

Thru-beam sensor (pair) OBE40M-R200-S2EP-IO-0,3M-V31-L



- Medium design with versatile mounting options
- DuraBeam Laser Sensors durable and employable like an LED
- IO-Link interface for service and process data
- Various frequencies for avoiding mutual interference (cross-talk immunity)
- Extended temperature range -40 °C ... 60 °Ċ
- High degree of protection IP69K

Laser thru-beam sensor



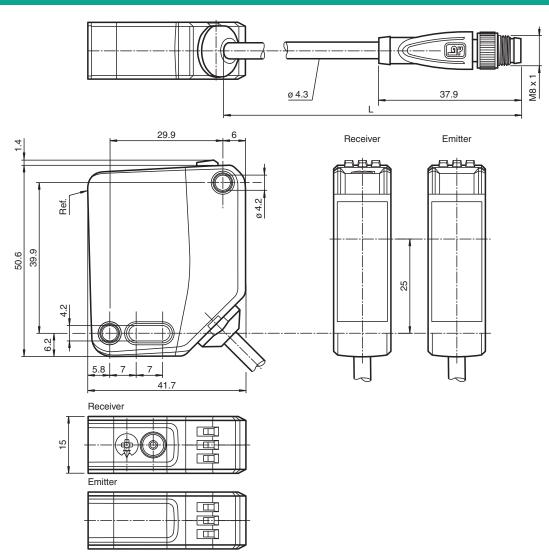
Function

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

OBE40M-R200-S-IO-0,3M-V31-L
OBE40M-R200-2EP-IO-0,3M-V31-L
0 40 m
50 m
laser diode
modulated visible red light
LASER LIGHT , DO NOT STARE INTO BEAM
1
680 nm
>5 mrad ; d63 < 2 mm in the range of 250 mm 750 mm
1.6 µs
max. 17.6 kHz
9.6 nJ
LED red (in receiver lens) illuminated constantly: beam is interrupted, flashes: reaching switching point, off: sufficient operating reserve
1 0

