



# WLL80I-1HT6Y3DZA71Z1Z1

WLL80

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type                   | part no. |
|------------------------|----------|
| WLL80I-1HT6Y3DZA71Z1Z1 | 6083351  |

Included in delivery: BEF-WLL180 (1)  
Other models and accessories → [www.sick.com/WLL80](http://www.sick.com/WLL80)

Detailed technical data

Features

|                             |                             |                                                                                                                                 |
|-----------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Device type                 |                             | Fiber-optic amplifier                                                                                                           |
| Device type detail          |                             | Stand-alone                                                                                                                     |
| Functional principle detail |                             | Depending on the optical fiber cable used                                                                                       |
| Sensing range max.          |                             | Depending on the optical fiber cable used                                                                                       |
| Emitted beam                | Light source                | LED                                                                                                                             |
|                             | Type of light               | Infrared light                                                                                                                  |
| Key LED figures             | Normative reference         | EN 62471:2008-09   IEC 62471:2006, modified                                                                                     |
|                             | LED risk group marking      | Free group                                                                                                                      |
|                             | Wave length                 | 880 nm                                                                                                                          |
|                             | Average service life        | 100,000 h at T <sub>a</sub> = +25 °C                                                                                            |
| Adjustment                  | IO-Link                     | For configuring the sensor parameters and Smart Task functions                                                                  |
|                             | Wire/pin                    | For deactivating the sender and executing the test logic/for setting the sensing range/for resetting the counter                |
|                             | Display + operating buttons | For configuring the sensor parameters                                                                                           |
| Display                     | LED green                   | Operating indicatorStatic on: power onFlashing: IO-Link mode                                                                    |
|                             | LED yellow 1                | Status of received light beamStatic on: object presentStatic off: object not presentFlashing: Executing teach-in/teach-in error |

|                |              |                                                                                                                                             |
|----------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Items supplied | LED yellow 2 | Status of received light beam<br>Static on: object present<br>Static off: object not present<br>Flashing: Executing teach-in/teach-in error |
|                | Display      | Display of sensor functions<br>Menu languages: German, English, Chinese, Korean, Japanese                                                   |
|                |              | BEF-WLL180 mounting bracket                                                                                                                 |

## Safety-related parameters

|                               |             |
|-------------------------------|-------------|
| MTTF <sub>D</sub>             | 324.1 years |
| DC <sub>avg</sub>             | 0%          |
| T <sub>M</sub> (mission time) | 20 years    |

## Communication interface

|         |                             |                                               |
|---------|-----------------------------|-----------------------------------------------|
| IO-Link |                             | ✓, IO-Link V1.1                               |
|         | Data transmission rate      | COM3 (230.4 kbit/s)                           |
|         | Cycle time                  | 0.5 ms                                        |
|         | Process data length         | 32 Bit                                        |
|         | Process data structure      | Bit 0 = switching signal Q <sub>L1</sub>      |
|         |                             | Bit 1 = switching signal Q <sub>L2</sub>      |
|         |                             | Bit 2 = detection signal Q <sub>int.1</sub>   |
|         |                             | Bit 3 = detection signal Q <sub>int.2</sub>   |
|         |                             | Bit 16 ... 31 = Current receiver level (live) |
|         | Compatible master port type | A                                             |
|         | SIO mode support            | Yes                                           |

## Electronics

|                               |                                  |                                      |
|-------------------------------|----------------------------------|--------------------------------------|
| Supply voltage U <sub>B</sub> |                                  | 12 V DC ... 30 V DC <sup>1) 2)</sup> |
| Ripple                        |                                  | ± 10 % <sup>3)</sup>                 |
| Current consumption           |                                  | ≤ 50 mA <sup>4)</sup>                |
| Protection class              |                                  | III                                  |
| Digital output                | Number                           | 2 (individually adjustable)          |
|                               |                                  |                                      |
|                               | Type                             | Push-pull: PNP/NPN <sup>5)</sup>     |
|                               |                                  | PNP                                  |
|                               |                                  | NPN: open collector                  |
|                               | Switching mode                   | Light/dark switching                 |
|                               | Signal voltage PNP HIGH/LOW      | Approx. U <sub>B</sub> -2.5 V / 0 V  |
|                               | Signal voltage NPN HIGH/LOW      | Approx. U <sub>B</sub> / < 2.5 V     |
|                               | Output current I <sub>max.</sub> | ≤ 100 mA                             |
|                               | Circuit protection outputs       | Reverse polarity protected           |
|                               |                                  | Overcurrent protected                |

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

<sup>2)</sup> IO-Link mode: 18 VDC ... 30 VDC.

