



## Diffuse mode sensor OBD1400-R201-2EP-IO



- 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

Diffuse mode sensor



**IO-Link**

### Function

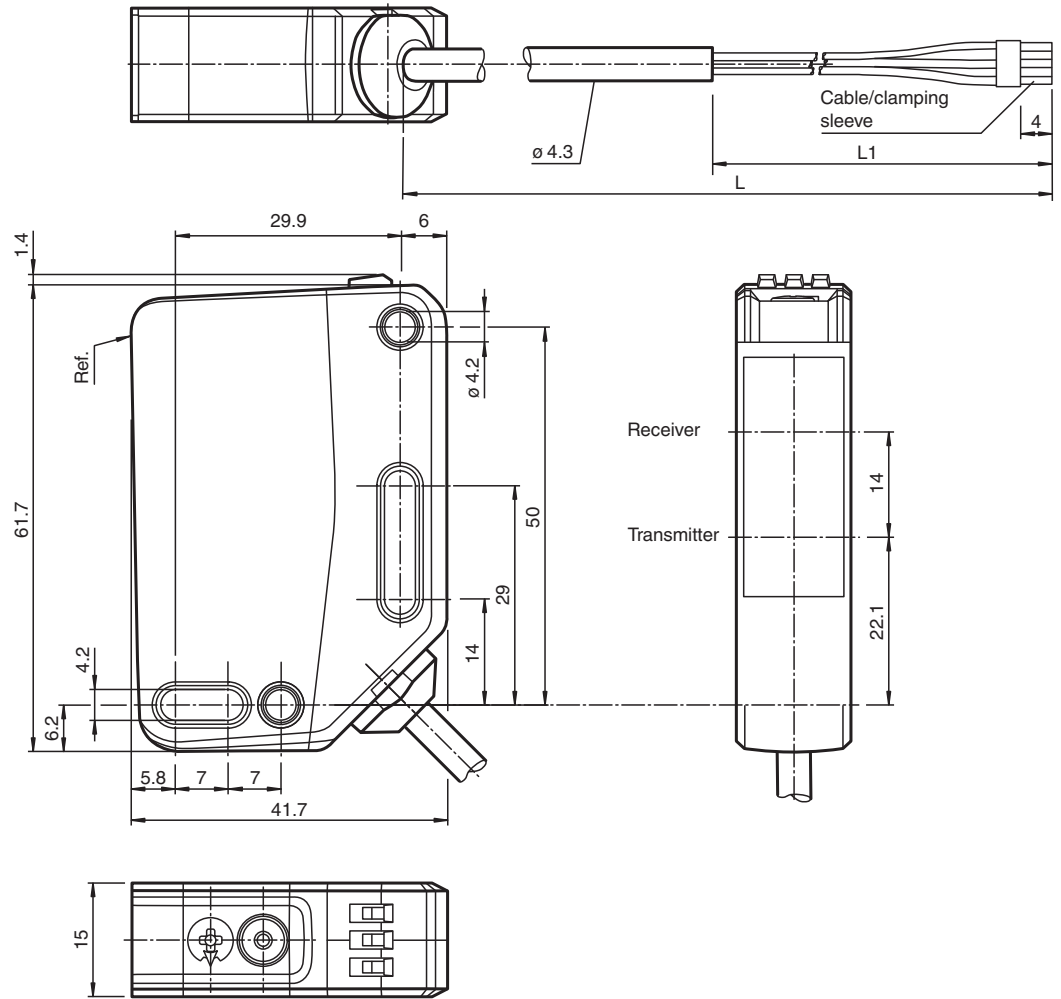
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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**



**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
Opening angle	2 °
Ambient light limit	EN 60947-5-2 : 60000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	724 a
Mission Time (T <sub>M</sub> )	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
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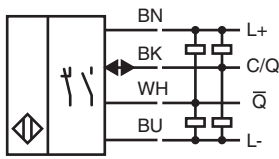
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## Technical Data

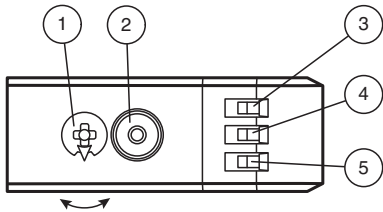
Function indicator		LED yellow: constantly on - object detected constantly off - object not detected
Control elements		Light-on/dark-on changeover switch
Control elements		Sensing range adjuster
<b>Electrical specifications</b>		
Operating voltage	$U_B$	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	$I_0$	< 18 mA at 24 V Operating voltage
Protection class		III
<b>Interface</b>		
Interface type		IO-Link ( via C/Q = BK )
IO-Link revision		1.1
Device profile		Identification and diagnosis Smart Sensor type 2.4
Device ID		0x111111 (1118481)
Transfer rate		COM2 (38.4 kBaud)
Min. cycle time		2.3 ms
Process data width		Process data input 1 Bit Process data output 2 Bit
SIO mode support		yes
Compatible master port type		A
<b>Output</b>		
Switching type		The switching type of the sensor is adjustable. The default setting is: C/Q - BK: NPN normally open / light-on, PNP normally closed / dark-on, IO-Link /Q - WH: 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	$U_d$	$\leq 1.5$ V DC
Switching frequency	$f$	1000 Hz
Response time		0.5 ms
<b>Conformity</b>		
Communication interface		IEC 61131-9
Product standard		EN 60947-5-2
<b>Approvals and certificates</b>		
EAC conformity		TR CU 020/2011
UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
CCC approval		CCC approval / marking not required for products rated $\leq 36$ V
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F) , fixed cable -20 ... 60 °C (-4 ... 140 °F) , movable cable not appropriate for conveyor chains
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
<b>Mechanical specifications</b>		
Housing width		15 mm
Housing height		61.7 mm
Housing depth		41.7 mm
Degree of protection		IP67 / IP69 / IP69K
Connection		2 m fixed cable
<b>Material</b>		
Housing		PC (Polycarbonate)
Optical face		PMMA
Mass		approx. 83 g
Cable length		2 m

