

Conductive level switch for multiple point detection

Liquipoint T FTW31 / FTW32



€ 83.-
11-35 pcs.

- Detect up to five level limits with one probe
- Flexible instrumentation (compact/ separate)
- No moving parts

i Specs at a glance:

- **Product:** liquids as of 10 $\mu\text{S}/\text{cm}$
- **Approval:** ATEX II 2G EEx ia
- **Measuring points:** up to 4 measuring points with 5 rods or ropes
- **Product temperature:** -40 to $+100$ °C (-40 to $+212$ °F)
- **Process pressure:** -1 to $+10$ bar (-14.5 to $+145$ psi)

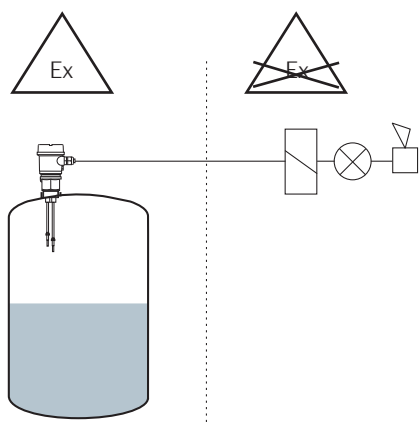
Application Liquipoint T sensors are used in conductive liquids for determining point levels. Depending on the number of measuring points, measuring tasks such as overspill protection, dry running protection, two-point control of pumps or multiple point detection can be implemented within an existing process connection.

Function An alternating voltage exists between the rod probes in an empty tank. As soon as the conductive liquid in the tank creates a connection between the ground rod probe and the maximum rod probe, for example, a measurable current flows and the Liquipoint T switches. By using alternating voltage, corrosion of the probe ends and electrolytic destruction of the product is avoided.

Complete product information: www.e-direct.endress.com/ftw3x

Application Examples

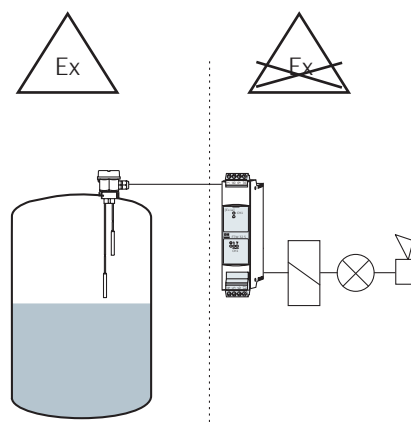
Probes with integrated electronic insert (compact instrument version)



The measuring system consists of:

- FTW31, FTW32 with two/three rods or ropes and an electronic insert
- Control units, switches or signal transmitters, e.g. process control systems PLC, relays or NAMUR isolating amplifier according to IEC 60947-5-6

Probes without integrated electronic insert (separate instrument version)



The measuring system consists of:

- FTW31, FTW32 with two to five rods or ropes
- Nivotester FTW325 or FTW470 Z
- Control units, switches or signal transmitters, e.g. process control systems PLC, relays, etc.

The number of Nivotester depends on the number of measuring points (e.g. 4 measuring points with 2 Nivotester FTW).

Technical data

General

Version	Compact version: two/three (Always ΔS-mode – only three rod-/rope versions) rods or ropes; Separate version (With integrated line monitoring – in combination with level limit switch FTW325): two/three/five rods or ropes
Sensor length	Rod: 100 to 4000 mm (4" to 157"); rope: 250 to 15000 mm (10" to 590")
Minimum conductivity	≥10 μS/cm
Cable specification	use standard cable (25 Ω per core)

Operating conditions

Medium temp.	-40 to +100 °C (-40 to +212 °F)
Ambient temp.	-40 to +70 °C (-40 to +158 °F)
Pressure	-1 to +10 bar (-14.5 to +145 psi)
Ingress Protection	IP 66
Process connection	G1½"

