



## WLL180T-P434

WLL180

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
WLL180T-P434	6039095

Included in delivery: BEF-WLL180 (1)

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

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	650 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/synchronization with input signal	
	Display + operating buttons	For configuring the sensor parameters	
<b>Display</b>	LED yellow	Status of digital outputPermanently on: Switching output activePermanently off: Digital output not active	
	Display	Display of sensor functions	
<b>Items supplied</b>	BEF-WLL180 mounting bracket		

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	323 years
<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
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

<sup>1)</sup> +- 10%.

<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.

## 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>	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

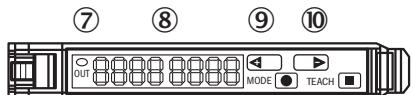
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

## 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
<b>ETIM 6.0</b>	EC002651
<b>ETIM 7.0</b>	EC002651

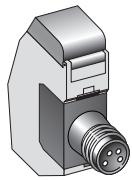
<b>ETIM 8.0</b>	EC002651
<b>UNSPSC 16.0901</b>	39121528

## Adjustments WLL180

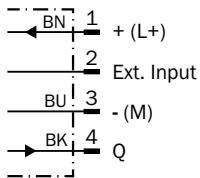


- ③ Locking the fiber-optic cables
- ⑦ LED indicator orange, lights up when switching output is active
- ⑧ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
- ⑨ step pushbutton > (manual switching threshold: higher/next function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

