



## Short range distance sensors (displacement) OD Value

OD2-P250W150A0



**Model Name** > OD2-P250W150A0  
**Part No.** > 6036648



**At a glance**

- Several measurement ranges from 26 mm ... 34 mm to 100 mm ... 500 mm
- CMOS receiving element for measurement independent of surface
- Easy, LED-based user and teach-in concept
- Wide range of models and a wide range of standard interfaces
- Laser technology for precise measurement of very small objects
- Compact stand-alone device
- Excellent price-performance ratio

**Your benefits**

- Reliable measurement independent of surface, minimizes machine downtime
- Extremely simple sensor teach-in makes setup faster and more costeffective
- Minimal space requirements and less wiring due to its compact, standalone design
- Many measurement ranges and output interfaces make it ideal for cost-effective integration into any production environment
- Low investment costs make consistent, regular quality inspection possible
- Non-contact measurement technology from a safe distance allows the inspection to be carried out directly during the production process
- Wear and damage-free inspection, due to non-contact measurement



CE III CDRH RoHS 2011/65/EU RS-422

**Performance**

Measuring range:	100 mm ... 400 mm, 6 % ... 90 % remission
Resolution <sup>1)</sup> :	75 µm
Repeatability <sup>2), 3), 4), 5)</sup> :	225 µm
Linearity <sup>6), 7), 8), 9)</sup> :	± 750 µm
Response time <sup>10)</sup> :	2 ms/15 ms/50 ms
Measuring frequency:	1.3 kHz
Light source:	Laser, red
Typ. light spot size (distance):	1.8 mm x 3.5 mm (250 mm)
Additional function:	Automatic sensitivity adjustment, Teach-in of switching output, Invertable switching output, Averaging 1 ... 64x, Multifunctional input: laser-off/external teach-in/trigger, Switching mode: distance to object (DtO), Switching mode: window (Wnd)
Laser class:	2 (EN 60825-1) <sup>11)</sup>

<sup>1) 3) 6)</sup> At averaging function medium    <sup>2)</sup> 6 % ... 90 % remission    <sup>4)</sup> Constant ambient conditions    <sup>5) 8)</sup> For best performance consider warm up time ≤ 5 minutes <sup>7)</sup>  
<sup>9)</sup> Measurement on 90 % remission (ceramic, white)    <sup>9)</sup> When calibrated in the application regularly    <sup>10)</sup> Automatic sensitivity adjustment ≤ 4 ms, 6 ms for the models with

measuring range of 100 mm ... 400 mm <sup>11)</sup> Wavelength: 655 nm, max. output: 1 mW

## Interfaces

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Data interface: RS-422  
Output type <sup>1)</sup>: 1 x PNP (100 mA)  
Multifunctional input (MF) <sup>2)</sup>: 1 x MF

<sup>1)</sup> PNP: HIGH =  $V_S$  - (< 2 V)/LOW = < 2 V; NPN: HIGH = < 2 V/LOW =  $V_S$  <sup>2)</sup> MF can be used as laser-off, trigger, external teach-in or deactivated; response time  $\leq 3$  ms

## Mechanics/electronics

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Electrical connection: Male connector, M12, 8-pin  
Supply voltage  $V_S$  <sup>1)</sup>: DC 12 V ... 24 V  
Power consumption <sup>2)</sup>:  $\leq 2.88$  W  
Warm-up time:  $\leq 5$  min  
Indication: Distance bar graph, up to 8 status LEDs  
Weight: 70 g  
Housing material: PBT housing with PMMA lens

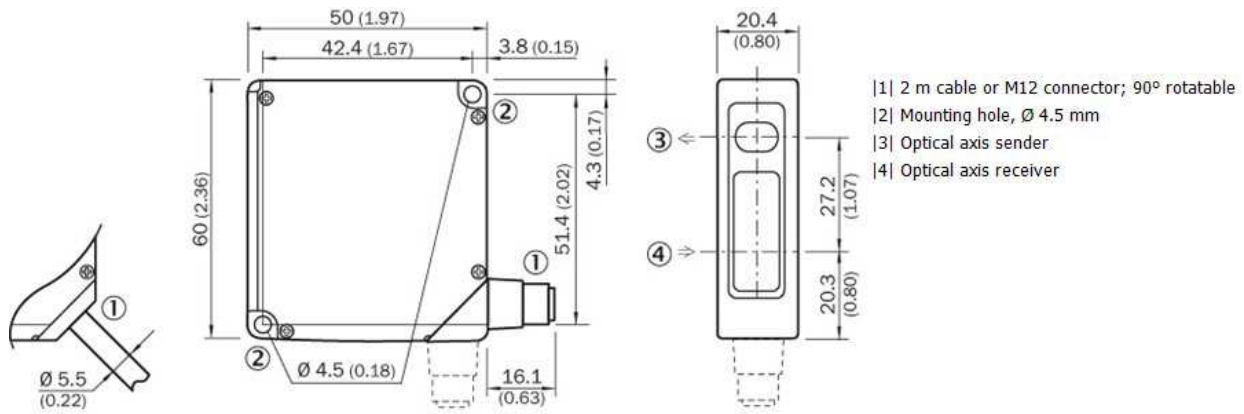
<sup>1)</sup> DC 12 V (-5 %) ... 24 V (+10 %); DC 18 V (-5 %) ... DC 24 V (+10 %) when using analog voltage output <sup>2)</sup> Without load, with current output

