



ONLINE DATA SHEET  
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## Fork sensors WFM

WFM180-120N321



**SICK**  
Sensor Intelligence.

**Model Name** > [WFM180-120N321](#)  
**Part No.** > [6037838](#)



*Illustration may differ*

**At a glance**

- Highly visible red emitted light
- No setup, out-of-the-box operation
- 360° output indicator
- 5 fork sizes: maximum depth 120 mm, maximum width 180 mm
- Rugged, IP 67 aluminum housing

**Your benefits**

- Fixed housings guarantee a high level of operational safety with simple commissioning
- A visible red light enables easy alignment and fast adjustment
- The 360-degree yellow output indicator makes continual process control possible
- 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:	180 mm
Fork depth:	124 mm
Label detection:	-
Light source:	LED
Type of light:	Visible red light
Adjustment:	None
Output function:	Dark switching
Housing design (light emission):	Fork shaped
Minimum detectable object (MDO):	1 mm

**Mechanics/electronics**

Residual ripple <sup>1)</sup> :	< 10 %
Power consumption <sup>2)</sup> :	< 20 mA
Switching frequency <sup>3)</sup> :	4 kHz
Response time <sup>4)</sup> :	125 µs
Stability of response time:	± 15 µs
Output type:	NPN: HIGH = approx. VS/LOW ≤ 1.5 V PNP: HIGH = VS - ≤ 1.5 V/LOW = 0 V
Switching mode:	NPN
Output current I <sub>max.</sub> :	100 mA

Initialization time: 140 ms  
 Electrical connection: Connector M8, 3-pin  
 Protection class <sup>5)</sup>: III  
 Circuit protection: VS connections reverse-polarity protected  
 Output Q short-circuit protected  
 Interference suppression  
 Enclosure rating: IP 67  
 Weight: Ca. 80 g ... 190 g <sup>6)</sup>  
 Housing material: Aluminum, Metal  
 Supply voltage: 10 V DC ... 30 V DC <sup>7)</sup>  
 Ambient light immunity: Sunlight: ≤ 10,000 klx  
 Fieldbus interface: -

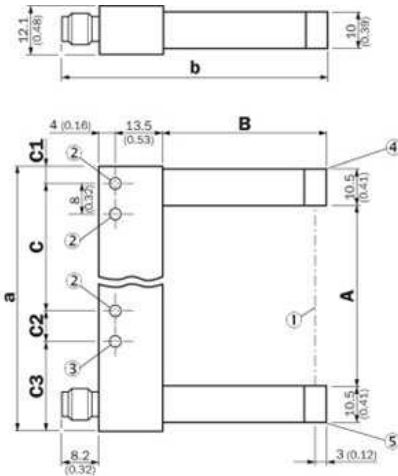
<sup>1)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>2)</sup> Without load <sup>3)</sup> With light/dark ratio 1:1 <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> Reference voltage DC 50 V <sup>6)</sup>  
 Depending on fork width <sup>7)</sup> Limit values, reverse-polarity 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  
 Ambient temperature operation: -10 °C ... +60 °C <sup>1)</sup>  
 Ambient storage temperature: -40 °C ... +80 °C

<sup>1)</sup> Do not bend below 0 °C

### Dimensional drawing



Dimensions in mm (inch)

	A Fork width	B Fork depth	C	C1
WFM30	30 (1.18)	42 (1.65)	30 (1.18)	6.5 (0.26)
WFM50	50 (1.97)	60 (2.36)	40 (1.57)	6.5 (0.26)
WFM80	80 (3.15)	60 (2.36)	70 (2.76)	6.5 (0.26)
WFM120	120 (4.72)	124.3 (4.89)	100 (3.94)	17 (0.67)
WFM180	180 (7.09)	124.3 (4.89)	152 (5.98)	22 (0.87)

	C2	C3	a	b
WFM30	- (-)	- (-)	54 (2.13)	67.7 (2.67)
WFM50	8 (0.31)	19.5 (0.77)	74 (2.91)	85.7 (3.37)
WFM80	8 (0.31)	19.5 (0.77)	104 (4.09)	85.7 (3.37)
WFM120	10 (0.39)	17 (0.67)	144 (5.67)	150.2 (5.91)
WFM180	8 (0.31)	22 (0.87)	204 (8.03)	150.2 (5.91)

- |1| Optical axis
- |2| Mounting hole, Ø 4.3 mm
- |3| WFM50/80/120/180
- |4| Transmitted light (red)
- |5| Function signal indicator (yellow), switching output

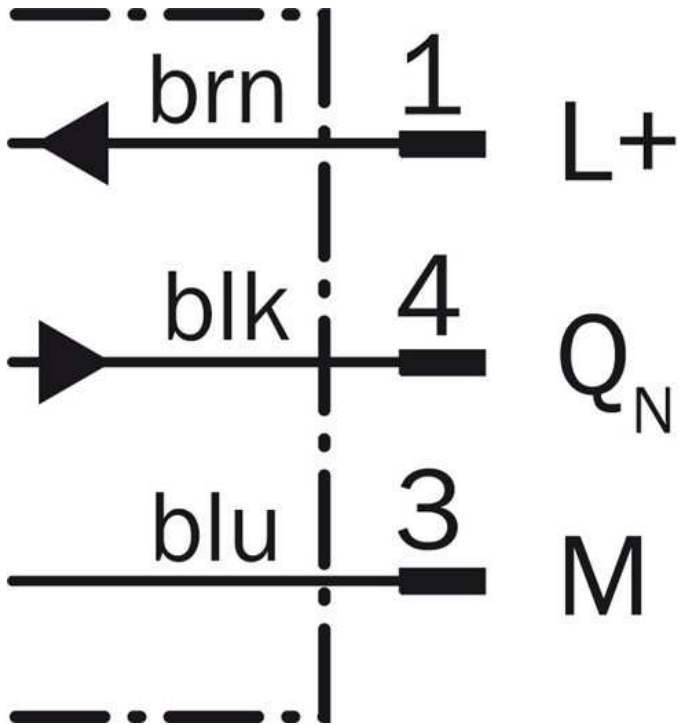
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Connection diagram

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