Product overview

MF

Simple detection in a miniature size

SICK
Sensor Intelligence.

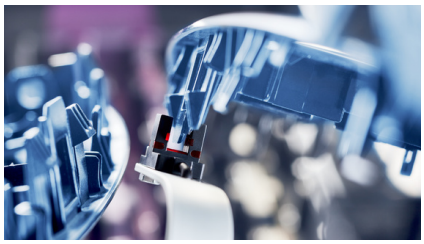
Advantages

Micro fork sensor with various mounting options for easy integration in confined spaces

The very compact through-beam photoelectric sensors in a fork design are particularly suitable for confined spaces.

A selection of product variants with different mounting options ensures installation flexibility. The sensors are used in particular for position detection in transport systems.

Miniature fork sensor for confined spaces
With its miniature housing, the micro fork sensor from SICK takes up very little space. This enables simple integration into machines and processes.



Optical solution for simple position detection
The micro fork sensors, which work with infrared light, detect not only metal but also other opaque materials such as plastic. The sensors are used in transport systems in particular, as lightweight plastic elements can be used for lightweight construction.

Plug and play: simple installation without commissioning
SICK micro fork sensors are ready for immediate use – without any teach-in or adjustments, which saves time. Incorrect operation or maladjustment of the sensor is not possible during regular operation.

Micro fork sensors from SICK impress with their miniature design, numerous mounting variants and easy installation in transport systems.

Technical data overview

Fork width	6 mm
Fork depth	5 mm / 8 mm (depends on variant)
Connection type	Cable open end, 4-wire PVC

Product description

Micro fork sensors are through-beam photoelectric sensors that combine a sender and receiver in a single housing. The sensors are characterized by their particularly small enclosure size and a wide range of mounting options. Thanks to their compact design, the micro fork sensors take up very little space and make integration even easier thanks to the different mounting brackets of the individual variants. As the sensors do not require teach-in or adjustment parameters, no commissioning is necessary. Thanks to this design, the fork sensor prevents operating errors during the process. The sensors detect opaque materials, which is why they are often used for plastic transport system elements.

At a glance

- Miniature design (with dimensions up to 26 mm)
- Choice of different integrated mounting options
- Infrared light for detecting opaque materials
- Used in simple applications, the micro fork sensor does not require teach-in or complex settings
- Switching frequency of 4 kHz and response time of 100 µs
- IP 67 enclosure rating
- Two opposing switching signals: Output 1 is active when the fork opening is empty, output 2 is active when an object is detected
- Repeatability of 0.01 mm

Your benefits

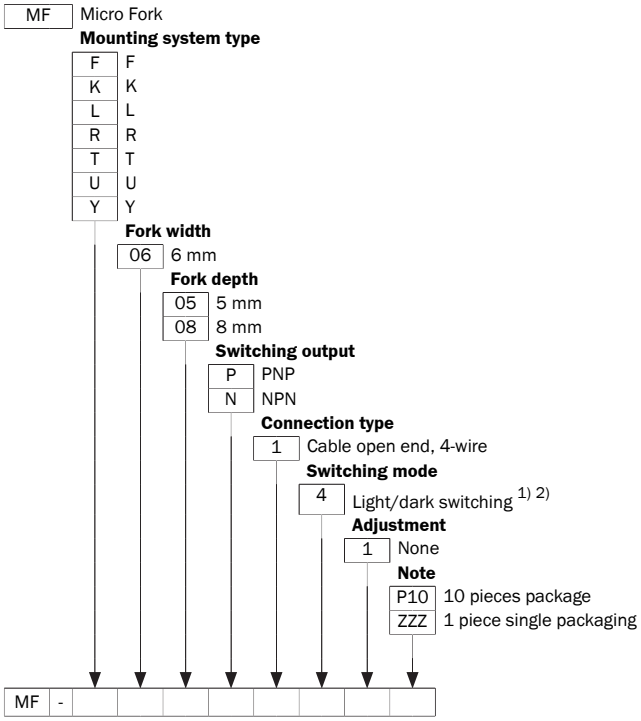
- Space-saving installation
- Suitable mounting options for easy integration
- Wide range of material applications – from metal to plastic
- Saves time during installation
- Fast object detection increases process speed
- More flexibility for use in dusty and damp environments
- Redundant acquisition and output of statuses for reliable operation
- Accurate positioning ensures higher process quality

Fields of application

- Position detection of transport systems from pharmaceuticals to electronics.
- In particular, end positions of shuttle systems, e.g. in overhead hoist transport (OHT)
- Presence detection for small, opaque objects (1.2 mm to 5 mm)
- Detection of opaque materials – from metal to plastic

Type code

Other models and accessories ➜ www.sick.com/MF



[1] Q1 = light switching.

[2] Q2 = dark switching.

Technical details - Features

FEATURES		
Dimensions (W x H x D)		
11.7 mm x 14 mm x 14.9 mm	→	MF-{**F**, **R**}xx**05**xxxxxxx
13 mm x 21.3 mm x 13.7 mm	→	MF-{**F**, **R**}xx**08**xxxxxxx
6 mm x 14 mm x 23.9 mm	→	MF-**K**xx**05**xxxxxxx
7 mm x 21.3 mm x 25.4 mm	→	MF-**K**xx**08**xxxxxxx
12 mm x 12 mm x 13.4 mm	→	MF-**L**xx**05**xxxxxxx
26 mm x 19.2 mm x 13.65 mm	→	MF-**T**xx**08**xxxxxxx
11.2 mm x 15.1 mm x 26 mm	→	MF-**L**xx**08**xxxxxxx
6 mm x 16 mm x 13.4 mm	→	MF-**U**xx**05**xxxxxxx
22.6 mm x 14.7 mm x 13.4 mm	→	MF-**Y**xx**08**xxxxxxx
Fork width		
6 mm		
Fork depth		
5 mm	→	MF-xxx**05**xxxxxxx
8 mm	→	MF-xxx**08**xxxxxxx
Light source		
LED, infrared		
Minimum detectable object (MDO)		
0.8 mm		
Repeatability		
0.01 mm		
Display		

