



CE





# **Model Number**

#### OBR15M-R200-2EP-IO

Retroreflective sensor with polarization filter

with fixed cable

#### **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**

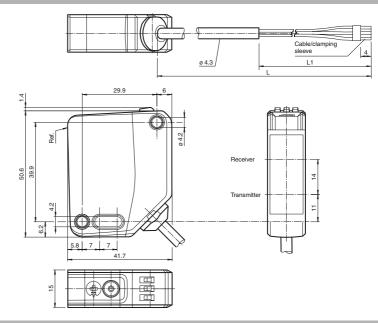
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design—from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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

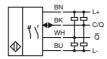
The DuraBeam laser sensors are durable and can be used in the same way as a standard sensor.

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

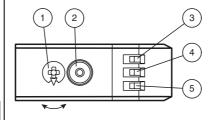
### **Dimensions**



### **Electrical connection**



# 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	



General specifications  Effective detection range  Reflector distance  0.02 15 m  Reflector distance  18.5 m  Reference target  H85-2 reflector  Light source  LED risk group labelling  exempt group  Potarization filter  yes  Diameter of the light spot  Angle of divergence  2°  Ambient light limit  Functional safety related parameters  MTTrg  Mission Time (T <sub>M</sub> )  Diagnostic Coverage (DC)  Indicators/operating means  Operation indicator  Function indicator  Function indicator  Function indicator  Control elements  Control elem			
Effective detection range	Technical data		
Reflector distance	General specifications		
Reflector distance	•		0 15 m
Melerance target   Message   Messa	•		0.02 15 m
Melerance target   Message   Messa			18.5 m
Light source         LED           Light type         modulated visible red light           LED risk group labelling         yes           Potarization filter         yes           Jample of divergence         2 **           Ambient light limit         EN 60947-5-2:60000 Lux           Functional safety related parameters         MTTF., and the state of the s	•		
Light type			LED
LED risk group labeling	<u> </u>		modulated visible red light
Polarization filter   yes	,		<del>-</del>
Diameter of the light spot   approx. 520 mm at a distance of 15 m	• •		
Angle of divergence Ambient light limit  Functional safety related parameters  MTFg  Mission Time (T <sub>M</sub> ) 20 a Diagnostic Coverage (DC)  Indicators/operating means  Operation indicator  Operation indicator  Function indicator	Diameter of the light spot		<u> </u>
### Ambient light limit   Functional safety related parameters   Mission Time (T <sub>M</sub> )	• 1		
### Functional safety related parameters  ### MTF d  ### MISSION TIME (T <sub>M</sub> )  Diagnostic Coverage (DC)  Departion indicator  Operation indicator  Operation indicator  Operation indicator  Operation indicator  Control elements  Electrical specifications  Operating voltage  Hipple  No-load supply current  Interface  Interface type  Device profile  Device profile  Device profile  SIO mode support  Process data with  Process data with  Process data vith			EN 60947-5-2 : 60000 Lux
MTFc	•	meters	
Mission Time (T <sub>M</sub> )   20 a   0   0   0   0   0   0   0   0   0	·		724 a
Diagnostic Coverage (DC) Indicators/operating means Operation indicator  Operation indicator  Function indicator  Yellow LED: Permanently oil - object detected Flashing (4Hz) - insufficient operating reserve Light-on/dark-on changeover switch Sensitivity adjustment  Electrical specifications Operating voltage  UB 10 30 V DC  Ripple  max. 10 % No-load supply current Protection class  III  Interface Interface Interface by Interface by Identification and diagnosis Smart Sensor type 2.4  Transfer rate  COM 2 (38.4 kBaud)  IO-Link Revision  Interface by Interface	•		
Indicators/operating means	, III		
LED green:   constantly on - power on	=		
constantly on - power on flashing (4Hz) - Nort circuit flashing (4Hz) - Nort circuit flashing (4Hz) - Nort circuit flashing (4Hz) - Short circuit flashing (4Hz) - Insufficient operating reserve Light-on/dark-on changeover switch  Control elements	· -		LED green:
Permanently lif - light path clear Permanently off - object detected Flashing (4 Hz) - insufficient operating reserve Light-ordidark-on changeover switch Scontrol elements Light-ordidark-on changeover switch Sensitivity adjustment Electrical specifications Operating voltage Up 10 30 V DC Ripple max. 10 % No-load supply current lo < 18 m A at 24 V Operating voltage Protection class III Interface Interface bye Interface bye Interface bye Interface compression of the sensor is adjustable. The default setting is: C/O & 2 (88 4 kBaud) Interface compression of the sensor is adjustable. The default setting is: C/O & 8 (81 kP) No romally open / dark-on, PNP normally open dark-on Signal output Switching type Signal output Switching voltage Switching current Usage category DC-12 and DC-13 Voltage drop Voltage category Voltage drop Voltage category Voltage drop Voltage category Voltage drop Voltage drop Voltage drop Voltage drop Voltage drop Voltage max. 30 V DC Switching frequency f 1000 Hz Response time DC-12 and DC-13 Voltage drop Voltage drop Voltage category Voltage drop Voltage dro			constantly on - power on flashing (4Hz) - short circuit