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

Opening angle approx. 0.12 ° Ambient light limit Moseque 2-22 · 40000 Lux Punctional assoft yrelated parameters 440 a Mission Time (T _n) 0 2 0 Diagnostic Occurage (DC) 00 % Indicators/operating means ED green: constantly on - power on finishing (All-) short sircuit, instaing (All-)	Technical Data		
Ambient light limit EN 80847-5-2: 40000 Lux Functional safety related parameters 440 a Massion Time (T _a) 400 a Diagnostic Coverage (DC) 60 % Diagnostic Coverage (DC) 60 % Diagnostic Coverage (DC) 60 % Deparation indicator LED green: constantly on-power on this short broak (1 Hz) - IO-Link mode Function indicator Vellow LED: Permanently III - Ioph and clear Permanently IIII - Ioph and Clear Permanently IIIII - Ioph and Clear Permanently IIIII - Ioph and Clear Permanently IIIII - Ioph and Clear Permanently IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Opening angle		approx. 0.12 °
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Indicator Second Control Contro Control Control Contro Control Control Contro Control Control Co	Mission Time (T _M)		20 a
Indicator Second Control Contro Control Control Contro Control Control Contro Control Control Co	()		60 %
Operation indicator LED green: constraintly on - power on flashing (H2) - short circuit flashing (H2) - short dircuit flashing (H2) - short dircuit permanently of - object detected Flashing (H2) - short directed Flashing (H2) - short directed F			
Permanently it - ight path clear Permanently it - ight path clear Permities - ight dark switch Control elements Receiver: ight/dark switch Control elements 0 n. :30 V DC Permanently it - ight path clear Permities - i Sim An 24 V Operating voltage 10 . :30 V DC Receiver: s 15 mA at 24 V Operating voltage 10 . :30 V DC No-load supply current 10 . :30 V DC Interface III Interface type 10 - Link (via C/G = pin 4) Obvick profile 11 1 Device profile 11 1 Device profile 11 1 Device profile 11 1 Device ID Emiter: - 11 Ha02 (11 1923) Receiver: 0x 11 1302 (11 19278) Transfer rate COM2 (88 4 Rbits) Min. cycle time 2.3 ms Process data width yes SIO mode support A Compatible master port type 3 SIO mode support yes Compatible master port type 3 SIO mode support 2 ves Compatible master port type 3 SIO mode support 2 ves Control elements 10 - inter: NPN normally coper / dark-on, PNP normaly coper / dark-on, PNP normally coper / dark-on, PNP normally coper	Operation indicator		constantly on - power on flashing (4Hz) - short circuit
Control elements Gene Receiver: sensitivity adjustment Electrical specifications Feederer: s 13 mA Operating voltage Ua 10 30 V DC Ripple max: 10 % No-load supply current Is Electrical specifications Protection class III Interface III Interface type IoLink (via C/Q = pin 4) IO-Link revision I.1 Device profile Identification and diagnosis Smart Sensor: Receiver: type 2.4 Emitter: - 1 Device ID Identification and diagnosis Smart Sensor: Receiver: type 2.4 Emitter: - 2 Interface type IO-Link (via C/Q = pin 4) Interface type Imitter: cont11402 (1119234) Receiver: type 1.402 (1119278) Transfer rate COM2 (84 kBit/s) Min. cycle time Imitter: cont11402 (1119234) Receiver: type 1.402 (1119278) SIO mode support Imitter: control to bit Process data input: 0 bit Process data output: 1 bit Process data output: 1 bit Process data output: 1 bit Process data output: 2 bit SIO mode support Imitter deactivation at +U_B Compatible master port type A Compatible master port type Imitter deactivation at +U_B </td <td>Function indicator</td> <td></td> <td>Permanently lit - light path clear Permanently off - object detected</td>	Function indicator		Permanently lit - light path clear Permanently off - object detected
