



# FO-04

## Optoelectronic Level Switch for General Applications



## Features

- / Compact design
- / Accuracy  $\pm 2$  mm
- / Status LED
- / Easy to mount
- / No moving parts
- / Easy to maintain
- / Cost-effective

## Description:

An optical sensor is mounted in a robust stainless steel housing. It consists of a borosilicate glass tip which contains an infrared diode, as a transmitter, and a light-sensitive semi-conductor as the receiver. If no fluid moisture touches the sensor tip, the infrared light will be fully reflected by the inside of the borosilicate glass. However, as soon as it dips into the medium a large portion of the transmitted light can pass into the fluid. Registering this, the receiver initiates a switching operation at the device's PNP transistor output which is then directly displayed by a red LED.

## Application:

The applications for the optoelectronic level switch include tapping limit values in a number of fluids. The main advantage is that the method of measurement is to a large extent independent of physical parameters like refractive index, colour, density, dielectric constant or conductivity. The compact design, the possibility of installation in any position as well as the attractive price level recommends the FO-04 especially for general industrial applications.

### Typical applications:

- level detection of fluids, such as e.g. oil, water, aqueous media, etc.
- full or empty reporting
- overflow protection
- dry run protection



## Technical Specifications:

<b>Accuracy /</b>	± 2 mm
<b>Response sensitivity /</b>	preset, for the detection of watery media and oils
<b>max. Pressure /</b>	0...25 bar
<b>max. Media temp. /</b>	-30...+100°C
<b>max. Ambient temp. /</b>	-25...+70°C
<b>Materials /</b>	
Light guide:	borosilicate glass
Housing and process connection	
G 3/8" and M 12 x 1:	stainless steel 1.4305
Housing and process connection G 1/2":	stainless steel 1.4571
<b>Mounting position /</b>	any
<b>min. Clearance from the glass tip to an opposite surface /</b>	≥ 10 mm, ≥ 20 mm (with electropolished surface)
<b>Visual indication of the switching status /</b>	1x yellow LED
<b>Process connection /</b>	G 3/8", G 1/2" or M12 x 1

## Electrical Specifications:

<b>Supply voltage /</b>	12...32 VDC
<b>max. Consumption /</b>	40 mA
<b>Output /</b>	PNP-Transistor, protected against reverse polarity 200 mA switching circuit
<b>Electr. connection /</b>	
Circular connector:	M8 x 1, 3-pin
PUR cable:	standard lengths: 2 m or 5 m diameter: 3 x 0.25 mm <sup>2</sup> cable end: open
<b>Switching function /</b>	NO (closed when immersed) or NC (open when immersed)
<b>Switch points /</b>	1
<b>Protection class /</b>	IP 65 (counter plug screwed on)
<b>Options /</b>	adjustable responsiveness (Trimmer) for other liquids and foaming media
<b>Cable configuration/</b>	BN: U <sub>+</sub> WN: U <sub>-</sub> GN: SP
<b>M8 rounded plug configuration /</b>	1: U <sub>+</sub> 3: U <sub>-</sub> 4: SP



## Ordering Codes:

<b>Order number</b>	<b>FO-04.</b>	<b>1.</b>	<b>3.</b>	<b>1.</b>	<b>1.</b>	<b>1</b>
<b>FO-04 Optoelectronic Level Switch</b>						
<b>Process connection /</b>						
1 = G 1/2" - male						
2 = G 3/8" - male						
3 = M 12 x 1 - male						
<b>Electrical connection /</b>						
1 = 2 m PUR cable						
2 = 5 m PUR cable						
3 = rounded plug M8 x 1, 3-pin (without counter plug)						
<b>Output /</b>						
1 = NC (closed when immersed)						
2 = NO (open when immersed)						
<b>Media /</b>						
1 = water						
9 = other (please specify in text)						
<b>Options /</b>						
0 = none						
1 = counter plug M8 x 1 with 2 m cable						
2 = Trimmer						
9 = other (please specify in text)						

## Dimensions in mm:

Version: FO-04.1.3.x.x.0

