



Photoelectric sensors  
W250-2, Photoelectric retro-reflective sensor,  
Standard optics

WL250-2R1631



**Type** > [WL250-2R1631](#)  
**Part No.** > [6044701](#)



*Illustration may differ*

**At a glance**

- Versions for 10 - 30 V DC or 24 - 240 V DC/ 24 – 240 V AC voltage supply in compact design
- Mounting bracket and P250 reflector included in delivery
- Visible red Bright Light LED
- Potentiometer sensitivity adjustment with indicator
- Operating mode (light/dark) selectable via control wire
- Cable or rotatable M12 connector

**Your benefits**

- Visible red Bright Light LED for simpler alignment of the sensors
- Universal AC/DC voltage variants provide high performance and increased flexibility in environments with limited space
- Mounting kit reduces installation time
- Simple power control for individual application adjustments via potentiometer
- Operating mode (light/dark) is selectable via a control cable to reduce the number of device variants
- Mounting compatibility - DC devices and DC/AC devices available in same design
- Polarizing filter ensures reliable detection, even with shiny targets



**Features**

Sensor/detection principle:	Photoelectric retro-reflective sensor, Dual lens
Dimensions (W x H x D):	20 mm x 60 mm x 43.9 mm
Housing design (light emission):	Rectangular
Sensing range max.::	0.01 m ... 12 m, 0.01 m ... 15 m <sup>1) 2)</sup>
Sensing range::	0.01 m ... 11 m, 0.01 m ... 13 m <sup>3) 4)</sup>
Type of light:	Visible red light
Light source:	BrightLight LED <sup>5)</sup>
Angle of dispersion:	Ca. 2 °
Adjustment:	Potentiometer, 2 turns
Light spot size (distance):	Ø 260 mm (8 m)

<sup>1) 3)</sup> PL80A <sup>2) 4)</sup> P250 <sup>5)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C <sup>6)</sup> With position indicator

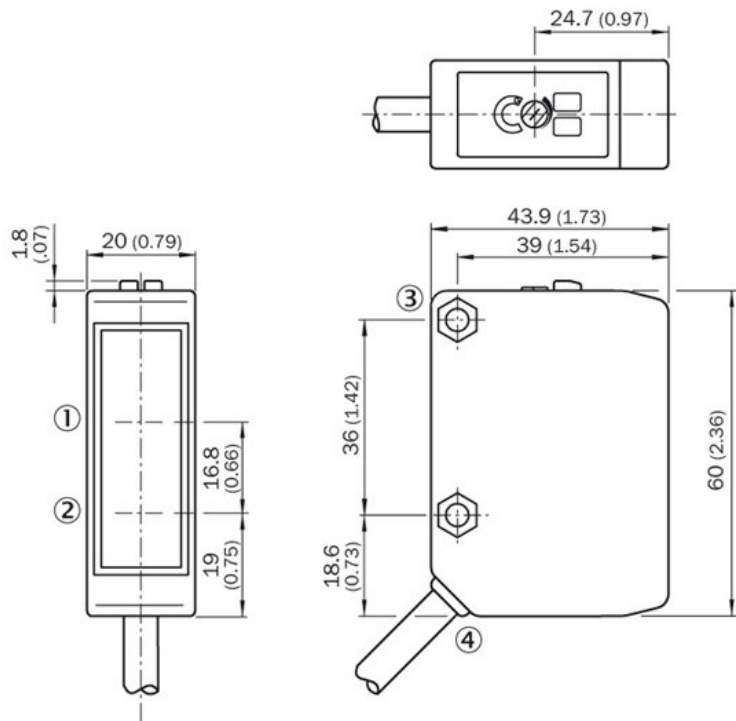
**Mechanics/electronics**

Supply voltage::	24 V AC/DC ... 240 V AC/DC, 24 V DC ... 240 V DC <sup>1) 2)</sup>
Power consumption:	≤ 5 VA

