

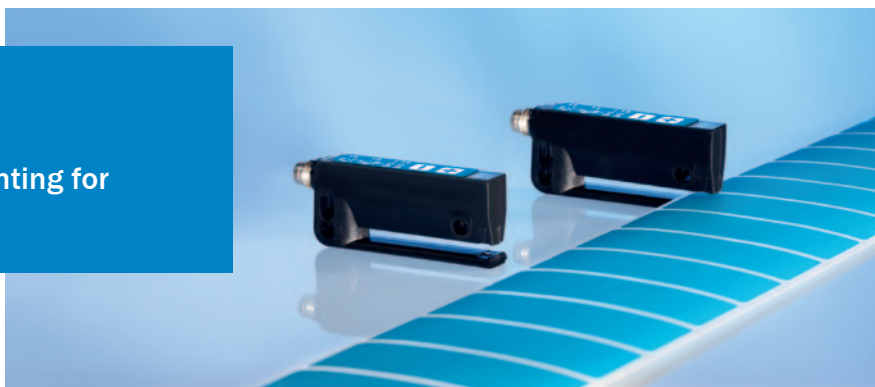


WFS Fork Sensors

Agile and flexible – ideal mounting for labeling applications

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 via teach or control panel and manual fine adjustment with “+”/“-” buttons
- Light/dark switching function
- Fast response time of 50 µs
- PNP or NPN
- IP 65 plastic housing
- Switching output also during teach-in active

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
- 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 enable precise detection – even at high web speeds



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Detailed technical data

Features

Functional principle	Optical detection principle
MDO ^{1) 2)}	Gap between labels: 2 mm Size of labels: 2 mm
Label detection	✓
Light source	LED, infrared
Switching function	Light/dark switching, selectable via button

¹⁾ Minimum detectable object.

²⁾ Depends on the label thickness.

Mechanics/electronics

Supply voltage V_s ¹⁾	DC 10 V ... 30 V
Ripple ²⁾	< 10 %
Power consumption ³⁾	20 mA
Switching frequency ⁴⁾	10 kHz
Response time ⁵⁾	50 μ s
Stability of response time	\pm 20 μ s
Switching output voltage	PNP: HIGH = $V_s - \leq 2$ V / LOW approx. 0 V NPN: HIGH = approx. V_s / LOW ≤ 2 V
Output current I_{max}	100 mA
Input, teach-in (ET)	PNP: Teach: $U > 5$ V ... $< U_v$ Run: $U < 4$ V NPN: Teach: $U < (U_v - 6$ V) Run: $U > (U_v - 5$ V)
Initialization time	20 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	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⁾ Signal transit time with resistive load.

Ambient data

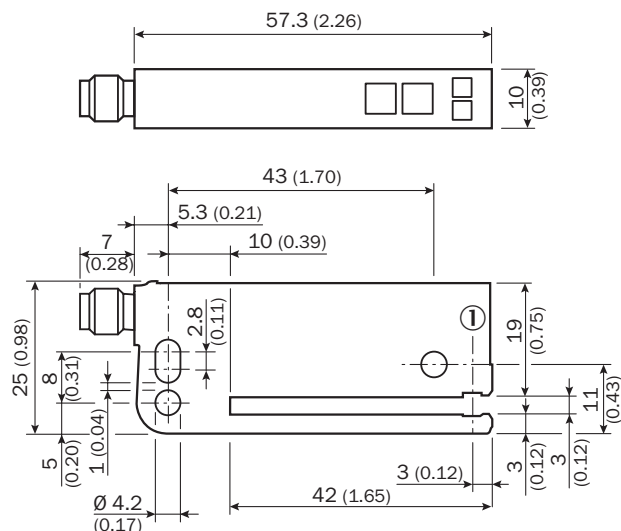
Ambient temperature ¹⁾	Operation: -20 °C ... $+60$ °C Storage: -30 °C ... $+80$ °C
Shock load	According to IEC 60068

¹⁾ Do not bend below 0 °C.

