



Photoelectric sensors  
W24-2, Photoelectric retro-reflective sensor,  
Standard optics

WL24-2B333



**Model Name** > **WL24-2B333**  
**Part No.** > **1017878**



*Illustration may differ*

#### At a glance

- 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:      | Photoelectric retro-reflective sensor, Standard optics |
| 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 ... 22 m <sup>1)</sup>                             |
| Sensing range:                   | 0 m ... 15 m <sup>2)</sup>                             |
| Type of light:                   | Visible red light <sup>3)</sup>                        |
| Light source:                    | LED <sup>3)</sup>                                      |
| Light spot diameter (distance):  | Ø 250 mm (15 m)                                        |
| Sensitivity adjustment:          | Sensitivity adjustment                                 |

<sup>1) 2)</sup> PL80A <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

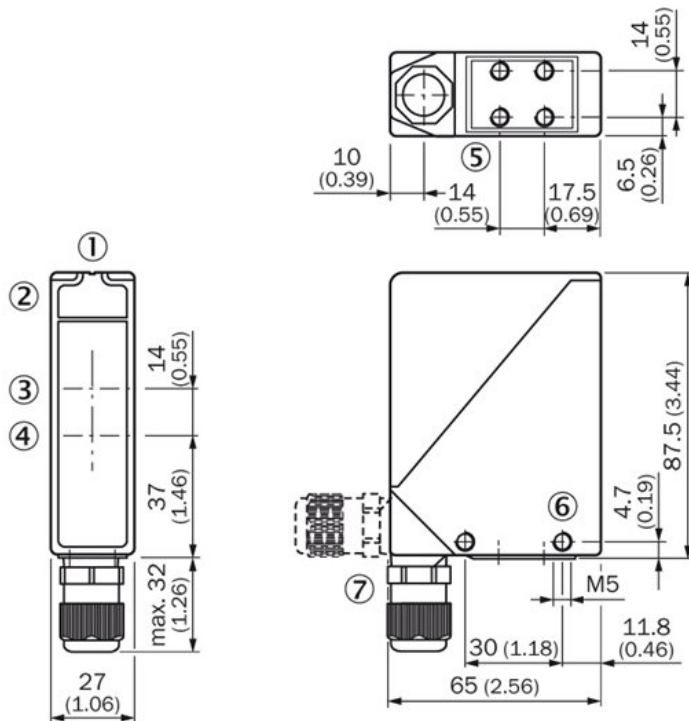
## Mechanics/electronics

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|                                    |                                                                                                     |
|------------------------------------|-----------------------------------------------------------------------------------------------------|
| Supply voltage:                    | 10 V DC ... 30 V DC                                                                                 |
| Ripple:                            | < 5 Vpp <sup>2)</sup>                                                                               |
| Power consumption:                 | ≤ 50 mA <sup>3)</sup>                                                                               |
| Output type:                       | NPN, Light/dark-switching, selectable via NPN/PNP selector, PNP, selectable via light/dark selector |
| 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:                   | Cubic connector, 3-pin <sup>6)</sup>                                                                |
| Circuit protection:::              | A, C, D <sup>7) 8) 9)</sup>                                                                         |
| Protection class:                  | II <sup>10)</sup>                                                                                   |
| Weight:                            | 330 g                                                                                               |
| Polarisation filter:               | ✓                                                                                                   |
| Housing material:                  | Zinc diecast                                                                                        |
| Optics material:                   | PMMA                                                                                                |
| Enclosure rating:                  | IP 69K                                                                                              |
| Ambient operating temperature:     | -40 °C ... 60 °C                                                                                    |
| Ambient storage temperature:       | -40 °C ... 75 °C                                                                                    |
| UL File-No.:                       | UL No. NRKH.E181493 & cUL No. NRKH7.E181493                                                         |

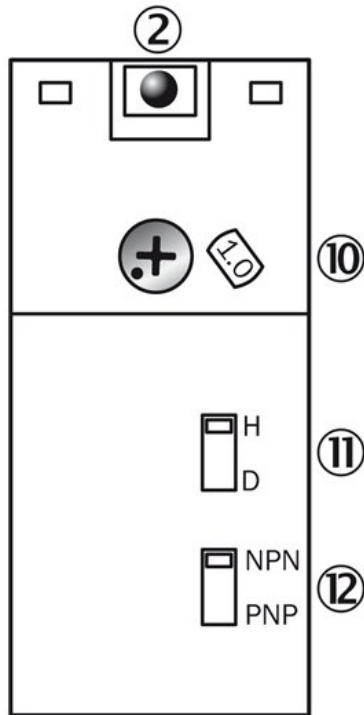
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of V<sub>S</sub> tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> Connection rotatable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



