



# WLL180T-P432

WLL180

FIBER-OPTIC AMPLIFIER

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
WLL180T-P432	6039093

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

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

### Detailed technical data

#### Features

<b>Device type</b>	Fiber-optic amplifier
<b>Device type detail</b>	Stand-alone
<b>Dimensions (W x H x D)</b>	10.5 mm x 34.6 mm x 71.9 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	0 m ... 20 m (Through-beam system) <sup>1) 2)</sup>
<b>Sensing range</b>	0 mm ... 1,400 mm, Proximity system <sup>3) 4)</sup> 0 ... 18 m, Through-beam system <sup>1) 2)</sup>
<b>Focus</b>	Approx. 65° <sup>5)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>6)</sup>
<b>Angle of dispersion</b>	Approx. 65° <sup>5)</sup>
<b>Wave length</b>	650 nm
<b>Adjustment</b>	Menu-controlled Single teach-in button Cable
<b>Indication</b>	7-segment
<b>Display</b>	LED status display / 2x 4-character digital dual displays, Set value (green indicator) and actual value (red indicator) are displayed simultaneously, display of parameters

<sup>1)</sup> Sensing range with 8 ms response time. Reduction with shorter response time (see tables LL3/WLL180T).

<sup>2)</sup> LL3-TX01.

<sup>3)</sup> Object with 90% remission (based on standard white DIN 5033). Sensing range at 8 ms response time. Reduced at shorter response times (see LL3 / WLL180T tables).

<sup>4)</sup> LL3-DK06.

<sup>5)</sup> See LL3 fiber-optic data.

<sup>6)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/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>	50 mA <sup>3)</sup>
<b>Switching output</b>	PNP
<b>Number of switching outputs</b>	1
<b>Switching mode</b>	Light/dark switching
<b>Switching mode selector</b>	Manually selectable
<b>Response time</b>	$\leq 16\ \mu\text{s}$ , $\leq 70\ \mu\text{s}$ , $\leq 250\ \mu\text{s}$ , $\leq 2,000\ \mu\text{s}$ , $\leq 8,000\ \mu\text{s}$ <sup>4)</sup>
<b>Switching frequency</b>	31.2 kHz, 7.1 kHz, 2 kHz, 250 Hz, 62.5 Hz
<b>Time functions</b>	Without time delayoff delayswitch-on delayON and OFF delayone shot
<b>Delay time</b>	Programmable, 0 ms ... 9,999 ms
<b>Input</b>	Multifunctional input MF
<b>Connection type</b>	Cable, 4-wire, 2 m <sup>5)</sup>
<b>Cable material</b>	Plastic, PVC
<b>Conductor cross section</b>	0.2 mm <sup>2</sup>
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> C <sup>8)</sup> D <sup>9)</sup>
<b>Protection class</b>	III
<b>Weight</b>	25 g
<b>Housing material</b>	Plastic, ABS/PC
<b>Enclosure rating</b>	IP50 <sup>10)</sup>
<b>Items supplied</b>	BEF-WLL180 mounting bracket
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>UL File No.</b>	NRKH.E300503

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

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

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

<sup>4)</sup> Selectable.

<sup>5)</sup> Do not bend below 0 °C.

<sup>6)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

<sup>10)</sup> With correctly attached fibre-optic cable LL3 and closed protection hood.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	323 years
<b>DC<sub>avg</sub></b>	0 %

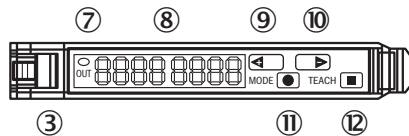
## Classifications

<b>ECLASS 5.0</b>	27270905
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<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

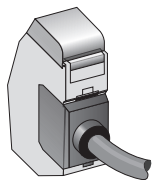
### Adjustments

WLL180



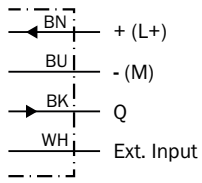
- ③ Locking the fiber-optic cables
- ⑦ LED indicator orange, lights up when switching output is active
- ⑧ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
- ⑨ Step pushbutton > (manual switching threshold: higher/next function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

