

## Distance sensor OMT50-R100-EP-IO-V3



- Miniature design with versatile mounting options
- Space-saving distance sensors in small standardized design
- Multi Pixel Technology (MPT) exact and precise signal evaluation
- IO-Link interface for service and process data

Measurement to object, 50 mm detection range, red light, measured value via IO-Link, push-pull output, M8 plug

# 

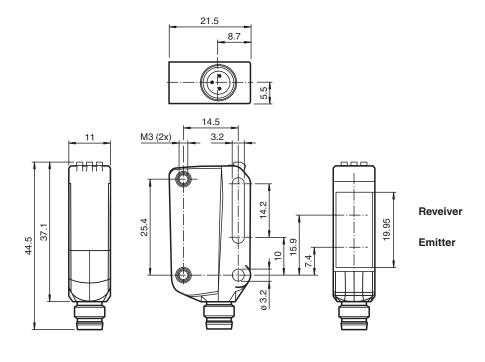
#### **Function**

The R100 series miniature optical sensors are the first devices of their kind to offer an endto- end solution in a small single standard 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	
Measurement range	20 50 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
Angle deviation	max. +/- 1.5 °
Diameter of the light spot	approx. 4 mm at a distance of 50 mm
Opening angle	4 °
Ambient light limit	EN 60947-5-2 : 30000 Lux
Resolution	0.01 mm
Functional safety related parameters	
MTTF <sub>d</sub>	600 a
Mission Time (T <sub>M</sub> )	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 - switch output active constantly off - switch output inactive
Control elements	Teach-In key

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

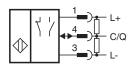
Pepperl+Fuchs Group www.pepperl-fuchs.com USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com Germany: +49 621 776 1111 fa-info@de.pepperl-fuchs.com Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com **Technical Data** 

## OMT50-R100-EP-IO-V3

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Conformity         IEC 61131-9           Product standard         EN 60947-5-2           Measurement accuracy         EN 60947-5-2           Measurement accuracy         20 µm/K           Varu pt time         5 min           Repeat accuracy         < 0.15 mm	Voltage drop	$U_d$	≤ 1.5 V DC
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Linearity error       ± 0.3 mm         Approvals and certificates       E87056, cULus Listed, class 2 power supply, type rating 1         Ambient conditions       E87056, cULus Listed, class 2 power supply, type rating 1         Ambient temperature       10 60 °C (50 140 °F)         Storage temperature       -40 70 °C (-40 158 °F)         Mechanical specifications       11 mm         Housing height       11 mm         Housing depth       21.5 mm         Degree of protection       M8 × 1 connector, 3-pin         Material       PC (Polycarbonate)         Material       PC (Polycarbonate)	Warm up time		5 min
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Storage temperature       -40 70 °C (-40 158 °F)         Mechanical specifications         Housing width       11 mm         Housing height       44.5 mm         Housing depth       21.5 mm         Degree of protection       IP67 / IP69 / IP69K         Connection       M8 x 1 connector, 3-pin         Material       PC (Polycarbonate)         POptical face       PMMA	Ambient conditions		
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Housing depth     21.5 mm       Degree of protection     IP67 / IP69 / IP69K       Connection     M8 x 1 connector, 3-pin       Material     PC (Polycarbonate)       Optical face     PMMA	Housing width		11 mm
Degree of protection     IP67 / IP69 / IP69K       Connection     M8 x 1 connector, 3-pin       Material     PC (Polycarbonate)       Housing     PC (Polycarbonate)       Optical face     PMMA	Housing height		44.5 mm
Connection     M8 x 1 connector, 3-pin       Material     PC (Polycarbonate)       Optical face     PMMA	Housing depth		21.5 mm
Material     PC (Polycarbonate)       Optical face     PMMA	Degree of protection		IP67 / IP69 / IP69K
Housing     PC (Polycarbonate)       Optical face     PMMA	Connection		M8 x 1 connector, 3-pin
Optical face PMMA	Material		
•	Housing		PC (Polycarbonate)
Mass approx. 10 g	Optical face		PMMA
	Mass		approx. 10 g

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

## Connection



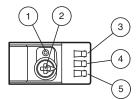
## **Connection Assignment**

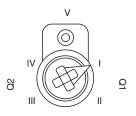


#### Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

## Assembly





1	Teach-in button
2	Mode rotary switch
3	Switch output indicator Q2
4	Switch output indicator Q1
5	Operating indicator

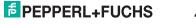
I	Switch output 1 / switch point B
П	Switch output 1 / switch point A
Ш	Switch output 2 / switch point A
IV	Switch output 2 / switch point B
V	Keylock

