



WFS

AGILE AND FLEXIBLE – IDEAL MOUNTING FOR LABELING APPLICATIONS

Fork sensors

SICK
Sensor Intelligence.

AGILE AND FLEXIBLE – IDEAL MOUNTING FOR LABELING APPLICATIONS



Product description

The slim, forked shape of the WFS has been specially developed for the requirements of the labeling process. The design allows the sensor to be mounted directly on the edge of the dispenser. Difficulty in detecting the label gap is finally eliminated – the sensor’s switch-

ing threshold can be taught-in while the label strip is running. The improved operating concept means the sensor can be adjusted to different labels quickly, easily and reliably. The fast response time guarantees exceptional repeat accuracy.

At a glance

- Optimized housing with slim fork shape
- Dynamic teach-in IO Link or control panel and manual fine adjustment with “+”/“-” buttons
- Light/dark switching function
- Fast response time of 35 µs
- PNP or NPN
- IP 65 plastic housing
- Switching output also during teach-in active
- IO-Link version 1.1

Your benefits

- Slim design allows flexible mounting close to the dispenser of the label which ensures higher accuracy in the process
- Compact housing ensures space-saving installation
- User friendly adjustment allows easy and quick start-up
- IO Link or external teach-in allows automatic threshold adjustment via the PLC during the process which ensures reliable detection all the time
- Short and fast response times enables precise detection – even at high web speeds
- IO-Link provides easy data access from the PLC
- Quick and easy integration using function blocks
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link



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→ www.mysick.com/en/WFS

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Detailed technical data

Features

Functional principle	Optical detection principle
MDO	Gap between labels: 2 mm ¹⁾ Size of labels: 2 mm ²⁾
Label detection	✓
Type of light	Infrared light
Light source	LED
Output function	Light/darkswitching, selectable via button

¹⁾ Minimum detectable object.

²⁾ Depends on the label thickness.

Mechanics/electronics

Supply voltage ¹⁾	10 V DC ... 30 V DC
Ripple ²⁾	< 10 %
Power consumption ³⁾	20 mA
Switching frequency ⁴⁾	10 kHz / 15 kHz ⁵⁾
Response time ⁶⁾	50 µs / 35 µs
Jitter	15 µs
Switching output	PNP: HIGH = $V_S - \leq 2 V$ / LOW approx. 0 V NPN: HIGH = approx. V_S / LOW $\leq 2 V$
Output current I_{max}	100 mA
Input, teach-in (ET)	PNP Teach: $5 V < U < U_V$ Run: $U < 4 V$ NPN Teach: $U < (U_V - 6 V)$ Run: $U > (U_V - 5 V)$
Initialization time	20 ms / 40 ms
Ambient light safety	$\leq 10,000$ lx
Protection class	III
Circuit protection	V_S connections reverse-polarity protected Output Q short-circuit protected Interference suppression
Enclosure rating	IP 65
Weight	Approx. 36 g
Housing material	Plastic PA (glass-fiber reinforced)

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

²⁾ May not exceed or fall short of V_S tolerances.

³⁾ Without load.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ During Teach in 6 kHz.

⁶⁾ Signal transit time with resistive load.

Ambient data

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

¹⁾ Do not bend below 0 °C.

Ordering information

WFS

- **IO-Link:** -
- **Switching frequency:** 10 μs (With light/dark ratio 1:1.)
- **Response time:** 50 μs (Signal transit time with resistive load.)
- **Initialization time:** 20 ms

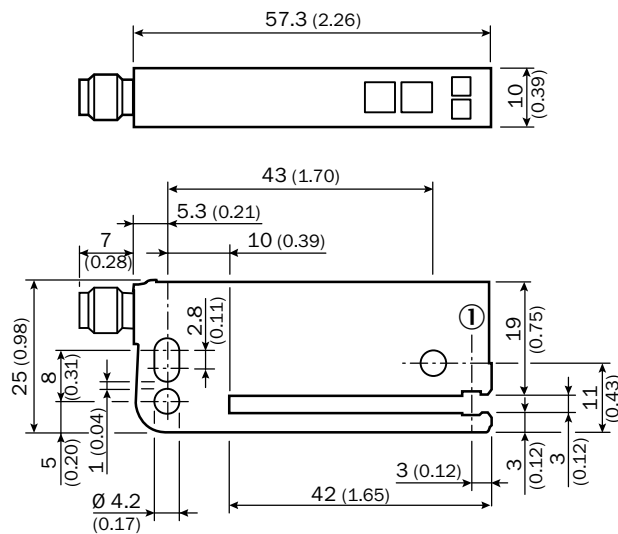
Fork width	Fork depth	Adjustment	Connection type	Switching output	Model name	Part no.
3 mm	42 mm	Dynamic teach-in, Static teach-in, Manual (“+”/“-” button)	Male connector M8, 4-pin	PNP	WFS3-40P415	6043919
				NPN	WFS3-40N415	6043920

WFS IO-Link

- **IO-Link:** ✓
- **Switching frequency:** 15 μs (With light/dark ratio 1:1.), (During Teach in 6 kHz.)
- **Response time:** 35 μs (Signal transit time with resistive load.)
- **Initialization time:** 40 ms

