# WLL80I-22T6Y3DZA71Z1Z1

WLL80

**FIBER-OPTIC AMPLIFIER**

SICK
Sensor Intelligence.

# WLL80I-22T6Y3DZA71Z1Z1 | WLL80

## FIBER-OPTIC AMPLIFIER



Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| WLL80I-22T6Y3DZA71Z1Z1 | 6082784 |

**Included in delivery:** BEF-WLL180 (1)

Other models and accessories ➜ 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 $T_a$ = +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 |
| **Indication** | |
| LED green | Operating indicator<br>Static on: power on<br>Flashing: IO-Link mode |
| LED yellow 1 | Status of switching output 1<br>Permanently on: Switching output 1 active<br>Permanently off: Switching output 1 not active<br>Flashing: Executing teach-in/teach-in error |

| | |
|---|---|
| LED yellow 2 | Status of switching output 2<br>Permanently on: Switching output 2 active<br>Permanently off: Switching output 2 not active<br>Flashing: Executing teach-in/teach-in error |
| Display | Display of sensor functions<br>Menu languages: German, English, Chinese, Korean, Japanese<br><br>OLED display |
| **Items supplied** | BEF-WLL180 mounting bracket |

## Safety-related parameters

| | |
|---|---|
| **$MTTF_D$** | 324.1 years |
| **$DC_{avg}$** | 0% |
| **$T_M$ (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 $Q_{L1}$<br>Bit 1 = switching signal $Q_{L2}$<br>Bit 2 = detection signal Qint.1<br>Bit 3 = detection signal Qint.2<br>Bit 16 ... 31 = Current receiver level (live) |
| Compatible master port type | A |
| SIO mode support | Yes |

## Electronics

| | |
|---|---|
| **Supply voltage $U_B$** | 12 V DC ... 30 V DC [1] [2] |
| **Ripple** | ± 10 % |
| **Current consumption** | ≤ 50 mA |
| **Protection class** | III |
| **Digital output** | |
| Number | 2 (individually adjustable) |
| Type | Push-pull: PNP/NPN, PNP, NPN: open collector [3] |
| Signal voltage PNP HIGH/LOW | Approx. $U_B$-2.5 V / 0 V |
| Signal voltage NPN HIGH/LOW | Approx. $U_B$ / < 2.5 V |
| Output current $I_{max.}$ | ≤ 100 mA |
| Circuit protection outputs | Reverse polarity protected<br>Overcurrent protected<br>Short-circuit protected |
| Response time | ≤ 16 µs, ≤ 70 µs, ≤ 250 µs, ≤ 500 µs, ≤ 1,000 µs, ≤ 2,000 µs, ≤ 8,000 µs |
| Switching frequency | 31.2 kHz, 7.1 kHz, 2 kHz, 1 kHz, 500 Hz, 250 Hz, 62.5 Hz [4] |
| Time functions | Switch-on delay off delay ON and OFF delay Impulse (one shot) Switch-on delay and pulse de-activated |

[1] Limit values.

[2] IO-Link mode: 18 VDC ... 30 VDC.

[3] Selectable via menu.

[4] With light/dark ratio 1:1.

| | |
|---|---|
| Delay time | Adjustment via operating buttons / via IO-Link, 0 ms … 30,000 ms |
| **Pin/Wire assignment** | |
| Function of pin 4/black (BK) | Switching output, object present → $Q_{L1}$ output HIGH; IO-Link communication C |
| Function of pin 4/black (BK) – detail | The pin 4 function of the sensor can be configured<br>Additional possible settings via IO-Link |
| Function of pin 2/white (WH) | Switching output, object present → $Q_{L2}$ output HIGH |
| Function of pin 2/white (WH) – detail | The pin 2 function of the sensor can be configured<br>Additional possible settings via IO-Link |

[1] Limit values.
[2] IO-Link mode: 18 VDC … 30 VDC.
[3] Selectable via menu.
[4] With light/dark ratio 1:1.

## Mechanics

| | |
|---|---|
| **Housing** | Rectangular |
| **Dimensions (W x H x D)** | 10.5 mm x 33.2 mm x 79.9 mm |
| **Connection** | Male connector M8, 4-pin |
| **Material** | |
| Housing | Plastic, PC |
| **Weight** | Approx. 24 g |

## Ambient data

| | |
|---|---|
| **Enclosure rating** | IP54 (EN 60529) |
| **Ambient operating temperature** | –25 °C … +55 °C |
| **Ambient temperature, storage** | –40 °C … +70 °C |
| **Typ. Ambient light immunity** | Artificial light: ≤ 3,000 lx<br>Sunlight: ≤ 10,000 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 |

