



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

WT24-2B410



**Model Name** > **WT24-2B410**  
**Part No.** > **1016933**



*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 <sup>3)</sup>                           |
| Light source:                     | LED <sup>3)</sup>                                      |
| Light spot diameter (distance):   | Ø 80 mm (2,500 mm)                                     |
| Adjustment of operating distance: | Potentiometer                                          |

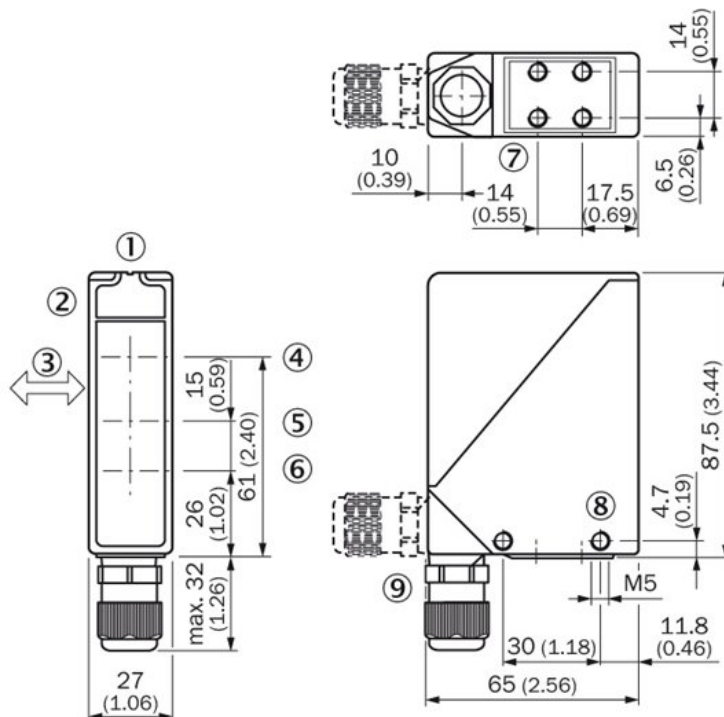
<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

#### Mechanics/electronics

|                                   |                                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------------------------|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup>                                                                   |
| Ripple:                           | < 5 V <sub>pp</sub> <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:                  | Connector M12, 4-pin <sup>6)</sup>                                                                  |
| Circuit protection:::             | A, C, D <sup>7) 8) 9)</sup>                                                                         |
| Protection class:                 | II <sup>10)</sup>                                                                                   |
| Weight:                           | 330 g                                                                                               |
| Housing material:                 | 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                                                                                    |

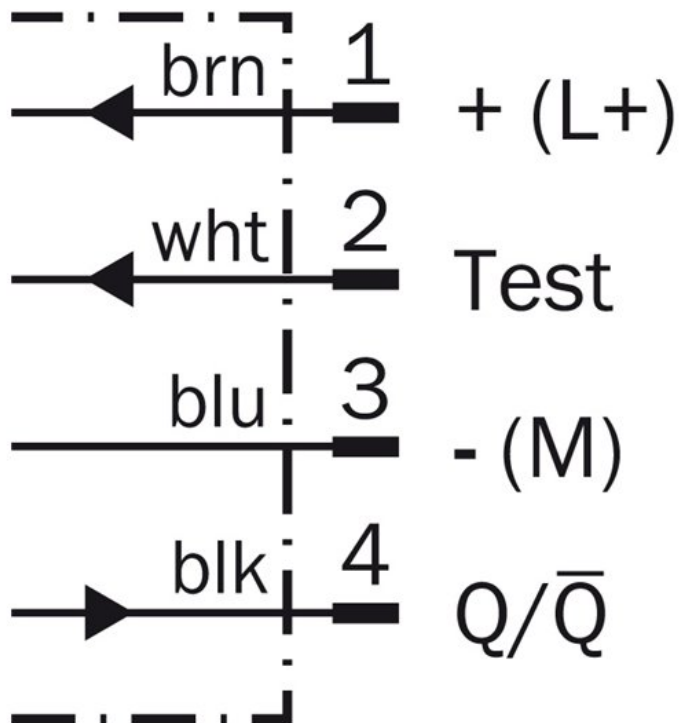
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A    <sup>2)</sup> May not exceed or fall short of V<sub>S</sub> tolerances    <sup>3)</sup> Without load    <sup>4)</sup> Signal transit time with resistive load  
<sup>5)</sup> With light/dark ratio 1:1    <sup>6)</sup>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

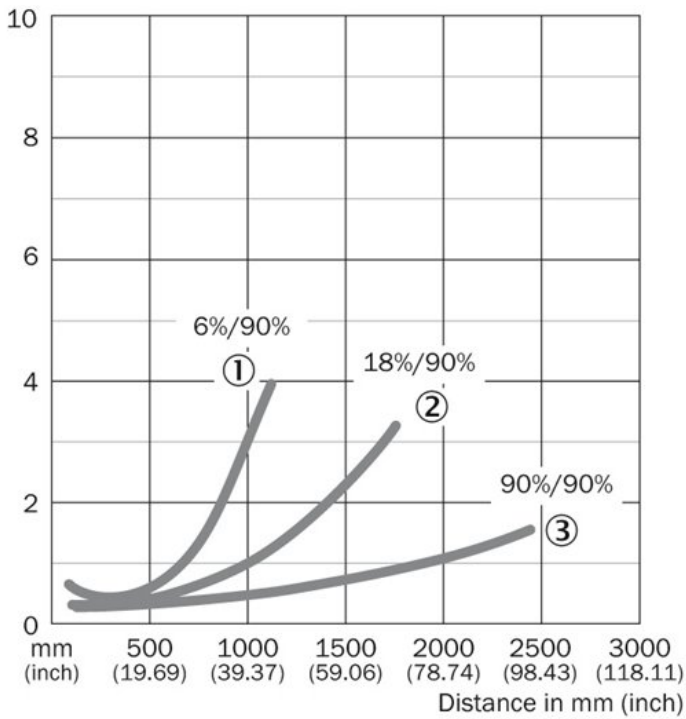


- [1] Alignment sight
- [2] LED signal strength indicator
- [3] Standard direction of the material being scanned
- [4] Center of optical axis, sender
- [5] Centre of optical axis, receiver (close range)
- [6] Centre of optical axis, receiver (far range)
- [7] M5 threaded mounting hole, 6 mm deep
- [8]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

## Connection diagram

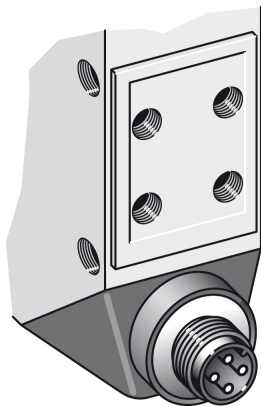


## Characteristic curve

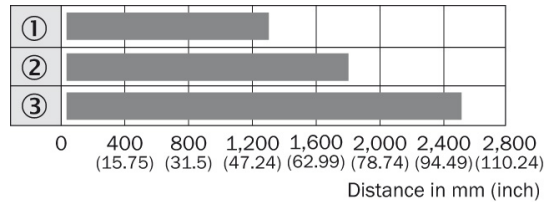


- [1] Sensing range on black, 6 % remission
- [2] Sensing range on grey, 18 % remission
- [3] Sensing range on white, 90 % remission

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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