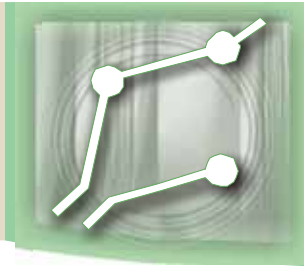


level SWITCH

TF & MTF series



applications

- Overfill Protection
- High & Low level alarms
- Pump protection
- Dry pipe detection
- Hygienic application
- Wet Pipe detection

Vibrating Probe Level Switches for Liquids

benefits

- No mechanical moving parts to wear
- No maintenance required
- Simple to install - no adjustments required
- Unaffected by environmental changes
- Unaffected by dust clouds and agitation
- Maximum versatility

The operating principle is the same for all vibrating probe level switches. A piezo-electric crystal is used to force a blade to oscillate at its fundamental frequency (natural resonance). When the blades come into contact with the process medium the natural frequency of oscillation is damped; the electronics sense the change in frequency which causes the unit to switch.

The different electronic outputs to choose from allows the user to switch a load on/off or to interface directly with a computer. The units can be programmed to sense high or low level and failsafe high or low, with adjustable sensitivity to eliminate false switching. The switch is only sensitive at the tip, which minimises the effect of build-up on tank walls, on its operation.

As the damping effect (resistance to vibration) of low viscosity liquids is very small, it is common to use two relatively wide blades to sense the presence of liquid levels. These blades can be short in length for minimal intrusion into the vessel or for use in pipes.

The TF Series

This rugged design of switch is used throughout the process industries. It is available with a wide range of flanged or screwed process connections and can have extensions, enabling the probe to reach 3 metres into a tank if required.

The wetted parts of standard switches are 316 stainless steel but special Halar coated and Hastelloy switches are used for extremely corrosive applications and hygienic probes are available for the food industry.

The switch has visual indication of its on/off status and a magnetic test point on the side of the housing to allow an operator to check the function of the switch.

An intrinsically safe and explosion proof version of the switch is available for hazardous areas.

TF Series has a status indicating 'PULSE' LED which can be seen at all times through a lens in the cover. The LED will flash (once per second) when the TF Series is 'off' and will be constantly lit when the TF Series is 'on'. The LED gives an indication that the switch is functioning correctly and gives a visual indication of the state of the wet side.

A mode switch allows the user to select whether the TF Series is to be set to

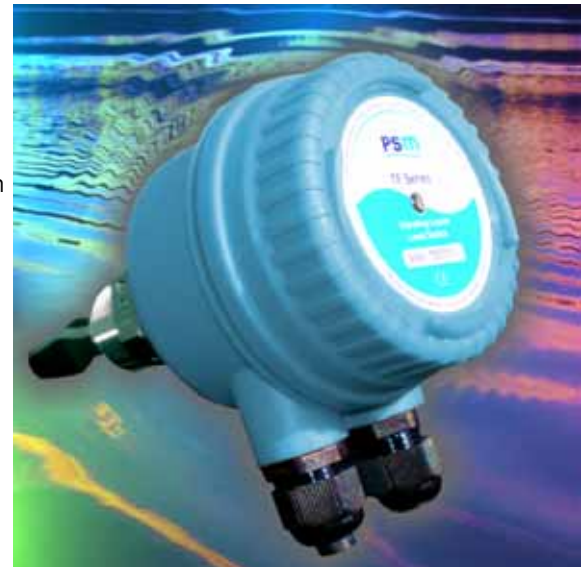
switch from wet to dry (typically low alarm) or from dry to wet (typically high alarm). A time delay from 0.3, 1, 3, 10, or 30 seconds may be selected to eliminate false switching when the liquid surface is turbulent or agitated.

A magnetic test point on the side of the housing, allows the user to perform a functional test of the TF Series. By touching a magnet on the point indicated the output will change state while the magnet is present, allowing testing of any connected alarms or other outputs.

Standard two core cable with any power supply from 24 to 260V ac or 24 to 60Vdc is used to connect TF Series with the load and achieve direct load switching. The output acts as a simple SPST switch that changes with liquid presence. Alternatively the switching function of the SPCO relay will provide volt free contacts. The TF Series also has the option of electronics which can be interfaced directly to a PLC using the PNP transistor output model (three-wire).

Intrinsically Safe (IS) units to ATEX Eexia approval interface directly with standard NAMUR (DIN 19234, IEC 60947-5-6) isolation amplifiers.

Using Short Fork Technology offers many advantages to the user enabling the switch to operate in small vessels or pipes. Extensive research has maximised the operational effectiveness of the fork to enable it to operate with aerated liquids and slurries, and to function even when coated with product.