Material

Electrodes	Rods: 1.4404 (316L)/insulation: PP; ropes: 1.4571 (316TI)/insulation: FEP; weight: 1.4435 (316L)
Process connection	PPS
Housing F16	For compact instrument version; housing: PBT; hat: PPS; adapter: PBT
Housing F24	For separate instrument version; housing: PPS; hat: PBT

Approvals (Compact instrument version)

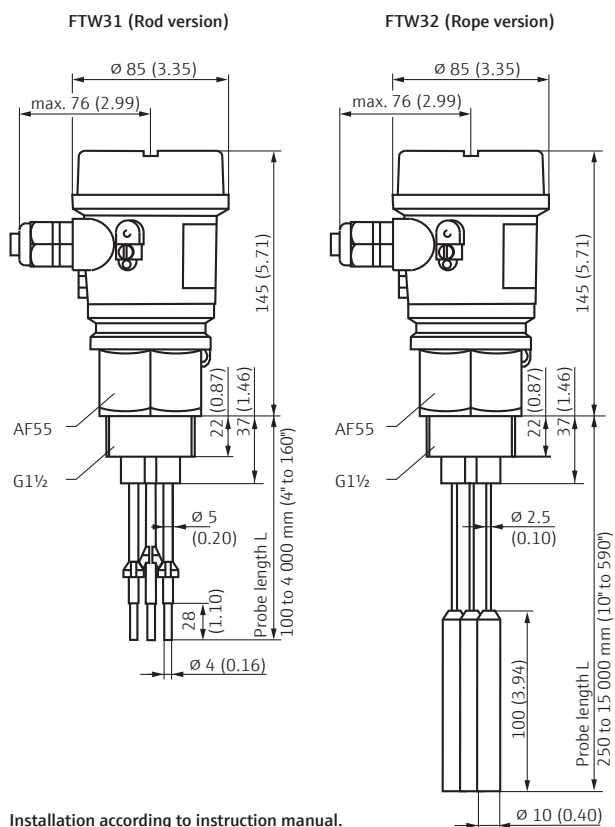
Ex approval	ATEX II 2G EEx ia IIC T6 with FEW58
WHG approval	WHG Z-65.40-360 (DIBt)

Approvals (Separate instrument version)

Ex approval	ATEX II 2G EEx ia IIC T6
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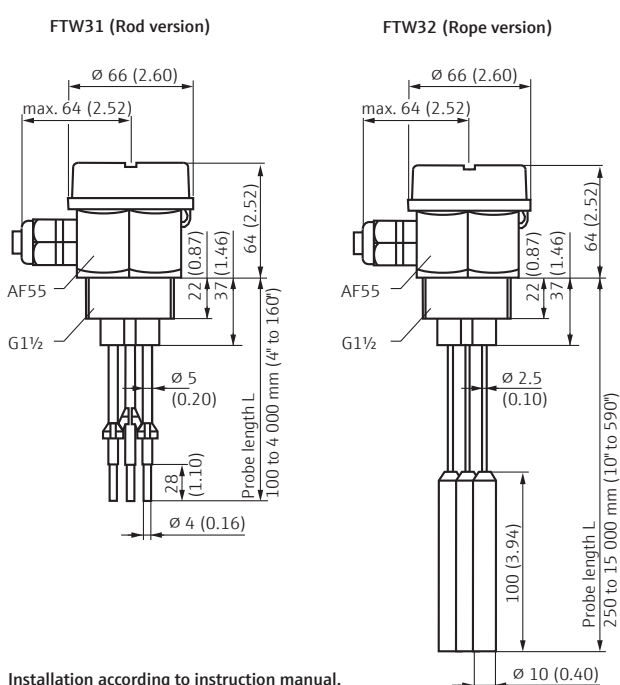
Dimensions in mm (inches)

Compact instrument version with electronic insert



Installation according to instruction manual.

Separate instrument version without electronic insert

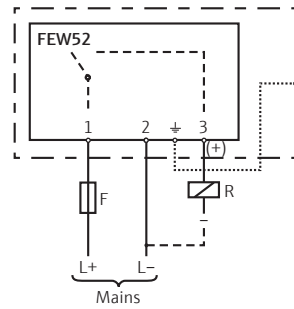


Installation according to instruction manual.

