



Laser retroreflective sensor

OBR25M-R200-2EP-IO-L



- Medium design with versatile mounting options
- DuraBeam Laser Sensors - durable and employable like an LED
- Extended temperature range
-40 °C ... 60 °C
- High degree of protection IP69K
- IO-Link interface for service and process data

Laser retroreflective sensor



Function

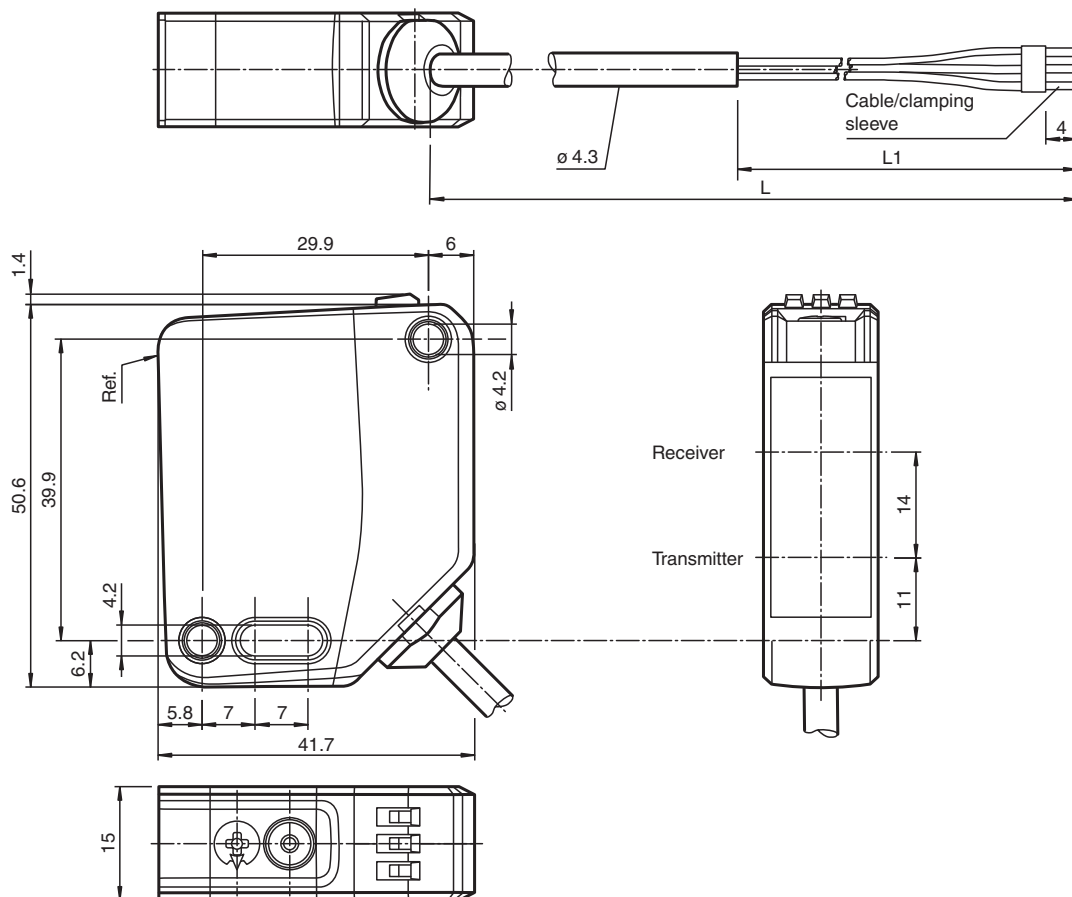
The optical sensors in the series are the first devices to offer an end-to-end solution in a medium-sized standard design – from the thru-beam sensor through to the measuring distance sensor. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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



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Technical Data

General specifications		
Effective detection range		0 ... 25 m
Reflector distance		0.5 ... 25 m
Threshold detection range		33 m
Reference target		H85-2 reflector
Light source		laser diode
Light type		modulated visible red light
Polarization filter		yes
Laser nominal ratings		
Note		LASER LIGHT , DO NOT STARE INTO BEAM
Laser class		1
Wave length		680 nm
Beam divergence		> 5 mrad d63 < 2 mm in the range of 250 mm ... 750 mm
Pulse length		1.6 µs
Repetition rate		max. 17.6 kHz
max. pulse energy		9.6 nJ
Diameter of the light spot		approx. 50 mm at a distance of 25 m
Opening angle		approx. 0.1 °
Ambient light limit		EN 60947-5-2 : 60000 Lux
Functional safety related parameters		
MTTF _d		672 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	< 15 mA at 24 V Operating voltage
Protection class		III
Interface		
Interface type		IO-Link (via C/Q = BK)
IO-Link revision		1.1
Device profile		Identification and diagnosis Smart Sensor type 2.4
Device ID		0x111202 (1118722)
Transfer rate		COM2 (38.4 kBit/s)
Min. cycle time		2.3 ms
Process data width		Process data input 2 Bit Process data output 2 Bit
SIO mode support		yes
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 closed / 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

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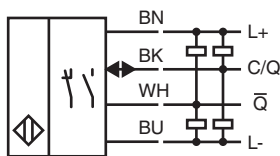
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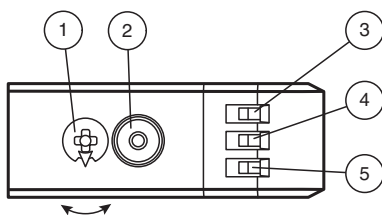
Technical Data

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	2000 Hz
Response time		250 μ s
Conformity		
Communication interface		IEC 61131-9
Product standard		EN 60947-5-2
Laser safety		EN 60825-1:2014
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
FDA approval		IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
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		2 m fixed cable
Material		
Housing		PC (Polycarbonate)
Optical face		PMMA
Mass		approx. 73 g
Cable length		2 m