The MTF Series

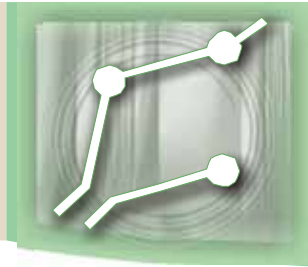
The MTF is designed specifically for OEM equipment and has a smaller and more cost effective configuration, but still retains the status LED and test point featured in the TF series.

This compact low cost switch has a rugged stainless steel body and stainless steel forks for use in a wide range of liquids.



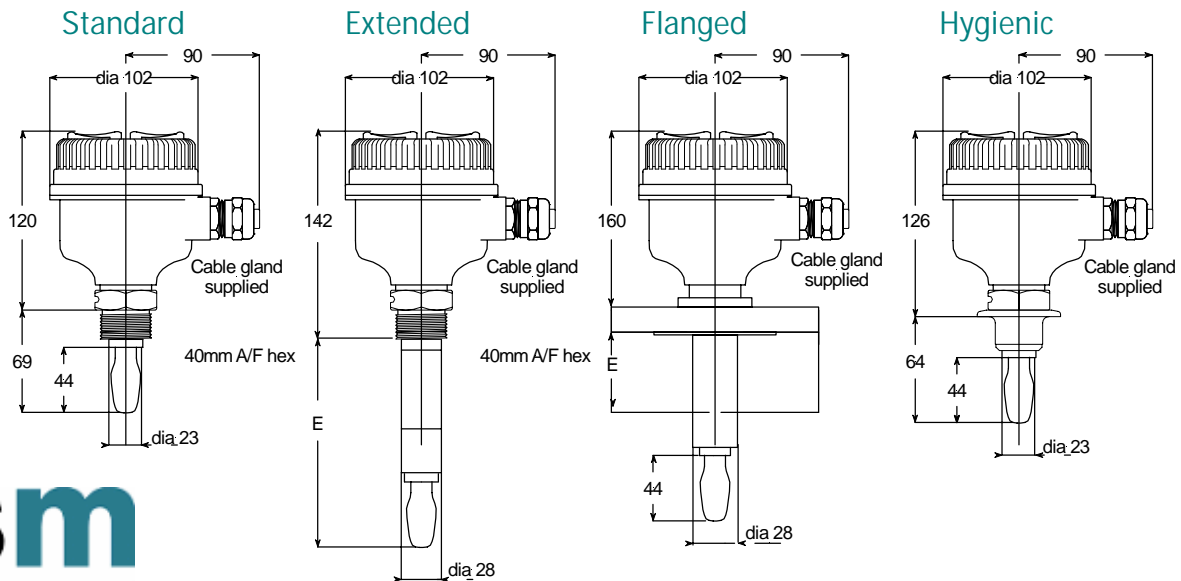
level SWITCH

TF & MTF series



Specifications

Construction	MTF	TF
Housing Enclosure	304 Stainless Steel	Glass filled Nylon Aluminium for EExd
Wetside Materials	316 St. St.	316 St. St. or Hastelloy or Halar
Hygienic	Polished Stainless Steel	Polished Stainless Steel
Safety Integrity Level	SIL2	SIL2
Electrical Connection	4-way DIN Plug	2 x M20 / ½" NPT / ¾" NPT
Extended Length	No	Up to 3m
Operating Condition		
Process Temperature	-40°C + 150°C	
Ambient Temperature	-40°C + 80°C (Derated to 50°C if 150°C Wetside)	
Process Pressure	-0.25 bar to 100 bar at 50°C	
Liquid Specific Gravity	0.6 to 2.0	
Liquid Viscosity	.2 to 10,000 cps	
Switch Point	13mm from tip or edge	
Hysteresis	± 1mm nominal in water	
Switching Delay	Fixed 1 sec.	Selectable 0.3, 100, 3, 10 & 30 sec
Electrical		
Direct load switch	24 – 264 V AC 50/60Hz or 24 to 60 V DC	
PNP	26 – 60 V DC	
Maximum switch load	500mA	
Maximum peak load	5A	
Protection		
- Mechanical	Housing IP 66	
- Electrical	24 – 264 V AC reverse polarity and short circuit protected	
Approvals		
EMC Directive	EN61326	EN50081-1 & EN50082-2
Hazardous Area	N/A	ATEX II 1GD EExia IIC T5
	N/A	ATEX II 1GD EExd IIC T5
LV Directive	EN61010	



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