FEATURES
Red LED indicator: Switching output Q1 (Light ON)
Adjustment
None

Technical details - Electronics

ELEKRTONICS		
Supply voltage		
5 V DC ... 30 V DC		
Ripple		
< 10 %		
Current consumption		
< 10 mA		
Initialization time		
100 ms		
Switching frequency		
> 4 kHz		
Response time		
100 µs		
Jitter		
28 µs		
Switching output		
PNP	→	MF-xxxxx**P**xxxxx
NPN *(Open Collector)*	→	MF-xxxxx**N**xxxxx
Switching output (voltage)		
High = UV - < 2 V / Low: ≤ 2 V		
Switching mode		
Light/dark switching *(Q1 = light switching, Q2 = dark switching)*		
Switching output hysteresis		
< 0.05 mm		
Output current $I_{max.}$		
100 mA		
Protection class		
III		
Schutzschaltungen		
UV connections, reverse polarity protected		
Output Q short-circuit protected		
Interference pulse suppression		
Connection type		
Cable open end, 4-wire		

Technical details - Mechanics

MECHANICS
Housing material
ABS
Weight
22 g

Technical details - Ambient data

AMBIENT DATA
Ambient operating temperature
–25 °C ... +55 °C

AMBIENT DATA
Ambient temperature, storage
–30 °C ... +80 °C
Shock load
According to EN 60068-2-27
EMV
EN 60947-5-2
Enclosure rating
IP67

Ordering information

Other models and accessories ➜ www.sick.com/MF

- **Adjustment:** none
- **Light source:** LED
- **Type of light:** infrared
- **Fork width/depth:** 6 mm, 5 mm
- **Note:** 10 pieces package

Switching output	Switching mode	Connection type Detail	Mounting system type	Type	Part no.
NPN	Light/dark switching	Cable open end, 4-wire	F	MF-F0605N141P10	6091028
			K	MF-K0605N141P10	6091024
			L	MF-L0605N141P10	6091026
			R	MF-R0605N141P10	6091030
			U	MF-U0605N141P10	6091032
PNP	Light/dark switching	Cable open end, 4-wire	F	MF-F0605P141P10	6091029
			K	MF-K0605P141P10	6091025
			L	MF-L0605P141P10	6091027
			R	MF-R0605P141P10	6091031
			U	MF-U0605P141P10	6091033

- **Adjustment:** none
- **Light source:** LED
- **Type of light:** infrared
- **Fork width/depth:** 6 mm, 5 mm
- **Note:** 1 piece single packaging

Switching output	Switching mode	Connection type Detail	Mounting system type	Type	Part no.
NPN	Light/dark switching	Cable open end, 4-wire	F	MF-F0605N141ZZZ	6090465
			K	MF-K0605N141ZZZ	6090460
			L	MF-L0605N141ZZZ	6090462
			R	MF-R0605N141ZZZ	6090468
			U	MF-U0605N141ZZZ	6090470
PNP	Light/dark switching	Cable open end, 4-wire	F	MF-F0605P141ZZZ	6090467
			K	MF-K0605P141ZZZ	6090461
			L	MF-L0605P141ZZZ	6090463
			R	MF-R0605P141ZZZ	6090469
			U	MF-U0605P141ZZZ	6090471

- **Adjustment:** none
- **Light source:** LED
- **Type of light:** infrared
- **Fork width/depth:** 6 mm, 8 mm
- **Note:** 10 pieces package

Switching output	Switching mode	Connection type Detail	Mounting system type	Type	Part no.
NPN	Light/dark switching	Cable open end, 4-wire	F	MF-F0608N141P10	6090830
			K	MF-K0608N141P10	6090824
			L	MF-L0608N141P10	6090826
			R	MF-R0608N141P10	6090832
			T	MF-T0608N141P10	6090828
			Y	MF-Y0608N141P10	6090834
PNP	Light/dark switching	Cable open end, 4-wire	F	MF-F0608P141P10	6090831
			K	MF-K0608P141P10	6090825
			L	MF-L0608P141P10	6090827
			R	MF-R0608P141P10	6090833
			T	MF-T0608P141P10	6090829
			Y	MF-Y0608P141P10	6090835

- **Adjustment:** none
- **Light source:** LED
- **Type of light:** infrared
- **Fork width/depth:** 6 mm, 8 mm
- **Note:** 1 piece single packaging

Switching output	Switching mode	Connection type Detail	Mounting system type	Type	Part no.
NPN	Light/dark switching	Cable open end, 4-wire	F	MF-F0608N141ZZZ	6090407
			K	MF-K0608N141ZZZ	6090401
			L	MF-L0608N141ZZZ	6090403
			R	MF-R0608N141ZZZ	6090409
			T	MF-T0608N141ZZZ	6090405
			Y	MF-Y0608N141ZZZ	6090411
PNP	Light/dark switching	Cable open end, 4-wire	F	MF-F0608P141ZZZ	6090408
			K	MF-K0608P141ZZZ	6090402
			L	MF-L0608P141ZZZ	6090404
			R	MF-R0608P141ZZZ	6090410
			T	MF-T0608P141ZZZ	6090406
			Y	MF-Y0608P141ZZZ	6090412

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

SICK
Sensor Intelligence.