



Photoelectric sensors  
W24-2, Through-beam photoelectric sensor

WS/WE24-2V230



**Model Name** > [WS/WE24-2V230](#)  
**Part No.** > [1017876](#)



*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 <sup>1)</sup>                 |
| Alarm output:                    | ✓                                 |
| Angle of dispersion:             | Ca. 1 °                           |
| Adjustment:                      | Potentiometer                     |
| Light spot size (distance):      | Ø 700 mm (50 m)                   |

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

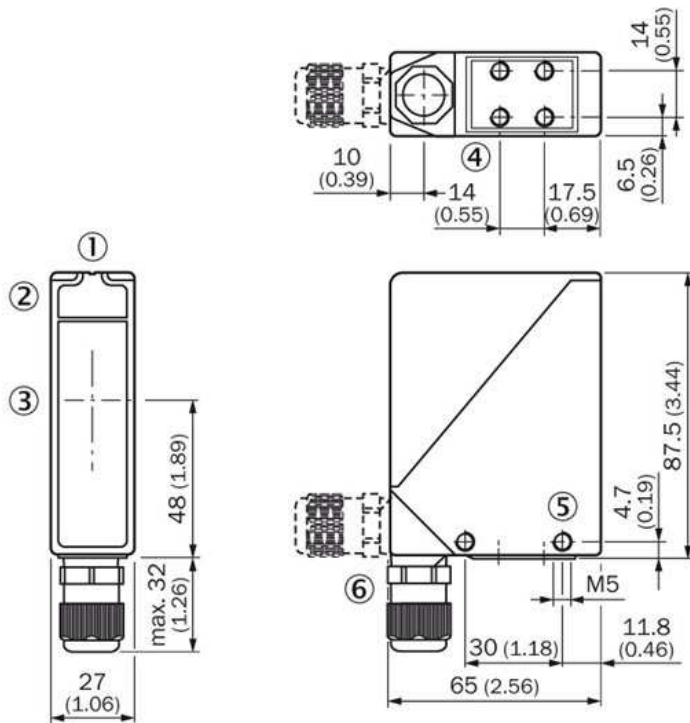
## Mechanics/electronics

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|                                   |   |
|-----------------------------------|---|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup>                                   |
| Ripple:                           | < 5 Vpp <sup>2)</sup>   |
| Power consumption, sender:        | 50 mA <sup>3)</sup>   |
| Power consumption, receiver:      | 40 mA <sup>4)</sup>   |
| 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 <sub>max</sub> : | 100 mA  |
| Response time:                    | ≤ 500 μs <sup>5)</sup>  |
| Switching frequency:              | 1,000 Hz <sup>6)</sup>  |
| Angle of reception:               | Ca. 2.5 °   |
| Connection type:                  | Terminal connection with M16 gland <sup>7)</sup>                    |
| Circuit protection:::             | A, C, D <sup>8) 9) 10)</sup>  |
| Protection class:                 | II <sup>11)</sup>   |
| Weight:                           | 660 g   |
| Front screen heating:             | -   |
| Special device:                   | -   |
| 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  |
| Housing material:                 | Metal, Zinc diecast   |

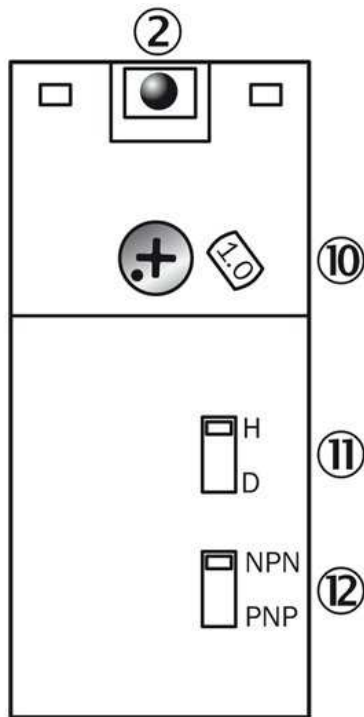
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3) 4)</sup> Without load <sup>5)</sup> Signal transit time with resistive load <sup>6)</sup> With light/dark ratio 1:1 <sup>7)</sup> Connection rotatable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

