



Photoelectric sensors
W24-2, Through-beam photoelectric sensor

WS/WE24-2B440



Model Name > [WS/WE24-2B440](#)
Part No. > [1017875](#)



Illustration may differ

At a glance

- Long sensing range with high operating reserve
- Metal housing that has been IP 69k tested
- Switch selectable PNP or NPN output
- Switch selectable Light or Dark operating mode
- Variants with DC voltage and universal AC/DC voltage with UL approval
- Optional test input, adjustable ON and OFF time delays, alarm output and front screen heating
- M12 or terminal chamber connection: 90° rotatable

Your benefits

- Metal housing that has been IP 69K tested provides reliability and a long service life
- High operating reserve at a long sensing range reduces downtime
- Alarm output signals marginal operation to provide an early warning
- Test input provides diagnostic feedback for example misalignment
- Selectable output type, operating mode, and adjustable time delays makes integration easier and reduce the number of devices needed
- Ensuring reliable operation in environments with temperatures fluctuation due to standard or high-power front lens heating (prevention and reduction of condensation water on the front lens)
- Variants with DC voltage and universal AC/DC voltage provide installation flexibility
- Red light provides easy alignment, which saves time



Features

Sensor/detection principle:	Through-beam photoelectric sensor
Dimensions (W x H x D):	27 mm x 87.5 mm x 65 mm
Housing design (light emission):	Rectangular
Sensing range max.:	0 m ... 60 m
Sensing range:	0 m ... 50 m
Type of light:	Visible red light
Light source:	LED ¹⁾
Time type:	On delay off delay
Delay time:	Adjustable via time delay selector switch: 0.5 ... 10 s
Alarm output:	-
Angle of dispersion:	Ca. 1 °
Adjustment:	Sensitivity adjustment

Light spot size (distance): Ø 700 mm (50 m)

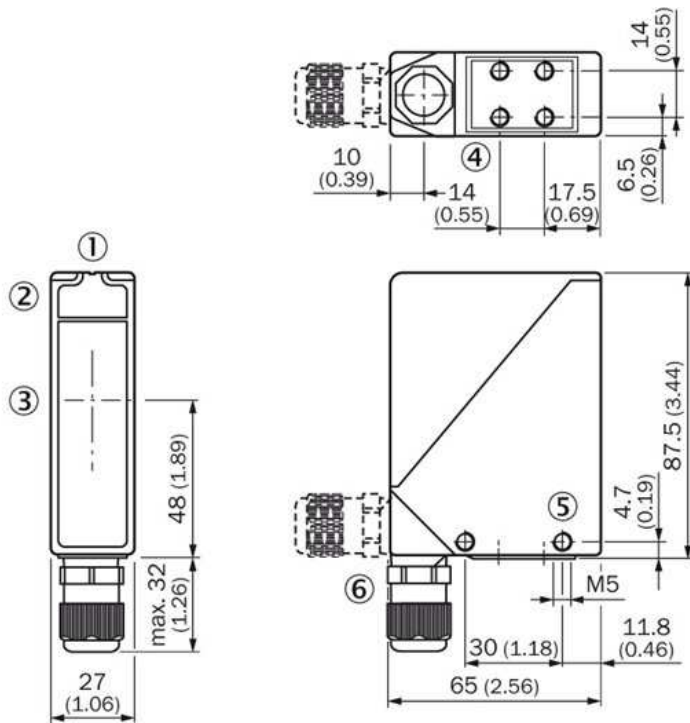
¹⁾ Average service life of 100,000 h at $T_A = +25\text{ °C}$

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	< 5 Vpp ²⁾
Power consumption, sender:	150 mA ³⁾
Power consumption, receiver:	140 mA ⁴⁾
Output type:	NPN, PNP
Switching mode:	Light/dark switching
Switching mode selector:	Selectable via light/dark selector, Selectable via NPN/PNP selector
Output current I _{max} :	100 mA
Response time:	≤ 500 μs ⁵⁾
Switching frequency:	1,000 Hz ⁶⁾
Angle of reception:	Ca. 2.5 °
Connection type:	Connector M12, 4-pin ⁷⁾
Circuit protection:::	A, C, D ^{8) 9) 10)}
Protection class:	II ¹¹⁾
Weight:	660 g
Front screen heating:	✓
Housing material:	Metal, Zinc diecast
Optics material:	PMMA
Enclosure rating:	IP 69K
Test input sender off:	TE to 0 V
Ambient operating temperature:	-40 °C ... +60 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493 & NRKH7.E181493

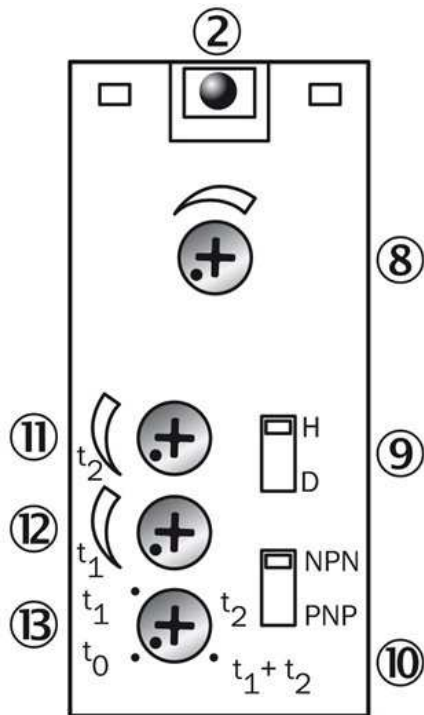
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ^{3) 4)} Without load ⁵⁾ Signal transit time with resistive load ⁶⁾ With light/dark ratio 1:1 ⁷⁾ Connection rotatable by 90° ⁸⁾ A = V_S connections reverse-polarity protected ⁹⁾ C = interference suppression ¹⁰⁾ D = outputs overcurrent and short-circuit protected ¹¹⁾ Reference voltage: 50 V DC

