

SICK.COM



DATA SHEET

WFL50-40B416

WFL
Fork sensors

SICK Sensor Intelligence

FORK SENSORS

WFL50-40B416

ORDERING INFORMATION

Type	part no.
WFL50-40B416	6036825

Further device versions and accessories at www.sick.com/WFL



Illustration may differ



DETAILED TECHNICAL DATA

FEATURES

Functional principle	Optical detection principle				
Dimensions (W x H x D)	10 mm x 88.5 mm x 47 mm				
Fork width	50 mm				
Fork depth	42 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	<table border="0"> <tr> <td>MTTF_D</td> <td>80 years</td> </tr> <tr> <td>DC_{avg}</td> <td>0 %</td> </tr> </table>	MTTF _D	80 years	DC _{avg}	0 %
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

¹⁾ Without load.

²⁾ Reference voltage DC 50 V.

Stability of response time	$\pm 20 \mu\text{s}$
Jitter	40 μs
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.

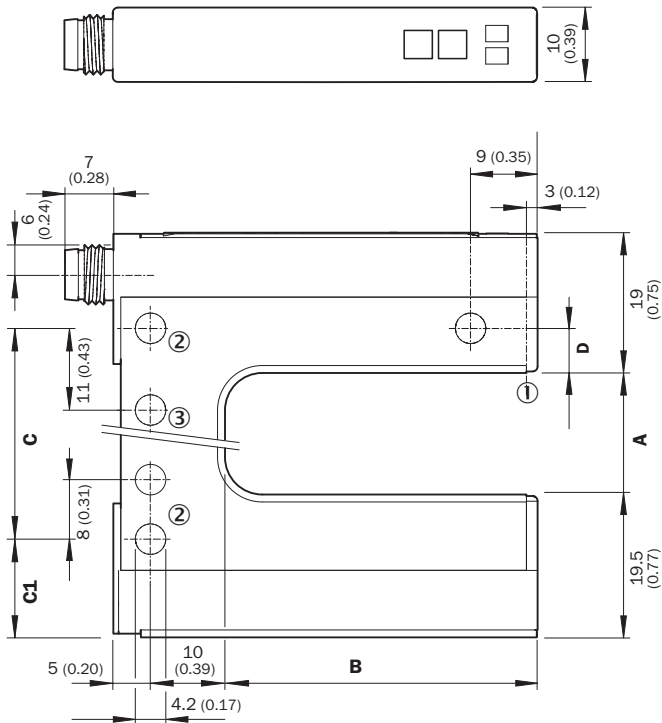
AMBIENT DATA

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

CERTIFICATES

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

DIMENSIONAL DRAWING WFL - PLUS/MINUS BUTTONS



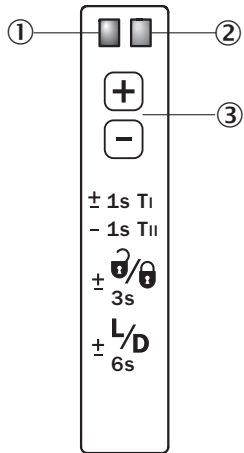
Dimensions in mm (inch)

	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)

Dimensions in mm (inch)

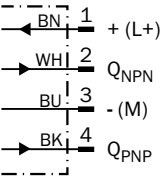
- ① Optical axis
- ② Mounting hole, Ø 4.2 mm
- ③ WFL50/80/120 only

ADJUSTMENTS ADJUSTMENT: TEACH-IN VIA PLUS/MINUS BUTTONS (WFLX-B416)



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

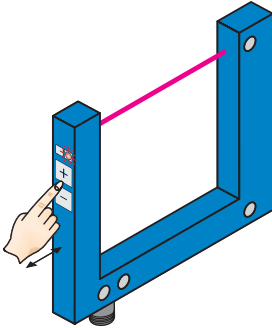
CONNECTION DIAGRAM CD-086



CONCEPT OF OPERATION TEACH-IN

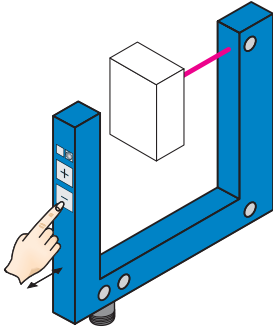
The switching threshold is set automatically. Fine adjustment is possible using the “+”/“–” buttons.

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.

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/6036825



SICK AG
WALDKIRCH
GERMANY
SICK.COM

SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

SICK
Sensor Intelligence