**Dimensional drawing**



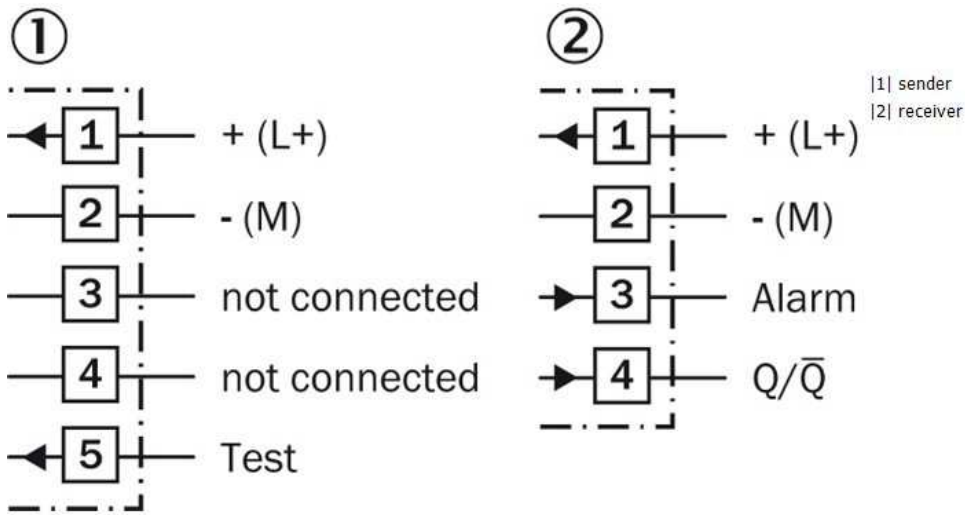
- |1| Alignment sight
- |2| LED signal strength indicator
- |3| Center of optical axis
- |4| M5 threaded mounting hole, 6 mm deep
- |5| M5 threaded mounting hole, through-hole
- |6| M16 screw fixing and plug rotatable by 90°

**Adjustments possible**

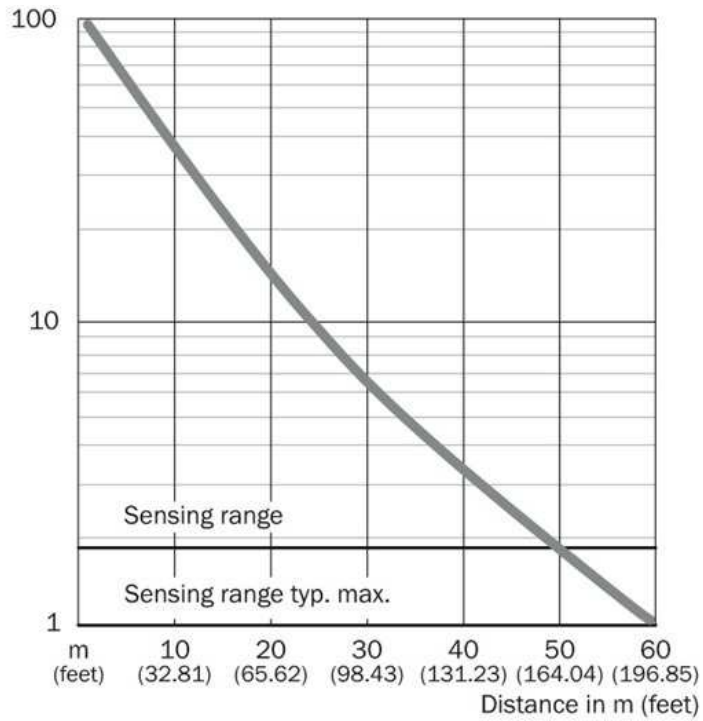


- |2| LED signal strength indicator
- |10| Adjustment sensing range (WT) / sensitivity (WL, WS/WE)
- |11| Light/dark selector
- |12| NPN/ PNP selector

Connection diagram

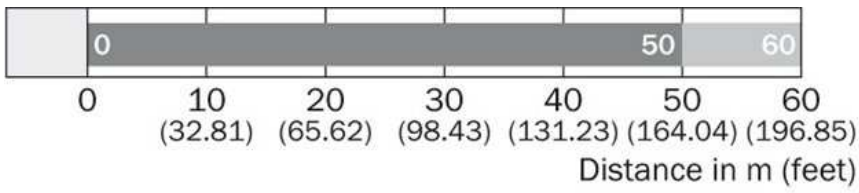


Characteristic curve



**Sensing range diagram**

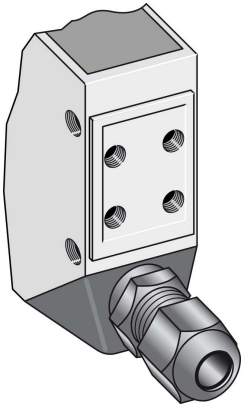
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■ Sensing range      ■ Sensing range typ. max.

**Connection type**

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