



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

WL250-2N2431



**Type** > [WL250-2N2431](#)  
**Part No.** > [6044696](#)



*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 65 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

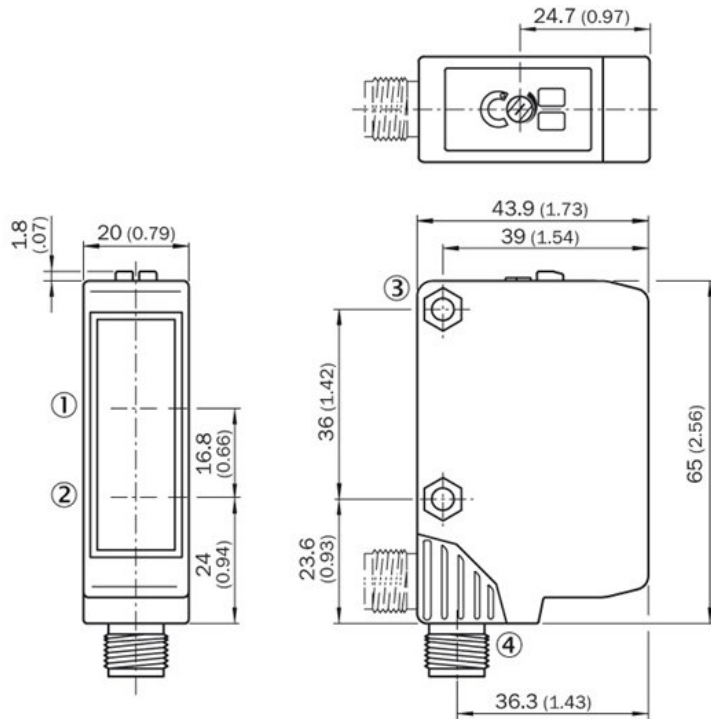
**Mechanics/electronics**

Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	≤ 5 Vpp <sup>2)</sup>

Power consumption:	≤ 20 mA <sup>3)</sup>
Output type:	NPN, open collector
Switching mode:	Light/dark switching
Switching mode selector:	Selectable via L/D control wire
Output current I <sub>max.</sub> :	≤ 100 mA
Response time:	≤ 0.5 ms <sup>4)</sup>
Switching frequency:	1,000 Hz <sup>5)</sup>
Connection type:	M12, 4-pin male connector <sup>6)</sup>
Circuit protection:::	A, B, C, D <sup>7) 8) 9) 10)</sup>
Protection class:	III
Weight:	40 g
Polarisation filter:	✓
Special device:	-
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	BEF-W250 mounting bracket, Reflector P250
EMC:	EN 60947-5-2 <sup>11)</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

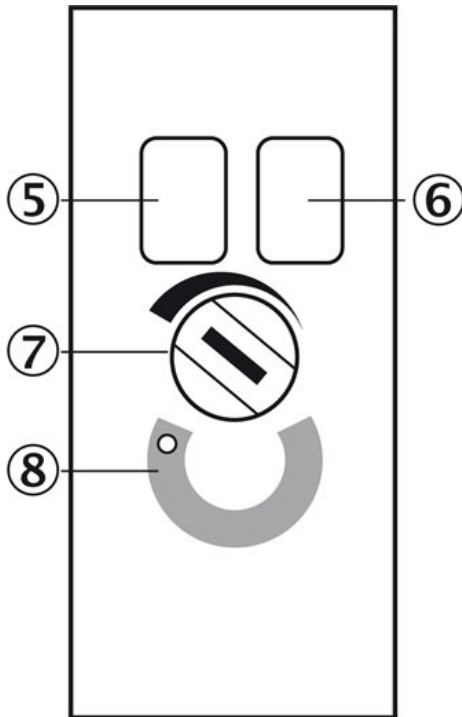
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> 90 ° rotatable <sup>7)</sup> A =  $V_S$  connections reverse-polarity protected <sup>8)</sup> B = inputs and output reverse-polarity protected <sup>9)</sup> C = interference suppression <sup>10)</sup> D = outputs overcurrent and short-circuit protected <sup>11)</sup> 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