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Connection

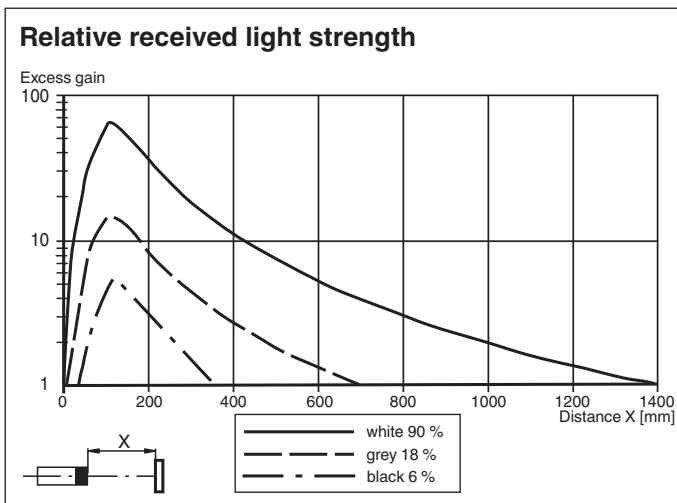
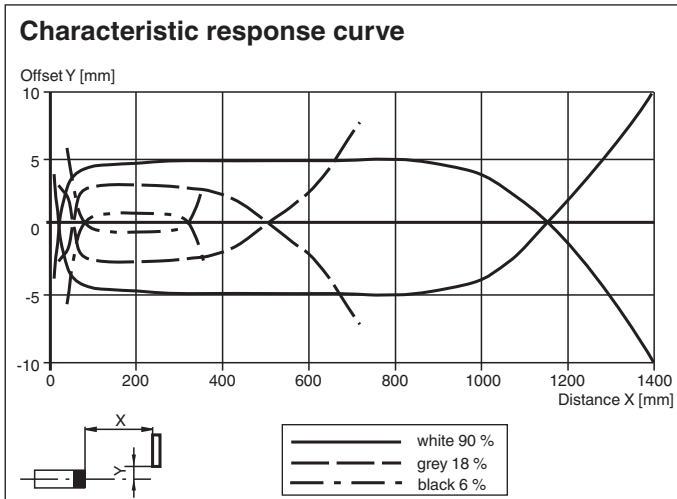


Assembly

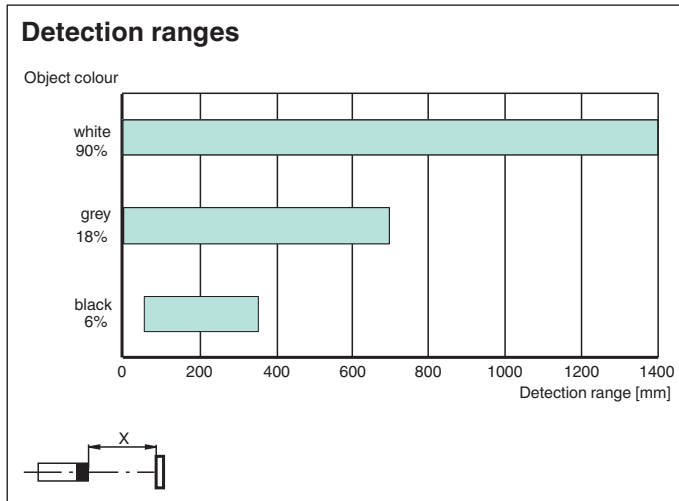


1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN

Characteristic Curve



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## Accessories

	<b>OMH-RL31-02</b>	Mounting bracket narrow
	<b>OMH-RL31-03</b>	Mounting bracket narrow
	<b>OMH-RL31-04</b>	Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm
	<b>OMH-RL31-07</b>	Mounting bracket including adjustment
	<b>OMH-RL31-08</b>	Mounting aid for round steel $\varnothing$ 12 mm or sheet 1.5 mm ... 3 mm
	<b>OMH-R20x-Quick-Mount</b>	Quick mounting accessory
	<b>ICE2-8IOL-G65L-V1D</b>	EtherNet/IP IO-Link master with 8 inputs/outputs
	<b>ICE3-8IOL-G65L-V1D</b>	PROFINET IO IO-Link master with 8 inputs/outputs
	<b>ICE2-8IOL-K45S-RJ45</b>	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	<b>ICE3-8IOL-K45P-RJ45</b>	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	<b>ICE3-8IOL-K45S-RJ45</b>	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	<b>IO-Link-Master02-USB</b>	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
	<b>ICE1-8IOL-G30L-V1D</b>	Ethernet IO-Link module with 8 inputs/outputs
	<b>ICE1-8IOL-G60L-V1D</b>	Ethernet IO-Link module with 8 inputs/outputs
	<b>ICE2-8IOL-K45P-RJ45</b>	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111  
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS

## 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.

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.