Electrical specifications Un 0 n30 V DC Ripple max. 10 % No-load supply current In Emitter: ≤ 13 mA Receiver: ≤ 15 mA at 24 V Operating voltage Protection class III Interface III Interface type IO-Link (via C/Q = pin 4) IO-Link revision ICI Device profile Interface type Device ID ICI Device ID Imiter: - interface type Device ID Imiter: OMM (SA & KBit/s) Min. cycle time COM2 (BA & KBit/s) Min. cycle time Imiter: Process data input: 0 bit Process data output: 1 bit Receiver: type 2.4 SIO mode support Imiter: Process data input: 2 bit Process data output: 1 bit Receiver: Receiver: R	Control elements		Receiver: light/dark switch
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Protection classReceiver: $\pm 15 \text{ mA at } 24 \text{ V Operating voltage}$ Protection classIIIInterfaceIII (via C/Q = pin 4)Io-Link revisionIOIo-Link revisionIODevice profileIdentification and diagnosis Smart Sensor: Receiver: type 2.4 Emitter:Device IDEmitter: 0x111402 (1119234) Receiver: 0x111302 (1118978)Transfer rateCOM2 (38.4 kBit/s)Min. cycle timeEmitter: Process data input: 0 bit Process data output: 1 bit Receiver: Process data output: 2 bit Process data outp	Ripple		max. 10 %
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Smart Sensor: Receiver: type 2.4 Emitter:Device IDEmitter: (x111402 (1119234)) Receiver: (x111302 (1118978)Transfer rateCOM2 (38.4 kBit/s)Min. cycle timeI2.3 msProcess data widthEmitter: Drocess data output: 0 bit Process data output: 1 bit Receiver: Process data output: 2 bit Process data output: 2 bitSIO mode supportemitter deactivation at +UsDetutTermitter deactivation at +UsOutputThe switching type of the sensor is adjustable. The default setting is: $C_Q - Pin4: NPN normally open / dark-on, PNP normally open / dark-onQ - Pin2: NPN normally closed / light-on, IO-LinkQ - Pin2: NPN normally closed / light-on, IO-LinkQ - Pin2: NPN normally closed / light-on, PNP normally open / dark-onQ = pin4: NPN normally closed / light-on, PNP normally open / dark-onQ = pin4: NPN normally closed / light-on, PNP normally closed / light-on, IO-LinkQ = pin4: NPN normally closed / light-on, IO-LinkQ = pin4: NPN normal$	IO-Link revision		1.1
Receiver: 0x111302 (1118978)Transfer rateCOM2 (38.4 kBit/s)Min. cycle time2.3 msProcess data widthEmitter: Process data input: 0 bit Process data output: 1 bit Receiver: 	Device profile		Smart Sensor: Receiver: type 2.4
Min. cycle timeImage: Single Sing	Device ID		
Receiver Process data widthEmitter: Process data input: 0 bit Process data input: 0 bit 	Transfer rate		COM2 (38.4 kBit/s)
Process data input: 0 bit Process data output: 1 bit Receiver: Process data output: 2 bitSIO mode supportvesCompatible master port typeAInputrecess data output: 2 bitInputemitter deactivation at +UBOutputSwitching typeThe 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, IO-Link /Q - Pin4: NPN normally closed / light-on, PNP normally closed / light-on, IO-Link /Q - Pin2: NPN normally closed / light-on, PNP normally closed / light-on, IO-Link /Q - Pin2: NPN normally closed / light-on, PNP normally closed / light-on, PNP normally closed / light-on, PNP normally closed / light-on, IO-Link /Q - Pin2: NPN normally closed / light-on, PNP normally closed / ligh	Min. cycle time		2.3 ms
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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-onSignal output2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected, overvoltage protectedSwitching voltagemax. 30 V DCSwitching currentmax. 100 mA, resistive loadUsage categoryDC-12 and DC-13Voltage dropU _d < 1.5 V DC	Output		
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Usage categoryDC-12 and DC-13Voltage drop U_d $\leq 1.5 V DC$	Switching voltage		max. 30 V DC
Voltage drop $U_d \leq 1.5 \text{ V DC}$	Switching current		max. 100 mA , resistive load
- · ·	Usage category		DC-12 and DC-13
Switching frequency f 1250 Hz	Voltage drop	U_d	≤ 1.5 V DC
	Switching frequency	f	1250 Hz
Response time 0.4 ms	Response time		0.4 ms
Conformity	Conformity		
Communication interface IEC 61131-9	Communication interface		IEC 61131-9
Product standard EN 60947-5-2	Product standard		EN 60947-5-2
Laser safety EN 60825-1:2014	Laser safety		EN 60825-1:2014

