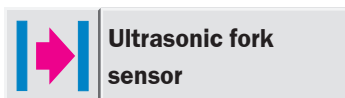


# UF3: Ultrasonic fork sensor for transparent labels



- Fork width 3 mm
- Fork depth 69 mm
- Ultrasonic technology
- Detection of transparent labels on transparent carrier materials
- Detection of metallised material and of RFID labels
- Precise detection of opaque printed and coloured labels
- Unaffected by metal or colour
- Precise splice detection
- Double-sheet detection



The ultrasonic fork sensor is tasked with the safe detection of totally different labels on totally different carrier materials. High positional accuracy and stable response times make the fork sensor universally applicable.

# SICK

# Ultrasonic fork sensor UF3

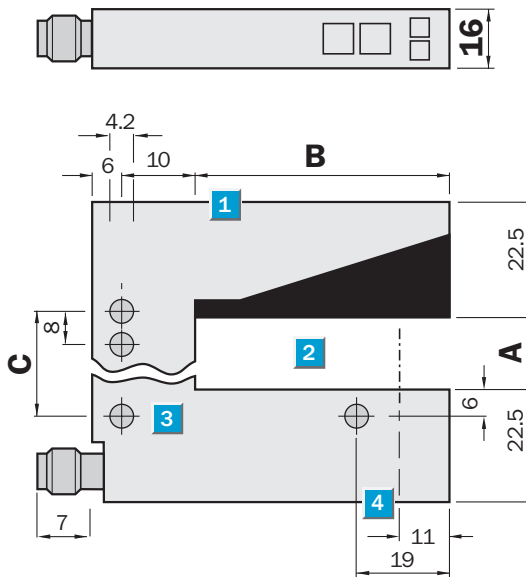
**Fork width**  
**3 mm**

Ultrasonic fork sensor

- Detection of labels – whether transparent, opaque or printed
- Unaffected by metallised colours
- Accurate detection through stable response time
- Small, industry-standard housing

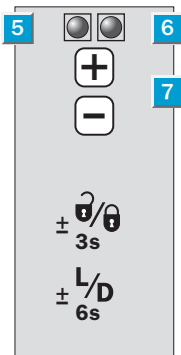
## Dimensional drawing

All types

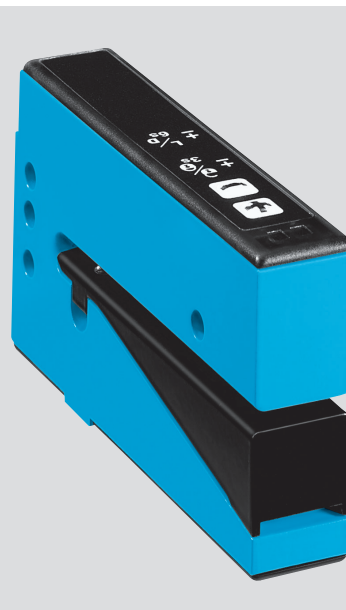


## Adjustments possible

All types



- 1 Screw for removing the leg for cleaning purposes
- 2 Fork width: Fork width 3 mm, Fork depth 69 mm
- 3 Mounting holes, Ø 4.2 mm
- 4 Detection axis
- 5 Function indicator (yellow), switching output
- 6 Function indicator (red)
- 7 “+”/“-” buttons and function button



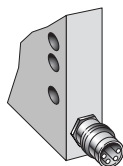
## Dimensions

Dimensions (mm)	A Fork width	B Fork depth	C
UF3	3	69	14

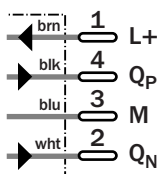


## Connection types

All types



4-pin, M8



## Accessories

Cables and connectors

Technical data		UF	3-70										
			B410										
<b>Fork width</b>	3 mm												
<b>Minimum detectable object size <sup>1)</sup></b>													
Gap between labels	2 mm												
Size of labels	2 mm												
<b>Supply voltage <math>V_S</math></b>	10 ... 30 V DC <sup>2)</sup>												
Current consumption <sup>3)</sup>	40 mA												
Ripple (at 10 mA) <sup>4)</sup>	< 1 V												
<b>Switching output</b>	PNP and NPN												
	Light/dark adjustable via button												
<b>Signal voltage</b>													
PNP	HIGH = $U_V - (< 2 V)$ /LOW = 0 V												
NPN	HIGH = $U_V$ /LOW = < 2 V												
Output current $I_A$	100 mA												
Capacitive load	200 nF												
Response time <sup>5)</sup>	300 $\mu$ s												
Initialisation time	100 ms												
<b>VDE protection class <sup>6)</sup></b>	III												
<b>Enclosure rating</b>	IP 65												
<b>Circuit protection <sup>7)</sup></b>	B, C												
<b>Short-circuit protection</b>	✓												
<b>Ambient temperature</b>	Operation +5 °C ... +55 °C												
	Storage -30 °C ... +70 °C												
<b>Operating principle: fork</b>	Ultrasonic detection principle												
<b>Air movement</b>	5 m/sec. max. wind speed												
<b>Connection type</b>	M8, 4-pin												
<b>Adjustment option</b>	“+”, “-” adjustment via button												
<b>Housing</b>	Aluminium												
<b>Weight</b>	95 g												
<sup>1)</sup> Depends on the label thickness	<sup>5)</sup> For 1:1 light/dark ratio, typical, dependent on material and speed												<sup>7)</sup> B = Outputs short-circuit protected C = Interference pulse suppression
<sup>2)</sup> Limit values, reverse-polarity protected													
<sup>3)</sup> Without load													
<sup>4)</sup> At 10 mA	<sup>6)</sup> Reference voltage 50 V DC												

