



WF5-40B41CA00

WF

FORK SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | part no. |
|---------------|----------|
| WF5-40B41CA00 | 6058595 |

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

Detailed technical data

Features

| | |
|--|--|
| Functional principle | Optical detection principle |
| Dimensions (W x H x D) | 10 mm x 35 mm x 57 mm |
| Fork width | 5 mm |
| Fork depth | 42 mm |
| Minimum detectable object (MDO) | 0.2 mm |
| Label detection | ✓ |
| Light source | LED, infrared, Infrared light |
| Adjustment | Teach-in button, cable (Teach-in, sensitivity, light/dark switching, key lock, Teach-in dynamic) |
| Teach-in mode | 1-point teach-in 2-point teach-in Teach-in dynamic |
| Output function | Light/darkswitching, selectable via button |
| Safety-related parameters | |
| | MTTF _D 97 years |
| | DC _{avg} 0 % |

Interfaces

| | |
|-------------------|----------------------|
| IO-Link | ✓ , IO-Link V1.1 |
| | VendorID 26 |
| | DeviceID HEX 8000AE |
| | DeviceID DEC 8388782 |
| Cycle time | 2.3 ms |

| | |
|---------------------------------|---|
| Process data structure A | Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 = not used Bit 3 = Teach busy Bit 4 ... 15 = empty |
| Process data structure B | Bit 0 = switching signal Q_{L1} Bit 1 = Quality of Run Alarm Bit 2 = not used Bit 3 = Teach busy Bit 4 ... 15 = empty |
| Process data structure C | Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 = not used Bit 3 = Teach busy Bit 4 ... 5 = empty Bit 6 ... 15 = measuring value |
| Process data structure D | Bit 0 = switching signal Q_{L1} Bit 1 = Quality of Run Alarm Bit 2 = not used Bit 3 = Teach busy Bit 4 ... 5 = empty Bit 6 ... 15 = measuring value |

Electronics

| | |
|---|---|
| Supply voltage | 10 V DC ... 30 V DC |
| Ripple | < 10 % |
| Current consumption | 20 mA ¹⁾ |
| Switching frequency | 15 kHz |
| Response time | $\leq 46 \mu\text{s}$ ²⁾ |
| Stability of response time | $\pm 20 \mu\text{s}$ |
| Jitter | 17 μs |
| Switching output | Push-pull: PNP/NPN |
| Switching output (voltage) | Push-pull: PNP/NPN High = $U_V - < 2 \text{ V}$ / Low: $\leq 2 \text{ V}$ |
| Switching mode | Light/dark switching |
| Output current I_{max} | 100 mA |
| Input, teach-in (ET) | Teach: $U > 5 \text{ V} \dots < U_V$ Run: $U < 4 \text{ V}$ |
| Initialization time | 40 ms |
| Time delay | Switch-off delay, 0 ms / 8 ms / 16 ms / 32 ms / 65 ms / 130 ms / 260 ms / 520 ms, adjustable via IO-Link (0 ms = default) |
| Circuit protection | U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression |
| Enclosure rating | IP65 |

¹⁾ Without load.

²⁾ Signal transit time with resistive load.

Mechanics

| | |
|-------------------------|--------------------------|
| Housing material | Aluminum |
| Connection type | Male connector M8, 4-pin |

¹⁾ Depending on fork width.

| | |
|---------------|--------------------------------------|
| Weight | Approx. 36 g ... 160 g ¹⁾ |
|---------------|--------------------------------------|

¹⁾ Depending on fork width.

Ambient data

| | |
|--------------------------------------|---------------------------------|
| Ambient operating temperature | -20 °C ... +60 °C ¹⁾ |
| Ambient temperature, storage | -30 °C ... +80 °C |
| Ambient light immunity | ≤ 10,000 lx |
| Shock load | According to EN 60068-2-27 |
| Protection class | III ²⁾ |
| UL File No. | NRKH.E191603 |

¹⁾ Do not bend below 0 °C.

²⁾ Reference voltage DC 50 V.

Smart Task

| | |
|------------------------|-------------|
| Smart Task name | Base logics |
|------------------------|-------------|

Certificates

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

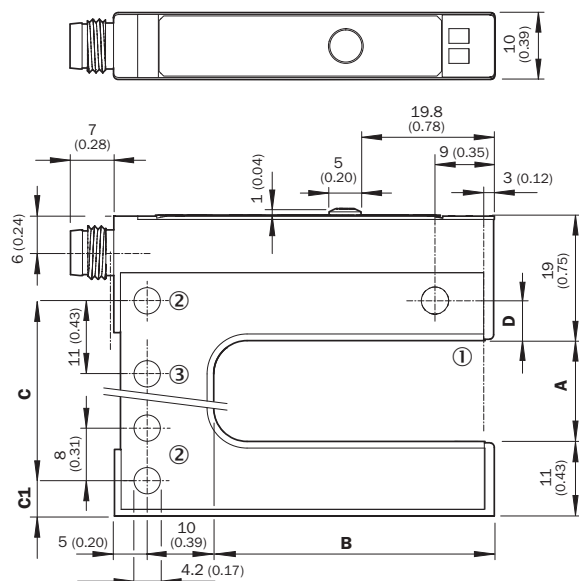
Classifications

| | |
|---------------------|----------|
| 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 |

