



## WLL80P-1IUIY1DZZZZ1Z1

WLL80

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
WLL80P-1IUIY1DZZZZ1Z1	6076726

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

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

Illustration may differ



## Detailed technical data

### Features

<b>Device type</b>	Fiber-optic amplifier
<b>Device type detail</b>	Stand-alone
<b>Functional principle detail</b>	Depending on the optical fiber cable used
<b>Sensing range max.</b>	Depending on the optical fiber cable used
<b>Emitted beam</b>	
Light source	LED
Type of light	Visible red light
<b>Key LED figures</b>	
Normative reference	EN 62471:2008-09   IEC 62471:2006, modified
LED risk group marking	Free group
Wave length	660 nm
Average service life	100,000 h at $T_a = +25$ °C
<b>Adjustment</b>	
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
<b>Display</b>	
LED green	Operating indicatorStatic on: power on
LED yellow 1	Status of switching output 1Permanently on: Switching output 1 activePermanently off: Switching output 1 not activeFlashing: Executing teach-in/teach-in error
LED yellow 2	Analog output statusPermanently on: analog output activePermanently off: analog output not activeFlashing: Executing teach-in/teach-in error

<b>Items supplied</b>	Display BEF-WLL180 mounting bracket
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## Safety-related parameters

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

## Communication interface

<b>Analog</b>	✓
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## Electronics

<b>Supply voltage U<sub>B</sub></b>	12 V DC ... 24 V DC <sup>1)</sup>
<b>Ripple</b>	± 10 % <sup>2)</sup>
<b>Current consumption</b>	≤ 52 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Number	1
Type	Push-pull: PNP/NPN <sup>4)</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>	≤ 50 mA
Circuit protection outputs	Reverse polarity protected
	Overcurrent protected
	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 <sup>5)</sup>
	7.1 kHz
	2 kHz
	1 kHz

<sup>1)</sup> Limit values.<sup>2)</sup> May not fall below or exceed U<sub>V</sub> tolerances.<sup>3)</sup> Without load.<sup>4)</sup> Selectable via menu.<sup>5)</sup> With light/dark ratio 1:1.

	500 Hz
	250 Hz
	62.5 Hz
Time functions	Switch-on delay, off delay, ON and OFF delay, Impulse (one shot), Switch-on delay and pulse, deactivated
Delay time	Adjustment via operating buttons, 0 ms ... 30,000 ms
<b>Analog output</b>	
Number	1
Type	4 mA ... 20 mA ( $\leq 300 \Omega$ ) / 0 V ... 10 V ( $\geq 10 \text{ k}\Omega$ ) / 1 V ... 5 V ( $\geq 10 \text{ k}\Omega$ ) / switchable
Resolution	12 bit
<b>Digital input</b>	
Number	1
<b>Pin/Wire assignment</b>	
Function of pin 4/black (BK)	Analog output Q <sub>A</sub> (current/voltage selectable), analog GND
Function of pin 4/black (BK) – detail	The pin 4 function of the sensor can be configured
Function of pin 2/white (WH)	Teach-in input
Function of pin 2/white (WH) – detail	The pin 2 function of the sensor can be configured
Pin 5 function/gray (GY)	Digital output, object present → Output Q1 HIGH
Pin 5 function/gray (GY) – detail	The pin 5 function of the sensor can be configured

1) Limit values.

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

3) Without load.

4) Selectable via menu.

5) With light/dark ratio 1:1.

## Mechanics

<b>Housing</b>	Rectangular
<b>Dimensions (W x H x D)</b>	10.5 mm x 33.2 mm x 79.9 mm
<b>Connection</b>	Cable, 5-wire, 2 m
<b>Connection detail</b>	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.15 mm <sup>2</sup>
Cable diameter	Ø 4 mm
Length of cable (L)	2 m
<b>Material</b>	
Housing	Plastic, PC
Cable	Plastic, PVC
<b>Weight</b>	Approx. 76 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: $\leq 3,000 \text{ lx}$ Sunlight: $\leq 10,000 \text{ lx}$

<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>Timer function</b>	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot) 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

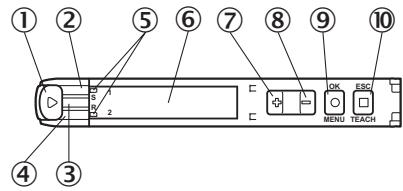
## Certificates

<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>cRUs certificate</b>	✓
<b>IO-Link</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

## Classifications

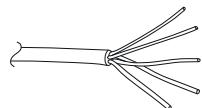
<b>ECLASS 5.0</b>	27270905
<b>ECLASS 5.1.4</b>	27270905
<b>ECLASS 6.0</b>	27270905
<b>ECLASS 6.2</b>	27270905
<b>ECLASS 7.0</b>	27270905
<b>ECLASS 8.0</b>	27270905
<b>ECLASS 8.1</b>	27270905
<b>ECLASS 9.0</b>	27270905
<b>ECLASS 10.0</b>	27270905
<b>ECLASS 11.0</b>	27270905
<b>ECLASS 12.0</b>	27270905
<b>ETIM 5.0</b>	EC002651
<b>ETIM 6.0</b>	EC002651
<b>ETIM 7.0</b>	EC002651
<b>ETIM 8.0</b>	EC002651

## display and adjustment elements

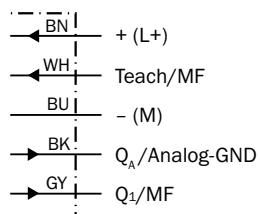


- ① Fiber optic interlock
- ② LED yellow 1
- ③ LED green
- ④ LED yellow 2
- ⑤ Indicator for correctly inserted fibers
- ⑥ Display
- ⑦ (+) button
- ⑧ (-) pushbutton
- ⑨ Menu/OK pushbutton
- ⑩ Teach-in/escape pushbutton

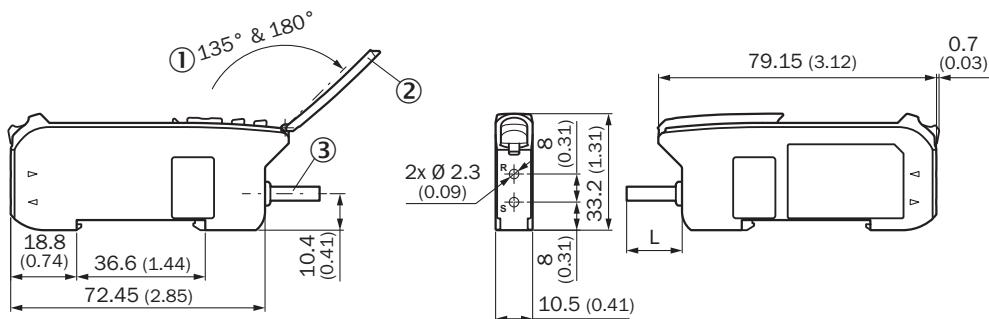
## Connection type Cable, 5-wire



## Connection diagram Cd-538



## 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> Proximity system</li><li>• <b>Fiber length:</b> 2,000 mm</li><li>• <b>Thread diameter (housing):</b> M3</li><li>• <b>Fiber material:</b> Plastic</li><li>• <b>Jacket material:</b> Plastic</li><li>• <b>Fiber head material:</b> Stainless steel</li><li>• <b>Included with delivery:</b> Mounting, 2 x M3 hexagon nut, 2 x washer, adapter sleeves, BF-WLL160-13 (1.3 mm) adapter sleeves, FC fiber cutter (5304141)</li></ul>	LL3-DT01	5308076

## 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)