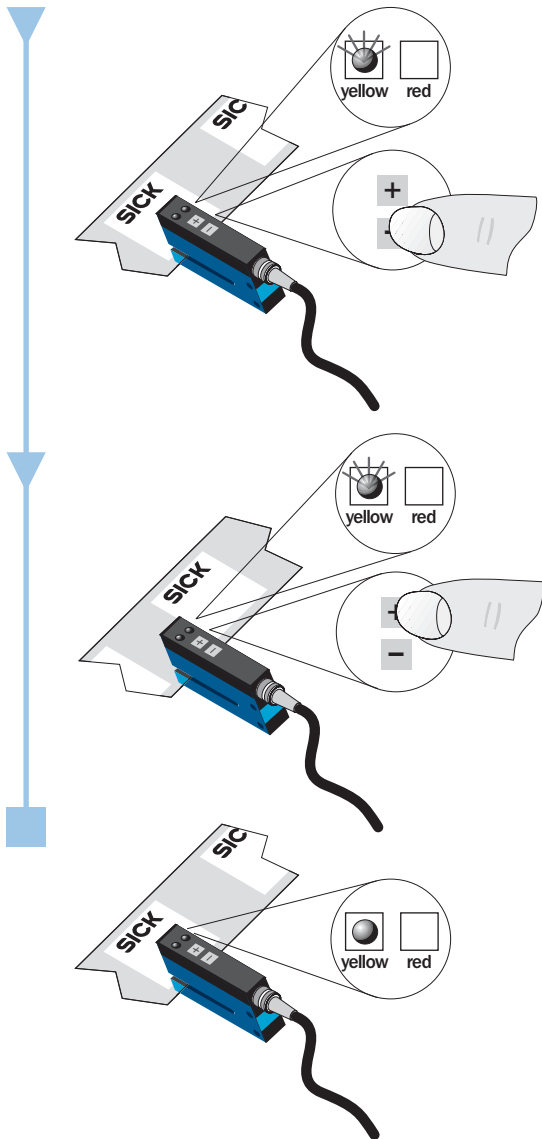
## Notes

- Leg can be removed for cleaning.

## Order information

Type	Order no.
UF3-70B410	6034888

## Description Switching point adjustment



- Adjustment of the switching point in “light-switching” mode: switching output Q is active if the carrier material is detected between the labels (gap detection).
- Position label between the active surface of the fork sensor (see arrow on sensor). Adjust with “-”, or “+” until the switching output indicator is safely off.

- Position carrier material in the active area of the fork sensor. The switching output indicator (yellow) must light up again; if this is not the case, increase sensitivity with the “+” button until the switching threshold is correctly adjusted.

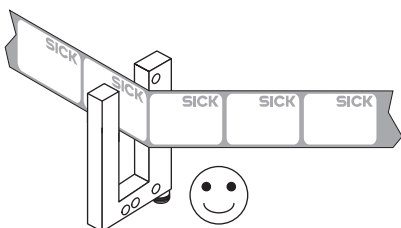
- If necessary, adjust the switching point slightly in the other direction.

### Notes

- **+** **Sensitivity setting**
    - **-** Slow setting:  
Press “+” or “-” button once,  
LED (red) lights with each button hit
    - Fast setting:  
Press “+” or “-” button permanently,  
LED (red) flashes after 2 seconds.
  - **L/D** **Light-/dark-switching**  
± 6s Press “+” and “-” buttons simultaneously for 6 seconds,  
LED (yellow) changes status, and the LED (red) flashes slowly. Release “+” and “-” buttons.
  - **Locking the buttons**  
± 3s Press “+” and “-” buttons simultaneously for 3 seconds,  
button lock is enabled/disabled.
- Locking the buttons:  
The red LED goes off after 3 seconds,  
release “+” and “-” buttons,  
LED (red) lights permanently.
- Unlocking the buttons:  
The red LED lights after 3 seconds,  
release “+” and “-” buttons,  
LED (red) extinguishes.

