



WLL80I-1HT6Y3DZA71Z1Z1

WLL80

FIBER-OPTIC AMPLIFIER

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WLL80I-1HT6Y3DZA71Z1Z1	6083351

Included in delivery: BEF-WLL180 (1)
Other models and accessories → www.sick.com/WLL80

Detailed technical data

Features

Device type		Fiber-optic amplifier
Device type detail		Stand-alone
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	880 nm
	Average service life	100,000 h at T _a = +25 °C
Adjustment		
	IO-Link	For configuring the sensor parameters and Smart Task functions
	Wire/pin	For deactivating the sender and executing the test logic/for setting the sensing range/for resetting the counter
	Display + operating buttons	For configuring the sensor parameters
Indication		
	LED green	Operating indicator Static on: power on Flashing: IO-Link mode
	LED yellow 1	Status of switching output 1 Permanently on: Switching output 1 active Permanently off: Switching output 1 not active Flashing: Executing teach-in/teach-in error
	LED yellow 2	Status of switching output 2

	Permanently on: Switching output 2 active Permanently off: Switching output 2 not active Flashing: Executing teach-in/teach-in error
Display	Display of sensor functions Menu languages: German, English, Chinese, Korean, Japanese OLED display
Items supplied	BEF-WLL180 mounting bracket

Safety-related parameters

MTTF _D	324.1 years
DC _{avg}	0%
T _M (mission time)	20 years

Communication interface

IO-Link	✓, IO-Link V1.1
Data transmission rate	COM3 (230.4 kbit/s)
Cycle time	0.5 ms
Process data length	32 Bit
Process data structure	Bit 0 = switching signal Q _{L1} Bit 1 = switching signal Q _{L2} Bit 2 = detection signal Q _{int.1} Bit 3 = detection signal Q _{int.2} Bit 16 ... 31 = Current receiver level (live)
Compatible master port type	A
SIO mode support	Yes

Electronics

Supply voltage U _B	12 V DC ... 30 V DC ^{1) 2)}
Ripple	± 10 %
Current consumption	≤ 50 mA
Protection class	III
Digital output	
Number	2 (individually adjustable)
Type	Push-pull: PNP/NPN, PNP, NPN: open collector ³⁾
Signal voltage PNP HIGH/LOW	Approx. U _B -2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. U _B / < 2.5 V
Output current I _{max.}	≤ 100 mA
Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected
Response time	≤ 16 μs, ≤ 70 μs, ≤ 250 μs, ≤ 500 μs, ≤ 1,000 μs, ≤ 2,000 μs, ≤ 8,000 μs
Switching frequency	31.2 kHz, 7.1 kHz, 2 kHz, 1 kHz, 500 Hz, 250 Hz, 62.5 Hz ⁴⁾
Time functions	Switch-on delay off delay ON and OFF delay Impulse (one shot) Switch-on delay and pulse de-activated
Delay time	Adjustment via operating buttons / via IO-Link, 0 ms ... 30,000 ms

¹⁾ Limit values.²⁾ IO-Link mode: 18 VDC ... 30 VDC.³⁾ Selectable via menu.⁴⁾ With light/dark ratio 1:1.

Pin/Wire assignment	
Function of pin 4/black (BK)	Switching output, object present → Q _{L1} output HIGH; IO-Link communication C
Function of pin 4/black (BK) – detail	The pin 4 function of the sensor can be configured Additional possible settings via IO-Link
Function of pin 2/white (WH)	Switching output, object present → Q _{L2} output HIGH
Function of pin 2/white (WH) – detail	The pin 2 function of the sensor can be configured Additional possible settings via IO-Link

1) Limit values.

2) IO-Link mode: 18 VDC ... 30 VDC.

3) Selectable via menu.

4) With light/dark ratio 1:1.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	10.5 mm x 33.2 mm x 79.9 mm
Connection	Cable, 4-wire, 2 m
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.18 mm ²
Cable diameter	Ø 4 mm
Length of cable (L)	2 m
Material	
Housing	Plastic, PC
Cable	Plastic, PVC
Weight	Approx. 75 g

Ambient data

Enclosure rating	IP54 (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

Smart Task

Smart Task name	Counter + debouncing
Logic function	Direct WINDOW Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot) Switch-on delay and pulse

Inverter	Yes
Switching signal	
Switching signal Q_{L1}	Switching output
Switching signal $\bar{Q}_{L1}$	Switching output

Diagnosis

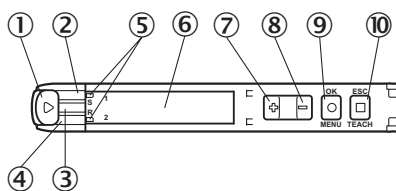
Quality of run	Yes
-----------------------	-----

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

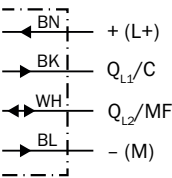
Display and adjustment elements



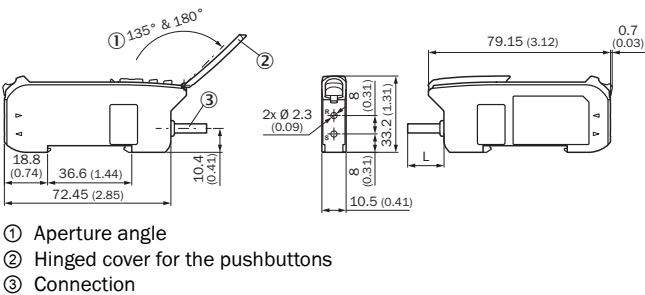
- ① Fiber optic interlock
- ② LED yellow 1
- ③ LED green
- ④ LED yellow 2
- ⑤ Indicator for correctly inserted fibers
- ⑥ Display
- ⑦ (+) button
- ⑧ (-) pushbutton
- ⑨ Menu/OK pushbutton
- ⑩ Teach-in/escape pushbutton

Connection diagram

Cd-530



Dimensional drawing (Dimensions in mm (inch))



Recommended accessories

Other models and accessories → www.sick.com/WLL80

Brief description	Type	Part no.
Fibers		
- For fiber optic amplifiers: WLL80, WLL180, GLL170(T) - Functional principle: Proximity system - Fiber material: Glass - Jacket material: Stainless steel - Fiber head material: Stainless steel - Thread diameter (housing): M6 - Fiber length: 1,000 mm	LL3-DW01	5315234
- For fiber optic amplifiers: WLL80, WLL180, GLL170(T) - Functional principle: Through-beam system - Fiber material: Glass - Jacket material: Stainless steel - Fiber head material: Brass - Thread diameter (housing): M4 - Fiber length: 2,000 mm	LL3-TH08	5325978
- For fiber optic amplifiers: WLL80, WLL180, GLL170(T) - Functional principle: Through-beam system - Fiber material: Glass - Jacket material: Stainless steel - Fiber head material: Stainless steel - Thread diameter (housing): M4 - Fiber length: 1,000 mm	LL3-TW01	5315233

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