Data sheet

WLL180T-M674

WLL180

FIBER-OPTIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
WLL180T-M674	6064432

Included in delivery: BEF-WLL180 (1)

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

Detailed technical data

Features

Device type	Fiber-optic amplifier
Device type detail	Base unit [1]
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	Infrared light
Key LED figures	
Normative reference	EN 62471:2008-09 | IEC 62471:2006, modified
LED risk group marking	Free group
Wave length	1,450 nm
Average service life	100,000 h at T_a = +25 °C
Adjustment	
Display + operating buttons	For configuring the sensor parameters
Display	
LED yellow 1	Status of switching output 1 Permanently on: Switching output 1 active Permanently off: Switching output 1 not active
LED yellow 2	Status of switching output 2 Permanently on: Switching output 2 active Permanently off: Switching output 2 not active
Display	Display of sensor functions
Items supplied	BEF-WLL180 mounting bracket

[1] Up to 15 expansion units can be connected.

Safety-related parameters

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	2 (individually adjustable)
Type	PNP [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)	Digital output, received light → Output Q2 HIGH
Function of pin 2/white (WH) – detail	The pin 2 function of the sensor can be configured

[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
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.	NRKH2.E300503 & NRKH8.E300503
RoHS certificate	✓

Smart Task

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

Certificates

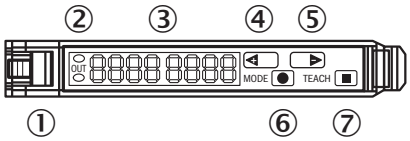
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
Photobiological safety (DIN EN 62471) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

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

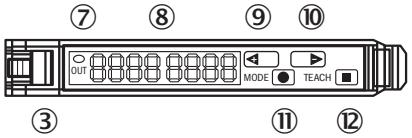
ETIM 6.0	EC002651
ETIM 7.0	EC002651
ETIM 8.0	EC002651
UNSPSC 16.0901	39121528

Adjustments



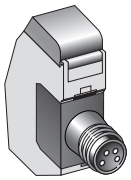
① Locking the fiber-optic cables
② LED indicator orange, lights up when switching output is active
③ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
④ step pushbutton > (manual switching threshold: higher/next function parameter)
⑤ step pushbutton < (manual switching threshold: lower/previous function parameter)
⑥ Mode/Enter-button
⑦ Teach-in button

Adjustments WLL180

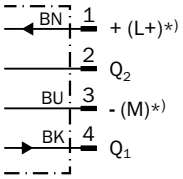


③ Locking the fiber-optic cables
⑦ LED indicator orange, lights up when switching output is active
⑧ Numeric display 2 x 4-digit; green: switching threshold, operating mode; red: actual value, Teach-in and function parameter
⑨ step pushbutton > (manual switching threshold: higher/next function parameter)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

Connection type

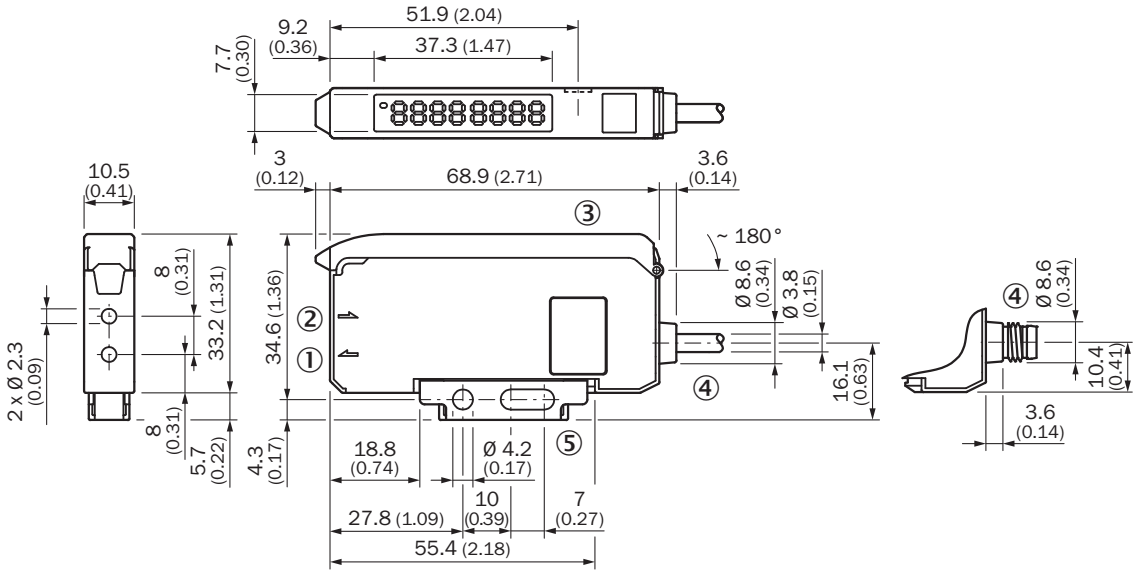


Connection diagram Cd-213



*) Only base unit

Dimensional drawing Bus type



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

Recommended accessories

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

	Brief description	Type	part no.
fiber-optic sensors			
	• **For fiber optic amplifiers:** GLL70, WLL80, WLL180, GLL170(T) • **Functional principle:** Through-beam system • **Fiber length:** 2,000 mm • **Thread diameter (housing):** M4 • **Fiber material:** Glass • **Jacket material:** Stainless steel • **Fiber head material:** Brass	LL3-TH08	5325978

	Brief description	Type	part no.
integration modules and adapters			
	• **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
	• **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
	• **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			
	• **Connection type head A:** Female connector, M8, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF8U14-020VA3XLEAX	2095888
	• **Connection type head A:** Female connector, M8, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF8U14-050VA3XLEAX	2095889
	• **Connection type head A:** Female connector, M8, 4-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG8U14-020VA3XLEAX	2095962
	• **Connection type head A:** Female connector, M8, 4-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG8U14-050VA3XLEAX	2095963
	• **Connection type head A:** Female connector, M8, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF8U14-C60VA3XLEAX	2145852
	• **Connection type head A:** Female connector, M8, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 1 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF8U14-010VA3XLEAX	2145853
	• **Connection type head A:** Female connector, M8, 4-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG8U14-C60VA3XLEAX	2145854
	• **Connection type head A:** Female connector, M8, 4-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG8U14-030VA3XLEAX	2145857
	• **Connection type head A:** Female connector, M8, 4-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 1 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** 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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com