

## WLL180T-N434

WLL180T

**FIBER-OPTIC SENSORS** 





#### Ordering information

Туре	Part no.
WLL180T-N434	6039096

Included in delivery: BEF-WLL180 (1)

Other models and accessories → www.sick.com/WLL180T

Illustration may differ









#### Detailed technical data

#### **Features**

i catures	
Туре	Stand-alone
Dimensions (W x H x D)	10.5 mm x 34.6 mm x 71.9 mm
Housing design (light emission)	Rectangular
Sensing range max.	0 m 20 m, Through-beam system $^{1)}$ $^{2)}$
Sensing range	0 mm 1,400 mm, Proximity system $^{3)}$ 4) 0 m 18 m, Through-beam system $^{1)}$ 2)
Focus	5)
Type of light	Visible red light
Light source	LED <sup>6)</sup>
Angle of dispersion	Approx. 65° <sup>5)</sup>
Wave length	650 nm
Adjustment	Menu-controlled Single teach-in button Cable
Delay time	Programmable, 0 ms 9,999 ms
Time functions	Without time delay Off delay On delay ON and OFF delay One shot
Indication	Display
Display	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>3)</sup> Objects to be sensed with 90% reflectivity (based on DIN 5033 white standard). Sensing range with 8 ms response time. Reduction with shorter response time (see tables LL3/WLL180T).

<sup>&</sup>lt;sup>4)</sup> LL3-DK06.

 $<sup>^{5)}</sup>$  See LL3 fiber-optic data.

 $<sup>^{6)}</sup>$  Average service life: 100,000 h at  $T_{U}$  = +25 °C.

