



Photoelectric sensors  
W250-2, Photoelectric proximity sensor,  
Background suppression

WTB250-2N2431



Type > [WTB250-2N2431](#)  
Part No. > [6044673](#)



*Illustration may differ*

**At a glance**

- Visible red Bright Light LED
- Background suppression
- Potentiometer with an easy-to-read positioning indicator for adjusting the sensing range
- Cable or rotatable M12 connector
- Operating mode (light/dark) selectable via control wire
- Versions for 10 - 30 V DC or 24 - 240 V DC/ 24 – 240 V AC voltage supply in compact design

**Your benefits**

- Visible red light Bright Light LED simplifies alignment and easy-to-read positioning indicator for simple commissioning
- Reliable object detection in difficult ambient light conditions
- Cable or rotatable M12 connector provide installation flexibility
- Operating mode (light/dark) is selectable via a control cable to reduce the number of device variants
- Variants with DC voltage and universal AC/DC voltage in the same housing provide increased flexibility



**Features**

Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D):	20 mm x 65 mm x 43.9 mm
Housing design (light emission):	Rectangular
Sensing range max.:	100 mm ... 300 mm <sup>1)</sup>
Sensing range:	100 mm ... 300 mm <sup>2)</sup>
Type of light:	Visible red light
Light source:	BrightLight LED <sup>3)</sup>
Angle of dispersion:	Ca. 3 °
Adjustment:	Potentiometer, 2 turns
Light spot size (distance):	Ø 30 mm (300 mm)

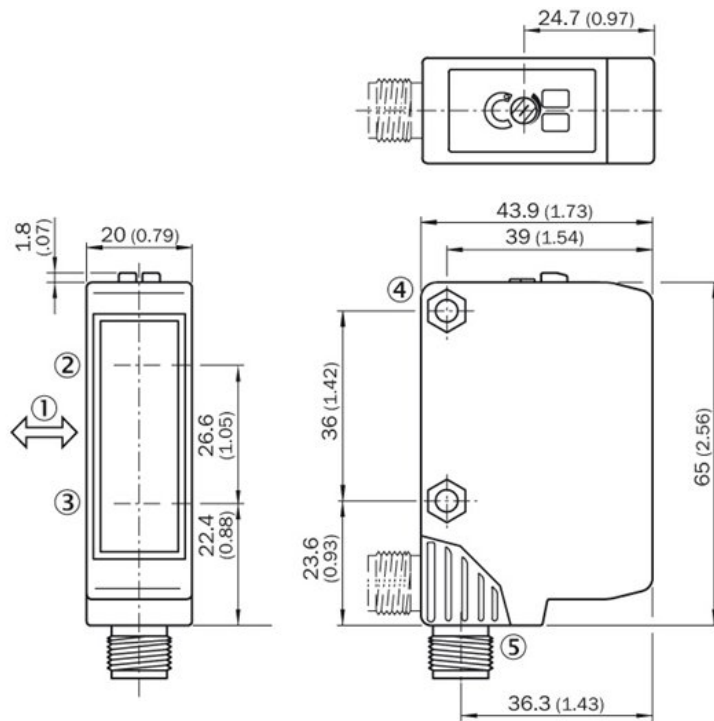
<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C <sup>4)</sup> With position indicator

**Mechanics/electronics**

Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	≤ 5 Vpp <sup>2)</sup>
Power consumption:	≤ 35 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:	≤ 3 ms <sup>4)</sup>
Switching frequency:	160 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
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	BEF-W250 mounting bracket
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

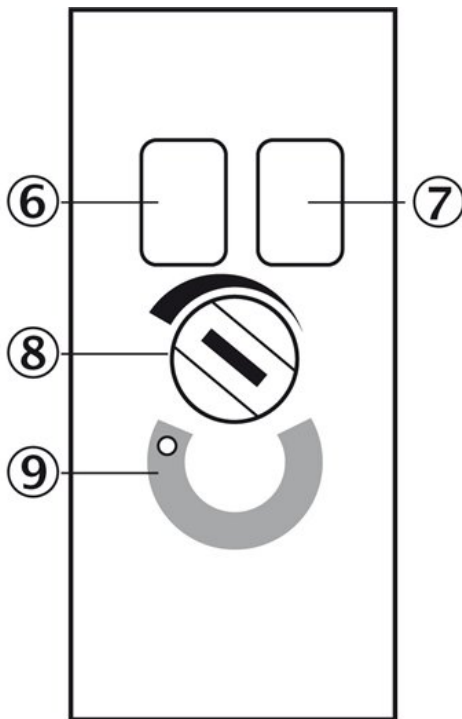
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> 90 ° rotatable <sup>7)</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



