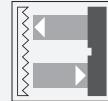




Retroreflective sensor OBR7500-R100-E5F-IO



- Miniature 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

Retroreflective sensor with polarization filter



IO-Link

Function

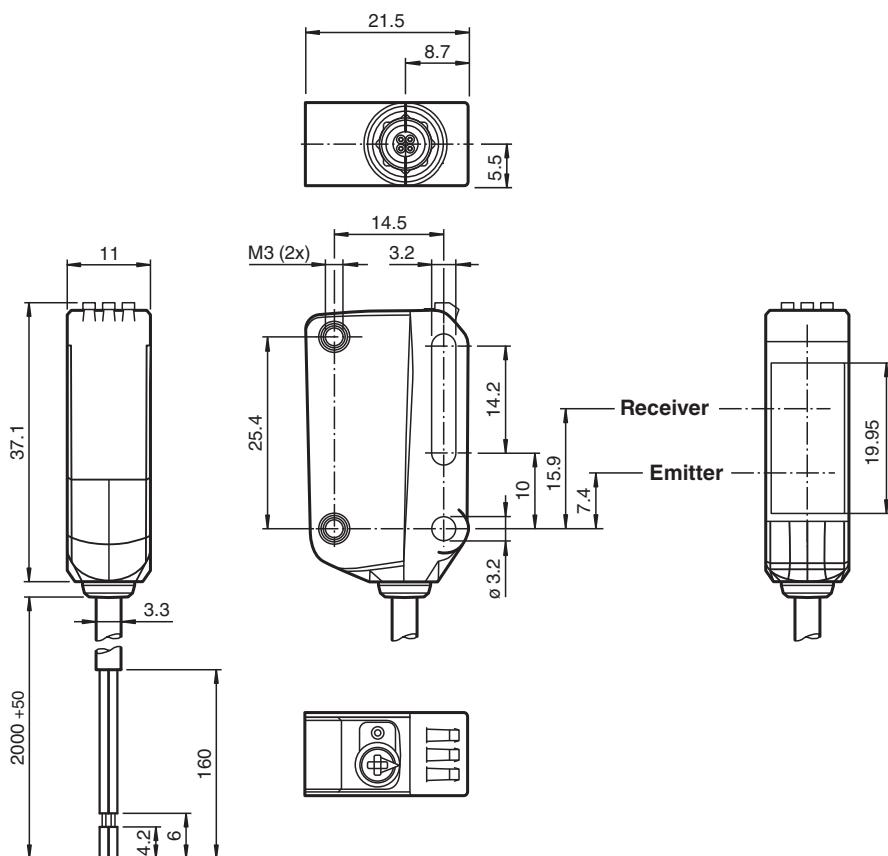
The R100 series miniature optical sensors are the first devices of their kind to offer an end-to-end solution in a small standard design — from thru-beam sensor through to a distance measurement device. As a result of this design, the sensors are able to perform practically all standard automation tasks.

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

General specifications

Effective detection range	0 ... 7.5 m
Reflector distance	0.03 ... 7.5 m
Threshold detection range	10 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. 65 mm at a distance of 1 m
Opening angle	3.7 °
Ambient light limit	EN 60947-5-2

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
Parameterization indicator	IO link communication: green LED goes out briefly (1 Hz)

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I ₀	< 25 mA at 24 V supply voltage
Protection class		III

Interface

Interface type	IO-Link (via C/Q = pin 4)
IO-Link revision	1.1
Device ID	0x110212 (1114642)
Transfer rate	COM2 (38.4 kB/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

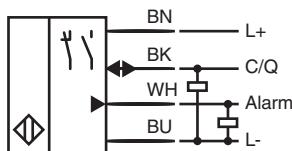
Stability alarm output	1 PNP, inactive when level falls below operating reserve after approx. 5 s. Immediately inactive if the beam is interrupted 4 times during the flashtime.
Switching type	The switching type of the sensor is adjustable. The default setting is: C/Q - BK: PNP normally open / dark-on, IO-Link Alarm output - WH: PNP normally closed
Signal output	1 PNP, short-circuit protected, reverse polarity 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

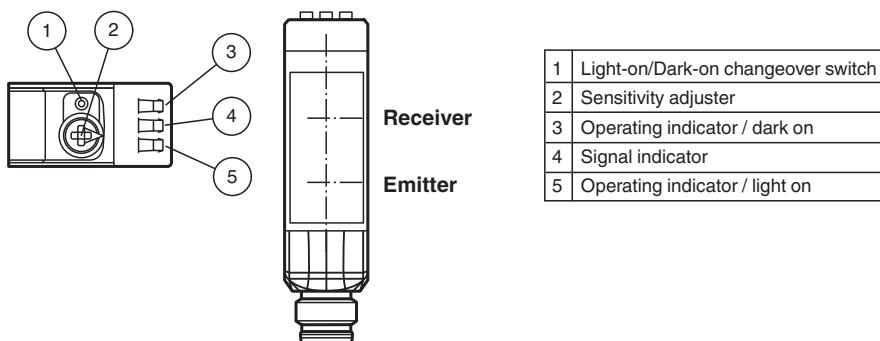
Technical Data

Communication interface	IEC 61131-9
Product standard	EN 60947-5-2
Approvals and certificates	
UL approval	E87056, cULus Listed, class 2 power supply, type rating 1
Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F), cable, fixed installation
	-25 ... 60 °C (-13 ... 140 °F), movable cable not appropriate for conveyor chains
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications	
Degree of protection	IP67 / IP69 / IP69K
Connection	2 m fixed cable
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 36 g
Dimensions	
Height	37.1 mm
Width	11 mm
Depth	21.5 mm
Cable length	2 m