### Feed through the material for scanning, flutter-free

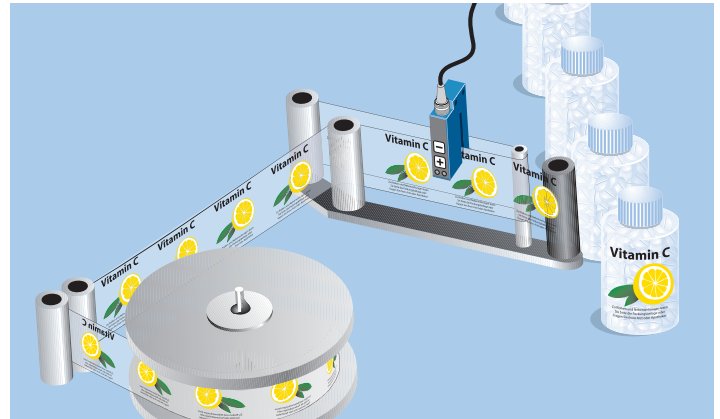
Move the material to be detected under tension and flutter-free.



Sample applications

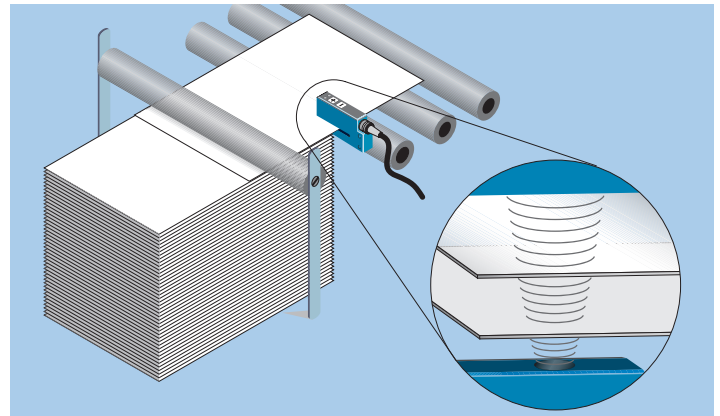
Label detection

- The UF ultrasonic fork sensor reliably detects the labels on the carrier material, irrespective of the printing of the labels or of the carrier material.
- Transparent carrier material.
- Transparent printed label.



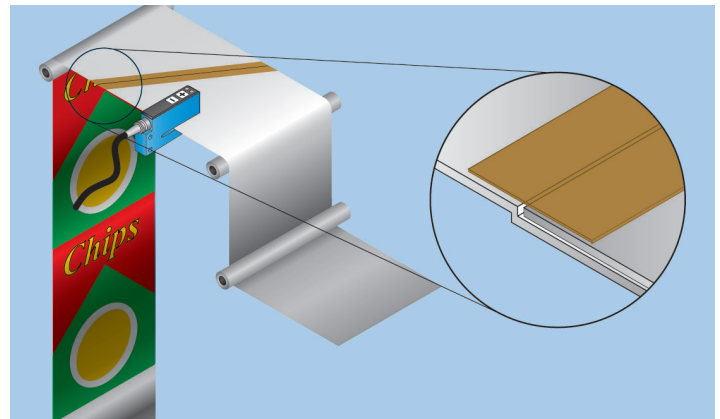
Double-sheet detection

- The UF ultrasonic fork sensor reliably distinguishes between one and two sheet(s) of paper.



Splice detection

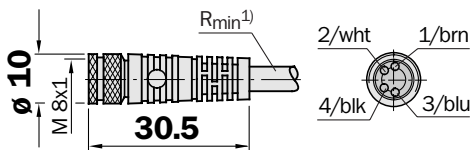
- The UF ultrasonic fork sensor reliably detects the splice. This foil area can be detected within the process.



Female connector M8, 4-pin, straight

Cable diameter 5 mm, 4 x 0,25 mm<sup>2</sup>, cable PVC

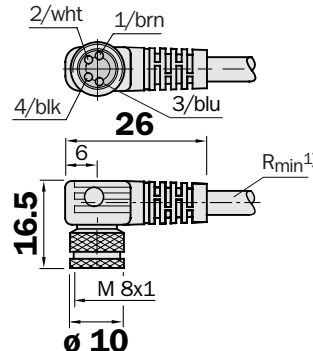
Type	Order no.	Cable length
DOL-0804-G02M	6009870	2 m
DOL-0804-G05M	6009872	5 m
DOL-0804-G10M	6010754	10 m



Female connector M8, 4-pin, angled

Cable diameter 5 mm, 4 x 0,25 mm<sup>2</sup>, cable PVC

Type	Order no.	Cable length
DOL-0804-W02M	6009871	2 m
DOL-0804-W05M	6009873	5 m
DOL-0804-W10M	6010755	10 m



1) Minimum bend radius in dynamic use  
R<sub>min</sub> = 20 x cable diameter

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