## Ambient data

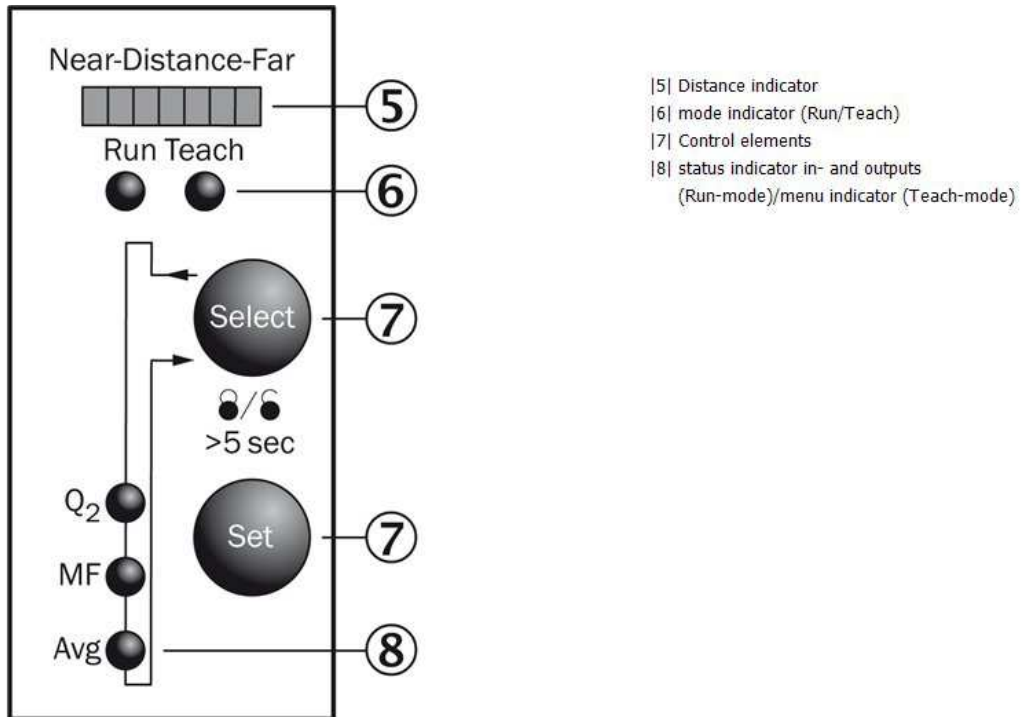
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Enclosure rating: IP 67  
Protection class: III  
Ambient temperature: Operation: -10 ... +40 °C, Storage: -20 ... +60 °C  
Temperature drift:  $\pm 0.08$  % FS/K (FS = Full Scale = Measuring range of sensor)  
Typ. ambient light safety: Artificial light:  $\leq 3,000$  lx  
Sunlight:  $\leq 10,000$  lx  
Vibration resistance: 10 Hz ... 55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours each)  
Shock resistance: 50 G (x-, y-, z-axis 3 times each)  
Relative humidity (not condensing): 35 % ... 95 %

