



# WS/WE24-2B240

## W24

COMPACT PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type          | Part no. |
|---------------|----------|
| WS/WE24-2B240 | 1017862  |

Other models and accessories → [www.sick.com/W24](http://www.sick.com/W24)

### Detailed technical data

#### Features

|  |                                   |
|--|-----------------------------------|
| <b>Functional principle</b>            | Through-beam photoelectric sensor |
| <b>Dimensions (W x H x D)</b>          | 27 mm x 87.5 mm x 65 mm           |
| <b>Housing design (light emission)</b> | Rectangular                       |
| <b>Sensing range max.</b>              | 0 m ... 60 m                      |
| <b>Sensing range</b>                   | 0 m ... 50 m                      |
| <b>Focus</b>                           | Approx. 1°                        |
| <b>Type of light</b>                   | Visible red light                 |
| <b>Light source</b>                    | LED <sup>1)</sup>                 |
| <b>Light spot size (distance)</b>      | Ø 700 mm (50 m)                   |
| <b>Angle of dispersion</b>             | Approx. 1°                        |
| <b>Adjustment</b>                      | Potentiometer                     |

<sup>1)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

#### Mechanics/electronics

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| <b>Supply voltage U<sub>B</sub></b> | 10 V DC ... 30 V DC <sup>1)</sup> |
| <b>Ripple</b>                       | < 5 V <sub>pp</sub> <sup>2)</sup> |
| <b>Power consumption, sender</b>    | 50 mA <sup>3)</sup>               |

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed U<sub>V</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> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

<sup>9)</sup> Reference voltage: 50 V DC.

<sup>10)</sup> Static, low heat output, use in +5° C ... +15° C.

|   |   |
|---|---|
| <b>Power consumption, receiver</b>          | 50 mA <sup>3)</sup>   |
| <b>Switching output</b>                     | NPN, PNP  |
| <b>Switching mode</b>                       | Light/dark switching  |
| <b>Switching mode selector</b>              | Selectable via PNP/NPN selector, selectable via light/dark selector |
| <b>Output current I<sub>max.</sub></b>      | ≤ 100 mA  |
| <b>Response time</b>                        | ≤ 500 μs <sup>4)</sup>  |
| <b>Switching frequency</b>                  | 1,000 Hz <sup>5)</sup>  |
| <b>Angle of reception</b>                   | Approx. 2.5°  |
| <b>Time functions</b>                       | Switch-on delay/off delay   |
| <b>Delay time</b>                           | Adjustable via time delay selector switch, 0.5 s ... 10 s           |
| <b>Connection type</b>                      | Terminal connection with M16 gland                                  |
| <b>Circuit protection</b>                   | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</sup>               |
| <b>Protection class</b>                     | II <sup>9)</sup>  |
| <b>Weight</b>                               | 660 g   |
| <b>Front screen heating</b>                 | ✓ <sup>10)</sup>  |
| <b>Housing material</b>                     | Metal, zinc diecast   |
| <b>Optics material</b>                      | Plastic, PMMA   |
| <b>Enclosure rating</b>                     | IP67  |
| <b>Test input sender off</b>                | TE to 0 V   |
| <b>Ambient operating temperature</b>        | -40 °C ... +60 °C   |
| <b>Ambient temperature, storage</b>         | -40 °C ... +75 °C   |
| <b>UL File No.</b>                          | NRKH.E181493 & NRKH7.E181493  |
| <b>Part number of individual components</b> | 2021157 WS24-2D240 2021161 WE24-2B240                               |

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed U<sub>y</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> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

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### Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 392 years |
| <b>DC<sub>avg</sub></b>             | 0 %       |
| <b>T<sub>M</sub> (mission time)</b> | 20 years  |

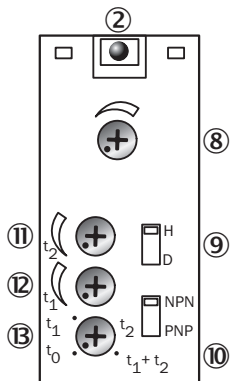
### Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270901 |
| <b>ECLASS 5.1.4</b> | 27270901 |
| <b>ECLASS 6.0</b>   | 27270901 |

|                       |          |
|-----------------------|----------|
| <b>ECLASS 6.2</b>     | 27270901 |
| <b>ECLASS 7.0</b>     | 27270901 |
| <b>ECLASS 8.0</b>     | 27270901 |
| <b>ECLASS 8.1</b>     | 27270901 |
| <b>ECLASS 9.0</b>     | 27270901 |
| <b>ECLASS 10.0</b>    | 27270901 |
| <b>ECLASS 11.0</b>    | 27270901 |
| <b>ECLASS 12.0</b>    | 27270901 |
| <b>ETIM 5.0</b>       | EC002716 |
| <b>ETIM 6.0</b>       | EC002716 |
| <b>ETIM 7.0</b>       | EC002716 |
| <b>ETIM 8.0</b>       | EC002716 |
| <b>UNSPSC 16.0901</b> | 39121528 |

