



Thru-beam sensor OBE12M-R100-S2EP-IO-0,3M-V31



- Miniature design with versatile mounting options
- IO-Link interface for service and process data
- Various frequencies for avoiding mutual interference (cross-talk
- Extended temperature range -40 °C ... 60 °Ċ
- High degree of protection IP69K

Thru-beam sensor SET











Function

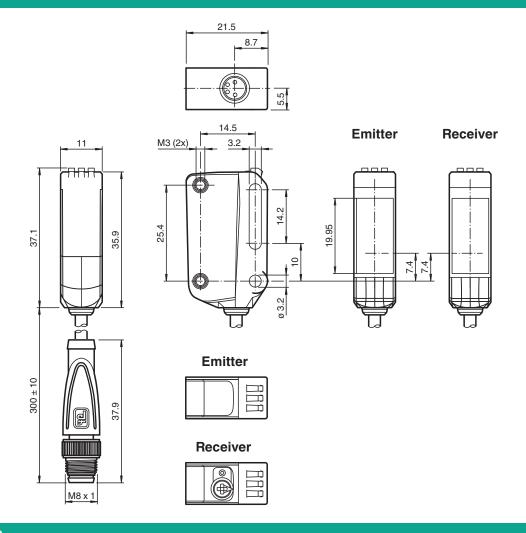
The R100 series miniature optical sensors are the first devices of their kind to offer an endto- end solution in a small single standard designfrom thru-beam sensor through to a distance measurement device. As a result of this design, the sensors are able to perform practically all standard automation 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.

The use of Multi Pixel Technology gives the standard sensors a high level of flexibility and enables them to adapt more effectively to their operating environment.

Dimensions



Technical Data

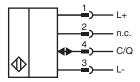
System components	
Emitter	OBE12M-R100-S-IO-0,3M-V31
Receiver	OBE12M-R100-2EP-IO-0,3M-V31
General specifications	
Effective detection range	0 12 m
Threshold detection range	15 m
Light source	LED
Light type	modulated visible red light
LED risk group labelling	exempt group
Diameter of the light spot	approx. 65 mm at a distance of 1 m
Angle of divergence	3.7 °
Ambient light limit	EN 60947-5-2 : 30000 Lux
Functional safety related parameters	
MTTF _d	462 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