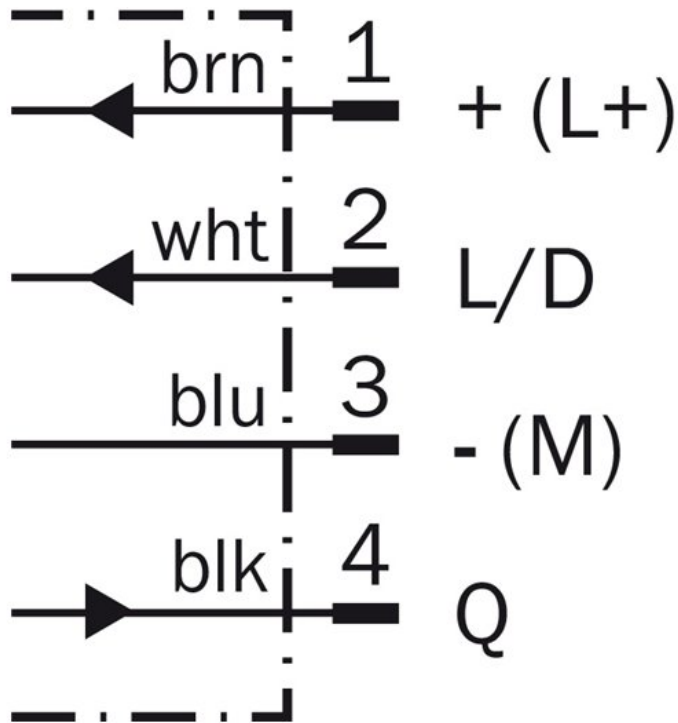
- |1| Reception axis
- |2| Axis of sender
- |3| Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- |4| Connector M12, 4-pin: Connector position rotatable by 90° (V>H); V: Vertikal final position ; H: Horizontal final position, can be locked with slider

## Adjustments possible

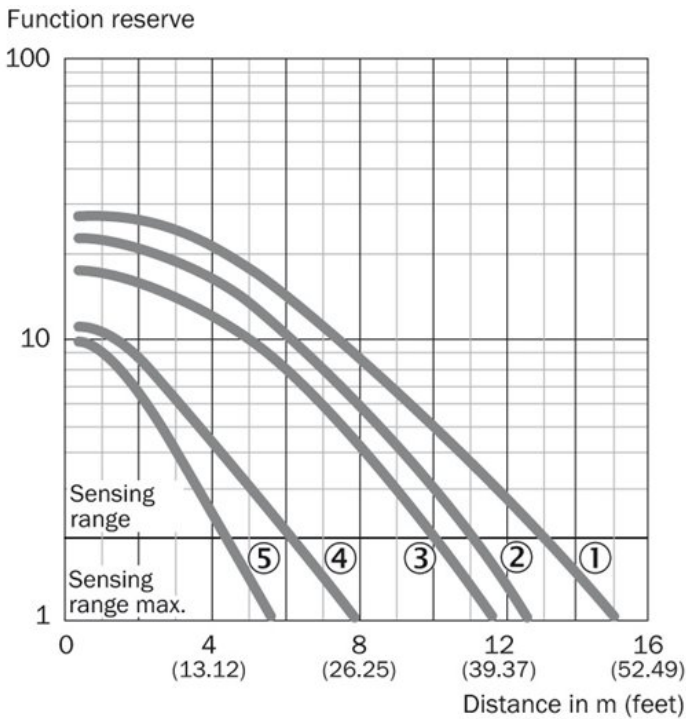


- |5| LED indicator green: Stability indicator
- |6| Status indicator LED, yellow: Status of received light beam
- |7| Sensitivity adjustment: poti
- |8| Position indicator for sensitivity setting (270°)

Connection diagram

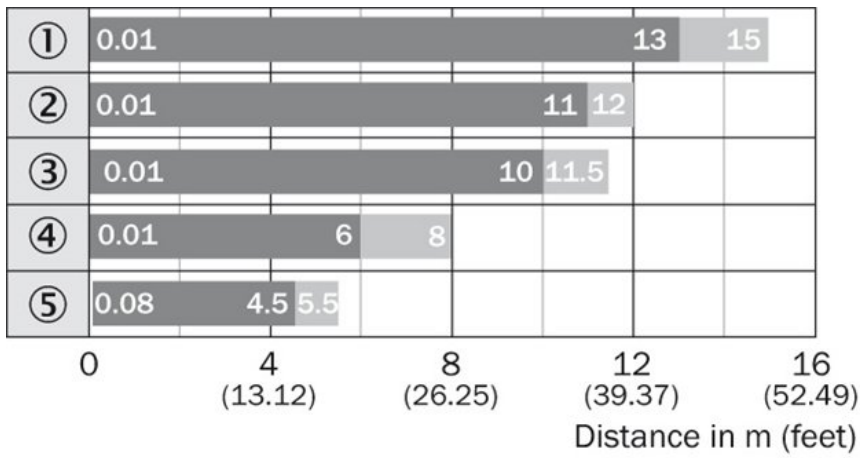


Characteristic curve



- [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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