### Connection type



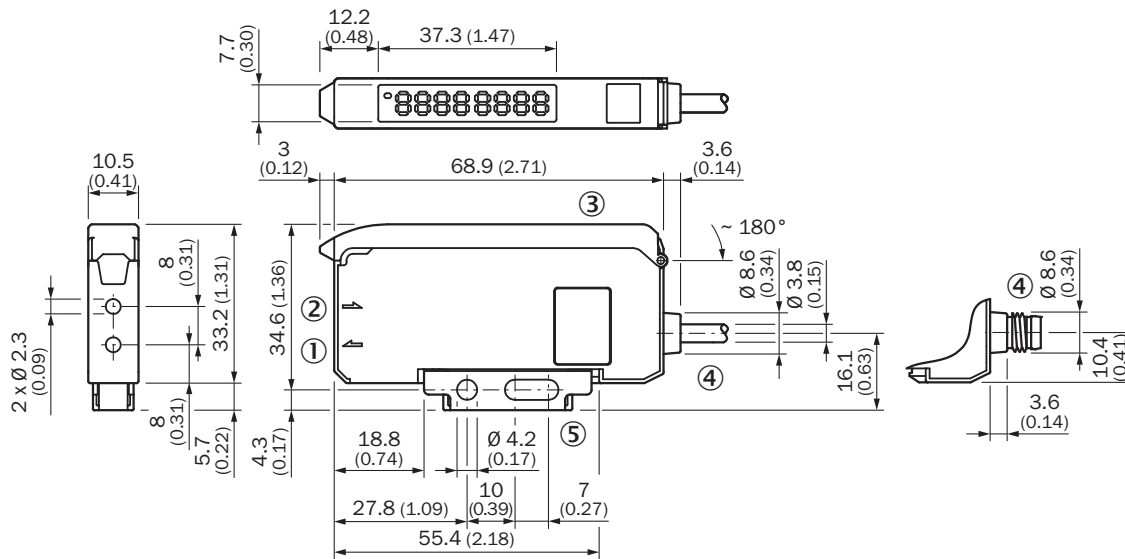
### Connection diagram

Cd-136



### Dimensional drawing (Dimensions in mm (inch))

Stand-alone



- 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.
<p>Fibers</p> <ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, KTL180, WLL80</li> <li>• <b>Functional principle:</b> Proximity system</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>Thread diameter (housing):</b> M6</li> <li>• <b>Fiber length:</b> 2,000 mm</li> </ul>	LL3-DB01	5308074

Brief description	Type	Part no.
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li> <li>• <b>Functional principle:</b> Proximity system</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>Thread diameter (housing):</b> M6</li> <li>• <b>Fiber length:</b> 2,000 mm</li> </ul>	LL3-DB02	5308083
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, KTL180, WLL80</li> <li>• <b>Functional principle:</b> Proximity system</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>Fiber length:</b> 2,000 mm</li> </ul>	LL3-DC38	5322472
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL80</li> <li>• <b>Functional principle:</b> Proximity system</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>Fiber length:</b> 2,000 mm</li> </ul>	LL3-DR11	5326000
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL80</li> <li>• <b>Functional principle:</b> Proximity system</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>Thread diameter (housing):</b> M3</li> <li>• <b>Fiber length:</b> 2,000 mm</li> </ul>	LL3-DT01	5308076
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li> <li>• <b>Functional principle:</b> Proximity system</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>Thread diameter (housing):</b> M6</li> <li>• <b>Fiber length:</b> 2,000 mm</li> </ul>	LL3-DV05	5322549
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li> <li>• <b>Functional principle:</b> Through-beam system</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>Thread diameter (housing):</b> M4</li> <li>• <b>Fiber length:</b> 2,000 mm</li> </ul>	LL3-TB01	5308050
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li> <li>• <b>Functional principle:</b> Through-beam system</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>Fiber length:</b> 2,000 mm</li> </ul>	LL3-TS40	5323971
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li> <li>• <b>Functional principle:</b> Through-beam system</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>Thread diameter (housing):</b> M4</li> <li>• <b>Fiber length:</b> 2,000 mm</li> </ul>	LL3-TV05	5322546
<ul style="list-style-type: none"> <li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li> <li>• <b>Functional principle:</b> Through-beam system</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>Thread diameter (housing):</b> M12</li> <li>• <b>Fiber length:</b> 20,000 mm</li> </ul>	LL3-TX01	5324173

Brief description	Type	Part no.
<ul style="list-style-type: none"><li>• <b>For fiber optic amplifiers:</b> GLL170(T), WLL180, WLL24 Ex, WLL80</li><li>• <b>Functional principle:</b> Through-beam system</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>Fiber length:</b> 2,000 mm</li></ul>	LL3-TY01	5308066

## 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.”

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