mounting bracket. Mounting brackets are available as accessories. Ensure that the surface is flat to avoid housing distortion during mounting and fixing. Secure nut and bolt with spring washers to prevent misalignment of the sensor.

**Adjusting the Sensor:** Apply the operating voltage to the sensor. The power indicator lights green.

Adjust the sensor to the background.

Yellow signal indicator permanently lights up: Use the sensing range adjuster to adjust the sensor to correct sensing range. Once the correct sensing range is set, the yellow signal indicator goes out.

**Commissioning**

**Check Object Detection:** Check as follows if the sensor detects objects as intended.

Position the object in the required sensing range of the sensor and align the light spot towards the object.

The yellow signal indicator is off. The indicator lights up only when the object is detected.


Troubleshooting: If the sensor does not respond as expected, change the sensing range setting until the signal indicator lights up during object detection.

**Maintenance**

**Cleaning:** Clean the optical interfaces of the sensor (e.g., lenses) at regular intervals.





**Maintenance:** Check the mounting fittings and the electrical connections regularly.

**Accessories**

	<b>OMH-05</b>	Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm
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**Accessories**

	<b>OMH-21</b>	Mounting bracket: mounting aid for sensors in the RL* series
	<b>OMH-22</b>	Mounting aid for RL* series
	<b>OMH-RLK29-HW</b>	Mounting bracket for rear wall mounting
	<b>OMH-RL28-C</b>	Weld slag cover model