Test input emitter deactivation at +U _B Dutput Switching type The switching type of the sensor is adjustable. The default setting is: C/Q - Pin4: NPN normally closed / light-on, PNP normally closed / light-on, IO-Link /Q - Pin2: NPN normally closed / light-on, PNP normally open / dark-on pNP normally closed / light-on, PNP normally open / dark-on pNP normally open / dark-o	Technical Data		
	Control elements		Receiver: light/dark switch
	Control elements		Receiver: sensitivity adjustment
Operating voltage U _B 10 30 V DC Ripple max. 10 % No-load supply current b Emitter ≤ 14 mA Receiver ≤ 13 mA at 24 V supply voltage Interface III Interface by IO-Link (via C/Q = pin 4) IO-Link revision 1.1 Device ID Emitter : 0x110401 (1115137) Froceser data width 2.3 ms Process data width Emitter : 0x110401 (1114881) Process data width 2.3 ms Process data vidth Process data output: 2 Bit Receiver to calculate put: 2 Bit Receiver to calculate	Parameterization indicator		IO link communication: green LED goes out briefly (1 Hz)
Ripple	Electrical specifications		
Ripple	Operating voltage	U_B	10 30 V DC
No-load supply current	, , ,	5	max. 10 %
Interface bype		I ₀	
Interface type	Protection class		III
Device D	nterface		
Device ID	Interface type		IO-Link (via C/Q = pin 4)
Receiver: 0x110301 (1114861) Min. cycle time	IO-Link revision		1.1
Min. cycle time 2.3 ms Process data width Emitter:	Device ID		
Process data width Emitter: Process data uutput: 2 Bit Receiver: Process data uutput: 2 Bit Receiver: Process data intput: 2 Bit Process data intput: 2 Bit Process data uutput: 2 Bit Process data	Transfer rate		COM2 (38.4 kBaud)
Process data output: 2 Bit Receiver Process data input: 2 Bit Receiver State Input: 2 Bit Process data output: 2 Bit Process data	Min. cycle time		2.3 ms
Compatible master port type Part	Process data width		Process data output: 2 Bit Receiver: Process data input: 2 Bit
Test input Test input Well and the sensor is adjustable. The default setting is: C/O. Pin/a: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link / O-Pin/a: NPN normally open / dark-on, PNP normally open / dark-on Signal output Signal output Signal output 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage 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 Muk	SIO mode support		yes
Test input Test input Switching type Switching type Switching type Signal output Switching voltage Switching current Switching frequency I book type Switching type in file of the sensor is adjustable. The default setting is: C/C -Pin2: NPN normally closed / light-on, PNP normally closed / l	Compatible master port type		
Switching type The switching type of the sensor is adjustable. The default setting is: C/O - Pind: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link Signal output 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, switching voltage max. 30 V DC Switching current 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 Ambient conditions Ambient temperature Ambient temperature 40 60 °C (-40 140 °F), fixed cable not appropriate for conveyor chains Storage temperature 40 70 °C (-40 158 °F) Medicanical specifications Housing depth 1 1 mm Housing depth PC (Polycarbonate) PC (Polycarbonate) PMAA	nput		
Switching type Switching type CYC - Pind: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link / Q- Pind: NPN normally open / dark-on, PNP normally oben / dark-on PNP normally oben / dark-on-leded. **Switching violate, IND outputs, short-circuit protected, oben / dark-on-leded. **Switching violate, IND outputs, short-circuit protected, oben / dark-on-leded. **Switching violate, IND outputs, short-circuit protected, oben / dark-on-leded. **Switching violate, IND outputs, short-circuit protected, oben / dark-on-leded. **Switching violate, IND outputs, short-circuit protected, oben / dark-on-leded. **Switching violate, IND outputs, short-circuit protected. **Switching violate, IND outputs, short-circuit protected. **Switching violate, IND outputs, short-circuit protected. **Switching violate, IND outputs, short-circuit protec	Test input		emitter deactivation at +U _B
C/O - Pinds : NPM normally open / dark-on, PNP normally closed / light-on, ICO-Link / O - Pind normally open / dark-on, PNP normally open / dark-on overvoltage protected overvoltage protection overvoltage protected overvoltage protection overvoltage protected overvoltage	Output		
Switching voltage max. 30 V DC Switching current max. 100 mA , resistive load Usage category DC-12 and DC-13 Voltage drop U _a ≤ 1.5 V DC Switching frequency f 1000 Hz Switching frequency f 1000 Hz Response time 0.5 ms Conformity Voltage of Conformity Communication interface EN 60947-5-2 Approvals and certificates EN 60947-5-2 EAC conformity TR CU 020/2011 UL approval E87056 , cULus Listed , class 2 power supply , type rating 1 Ambient conditions 40 60 °C (-40 140 °F) , fixed cable	Switching type		C/Q - Pin4: NPN normally open / dark-on, PNP normally closed / light-on, IO-Link
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Vollage 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 Approvals and certificates EAC conformity TR CU 020/2011 UL approval E87056 , cULus Listed , class 2 power supply , type rating 1 Ambient conditions Ambient temperature -40 60 °C (-40 140 °F) , fixed cable	Switching current		max. 100 mA , resistive load
Switching frequency f 1000 Hz Response time 0.5 ms Conformity Communication interface IEC 61131-9 Product standard EN 60947-5-2 Approvals and certificates EAC conformity TR CU 020/2011 UL approval E87056 , cULus Listed , class 2 power supply , type rating 1 Ambient conditions Ambient temperature -40 60 °C (-40 140 °F) , fixed cable -25 60 °C (-13 140 °F) , movable cable not appropriate for conveyor chains Storage temperature -40 70 °C (-40 158 °F) Mechanical specifications Housing width 11 mm Housing depth 21.5 mm Degree of protection IP67 / IP69 / IP69 K Connection fixed cable 300 mm with M8 x 1 male connector; 4-pin Material Housing PC (Polycarbonate) Optical face PMMA	Usage category		DC-12 and DC-13
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EAC conformity TR CU 020/2011 E87056 , cULus Listed , class 2 power supply , type rating 1 Ambient conditions Ambient temperature -40 60 °C (-40 140 °F) , fixed cable -25 60 °C (-13 140 °F) , movable cable not appropriate for conveyor chains Storage temperature -40 70 °C (-40 158 °F) Mechanical specifications Housing width 11 mm Housing height 37.1 mm Housing depth 21.5 mm Degree of protection IP67 / IP69 / IP69K Connection fixed cable 300 mm with M8 x 1 male connector; 4-pin Material Housing PC (Polycarbonate) Optical face PMMA	Product standard		EN 60947-5-2
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Housing depth 21.5 mm Degree of protection IP67 / IP69 / IP69K Connection fixed cable 300 mm with M8 x 1 male connector; 4-pin Material PC (Polycarbonate) Optical face PMMA			37.1 mm
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MaterialPC (Polycarbonate)Optical facePMMA			
Housing PC (Polycarbonate) Optical face PMMA			
Optical face PMMA			PC (Polycarbonate)
	•		
	Mass		Emitter: approx. 10 g receiver: approx. 10 g

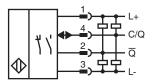
5PEPPERL+FUCHS

Cable length	0.3 m	

Connection



Connection



Connection Assignment



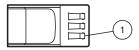
Wire colors in accordance with EN 60947-5-2

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

5 PEPPERL+FUCHS

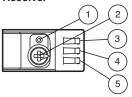
Assembly

Emitter



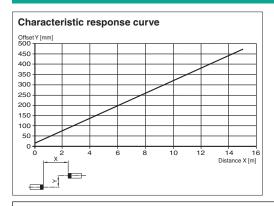
Operating indicator

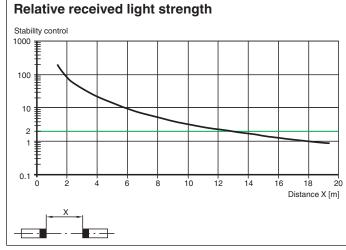
Receiver



- 1 Light-on/Dark-on changeover switch
- 2 Sensitivity adjuster
- 3 Operating indicator / dark on
- 4 Signal indicator
- 5 Operating indicator / light on

Characteristic Curve



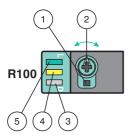


Accessories

	OMH-ML100-09	Mounting aid for round steel ø 12 mm or sheet 1.5 mm 3 mm
	IO-Link-Master02-USB	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
4	OMH-R10X-01	Mounting bracket

Accessories OMH-R10X-02 Mounting bracket OMH-R10X-04 Mounting bracket OMH-R10X-10 Mounting bracket OMH-ML100-03 Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm OMH-ML100-031 Mounting aid for round steel ø 10 ... 14 mm or sheet 1 mm ... 5 mm V31-GM-2M-PUR Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey V31-WM-2M-PUR Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey

Configuration



- 1 Light-on / dark-on changeover switch
- 2 Sensing range / sensitivity adjuster
- 3 Operating indicator / dark on
- 4 Signal indicator
- 5 Operating indicator / light on

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.