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DATA SHEET

WFS3-40N415

WFS
Fork sensors

SICK Sensor Intelligence



Illustration may differ

FORK SENSORS

WFS3-40N415

ORDERING INFORMATION

Type	part no.
WFS3-40N415	6043920

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

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Optical detection principle
Dimensions (W x H x D)	10 mm x 25 mm x 64.3 mm
Fork width	3 mm
Fork depth	42 mm
Light source	LED, Infrared light
Label detection	✓
Minimum detectable object (MDO)	Gap between Labels / Size of labels: 2 mm [1]
Adjustment	Plus/minus button, cable (Teach-in, sensitivity, light/dark switching, Teach-in dynamic)
Teach-in mode	2-point teach-in Teach-in dynamic
Safety-related parameters	
$MTTF_D$	97 years
DC_{avg}	0 %

[1] Depends on the label thickness.

ELECTRONICS

Supply voltage	10 V DC ... 30 V DC
Ripple	< 10 %
Current consumption	20 mA [1]
Initialization time	20 ms
Switching frequency	10 kHz
Response time	≤ 50 µs
Stability of response time	± 20 µs
Jitter	40 µs
Switching output	NPN

[1] Without load.

Switching output (voltage)	NPN: HIGH = approx. U_V / LOW ≤ 2 V
Switching mode	Light/dark switching
Output current $I_{max.}$	100 mA
Input, teach-in (ET)	Teach: U > 5 V ... < U_V NPN Teach: U < (U_V – 6 V) Run: U > (U_V – 5 V)
Protection class	III
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.

MECHANICS

Housing material	PA (glass-fiber reinforced)
Weight	Approx. 36 g

AMBIENT DATA

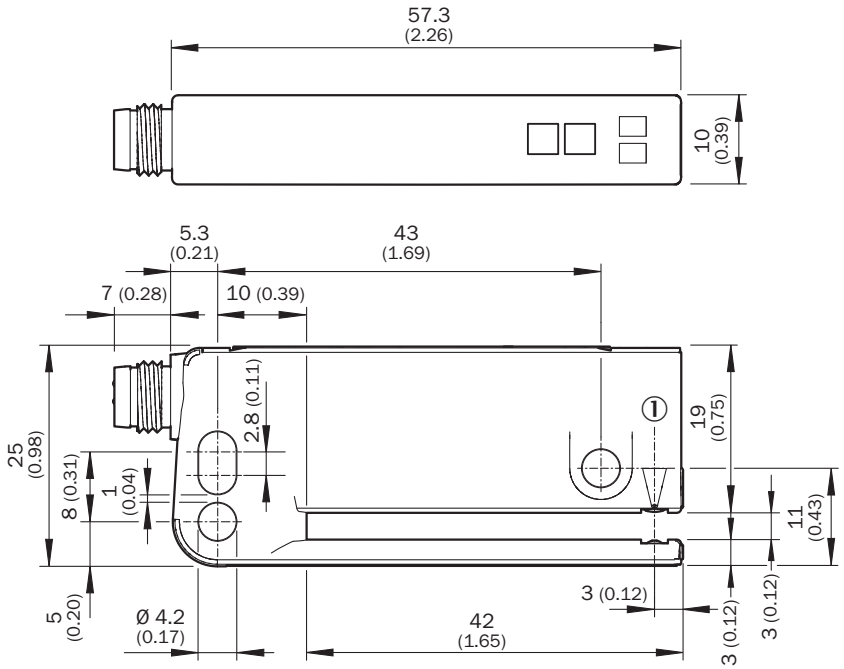
Ambient operating temperature	–20 °C ... +60 °C [1]
Ambient temperature, storage	–30 °C ... +80 °C
Ambient light immunity	≤ 10,000 lx
Shock load	According to EN 60068-2-27
Enclosure rating	IP65
UL File No.	NRKH.E191603

[1] Do not bend below 0 °C.

CERTIFICATES

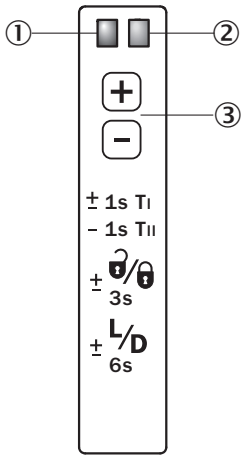
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓

DIMENSIONAL DRAWING



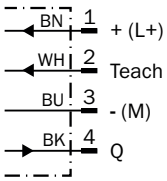
Dimensions in mm (inch)
① Optical axis

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



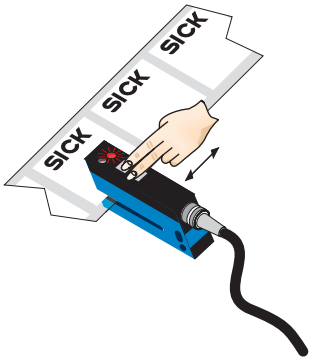
① Function signal indicator (yellow), switching output
② Function indicator (red)
③ “+”/“–” buttons and function button

CONNECTION DIAGRAM CD-092



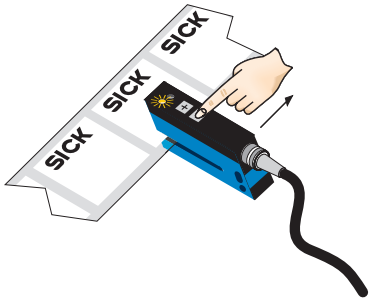
CONCEPT OF OPERATION

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.

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/6043920

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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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