



WLL180T-E434

WLL180

FIBER-OPTIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
WLL180T-E434	6039104

Included in delivery: BEF-WLL180 (1)

Other models and accessories → www.sick.com/WLL180

Illustration may differ



Detailed technical data

Features

Device type	Fiber-optic amplifier		
Device type detail	Expansion unit		
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 $T_a = +25$ °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 outputPermanently on: Switching output activePermanently off: Digital output not active	
	Display	Display of sensor functions	
Items supplied	BEF-WLL180 mounting bracket		

Safety-related parameters

MTTF_D	365 years
DC_{avg}	0 %

T_M (mission time)	20 years
Electronics	
Supply voltage U_B	12 V DC ... 24 V DC ¹⁾
Ripple	≤ 10 % ²⁾
Current consumption	≤ 50 mA ³⁾
Protection class	III
Digital output	
Number	1
Type	NPN ⁴⁾
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
Pin/Wire assignment	
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	
Housing	Rectangular
Dimensions (W x H x D)	10.5 mm x 34.6 mm x 71.9 mm
Connection	Male connector M8, 4-pin
Material	
Housing	Plastic, ABS/PC
Weight	20 g

¹⁾ +- 10%.²⁾ May not fall below or exceed U_V tolerances.³⁾ Without load.⁴⁾ Selectable via menu.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	10.5 mm x 34.6 mm x 71.9 mm
Connection	Male connector M8, 4-pin
Material	
Housing	Plastic, ABS/PC
Weight	20 g

Ambient data

Enclosure rating	IP50 (EN 60529)
Ambient operating temperature	-25 °C ... +55 °C ¹⁾
Ambient temperature, storage	-40 °C ... +70 °C
Typ. Ambient light immunity	Artificial light: ≤ 3,000 lx Sunlight: ≤ 10,000 lx
Shock resistance	50 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
Vibration resistance	10 Hz ... 55 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))
Air humidity	35 % ... 85 %, relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
UL File No.	NRKH.E300503 & NRKH7.E300503
RoHS certificate	✓

¹⁾ 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).

Smart Task

Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot) Switch-on delay and pulse
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Certificates

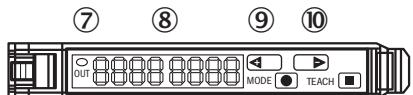
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

Classifications

ECLASS 5.0	27270905
ECLASS 5.1.4	27270905
ECLASS 6.0	27270905
ECLASS 6.2	27270905
ECLASS 7.0	27270905
ECLASS 8.0	27270905
ECLASS 8.1	27270905
ECLASS 9.0	27270905
ECLASS 10.0	27270905
ECLASS 11.0	27270905
ECLASS 12.0	27270905
ETIM 5.0	EC002651

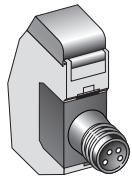
ETIM 6.0	EC002651
ETIM 7.0	EC002651
ETIM 8.0	EC002651
UNSPSC 16.0901	39121528

Adjustments WLL180

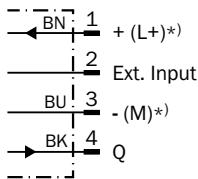


- ③ Locking the fiber-optic cables
- ⑦ LED indicator orange, lights up when switching output is active
- ⑧ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
- ⑨ step pushbutton > (manual switching threshold: higher/next function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

