



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

WTB250-2N2441



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Model Name > [WTB250-2N2441](#)
Part No. > [6044679](#)



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.:	150 mm ... 500 mm ¹⁾
Sensing range:	150 mm ... 500 mm ²⁾
Type of light:	Visible red light
Light source:	BrightLight LED ³⁾
Angle of dispersion:	Ca. 3 °
Adjustment:	Potentiometer, 2-turn
Light spot size (distance):	Ø 30 mm (500 mm)

^{1) 2)} Object with 90 % reflectance (referred to standard white DIN 5033) ³⁾ Average service life of 100,000 h at T_A = +25 °C

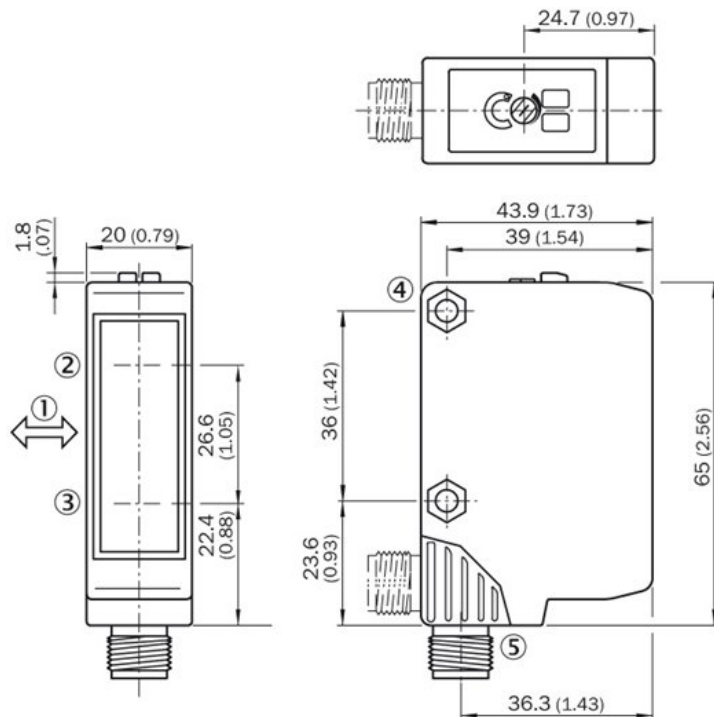
Mechanics/electronics

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

Power consumption:	$\leq 35 \text{ mA}$ ³⁾
Output type:	NPN, open collector
Switching mode:	Light/dark-switching
Switching mode selector:	Selectable via L/D control wire
Output current I _{max} :	$\leq 100 \text{ mA}$
Response time:	$\leq 3 \text{ ms}$ ⁴⁾
Switching frequency:	160 Hz ⁵⁾
Connection type:	Connector M12, 4-pin ⁶⁾
Circuit protection:::	A, B, C, D ^{7) 8) 9) 10)}
Protection class:	III
Weight:	40 g
Housing material:	ABS, Plastic
Optics material:	PMMA
Enclosure rating:	IP 67
Items supplied:	BEF-W250 mounting bracket
EMC:	EN 60947-5-2 ¹¹⁾
Ambient operating temperature:	-25 °C ... 55 °C
Ambient storage temperature:	-40 °C ... 70 °C

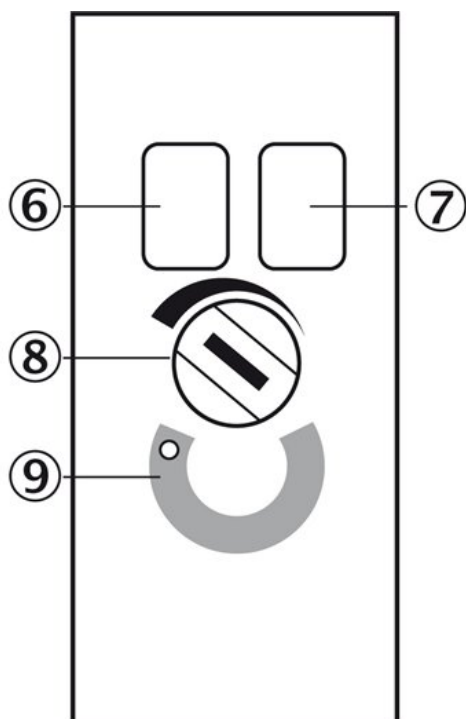
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ 90 ° rotatable ⁷⁾ A = V_S connections reverse-polarity protected ⁸⁾ B = inputs and output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



