



Model Number

OBD1400-R201-2EP-IO-V1

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

Features

- Medium design with versatile mounting options
- Extended temperature range -40°C ... 60°C
- High degree of protection IP69K
- IO-link interface for service and process data

Product information

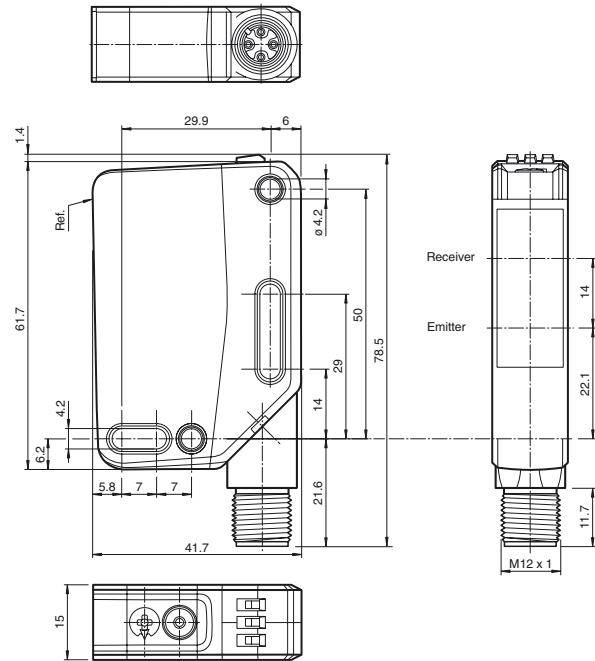
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design—from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

The entire series enables sensors to communicate via IO-Link.

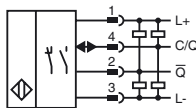
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

Multi Pixel Technology (MPT) ensures that the standard sensors are flexible and can be adapted to the application environment.

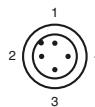
Dimensions



Electrical connection



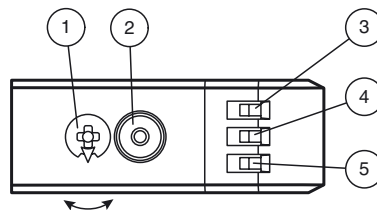
Pinout



Wire colors in accordance with EN 60947-5-2

- 1 | BN (brown)
- 2 | WH (white)
- 3 | BU (blue)
- 4 | BK (black)

Indicators/operating means



1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN

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Technical data**General specifications**

Detection range	2 ... 1400 mm
Detection range min.	100 ... 200 mm
Detection range max.	2 ... 1400 mm
Adjustment range	200 ... 1400 mm
Reference target	standard white, 100 mm x 100 mm
Light source	LED
Light type	modulated visible red light
LED risk group labelling	exempt group
Diameter of the light spot	approx. 50 mm at a distance of 1400 mm
Angle of divergence	2 °
Ambient light limit	EN 60947-5-2 : 60000 Lux

Functional safety related parameters

MTTF _d	724 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operation indicator	LED green: constantly on - power on flashing (4Hz) - short circuit flashing with short break (1 Hz) - IO-Link mode
Function indicator	LED yellow: constantly on - object detected constantly off - object not detected
Control elements	Light-on/dark-on changeover switch
Control elements	Sensing range adjuster

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I ₀	< 18 mA at 24 V Operating voltage
Protection class		III

Interface

Interface type	IO-Link (via C/Q = pin 4)
Device profile	Identification and diagnosis Smart Sensor type 2.4
Transfer rate	COM 2 (38.4 kBaud)
IO-Link Revision	1.1
Min. cycle time	2.3 ms
Process data width	Process data input 1 Bit Process data output 2 Bit
SIO mode support	yes
Device ID	0x111111 (1118481)
Compatible master port type	A

Output

Switching type	The switching type of the sensor is adjustable. The default setting is: C/Q - Pin4: NPN normally open / light-on, PNP normally closed / dark-on, IO-Link /Q - Pin2: NPN normally closed / dark-on, PNP normally open / light-on	
Signal output	2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage protected	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA , resistive load	
Usage category	DC-12 and DC-13	
Voltage drop	U _d	≤ 1.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms

Conformity

Communication interface	IEC 61131-9
Product standard	EN 60947-5-2

Ambient conditions

Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Housing width	15 mm
Housing height	61.7 mm
Housing depth	41.7 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	4-pin, M12 x 1 connector, 90° rotatable
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 47 g