Ordering information

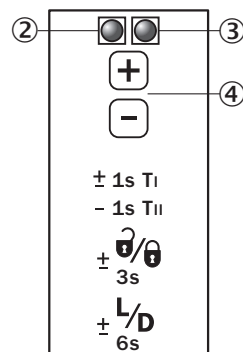
Fork width	Fork depth	Connection type	Switching output	Model name	Part no.
3 mm	42 mm	Connector M8, 4-pin	PNP	WFS3-40P415	6043919
			NPN	WFS3-40N415	6043920

Dimensional drawing



All dimensions in mm (inch)

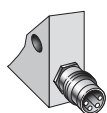
Adjustments



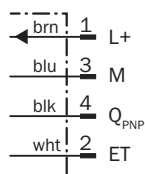
- ① Optical axis
- ② Function signal indicator (yellow), switching output
- ③ Function indicator (red)
- ④ "+" / "-" buttons and function button

Connection type and diagram

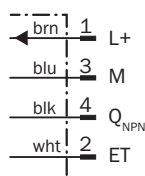
Connector M8, 4-pin



WFS PNP



WFS NPN



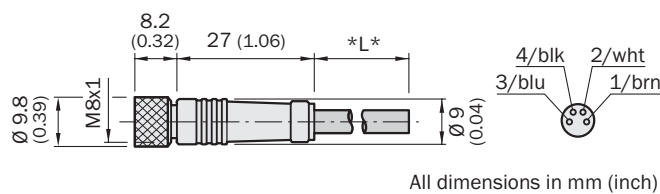
Recommended accessories

Plug connectors and cables

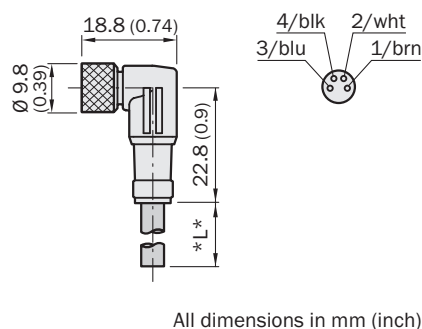
Connector M8, 4-pin

Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.	
Female connector	IP 67	Straight	PVC	2 m	DOL-0804-G02M	6009870	
				5 m	DOL-0804-G05M	6009872	
				10 m	DOL-0804-G10M	6010754	
		Angled	PVC	2 m	DOL-0804-W02M	6009871	
				5 m	DOL-0804-W05M	6009873	
				10 m	DOL-0804-W10M	6010755	
		Straight	-	-	-	DOS-0804-G	6009974
		Angled	-	-	-	DOS-0804-W	6009975

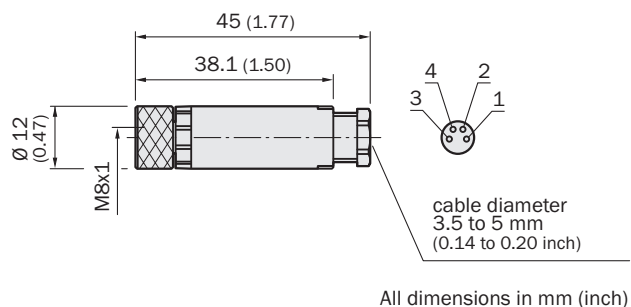
DOL-0804-G02M
DOL-0804-G05M
DOL-0804-G10M



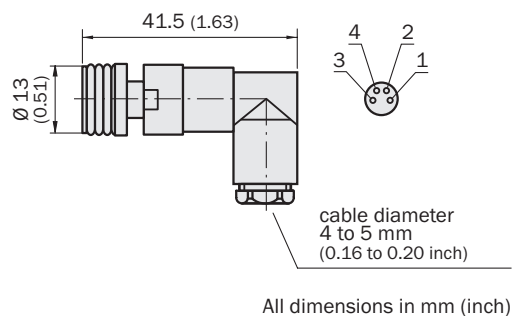
DOL-0804-W02M
DOL-0804-W05M
DOL-0804-W10M