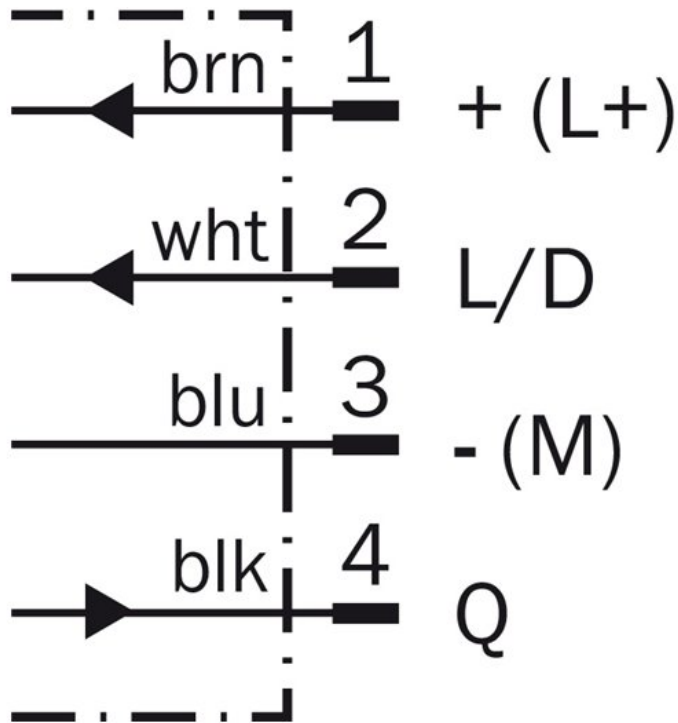
- |1| Standard direction of the material being detected
- |2| Axis of sender
- |3| axis of receiver
- |4| Mounting hole  $\varnothing$  4.2 mm,  
for M4 hexagon nut on both sides
- |5| Connector M12, 4-pin: Connector position  
rotatable by 90° (V>H); V: Vertikal final position  
; H: Horizontal final position, can be locked with slider

## Adjustments possible

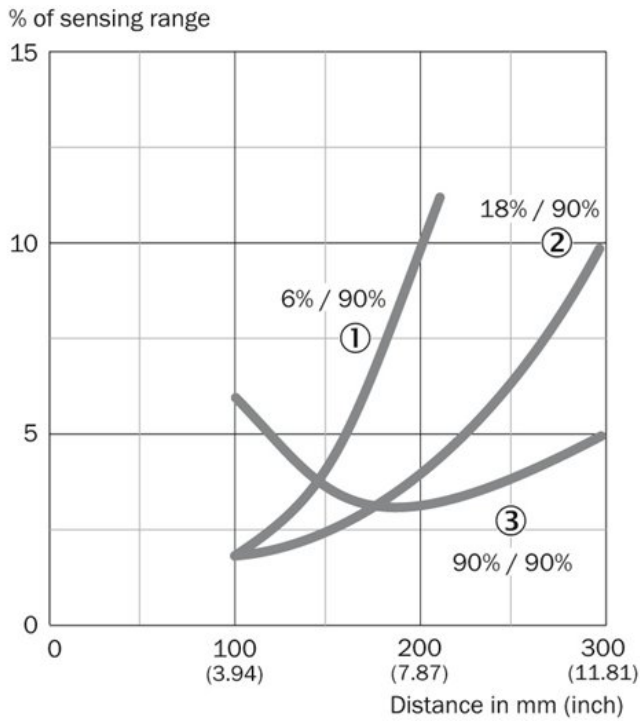


- |6| LED indicator green: Stability indicator
- |7| Status indicator LED,  
yellow: Status of received light beam
- |8| Sensing range adjustment: potentiometer
- |9| Position indicator for sensitivity setting (270°)

Connection diagram

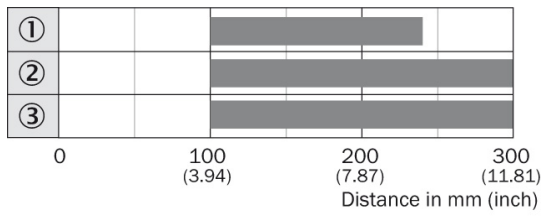


Characteristic curve



- [1] Sensing range on black, background white
- [2] Sensing range on gray, background white
- [3] Sensing range on white, background white

### Sensing range diagram



■ Sensing range

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