<sup>3)</sup> May not fall below or exceed U<sub>y</sub> tolerances.

<sup>4)</sup> Without load.

<sup>5)</sup> Selectable via menu.

<sup>6)</sup> With light/dark ratio 1:1.

- 1) Limit values.
- 2) IO-Link mode: 18 VDC ... 30 VDC.
- 3) May not fall below or exceed  $U_V$  tolerances.
- 4) Without load.
- 5) Selectable via menu.
- 6) With light/dark ratio 1:1.

|                        |  |                             |
|------------------------|--|-----------------------------|
| Housing                |  | Rectangular                 |
| Dimensions (W x H x D) |  | 10.5 mm x 33.2 mm x 79.9 mm |
| Connection             |  | Cable, 4-wire, 2 m          |
| Connection detail      |  |                             |
| Deep-freeze property   |  | Do not bend below 0 °C      |
| Conductor size         |  | 0.18 mm <sup>2</sup>        |
| Cable diameter         |  | Ø 4 mm                      |
| Length of cable (L)    |  | 2 m                         |
| Material               |  |                             |
| Housing                |  | Plastic, PC                 |

|               |       |              |
|---------------|-------|--------------|
|               | Cable | Plastic, PVC |
| <b>Weight</b> |       | Approx. 75 g |

#### Ambient data

|                                            |                                                                                                   |
|--------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Enclosure rating</b>                    | IP54 (EN 60529)                                                                                   |
| <b>Ambient operating temperature</b>       | -25 °C ... +55 °C                                                                                 |
| <b>Ambient temperature, storage</b>        | -40 °C ... +70 °C                                                                                 |
| <b>Typ. Ambient light immunity</b>         | Artificial light: ≤ 3,000 lx<br>Sunlight: ≤ 10,000 lx                                             |
| <b>Shock resistance</b>                    | 50 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27)) |
| <b>Vibration resistance</b>                | 10 Hz ... 55 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))                                        |
| <b>Air humidity</b>                        | 35 % ... 85 %, relative humidity (no condensation)                                                |
| <b>Electromagnetic compatibility (EMC)</b> | EN 60947-5-2                                                                                      |

#### Smart Task

|                                  |                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Smart Task name</b>           | Counter + debouncing                                                                                               |
| <b>Logic function</b>            | Direct<br>WINDOW<br>Hysteresis                                                                                     |
| <b>Timer function</b>            | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)<br>Switch-on delay and pulse |
| <b>Inverter</b>                  | Yes                                                                                                                |
| <b>Switching signal</b>          |                                                                                                                    |
| Switching signal Q <sub>L1</sub> | Switching output                                                                                                   |
| Switching signal Q <sub>L2</sub> | Switching output                                                                                                   |

#### Diagnosis

|                       |     |
|-----------------------|-----|
| <b>Quality of run</b> | Yes |
|-----------------------|-----|

#### Certificates

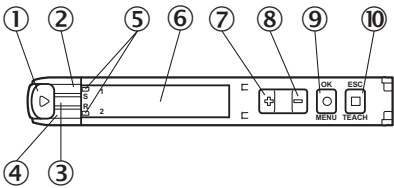
|                                                          |   |
|----------------------------------------------------------|---|
| <b>EU declaration of conformity</b>                      | ✓ |
| <b>UK declaration of conformity</b>                      | ✓ |
| <b>ACMA declaration of conformity</b>                    | ✓ |
| <b>Moroccan declaration of conformity</b>                | ✓ |
| <b>China-RoHS</b>                                        | ✓ |
| <b>cULus certificate</b>                                 | ✓ |
| <b>IO-Link</b>                                           | ✓ |
| <b>Photobiological safety (DIN EN 62471) certificate</b> | ✓ |

#### Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270905 |
| <b>ECLASS 5.1.4</b> | 27270905 |
| <b>ECLASS 6.0</b>   | 27270905 |