Accessories**IO-Link-Master02-USB**

IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

V1-G-2M-PUR

Female cordset, M12, 4-pin, PUR cable

V1-W-2M-PUR

Female cordset, M12, 4-pin, PUR cable

OMH-RL31-02

Mounting bracket narrow

OMH-RL31-03

Mounting bracket narrow

OMH-RL31-04

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

OMH-RL31-07

Mounting bracket including adjustment

OMH-R20x-Quick-Mount

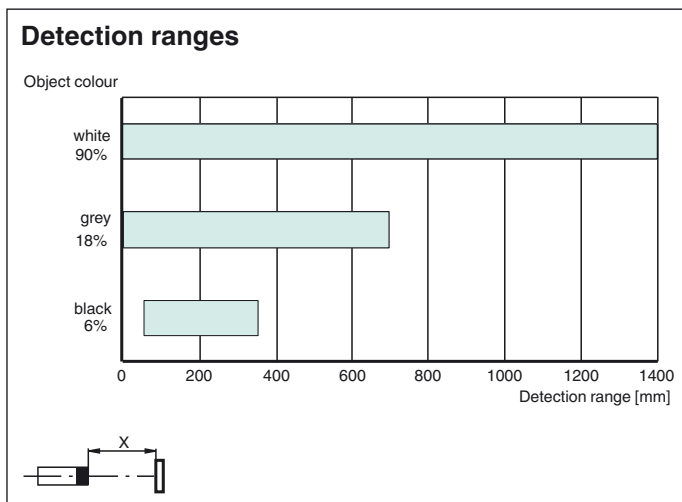
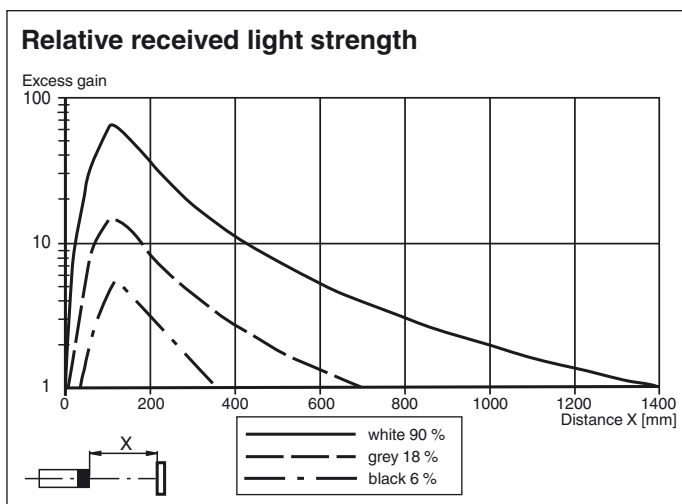
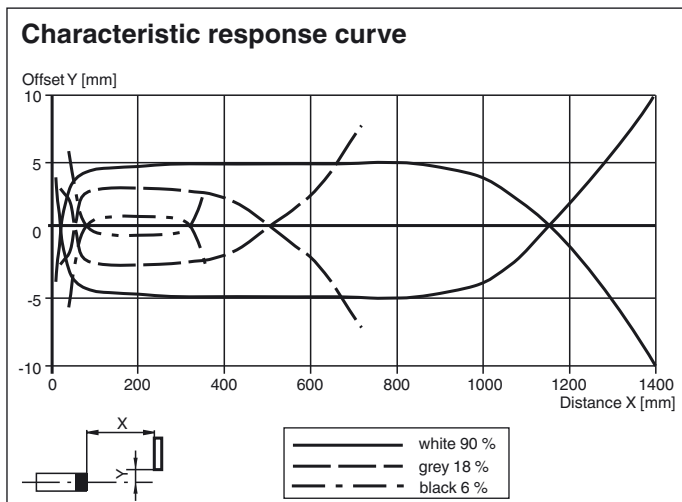
Quick mounting accessory

Other suitable accessories can be found at

Approvals and certificates

UL approval E87056 , cULus Listed , class 2 power supply , type rating 1
 CCC approval CCC approval / marking not required for products rated ≤36 V

Curves/Diagrams



Functions and Operation

To unlock the adjustment functions turn the sensing range /sensitivity adjuster for more than 180 degrees.

Sensing Range / Sensitivity

Turn sensing range / sensitivity adjuster clockwise to increase sensing range / sensitivity.

Turn sensing range / sensitivity adjuster counter clockwise to decrease sensing range / sensitivity.

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If the end of the adjustment range is reached, the signal indicator starts flashing with 8 Hz.

Light-on / Dark-on Configuration

Press the light-on / dark-on changeover switch for more than 1 second (less than 4 seconds). The light-on / dark-on mode changes and the operating indicators are activated accordingly.

If you press the light-on / dark-on changeover switch for more than 4 seconds, the light-on / dark-on mode changes back to the original setting. On release of the light-on / dark-on changeover switch the current state is activated.

Restore Factory Settings

Press the light-on / dark-on changeover switch for more than 10 seconds (less than 30 seconds) until all LEDs turn off. On release of the light-on / dark-on changeover switch the signal indicator turns on. After 5 seconds the sensor resumes operation with factory default settings.

After 5 minutes of inactivity the sensing range / sensitivity adjustment is locked. In order to reactivate the sensing range / sensitivity adjustment, turn the sensing range / sensitivity adjuster for more than 180 degrees.