## Dimensional drawing

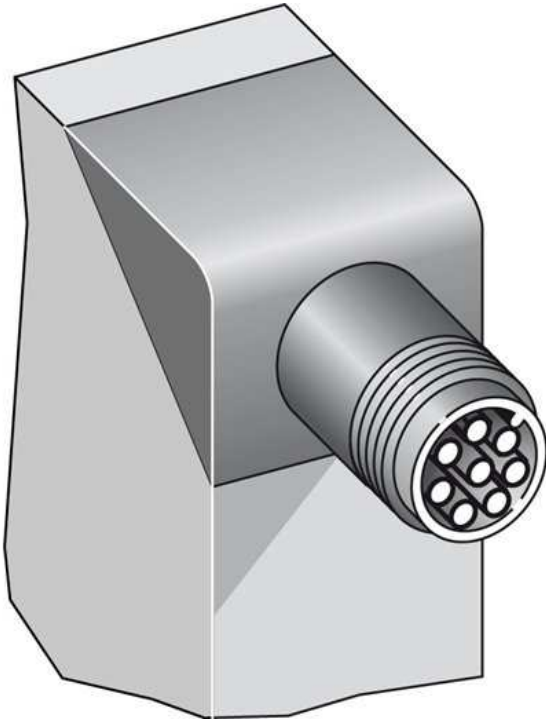


## Adjustment possible



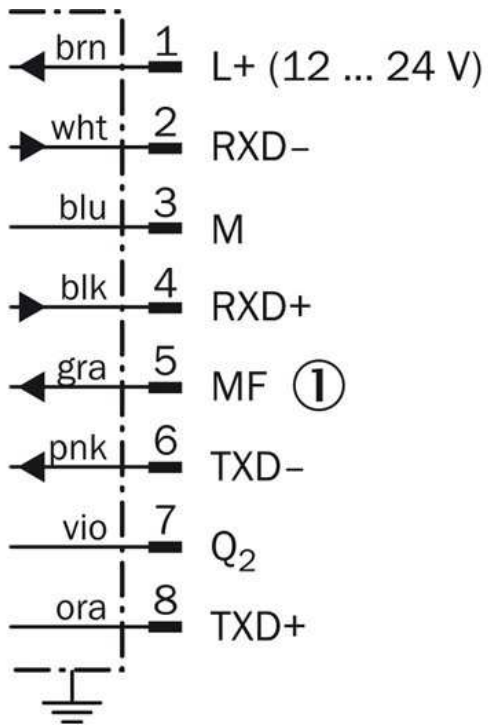
## Connection type

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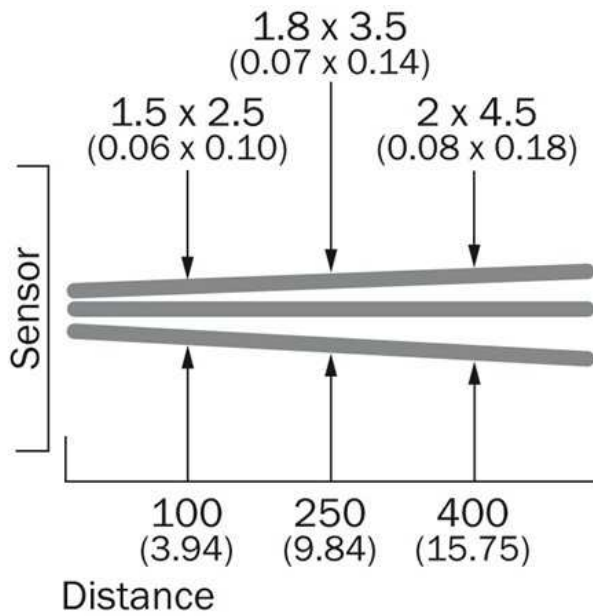
## Connection diagram

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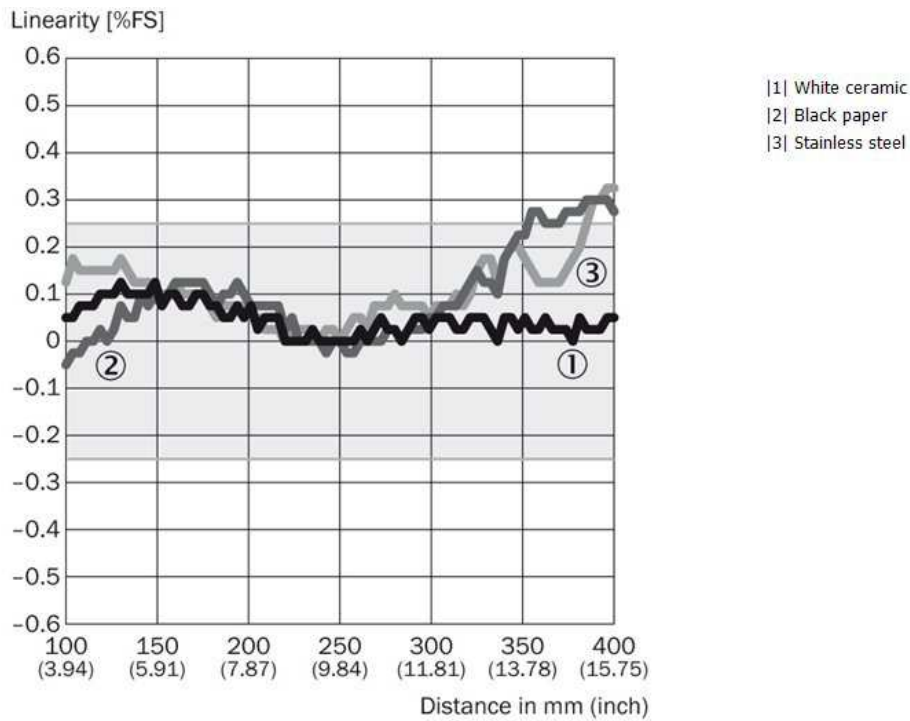
[1] Multifunctional input (MF)

## Light spot size



All dimensions in mm (inch)

## Linearity



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