

Distance sensor OMT300-R201-UEP-IO-V31-L



- Medium 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
- Analog output 0 ... 10 V DC

Distance sensor

À 😧 IO-Link

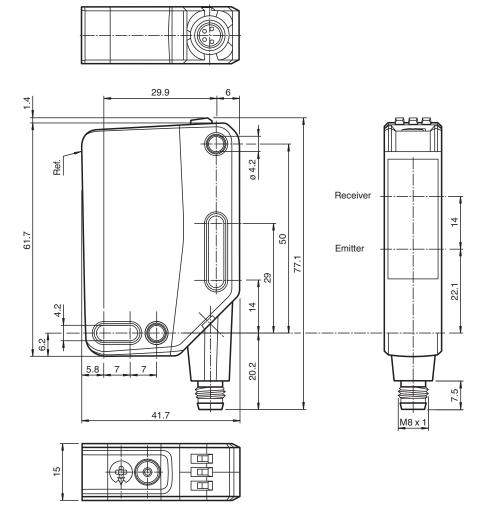
Function

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

General specifications

acheral speemeatons	
Measuring range	100 300 mm
Reference target	standard white, 100 mm x 100 mm
Light source	laser diode
Light type	modulated visible red light
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	1
Wave length	680 nm
Beam divergence	> 5 mrad, d63 < 2,8 mm in the range of 350 mm 800 mm
Pulse length	5.5 μs
Repetition rate	approx. 2.4 kHz
max. pulse energy	< 40 nJ
Angle deviation	max. +/- 1.5 °
Diameter of the light spot	approx. 3 mm at a distance of 300 mm
Opening angle	approx. 0.3 °
Ambient light limit	EN 60947-5-2 : 45000 Lux
Resolution	0.1 mm
Functional safety related parameters	
MTTF _d	470 a
Mission Time (T _M)	20 a

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

OMT300-R201-UEP-IO-V31-L

Operation indicator LEB green: constantify on - switch output active constantify on - switch output active constantify on - switch output active constantify on - switch output inactive Control elements Teach-In Key Control elements Va No-bad suppt current Ua No-bad suppt current Va No-bad suppt current Va Interface Pape Int.Interface Pape Interface Pape Int.Interface Pape Interface Pape CoM2 (38.4 kBi/s) Device ID Obtilitic (120540) Transfer rate CoM2 (38.4 kBi/s) Min. cycle time Process data input 4 byte Process data udupt 2 bits Process data udupt 2 bits SiO mode support Va Signal output Tape Parod Singla loutput Inabed	Technical Data		
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Control elements 5-step rotary switch for operating modes selection Electrical specifications max. 10 % Projection goals Uo 1830 V DC Ripple max. 10 % No-load supply current Io <18 mA at 24 V supply voltage	Function indicator		constantly on - switch output active
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Warm up time 5 min Repeat accuracy < 0.5 %	Measurement accuracy		
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Approvals and certificates E87056 , cULus Listed , class 2 power supply , type rating 1	Repeat accuracy		< 0.5 %
UL approval E87056 , cULus Listed , class 2 power supply , type rating 1	Linearity error		0.5 %
	Approvals and certificates		
CCC approval CCC approval / marking not required for products rated ≤36 V	UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
	CCC approval		CCC approval / marking not required for products rated ≤36 V

Release date: 2025-01-17 Date of issue: 2025-01-17 Filename: 295670-100359_eng.pdf

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

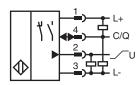
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

3

Distance sensor

Technical Data	
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 8, 2019.
Ambient conditions	
Ambient temperature	10 50 °C (50 122 °F)
Storage temperature	-40 70 °C (-40 158 °F)
Mechanical specifications	
Degree of protection	IP67 / IP69 / IP69K
Connection	4-pin, M8 x 1 connector, 90° rotatable
Material	
Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 44 g
Dimensions	
Height 61.7 mm	
Width	15 mm
Depth	41.7 mm

Connection



Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

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

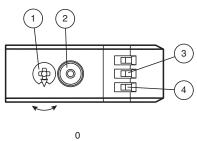
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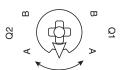
 www.pepperl-fuchs.com
 fa-info@us.pepperl-fuchs.com
 fa-info@us.pepperl-fuchs.com

4

Distance sensor

Assembly





1	Mode rotary switch	
2	Teach-in button	
3	Switching output display Q1	YE
4	Operating indicator	GN

Q1B	Switching output/switch point B
Q1A	Switching output/switch point A
Q2A	Analog output/value A
Q2B	Analog output/value B
0	Keylock

*	LASER 1
IEC 6082	25-1:2014

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

Pepperl+Fuchs Group www.pepperl-fuchs.com

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Settings

Teach-In (TI)

Use the rotary switch for switching signal Q1 to select the relevant switching threshold A and/or B to teach in.