Fork width	Fork depth	Adjustment	Connection type	Switching output	Model name	Part no.
3 mm	42 mm	Dynamic teach-in, Static teach-in, Manual (“+”/“-” button), IO-Link	Male connector M8, 4-pin	PNP, IO-Link	WFS3-40P41C	6053765
				NPN, IO-Link	WFS3-40N41C	6053766

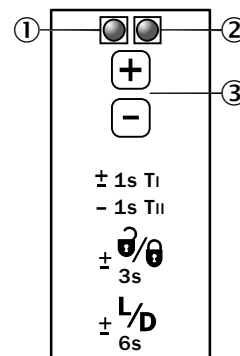
Dimensional drawing (Dimensions in mm (inch))



① Optical axis

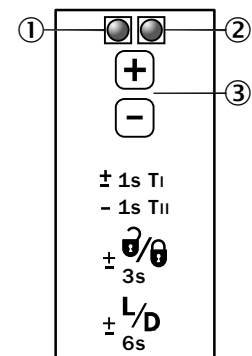
Adjustments

WFS



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

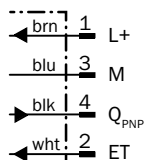
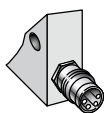
WFS IO-Link



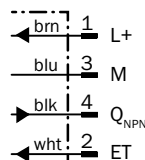
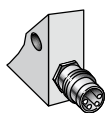
- ① Power on indicator (green)
- ② Function signal indicator (yellow)
- ③ “+”/“-” buttons and function button

Connection type and diagram

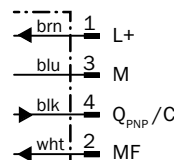
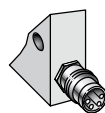
WFS PNP male connector, M8, 4-pin



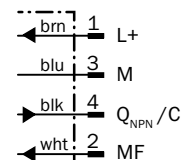
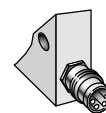
WFS NPN male connector, M8, 4-pin



WFS PNP, IO-Link male connector, M8, 4-pin

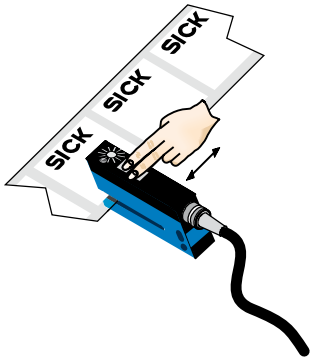


WFS NPN, IO-Link male connector, M8, 4-pin



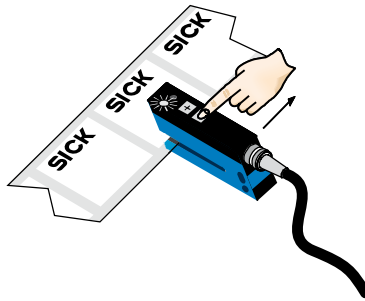
Setting the switching threshold

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



Press both the “+” and “-” buttons together, hold > 1 s and then 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.
- $\pm \frac{0}{3s}$ Press both the “+” and “-” buttons together (3 seconds) to lock the device and prevent unintentional actuation.
- $\pm \frac{L/D}{6s}$ 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



Universal bar clamp systems

Material	Description	Model name	Part no.
Steel, zinc coated	Mounting bar, straight	BEF-M12GF-A	2059414



Plug connectors and cables

Connecting cables with female connector

M8, 4-pin, PVC



	Connection type head A	Connection type head B	Connecting cable	Model name	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Cable, open conductor heads	5 m, 4-pole	DOL-0804-G05M	6009872
			10 m, 4-pole	DOL-0804-G10M	6010754
	Female connector, M8, 4-pin, angled, unshielded	Cable, open conductor heads	5 m, 4-pole	DOL-0804-W05M	6009873
			10 m, 4-pole	DOL-0804-W10M	6010755

M8, 4-pin, TPU, halogen-free

	Connection type head A	Connection type head B	Connecting cable	Model name	Part no.
	Female connector, M8, 4-pin, straight, shielded	Cable, open conductor heads	5 m, 4-pole	DOL-0804-G05MAC	6050809
			10 m, 4-pole	DOL-0804-G10MAC	6050808
	Female connector, M8, 4-pin, straight, unshielded	Cable, open conductor heads	5 m, 4-pole	DOL-0804-G05MC	6025895
			10 m, 4-pole	DOL-0804-G10MC	6025896


Female connectors (ready to assemble)

M8, 4-pin

	Connection type head A	Connection type head B	Model name	Part no.
	Female connector, M8, 4-pin, straight, unshielded	Screw-type terminals	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled, unshielded	Pin penetration	DOS-0804-W	6009975

Male connectors (ready to assemble)

M8, 4-pin

	Connection type head A	Connection type head B	Model name	Part no.
	Male connector, M8, 4-pin, straight, unshielded	Screw-type terminals	STE-0804-G	6037323