## Accessories

6/	V31-GM-2M-PUR	Female cordset single-ended M8 straight A-coded, 4-pin, PUR cable grey
6/	V31-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 4-pin, PUR cable grey
	ICE2-8IOL-G65L-V1D	EtherNet/IP IO-Link master with 8 inputs/outputs

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

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## OMT50-R100-EP-IO-V3

Accessories			
	ICE3-8IOL-G65L-V1D	PROFINET IO IO-Link master with 8 inputs/outputs	
and the second second	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	
	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	
A CONTRACTOR OF	IO-Link-Master02-USB	IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection	
61	V3-GM-2M-PUR	Female cordset single-ended M8 straight A-coded, 3-pin, PUR cable grey	
6/	V3-WM-2M-PUR	Female cordset single-ended M8 angled A-coded, 3-pin, PUR cable grey	

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

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## Teach-In

You can use the rotary switch to select the relevant switching threshold A and/or B for teaching in for switch signal Q1 or Q2. The yellow LEDs indicate the current state of the selected output.

To store a threshold value, press and hold the "TI" button until the yellow and green LEDs flash in phase (approx. 1 s). Teach-In starts when the "TI" button is released.

Successful Teach-In is indicated by alternating flashing (2.5 Hz) of the yellow and green LEDs.

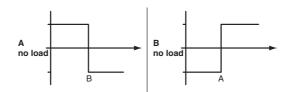
An unsuccessful Teach-In is indicated by rapidly alternating flashing (8 Hz) of the yellow and green LEDs.

After an unsuccessful Teach-In, the sensor continues to operate with the previous valid setting after the relevant visual fault signal is issued.

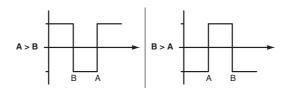
Different switching modes can be defined by teaching in the relevant distance measured values

for the switching thresholds A and B:

Single point mode:



Window mode:



Every taught-in switching threshold can be retaught (overwritten) by pressing the "TI" button again.

Pressing and holding the "TI" button for > 4 s completely deletes the taught-in value. The yellow and green LEDs go out simultaneously to indicate that this procedure has been completed. Successful resetting is indicated by alternating flashing (2.5 Hz) of the yellow and green LEDs.

#### **Resetting to Factory Default Settings**

Press the "TI" button for > 10 s in rotary switch position ,O' to reset to factory default settings. The yellow and green LEDs go out simultaneously to indicate the resetting.

Resetting process starts when the "TI" button is released and is indicated by the yellow LED. After the process the sensor works with factory default settings, immediately.

OMT:

- Factory default settings switch signal Q1: Switch signal active, window mode
- Factory default settings switch signal Q2: Switch signal active, window mode

OQT:

- Factory default settings switch signal Q1:
- Switch signal active, BGS mode (background suppression) • Factory default settings switch signal Q2:
- Switch signal active, BGS mode (background suppression)

## Configuration

#### Setting different operating modes via the IO-Link interface

The devices are equipped with an IO-Link interface as standard for diagnostics and parameterization tasks to ensure optimum adjustment of the sensors to the relevant application.

#### Single point mode operating mode (one switch point):

- "Detection of objects irrespective of type and color in a defined detection range. Objects in the background are suppressed.
- "The switch point corresponds exactly to the set point.

active detection range

Background suppression

### **Distance sensor**

#### Window mode operating mode (two switch points):

- Detection of objects irrespective of type and color in a defined detection range. Reliable detection when object leaves the detection range.
- Window mode with two switch points.

active detection range			
Foreground suppression	Background suppression		

#### Center window mode operating mode (one switch point):

- Detection of objects irrespective of type and color in a defined detection range. Sets a defined window around a given object. Objects outside this window are not detected.
- Window mode with one switch point.

active detection range				
Foreground suppression	Background suppression			

#### Two point mode operating mode (hysteresis operating mode):

• Detection of objects irrespective of type and color between a defined switch-on and switch-off point.

	active detection range	
		Output
Output	Hysteresis	Culpur

Inactive operating mode:

• Evaluation of switching signals is deactivated.

The associated IODD device description file can be found in the download area at www.pepperl-fuchs.com.

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