



DATA SHEET

WF50-40B416

WF
Fork sensors

SICK Sensor Intelligence



Illustration may differ

FORK SENSORS

WF50-40B416

ORDERING INFORMATION

Type	part no.
WF50-40B416	6028454

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



DETAILED TECHNICAL DATA

FEATURES

Functional principle	Optical detection principle
Dimensions (W x H x D)	10 mm x 80 mm x 57 mm
Fork width	50 mm
Fork depth	42 mm
Light source	LED, Infrared light
Minimum detectable object (MDO)	0.2 mm
Adjustment	Plus/minus button (Teach-in, sensitivity, light/dark switching, key lock)
Teach-in mode	2-point teach-in
Output function	Light/darkswitching, selectable via button
Safety-related parameters	
	MTTF _D 97 years
	DC _{avg} 0 %

ELECTRONICS

Supply voltage	10 V DC ... 30 V DC
Ripple	< 10 %
Switching frequency	10 kHz
Response time	≤ 100 µs
Stability of response time	± 20 µs
Jitter	40 µs
Switching output	PNP/NPN
Switching output (voltage)	PNP: HIGH = U _v ≤ 2 V / LOW approx. 0 V NPN: HIGH = approx. U _v / LOW ≤ 2 V
Switching mode	Light/dark switching
Output current I _{max}	100 mA

⁹ Reference voltage DC 50 V.

Protection class	III ¹⁾
Circuit protection	U _v connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	Male connector M8, 4-pin

¹⁾ Reference voltage DC 50 V.

MECHANICS

Housing material	Aluminum
Weight	Approx. 36 g ... 160 g ¹⁾

¹⁾ Depending on fork width.

AMBIENT DATA

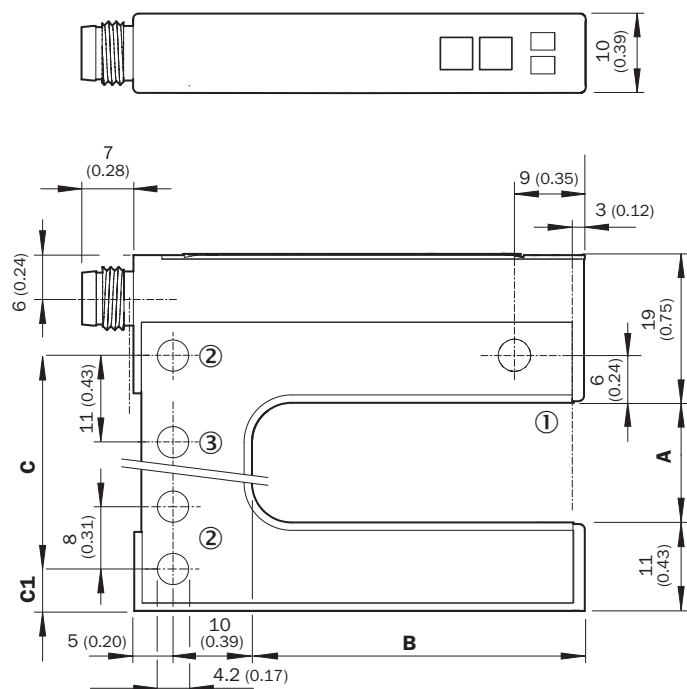
Ambient operating temperature	-20 °C ... +60 °C ¹⁾
Ambient temperature, storage	-30 °C ... +80 °C
Ambient light immunity	≤ 10,000 lx
Shock load	According to EN 60068-2-27
Enclosure rating	IP65
UL File No.	NRKH.E191603

¹⁾ Do not bend below 0 °C.

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	✓
Photobiological safety (IEC EN 62471)	✓

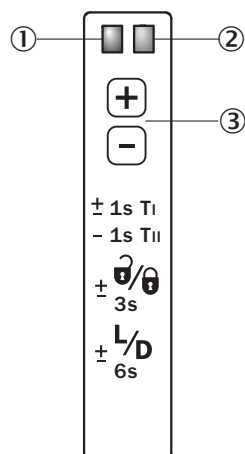
DIMENSIONAL DRAWING



Dimensions in mm (inch)

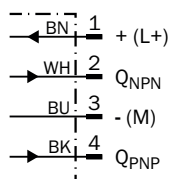
- ① Optical axis
- ② Mounting hole, Ø 4.2 mm
- ③ WF50/80/120 only

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

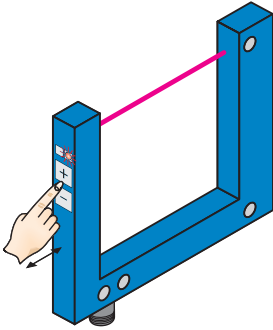


Dimensions in mm (inch)

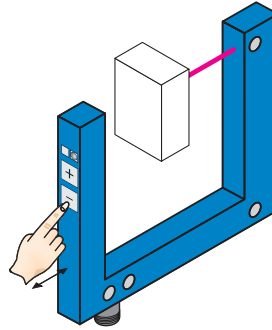
	A Fork width	B Fork depth	C	C1
WF2	2 (0.08)	42/59/95 (1.65/2.32/3.74)	14 (0.55)	5 (0.20)
WF5	5 (0.20)	42/59/95 (1.65/2.32/3.74)	14 (0.55)	6.5 (0.20)
WF15	15 (0.59)	42/59/95 (1.65/2.32/3.74)	27 (1.06)	5 (0.20)
WF30	30 (1.18)	42/59/95 (1.65/2.32/3.74)	42 (1.65)	5 (0.20)
WF50	50 (1.97)	42/59/95 (1.65/2.32/3.74)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

CONCEPT OF OPERATION TEACH-IN VIA PLUS/MINUS BUTTONS (WFXX-B416)

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/6028454



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SICK AT A GLANCE

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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

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