

# Point level switch for liquid and pasty media in the food and beverage industry

## Liquipoint FTW33



€ 229.-  
11-35 pcs.

- Flush-mounted installation, pipes remain piggyback
- For water- and oil-based media
- Reliable switching function due to compensation even in the case of heavy buildup

### i Specs at a glance:

- **Product:**  
Water- and oil-based media with an DC  $\geq 2$
- **Installation:**  
Vessels and pipes
- **Process temperature range:**  
-20 to +100 °C (-4 to +212 °F)  
(For 1 hour: +150 °C (+302 °F))
- **Process pressure range:**  
-1 to +25 bar  
(-14.5 to +362.5 psi)

**Application** The Liquipoint FTW33 is a point level switch for liquid and pasty media. It is used preferably in storage tanks, mixing vessels and pipes. Developed and built for the food and beverage industry, the Liquipoint FTW33 meets international hygienic requirements. It is particularly suited to applications where flush-mounting is necessary.

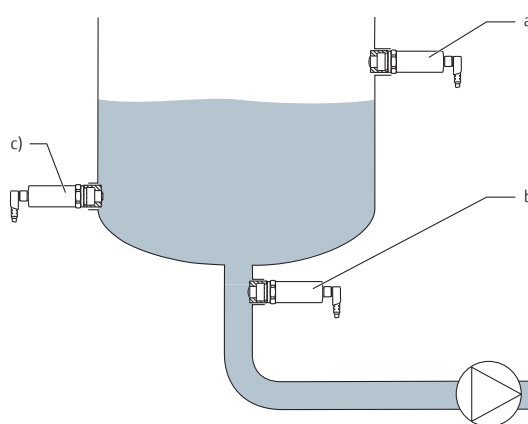
The Liquipoint FTW33 can be used permanently in process temperatures up to 100 °C (212 °F) and for 60 minutes in cleaning and sterilization processes up to 150 °C (302 °F). The Liquipoint FTW33 can also be used for detecting the foam that commonly occurs within the food and beverage industry.

**Function** A low, galvanically isolated AC voltage is applied at the electrode in contact with the process. If liquid or pasty media come in contact with the electrode, a measurable current flows and the Liquipoint FTW33 switches. Active buildup compensation ensures reliable switching of the measuring device even if buildup occurs on the sensor.

 **IO-Link**

 Complete product information:  
[www.e-direct.endress.com/ftw33](http://www.e-direct.endress.com/ftw33)

### Application example



The measuring system consists of a Liquipoint FTW33 point level switch, e.g. for connection to programmable logic controllers (PLC).

- a) Overfill protection or upper level detection (MAX)
- b) Pump dry running protection (MIN)
- c) Lower level detection (MIN)

