# MHF15
# Optical level switch

Simple, compact and robust

**SICK**
Sensor Intelligence.

## Simple, compact and robust

## Product description

The MHF15 is a compact optical level limit switch which is incredibly easy to commission. The sensor is based on the energetic SICK photoelectric proximity sensor technology, which has been proven and optimized over a number of decades. Thanks to this, the sensor construction is simple, robust and reliable. The use of high-quality materials such as stainless steel 1.4404 and polysulfone, together with the housing design to

enclosure rating IP 69K, guarantees the reliability of the MHF15 not only on the process side, but also in situations where there are adverse ambient conditions outside the tank. The fast, problem-free commissioning does not require medium calibration, allowing reductions in commissioning costs and maintenance. The optical technology makes the MHF15 particularly well-suited to use with water-based media.

## At a glance

- Robust level monitoring in liquid media without additional requirements
- Small, compact design, no medium calibration required
- Process temperature up to 55 °C, process pressure up to 16 bar
- Enclosure rating IP 67 and IP 69K

- Process connection G ½
- Highly resistant thanks to stainless steel housing 1.4404, polysulfone apex
- Output available as PNP or NPN transistor
- FDA-compliant, UL

## Your benefits

- Small, compact sensor also suitable for difficult installation conditions with limited space
- Quick commissioning without medium calibration saves time and costs

- Reduced maintenance, no recalibration required even after long periods of use, as system has no moving mechanical parts

## Additional information

## Detailed technical data

### Features

| | |
|---|---|
| **Medium** | Fluids |
| **Measurement** | Switch |
| **Light source** | LED |
| **Type of light** | Red light |
| **Wave length** | 650 nm |
| **Process temperature** | −25 °C ... +55 °C |
| **Process pressure** | −0.5 bar ... +16 bar |
| **UL approval** | ✔ |

### Mechanics

| | |
|---|---|
| **Wetted parts** | Stainless steel 316L, polysulfone, NBR |
| **Housing material** | Stainless steel 316L |
| **Process connection** | G 1/2 |

### Electronics

| | |
|---|---|
| **Supply voltage** [1] | 10 V DC ... 30 V DC |
| **Ripple** [2] | ≤ 5 $V_{pp}$ |
| **Power consumption** | ≤ 30 mA at 24 V without output load |
| **Protection class** | III |
| **Electrical connection** | M12x1, 4-pin |
| **Signal output** [3] | 1x PNP<br>1x NPN |
| **Switching mode** | Normally closed<br>Normally open |
| **Signal voltage HIGH** | $V_s$ - 2.9 V, $V_s$ |
| **Signal voltage LOW** | Approx. 0 V or ≤ 2.9 V |
| **Output current** [3] | ≤ 100 mA |
| **Response time** | 2 ms |
| **Switching frequency** [4] | 250 Hz |
| **Enclosure rating** | IP 67: EN 60529, IP 69K: EN 40050 |

[1] $V_s$ connections reverse-polarity protected.

[2] May not exceed or fall short of $V_s$ tolerances.

[3] Output overcurrent and short-circuit protected.

[4] With light/dark ratio 1:1.

### Ambient data

| | |
|---|---|
| **Ambient temperature, operation** | −25 °C ... +55 °C |
| **Ambient temperature, storage** | −25 °C ... +70 °C |

## Ordering information

### MHF15

- **Process connection:** G 1/2
- **Process temperature:** −25 °C ... +55 °C
- **Electrical connection:** M12x1, 4-pin
- **Enclosure rating:** IP 67, IP 69K

| Signal output | Switching mode | Model name | Part No. |
|---|---|---|---|
| 1x PNP | Normally closed | MHF15-21NG1PSM | 1052237 |
| | Normally open | MHF15-21NG1HSM | 1052273 |
| 1x NPN | Normally open | MHF15-21NG1TSM | 1052274 |
| | Normally closed | MHF15-21NG1NSM | 1052272 |

## Dimensional drawing



Dimensions in mm (inch)
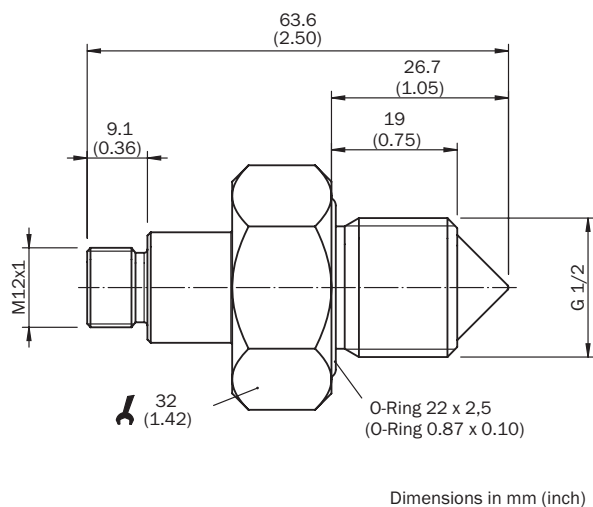
## Connection type and diagram

**Connector M12x1, 4-pin**



| | | |
|---|---|---|
| brn | 1 | L+ |
| blu | 3 | M |
| blk | 4 | Q |
| wht | 2 | NC |
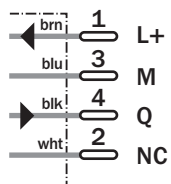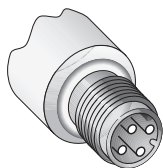
## Recommended accessories