Output type:	Relay, electrically isolated <sup>3)</sup>
Output function:	Change-over contacts
Switching mode:	Light switching <sup>4)</sup>
Switching current (switching voltage):	3 A (240 V AC), 3 A (30 V DC)
Response time:	≤ 15 ms
Switching frequency:	33 Hz <sup>5)</sup>
Connection type:	Cable, 5-wire, 5 m <sup>6)</sup>
Cable material:	PVC
Conductor cross-section:	0.76 mm <sup>2</sup>
Cable diameter:	Ø 6.4 mm
Circuit protection:	A, C <sup>7) 8)</sup>
Protection class:	II <sup>9)</sup>
Overvoltage category:	2
Weight:	330 g
Polarisation filter:	✓
Special device:	-
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	BEF-W250 mounting bracket, Reflector P250
Usage category:	AC-15, DC-13, According to EN 60947-1
EMC:	EN 60947-5-2 <sup>10)</sup>
Ambient operating temperature:	-25 °C ... +55 °C
Ambient storage temperature:	-40 °C ... +70 °C
UL File No.:	NRKH2.E300503 & NRKH8.E300503
Housing material:	ABS, Plastic

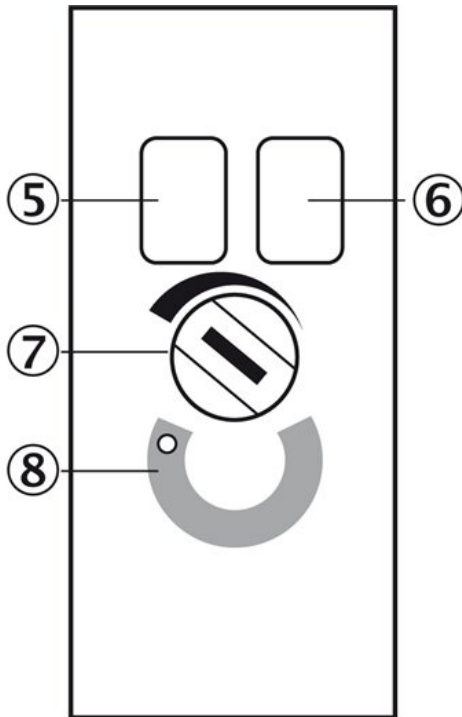
1) 2) ±10 % 3) 4) Provide suitable spark suppression for inductive or capacitive loads 5) With light/dark ratio 1:1 6) Do not bend below 0 °C 7) A = V<sub>S</sub> connections  
reverse-polarity protected 8) C = interference suppression 9) Reference voltage: 250 V AC 10) The AC/DC devices meet the interference suppression requirements for  
industrial use (interference suppression class A). When used in residential areas it can cause interference.

**Dimensional drawing**



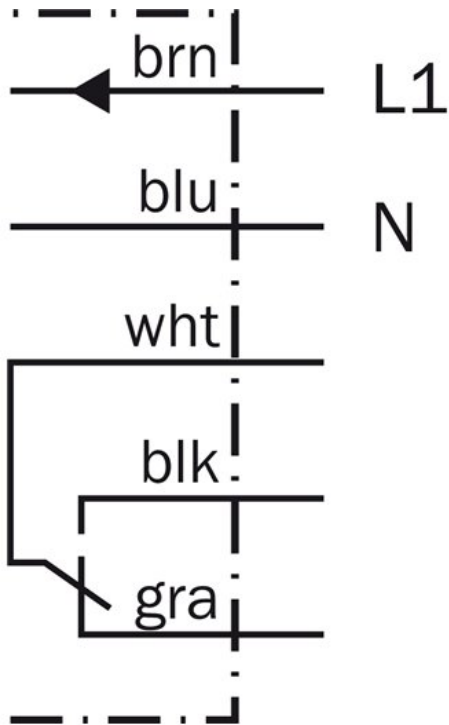
- |1| Reception axis
- |2| Axis of sender
- |3| Mounting hole  $\varnothing$  4.2 mm,  
for M4 hexagon nut on both sides
- |4| Connection cable

