



Diffuse mode sensor OBD1000-R101-2EP-IO-V31



- 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

Diffuse mode sensor



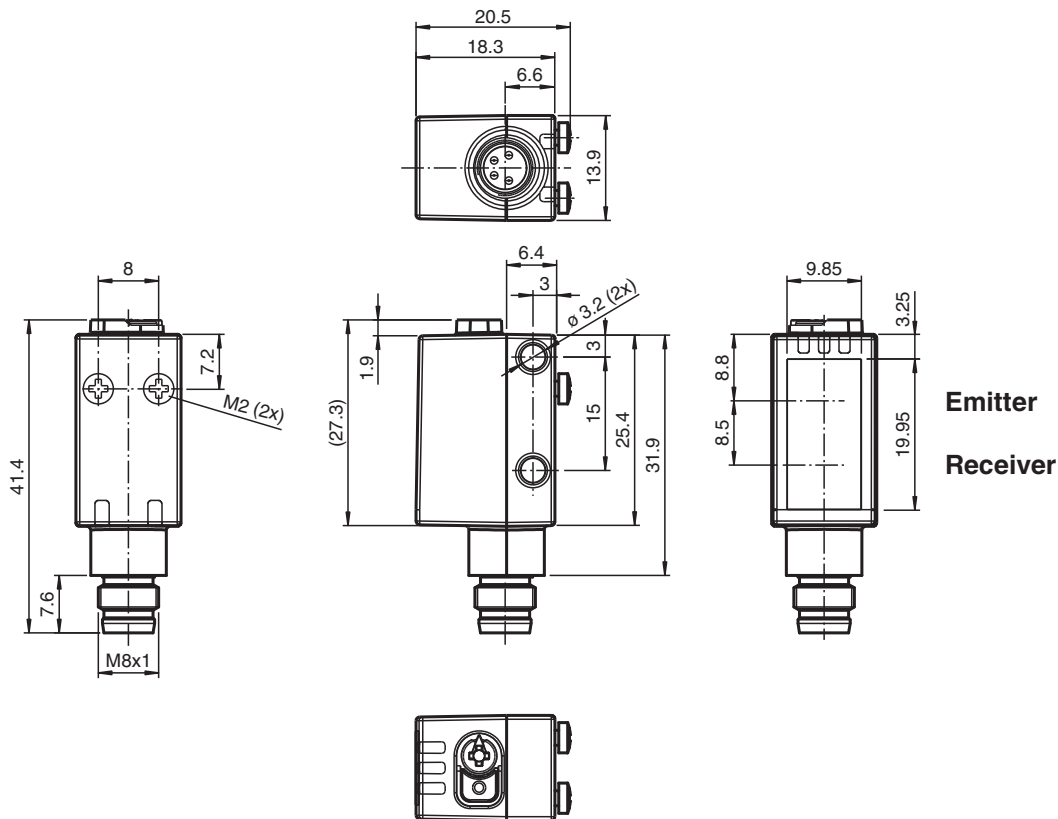
Function

The miniature optical sensors are the first devices of their kind to offer an end-to-end solution in a small single 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 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



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Technical Data

General specifications

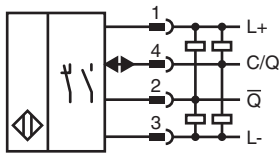
Technical Data

Detection range	2 ... 1000 mm	
Detection range min.	20 ... 50 mm	
Adjustment range	50 ... 1000 mm	
Reference target	standard white, 100 mm x 100 mm	
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 1000 mm	
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	LED yellow: constantly on - object detected constantly off - object not detected	
Control elements	Light-on/dark-on changeover switch	
Control elements	Sensing range adjuster	
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	0x110101 (1114369)	
Transfer rate	COM2 (38.4 kBit/s)	
Min. cycle time	2.3 ms	
Process data width	Process data input 1 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 - Pin4: NPN normally open / light-on, PNP normally closed / dark-on, IO-Link /Q - Pin2: NPN normally closed / dark-on, PNP normally open / light-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	U _d	≤ 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		
UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1	