#### Mechanics/electronics

Output current I <sub>max</sub> .       ≤ 100 mA         Response time       ≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 2,000 μs, ≤ 8,000 μs <sup>4)</sup> Switching frequency       31.2 kHz 7.1 kHz 2 kHz 250 Hz 62.5 Hz         Time functions       Without time delay Off delay On delay On delay On and OFF delay One shot         Delay time       Programmable, 0 ms 9,999 ms         Input       Multifunctional input MF         Connection type       Male connector M8, 4-pin         Circuit protection of type (200 ms) 200 ms       A 5) B 6) C 7) D 8)         Protection class       III         Weight       20 g         Housing material       Plastic, ABS/PC         Enclosure rating       IP50 9)		
Power consumption         50 mA 31           Switching output         NPN           Number of switching outputs         1           Switching mode         Light/dark switching           Switching mode selector         Manually selectable           Output current I <sub>max</sub> .         \$ 100 mA           Response time         \$ 16 μs, \$ 70 μs, \$ 250 μs, \$ 2,000 μs, \$ 8,000 μs 41           Switching frequency         31.2 kHz 2 k	Supply voltage	12 V DC 24 V DC <sup>1)</sup>
Switching output         NPN           Number of switching outputs         1           Switching mode         Light/dark switching           Switching mode selector         Manually selectable           Output current I <sub>max</sub> .         ≤ 100 mA           Response time         ≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 2,000 μs, ≤ 8,000 μs <sup>4)</sup> Switching frequency         31.2 kHz 7.1 kHz 2 kHz 250 Hz 62.5 Hz           Time functions         Without time delay Off delay On and OFF delay On and OFF delay Ons shot           On lay time         Programmable, 0 ms 9,999 ms           Input         Multifunctional input MF           Connection type         Male connector M8, 4-pin           Circuit protection         A <sup>5</sup>   B <sup>6</sup>   C <sup>7</sup>   D <sup>8</sup>   Frotection class         III           Weight         20 g           Housing material         Plastic, ABS/PC           Enclosure rating         IP50 <sup>9</sup> )           Items supplied         BEF-WILL180 mounting bracket           Ambient storage temperature         -25 ° C +70 ° C	Ripple	≤ 10 % <sup>2)</sup>
Number of switching outputs         1           Switching mode         Light/dark switching           Switching mode selector         Manually selectable           Output current I <sub>max</sub> ,         ≤ 100 mA           Response time         ≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 2,000 μs, ≤ 8,000 μs <sup>4)</sup> Switching frequency         31.2 kHz 7.1 kHz 2 kHz 250 Hz 62.5 Hz           Time functions         Without time delay Off delay On and OFF delay On and OFF delay On and OFF delay On shot           Delay time         Programmable, 0 ms 9,999 ms           Input         Multifunctional input MF           Connection type         Male connector M8, 4-pin           Circuit protection         A <sup>5</sup>   B <sup>6</sup>   C <sup>7</sup>   D <sup>8</sup>   Protection class           Weight         20 g           Housing material         Plastic, ABS/PC           Enclosure rating         IP50 <sup>9</sup> )           Items supplied         BEF-WILL180 mounting bracket           Ambient operating temperature         -25 °C +70 °C           Ambient storage temperature         -40 °C +70 °C	Power consumption	50 mA <sup>3)</sup>
Switching mode       Light/dark switching         Switching mode selector       Manually selectable         Output current I <sub>max</sub> .       ≤ 100 mA         Response time       ≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 2,000 μs, ≤ 8,000 μs. ⁴         Switching frequency       31.2 kHz 7.1 kHz 2 kHz 250 Hz 2 kHz 250 Hz 62.5 Hz         Time functions       Without time delay Off delay On delay On and OFF delay On shot         Delay time       Programmable, 0 ms 9,999 ms         Input       Multifunctional input MF         Connection type       Male connector M8, 4-pin         Circuit protection       A 5 ls 6 ls 6 ls 6 ls 7 ls 7 ls 7 ls 7 ls 7	Switching output	NPN
Switching mode selector       Manually selectable         Output current I <sub>max</sub> .       ≤ 100 mA         Response time       ≤ 16 μs, ≤ 70 μs, ≤ 2,000 μs, ≤ 8,000 μs <sup>4</sup> )         Switching frequency       31.2 kHz 7.1 kHz 2 kHz 2 kHz 280 Hz 62.5 Hz         Time functions       Without time delay Off delay On delay On delay On delay On delay On and OFF delay One shot         Delay time       Programmable, 0 ms 9,999 ms         Input       Multifunctional input MF         Connection type       Male connector M8, 4-pin         Circuit protection       A <sup>5)</sup> B <sup>6)</sup> C <sup>7)</sup> D <sup>8)</sup> Protection class       III         Weight       20 g         Housing material       Plastic, ABS/PC         Enclosure rating       IP50 <sup>9)</sup> Items supplied       BEF-WLL180 mounting bracket         Ambient operating temperature       -25 °C +55 °C         Ambient storage temperature       -40 °C +70 °C	Number of switching outputs	1