Control elements Light-on/dark-on changeover switch  Control elements sensitivity adjustment  Electrical specifications  Operating voltage UB in 30 V DC max. 10 %  No-load supply current IQ < 18 mA at 24 V Operating voltage  Interface  Interface Interface ype IO-Link ( via C/Q = BK )  Device profile Identification and diagnosis Smart Sensor type 2.4  Transfer rate COM 2 (38.4 kBaud)  I-Link Revision 1.1  Min. cycle time 2.3 ms  Process data witdh Process data input 2 Bit Process data output 2 Bit Process data output 2 Bit SIO mode support yes  Device ID Ox111201 (1118721)  Compatible master port type A  Output  Switching type The switching type of the sensor is adjustable. The default setting is: C/Q - BK. NPN normally open / dark-on, PNP normally close light-on, IO-Link / Q - WH: NPN normally closed / light-on, PNP normally closed light-on, IO-Link / Q - WH: NPN normally closed / light-on, PNP normally open dark-on was according to postarity protected, overvoltage protected or max. 100 mA, resistive load  Usage category DC-12 and DC-13  Voltage drop Ud <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 -4060 °C (-40 140 °F) , fixed cable -2060 °C (-40 140 °F) , movable cable not appropriate f conveyor chains  Storage temperature -4060 °C (-40 158 °F)  Mechanical specifications  Housing width 15 mm  Housing width 15 mm  Degree of protection IP67 / IP69 / IP69 IK  PC (Polycarbonate)	Function indicator		Permanently lit - light path clear Permanently off - object detected
Control elements sensitivity adjustment  Electrical specifications  Operating voltage   U <sub>B</sub>   10 30 V DC Ripple   max. 10 %  No-load supply current   I <sub>O</sub>   < 18 mA at 24 V Operating voltage  Interface   Interface type   Interface type   Interface   Interface type   Interface   Interface type   Interface   Inter	Control elements		3 ( )
Description			-
Operating voltage         U <sub>B</sub> 10 30 V DC           Ripple         max. 10 %           No-load supply current         I₀         < 18 mA at 24 V Operating voltage			ochodivity adjustinent
Ripple max. 10 % No-load supply current   Io   18 mA at 24 V Operating voltage   Protection class   III   Interface   Interface type   IO-Link ( via C/Q = BK ) 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	•	- 11	10 20 V DC
No-load supply current   Io   < 18 mA at 24 V Operating voltage   III	· · · · · · · · · · · · · · · · · · ·	υ <sub>B</sub>	
Interface			
Interface		10	
Interface type			III
Device profile			IO Link (via C/O RK)
Smart Sensor type 2.4	- · ·		
Transfer rate	Device profile		
IO-Link Revision	Transfer rate		
Min. cycle time         2.3 ms           Process data witdh         Process data input 2 Bit Process data output 2 Bit Process data output 2 Bit           SIO mode support         yes           Device ID         0x111201 (1118721)           Compatible master port type         A           Output           The switching type of the sensor is adjustable. The default setting is: C/O - BK: NPN normally open / dark-on, PNP normally closs light-on, IO-Link / Q - WH: NPN normally closed / light-on, PNP normally close dark-on           Signal output         2 push-pull (4 in 1)outputs, short-circuit protected, reverse polarity protected, overvoltage protected           Switching voltage         max. 30 ∨ DC           Switching voltage or push-pull (4 in 1)outputs, short-circuit protected, reverse polarity protected, overvoltage protected           Switching voltage         max. 30 ∨ DC           Switching frequency         DC-12 and DC-13           Voltage drop         U <sub>d</sub> ≤ 1.5 ∨ 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 not appropriate f conveyor ch			,
Process data input 2 Bit			
Process data output 2 Bit	•		
Device ID Compatible master port type A Output  Switching type The switching type of the sensor is adjustable. The default setting is: C/Q - BK: NPN normally open / dark-on, PNP normally open dark-on, PNP normally open dark-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 Ud ≤ 1.5 V DC Switching frequency f 1000 Hz Response time 0.5 ms  Conformity Communication interface Product standard EN 60947-5-2 Ambient conditions Ambient temperature -40 60 °C (-40 140 °F) , fixed cable -20 60 °C (-40 140 °F) , movable cable not appropriate f conveyor chains Storage temperature -40 60 °C (-40 158 °F)  Mechanical specifications Housing width 15 mm Housing height 41.7 mm Degree of protection PC (Polycarbonate) PC (Polycarbonate)			
Compatible master port type  Output  Switching type  The switching type of the sensor is adjustable. The default setting is:	SIO mode support		yes