DOS-0804-G



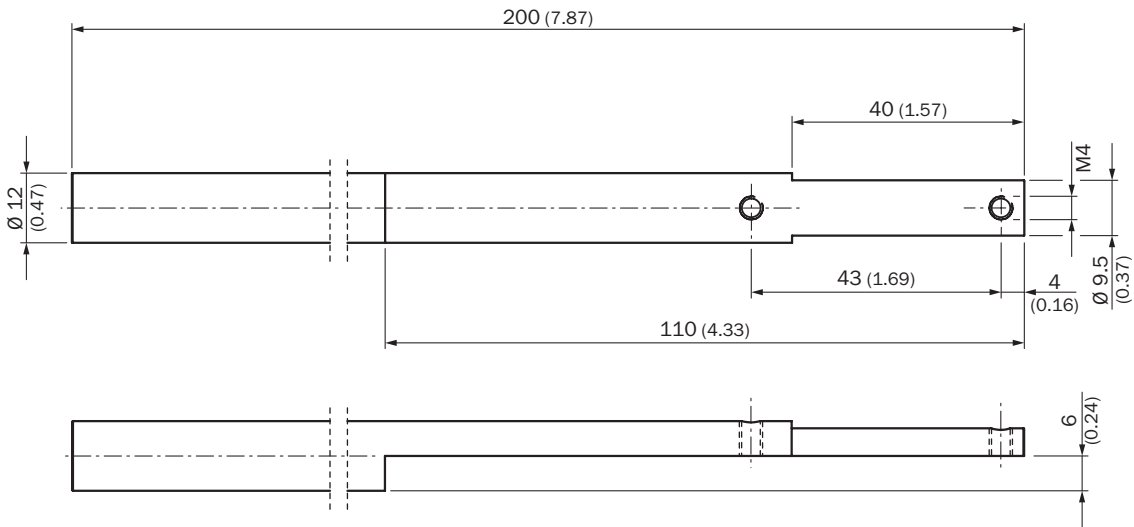
DOS-0804-W



Terminal and alignment brackets

Mounting system type	Description	Material	Model name	Part No.
Universal bar clamp system	Mounting rod straight	Aluminum, anodized	BEF-M12GF-A	2059414

BEF-M12GF-A



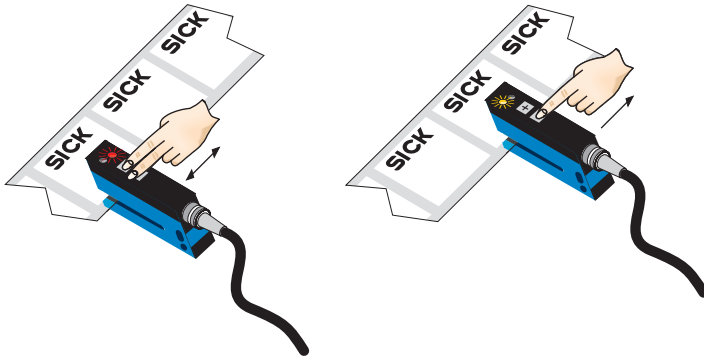
All dimensions in mm (inch)

Further accessories can be found online: www.mysick.com

Setting the switching threshold via teach-in (dynamic)

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

2. Move multiple labels through the fork sensor



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

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.
-
- $\pm \frac{Q}{3s}$ 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.

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Nederland
Norge

Österreich
Polska
Republic of Korea
Republika Slovenija
România
Russia
Schweiz
Singapore
Suomi
Sverige
Taiwan
Türkiye
United Arab Emirates
USA/Canada/México

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Our business segment expertise

Factory automation

With its intelligent sensors, safety systems, and automatic identification applications, SICK provides comprehensive solutions for factory automation.



- Non-contact detecting, counting, classifying, and positioning of any type of object
- Accident protection and personal safety using sensors, as well as safety software and services

Logistics automation

Sensors made by SICK form the basis for automating material flows and the optimization of sorting and warehousing processes.



- Automated identification with barcode and RFID reading devices for the purpose of sorting and target control in industrial material flow
- Detecting volume, position, and contours of objects and surroundings with laser measurement systems

Process automation

Optimized system solutions from SICK ensure efficient acquisition of environmental and process data in many industrial processes.



- Precise measurement of gases, liquids and dust concentrations for continuous monitoring of emissions and the acquisition of process data in production processes
- Gas flow measurements with maximum accuracy thanks to compact gas meters