



Illustration may differ



Ordering information

Type	Part no.
WF2-40B416	6028450

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

Detailed technical data

Features

Dimensions (W x H x D)	10 mm x 32 mm x 57 mm
Functional principle	Optical detection principle
Housing design (light emission)	Fork shaped
Fork width	2 mm
Fork depth	42 mm
Minimum detectable object (MDO)	0.2 mm
Light source	LED, Infrared light
Adjustment	Plus/minus buttons (Teach-in, sensitivity, light/dark switching)
Teach-in mode	2-point teach-in
Output function	Light/darkswitching, selectable via button

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC ¹⁾
Ripple	< 10 % ²⁾
Switching frequency	10 kHz ³⁾
Response time	100 µs
Stability of response time	± 20 µs
Jitter	40 µs
Output type	PNP/NPN
Switching output (voltage)	PNP: HIGH = $V_S - \leq 2 \text{ V}$ / LOW approx. 0 V NPN: HIGH = approx. V_S / LOW $\leq 2 \text{ V}$
Switching output	Light/dark switching

¹⁾ Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

²⁾ May not exceed or fall below U_V tolerances.

³⁾ With light/dark ratio 1:1.

⁴⁾ Reference voltage DC 50 V.

⁵⁾ Depending on fork width.

Output current I_{\max}.	100 mA
Connection type	Connector M8, 4-pin
Ambient light immunity	Sunlight: $\leq 10,000$ lx
Protection class	III ⁴⁾
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP65
Weight	Approx. 36 g ... 160 g ⁵⁾
Housing material	Aluminum

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³⁾ With light/dark ratio 1:1.

⁴⁾ Reference voltage DC 50 V.

⁵⁾ Depending on fork width.

Ambient data

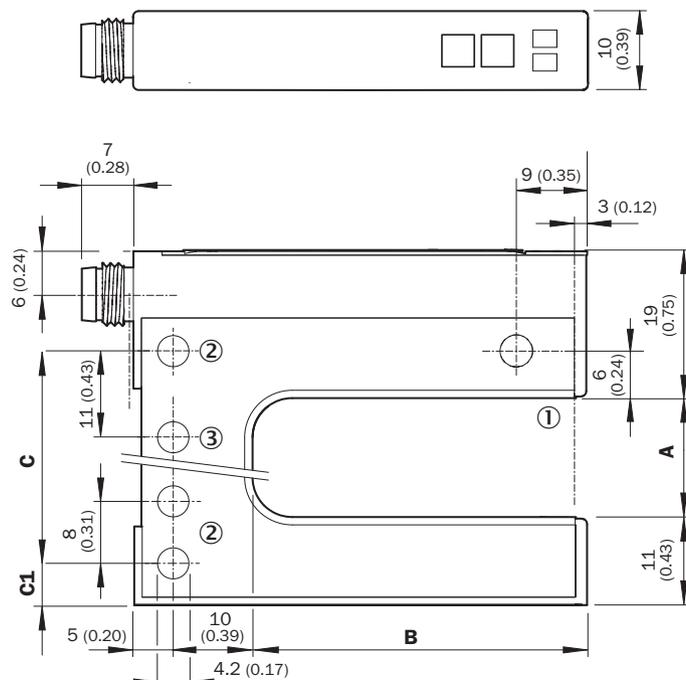
Ambient operating temperature	-20 °C ... +60 °C ¹⁾
Ambient storage temperature	-30 °C ... +80 °C
Shock load	According to EN 60068-2-27
UL File No.	NRKH.E191603

¹⁾ Do not bend below 0 °C.

Classifications

ECl@ss 5.0	27270909
ECl@ss 5.1.4	27270909
ECl@ss 6.0	27270909
ECl@ss 6.2	27270909
ECl@ss 7.0	27270909
ECl@ss 8.0	27270909
ECl@ss 8.1	27270909
ECl@ss 9.0	27270909
ETIM 5.0	EC002720
ETIM 6.0	EC002720
UNSPSC 16.0901	39121528

Dimensional drawing (Dimensions in mm (inch))



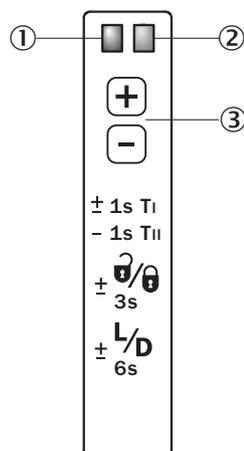
- ① Optical axis
- ② Mounting hole, \varnothing 4.2 mm
- ③ WF50/80/120 only

Dimensions in mm (inch)

	A	B	C	C1
	Fork width	Fork depth		
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)

Adjustments

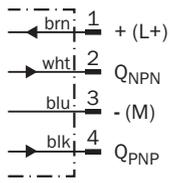
Adjustment: teach-in via plus/minus buttons (WFxx-B416)



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

Connection diagram

Cd-086

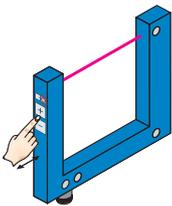


Concept of operation

Teach-in via plus/minus buttons (WFxx-B416)

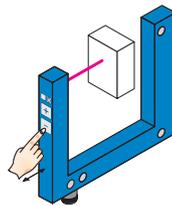
The switching threshold is set automatically. Fine adjustment is possible using the “+”/“-” buttons.

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: Q = light switching.

Recommended accessories

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

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M8, 4-pin, straight Head B: cable Cable: PVC, unshielded, 2 m	DOL-0804-G02M	6009870
	Head A: female connector, M8, 4-pin, straight Head B: cable Cable: PVC, unshielded, 5 m	DOL-0804-G05M	6009872
	Head A: female connector, M8, 4-pin, straight Head B: cable Cable: PVC, unshielded, 10 m	DOL-0804-G10M	6010754

	Brief description	Type	Part no.
	Head A: female connector, M8, 4-pin, angled Head B: cable Cable: PVC, unshielded, 2 m	DOL-0804-W02M	6009871
	Head A: female connector, M8, 4-pin, angled Head B: cable Cable: PVC, unshielded, 5 m	DOL-0804-W05M	6009873
	Head A: female connector, M8, 4-pin, angled Head B: cable Cable: PVC, unshielded, 10 m	DOL-0804-W10M	6010755
	Head A: female connector, M8, 4-pin, straight Head B: - Cable: unshielded	DOS-0804-G	6009974
	Head A: female connector, M8, 4-pin, angled Head B: - Cable: unshielded	DOS-0804-W	6009975

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.”

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