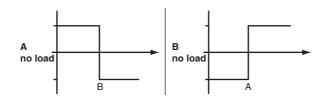
The yellow LEDs indicate the current state of the selected output.

To teach in a switching threshold, press and hold the "TI" button for approximately 1 s, until the yellow and green LEDs flash in phase. Teach-in starts when the "TI" button is released.

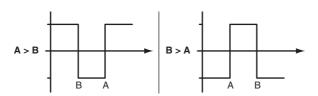
- Teach-in successful: the yellow and green LEDs flash alternately at 2.5 Hz.
- Teach-in unsuccessful: the yellow and green LEDs quickly flash alternately at 8 Hz.
- After an unsuccessful Teach-in, the sensor continues to operate with the previous valid setting after the relevant visual fault signal is issued.

Set switching mode: you can define different switching modes by teaching in the relevant distance data for switching thresholds A and B.

1. Single point mode:



2. Window mode:



Teach in switching thresholds: you can teach in or overwrite a taught-in switching threshold at any time. To do this, press the "TI" button again.

Reset a value: you can reset a taught-in value. To do this, press the "TI" button for > 4 s, until the yellow and green LEDs go out. The reset process itself starts when the "TI" button is released.

• Reset successful: the yellow and green LEDs flash alternately at 2.5 Hz.

Minimum and maximum values for the analog output Q2 are taught in and deleted in the same way as those for the switching output.

The following applies:

A = Minimum voltage/current

B = Maximum voltage/current

Resetting to Factory Settings

To revert back to factory settings, press the "TI" button for > 10 s with the rotary switch set to position "O," until the yellow and green LEDs go out at the same time. The reset process itself starts when the "TI" button is released.

Reset to factory settings successful: the yellow and green LEDs light up at the same time. The sensor then continues to
operate with factory settings.

OMT-IEP

- Factory setting for switching signal Q1:
- Switching signal is high active, window mode
- Analog output: current output, 4 mA ... 20 mA absolute mode

OMT-UEP

- Factory setting for switching signal Q1:
- Switching signal is high active, window mode
- Analog output: voltage output, 0 V ... 10 V absolute mode

Analog output

The analog output type can be configured as voltage or current output via IO-Link. The following output types are available:

- Analog output 0 mA ... 20 mA
- Analog output 4 mA ... 20 mA
- Analog output 0 V ... 10 V

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



Distance sensor

The following operating modes are available:

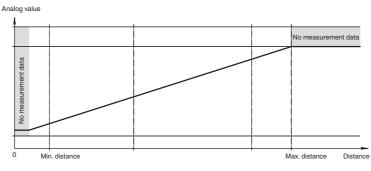
- Absolute mode (default setting)
- Normalized mode
- Rising slope
- Falling slope

The following substitute values can optionally be configured:

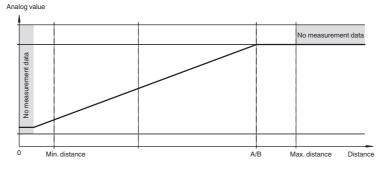
- No substitute values used (default setting)
- Substitute value for "no measured value" used
- Substitute value for "no measured value" and "Measuring overrange" used

The sensor's tolerances are based on the digital process data.

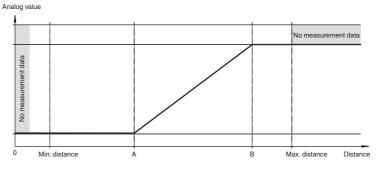
Absolute mode (default setting, A and B = deleted)



Normal mode (A and B without teach-in / deleted)

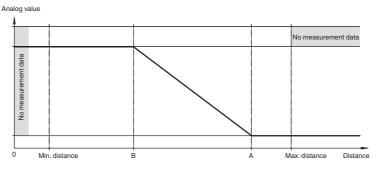


Rising slope (A < B)



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

Falling slope (A > B)



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

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.

E

a	active detection range	е		
oreground 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 of	detection range
Foreground suppression	Background suppression
Two point mode operating mode (hysteres)Detection of objects irrespective of type and	sis operating mode): d color between a defined switch-on and switch-off point.

	active detection range	
Output	Hysteresis	Output
·	perating mode:	
 Evaluation 	tion of switching signals is deactivated.	

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