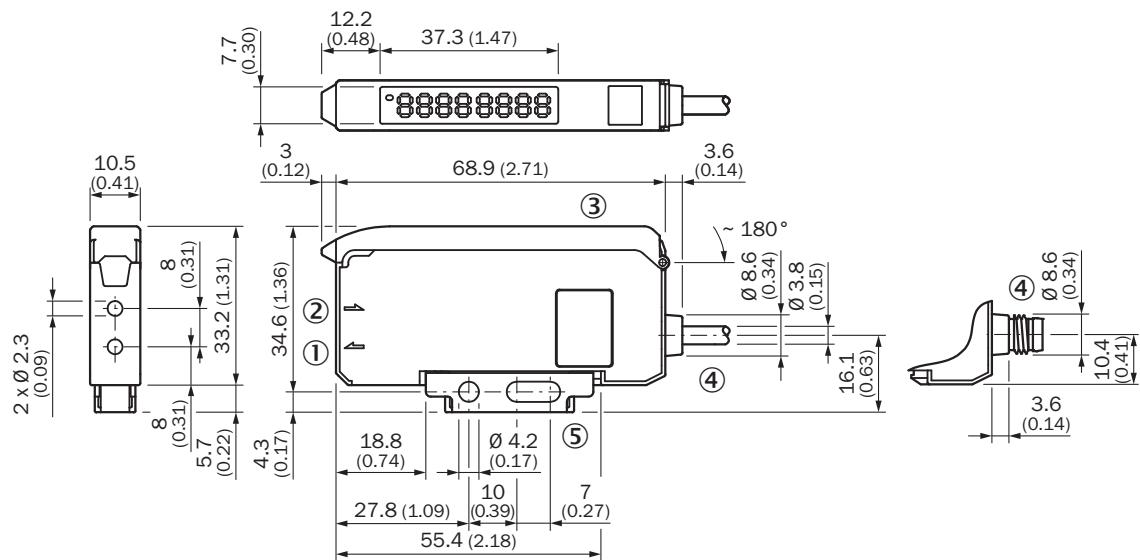
## Connection type



## Connection diagram Cd-134



## Dimensional drawing Stand-alone



## 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> WLL80, WLL180, GLL170(T), KTL180</li><li>• <b>Functional principle:</b> Proximity system</li><li>• <b>Fiber length:</b> 2,000 mm</li><li>• <b>Thread diameter (housing):</b> M6</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 M6 hexagon nut, 2 x washer, FC fiber cutter (5304141)</li></ul>	LL3-DB01	5308074
	<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
	<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>Smooth sleeve diameter:</b> 3 mm</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> Adapter sleeves, 1 x BF-WLL160-10 (1.0 mm) adapter sleeve, 1 x BF-WLL160-13 (1.3 mm) adapter sleeve, FC fiber cutter (5304141)</li></ul>	LL3-DR11	5326000
	<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</li><li>• <b>Functional principle:</b> Proximity system</li><li>• <b>Fiber length:</b> 2,000 mm</li><li>• <b>Thread diameter (housing):</b> M6</li><li>• <b>Fiber material:</b> Plastic</li><li>• <b>Jacket material:</b> Plastic</li><li>• <b>Fiber head material:</b> Plastic</li><li>• <b>Included with delivery:</b> Mounting, 1 x M6 hexagon nut, FC fiber cutter (5304141)</li></ul>	LL3-DV05	5322549
	<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</li><li>• <b>Functional principle:</b> Proximity system</li><li>• <b>Fiber length:</b> 2,000 mm</li><li>• <b>Thread diameter (housing):</b> M6</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 M6 hexagon nut, 2 x washer, FC fiber cutter (5304141)</li></ul>	LL3-DB02	5308083
	<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180</li><li>• <b>Functional principle:</b> Proximity system</li><li>• <b>Fiber length:</b> 2,000 mm</li><li>• <b>Fiber material:</b> Plastic</li><li>• <b>Jacket material:</b> Plastic</li><li>• <b>Fiber head material:</b> Plastic</li><li>• <b>Included with delivery:</b> Adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141)</li></ul>	LL3-DC38	5322472
	<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</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> 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, 4 x M4 hexagon nut, 4 x washer, FC fiber cutter (5304141)</li></ul>	LL3-TB01	5308050
	<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</li><li>• <b>Functional principle:</b> Through-beam system</li><li>• <b>Fiber length:</b> 20,000 mm</li><li>• <b>Thread diameter (housing):</b> M12</li><li>• <b>Fiber material:</b> Plastic</li><li>• <b>Jacket material:</b> Plastic</li><li>• <b>Fiber head material:</b> Stainless steel</li></ul>	LL3-TX01	5324173

	<b>Brief description</b>	<b>Type</b>	<b>part no.</b>
	<ul style="list-style-type: none"> <li><b>Included with delivery:</b> Mounting, 4 x M12 hexagon nut, FC fiber cutter (5304141), protective cladding for fiber head</li> <li><b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</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> Plastic</li> <li><b>Jacket material:</b> Plastic</li> <li><b>Fiber head material:</b> Plastic</li> <li><b>Included with delivery:</b> Mounting, 2 x M4 hexagon nut, FC fiber cutter (5304141)</li> </ul>	LL3-TV05	5322546
	<ul style="list-style-type: none"> <li><b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</li> <li><b>Functional principle:</b> Through-beam system</li> <li><b>Fiber length:</b> 2,000 mm</li> <li><b>Optical fiber head array width:</b> 40 mm</li> <li><b>Fiber material:</b> Plastic</li> <li><b>Jacket material:</b> Plastic</li> <li><b>Fiber head material:</b> Plastic</li> <li><b>Included with delivery:</b> Mounting, 4 x M3 Phillips-head screw, FC fiber cutter (5304141), protective cladding for fiber head</li> </ul>	LL3-TS40	5323971
	<ul style="list-style-type: none"> <li><b>For fiber optic amplifiers:</b> WLL80, WLL180, GLL170(T), WLL24 Ex</li> <li><b>Functional principle:</b> Through-beam system</li> <li><b>Fiber length:</b> 2,000 mm</li> <li><b>Smooth sleeve diameter:</b> 6 mm</li> <li><b>Fiber material:</b> Plastic</li> <li><b>Jacket material:</b> Chemical-resistant plastic</li> <li><b>Fiber head material:</b> Chemical-resistant plastic</li> <li><b>Included with delivery:</b> FC fiber cutter (5304141)</li> </ul>	LL3-TY01	5308066

	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)