## Technical data

Output	
Function	<ul style="list-style-type: none"> <li>– 3-wire DC-PNP</li> <li>– Positive voltage signal at the switch output of the electronics</li> <li>– IO-Link: 2 DC-PNP outputs, freely configurable</li> </ul>
Connectable load	200 mA (short-circuit proof)
Residual voltage	<3 V
Residual current	<100 µA
Supply voltage	<ul style="list-style-type: none"> <li>– 10 to 30 V DC</li> <li>– IO-Link: 18 to 30 V DC</li> </ul>
Power consumption	<1 W (at max. load: 200 mA)
Current consumption	<15 mA
Cable specification	<ul style="list-style-type: none"> <li>– M12 connector: IEC 60947-5-2</li> <li>– Valve plug: Cable cross-section ≤1.5 mm<sup>2</sup> (16 AWG); Ø 3.5 to 6.5 mm</li> <li>– Cable: Cable cross-section 0.75 mm<sup>2</sup> (AWG 20)</li> </ul>
Connecting cable length	<ul style="list-style-type: none"> <li>– max. 25 Ω/core, total capacitance &lt;100 nF</li> <li>– IO-Link communication: &lt; 10 nF</li> </ul>
Performance characteristics	
Reference operating conditions	<ul style="list-style-type: none"> <li>– Ambient temperature: 20 °C (68 °F) ±5 °C</li> <li>– Medium temperature: 20 °C (68 °F) ±5 °C</li> <li>– Process pressure: 1 bar (14.5 psi)</li> <li>– Medium: water</li> <li>– Conductivity: approx. 200 µS/cm</li> </ul>
Maximum uncertainty	±1 mm (0.04 in) in accordance with DIN 61298-2
Hysteresis	max. 1 mm (0.04 in)
Non-repeatability	±0.5 mm (0.02 in) in accordance with DIN 61298-2
Switching delay	<ul style="list-style-type: none"> <li>– 0.5 s when sensor is covered; (can be configured via IO-Link 0.3 to 60 s)</li> <li>– 1.0 s when sensor is uncovered (can be configured via IO-Link 0.3 to 60 s)</li> </ul>
Switch-on delay	<ul style="list-style-type: none"> <li>– &lt;1 s (no defined switching status before this)</li> <li>– IO-Link: &lt; 2 s (no defined switching status before this)</li> </ul>
Orientation	any position
Environment	
Ambient temperature range	At the housing: –40 to +70 °C (–40 to +158 °F)
Storage temperature	–40 to +85 °C (–40 to +185 °F)
Climate class	DIN EN 60068-2-38/IEC 68-2-38: test Z/AD
Degree of protection	<ul style="list-style-type: none"> <li>– IP65 (valve plug)</li> <li>– IP65/67 NEMA Type 4X Enclosure (connector for plastic housing cover)</li> <li>– IP66/68/69K NEMA Type 4X/6P Enclosure (M12 connector for metal housing cover)</li> <li>– IP66/68 NEMA Type 4X/6P Encl. (cable)</li> </ul>
Cleaning	Resistant to typical cleaning agents from the outside, in accordance with Ecolab test.
Electromagnetic compatibility	<ul style="list-style-type: none"> <li>– In accordance with EN 61326-Series series and NAMUR Recommendation EMV (NE 21).</li> <li>– Only the requirements of IEC/EN 61131-9 are met if IO-Link communication is used.</li> </ul>
Short-circuit protection	Overload protection/short-circuit protection at I >250 mA; the sensor is not destroyed. Intelligent monitoring: Testing for overload at intervals of approx. 1.5 s; normal operation resumes once the overload/short-circuit has been rectified

Process	
Process temperature range	–20 to +100 °C (–4 to +212 °F), M24 process adapter with EPDM process seal for 1 h: +130 °C (+266 °F)
Process pressure range	–1 to +25 bar (–14.5 to +362.5 psi)
Standard	Water- or alcohol-based media (DC ≥ 10)
Extended	Oil-based media (DC > 2.4) or media that form heavy buildup
IO-Link	Adjustment up to DC > 2.4 via the IO-Link interface for water-, alcohol- and oil-based liquids or powdered products

### Mechanical construction

Weight	approx. 300 g (10.58 oz)
Materials in contact with process	<ul style="list-style-type: none"> <li>– Sensor: 316L (1.4404), PEEK</li> <li>The material PEEK meets the requirements of EU 1935/2004, 10/2011 as well as 2023/2006 and FDA 21 CFR 177.2415</li> <li>– Process connection: 316L (1.4404 (1.4435))</li> </ul>
Materials not in contact with process	Housing covers: <ul style="list-style-type: none"> <li>– M12 metal: 316L (1.4404)</li> <li>– M12 plastic: PPSU; Design ring: PBT/PC</li> <li>– Valve connector, plastic: PPSU</li> <li>– Plastic cable: PPSU</li> <li>Housing: 316L (1.4404)</li> </ul>
Surface	R <sub>a</sub> ≤0.76 µm (30 µin)

