



## Diffuse mode sensor OBD1400-R201-EP-IO-0,3M-V3



- 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



### Function

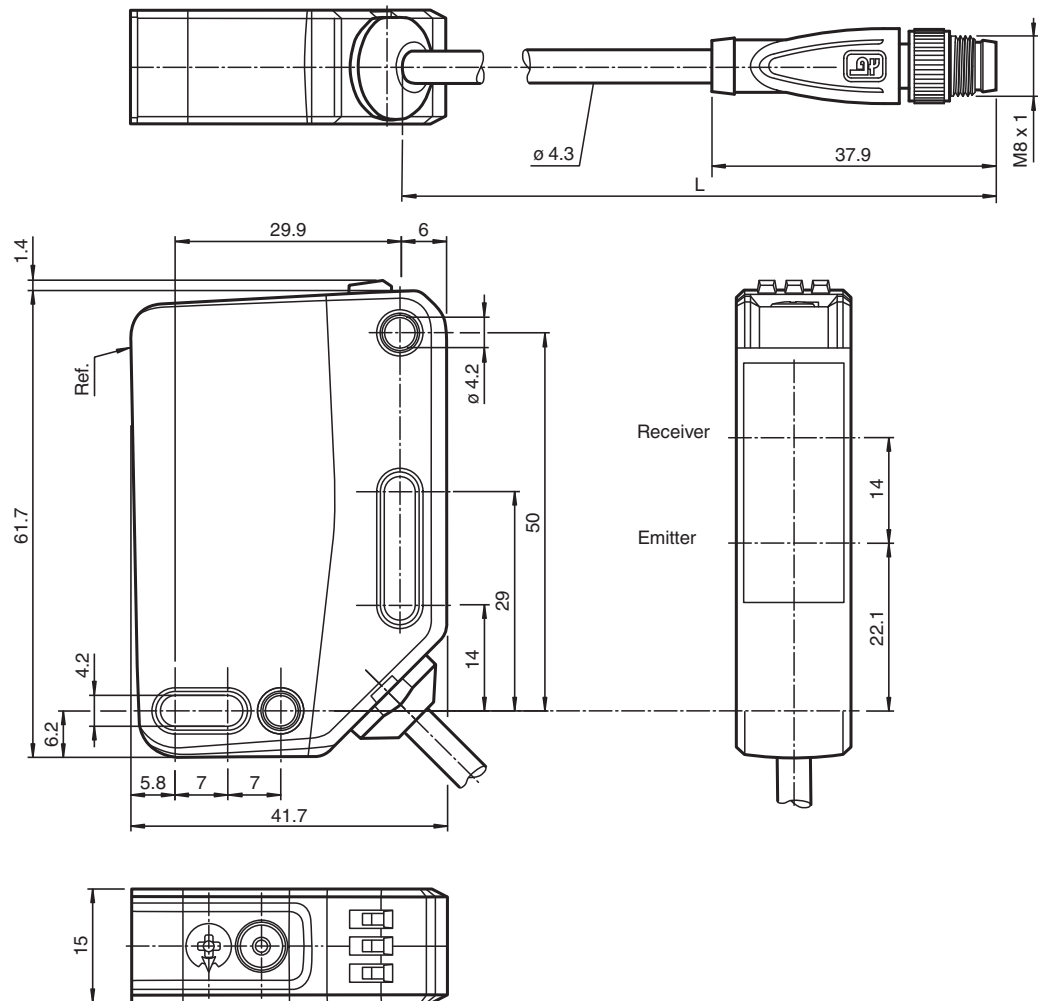
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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

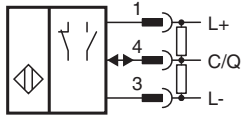
Operation indicator	LED green: constantly on - power on flashing (4Hz) - short circuit flashing with short break (1 Hz) - IO-Link mode
---------------------	---

## 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 = pin 4 )
IO-Link revision		1.1
Device profile		Identification and diagnosis Smart Sensor type 2.4
Device ID		0x111111 (1118481)
Transfer rate		COM2 (38.4 kBit/s)
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 - Pin4: NPN normally open / light-on, PNP normally closed / dark-on, IO-Link
Signal output		1 push-pull (4 in 1) output, 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>		
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		300 mm fixed cable with M8 x 1, 3-pin connector
Material		
Housing		PC (Polycarbonate)
Optical face		PMMA
Mass		approx. 51 g
Cable length		0.3 m

Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 295670-100054\_eng.pdf

## Connection



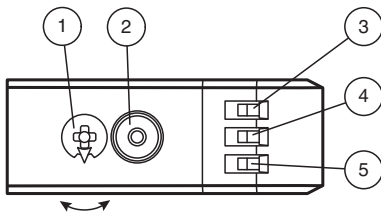
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

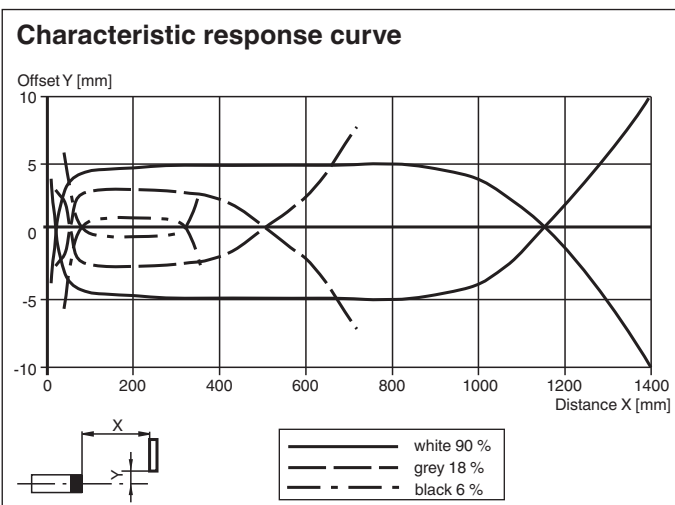
- 1 | BN (brown)
- 3 | BU (blue)
- 4 | BK (black)

## Assembly



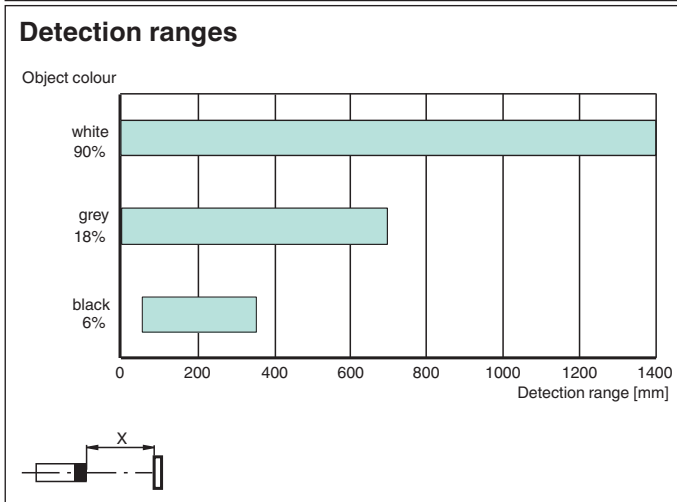
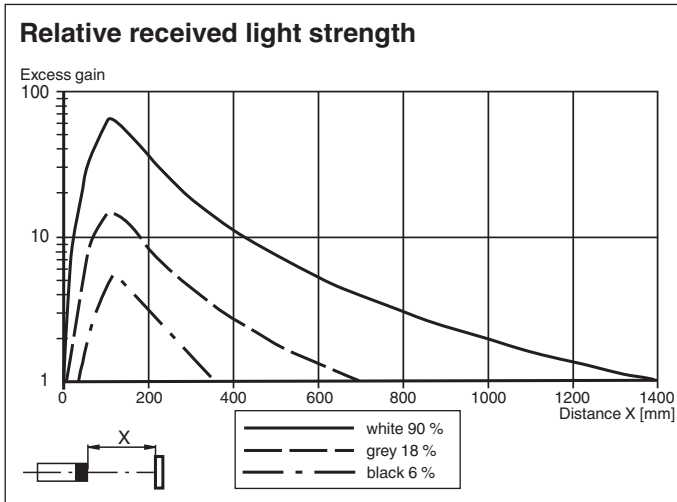
1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN

## Characteristic Curve



Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 295670-100054\_eng.pdf

## Characteristic Curve



## Commissioning

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.

## 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

Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 295670-100054\_eng.pdf

## Accessories

	<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
	<b>V3-GM-2M-PUR</b>	Female cordset single-ended M8 straight A-coded, 3-pin, PUR cable grey
	<b>V3-WM-2M-PUR</b>	Female cordset single-ended M8 angled A-coded, 3-pin, PUR cable grey

Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 295670-100054\_eng.pdf

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**