Online data sheet

WFS3-40N415

WFS

FORK SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
WFS3-40N415	6043920

Other models and accessories ➜ www.sick.com/WFS

Detailed technical data

Features

Dimensions (W x H x D)	10 mm x 25 mm x 64.3 mm
Functional principle	Optical detection principle
Housing design (light emission)	Fork shaped
Fork width	3 mm
Fork depth	42 mm
Minimum detectable object (MDO)	Gap between Labels / Size of labels: 2 mm [1]
Label detection	✓
Light source	LED, Infrared light
Adjustment	Plus/minus buttons (Teach-in, sensitivity, light/dark switching) Cable (dynamic Teach-in)
Teach-in mode	Dynamic Teach-in
Output function	Light/darkswitching, selectable via button

[1] Depends on the label thickness.

Interfaces

IO-Link functions	–
Advanced functions	–
Fieldbus, industrial network	-
Type of fieldbus integration	-

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC [1]
Ripple	< 10 % [2]

[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] Without load.
[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.

Power consumption	20 mA [3]
Switching frequency	10 kHz [4]
Response time	50 µs [5]
Stability of response time	± 20 µs
Jitter	40 µs
Output type	NPN
Switching output (voltage)	NPN: HIGH = approx. V_S / LOW ≤ 2 V
Switching output	Light/dark switching
Output current $I_{max.}$	100 mA
Input, teach-in (ET)	Teach: U > 5 V ... < U_V NPNTeach: U < (U_V – 6 V)Run: U > (U_V – 5 V)
Initialization time	20 ms
Connection type	Connector M8, 4-pin
Ambient light immunity	≤ 10,000 lx
Protection class	III
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP 65
Weight	Approx. 36 g
Housing material	PA (glass-fiber reinforced)

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[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.

Ambient data

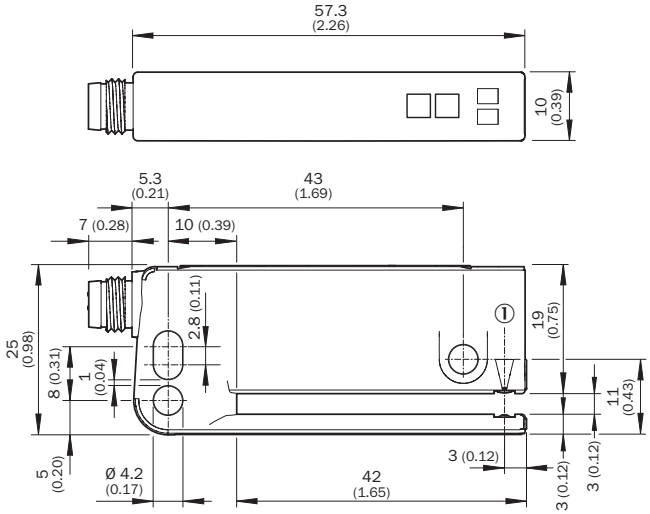
Ambient operating temperature	–20 °C ... +60 °C [1]
Ambient storage temperature	–30 °C ... +80 °C
Shock load	According to EN 60068-2-27

[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

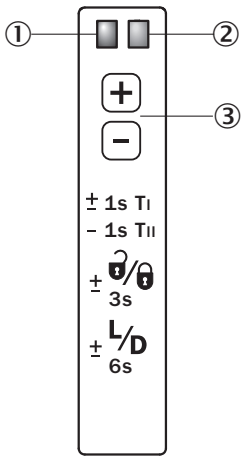
Dimensional drawing (Dimensions in mm (inch))



① Optical axis

Adjustments

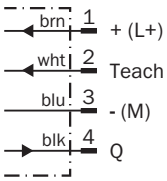
Adjustment: teach-in via plus/minus buttons (WFxx-B416)



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

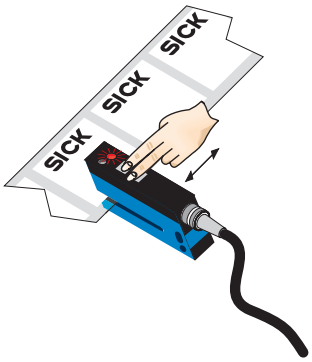
Connection diagram

cd-092



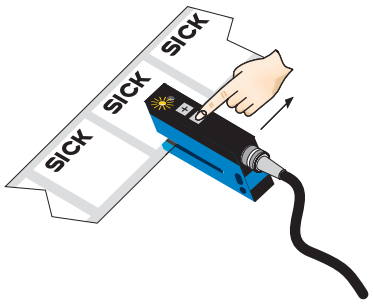
Concept of operation

1. Position label or substrate in the active area of the fork sensor



Press both the “+” and “–” buttons together, hold > 1 s and than release the teach-in buttons. The red LED flashes.

2. Move multiple labels through the fork sensor



Press “–” button, teach-in process is finished.

Notes

Switching threshold adaptation:
Only, the first teach-in procedure after switching on is permanently stored. Teach-in can be repeated cyclically. Switching output also during teach-in active.

[+] [–] 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.

± 3s Press both the “+” and “–” buttons together (3 seconds) to lock the device and prevent unintentional actuation.

± L/D 6s Press both the “+” and “–” buttons together (6 seconds) to define the switching function (light/dark switching). Standard setting: Q = light switching.

Teach-in (static): Setting the switching threshold without movements of label, cf. operating instruction.

Recommended accessories

Other models and accessories ➜ www.sick.com/WFS

	Brief description	Type	Part no.
Universal bar clamp systems			
	Mounting bar, straight, steel, zinc coated	BEF-M12GF-A	2059414
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

	Brief description	Type	Part no.
	Head A: female connector, M8, 4-pin, straight Head B: cable Cable: PVC, unshielded, 10 m	DOL-0804-G10M	6010754
	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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com