## Smart Task

| | |
|---|---|
| **Smart Task name** | Counter + debouncing |
| **Logic function** | Direct<br>WINDOW<br>Hysteresis |
| **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 |
| **Inverter** | Yes |
| **Switching signal** | |
| Switching signal $Q_{L1}$ | Switching output |
| Switching signal $\bar{Q}_{L1}$ | Switching output |

Diagnosis

| Quality of run | Yes |
|---|---|

Classifications

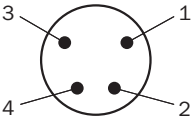| ECLASS 5.0 | 27270905 |
|---|---|
| ECLASS 5.1.4 | 27270905 |
| ECLASS 6.0 | 27270905 |
| ECLASS 6.2 | 27270905 |
| ECLASS 7.0 | 27270905 |
| ECLASS 8.0 | 27270905 |
| ECLASS 8.1 | 27270905 |
| ECLASS 9.0 | 27270905 |
| ECLASS 10.0 | 27270905 |
| ECLASS 11.0 | 27270905 |
| ECLASS 12.0 | 27270905 |
| ETIM 5.0 | EC002651 |
| ETIM 6.0 | EC002651 |
| ETIM 7.0 | EC002651 |
| ETIM 8.0 | EC002651 |
| UNSPSC 16.0901 | 39121528 |

## Adjustments

Display and adjustment elements
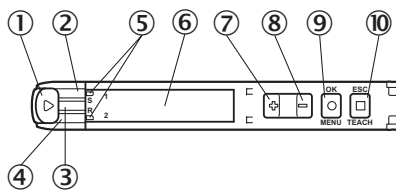


① Fiber optic interlock
② LED yellow 1
③ LED green
④ LED yellow 2
⑤ Indicator for correctly inserted fibers
⑥ Display
⑦ (+) button
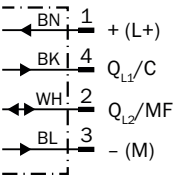⑧ (-) pushbutton
⑨ Menu/OK pushbutton
⑩ Teach-in/escape pushbutton
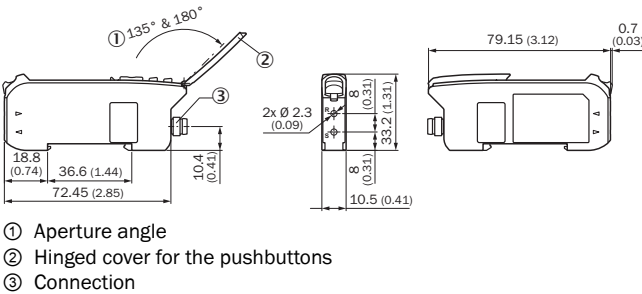
## Connection type

Male connector M8, 4-pin



## Connection diagram

Cd-527



BN 1 + (L+)
BK 4 $Q_{L1}$/C
WH 2 $Q_{L2}$/MF
BL 3 – (M)

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



① 135° & 180°
② 
③

79.15 (3.12)   0.7 (0.03)
8 (0.31)
33.2 (1.31)
2x Ø 2.3 (0.09)
8 (0.31)
18.8 (0.74)   36.6 (1.44)   10.4 (0.41)
72.45 (2.85)
10.5 (0.41)

① Aperture angle
② Hinged cover for the pushbuttons
③ Connection

## Recommended accessories

Other models and accessories ➜ www.sick.com/WLL80

| Brief description | Type | Part no. |
|---|---|---|
| **Fibers** | | |
| • **For fiber optic amplifiers:** WLL80, WLL180, GLL170(T)<br>• **Functional principle:** Proximity system<br>• **Fiber material:** Glass<br>• **Jacket material:** Stainless steel<br>• **Fiber head material:** Stainless steel<br>• **Thread diameter (housing):** M6<br>• **Fiber length:** 1,000 mm | LL3-DW01 | 5315234 |

| Brief description | Type | Part no. |
|---|---|---|
| • **For fiber optic amplifiers:** WLL80, WLL180, GLL170(T)<br>• **Functional principle:** Through-beam system<br>• **Fiber material:** Glass<br>• **Jacket material:** Stainless steel<br>• **Fiber head material:** Brass<br>• **Thread diameter (housing):** M4<br>• **Fiber length:** 2,000 mm | LL3-TH08 | 5325978 |
| • **For fiber optic amplifiers:** WLL80, WLL180, GLL170(T)<br>• **Functional principle:** Through-beam system<br>• **Fiber material:** Glass<br>• **Jacket material:** Stainless steel<br>• **Fiber head material:** Stainless steel<br>• **Thread diameter (housing):** M4<br>• **Fiber length:** 1,000 mm | LL3-TW01 | 5315233 |

## 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**

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com

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