



## Fork sensors WFL

WFL5-40B416



**Model Name** > [WFL5-40B416](#)  
**Part No.** > [6036822](#)



*Illustration may differ*

**At a glance**

- Very precise laser beam (Class 1 laser)
- Simple and accurate adjustment via teach-in
- Fast response time (max. 100 µs)
- Minimum detectable object size of 0.05 mm
- PNP and NPN switching output
- Light/dark switching function
- 21 different models with different fork widths and depths
- Rugged, IP 65 aluminum housing

**Your benefits**

- A highly precise laser beam ensures consistent measurement accuracy along the entire measuring range and reliable detection of the smallest objects
- A visible laser light spot enables easy alignment and fast adjustment
- Reliable and simple setting via teach-in ensures high process reliability
- A wide range of different fork sizes increases installation flexibility
- The aluminum housing meets all requirements for use in harsh industrial conditions



**Features**

Functional principle:	Optical detection principle
Fork width:	5 mm
Fork depth:	42 mm
Label detection:	-
Light source:	Laser
Type of light:	Visible red light
Adjustment:	Teach-in
Output function:	Light/darkswitching, selectable via button
Housing design (light emission):	Fork shaped
Minimum detectable object (MDO):	0.05 mm
Wave length:	670 nm
Laser class:	I

**Mechanics/electronics**

Residual ripple <sup>1)</sup> :	< 10 %
Power consumption <sup>2)</sup> :	40 mA
Switching frequency <sup>3)</sup> :	10 kHz

Response time <sup>4)</sup> :	100 $\mu$ s
Stability of response time:	$\pm$ 20 $\mu$ s
Output type:	NPN: HIGH = approx. VS / LOW $\leq$ 2 V PNP: HIGH = VS- $\leq$ 2 V / LOW approx. 0 V
Switching mode:	PNP/NPN
Output current I <sub>max.</sub> :	100 mA
Initialization time:	100 ms
Electrical connection:	Connector M8, 4-pin
Protection class <sup>5)</sup> :	III
Circuit protection:	VS connections reverse-polarity protected Output Q short-circuit protected Interference suppression
Enclosure rating:	IP 65
Weight:	Ca. 36 g ... 160 g <sup>6)</sup>
Housing material:	Aluminum, Metal
Supply voltage:	10 V DC ... 30 V DC <sup>7)</sup>
Ambient light immunity:	Sunlight: $\leq$ 10,000 klx
Fieldbus interface:	-

<sup>1)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>2)</sup> Without load <sup>3)</sup> With light/dark ratio 1:1 <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> Reference voltage DC 50 V <sup>6)</sup>

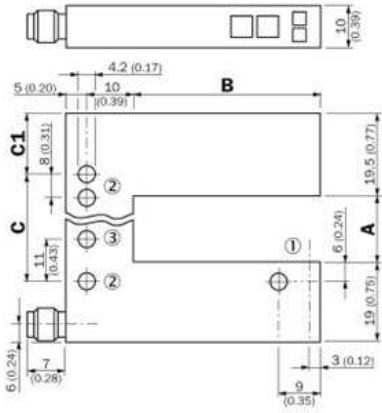
Depending on fork width <sup>7)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A

#### Ambient data

Shock load:	According to EN 60068-2-27
UL File No.:	NRKH.E191603 & NRKH7.E191603, CDRH-conform
Ambient temperature operation:	-20 °C ... +50 °C <sup>1)</sup>
Ambient storage temperature:	-30 °C ... +80 °C

<sup>1)</sup> Do not bend below 0 °C

## Dimensional drawing

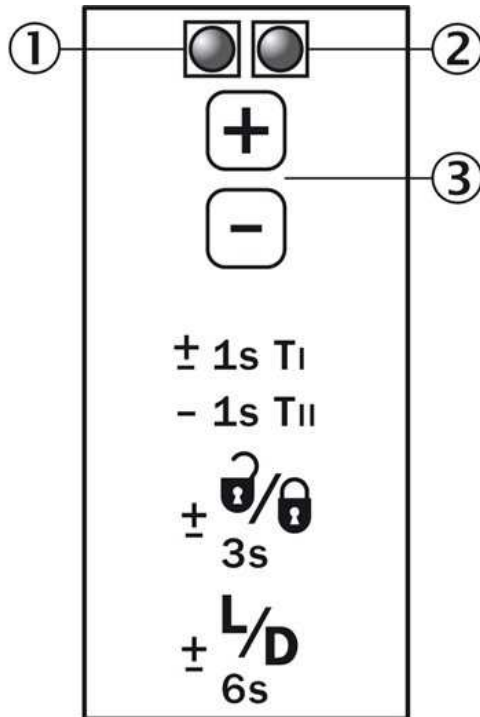


Dimensions in mm (inch)

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

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

## Adjustments

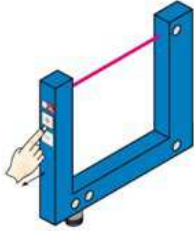


- |1| Function signal indicator (yellow), switching output
- |2| Function indicator (red)
- |3| "+" / "-" buttons and function button

## Bedienhinweis

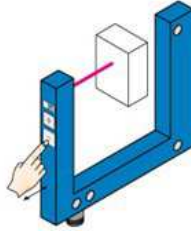
The switching threshold is set automatically. Fine adjustment is possible using the "+" / "-" buttons.

### 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.

$\pm \frac{Q}{\bar{Q}}$   
3s Press both the "+" and "-" buttons together (3 seconds) to lock the device and prevent unintentional actuation.

$\pm \frac{L}{D}$   
6s Press both the "+" and "-" buttons together (6 seconds) to define the switching function (light/dark switching). Standard setting:  $\bar{Q}$  = light switching.

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