Electrical connection – Probes with electronic insert (compact instrument version)

Electronic insert FEW52

Supply voltage	U = 10.8 to 45 V DC
Current consumption	Max. 25 mA
Load connection	Open collector; PNP
Switching voltage	Max. 45 V
Connectable load	Temporary (max. 1 sec): max. 2 A Continuous: max. 200 mA
Protected against reverse polarity	Yes

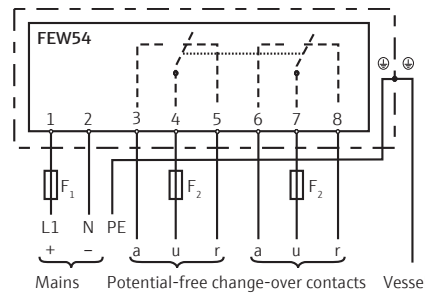


Connecting the FEW52 electronic insert

- F: Fine-wire fuse, dependent on connected load
- R: Connected load, e.g. PLC, PLS, relay
- M: Ground connection to protective earth (PE)

Electronic insert FEW54

Supply voltage	20 to 55 V DC or 20 to 253 V AC, 50/60 Hz
Current consumption	60 mA
Peak inrush current	Max. 2 A, max. 400 μ s
Pulse frequency	Approx. 1.5 s
Output	Two potential-free changeover contacts (DPDT)
Contact load capacity	U ~ max. 253 V, I ~ max. 4 A, U = 30 V/4 A; 150 V/ 0.2 A
Power consumption	<2.0 W

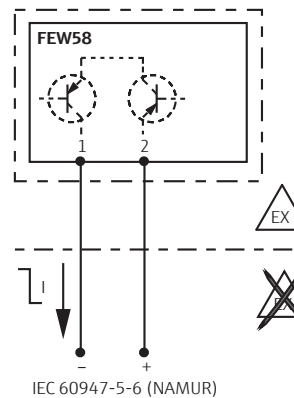


Connecting the FEW54 electronic insert

- F1: Fine-wire fuse, 200 mA, semi-time lag
- F2: Fine-wire fuse to protect the relay contact, load-dependent
- M: Ground connection to PE (protective earth)

Electronic insert FEW58

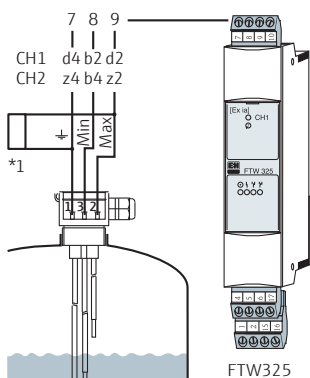
Supply voltage	see Technical data of connected isolating amplifier according to IEC 60947-5-6 (NAMUR).
Use with a separate contactor	according to IEC 60947-5-6 (NAMUR); output signal leap of high to low electricity on limit (H-L-flank).
Two-wire signal transfer:	H-L-edge 2.2 to 6.5 mA/0.4 to 1.0 mA
Output signal of damaged sensor:	<1.0 mA
On access to a multiplexer	the cycle time is to adjust on min. 2 sec.



IEC 60947-5-6 (NAMUR)

e.g. FTL325N

Electrical connection – Probes without integrated electronic insert (separate-instrument version)



For evaluation one or more FTW325 processor units are needed. Separate instrumentation for three-rod- or rope-probes with cable monitoring.

