



# WFL2-95B41CA00

WFL

**FORK SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
WFL2-95B41CA00	6058635

Other models and accessories → [www.sick.com/WFL](http://www.sick.com/WFL)

## Detailed technical data

### Features

<b>Functional principle</b>	Optical detection principle
<b>Dimensions (W x H x D)</b>	10 mm x 40.5 mm x 110 mm
<b>Fork width</b>	2 mm
<b>Fork depth</b>	95 mm
<b>Minimum detectable object (MDO)</b>	0.05 mm
<b>Light source</b>	Laser, red
<b>Adjustment</b>	Teach-in button, cable (Teach-in, sensitivity, light/dark switching, key lock, Teach-in dynamic)
<b>Teach-in mode</b>	1-point teach-in 2-point teach-in Teach-in dynamic

### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Ripple</b>	< 10 %
<b>Current consumption</b>	40 mA <sup>1)</sup>
<b>Switching frequency</b>	11 kHz
<b>Jitter</b>	22 µs
<b>Switching output</b>	Push-pull: PNP/NPN
<b>Switching output (voltage)</b>	Push-pull: PNP/NPN High = $U_V - < 2 \text{ V}$ / Low: $\leq 2 \text{ V}$
<b>Switching mode</b>	Light/dark switching
<b>Output current <math>I_{\text{max.}}</math></b>	100 mA

<sup>1)</sup> Without load.

<sup>2)</sup> Reference voltage DC 50 V.

<sup>3)</sup> Depending on fork width.

<b>Input, teach-in (ET)</b>	Teach: $U > 5\text{ V} \dots < U_V$ Run: $U < 4\text{ V}$
<b>Initialization time</b>	40 ms
<b>Time delay</b>	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)
<b>Connection type</b>	Male connector M8, 4-pin
<b>Protection class</b>	III <sup>2)</sup>
<b>Circuit protection</b>	$U_V$ connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
<b>Enclosure rating</b>	IP65
<b>Weight</b>	Approx. 36 g ... 160 g <sup>3)</sup>
<b>Housing material</b>	Aluminum

<sup>1)</sup> Without load.

<sup>2)</sup> Reference voltage DC 50 V.

<sup>3)</sup> Depending on fork width.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	80 years
<b>DC<sub>avg</sub></b>	0 %

### Communication interface

<b>IO-Link</b>	✓, IO-Link V1.1
VendorID	26
DeviceID HEX	8000AE
DeviceID DEC	8388782
<b>Cycle time</b>	2.3 ms
<b>Process data structure A</b>	Bit 0 = switching signal $Q_{L1}$ Bit 1 = switching signal $Q_{L2}$ Bit 2 = not used Bit 3 = Teach busy Bit 4 ... 15 = empty
<b>Process data structure B</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
<b>Process data structure C</b>	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
<b>Process data structure D</b>	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

### Ambient data

<b>Ambient operating temperature</b>	-20 °C ... +50 °C
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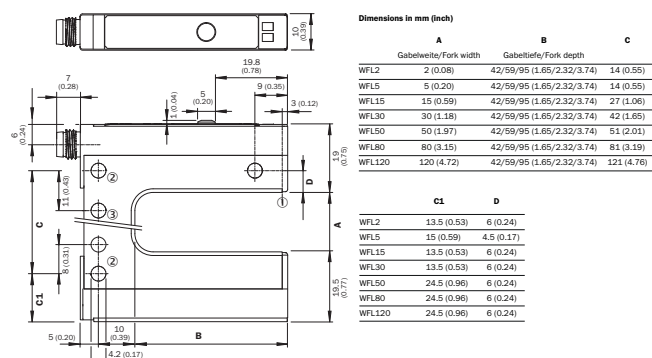
Ambient temperature, storage	–30 °C ... +80 °C
Ambient light immunity	≤ 10,000 lx
Shock load	According to EN 60068-2-27
UL File No.	E191603

## Classifications

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

### Dimensional drawing (Dimensions in mm (inch))

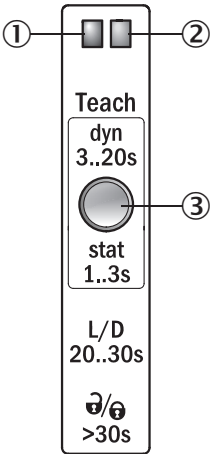
WFL teach-in button



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

Adjustments

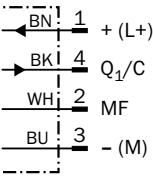
Adjustment: teach-in via Teach-in button (WFxx-B41Cxx)



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

Connection diagram

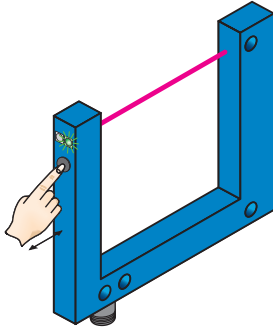
Cd-273



## Concept of operation

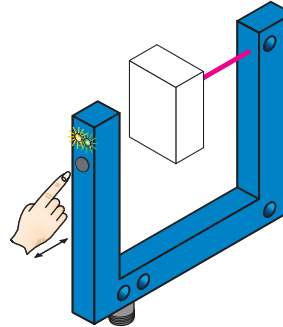
Teach-in via Teach-in button (WFxx-B41Cxx)

### 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/WFL](http://www.sick.com/WFL)

	Brief description	Type	Part no.
Connection modules			
	IOLA2US-01101 (SiLink2 Master)	IOLA2US-01101 (SiLink2 Master)	1061790

	Brief description	Type	Part no.
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M8, 4-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> 0.14 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>	STE-0804-G	6037323
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF8U14-050VA3XLEAX	2095889
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF8U14-050VA3M2A14	2096609

## Recommended services

Additional services → [www.sick.com/WFL](http://www.sick.com/WFL)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"> <li><b>Description:</b> The Function Block Factory is an engineering tool for creating device and environment-specific function blocks that enable IO-Link sensors to be integrated into programmable logic controllers. The Function Block Factory supports common programmable logic controllers (PLCs) of various manufacturers such as Siemens, Beckhoff, Rockwell Automation B&amp;R and more. More information on the FBF can be found <a href="https://fbf.cloud.sick.com" target="_blank">here</a>.</li> <li><b>Provision:</b> Customers can obtain access to the Function Block Factory and the license via <a href="https://fbf.cloud.sick.com" target="_blank">https://fbf.cloud.sick.com</a>.</li> </ul>	Function Block Factory	On request

## 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](http://www.sick.com)