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

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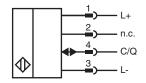
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

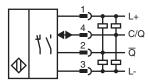
OBE40M-R200-S2EP-IO-0,3M-V31-L

Technical Data

Ambient conditionsAmbient temperature-40 60 °C (-40 140 °F) , cable, fixed installation -20 60 °C (-4 140 °F) , movable cable not appropriate for conveyor chainsStorage temperature-40 70 °C (-40 140 °F) , movable cable not appropriate for conveyor chainsStorage temperature-40 70 °C (-40 158 °F)Mechanical specificationsIP67 / IP69 / IP69KConnectionfixed cable 300 mm with M8 x 1 male connector; 4-pinMaterialIP67 / IP69 / IP69KOptical facePMMAMassEmitter: approx. 41 g receiver: approx. 41 gDimensions50.6 mmWidth15 mm		
CCC approval CCC approval / marking not required for products rated ≤36 V FDA approval IEC 60825-1:2014 Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice 56, dated May 2019. Ambient conditions -40 60 °C (-40 140 °F) , cable, fixed installation -20 60 °C (-4 140 °F) , movable cable not appropriate for conveyor chains Storage temperature -40 70 °C (-40 158 °F) Mechanical specifications IP67 / IP69 / IP69K Connection Ified cable 300 mm with M8 x 1 male connector; 4-pin Material PC (Polycarbonate) Optical face PMMA Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Approvals and certificates	
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Conformance with IEC 60825-1 Ed. 3 as described in Laser Notice 56, dated May 2019.Ambient conditionsAmbient temperature-40 60 °C (-40 140 °F), cable, fixed installation -20 60 °C (-4 140 °F), movable cable not appropriate for conveyor chainsStorage temperature-40 70 °C (-40 158 °F)Mechanical specificationsDegree of protectionIP67 / IP69 / IP69KConnectionif ixed cable 300 mm with M8 x 1 male connector; 4-pinMaterial	CCC approval	CCC approval / marking not required for products rated \leq 36 V
Ambient temperature-40 60 °C (-40 140 °F), cable, fixed installation -20 60 °C (-4 140 °F), movable cable not appropriate for conveyor chainsStorage temperature-40 70 °C (-40 158 °F)Mechanical specificationsIP67 / IP69 / IP69KConnectionIP67 / IP69 / IP69KMaterialPC (Polycarbonate)Optical facePMMAMassEmitter: approx. 41 g receiver: approx. 41 gDimensionsEmitter: approx. 41 g receiver: approx. 41 gWidth15 mm	FDA approval	conformance with IEC 60825-1 Ed. 3 as described in Laser Notice 56, dated May 8,
-20 60 °C (-4 140 °F), movable cable not appropriate for conveyor chainsStorage temperature-40 70 °C (-40 158 °F)Mechanical specificationsIP67 / IP69 / IP69KConnectionIP67 / IP69 / IP69KMaterialPC (Polycarbonate)MousingPC (Polycarbonate)Optical facePMMAMassEmitter: approx. 41 g receiver: approx. 41 gDimensions50.6 mmWidth15 mm	Ambient conditions	
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Degree of protection IP67 / IP69 / IP69K Connection fixed cable 300 mm with M8 x 1 male connector; 4-pin Material PC (Polycarbonate) Housing PC (Polycarbonate) Optical face PMMA Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Storage temperature	-40 70 °C (-40 158 °F)
Connection if ixed cable 300 mm with M8 x 1 male connector; 4-pin Material PC (Polycarbonate) Optical face PMMA Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Mechanical specifications	
Material Housing PC (Polycarbonate) Optical face PMMA Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Degree of protection	IP67 / IP69 / IP69K
Housing PC (Polycarbonate) Optical face PMMA Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Connection	fixed cable 300 mm with M8 x 1 male connector; 4-pin
Optical face PMMA Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Material	
Mass Emitter: approx. 41 g receiver: approx. 41 g Dimensions 50.6 mm Width 15 mm	Housing	PC (Polycarbonate)
Dimensions Height Width 15 mm	Optical face	PMMA
Height 50.6 mm Width 15 mm	Mass	Emitter: approx. 41 g receiver: approx. 41 g
Width 15 mm	Dimensions	
	Height	50.6 mm
Depth 41.7 mm	Width	15 mm
	Depth	41.7 mm
Cable length 0.3 m	Cable length	0.3 m

Connection Assignment





Connection Assignment



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

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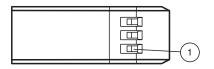
Connection Assignment

Wire colors in accordance with EN 60947-5-2

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

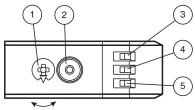
Assembly

Emitter



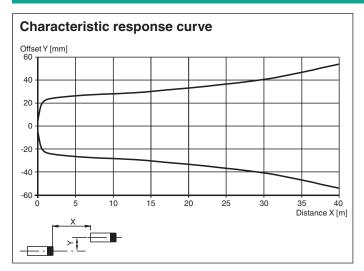
1 Operating indicator

Receiver



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

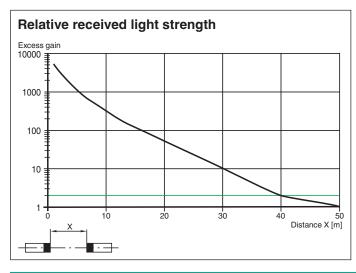


Refer to "General Notes Relating to Pepperl+Fuchs Product Information"

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OBE40M-R200-S2EP-IO-0,3M-V31-L

Characteristic Curve



Safety Information



LASER PRODUCT IEC 60825-1: 2007 certified. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

CLASS 1 LASER PRODUCT

IEC 60825-1: 2007 certified. Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007

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.

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