*1 = Printed circuit board for cable monitoring

Price table

Liquipoint T FTW31 (Probe length: 1 000 mm)			Order no.	Price/pcs. in €		
Approval	Electronics	Sensing points		1 to 3	4 to 10	11 to 35
Non Ex	Separate instrument version	2 rods	FTW31-A1A2CA0A	94.-	87.-	83.-
		3 rods	FTW31-A1A3CA0A	116.-	108.-	103.-
		5 rods	FTW31-A1A5CA0A	132.-	123.-	116.-
	Compact instrument version (FEW52)	2 rods	FTW31-A1A2CA2A	167.-	155.-	147.-
		3 rods	FTW31-A1A3CA2A	189.-	176.-	166.-
	Compact instrument version (FEW54)	2 rods	FTW31-A1A2CA4A	167.-	155.-	147.-
3 rods		FTW31-A1A3CA4A	189.-	176.-	166.-	
Non Ex, WHG, leakage-detection	Separate instrument version	2 rods	FTW31-B1A2CA0A	113.-	105.-	99.-
		3 rods	FTW31-B1A3CA0A	135.-	126.-	119.-
		5 rods	FTW31-B1A5CA0A	151.-	140.-	133.-
	Compact instrument version (FEW52)	2 rods	FTW31-B1A2CA2A	185.-	173.-	163.-
		3 rods	FTW31-B1A3CA2A	208.-	193.-	183.-
	Compact instrument version (FEW54)	2 rods	FTW31-B1A2CA4A	185.-	173.-	163.-
3 rods		FTW31-B1A3CA4A	208.-	193.-	183.-	
ATEX, WHG, leakage-detection	Separate instrument version	2 rods	FTW31-D1A2CA0A	110.-	102.-	97.-
		3 rods	FTW31-D1A3CA0A	133.-	123.-	117.-
		5 rods	FTW31-D1A5CA0A	148.-	138.-	130.-
	Compact instrument version (FEW58)	2 rods	FTW31-D1A2CA8A	183.-	170.-	161.-
		3 rods	FTW31-D1A3CA8A	205.-	191.-	181.-

Liquipoint T FTW31 (Probe length: 2 000 mm)			Order no.	Price/pcs. in €		
Approval	Electronics	Sensing points		1 to 3	4 to 10	11 to 35
Non Ex	Separate instrument version	2 rods	FTW31-A1A2DA0A	101.-	94.-	89.-
		3 rods	FTW31-A1A3DA0A	124.-	115.-	109.-
		5 rods	FTW31-A1A5DA0A	139.-	129.-	122.-
	Compact instrument version (FEW52)	2 rods	FTW31-A1A2DA2A	174.-	162.-	153.-
		3 rods	FTW31-A1A3DA2A	197.-	183.-	173.-
	Compact instrument version (FEW54)	2 rods	FTW31-A1A2DA4A	174.-	162.-	153.-
3 rods		FTW31-A1A3DA4A	197.-	183.-	173.-	
Non Ex, WHG, leakage-detection	Separate instrument version	2 rods	FTW31-B1A2DA0A	120.-	112.-	106.-
		3 rods	FTW31-B1A3DA0A	143.-	133.-	126.-
		5 rods	FTW31-B1A5DA0A	158.-	147.-	139.-
	Compact instrument version (FEW52)	2 rods	FTW31-B1A2DA2A	193.-	179.-	170.-
		3 rods	FTW31-B1A3DA2A	215.-	200.-	190.-
	Compact instrument version (FEW54)	2 rods	FTW31-B1A2DA4A	193.-	179.-	170.-
3 rods		FTW31-B1A3DA4A	215.-	200.-	190.-	
ATEX, WHG, leakage-detection	Separate instrument version	2 rods	FTW31-D1A2DA0A	118.-	109.-	103.-
		3 rods	FTW31-D1A3DA0A	140.-	130.-	123.-
		5 rods	FTW31-D1A5DA0A	155.-	144.-	137.-
	Compact instrument version (FEW58)	2 rods	FTW31-D1A2DA8A	190.-	177.-	167.-
		3 rods	FTW31-D1A3DA8A	213.-	198.-	187.-