### Flanges, weld-in flange

| Process connection | Material | Model name | Part No. |
|---|---|---|---|
| G 1/2 | 316L | BEF-FL-316G12-LMH1 | 4065669 |

### Plug connectors and cables

| Brief description | Model name | Part No. |
|---|---|---|
| Cable, M12, 4-pin, straight connector female with molded cable, 2 m, PVC | DOL-1204-G02M | 6009382 |
| Cable, M12, 4-pin, straight connector female with molded cable, 2 m, PUR halogen free | DOL-1204-G02MC | 6025900 |
| Cable, M12, 4-pin, straight connector female with molded cable, 5 m, PVC | DOL-1204-G05M | 6009866 |
| Cable, M12, 4-pin, straight connector female with molded cable, 5 m, PUR halogen free | DOL-1204-G05MC | 6025901 |
| Cable, M12, 4-pin, straight connector female with molded cable, 10 m, PVC | DOL-1204-G10M | 6010543 |
| Cable, M12, 4-pin, straight connector female with molded cable, 10 m, PUR halogen free | DOL-1204-G10MC | 6025902 |
| Cable, M12, 4-pin, straight connector female with molded cable, 15 m, PVC | DOL-1204-G15M | 6010753 |
| Cable, M12, 4-pin, angled connector female with molded cable, 2 m, PVC | DOL-1204-W02M | 6009383 |
| Cable, M12, 4-pin, angled connector female with molded cable, 2 m, PUR halogen free | DOL-1204-W02MC | 6025903 |
| Cable, M12, 4-pin, angled connector female with molded cable, 5 m, PVC | DOL-1204-W05M | 6009867 |
| Cable, M12, 4-pin, angled connector female with molded cable, 5 m, PUR halogen free | DOL-1204-W05MC | 6025904 |
| Cable, M12, 4-pin, angled connector female with molded cable, 5 m, PUR halogen free, irradiated | DOL-1204-W05MD | 6020399 |
| Cable, M12, 4-pin, angled connector female with molded cable, 10 m, PVC | DOL-1204-W10M | 6010541 |
| Cable, M12, 4-pin, angled connector female with molded cable, 10 m, PUR halogen free | DOL-1204-W10MC | 6025905 |

## Application information

Use in tanks (side mounting)

The distance A ≥ 40mm (1.57).

Sensor prism B = 8 mm (0.31).

The conical prism is to project into the container.
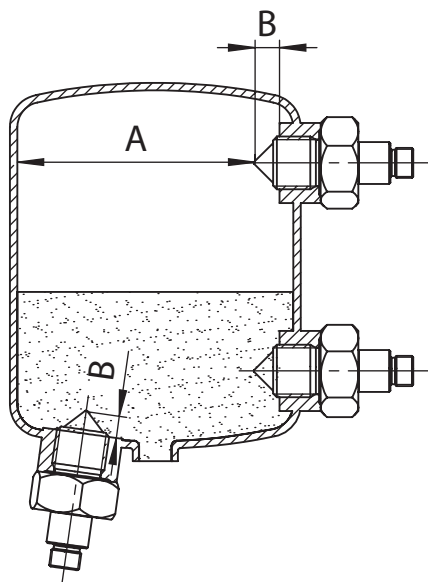
Installation in a pipe for dry running protection. A ≥ 40 mm (1.57)
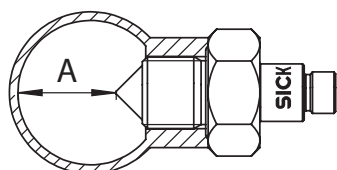
**Note:**

Strong surface-forming liquids can lead to deposits on the sensor and affect the function.

Applications with foam:

- Foam with low density can´t be detected by MHF15.
- Foam with high density can be detected by MHF15 and can lead to faulty operation.

## Notes

Worldwide presence with subsidiaries in the following countries:

Australia

Belgium/Luxembourg

Brasil

Ceská Republika

China

Danmark

Deutschland

España

France

Great Britain

India

Israel

Italia

Japan

Nederland

Norge

Österreich

Polska

Republic of Korea

Republika Slovenija

România

Russia

Schweiz

Singapore

Suomi

Sverige

Taiwan

Türkiye

United Arab Emirates

USA/Canada/México

Please find detailed addresses and additional representatives and agencies in all major industrial nations at www.sick.com

Handed over by:

## Our Business Segment Expertise

### Factory automation

With its intelligent sensors, safety systems, and automatic identification applications, SICK provides comprehensive solutions for factory automation.



- Non-contact detecting, counting, classifying, and positioning of any type of object
- Accident protection and personal safety using sensors, as well as safety software and services

### Logistics automation

Sensors made by SICK form the basis for automating material flows and the optimization of sorting and warehousing processes.



- Automated identification with barcode and RFID reading devices for the purpose of sorting and target control in industrial material flow
- Detecting volume, position, and contours of objects and surroundings with laser measurement systems

### Process automation

Optimized system solutions from SICK ensure efficient acquisition of environmental and process data in many industrial processes.



- Precise measurement of gases, liquids and dust concentrations for continuous monitoring of emissions and the acquisition of process data in production processes
- Gas flow measurements with maximum accuracy thanks to compact gas meters

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com

**SICK**
Sensor Intelligence.