



# WT150-P165

W150

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type       | part no. |
|------------|----------|
| WT150-P165 | 6011049  |

Included in delivery: BEF-W150-A (1)  
Other models and accessories → [www.sick.com/W150](http://www.sick.com/W150)

Detailed technical data

Features

|                                 |                                |
|---------------------------------|--------------------------------|
| Functional principle            | Photoelectric proximity sensor |
| Functional principle detail     | Background suppression         |
| Dimensions (W x H x D)          | 10 mm x 28 mm x 18 mm          |
| Housing design (light emission) | Rectangular                    |
| Sensing range max.              | 2 mm ... 100 mm <sup>1)</sup>  |
| Focus                           | Approx. 5°                     |
| Type of light                   | Visible red light              |
| Light source                    | LED <sup>2)</sup>              |
| Angle of dispersion             | Approx. 5°                     |
| Adjustment                      | Potentiometer, 5 turns         |

<sup>1)</sup> Object with 90% remission (based on standard white, DIN 5033).  
<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/electronics

|                                            |                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------|
| <b>Supply voltage <math>U_B</math></b>     | 10 V DC ... 30 V DC <sup>1)</sup>                                         |
| <b>Ripple</b>                              | $\pm 10\%$ <sup>2)</sup>                                                  |
| <b>Current consumption</b>                 | 20 mA <sup>3)</sup>                                                       |
| <b>Switching output</b>                    | PNP                                                                       |
| <b>Switching mode</b>                      | Light/dark switching                                                      |
| <b>Switching mode selector</b>             | Selectable via L/D control cable                                          |
| <b>Output current <math>I_{max}</math></b> | $\leq 100$ mA                                                             |
| <b>Response time</b>                       | $\leq 0.5$ ms <sup>4)</sup>                                               |
| <b>Switching frequency</b>                 | 1,000 Hz <sup>5)</sup>                                                    |
| <b>Connection type</b>                     | Cable, 4-wire, 5 m <sup>6)</sup>                                          |
| <b>Cable material</b>                      | Plastic, PVC                                                              |
| <b>Conductor cross section</b>             | 0.18 mm <sup>2</sup>                                                      |
| <b>Circuit protection</b>                  | A <sup>7)</sup><br>B <sup>8)</sup><br>C <sup>9)</sup><br>D <sup>10)</sup> |
| <b>Protection class</b>                    | II                                                                        |
| <b>Weight</b>                              | 44 g                                                                      |
| <b>Housing material</b>                    | Plastic, ABS                                                              |
| <b>Optics material</b>                     | Plastic, PC                                                               |
| <b>Enclosure rating</b>                    | IP67                                                                      |
| <b>Items supplied</b>                      | BEF-W150-A mounting bracket                                               |
| <b>Ambient operating temperature</b>       | -25 °C ... +55 °C                                                         |
| <b>Ambient temperature, storage</b>        | -40 °C ... +75 °C                                                         |
| <b>UL File No.</b>                         | NRNT2.E128350 & NRNT8.E128350                                             |

<sup>1)</sup> Limit values.

<sup>2)</sup> May not fall below or exceed  $U_y$  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> Do not bend below 0 °C.

<sup>7)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,686 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

## Certificates

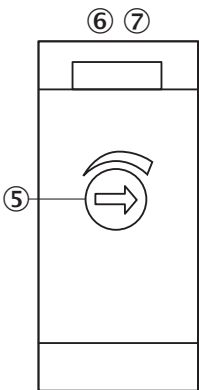
|                                       |   |
|---------------------------------------|---|
| <b>EU declaration of conformity</b>   | ✓ |
| <b>UK declaration of conformity</b>   | ✓ |
| <b>ACMA declaration of conformity</b> | ✓ |

|                                                          |   |
|----------------------------------------------------------|---|
| <b>Moroccan declaration of conformity</b>                | ✓ |
| <b>China RoHS</b>                                        | ✓ |
| <b>cRUus certificate</b>                                 | ✓ |
| <b>Photobiological safety (DIN EN 62471) certificate</b> | ✓ |

Classifications

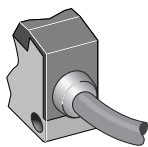
|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270903 |
| <b>ECLASS 5.1.4</b>   | 27270903 |
| <b>ECLASS 6.0</b>     | 27270903 |
| <b>ECLASS 6.2</b>     | 27270903 |
| <b>ECLASS 7.0</b>     | 27270903 |
| <b>ECLASS 8.0</b>     | 27270903 |
| <b>ECLASS 8.1</b>     | 27270903 |
| <b>ECLASS 9.0</b>     | 27270903 |
| <b>ECLASS 10.0</b>    | 27270904 |
| <b>ECLASS 11.0</b>    | 27270904 |
| <b>ECLASS 12.0</b>    | 27270903 |
| <b>ETIM 5.0</b>       | EC001821 |
| <b>ETIM 6.0</b>       | EC001821 |
| <b>ETIM 7.0</b>       | EC002719 |
| <b>ETIM 8.0</b>       | EC002719 |
| <b>UNSPSC 16.0901</b> | 39121528 |

