



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 ^{1) 2)}
Sensing range::	0.01 m ... 11 m, 0.01 m ... 13 m ^{3) 4)}
Type of light:	Visible red light
Light source:	BrightLight LED ⁵⁾
Angle of dispersion:	Ca. 2 °
Adjustment:	Potentiometer, 2 turns
Light spot size (distance):	Ø 260 mm (8 m)

^{1) 3)} PL80A ^{2) 4)} P250 ⁵⁾ Average service life of 100,000 h at T_A = +25 °C ⁶⁾ With position indicator

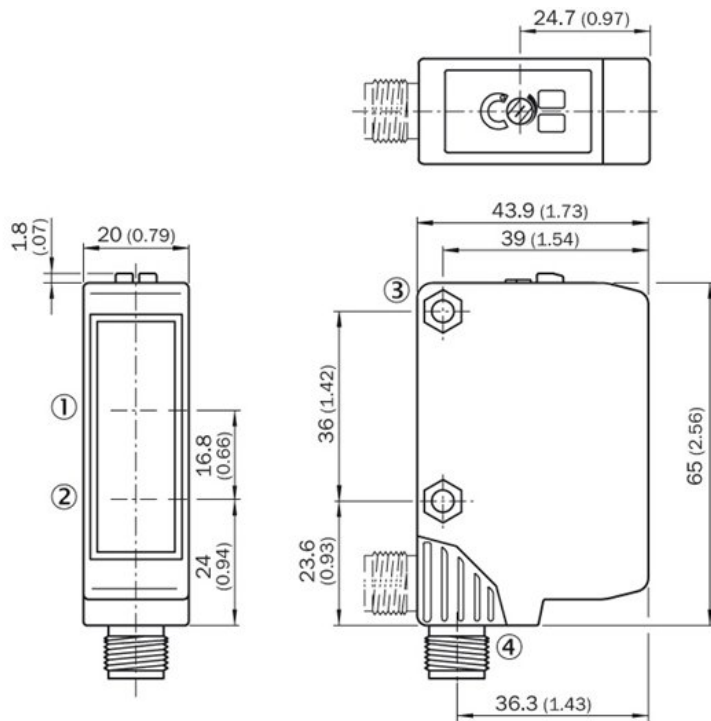
Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	≤ 5 Vpp ²⁾

Power consumption:	≤ 20 mA ³⁾
Output type:	NPN, open collector
Switching mode:	Light/dark switching
Switching mode selector:	Selectable via L/D control wire
Output current I _{max} :	≤ 100 mA
Response time:	≤ 0.5 ms ⁴⁾
Switching frequency:	1,000 Hz ⁵⁾
Connection type:	M12, 4-pin male connector ⁶⁾
Circuit protection:::	A, B, C, D ^{7) 8) 9) 10)}
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 ¹¹⁾
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

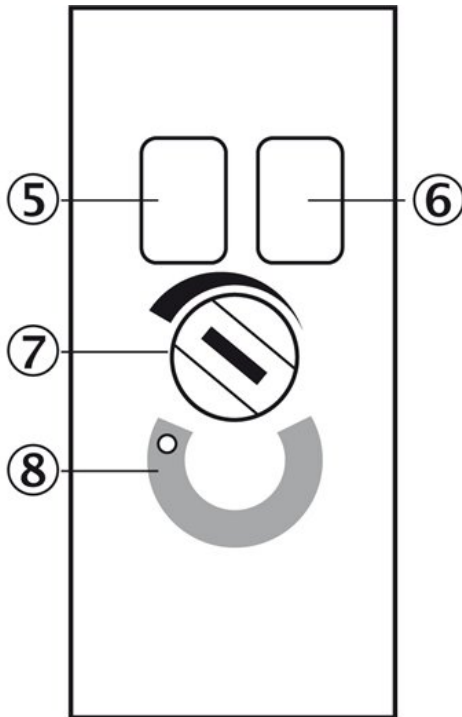
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ 90 ° rotatable ⁷⁾ A = V_S connections reverse-polarity protected ⁸⁾ B = inputs and output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



