



# WLL190T-2F232

## WLL190

FIBER-OPTIC AMPLIFIER

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
WLL190T-2F232	6032571

Other models and accessories → [www.sick.com/WLL190](http://www.sick.com/WLL190)

### Detailed technical data

#### Features

<b>Device type</b>	Fiber-optic amplifier
<b>Device type detail</b>	Expansion unit
<b>Dimensions (W x H x D)</b>	10.5 mm x 34.8 mm x 68.9 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	0 m ... 4 m (Through-beam system) <sup>1) 2)</sup>
<b>Sensing range</b>	0 mm ... 480 mm, Proximity system <sup>3) 4)</sup> 0 m ... 2 m, Through-beam system <sup>5)</sup>
<b>Focus</b>	Approx. 65° <sup>6)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>7)</sup>
<b>Angle of dispersion</b>	Approx. 65° <sup>6)</sup>
<b>Wave length</b>	650 nm
<b>Adjustment</b>	Menu-controlled Single teach-in button Cable
<b>Indication</b>	Display
<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 at response time 2 ms. Reduction at shorter response time (see LL3/ WLL190T-2 table).

<sup>2)</sup> LL3-TB02 and tip adapter LL3-TA01.

<sup>3)</sup> Object with 90% remission (based on standard white DIN 5033). Sensing range at 2 ms response time. Reduced at shorter response times (see LL3 / WLL190T-2 tables).

<sup>4)</sup> LL3-DB01.

<sup>5)</sup> LL3-TB01.

<sup>6)</sup> See LL3 fiber-optic data.

<sup>7)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage <math>U_B</math></b>	10 V DC ... 24 V DC <sup>1)</sup>
<b>Ripple</b>	$\leq 10\%$ <sup>2)</sup>
<b>Current consumption</b>	50 mA
<b>Switching output</b>	PNP <sup>3) 4)</sup>
<b>Switching mode</b>	Light/dark switching <sup>3) 4)</sup>
<b>Switching mode selector</b>	Manually selectable
<b>Response time</b>	$\leq 2\text{ ms}, \leq 60\ \mu\text{s}, \leq 250\ \mu\text{s}$
<b>Switching frequency</b>	8,333 Hz, 2,000 Hz, 250 Hz
<b>Time functions</b>	Without time delayoff delayswitch-on delayone shot
<b>Delay time</b>	Programmable, 0 ms ... 9,999 ms
<b>Connection type</b>	Cable, 2-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>	20 g
<b>Housing material</b>	Plastic, ABS/PC
<b>Enclosure rating</b>	IP50 <sup>10)</sup>
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>11)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C

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

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

<sup>3)</sup> Q<sub>1</sub>, Q<sub>2</sub>.

<sup>4)</sup> Selectable Q<sub>2</sub>, external teach or counter reset.

<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.

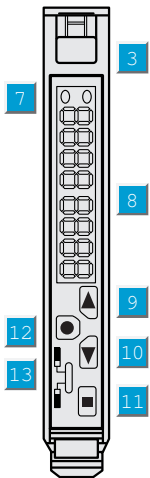
<sup>11)</sup> Operating temperature fluctuates according to number of devices connected: 4-8 devices: -25 °C ... +50 °C (output current 50 mA) / 9-16 devices: -25 °C ... +45 °C (output current 20 mA).

## 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

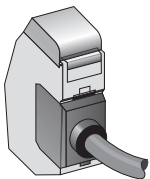
<b>ECLASS 9.0</b>	27270905
<b>ECLASS 10.0</b>	27270905
<b>ECLASS 11.0</b>	27270905
<b>ECLASS 12.0</b>	27270905
<b>ETIM 5.0</b>	EC002651
<b>ETIM 6.0</b>	EC002651
<b>ETIM 7.0</b>	EC002651
<b>ETIM 8.0</b>	EC002651
<b>UNSPSC 16.0901</b>	39121528

### Adjustments



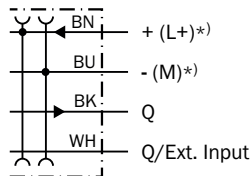
- ③ Locking the fiber-optic cables
- ⑦ LED indicator yellow; Lights continuously: output aktiv; No light: output inactive; Blinks slowly: shot circuit detected
- ⑧ Numeric display 3-digit and 4-digit
- ⑨ Step pushbutton > (manual switching threshold: higher/next function parameter)
- ⑩ Step pushbutton < (manual switching threshold: lower/previous function parameter)
- ⑪ Teach-in button
- ⑫ Mode/Enter-button

### Connection type



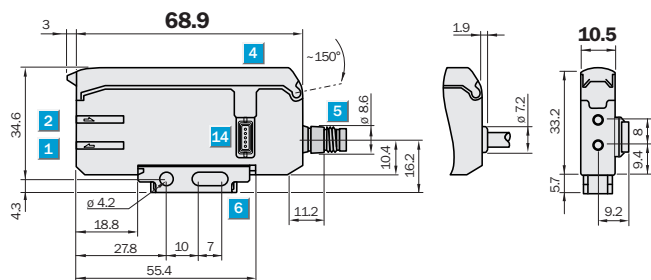
### Connection diagram

Cd-137



\*) Only base unit



### Dimensional drawing (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 Locking the fiber-optic cables
- ④ Protective hood opens approx. 180°
- ⑤ Connector M8 or 1-wire cable or 3-wire cable replaceable (cables not included with delivery)
- ⑥ Mounting bracket, included with delivery

### Recommended accessories

Other models and accessories → [www.sick.com/WLL190](http://www.sick.com/WLL190)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Mounting bracket, steel, zinc coated, without mounting hardware	BEF-WLL170	5306574
<b>Other mounting accessories</b>			
	Rail end piece for block mounting, stainless steel, mounting hardware included	BEF-EB01-W190	5313011

## 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)