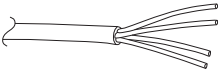
|                       |          |
|-----------------------|----------|
| <b>ECLASS 6.2</b>     | 27270905 |
| <b>ECLASS 7.0</b>     | 27270905 |
| <b>ECLASS 8.0</b>     | 27270905 |
| <b>ECLASS 8.1</b>     | 27270905 |
| <b>ECLASS 9.0</b>     | 27270905 |
| <b>ECLASS 10.0</b>    | 27270905 |
| <b>ECLASS 11.0</b>    | 27270905 |
| <b>ECLASS 12.0</b>    | 27270905 |
| <b>ETIM 5.0</b>       | EC002651 |
| <b>ETIM 6.0</b>       | EC002651 |
| <b>ETIM 7.0</b>       | EC002651 |
| <b>ETIM 8.0</b>       | EC002651 |
| <b>UNSPSC 16.0901</b> | 39121528 |

display and adjustment elements

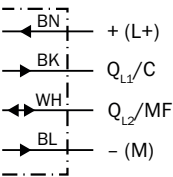


- ① Fiber optic interlock
- ② LED yellow 1
- ③ LED green
- ④ LED yellow 2
- ⑤ Indicator for correctly inserted fibers
- ⑥ Display
- ⑦ (+) button
- ⑧ (-) pushbutton
- ⑨ Menu/OK pushbutton
- ⑩ Teach-in/escape pushbutton

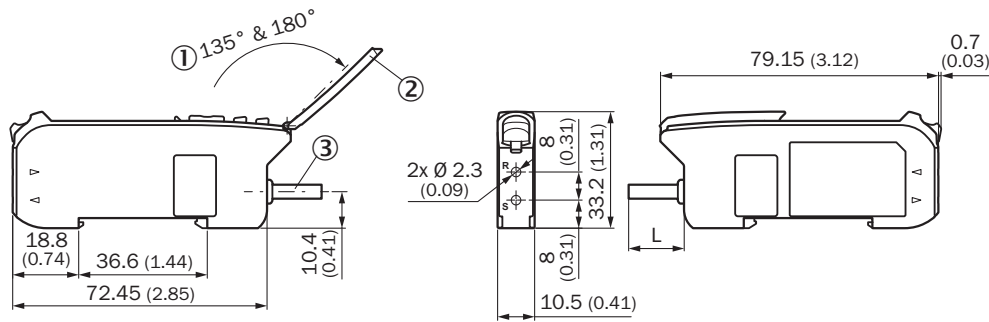
Connection type Cable, 4-wire



Connection diagram Cd-530



## Dimensional drawing



Dimensions in mm (inch)

- ① aperture angle
- ② Hinged cover for the pushbuttons
- ③ Connection

## Recommended accessories

Other models and accessories → [www.sick.com/WLL80](http://www.sick.com/WLL80)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Type     | part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|
| fiber-optic sensors                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |          |
|  | <ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T)</li> <li>• <b>Functional principle:</b> Through-beam system</li> <li>• <b>Fiber length:</b> 1,000 mm</li> <li>• <b>Thread diameter (housing):</b> M4</li> <li>• <b>Fiber material:</b> Glass</li> <li>• <b>Jacket material:</b> Stainless steel</li> <li>• <b>Fiber head material:</b> Stainless steel</li> <li>• <b>Included with delivery:</b> Mounting, 4 x M4 hexagon nut, 2 x washer</li> </ul> | LL3-TW01 | 5315233  |
|  | <ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T)</li> <li>• <b>Functional principle:</b> Proximity system</li> <li>• <b>Fiber length:</b> 1,000 mm</li> <li>• <b>Thread diameter (housing):</b> M6</li> <li>• <b>Fiber material:</b> Glass</li> <li>• <b>Jacket material:</b> Stainless steel</li> <li>• <b>Fiber head material:</b> Stainless steel</li> <li>• <b>Included with delivery:</b> Mounting, 2 x M6 hexagon nut, 1 x washer</li> </ul>    | LL3-DW01 | 5315234  |
|  | <ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T)</li> <li>• <b>Functional principle:</b> Through-beam system</li> <li>• <b>Fiber length:</b> 2,000 mm</li> <li>• <b>Thread diameter (housing):</b> M4</li> <li>• <b>Fiber material:</b> Glass</li> <li>• <b>Jacket material:</b> Stainless steel</li> <li>• <b>Fiber head material:</b> Brass</li> </ul>                                                                                              | LL3-TH08 | 5325978  |

## 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)