Connection

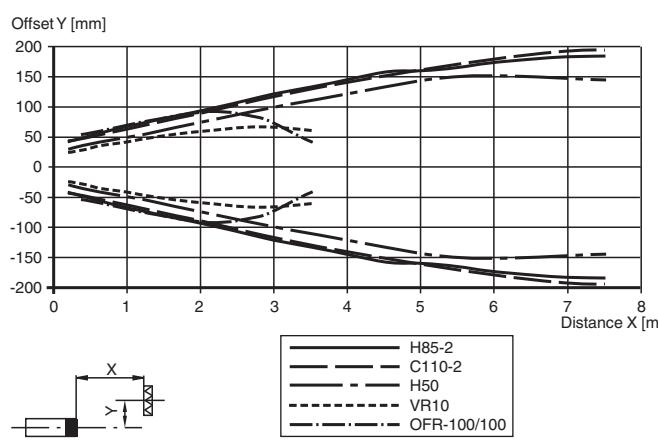


Assembly

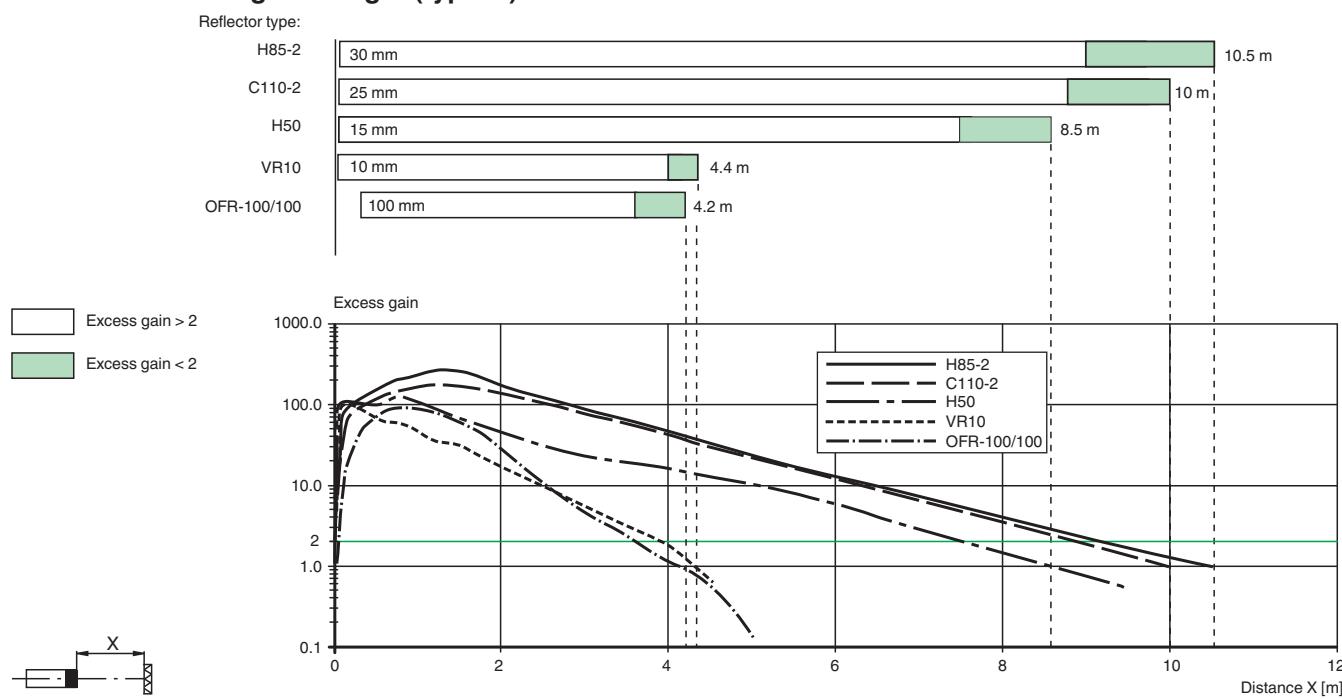


Characteristic Curve

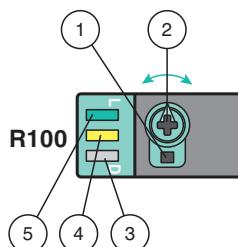
Characteristic response curve



Relative received light strength (typical)



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.