



# WLL180T-P474S14

WLL180

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
WLL180T-P474S14	6052848

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	880 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
Items supplied	BEF-WLL180 mounting bracket

Safety-related parameters

T <sub>M</sub> (mission time)	20 years
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## Electronics

<b>Supply voltage <math>U_B</math></b>		12 V DC ... 24 V DC <sup>1)</sup>
<b>Ripple</b>		$\leq 10\%$ <sup>2)</sup>
<b>Current consumption</b>		$\leq 50\text{ mA}$ <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	$\leq 16\text{ }\mu\text{s}$
		$\leq 70\text{ }\mu\text{s}$
		$\leq 250\text{ }\mu\text{s}$
		$\leq 2,000\text{ }\mu\text{s}$
		$\leq 8,000\text{ }\mu\text{s}$
	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>  $\pm 10\%$ .

<sup>2)</sup> May not fall below or exceed  $U_y$  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

### 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>	NRKH2.E300503 & NRKH8.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>Photobiological safety (DIN EN 62471) certificate</b>	✓

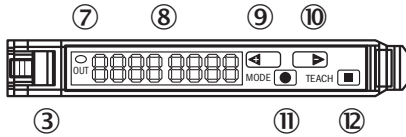
### Classifications

<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

UNSPSC 16.0901

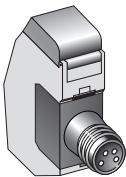
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## Adjustments WLL180

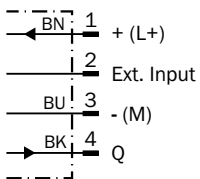


- ③ Locking the fiber-optic cables
- ⑦ LED indicator orange, lights up when switching output is active
- ⑧ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
- ⑨ step pushbutton > (manual switching threshold: higher/next function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

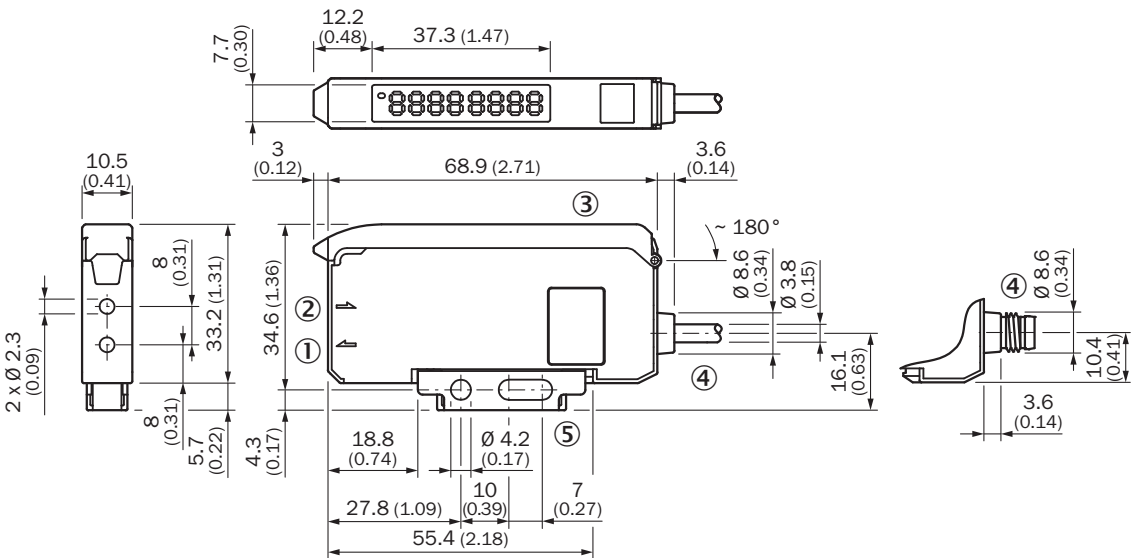
## Connection type



## 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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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> Zones with chemicals, Uncontaminated zones</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)