Output current I <sub>max</sub> .       ≤ 100 mA         Response time       ≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 2,000 μs, ≤ 8,000 μs <sup>4)</sup> Switching frequency       31.2 kHz 7.1 kHz 2 kHz 250 Hz 62.5 Hz         Time functions       Without time delay Off delay On delay On delay On delay On delay On shot         Delay time       Programmable, 0 ms 9,999 ms         Input       Multifunctional input MF         Connection type       Male connector M8, 4-pin         Circuit protection       A <sup>5)</sup> 8 <sup>6)</sup> C <sup>7)</sup> D <sup>8)</sup> Protection class       III         Weight       20 g         Housing material       Plastic, ABS/PC         Enclosure rating       IP50 <sup>9)</sup> Items supplied       BEF-WLL180 mounting bracket         Ambient operating temperature       -40 °C +70 °C	Switching mode	Light/dark switching
Response time $≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 2,000 μs, ≤ 8,000 μs^4$ Switching frequency $31.2 kHz$ $7.1 kHz$ $2 kHz$ $250 Hz$ $62.5 Hz$ Time functions       Without time delay Off delay On delay On and OFF delay On eshot         Delay time       Programmable, 0 ms 9,999 ms         Input       Multifunctional input MF         Connection type       Male connector M8, 4-pin         Circuit protection       A $5$   B $6$   C $7$   D $8$   Protection class         Protection class       III         Weight       20 g         Housing material       Plastic, ABS/PC         Enclosure rating       IP50 $^{9}$ )         Items supplied       BEF-WLL180 mounting bracket         Ambient operating temperature       -25 ° C +55 ° C         Ambient storage temperature       -40 ° C +70 ° C	Switching mode selector	Manually selectable
Switching frequency  31.2 kHz 7.1 kHz 2 kHz 25 O Hz 62.5 Hz  Time functions  Without time delay Off delay On and OFF delay One shot One shot One shot Oneshot Oneshot Oneshot Onestin type  Multifunctional input MF  Connection type  Male connector M8, 4-pin  Circuit protection A 5 O B 6 O C 7 O D 8 O D 9  Protection class  III  Weight  Delay time  Plastic, ABS/PC  Enclosure rating  Description of the protection  Perotection of the protection  Perotection of the protection  Perotection of the protection  Perotection class  Description of the protection of the protect	Output current I <sub>max.</sub>	≤ 100 mA
Time functions   Time functions   Without time delay Off delay On delay On delay On solot	Response time	$\leq$ 16 µs, $\leq$ 70 µs, $\leq$ 250 µs, $\leq$ 2,000 µs, $\leq$ 8,000 µs $^{4)}$
Off delay On delay On delay On and OFF delay One shot  Programmable, 0 ms 9,999 ms  Input  Multifunctional input MF  Connection type  Circuit protection  A 5 B 6 C 7 D 8 D 8 D  D 8 D  Protection class  III  Weight  Housing material  Plastic, ABS/PC  Enclosure rating IP50 9 D  Items supplied  BEF-WLL180 mounting bracket  Ambient operating temperature  A0 ° C +70 ° C	Switching frequency	7.1 kHz 2 kHz 250 Hz
Input  Connection type  Male connector M8, 4-pin  Circuit protection  A 5 B 6 C 7 D 8 Potection class  III  Weight  4 20 g  Housing material  Enclosure rating  IP50 9 Potentian  Mems supplied  Ambient operating temperature  Ambient storage temperature  Ambient storage temperature  Multifunctional input MF  Multifunctional input MF  Multifunctional input MF  Male connector M8, 4-pin  Abient supplied  Application  Alignment Supplied  Authorization  Multifunctional input MF  Alignment Supplied  Action  Application  A 5 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Time functions	Off delay On delay ON and OFF delay
Connection type  A 5 B 6 C 7 D 8 C 7 D	Delay time	Programmable, 0 ms 9,999 ms
Circuit protection  A 5 B 6 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 C 7 D 8 D 8 D 8 D 8 D 8 D 8 D 8 D 8 D 8 D	Input	Multifunctional input MF
B 6 C 7 D 8 D 8 D 8 D 8 D 8 D 8 D 8 D 8 D 8 D	Connection type	Male connector M8, 4-pin
Weight 20 g  Housing material Plastic, ABS/PC  Enclosure rating IP50 9)  Items supplied BEF-WLL180 mounting bracket  Ambient operating temperature -25 °C +55 °C  Ambient storage temperature -40 °C +70 °C	Circuit protection	B <sup>6)</sup> C <sup>7)</sup>
Housing material Plastic, ABS/PC  IP50 9)  Items supplied BEF-WLL180 mounting bracket  Ambient operating temperature -25 °C +55 °C  -40 °C +70 °C	Protection class	III
Enclosure ratingIP50 9)Items suppliedBEF-WLL180 mounting bracketAmbient operating temperature-25 °C +55 °CAmbient storage temperature-40 °C +70 °C	Weight	20 g
Items supplied     BEF-WLL180 mounting bracket       Ambient operating temperature     -25 °C +55 °C       Ambient storage temperature     -40 °C +70 °C	Housing material	Plastic, ABS/PC
Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Enclosure rating	IP50 <sup>9)</sup>
Ambient storage temperature -40 °C +70 °C	Items supplied	BEF-WLL180 mounting bracket
	Ambient operating temperature	-25 °C +55 °C
<b>UL File No.</b> NRKH.E300503 & NRKH7.E300503	Ambient storage temperature	-40 °C +70 °C
	UL File No.	NRKH.E300503 & NRKH7.E300503