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39121528

Dimensional drawing

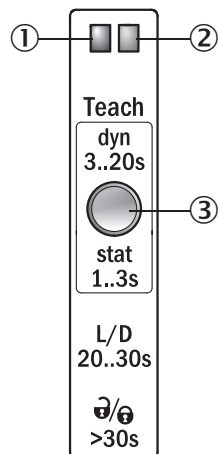


Dimensions in mm (inch)

| | A | B | C | C1 | D |
|-------|-----------------------|---------------------------|------------|------------|------------|
| | Gabelweite/Fork width | Gabeltiefe/Fork depth | | | |
| WF2 | 2 (0.08) | 42/59/95 (1.65/2.32/3.74) | 14 (0.55) | 5 (0.20) | 6 (0.24) |
| WF5 | 5 (0.20) | 42/59/95 (1.65/2.32/3.74) | 14 (0.55) | 6.5 (0.26) | 4.5 (0.17) |
| WF15 | 15 (0.59) | 42/59/95 (1.65/2.32/3.74) | 27 (1.06) | 5 (0.20) | 6 (0.24) |
| WF30 | 30 (1.18) | 42/59/95 (1.65/2.32/3.74) | 42 (1.65) | 5 (0.20) | 6 (0.24) |
| WF50 | 50 (1.97) | 42/59/95 (1.65/2.32/3.74) | 51 (2.01) | 16 (0.63) | 6 (0.24) |
| WF80 | 80 (3.15) | 42/59/95 (1.65/2.32/3.74) | 81 (3.19) | 16 (0.63) | 6 (0.24) |
| WF120 | 120 (4.72) | 42/59/95 (1.65/2.32/3.74) | 121 (4.76) | 16 (0.63) | 6 (0.24) |

Dimensions in mm (inch)

Adjustments Adjustment: teach-in via Teach-in button (WFxx-B41Cxx)

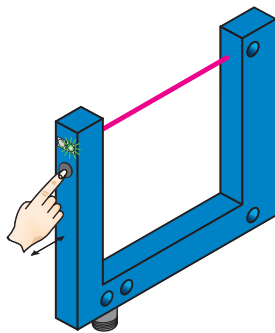


- ① Function signal indicator (yellow), switching output
- ② Function signal indicator (green)
- ③ Teach-in button and function button

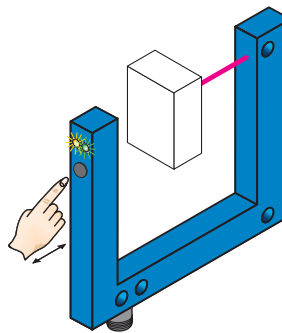
Connection diagram Cd-273



Concept of operation Teach-in via Teach-in button (WFxx-B41Cxx)

1. Start teach-in: Position the background or object between the fork

Press the teach-in button for 3 - 20 s. With the pushbutton pressed down, move several objects with carrier material (label objects to be detected) through the sensor. The yellow LED flashes at 3 Hz during the teach-in procedure. Recommendation: Move at least 3 objects through the sensor.

2. End teach-in:

Release the teach-in button for < 20 s. If teach-in is successful, the function indicator (yellow LED) directly indicates the output state of the sensor. The switching threshold is now optimally set between background and object. The best possible operational safety is provided.

Note**Fine adjustment**

In order to obtain a higher operating reserve, a fine adjustment can be carried out after successful teach-in. For this purpose, the switching threshold is set close to the taught-in object. The teach-in button must be pressed and released within 10 s of successful teach-in. Successful setting is signaled by flashing twice at 1 Hz.

Light/dark switching








- You can change between light switching and dark switching by pressing the teach-in button for 20 - 30 s.

Pushbutton lock

- The device can be locked against unintended operation by pressing the teach-in button for > 30 s. The device can be unlocked by pressing the teach-in button again for > 30 s.

Recommended accessories

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

| | Brief description | Type | part no. |
|--|---|-----------------------------------|----------|
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> • 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 |
|  | <ul style="list-style-type: none"> • 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 |
|   | <ul style="list-style-type: none"> • Connection type head A: Female connector, M8, 4-pin, straight, A-coded • Connection type head B: Male connector, M12, 4-pin, straight, A-coded • Signal type: Sensor/actuator cable • Cable: 5 m, 4-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals, Uncontaminated zones | YF8U14-050VA3M2A14 | 2096609 |
| network devices | | | |
|  | | IOLA2US-01101 (SiLink2 Master) | 1061790 |
|  | | SIG200-0A0412200 | 1089794 |
|  | | SIG200-0A0G12200 | 1102605 |

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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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