**Adjustments possible**



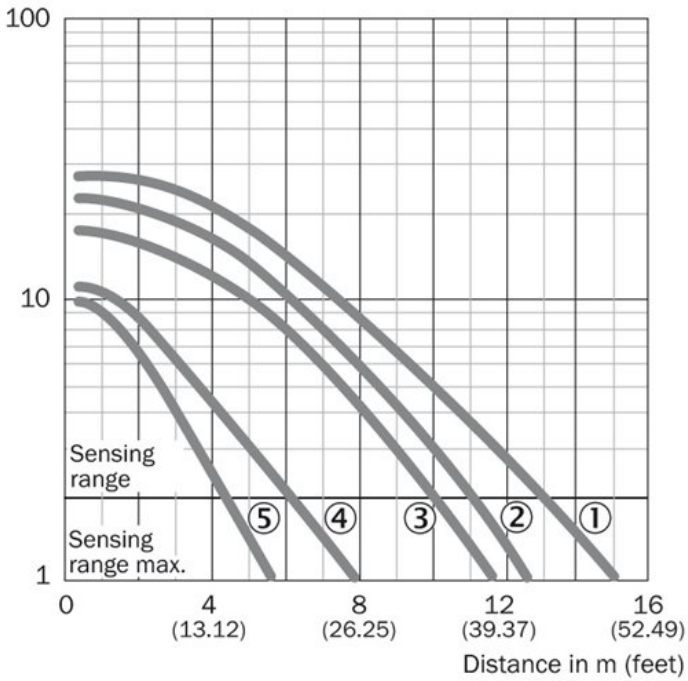
- |5| LED indicator green: Stability indicator
- |6| Status indicator LED,  
yellow: Status of received light beam
- |7| Sensitivity adjustment: poti
- |8| Position indicator for sensitivity setting (270°)

Connection diagram



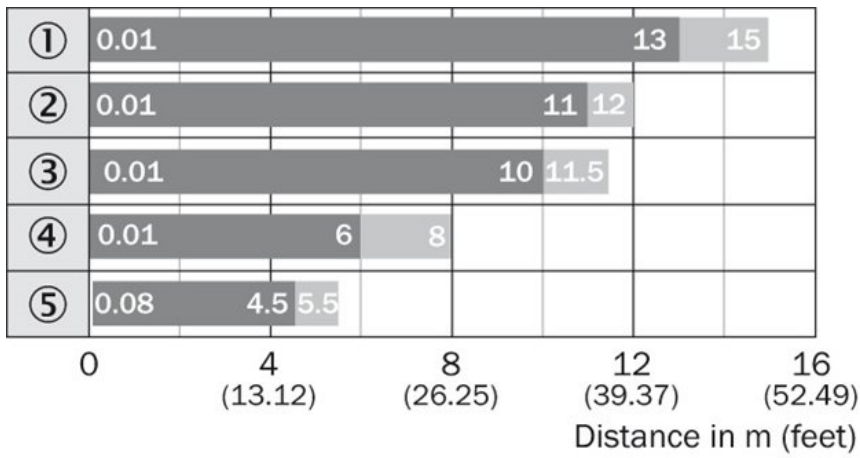
Characteristic curve

Function reserve



- [1] Reflector type PL80A, C110A
- [2] Reflector type P205
- [3] Reflector type PL50A, PL40A, PL30A, PL31A
- [4] Reflector type PL20A
- [5] Reflective tape Diamond Grade  
(100 mm x 100 mm/3.94 inch x 3.94 inch)

**Sensing range diagram**



- |1| Reflector type PL80A, C110A
- |2| Reflector type P205
- |3| Reflector type PL50A, PL40A, PL30A, PL31A
- |4| Reflector type PL20A
- |5| Reflective tape Diamond Grade  
(100 mm x 100 mm/3.94 inch x 3.94 inch)

■ Sensing range      ■ Sensing range max.

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