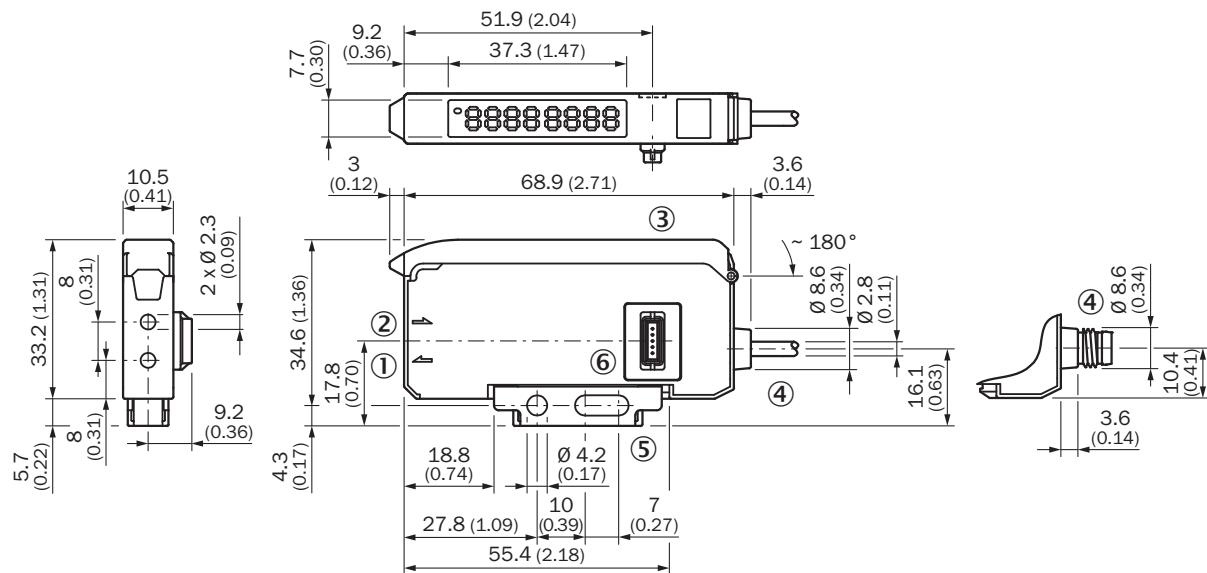
Connection type



Connection diagram Cd-140



Dimensional drawing Expansion unit



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 protective hood opens approx. 180°
- ④ Connection
- ⑤ Mounting bracket, included with delivery
- ⑥ bus connector

Recommended accessories

Other models and accessories → www.sick.com/WLL180

	Brief description	Type	part no.
fiber-optic sensors			
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T), KTL180• Functional principle: Proximity system• Fiber length: 2,000 mm• Thread diameter (housing): M6• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Stainless steel• Included with delivery: Mounting, 2 x M6 hexagon nut, 2 x washer, FC fiber cutter (5304141)	LL3-DB01	5308074
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T)• Functional principle: Proximity system• Fiber length: 2,000 mm• Thread diameter (housing): M3• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Stainless steel• 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)	LL3-DT01	5308076
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T)• Functional principle: Proximity system• Fiber length: 2,000 mm• Smooth sleeve diameter: 3 mm• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Stainless steel• 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)	LL3-DR11	5326000
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex• Functional principle: Proximity system• Fiber length: 2,000 mm• Thread diameter (housing): M6• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Plastic• Included with delivery: Mounting, 1 x M6 hexagon nut, FC fiber cutter (5304141)	LL3-DV05	5322549
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex• Functional principle: Proximity system• Fiber length: 2,000 mm• Thread diameter (housing): M6• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Stainless steel• Included with delivery: Mounting, 2 x M6 hexagon nut, 2 x washer, FC fiber cutter (5304141)	LL3-DB02	5308083
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex, KTL180• Functional principle: Proximity system• Fiber length: 2,000 mm• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Plastic• Included with delivery: Adapter sleeves, BF-WLL160-10 (1.0 mm) adapter sleeves, FC fiber cutter (5304141)	LL3-DC38	5322472
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex• Functional principle: Through-beam system• Fiber length: 2,000 mm• Thread diameter (housing): M4• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Stainless steel• Included with delivery: Mounting, 4 x M4 hexagon nut, 4 x washer, FC fiber cutter (5304141)	LL3-TB01	5308050
	<ul style="list-style-type: none">• For fiber optic amplifiers: WLL80, WLL180, GLL170(T), WLL24 Ex• Functional principle: Through-beam system• Fiber length: 20,000 mm• Thread diameter (housing): M12• Fiber material: Plastic• Jacket material: Plastic• Fiber head material: Stainless steel	LL3-TX01	5324173

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

integration modules and adapters

	<ul style="list-style-type: none"> Description: 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 	WI180C-PN	6068088
	<ul style="list-style-type: none"> Description: 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 	WI180C-EC	6068089
	<ul style="list-style-type: none"> Description: 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 	WI180C-IOA00	6071650

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, straight, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 2 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YF8U14-020VA3XLEAX	2095888
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, straight, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 5 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YF8U14-050VA3XLEAX	2095889
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, angled, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 2 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YG8U14-020VA3XLEAX	2095962
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, angled, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 5 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YG8U14-050VA3XLEAX	2095963
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, straight, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 0.6 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YF8U14-C60VA3XLEAX	2145852
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, straight, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 1 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YF8U14-010VA3XLEAX	2145853
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, angled, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 0.6 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YG8U14-C60VA3XLEAX	2145854
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, angled, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 3 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	YG8U14-030VA3XLEAX	2145857
	<ul style="list-style-type: none">Connection type head A: Female connector, M8, 4-pin, angled, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 1 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones	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."

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