### Operation

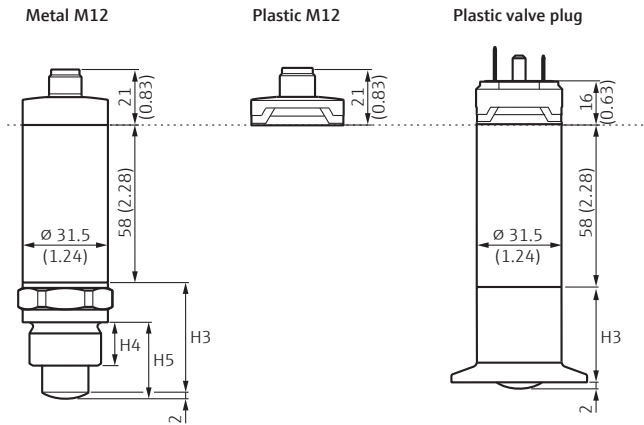
Options	<ul style="list-style-type: none"> <li>– Local</li> <li>– Via test magnet</li> <li>– Via IO-Link operating menu</li> </ul>
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### Approvals

Approval	CSA C/US General Purpose
Sanitary compatibility	3-A EHEDG

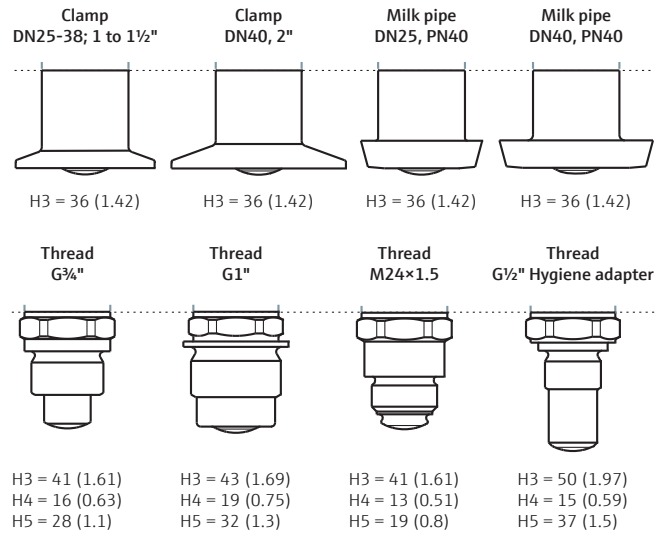
## Dimensions in mm (inches)

### Housing, electrical connection



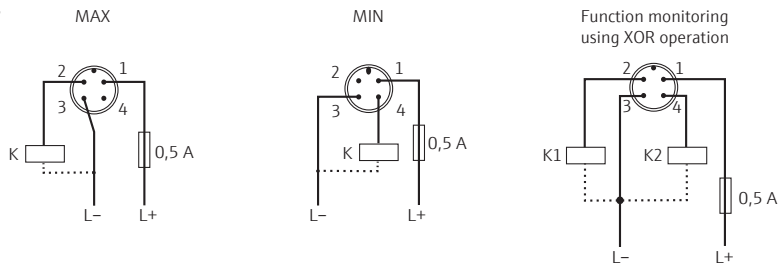
Installation according to instruction manual.