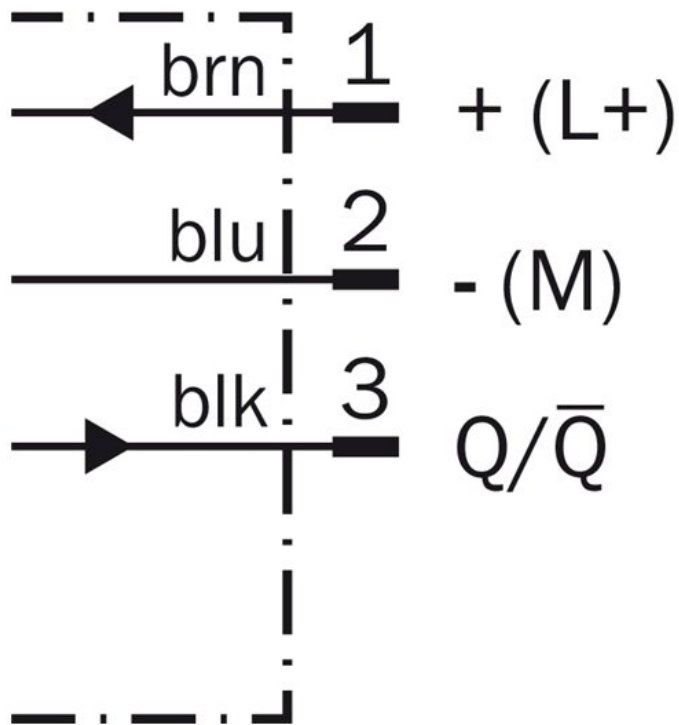
- |1| Alignment sight
- |2| LED signal strength indicator
- |3| Center of optical axis, sender
- |4| Center of optical axis, receiver
- |5| M5 threaded mounting hole, 6 mm deep
- |6| M5 threaded mounting hole, through-hole
- |7| M16 screw fixing and plug rotatable by 90°

## Adjustments possible

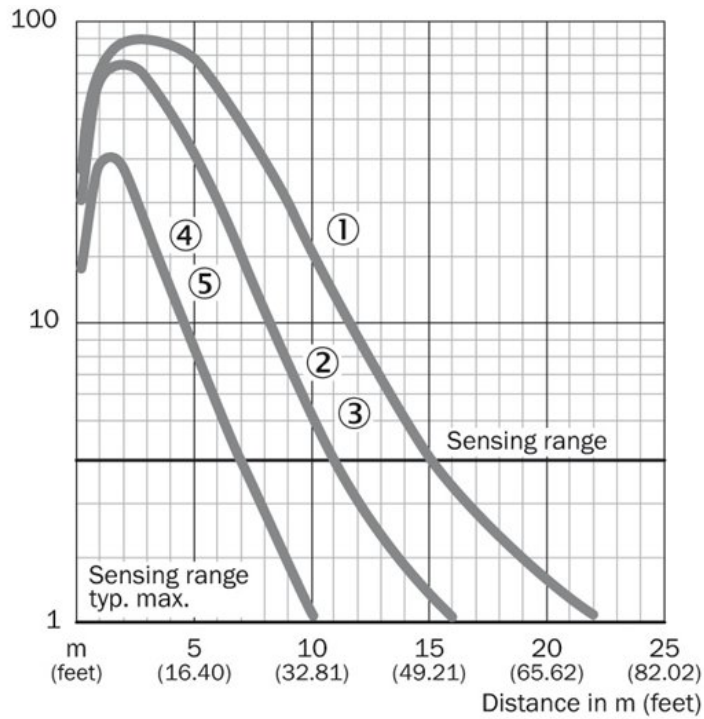


- |2| LED signal strength indicator
- |10| Adjustment sensing range (WT) / sensitivity (WL, WS/WE)
- |11| Light/dark selector
- |12| NPN/ PNP selector

## Connection diagram

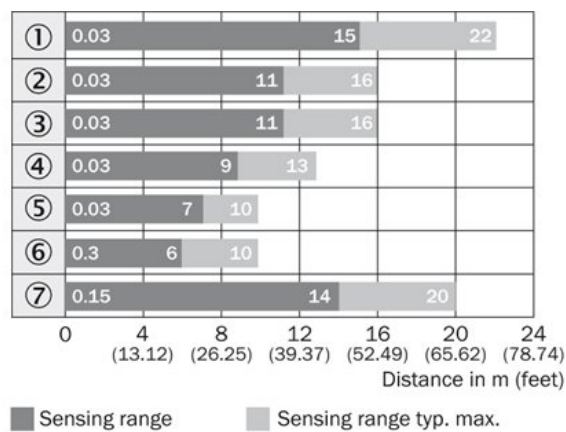


## Characteristic curve



- [1] PL80A
- [2] PL50A
- [3] PL40A
- [4] PL30A
- [5] PL20A

Sensing range diagram

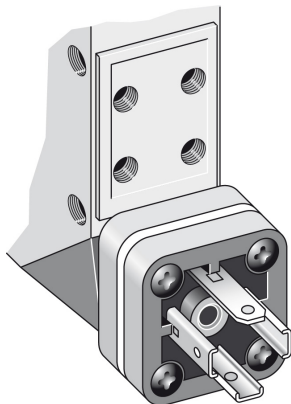


- |1| PL80A
- |2| PL50A
- |3| PL40A
- |4| PL30A
- |5| PL20A
- |6| Reflective tape Diamond Grade
- |7| C110A

Reflector type

- ① PL80A
- ② PL50A
- ③ PL40A
- ④ PL30A
- ⑤ PL20A
- ⑥ Diamond Grade  
(20 cm x 20 cm)
- ⑦ C110

Connection type



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