

WFM180-120P321

WFM

FORK SENSORS





Ordering information

| Туре | Part no. |
|----------------|----------|
| WFM180-120P321 | 6037836 |

Other models and accessories → www.sick.com/WFM

Illustration may differ







Detailed technical data

Features

| Functional principle | Optical detection principle |
|---------------------------------|-----------------------------|
| Dimensions (W x H x D) | 10 mm x 200 mm x 141.8 mm |
| Housing design (light emission) | Fork shaped |
| Fork width | 180 mm |
| Fork depth | 124 mm |
| Minimum detectable object (MDO) | 1 mm |
| Light source | LED, visible red light |
| Adjustment | None |

Mechanics/electronics

| Supply voltage | 10 V DC 30 V DC ¹⁾ |
|----------------------------|--|
| Ripple | < 10 % ²⁾ |
| Current consumption | < 20 mA ³⁾ |
| Switching frequency | 4 kHz ⁴⁾ |
| Response time | 125 μs ⁵⁾ |
| Stability of response time | ± 15 μs |
| Switching output | PNP |
| Switching output (voltage) | PNP: HIGH = $V_S - \le 1.5 \text{ V} / \text{LOW} = 0 \text{ V}$ NPN: HIGH = approx. $V_S / \text{LOW} \le 1.5 \text{ V}$ |
| Switching mode | Dark switching |

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

 $^{^{2)}\,\}mathrm{May}$ not exceed or fall below U_{V} tolerances.

³⁾ Without load.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ Signal transit time with resistive load.

⁶⁾ Reference voltage DC 50 V.

⁷⁾ Depending on fork width.

| Output current I _{max.} | 100 mA |
|----------------------------------|--|
| Initialization time | 140 ms |
| Connection type | Connector M8, 3-pin |
| Protection class | III 6) |
| Circuit protection | U _V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression |
| Enclosure rating | IP67 |
| Weight | Approx. 80 g 190 g ⁷⁾ |
| Housing material | Metal, Aluminum |

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

Ambient data

| Ambient operating temperature | -10 °C +60 °C ¹⁾ |
|-------------------------------|------------------------------|
| Ambient storage temperature | -40 °C +80 °C |
| Ambient light immunity | ≤ 10,000 lx |
| Shock load | According to EN 60068-2-27 |
| UL File No. | NRKH.E191603 & NRKH7.E191603 |

 $^{^{1)}}$ Do not bend below 0 °C.

Classifications

| ECI@ss 5.0 | 27270909 |
|----------------|----------|
| ECI@ss 5.1.4 | 27270909 |
| ECI@ss 6.0 | 27270909 |
| ECI@ss 6.2 | 27270909 |
| ECI@ss 7.0 | 27270909 |
| ECI@ss 8.0 | 27270909 |
| ECI@ss 8.1 | 27270909 |
| ECI@ss 9.0 | 27270909 |
| ECI@ss 10.0 | 27270909 |
| ECI@ss 11.0 | 27270909 |
| ETIM 5.0 | EC002720 |
| ETIM 6.0 | EC002720 |
| ETIM 7.0 | EC002720 |
| UNSPSC 16.0901 | 39121528 |

 $^{^{2)}}$ May not exceed or fall below U_{V} tolerances.

³⁾ Without load.

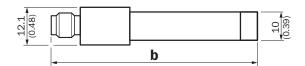
⁴⁾ With light/dark ratio 1:1.

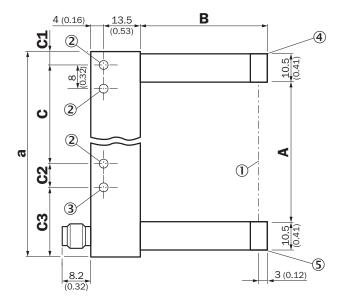
⁵⁾ Signal transit time with resistive load.

⁶⁾ Reference voltage DC 50 V.

⁷⁾ Depending on fork width.

Dimensional drawing (Dimensions in mm (inch))





| Dimensions | in mm | (inch) |
|-------------------|-------|----------|
| | | (111011) |

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

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

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

Connection diagram

Cd-045

Recommended accessories

Other models and accessories → www.sick.com/WFM

| | Brief description | Туре | Part no. | | | |
|---------------|--|------------------------|----------|--|--|--|
| Plug connecto | Plug connectors and cables | | | | | |
| | Head A: female connector, M8, 3-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF8U13- 050VA1XLEAX | 2095884 | | | |
| | Head A: male connector, M8, 3-pin, straight Head B: - Cable: unshielded | STE-0803-G | 6037322 | | | |

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Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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