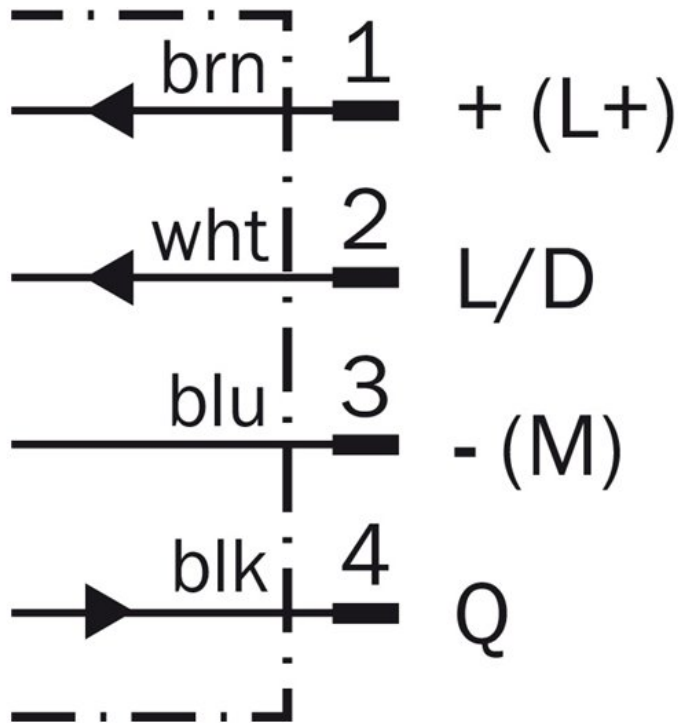
- |1| Reception axis
- |2| Axis of sender
- |3| Mounting hole \varnothing 4.2 mm, for M4 hexagon nut on both sides
- |4| Connector M12, 4-pin: Connector position rotatable by 90° (V>H); V: Vertikal final position ; H: Horizontal final position, can be locked with slider

Adjustments possible



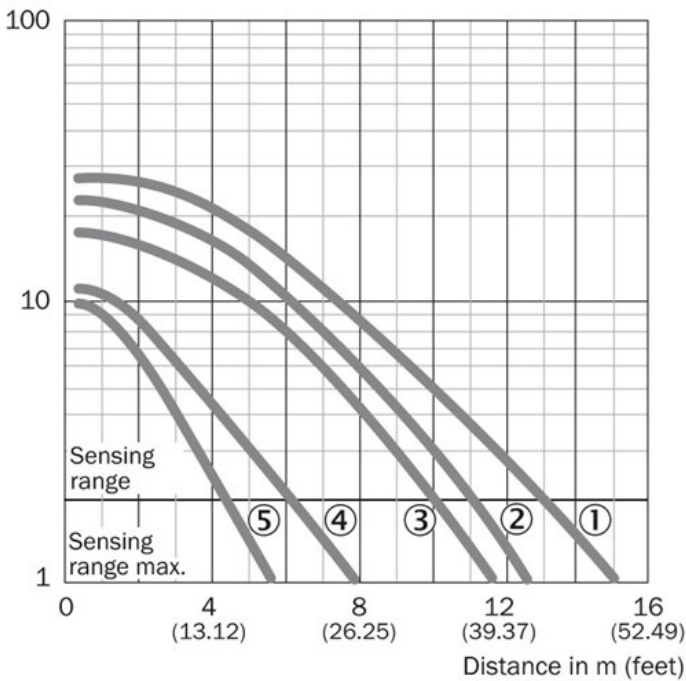
- |5| LED indicator green: Stability indicator
- |6| Status indicator LED, yellow: Status of received light beam
- |7| Sensitivity adjustment: poti
- |8| Position indicator for sensitivity setting (270°)

Connection diagram



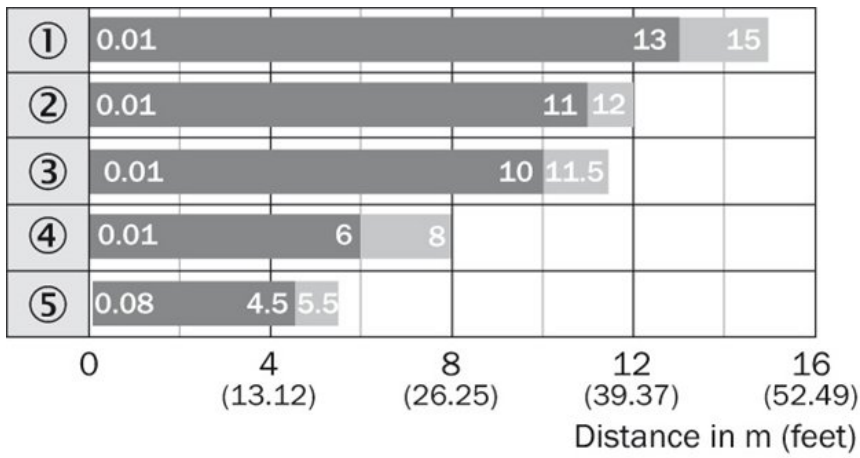
Characteristic curve

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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