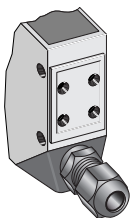
### Adjustments

WT24-2, WL24-2, WS/WE24-2, DC, with time functions



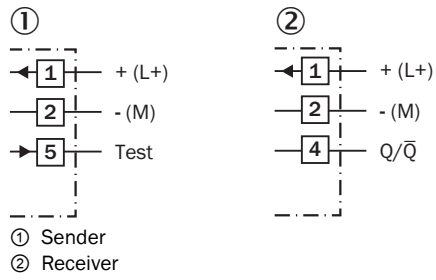
- ② LED signal strength indicator
- ⑧ Sensitivity control
- ⑨ Light/dark selector
- ⑩ NPN/PNP changeover switch
- ⑪ Time control  $t_2$ = OFF delay
- ⑫ Time control  $t_1$ = ON delay
- ⑬ Time delay selector switch

### Connection type



### Connection diagram

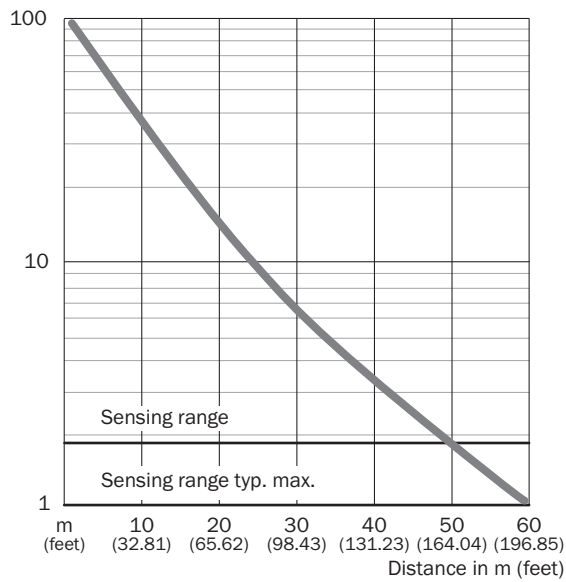
Cd-097



### Characteristic curve

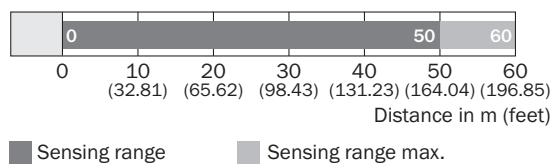
WS/WE24-2

Function reserve



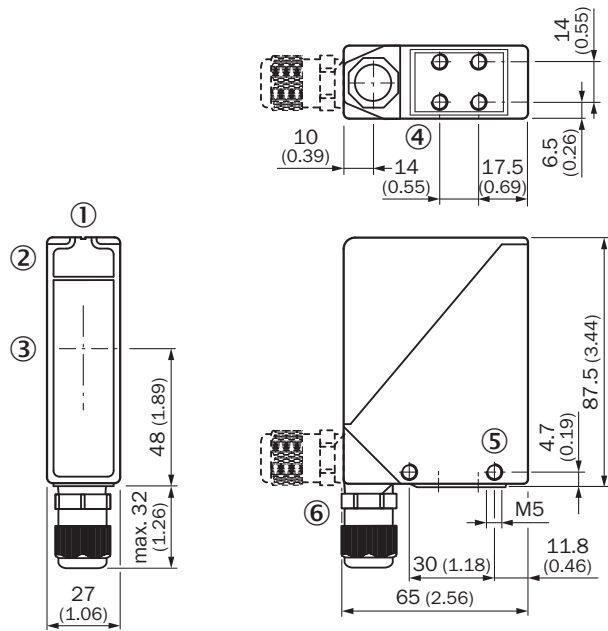
### Sensing range diagram

WS/WE24-2



**Dimensional drawing** (Dimensions in mm (inch))


WS/WE24-2



- 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°

**Recommended accessories**

Other models and accessories → [www.sick.com/W24](http://www.sick.com/W24)

|   | Brief description  | Type       | Part no. |
|---|--|------------|----------|
| Mounting brackets and plates  |  |            |          |
|  | Mounting bracket, large, stainless steel, without mounting hardware for the sensor | BEF-WG-W24 | 4026324  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

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