Connection



Assembly

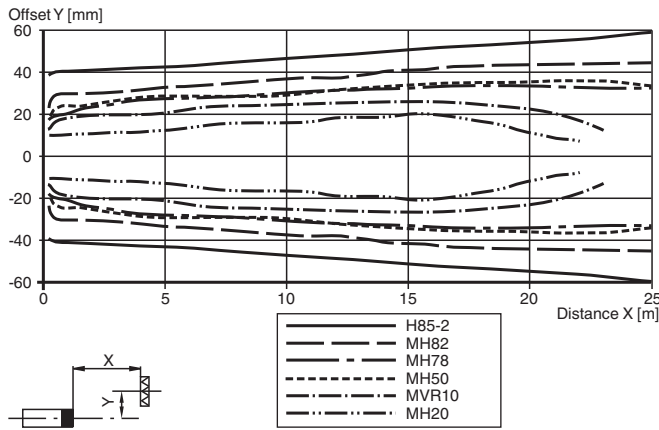


1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN

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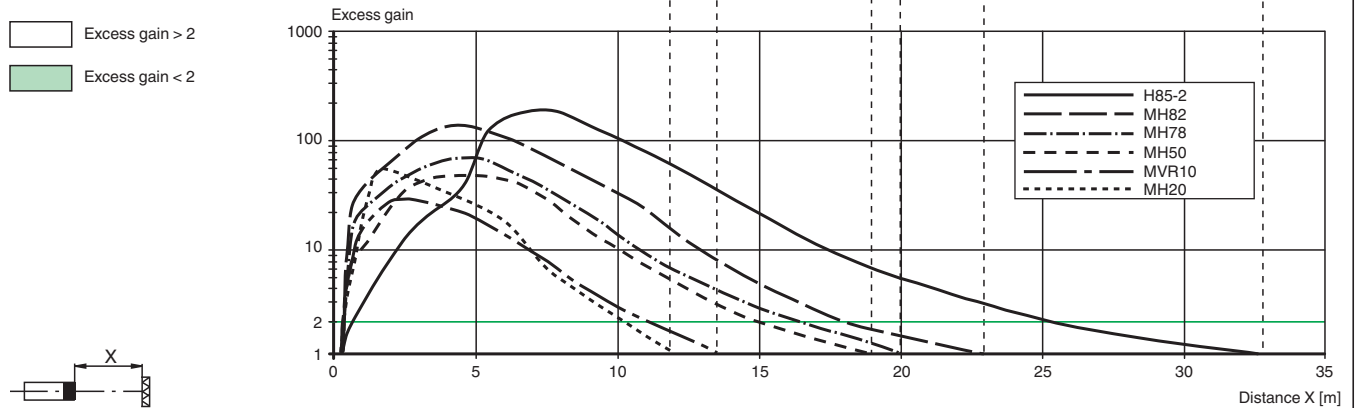
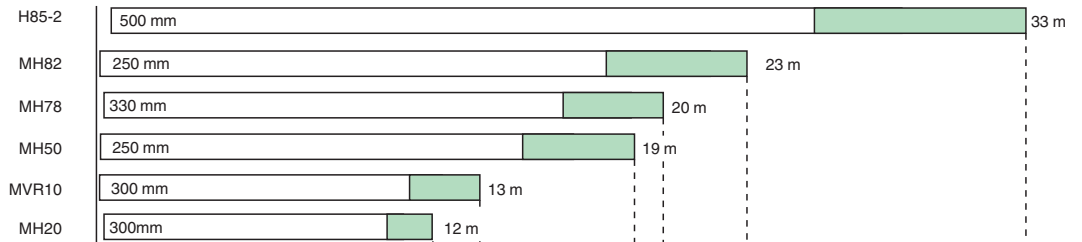
Characteristic Curve

Characteristic response curve



Relative received light strength (typical)

Reflector type:



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Safety Information



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

	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
	REF-MH82	Reflector with Micro-structure, rectangular 82 mm x 60 mm, mounting holes

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Accessories

	REF-MH78	Reflector with Micro-structure, hexagonal 78 mm x 61 mm, mounting holes
	REF-MH50	Reflector with Micro-structure, rectangular 50.9 mm x 50.9 mm, mounting holes, fixing strap
	REF-MVR10	Reflector with Micro-structure, rectangular 60 mm x 19 mm, mounting holes
	REF-MH20	Reflector with Micro-structure, rectangular 32 mm x 20 mm, mounting holes
	OMH-MLV12-HWG	Mounting bracket for series MLV12 sensors
	OMH-R200-01	Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm
	OMH-MLV12-HWK	Mounting bracket for series MLV12 sensors
	OMH-R20x-Quick-Mount	Quick mounting accessory
	ICE2-8IOL-G65L-V1D	EtherNet/IP IO-Link master with 8 inputs/outputs
	ICE3-8IOL-G65L-V1D	PROFINET IO IO-Link master with 8 inputs/outputs
	ICE2-8IOL-K45S-RJ45	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	ICE3-8IOL-K45P-RJ45	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, push-in terminals
	ICE3-8IOL-K45S-RJ45	PROFINET IO IO-Link master with 8 inputs/outputs, DIN rail, screw terminal
	IO-Link-Master02-USB	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection
	ICE1-8IOL-G30L-V1D	Ethernet IO-Link module with 8 inputs/outputs
	ICE1-8IOL-G60L-V1D	Ethernet IO-Link module with 8 inputs/outputs
	ICE2-8IOL-K45P-RJ45	EtherNet/IP IO-Link master with 8 inputs/outputs, DIN rail, push-in connectors