### Process connections

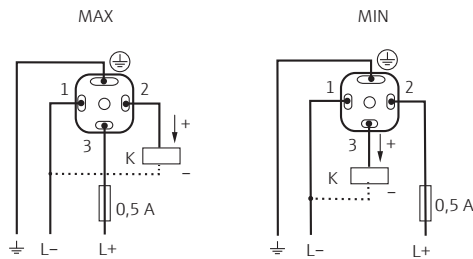


## Electrical connection

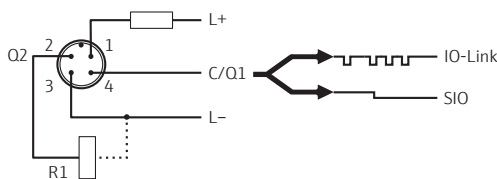
### M12 connector



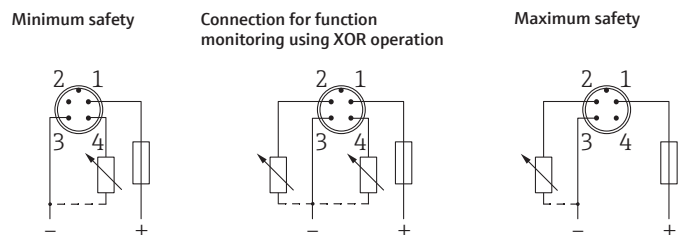
### Valve plug



### IO-Link with one switch output



### Terminal assignment



- Pin 1 Supply voltage +
- Pin 2 1st switch output
- Pin 3 Supply voltage -
- Pin 4 IO-Link communication or 2nd switch output (SIO mode)

## Price table

## Power supply; output

Code	Version
4	10 to 30 V DC; 3-wire DC-PNP
7	DC-PNP, IO-Link; 4-wire

Liquipoint FTW33		Order no.	Price/pcs. in €		
Electrical connection	Process connection		1 to 3	4 to 10	11 to 35
M12 connector, IP65/67 NEMA Type 4 Enclosure	Thread ISO228 G1	FTW33-AA <input type="checkbox"/> MWSJ	291.-	262.-	239.-
	Thread ISO228 G½	FTW33-AA <input type="checkbox"/> MWVJ	287.-	258.-	235.-
	Thread ISO228 G¾	FTW33-AA <input type="checkbox"/> MW5J	279.-	251.-	229.-
	DIN11851 DN25 PN40	FTW33-AA <input type="checkbox"/> M1AJ	328.-	295.-	269.-
	DIN11851 DN40 PN40	FTW33-AA <input type="checkbox"/> M1CJ	328.-	295.-	269.-
	Tri-Clamp ISO2852 DN25-38 (1 to 1½")	FTW33-AA <input type="checkbox"/> M3CJ	328.-	295.-	269.-
	Tri-Clamp ISO2852 DN40-51 (2")	FTW33-AA <input type="checkbox"/> M3EJ	328.-	295.-	269.-
M12 connector, IP66/68/69K NEMA Type 4/6P Enclosure	Thread ISO228 G1	FTW33-AA <input type="checkbox"/> NWSJ	315.-	283.-	258.-
	Thread ISO228 G½	FTW33-AA <input type="checkbox"/> NWWJ	310.-	279.-	254.-
	Thread ISO228 G¾	FTW33-AA <input type="checkbox"/> NW5J	303.-	273.-	248.-
	DIN11851 DN25 PN40	FTW33-AA <input type="checkbox"/> N1AJ	351.-	316.-	288.-
	DIN11851 DN40 PN40	FTW33-AA <input type="checkbox"/> N1CJ	351.-	316.-	288.-
	Tri-Clamp ISO2852 DN25-38 (1 to 1½")	FTW33-AA <input type="checkbox"/> N3CJ	351.-	316.-	288.-
	Tri-Clamp ISO2852 DN40-51 (2")	FTW33-AA <input type="checkbox"/> N3EJ	351.-	316.-	288.-

\* Please add code for power supply; output

Accessories	Order no.	Price/pcs. in €
Weld-in adapter G¾, d=50, 316L	71258355	26.52
Weld-in adapter G¾, d=29, 316L	71258357	26.75
Weld-in adapter G1, d=60, 316L	52001051	38.86
Weld-in adapter G1, d=53, 316L	71258358	38.87
5 m cable with M12×1 plug + integrated LED	52018763	20.81
5 m cable with M12×1 plug	52010285	7.25
Straight plug, without cable (self wired)	52006263	15.55
Test magnet	71267011	7.25

Prices are applicable for Estonia until 30/06/2020, in euro per unit, net excluding value added tax (VAT), cost of packing and dispatch. Endress+Hauser retains the right to change or modify pricing at any time. The terms of sales and delivery of Endress+Hauser are applicable. Current prices and delivery times can be verified prior to ordering on [www.e-direct.endress.com](http://www.e-direct.endress.com).

Complete product information:  
[www.e-direct.endress.com/ftw33](http://www.e-direct.endress.com/ftw33)

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