Adjustments

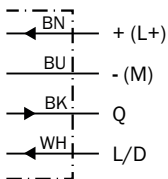


- ⑤ Sensing range adjustment: potentiometer, 5 turns
- ⑥ LED indicator green: stability indicator
- ⑦ LED indicator orange: output active

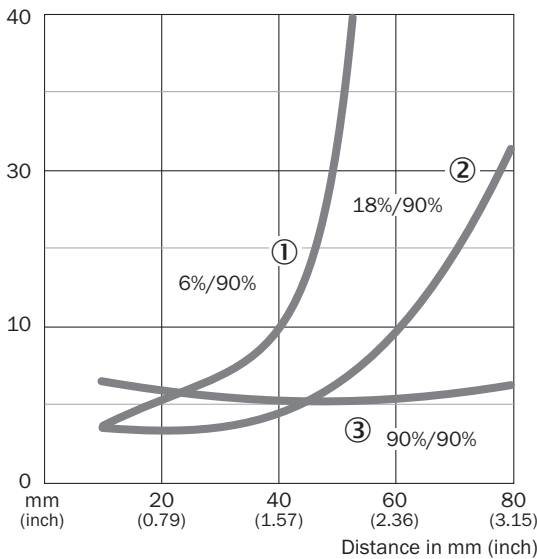
Connection type



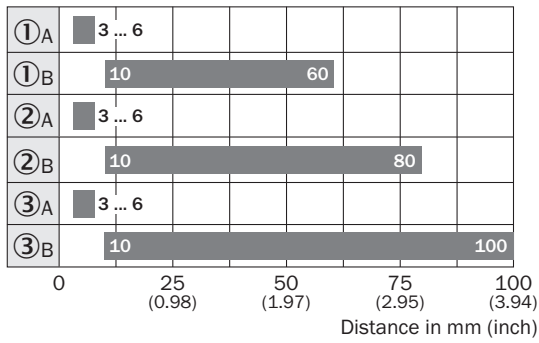
Connection diagram Cd-089



Characteristic curve



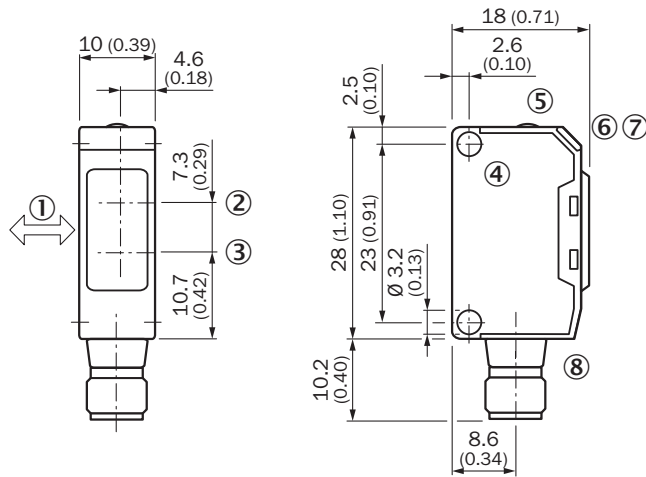
## Sensing range diagram



■ Sensing range

- ① Sensing range on black <sup>12)</sup>/white background
- ② Sensing range on gray <sup>12)</sup>/white background
- ③ Sensing range on white <sup>12)</sup>/white background
- A Sensing range control set to MIN
- B Sensing range control set to MAX

## Dimensional drawing



Dimensions in mm (inch)

- ① Standard direction of the material being detected
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Mounting hole,  $\varnothing$  approx. 3.1 mm
- ⑤ Sensing range adjustment: potentiometer, 5 turns
- ⑥ LED indicator green: stability indicator
- ⑦ LED indicator orange: output active
- ⑧ Connection

## Recommended accessories

Other models and accessories → [www.sick.com/W150](http://www.sick.com/W150)

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Type         | part no. |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|
| Mounting systems                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Plate N08 for universal clamp bracket</li> <li><b>Material:</b> Steel, zinc diecast</li> <li><b>Details:</b> Zinc plated steel (sheet), Zinc die cast (clamping bracket)</li> <li><b>Items supplied:</b> Universal clamp (5322626), mounting hardware</li> <li><b>Usable for:</b> W100, W150, W4S, W4F, W8, W9-3, W8G, W8 Laser, W8 Inox, G6, W100 Laser, W100-2, W10, G6 Inox, RAY10, W4SLG-3, W9, GR18, MultiPulse, Reflex Array, MultiLine, LUT3, KT5, KT8, KT10, CS8</li> </ul> | BEF-KHS-N08  | 2051607  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Plate N11N for universal clamp bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> DeltaPac, Glare, WTD20E</li> </ul>                                                                                                                                                                | BEF-KHS-N11N | 2071081  |
| connectors and cables                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |              |          |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M8, 4-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> 0.14 mm² ... 0.5 mm²</li> </ul>                                                                                                                                                                                                                                                   | STE-0804-G   | 6037323  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>                                                                                                                                                                                                                                                            | STE-1204-G   | 6009932  |

## 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:

Contacts and other locations –[www.sick.com](http://www.sick.com)