INSTALLATION AND OPERATION INSTRUCTIONS FOR THE UB25 IN LINE FLOW SWITCH

WARNING

Please read these installation and operating instructions fully and carefully before installing or servicing this Inline Flow Switch. The UB25 Series in line flow switch is mains voltage device. Death or serious injury may result if this switch is not correctly installed and operated. All electrical work must be performed by a fully qualified and licenced electrician.

INTRODUCTION

The UB25 flow switch is a magnetically operated switch that will turn on or off in response to liquid flow. The body of the switch contains a piston that partly obstructs the line of flow. To pass through the switch, the process liquid must push the piston back and flow over it and out through the outlet of the switch. When flowing liquid pushes the piston back, a magnet inside the piston actuates a reed switch in the electrical housing. The reed switch is used to provide a set of closed (or open) electrical contacts that are either used directly as a switch, or to control an in built Triac which in turn is used as the output device. The output of the switch can be used in control circuits to indicate flow, or to directly actuate small pump motors. The body of the UB25 flow switch contains a second magnet that opposes the magnet in the piston. The repulsive force generated between the piston and the body magnets constantly pushes the piston back to the off position, against the incoming flow. This unique magnet system negates the need for metal springs and provides the switch with exceptional reliability.

INSTALLATION

The UB flow switch can be mounted in any orientation in the pipe work, including upside down. There is a direction of flow arrow on he electrical enclosure. This directionality must be adhered to, as the switch will not operate against a reversed flow. Pipe work can be used to support the switch, or the switch can be screwed directly into valve manifolds or pump ports. Use thread tape or sealant and do not use this flow switch as a non-return valve. For increased sensitivity, UB25 inline flow switch is supplied with a non-magnetic piston retainer. The non-magnetic piston retainer is for use in vertically mounted applications only. **Please see maintenance details overleaf for information on installing the non-magnetic piston retainer.**

OPERATING ENVIRONMENT

The UB25 flow switch has a high pressure rated solid metal body, suitable for applications involving neutral liquids such as hot or cold water, or oils. The UB25 flow switch contains a close fitting piston, and should only be used in applications where the process fluid is reasonably clean and free of entrained or suspended material. This switch should not be used with fluids containing large particulate matter, ferrous materials or fibrous matter. If the degree of contamination of the process fluid can't be guaranteed, then suitable line filtration should be fitted to the system. The standard UB25 flow switch is constructed from solid 316 stainless steel. The piston and electrical housing are made from glass reinforced polypropylene.

The UB25 flow switch is supplied as standard fitted with a magnetic piston retainer that allows the switch to be oriented in any required position in pipework. In vertical pipe work flow can be either upward or downward through the switch.

In addition to the standard magnetic piston retainer, a non-magnetic piston retainer is also supplied with each switch. When the non-magnetic piston retainer is fitted to the switch, the switch must be oriented vertically with flow passing upward through its body. When set up this way the flow rate required to actuate the switch will be approximately 6.5 times lower than it is with the magnetic piston retainer fitted. The non-magnetic piston retainer is commonly used to enhance the sensitivity of the switch in gravity head applications such as boosting water pressure in gravity fed hot water systems.

The table below sets out the main operating limitations of the UB25 flow switch.

Standard UB25 Flow Switch	As Supplied Standard with Magnetic Piston Retainer Fitted)	With Non-Magnetic Piston Retainer Fitted
Switching Point on a Slowly Rising Flow +/-15%	1.5 L/min.	0.23 L/min.
Switching Point on a Slowly Falling Flow +/- 15%	1.2 L/ min.	0/18 L/min.
Minimum Gravity Head Required to Actuate the Switch	1.5 Metres	
Maximum Recommended Continuous Flow (Water)	100 L/min	
Maximum Recommended Operating Pressure, Static or Dynamic	200 Bars (2900 PSI)	
Minimum Burst Pressure	400 Bars (5800 PSI)	
Maximum Liquid Temperature	90ºC	
Minimum Liquid Temperature	-20ºC	
Ingress Protection Rating (Weatherproof Rating)	IP67	

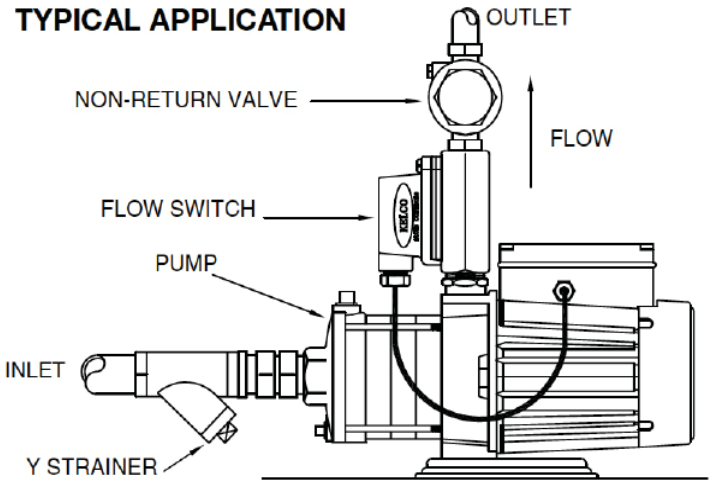
ELECTRICAL

WARNING

All electrical work associated with the UB25 Series in line Flow Switch must be carried out by qualified electrical personnel and all electrical work must conform to AS/NZ (or equivalent) standards and to local wiring rules.

This flow switch can be supplied with one of three optional electrical modules. The details of the various modules are set out in the table below. The model of the switch and its electrical module is indicated by a label fixed to the inside of the electrical enclosure of every switch.

TYPICAL APPLICATION



ELECTRICAL DATA

MODEL	MODULE TYPE	CONTACT CONFIGURATION	SWITCHED POWER MAXIMUM	SWITCHED VOLTAGE MAXIMUM	SWITCHED CURRENT RESISTIVE AC (RMS) MAXIMUM	INDUCTIVE LOADS (POWER FACTOR 0.4)	TYPICAL APPLICATION
UB25-B	Dry Reed Switch	S.P.S.T N.O	40W	240V AC 200V DC	1 Amp	Not Suitable	PLC and General Control Circuits
UB25-C	Dry Reed Switch	S.P.D.T. Break Before Make	20W	140V AC 150V DC	1 Amp	Not Suitable	PLC Control and Safety Showers
UB25-R	Solid State Relay	S.P.S.T.	750W	12 TO 240V AC	Spike to 40 Amp	4A at 240V AC	AC Control Circuits and AC Motor Control to a Maximum of 1 HP, 0.75KW

Please Note: All UB25 series flow switches use reed switches as the primary switching element. Reed switches are one of the most reliable mechanical switching devices ever devised. They offer an operating life in excess of 100 million cycles, however, care needs to be taken to ensure they are not electrically overloaded or if applied in questionable applications, suitable protection should be added to the control circuit.

MAINTENANCE

If the UB25 flow switch is correctly installed and if the process fluid is compatible with the materials of construction of this switch, then a very long maintenance free service life can be expected. Factors that may contribute to early failure of this flow switch include excess temperature, excess pressure or electrical loads in excess of the circuit boards rating.

To service the piston or to install the non-magnetic piston retainer, Use a pair of long nosed pliers to remove the spring Circlip located in the outlet port of the switch. Press the piston back with your finger, it should pop out along with its three finned magnetic retainer. Ensure there are no pieces of iron scale adhered to the piston or retainer and that both parts are free of damage. Reassemble the switch and test it to ensure the piston is a free and smooth fit.

Most component of this switch are available in spare part kits.

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