Technical Data

Ambient conditions	
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications	
Housing width	13.9 mm
Housing height	41.4 mm
Housing depth	18.3 mm
Degree of protection	IP67 / IP69 / IP69K
Connection	M8 x 1 connector, 4-pin
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 10 g

Connection



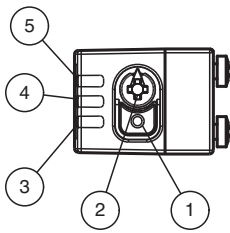
Connection Assignment



Wire colors in accordance with EN 60947-5-2

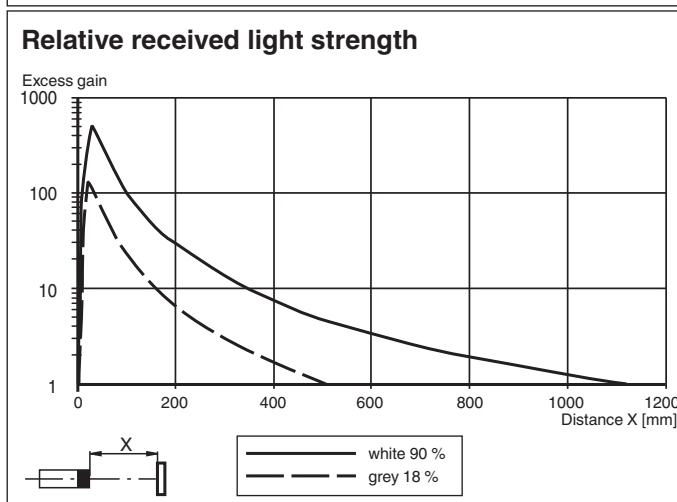
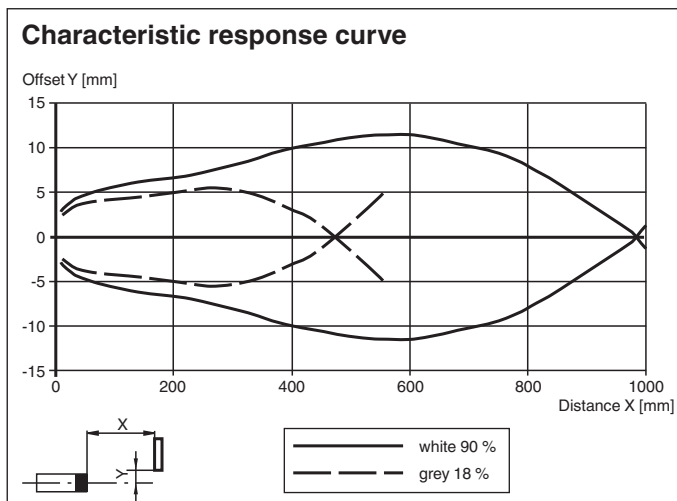
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Assembly



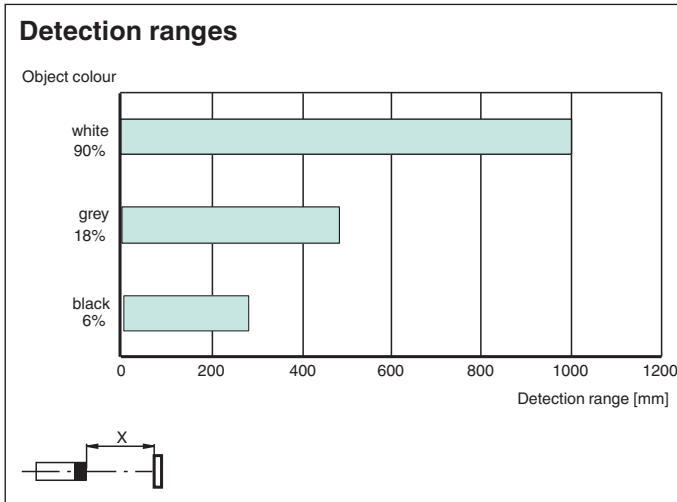
1	Light-on/dark-on changeover switch
2	Sensitivity adjuster
3	Operating indicator / dark on
4	Signal indicator
5	Operating indicator / light on

Characteristic Curve



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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 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 counterclockwise 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 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.