Dimensional drawing



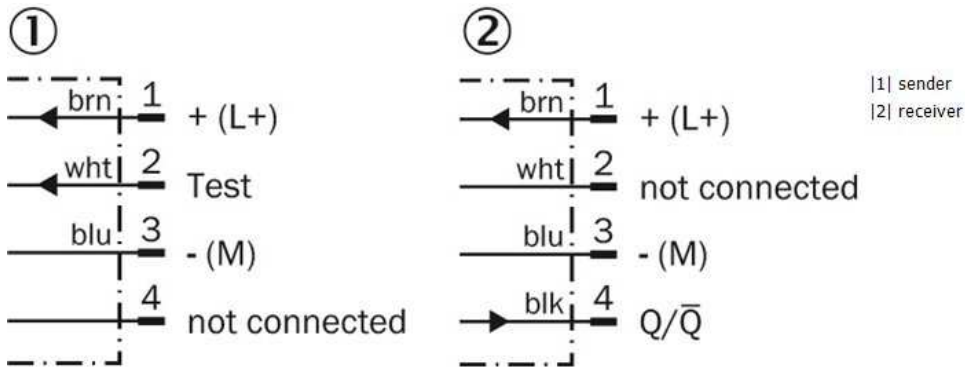
- |1| Alignment sight
- |2| LED signal strength indicator
- |3| Center of optical axis
- |4| M5 threaded mounting hole, 6 mm deep
- |5| M5 threaded mounting hole, through-hole
- |6| M16 screw fixing and plug rotatable by 90°

Adjustments possible

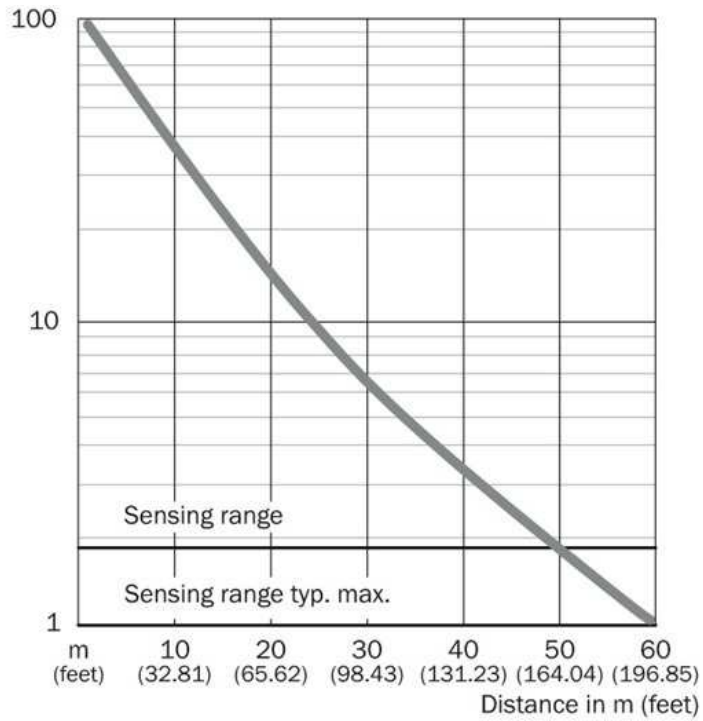


- |2| LED signal strength indicator
- |8| Sensitivity adjustment
- |9| Light/dark selector
- |10| NPN/ PNP selector
- |11| Time control t₂=OFF-delay
- |12| Time control t₁=ON-delay
- |13| time delay selector switch

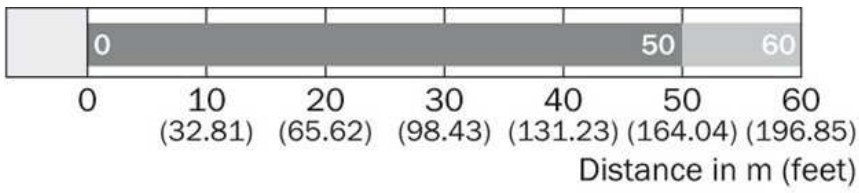
Connection diagram



Characteristic curve

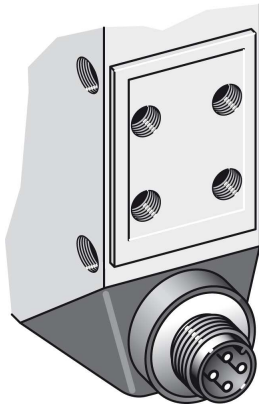


Sensing range diagram



■ Sensing range ■ Sensing range typ. max.

Connection type



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