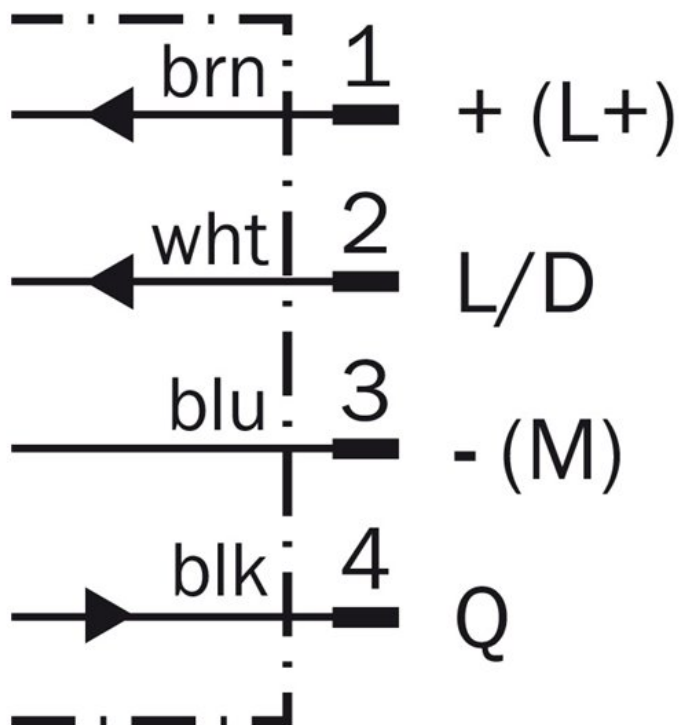
- [1] Standard direction of the material being scanned
- [2] Axis of sender
- [3] axis of receiver
- [4] Mounting hole ø 4.2 mm, for M4 hexagon nut on both sides
- [5] Connector M12, 4-pin: Connector position rotatable by 90° (V>H); V: Vertikal final position; H: Horizontal final position, can be locked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

Adjustments possible

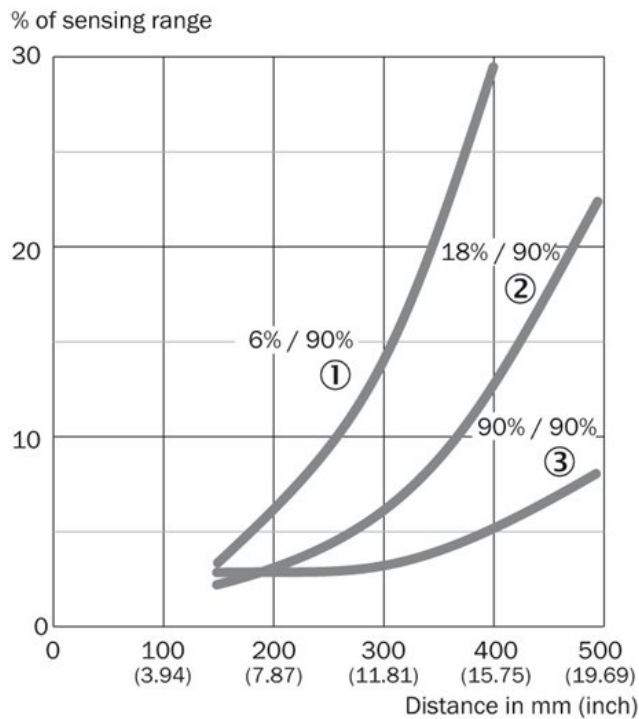


- |6| LED indicator green: Stability indicator
- |7| Status indicator LED,
yellow: Status of received light beam
- |8| Sensing range adjustment: potentiometer
- |9| Position indicator for sensitivity setting (270°)

Connection diagram

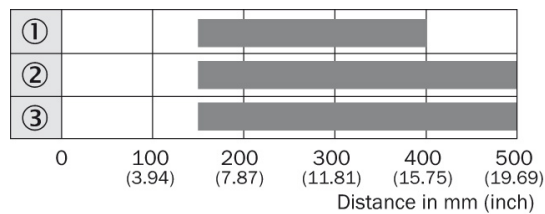


Characteristic curve



- |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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