Model Number

OBR15M-R200-2EP-IO-0,3M-V1

Retroreflective sensor with polarization filter

with fixed cable and M12 connector, 4-pin

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.

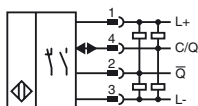The entire series enables sensors to communicate via IO-Link.

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.
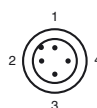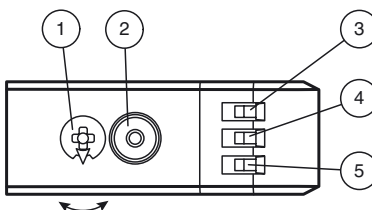
Dimensions
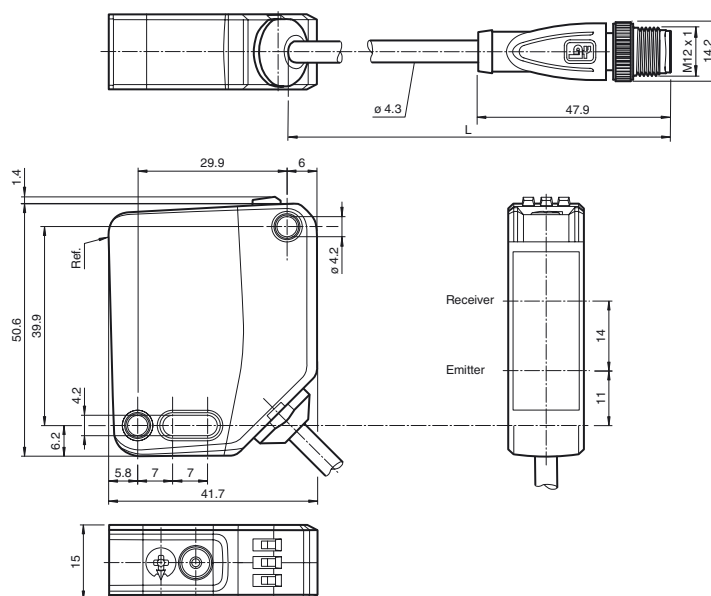
Electrical connection

1	L+
4	C/Q
2	$\overline{Q}$
3	L-

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

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

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Technical data

General specifications

Effective detection range	0 ... 15 m
Reflector distance	0.02 ... 15 m
Threshold detection range	18.5 m
Reference target	H85-2 reflector
Light source	LED
Light type	modulated visible red light
LED risk group labelling	exempt group
Polarization filter	yes
Diameter of the light spot	approx. 520 mm at a distance of 15 m
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	Yellow LED: Permanently lit - light path clear Permanently off - object detected Flashing (4 Hz) - insufficient operating reserve
Control elements	Light-on/dark-on changeover switch
Control elements	sensitivity adjustment

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 witdh	Process data input 2 Bit Process data output 2 Bit
SIO mode support	yes
Device ID	0x111201 (1118721)
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 / dark-on, PNP normally closed / light-on, IO-Link /Q - Pin2: NPN normally closed / light-on, PNP normally open / dark-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) , fixed cable -20 ... 60 °C (-4 ... 140 °F) , movable cable not appropriate for conveyor chains
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)

Mechanical specifications

Housing width	15 mm
Housing height	50.6 mm
Housing depth	41.7 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	300 mm fixed cable with M12 x 1, 4-pin connector
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA

Accessories

IO-Link-Master02-USB
IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection

OMH-MLV12-HWK
Mounting bracket for series MLV12 sensors

OMH-R200-01
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-R20x-Quick-Mount
Quick mounting accessory

OMH-MLV12-HWG
Mounting bracket for series MLV12 sensors

REF-H85-2
Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes

REF-C110-2
Reflector, round ø 84 mm, central mounting hole

REF-H50
Reflector, rectangular 51 mm x 61 mm, mounting holes, fixing strap

REF-VR10
Reflector, rectangular 60 mm x 19 mm, mounting holes

OFR-100/100
Reflective tape 100 mm x 100 mm

V1-G-2M-PUR
Female cordset, M12, 4-pin, PUR cable

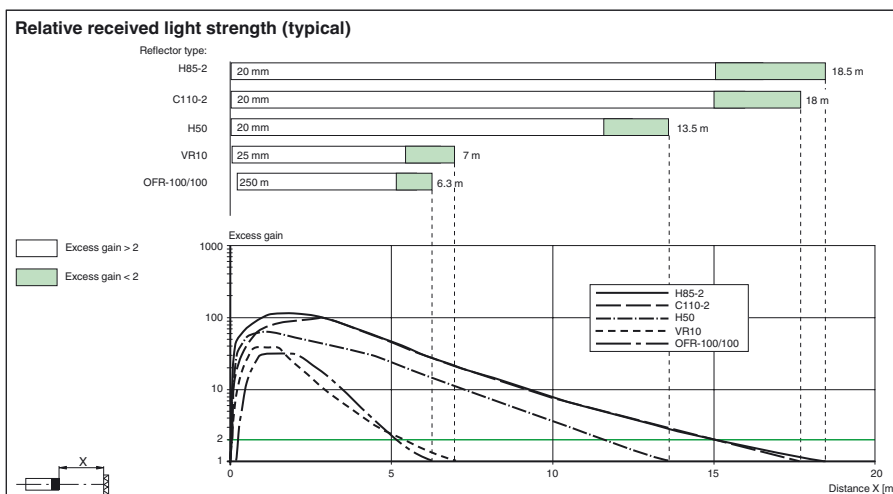**V1-W-2M-PUR**
Female cordset, M12, 4-pin, PUR cable

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

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Mass	approx. 45 g
Cable length	0.3 m

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

Characteristic response curve

Offset Y [mm]

Distance X [m]

- H85-2
- C110-2
- H50
- VR10
- OFR100/100

Relative received light strength (typical)

Reflector type:

H85-2	20 mm	18.5 m
C110-2	20 mm	18 m
H50	20 mm	13.5 m
VR10	25 mm	7 m
OFR-100/100	250 m	6.3 m

Excess gain > 2
Excess gain < 2

Excess gain

- H85-2
- C110-2
- H50
- VR10
- OFR-100/100

Distance X [m]
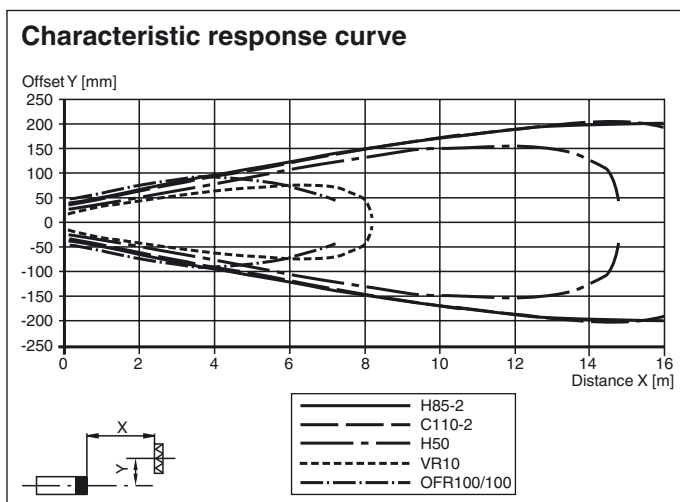
Functions and Operation

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.

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