



Photoelectric sensors  
W24-2, Photoelectric proximity sensor,  
Background suppression

WT24-2V220



**Model Name** > [WT24-2V220](#)  
**Part No.** > [1017886](#)



*Illustration may differ*

**At a glance**

- Precise background suppression at ranges up to 2500 mm
- Immune to ambient light and crosstalk from another photoelectric sensor
- 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 also available in high-power version
- M12 or terminal chamber connection: 90° rotatable
- Red light or long-range IR

**Your benefits**

- Metal housing that has been IP 69K tested provides reliability and a long service life
- Immune to ambient light and crosstalk, reducing sensor downtime
- Precise detection at long sensing ranges
- User interface is stored under a durable protection hood to prevent unwanted tampering and protect vital components
- Selectable output type, operating mode, and adjustable time delays makes integration easier and reduce the number of devices needed
- Variants with DC voltage and universal AC/DC voltage provide installation flexibility



**Features**

|                                  |   |
|----------------------------------|---|
| Sensor/detection principle:      | Photoelectric proximity sensor, Background suppression  |
| Dimensions (W x H x D):          | 27 mm x 87.5 mm x 65 mm                                 |
| Housing design (light emission): | Rectangular   |
| Sensing range max.:              | 100 mm ... 2,500 mm <sup>1)</sup>                       |
| Sensing range:                   | 100 mm ... 2,500 mm <sup>2)</sup>                       |
| Type of light:                   | Infrared light  |
| Light source:                    | LED <sup>3)</sup>                                       |
| Time type:                       | On delay<br>off delay                                   |
| Delay time:                      | Adjustable via time delay selector switch: 0.5 ... 10 s |
| Alarm output:                    | ✓   |
| Adjustment:                      | Potentiometer   |
| Light spot size (distance):      | Ø 80 mm (2,500 mm)                                      |

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

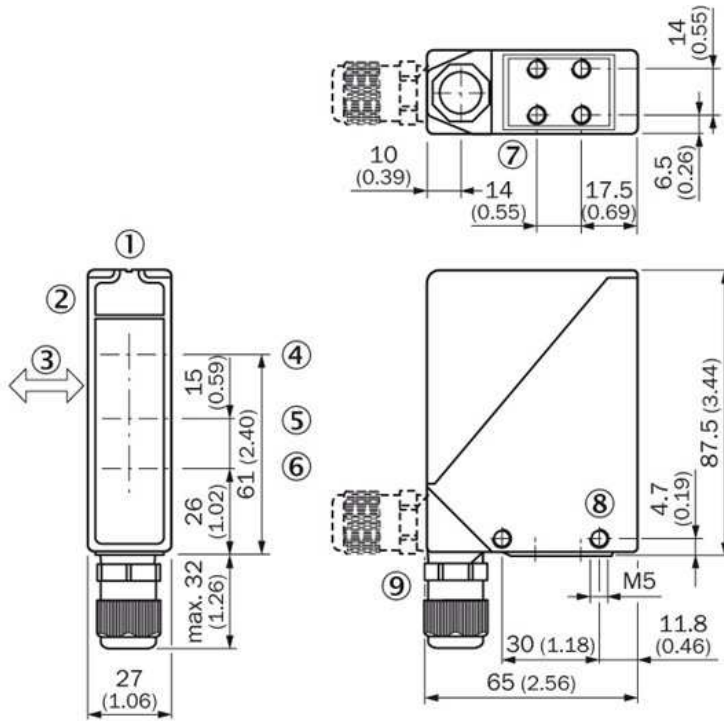
## Mechanics/electronics

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|                                    |   |
|------------------------------------|---|
| Supply voltage:                    | 10 V DC ... 30 V DC <sup>1)</sup>                                   |
| Ripple:                            | < 5 Vpp <sup>2)</sup>   |
| Current consumption:               | ≤ 150 mA <sup>3)</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>4)</sup>  |
| Switching frequency:               | 1,000 Hz <sup>5)</sup>  |
| Connection type:                   | Terminal connection with M16 gland <sup>6)</sup>                    |
| Circuit protection:::              | A, C, D <sup>7) 8) 9)</sup>   |
| Protection class:                  | II <sup>10)</sup>   |
| Weight:                            | 330 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   |

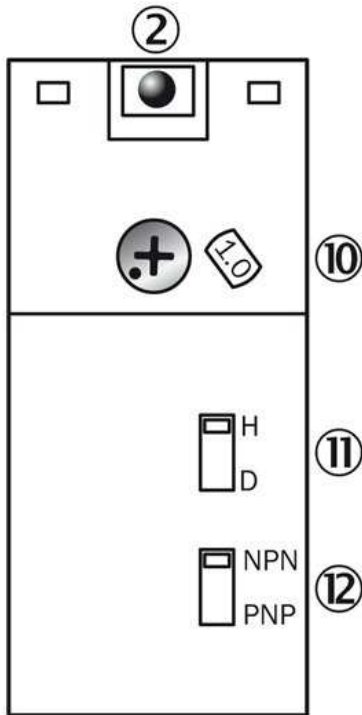
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> Connection rotatable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

