



DATA SHEET

# WLL180T-M634

WLL180  
Fiber-optic sensors

# SICK

Sensor Intelligence



|                      |          |
|----------------------|----------|
| $T_M$ (mission time) | 20 years |
|----------------------|----------|

## ELECTRONICS

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage $U_s$ | 12 V DC ... 24 V DC <sup>1)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Ripple               | $\leq 10\%$ <sup>2)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Current consumption  | $\leq 50\text{ mA}$ <sup>3)</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Protection class     | III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Digital output       | <div> <div>Number</div> <div>2 (individually adjustable)</div> </div> <div> <div>Type</div> <div>PNP <sup>4)</sup></div> </div> <div> <div>Switching mode</div> <div>Light/dark switching</div> </div> <div> <div>Switching mode selector</div> <div>Manually selectable</div> </div> <div> <div>Circuit protection outputs</div> <div>Reverse polarity protected</div> <div>Overcurrent protected</div> <div>Short-circuit protected</div> </div> <div> <div>Response time</div> <div><math>\leq 16\text{ }\mu\text{s}</math></div> <div><math>\leq 70\text{ }\mu\text{s}</math></div> <div><math>\leq 250\text{ }\mu\text{s}</math></div> <div><math>\leq 2,000\text{ }\mu\text{s}</math></div> <div><math>\leq 8,000\text{ }\mu\text{s}</math></div> </div> <div> <div>Switching frequency</div> <div>31.2 kHz</div> <div>7.1 kHz</div> <div>2 kHz</div> <div>250 Hz</div> <div>62.5 Hz</div> </div> <div> <div>Time functions</div> <div>Without time delay, off delay, switch-on delay, ON and OFF delay, one shot</div> </div> <div> <div>Delay time</div> <div>Programmable, 0 ms ... 9,999 ms</div> </div> |
| Pin/Wire assignment  | <div> <div>Function of pin 4/black (BK)</div> <div>Digital output, received light → Output Q1 HIGH</div> </div> <div> <div>Function of pin 4/black (BK) – detail</div> <div>The pin 4 function of the sensor can be configured</div> </div> <div> <div>Function of pin 2/white (WH)</div> <div>Digital output, received light → Output Q2 HIGH</div> </div> <div> <div>Function of pin 2/white (WH) – detail</div> <div>The pin 2 function of the sensor can be configured</div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

<sup>1)</sup>  $\pm 10\%$ .

<sup>2)</sup> May not fall below or exceed  $U_v$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Selectable via menu.

## MECHANICS

|                        |                             |
|------------------------|-----------------------------|
| Housing                | Rectangular                 |
| Dimensions (W x H x D) | 10.5 mm x 34.6 mm x 71.9 mm |
| Connection             | Male connector M8, 4-pin    |
| Material               |                             |
| Housing                | Plastic, ABS/PC             |
| Weight                 | 20 g                        |

## AMBIENT DATA

|                               |                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------|
| Enclosure rating              | IP50 (EN 60529)                                                                                   |
| Ambient operating temperature | $-25\text{ }^{\circ}\text{C}$ ... $+55\text{ }^{\circ}\text{C}$                                   |
| Ambient temperature, storage  | $-40\text{ }^{\circ}\text{C}$ ... $+70\text{ }^{\circ}\text{C}$                                   |
| Typ. Ambient light immunity   | Artificial light: $\leq 3,000\text{ lx}$<br>Sunlight: $\leq 10,000\text{ lx}$                     |
| Shock resistance              | 50 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27)) |
| Vibration resistance          | 10 Hz ... 55 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))                                        |

|                                     |                                                    |
|-------------------------------------|----------------------------------------------------|
| Air humidity                        | 35 % ... 85 %, relative humidity (no condensation) |
| Electromagnetic compatibility (EMC) | EN 60947-5-2                                       |
| UL File No.                         | NRKH2.E300503 & NRKH8.E300503                      |
| RoHS certificate                    | ✓                                                  |

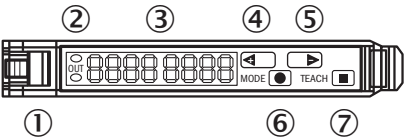
SMART TASK

|                |                                                                                                                    |
|----------------|--------------------------------------------------------------------------------------------------------------------|
| Timer function | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)<br>Switch-on delay and pulse |
|----------------|--------------------------------------------------------------------------------------------------------------------|

