

FORK SENSORS



Illustration may differ



Ordering information

Type	part no.
WFL5-60B416	6036829

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

Detailed technical data

Features

Functional principle	Optical detection principle
Dimensions (W x H x D)	10 mm x 43.5 mm x 74 mm
Fork width	5 mm
Fork depth	59 mm
Light source	Laser, visible red light
Minimum detectable object (MDO)	0.05 mm
Adjustment	Plus/minus button (Teach-in, sensitivity, light/dark switching)
Teach-in mode	2-point teach-in
Safety-related parameters	
	MTTF _D 80 years
	DC _{avg} 0 %

Electronics

Supply voltage	10 V DC ... 30 V DC
Ripple	< 10 %
Current consumption	40 mA ¹⁾
Initialization time	100 ms
Switching frequency	10 kHz
Response time	≤ 100 μs
Stability of response time	± 20 μs
Jitter	40 μs

¹⁾ Without load.

²⁾ Reference voltage DC 50 V.

Switching output	PNP/NPN
Switching output (voltage)	PNP: HIGH = $U_V \leq 2 \text{ V}$ / LOW approx. 0 V NPN: HIGH = approx. U_V / LOW $\leq 2 \text{ V}$
Switching mode	Light/dark switching
Output current I_{max}	100 mA
Protection class	III ²⁾
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	Male connector M8, 4-pin

¹⁾ Without load.

²⁾ Reference voltage DC 50 V.

Mechanics

Housing material	Aluminum
Weight	Approx. 36 g ... 160 g ¹⁾

¹⁾ Depending on fork width.

Ambient data

Ambient operating temperature	-20 °C ... +50 °C
Ambient temperature, storage	-30 °C ... +80 °C
Ambient light immunity	$\leq 10,000 \text{ lx}$
Shock load	According to EN 60068-2-27
Enclosure rating	IP65

Classifications

ECLASS 5.0	27270909
ECLASS 5.1.4	27270909
ECLASS 6.0	27270909
ECLASS 6.2	27270909
ECLASS 7.0	27270909
ECLASS 8.0	27270909
ECLASS 8.1	27270909
ECLASS 9.0	27270909
ECLASS 10.0	27270909
ECLASS 11.0	27270909
ECLASS 12.0	27270909
ETIM 5.0	EC002720
ETIM 6.0	EC002720
ETIM 7.0	EC002720
ETIM 8.0	EC002720
UNSPSC 16.0901	39121528

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Laser safety (IEC 60825-1) declaration of manufacturer	✓

Technical drawing of an extruded aluminum profile, showing dimensions in millimeters (mm) and inches (in).

Top View (B):

- Overall width: 4.2 (0.17) mm
- Distance from left edge to center of first hole: 5 (0.20) mm
- Distance between centers of first and second holes: 10 (0.39) mm
- Distance between centers of second and third holes: 10 (0.39) mm
- Distance from center of third hole to right edge: 4.2 (0.17) mm

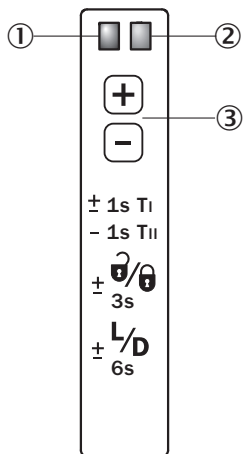
Side View (A):

- Overall height: 19.5 (0.77) mm
- Overall length: 1000 (39.37) mm
- Flange thickness: 3 (0.12) mm
- Web thickness: 4.2 (0.17) mm
- Distance from top edge to center of first hole: 11 (0.43) mm
- Distance from top edge to center of second hole: 8 (0.31) mm
- Distance from top edge to center of third hole: 19 (0.75) mm
- Distance from bottom edge to center of first hole: 19 (0.75) mm
- Distance from bottom edge to center of second hole: 8 (0.31) mm
- Distance from bottom edge to center of third hole: 11 (0.43) mm
- Distance from left edge to center of first hole: 5 (0.20) mm
- Distance from left edge to center of second hole: 10 (0.39) mm
- Distance from left edge to center of third hole: 10 (0.39) mm
- Distance from center of third hole to right edge: 4.2 (0.17) mm

- ① Optical axis
- ② Mounting hole, Ø 4.2 mm
- ③ WFL50/80/120 only

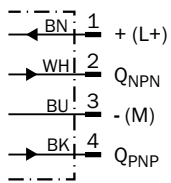
	A	B	C	C1	D
	Fork width	Fork depth			
WFL2	2 (0.08)	42/59/95 (1.65/2.32/3.74)	14 (0.55)	13.5 (0.53)	6 (0.24)
WFL5	5 (0.20)	42/59/95 (1.65/2.32/3.74)	14 (0.55)	15 (0.59)	4.5 (0.18)
WFL15	15 (0.59)	42/59/95 (1.65/2.32/3.74)	27 (1.06)	13.5 (0.53)	6 (0.24)
WFL30	30 (1.18)	42/59/95 (1.65/2.32/3.74)	42 (1.65)	13.5 (0.53)	6 (0.24)
WFL50	50 (1.97)	42/59/95 (1.65/2.32/3.74)	51 (2.01)	24.5 (0.96)	6 (0.24)
WFL80	80 (3.15)	42/59/95 (1.65/2.32/3.74)	81 (3.19)	24.5 (0.96)	6 (0.24)
WFL120	120 (4.72)	42/59/95 (1.65/2.32/3.74)	121 (4.76)	24.5 (0.96)	6 (0.24)

Adjustments Adjustment: teach-in via plus/minus buttons (WFxx-B416)



- ① Function signal indicator (yellow), switching output
- ② Function indicator (red)
- ③ “+”/“-” buttons and function button

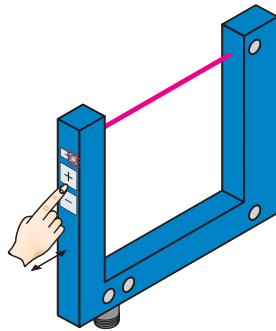
Connection diagram Cd-086



Concept of operation Teach-in

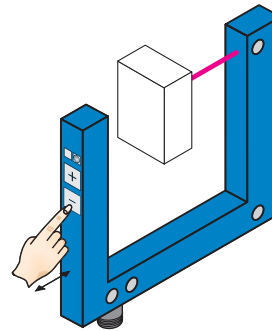
The switching threshold is set automatically. Fine adjustment is possible using the “+”/“–” buttons.

1. No object or substrate in the beam path



Press the “+” and “–” buttons together and hold for 1 second. The red function indicator flashes slowly.

2. Object or label in the beam path



Press the “–” button for 1 second. Red function indicator goes out.

Notes

Material speed = 0 (machine at a standstill).

-  Once teach-in process is complete, the switching threshold can be adjusted at any time using the “+” or “–” button. To make minor adjustments, press the “+” or “–” button once.
-  To configure settings quickly, keep the “+” or “–” button pressed for longer.

 Press both the “+” and “–” buttons together (3 seconds) to lock the device and prevent unintentional actuation.

 Press both the “+” and “–” buttons together (6 seconds) to define the switching function (light/dark switching). Standard setting: $\overline{Q}$ = light switching.

Recommended accessories

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

	Brief description	Type	part no.
connectors and cables			
	Connection type head A: Male connector, M8, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: 0.14 mm² ... 0.5 mm²	STE-0804-G	6037323
	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

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