**Dimensional drawing**



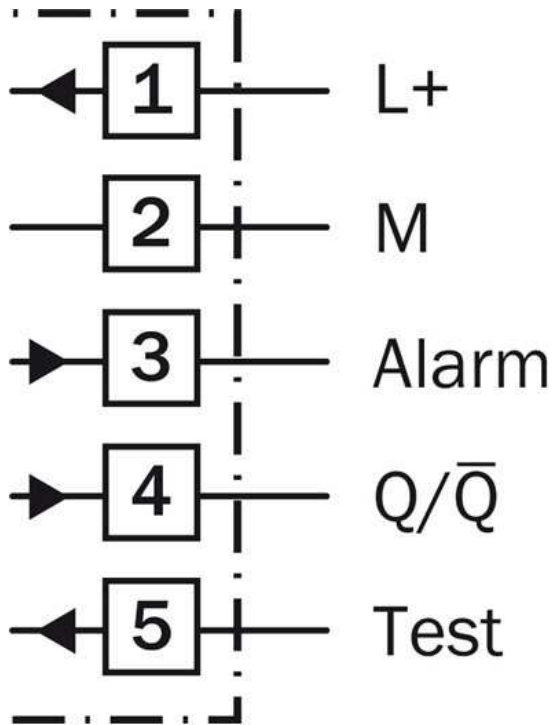
- |1| Alignment sight
- |2| LED signal strength indicator
- |3| Standard direction of the material being detected
- |4| Center of optical axis, sender
- |5| Center of optical axis, receiver (close range)
- |6| Center of optical axis, receiver (far range)
- |7| M5 threaded mounting hole, 6 mm deep
- |8| M5 threaded mounting hole, through-hole
- |9| M16 screw fixing and plug rotatable by 90°

**Adjustments possible**

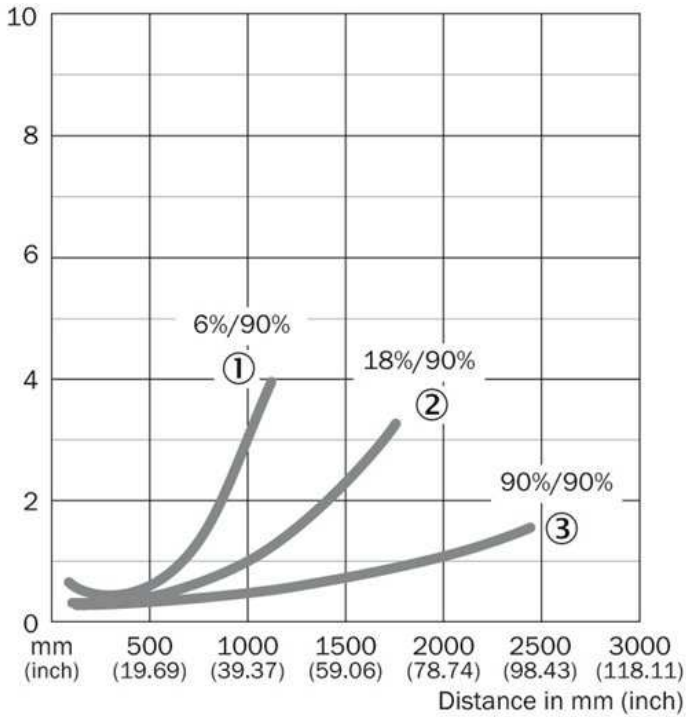


- |2| LED signal strength indicator
- |10| Adjustment sensing range (WT) / sensitivity (WL, WS/WE)
- |11| Light/dark selector
- |12| NPN/ PNP selector

## Connection diagram

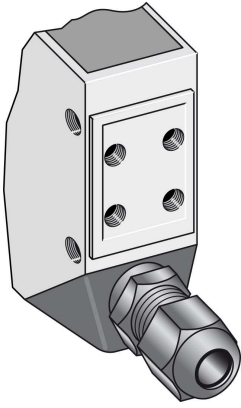


## Characteristic curve

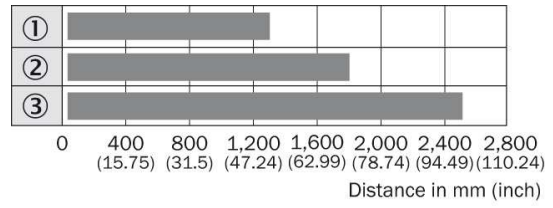


- 1| Sensing range on black, 6 % remission
- 2| Sensing range on gray, 18 % remission
- 3| Sensing range on white, 90 % remission

## Connection type



## Sensing range diagram



■ Operating distance

- ① Scanning distance on black, 6 % remission
- ② Scanning distance on grey, 18 % remission
- ③ Scanning distance on white, 90 % remission

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