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

#### Safety-related parameters

MTTFD	365 years
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 $<sup>^{2)}\,\</sup>mbox{May}$  not exceed or fall below  $\mbox{U}_{\mbox{\scriptsize V}}$  tolerances.

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

<sup>&</sup>lt;sup>4)</sup> Selectable.

 $<sup>^{5)}</sup>$  A = V  $_{S}$  connections reverse-polarity protected.

<sup>&</sup>lt;sup>6)</sup> B = inputs and output reverse-polarity protected.

 $<sup>^{7)}</sup>$  C = interference suppression.

 $<sup>^{\</sup>rm 8)}$  D = outputs overcurrent and short-circuit protected.

<sup>9)</sup> With correctly attached fibre-optic cable LL3 and closed protection hood.

#### WLL180T-N434 | WLL180T

FIBER-OPTIC SENSORS

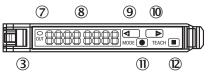
DC <sub>avg</sub>	0%
Classifications	
ECI@ss 5.0	27270905
ECI@ss 5.1.4	27270905
ECI@ss 6.0	27270905
ECI@ss 6.2	27270905
ECI@ss 7.0	27270905
ECI@ss 8.0	27270905
ECI@ss 8.1	27270905
ECI@ss 9.0	27270905
ETIM 5.0	EC002651

#### Adjustments possible

WLL180T

**ETIM 6.0** 

UNSPSC 16.0901



- 3 Locking the fiber-optic cables
- ① LED indicator orange, lights up when switching output is active
- ® Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter

EC002651

39121528

- Step pushbutton > (manual switching threshold: higher/next function parameter)
- Step pushbutton < (manual switching threshold: lower/previous function parameter)</p>
- 1 Mode/Enter-button
- 1 Teach-in button

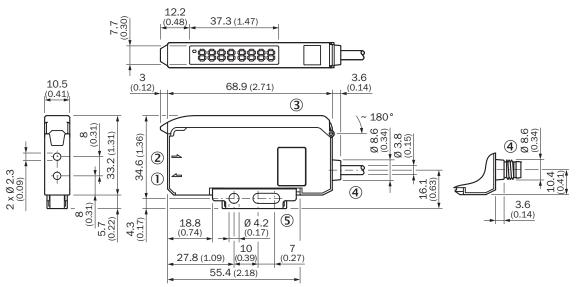
#### Connection diagram

Cd-134

$$\begin{array}{c|c}
\hline
&BN & 1 \\
\hline
& 1 \\
& 2 \\
\hline
& Ext. Input \\
\hline
& BU & 3 \\
\hline
& -(M) \\
\hline
& BK & 4 \\
\hline
& Q
\end{array}$$

#### 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/WLL180T

	Brief description	Туре	Part no.
Mounting brad	ckets and plates		
300	Mounting bracket, steel, zinc coated, without mounting hardware	BEF-WLL180	5325812
Other mounting accessories			
	Rail end piece for block mounting, stainless steel, mounting hardware included	BEF-EB01-W190	5313011
Plug connectors and cables			
	Head A: female connector, M8, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YF8U14- 020VA3XLEAX	2095888
	Head A: female connector, M8, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF8U14- 050VA3XLEAX	2095889

# WLL180T-N434 | WLL180T FIBER-OPTIC SENSORS

	Brief description	Туре	Part no.
3	Head A: female connector, M8, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YG8U14- 020VA3XLEAX	2095962
	Head A: female connector, M8, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YG8U14- 050VA3XLEAX	2095963

#### 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:**

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