



# WLL180T-M434S07

WLL180

FIBER-OPTIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
WLL180T-M434S07	6049025

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		Base unit <sup>1)</sup>
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	Visible red light
Key LED figures		
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 <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		Automatic sender power adjustment Parameter (pre-setting) Parameter presettings: dark switching, response time 2 ms, glas teach-in mode with 80 % switching threshold, automatic regulation of the sender power at teach-in

<sup>1)</sup> Up to 15 expansion units can be connected.

<b>Items supplied</b>	BEF-WLL180 mounting bracket
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<sup>1)</sup> Up to 15 expansion units can be connected.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	319 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

<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>	25 g

### Ambient data

<b>Enclosure rating</b>	IP50 (EN 60529)
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Ambient temperature, storage</b>	-25 °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

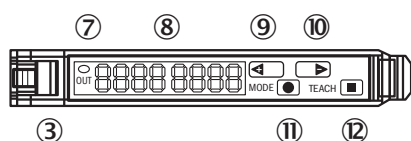
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

### 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

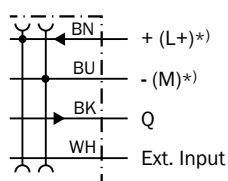
<b>ECLASS 9.0</b>	27270905
<b>ECLASS 10.0</b>	27270905
<b>ECLASS 11.0</b>	27270905
<b>ECLASS 12.0</b>	27270905
<b>ETIM 5.0</b>	EC002651
<b>ETIM 6.0</b>	EC002651
<b>ETIM 7.0</b>	EC002651
<b>ETIM 8.0</b>	EC002651
<b>UNSPSC 16.0901</b>	39121528

## 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 diagram Cd-138



\*) Only base unit

Technical drawing of the 3000 Series digital depth gauge, showing three views: top, front, and side. Dimensions are provided in millimeters (mm) and inches (in).

**Top View Dimensions:**

- Overall width: 51.9 (2.04)
- Distance from left edge to display: 37.3 (1.47)
- Display width: 9.2 (0.36)
- Distance from display to right edge: 7.7 (0.30)
- Overall length: 68.9 (2.71)
- Distance from left edge to depth rod: 3 (0.12)
- Distance from depth rod to right edge: 3.6 (0.14)

**Front View Dimensions:**

- Overall height: 10.5 (0.41)
- Distance from top edge to display: 8 (0.31)
- Distance from display to bottom edge: 33.2 (1.31)
- Distance from left edge to depth rod: 34.6 (1.36)
- Distance from depth rod to right edge: 16.1 (0.63)
- Distance from left edge to display: 5.7 (0.22)
- Distance from display to bottom edge: 4.3 (0.17)
- Distance from left edge to depth rod: 18.8 (0.74)
- Distance from depth rod to right edge: 10 (0.39)
- Distance from left edge to display: 27.8 (1.09)
- Distance from display to right edge: 7 (0.27)
- Overall width: 55.4 (2.18)

**Side View Dimensions:**

- Overall width: 10.4 (0.41)
- Distance from left edge to depth rod: 3.6 (0.14)
- Distance from depth rod to right edge: 8.6 (0.34)
- Distance from depth rod to right edge: 3.8 (0.15)
- Distance from depth rod to right edge: 8.6 (0.34)

**Callouts:**

- ①: Depth rod
- ②: Display
- ③: Base
- ④: Depth rod
- ⑤: Base

- 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T), KTL180</li> <li>Functional principle: Proximity system</li> <li>Fiber length: 2,000 mm</li> <li>Thread diameter (housing): M6</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Stainless steel</li> <li>Included with delivery: 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T)</li> <li>Functional principle: Proximity system</li> <li>Fiber length: 2,000 mm</li> <li>Thread diameter (housing): M3</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Stainless steel</li> <li>Included with delivery: 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T)</li> <li>Functional principle: Proximity system</li> <li>Fiber length: 2,000 mm</li> <li>Smooth sleeve diameter: 3 mm</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Stainless steel</li> <li>Included with delivery: 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex</li> <li>Functional principle: Proximity system</li> <li>Fiber length: 2,000 mm</li> <li>Thread diameter (housing): M6</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Plastic</li> <li>Included with delivery: Mounting, 1 x M6 hexagon nut, FC fiber cutter (5304141)</li> </ul>	LL3-DV05	5322549
	<ul style="list-style-type: none"> <li>For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex</li> <li>Functional principle: Proximity system</li> <li>Fiber length: 2,000 mm</li> <li>Thread diameter (housing): M6</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Stainless steel</li> <li>Included with delivery: 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180</li> <li>Functional principle: Proximity system</li> <li>Fiber length: 2,000 mm</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Plastic</li> <li>Included with delivery: 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex</li> <li>Functional principle: Through-beam system</li> <li>Fiber length: 2,000 mm</li> <li>Thread diameter (housing): M4</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Stainless steel</li> <li>Included with delivery: 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>For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex</li> <li>Functional principle: Through-beam system</li> <li>Fiber length: 20,000 mm</li> <li>Thread diameter (housing): M12</li> <li>Fiber material: Plastic</li> <li>Jacket material: Plastic</li> <li>Fiber head material: Stainless steel</li> </ul>	LL3-TX01	5324173

	Brief description	Type	part no.
	<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
integration modules and adapters			
	<ul style="list-style-type: none"> <li><b>Description:</b> EtherCAT coupler for WLL180T, KTL180 and AOD1. Features: EtherCAT; transmission rates of up to 100 Mbaud; M12 EtherCAT connection; M8 voltage supply connection, 4-pin; full read/write functionality for the process and service data of the connected sensors. See operating instructions for additional information and technical details</li> </ul>	WI180C-EC	6068089
	<ul style="list-style-type: none"> <li><b>Description:</b> PROFINET coupler for WLL180T, KTL180 and AOD1. Features: PROFINET IRT; transmission rates 10 Mbaud – 100 Mbaud; M12 PROFINET connection; M8 voltage supply connection, 4-pin; full read/write functionality for the process and service data of the connected sensors. See operating instructions for additional information and technical details</li> </ul>	WI180C-PN	6068088
	<ul style="list-style-type: none"> <li><b>Description:</b> IO-Link Smart Sensor Gateway for WLL180T, KTL180 and AOD1; Features: IO-Link; COM3; M8 connection, 4-pin; full read/write functionality for the process and service data of the connected sensors. See operating instructions for additional information and technical details</li> </ul>	WI180C-IOA00	6071650



## 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)