

ONLINE DATA SHEET
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Fork sensors
WFL

WFL120-60B416



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Fork sensors
WFL

Model Name > WFL120-60B416
Part No. > 6036834



Illustration may differ

At a glance

- Very precise laser beam (Class 1 laser)
- Simple and accurate adjustment via teach-in
- Fast response time (max. 100 µs)
- Minimum detectable object size of 0.05 mm
- PNP and NPN switching output
- Light/dark switching function
- 21 different models with different fork widths and depths
- Rugged, IP 65 aluminum housing

Your benefits

- A highly precise laser beam ensures consistent measurement accuracy along the entire measuring range and reliable detection of the smallest objects
- A visible laser light spot enables easy alignment and fast adjustment
- Reliable and simple setting via teach-in ensures high process reliability
- A wide range of different fork sizes increases installation flexibility
- The aluminum housing meets all requirements for use in harsh industrial conditions

Features

Functional principle:	Optical detection principle
Fork width:	120 mm
Fork depth:	59 mm
Label detection:	-
Light source:	Laser
Type of light:	Visible red light
Adjustment:	Teach-in
Output function:	Light/darkswitching, selectable via button
Housing design (light emission):	Fork shaped
Minimum detectable object (MDO):	0.05 mm
Wave length:	670 nm
Laser class:	I

Mechanics/electronics

Residual ripple [1]:	< 10 %
Power consumption [2]:	40 mA
Switching frequency [3]:	10 kHz

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Response time [4]:	100 µs
Stability of response time:	± 20 µs
Output type:	NPN: HIGH = approx. VS / LOW ≤ 2 V PNP: HIGH = VS- ≤ 2 V / LOW approx. 0 V
Switching mode:	PNP/NPN
Output current Imax.:	100 mA
Initialization time:	100 ms
Electrical connection:	Connector M8, 4-pin
Protection class [5]:	III
Circuit protection:	VS connections reverse-polarity protected Output Q short-circuit protected Interference suppression
Enclosure rating:	IP 65
Weight:	Ca. 36 g ... 160 g [6]
Housing material:	Aluminum, Metal
Supply voltage:	10 V DC ... 30 V DC [7]
Ambient light immunity:	Sunlight: ≤ 10,000 klx
Fieldbus interface:	-

[1] May not exceed or fall short of V_S tolerances [2] Without load [3] With light/dark ratio 1:1 [4] Signal transit time with resistive load [5] Reference voltage DC 50 V [6] Depending on fork width [7] Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A

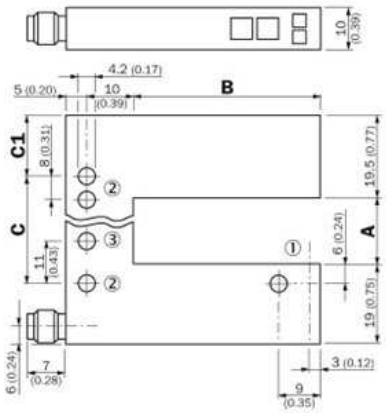
Ambient data

Shock load:	According to EN 60068-2-27
UL File No.:	NRKH.E191603 & NRKH7.E191603, CDRH-conform
Ambient temperature operation:	-20 °C ... +50 °C [1]
Ambient storage temperature:	-30 °C ... +80 °C

[1] Do not bend below 0 °C

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Dimensional drawing

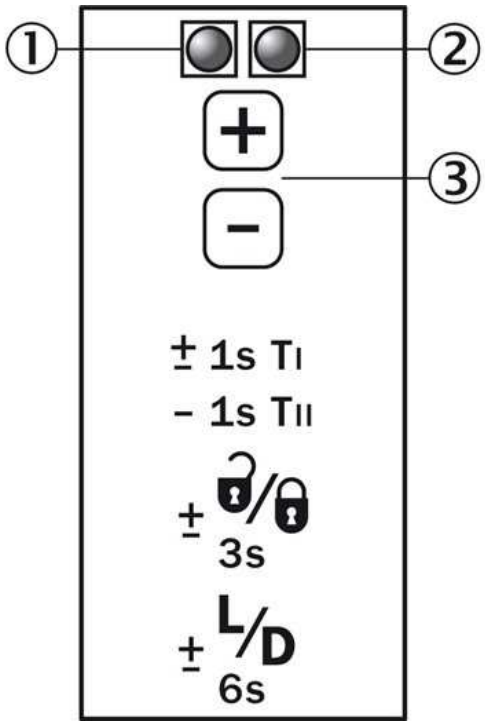


Dimensions in mm (inch)

	A Fork width	B Fork depth	C	C1
WFL2	2 (0.08)	42/59/95 (1.65/2.32/3.74)	14 (0.55)	13.5 (0.53)
WFL5	5 (0.20)	42/59/95 (1.65/2.32/3.74)	14 (0.55)	15 (0.59)
WFL15	15 (0.59)	42/59/95 (1.65/2.32/3.74)	27 (1.06)	13.5 (0.53)
WFL30	30 (1.18)	42/59/95 (1.65/2.32/3.74)	42 (1.65)	13.5 (0.53)
WFL50	50 (1.97)	42/59/95 (1.65/2.32/3.74)	51 (2.01)	24.5 (0.96)
WFL80	80 (3.15)	42/59/95 (1.65/2.32/3.74)	81 (3.19)	24.5 (0.96)
WFL120	120 (4.72)	42/59/95 (1.65/2.32/3.74)	121 (4.76)	24.5 (0.96)

|1| Optical axis
|2| Mounting hole, Ø 4.2 mm
|3| WFL50/80/120 only

Adjustments



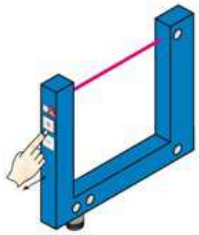
|1| Function signal indicator (yellow), switching output
|2| Function indicator (red)
|3| "+"/"-" buttons and function button

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Bedienhinweis

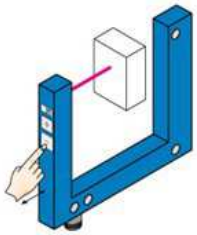
The switching threshold is set automatically. Fine adjustment is possible using the "+"/"–" buttons.

1. No object or substrate in the beam path



Press the "+" and "–" buttons together and hold for 1 second.
The red function indicator flashes slowly.

2. Object or label in the beam path



Press the "–" button for 1 second.
Red function indicator goes out.

Notes

Material speed = 0 (machine at a standstill).

[+] [–] 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.

± 6s Press both the "+" and "–" buttons together (6 seconds) to define the switching function (light/dark switching). Standard setting: $\overline{Q}$ = light switching.

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