



# WLL180T-P474

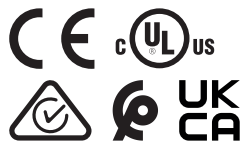
WLL180

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
WLL180T-P474	6039618

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

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		1,450 nm
Average service life		100,000 h at T <sub>a</sub> = +25 °C
Adjustment		
Wire/pin		For deactivating the sender and executing the test logic/for setting the sensing range/synchronization with input signal
Display + operating buttons		For configuring the sensor parameters
Display		
LED yellow		Status of digital output Permanently on: Switching output active Permanently off: Digital output not active
Display		Display of sensor functions
Special features		Glass fibers necessary
Items supplied		BEF-WLL180 mounting bracket

Safety-related parameters

MTTF <sub>D</sub>	365 years
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<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	20 years

## 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>	≤ 50 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Number	1
Type	PNP <sup>4)</sup>
Switching mode	Light/dark switching
Switching mode selector	Manually selectable
Circuit protection outputs	Reverse polarity protected
	Overcurrent protected
	Short-circuit protected
Response time	≤ 16 μs
	≤ 70 μs
	≤ 250 μs
	≤ 2,000 μs
	≤ 8,000 μs
Switching frequency	31.2 kHz
	7.1 kHz
	2 kHz
	250 Hz
	62.5 Hz
Time functions	Without time delay, off delay, switch-on delay, ON and OFF delay, one shot
Delay time	Programmable, 0 ms ... 9,999 ms
<b>Pin/Wire assignment</b>	
Function of pin 4/black (BK)	Digital output, received light → Output Q1 HIGH
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

<sup>1)</sup> ± 10%.

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

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

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

## Mechanics

<b>Housing</b>	Rectangular
<b>Dimensions (W x H x D)</b>	10.5 mm x 34.6 mm x 71.9 mm
<b>Connection</b>	Male connector M8, 4-pin
<b>Material</b>	
Housing	Plastic, ABS/PC

<b>Weight</b>	20 g
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### Ambient data

<b>Enclosure rating</b>	IP50 (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 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
<b>UL File No.</b>	NRKH.E300503 & NRKH7.E300503
<b>RoHS certificate</b>	✓

### Smart Task

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

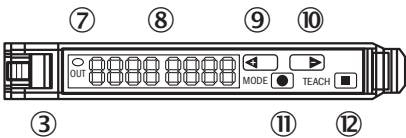
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

### 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

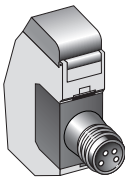
ETIM 6.0	EC002651
ETIM 7.0	EC002651
ETIM 8.0	EC002651
UNSPSC 16.0901	39121528

Adjustments WLL180

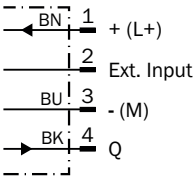


- ③ Locking the fiber-optic cables
- ⑦ LED indicator orange, lights up when switching output is active
- ⑧ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
- ⑨ step pushbutton > (manual switching threshold: higher/next function parameter)
- ⑩ step pushbutton < (manual switching threshold: lower/previous function parameter)
- ⑪ Mode/Enter-button
- ⑫ Teach-in button

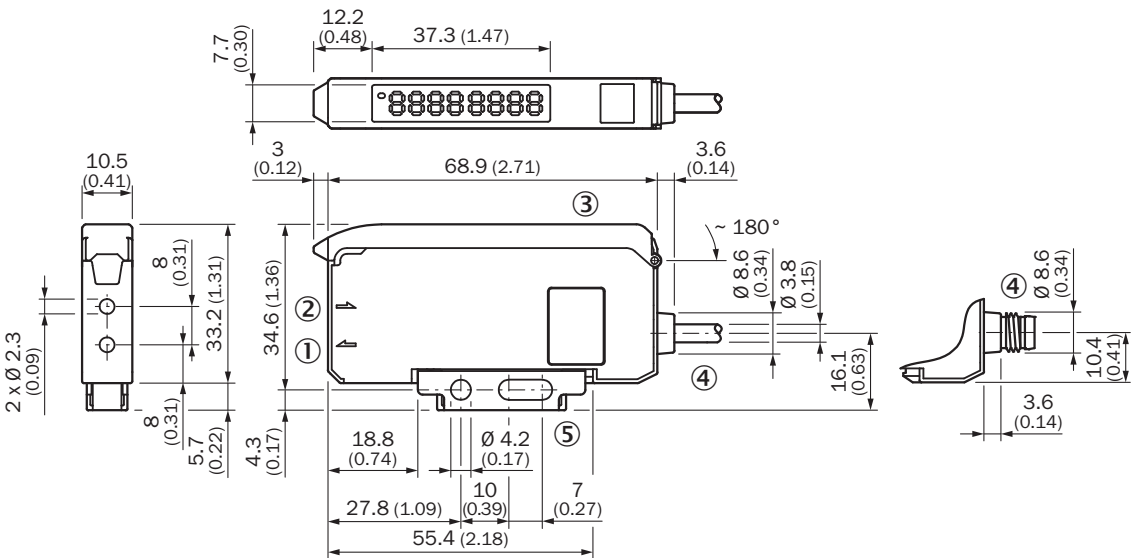
Connection type



Connection diagram Cd-134



Dimensional drawing Stand-alone



- 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

Recommended accessories

Other models and accessories → [www.sick.com/WLL180](http://www.sick.com/WLL180)

	Brief description	Type	part no.
fiber-optic sensors			
	<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> GLL70, 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

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF8U14-020VA3XLEAX	2095888
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF8U14-050VA3XLEAX	2095889
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG8U14-020VA3XLEAX	2095962
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG8U14-050VA3XLEAX	2095963
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF8U14-C60VA3XLEAX	2145852
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF8U14-010VA3XLEAX	2145853
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG8U14-C60VA3XLEAX	2145854
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG8U14-030VA3XLEAX	2145857
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG8U14-010VA3XLEAX	2145855

## 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)