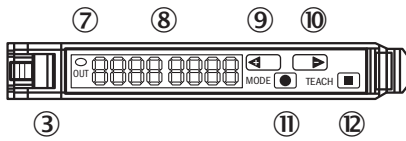
CERTIFICATES

|                                                                       |   |
|-----------------------------------------------------------------------|---|
| EU declaration of conformity                                          | ✓ |
| UK declaration of conformity                                          | ✓ |
| ACMA declaration of conformity                                        | ✓ |
| Moroccan declaration of conformity                                    | ✓ |
| China RoHS                                                            | ✓ |
| China Compulsory Product Certification (CCC) exempt                   | ✓ |
| Photobiological safety (DIN EN 62471) certificate                     | ✓ |
| Information according to Art. 3 of Data Act (Regulation EU 2023/2854) | ✓ |

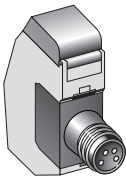
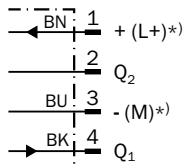
ADJUSTMENTS



- ① Locking the fiber-optic cables
- ② LED indicator orange, lights up when switching output is active
- ③ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
- ④ step pushbutton > (manual switching threshold: higher/next function parameter)
- ⑤ step pushbutton < (manual switching threshold: lower/previous function parameter)
- ⑥ Mode/Enter-button
- ⑦ Teach-in button

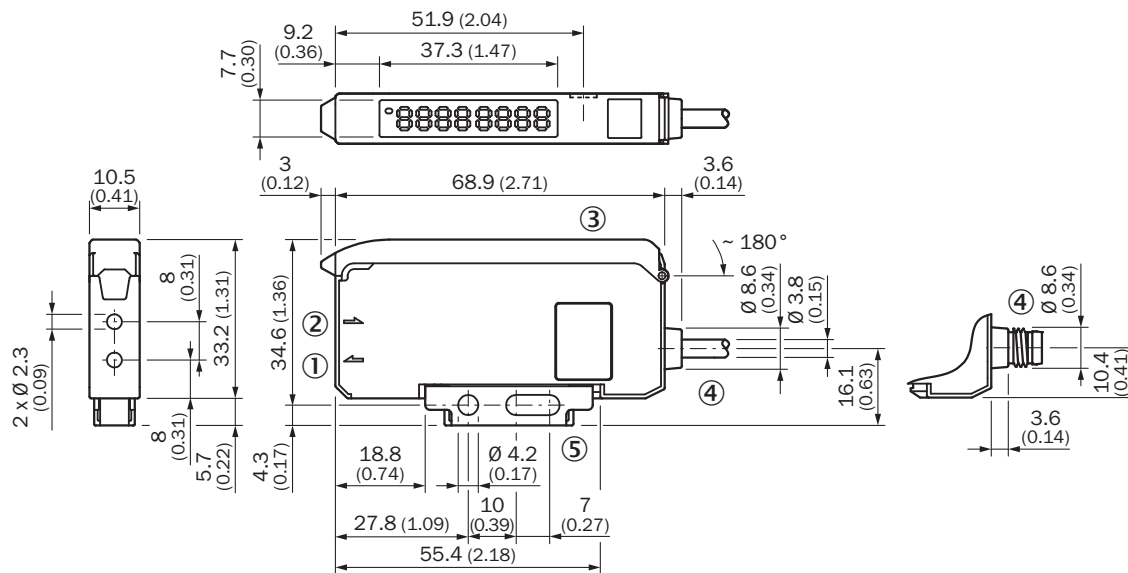
**ADJUSTMENTS WLL180**

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**CONNECTION TYPE****CONNECTION DIAGRAM CD-213**

\*) Only base unit

## DIMENSIONAL DRAWING BUS TYPE



Dimensions in mm (inch)

- ① Sender LED, installation of LL3 fibre-optic cable (sender fibre)
- ② Receiver, installation of LL3 fibre optic cable (receiver fibre)
- ③ protective hood opens approx. 180°
- ④ Connection
- ⑤ Mounting bracket, included with delivery

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at [www.sick.com/6050760](http://www.sick.com/6050760)



SICK AG  
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# SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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