



WFL50-95B416

WFL

FORK SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|--------------|----------|
| WFL50-95B416 | 6036839 |

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 88.5 mm x 110 mm |
| Housing design (light emission) | Fork shaped |
| Fork width | 50 mm |
| Fork depth | 95 mm |
| Minimum detectable object (MDO) | 0.05 mm |
| Light source | Laser, red |
| Laser class | I |
| Wave length | 670 nm |
| Adjustment | Plus/minus button (Teach-in, sensitivity, light/dark switching) |
| Teach-in mode | 2-point teach-in |

Mechanics/electronics

| | |
|-----------------------------------|-----------------------------------|
| Supply voltage | 10 V DC ... 30 V DC ¹⁾ |
| Ripple | < 10 % ²⁾ |
| Current consumption | 40 mA ³⁾ |
| Switching frequency | 10 kHz ⁴⁾ |
| Response time | 100 µs |
| Stability of response time | ± 20 µs |
| Jitter | 40 µs |
| Switching output | PNP/NPN |

¹⁾ Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

²⁾ May not exceed or fall below U_V tolerances.

³⁾ Without load.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ Reference voltage DC 50 V.

⁶⁾ Depending on fork width.

| | |
|---|---|
| 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 |
| Initialization time | 100 ms |
| Connection type | Male connector M8, 4-pin |
| Protection class | III ⁵⁾ |
| Circuit protection | U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression |
| Enclosure rating | IP65 |
| Weight | Approx. 36 g ... 160 g ⁶⁾ |
| Tightening torque | Max. 3 Nm |
| Housing material | Metal, Aluminum |

- 1) Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
- 2) May not exceed or fall below U_V tolerances.
- 3) Without load.
- 4) With light/dark ratio 1:1.
- 5) Reference voltage DC 50 V.
- 6) 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 |

Classifications

| | |
|-----------------------|----------|
| ECl@ss 5.0 | 27270909 |
| ECl@ss 5.1.4 | 27270909 |
| ECl@ss 6.0 | 27270909 |
| ECl@ss 6.2 | 27270909 |
| ECl@ss 7.0 | 27270909 |
| ECl@ss 8.0 | 27270909 |
| ECl@ss 8.1 | 27270909 |
| ECl@ss 9.0 | 27270909 |
| ECl@ss 10.0 | 27270909 |
| ECl@ss 11.0 | 27270909 |
| ETIM 5.0 | EC002720 |
| ETIM 6.0 | EC002720 |
| ETIM 7.0 | EC002720 |
| ETIM 8.0 | EC002720 |
| UNSPSC 16.0901 | 39121528 |

Dimensional drawing (Dimensions in mm (inch))

WFL - Plus/minus buttons



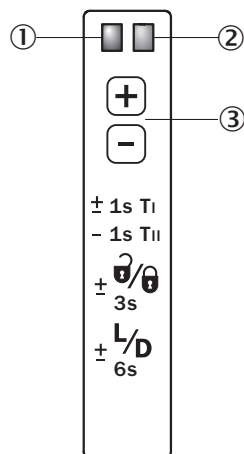
- ① Optical axis
- ② Mounting hole, \varnothing 4.2 mm
- ③ WFL50/80/120 only

Dimensions in mm (inch)

| | A Fork width | B Fork depth | C | C1 | D |
|---------------|-----------------|------------------------------|---------------|----------------|---------------|
| 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: \bar{Q} = light switching.

Recommended accessories

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

| | Brief description | Type | Part no. |
|---|--|--------------------|----------|
| Plug connectors and cables | | | |
|  | 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 |
|  | Head A: male connector, M8, 4-pin, straight Cable: unshielded | STE-0804-G | 6037323 |

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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