

## TRAILING WIRE FLOW SWITCHES

### FEATURES

- CORROSION RESISTANT BODY
- WEATHERPROOF IP56 HOUSING
- UNIQUE TRAILING STAINLESS CABLE SENSOR
- WIDELY ADJUSTABLE FLOW SENSITIVITY
- SUITS OPEN CHANNEL OR PRESSURE APPLICATIONS
- 18 BAR PRESSURE RATING
- VARIETY OF ELECTRICAL OPTIONS AVAILABLE

### APPLICATIONS

- DATA LOGGING OF EFFLUENT FLOWS
- RIVER MANAGEMENT & FARM RUN OFF SYSTEMS
- CONVEYOR BELT SOLIDS DETECTION
- CONTROL & LOGGING OF INDUSTRIAL WASTE
- OPEN CHANNEL DATA ACQUISITION
- SLURRY PIPE FLOW MONITORING
- CHEMICAL PROCESS CONTROL

The Ultraswitch trailing wire flow switches are unique sensors that can be used in applications where conventional flow switches would fail. Principally intended for control of data acquisition equipment monitoring influx and effluent systems, these switches are equally useful in high velocity flows, or in any situation where liquids may contain solids or materials that would damage normal flow switches. These trailing wire switches have evolved to meet the need for flow sensors that are capable of maintenance free performance in the most arduous of environments.

Conventional flow switches use flat paddles to detect liquid movement. Such paddles are prone to damage if liquid velocity is high, or if the liquid contains solids of any appreciable size. The unique trailing stainless wire used in the switch is simply deflected by high flow rates or by impact with entrained materials. Material will not build on, or tangle around the trailing wire. With virtually no exceptions, the material being monitored will simply deflect the wire.



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# TECHNICAL DATA

## CONSTRUCTION

Constructed from glass-reinforced polypropylene and 316 stainless steel, the trailing wire switches use flexible stainless wire to move a magnetically sprung arm that in turn actuates a dry reed switch. The reed switch and its associated components are housed in a weathertight housing above the magnetic arm. The switch body has a 25mm BSP male thread, to facilitate either bracket or pipe mounting. An M20 cable gland is provided for installing either conduit fittings or electrical flex.

Trailing wire switches can be supplied with a variety of electrical modules to suit specific requirements. In all cases, high compliance high wattage dry reed switches are used as the primary switching element. Reed switches offer major advantages over other switch types. The reed contacts are sealed in an inert atmosphere in a glass envelope where the contact resistance is virtually unaffected by external environmental factors. The reed arms move magnetically, within their elastic limits, and as such are capable of an extraordinarily long and reliable service life. The cable spring return system in the trailing wire switches uses rare earth magnets in opposition, to effect a frictionless and infinitely adjustable action.

## APPLICATIONS

It is not possible to give definitive data on the actual flow rates required to actuate the switch. Every installation is unique, and many factors interact to determine exactly how the sensor will perform. Depending very much on wire length and submergence, a minimum liquid velocity of around 0.2 metres per second is required to reliably actuate the switch. In very low flow applications, the cross section of the open channel or pipe should be reduced, to increase the local velocity, sufficiently to actuate the switch. The degree of submergence of the trailing wire, and the distance from the liquid surface to the switch, the viscosity, amount and nature of entrained matter in the monitored liquid will also effect the switch's action.

The trailing wire switches are principally intended to be mounted above and clear of the surface of the liquid to be monitored. The only part of the switch in contact with the liquid should be the trailing wire. There are a number of variations of this principal that can be used to advantage. For example, the switch can be bracketed in front of an open discharge pipe, with the trailing wire displaced only when liquid flows. Equally, the switch can be screwed through an inspection cover, with the wire trailing into a partially filled pipe.

## SPECIFYING SWITCHES

Our factory can supply switches configured to meet specific requirements. The trailing wire is normally supplied cut to length, and terminated, (silver soldered) to prevent fraying. Wire lengths range from 50mm to 1 metre.

Note: both the wire length and the required electrical circuit board should be specified, when ordering. As an example, the following number would define a switch, with a cable length of 200mm, and a circuit board with a single reed switch contact. TW25-B-200.

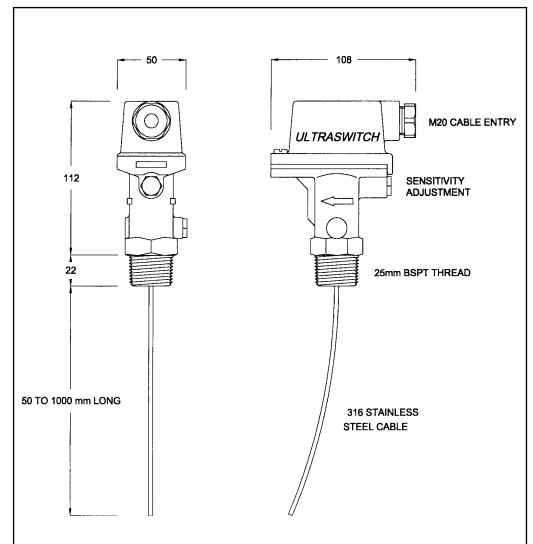
## HAZARDOUS LOCATIONS

The trailing wire switches are classed as simple devices, as such, they do not require separate certification to be used in hazardous locations. Specifically, the switches do not contain any mechanism for the storage or production of electrical energy. These sensors can be used in explosion prone environments, provided they are isolated via an intrinsically safe barrier, (a zenner barrier).

## ELECTRICAL DATA

Switches can be supplied with a variety of circuit boards to suit specific applications. The electrical specifications of these boards are listed below.

Circuit Board Type	Module Type	Contact Configuration	Switched Power	Switched Voltage Maximum	Switched Current Resistive AC (rms) Maximum	Inductive Loads (Power Factor 0.4)	Typical Application
FL25B	Dry Reed Switch	S.P.S.T. N.O/N.C.	40W	240V AC 200V DC	1A	Not Suitable	PLC & control circuits
FL25C	Dry Reed Switch	S.P.D.T.	40W	240V AC 200V DC	1A	Not Suitable	PLC & control circuits
FL25R	Solid State Relay (Triac)	S.P.S.T. N.O/N.C.	750W	240V AC	4A	4A at 240V AC	AC control circuits & motor control
FL25A240	Standard Relay 240V AC Coil	S.P.D.T.	2500VA at 250V AC 300VA at 30V DC	240V AC	10A	7.5A at 250V AC 5A at 30V DC	General AC or DC control
FL25A24	Standard Relay 24V AC Coil	S.P.D.T.	2500VA at 250V AC 300VA at 30V DC	240V AC	10A	7.5A at 250V AC 5A at 30V DC	General AC or DC control



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