Accessories	Order no.	Price/pcs. in €
Lock nut G1½"	52014146	22.52

Price table

Liquipoint T FTW32 (Probe length: 5 000 mm)			Order no.	Price/pcs. in €			
Approval	Electronics	Sensing points		1 to 3	4 to 10	11 to 35	
Non Ex	Separate instrument version	2 ropes	FTW32-A1D2CA0A	134.-	124.-	118.-	
		3 ropes	FTW32-A1D3CA0A	157.-	146.-	138.-	
		5 ropes	FTW32-A1D5CA0A	264.-	245.-	232.-	
	Compact instrument version (FEW52)	2 ropes	FTW32-A1D2CA2A	206.-	192.-	181.-	
		3 ropes	FTW32-A1D3CA2A	229.-	213.-	202.-	
		3 ropes	FTW32-A1D3CA4A	229.-	213.-	202.-	
	Non Ex, WHG, leakage-detection	Separate instrument version	2 ropes	FTW32-B1D2CA0A	152.-	142.-	134.-
			3 ropes	FTW32-B1D3CA0A	175.-	163.-	154.-
			5 ropes	FTW32-B1D5CA0A	283.-	263.-	249.-
Compact instrument version (FEW52)		2 ropes	FTW32-B1D2CA2A	225.-	209.-	198.-	
		3 ropes	FTW32-B1D3CA2A	248.-	231.-	218.-	
		3 ropes	FTW32-B1D3CA4A	248.-	231.-	218.-	
ATEX, WHG, leakage-detection		Separate instrument version	2 ropes	FTW32-D1D2CA0A	150.-	140.-	132.-
			3 ropes	FTW32-D1D3CA0A	173.-	161.-	152.-
			5 ropes	FTW32-D1D5CA0A	280.-	261.-	247.-
	Compact instrument version (FEW58)	2 ropes	FTW32-D1D2CA8A	223.-	207.-	196.-	
		3 ropes	FTW32-D1D3CA8A	246.-	229.-	216.-	

Liquipoint T FTW32 (Probe length: 10 000 mm)			Order no.	Price/pcs. in €			
Approval	Electronics	Sensing points		1 to 3	4 to 10	11 to 35	
Non Ex	Separate instrument version	2 ropes	FTW32-A1D2DA0A	164.-	152.-	144.-	
		3 ropes	FTW32-A1D3DA0A	187.-	174.-	164.-	
		5 ropes	FTW32-A1D5DA0A	294.-	273.-	259.-	
	Compact instrument version (FEW52)	2 ropes	FTW32-A1D2DA2A	236.-	220.-	208.-	
		3 ropes	FTW32-A1D3DA2A	259.-	241.-	228.-	
		3 ropes	FTW32-A1D3DA4A	259.-	241.-	228.-	
	Non Ex, WHG, leakage-detection	Separate instrument version	2 ropes	FTW32-B1D2DA0A	183.-	170.-	161.-
			3 ropes	FTW32-B1D3DA0A	206.-	191.-	181.-
			5 ropes	FTW32-B1D5DA0A	313.-	291.-	275.-
Compact instrument version (FEW52)		2 ropes	FTW32-B1D2DA2A	255.-	237.-	225.-	
		3 ropes	FTW32-B1D3DA2A	278.-	259.-	245.-	
		3 ropes	FTW32-B1D3DA4A	278.-	259.-	245.-	
ATEX, WHG, leakage-detection		Separate instrument version	2 ropes	FTW32-D1D2DA0A	180.-	168.-	159.-
			3 ropes	FTW32-D1D3DA0A	203.-	189.-	179.-
			5 ropes	FTW32-D1D5DA0A	310.-	289.-	273.-
	Compact instrument version (FEW58)	2 ropes	FTW32-D1D2DA8A	253.-	235.-	223.-	
		3 ropes	FTW32-D1D3DA8A	276.-	257.-	243.-	

Accessories	Order no.	Price/pcs. in €
Lock nut G1½"	52014146	22.52

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.

Complete product information:
www.e-direct.endress.com/ftw3x

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Switching unit
Nivotester FTW325



Capacitive probe
Liquicap T FMI21



Temperature switch
Thermophant T TTR31