Output         Switching type       The switching type of the sensor is adjustable. The default setting is:	Device ID		0x111201 (1118721)
Switching type  The switching type of the sensor is adjustable. The default setting is:  C/Q - BK: NPN normally open / dark-on, PNP normally close light-on, IO-Link //Q - WH: 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  Voltage drop  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 f conveyor chains  Storage temperature  -40 70 °C (-40 158 °F)  Mechanical specifications  Housing width  15 mm  Housing depth  Housing depth  167 / IP69 / IP69K  Connection  2 m fixed cable  Material  Housing  PC (Polycarbonate)	Compatible master port type		A
Switching type  The switching type of the sensor is adjustable. The default setting is:  C/Q - BK: NPN normally open / dark-on, PNP normally close light-on, IO-Link //Q - WH: 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  Voltage drop  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 f conveyor chains  Storage temperature  -40 70 °C (-40 158 °F)  Mechanical specifications  Housing width  15 mm  Housing depth  Housing depth  167 / IP69 / IP69K  Connection  2 m fixed cable  Material  Housing  PC (Polycarbonate)	Output		
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 <sub>d</sub> ≤ 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 f conveyor chains  Storage temperature -40 70 °C (-40 158 °F)  Mechanical specifications  Housing width 15 mm  Housing depth 41.7 mm  Degree of protection IP67 / IP69 / IP69K  Connection 2 m fixed cable  Material  Housing PC (Polycarbonate)	Switching type		setting is: C/Q - BK: NPN normally open / dark-on, PNP normally close light-on, IO-Link /Q - WH: NPN normally closed / light-on, PNP normally oper
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 Ud ≤ 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 (-40 158 °F)  Mechanical specifications  Housing width 15 mm  Housing depth 41.7 mm  Degree of protection IP67 / IP69 / IP69K  Connection 2 m fixed cable  Material  Housing PC (Polycarbonate)	Signal output		
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$ \begin{array}{llllllllllllllllllllllllllllllllllll$	Switching voltage		- · · · · · · · · · · · · · · · · · · ·
Voltage drop       U <sub>d</sub> ≤ 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 from the 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       2 m fixed cable         Material       PC (Polycarbonate)	= = =		max. 100 mA , resistive load
Voltage drop       U <sub>d</sub> ≤ 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 from the 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       2 m fixed cable         Material       PC (Polycarbonate)			DC-12 and DC-13
Switching frequency Response time 0.5 ms  Conformity Communication interface 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 from conveyor chains Storage temperature -40 70 °C (-40 158 °F)  Mechanical specifications Housing width Housing height Housing depth Degree of protection P67 / IP69 / IP69K Connection 2 m fixed cable Material Housing PC (Polycarbonate)		Ud	
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 from 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 2 m fixed cable  Material Housing PC (Polycarbonate)		_	
Comformity  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 (-41 140 °F) , movable cable not appropriate from 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 2 m fixed cable  Material  Housing PC (Polycarbonate)	= : :		
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Housing height 50.6 mm  Housing depth 41.7 mm  Degree of protection IP67 / IP69 / IP69K  Connection 2 m fixed cable  Material  Housing PC (Polycarbonate)	·		15 mm
Housing depth 41.7 mm  Degree of protection IP67 / IP69 / IP69K  Connection 2 m fixed cable  Material  Housing PC (Polycarbonate)	•		
Degree of protection IP67 / IP69 / IP69K Connection 2 m fixed cable Material Housing PC (Polycarbonate)			41.7 mm
Connection 2 m fixed cable  Material  Housing PC (Polycarbonate)	• ,		IP67 / IP69 / IP69K
Housing PC (Polycarbonate)			
Housing PC (Polycarbonate)			
· · · · ·			PC (Polycarbonate)
	•		· · ·

### **Accessories**

# 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

# REF-C110-2

Reflector, round ø 84 mm, central mounting hole

### IO-Link-Master02-USB

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

#### REF-H85-2

Reflector, rectangular 84.5 mm x 84.5 mm, mounting holes

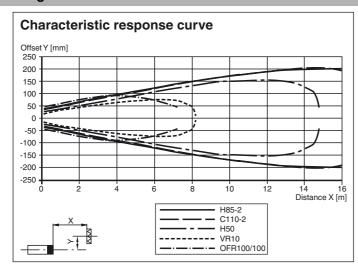
Other suitable accessories can be found at www.pepperl-fuchs.com

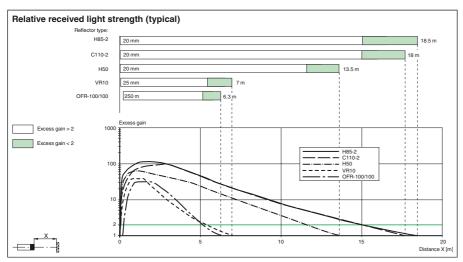
Release date: 2018-05-22 17:12 Date of issue: 2018-09-19 295670-100011\_eng.xml

**EPPERL+FUCHS** 



### **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.

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.

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