

UB SERIES SUPER SENSITIVE INLINE FLOW SWITCHES



FEATURES

- SUITS 20NB (3/4") OR 25NB (1") PIPEWORK
- VERSATILE ALL POSITION MOUNTING
- 200 BAR 2900 PSI PRESSURE RATING
- SWITCHES AT VERY LOW FLOWS
- IP67 WEATHERPROOF HOUSING
- SOLID MACHINED BRASS BODY
- HIGH FLOW THROUGH RATING
- HANDLES LIQUIDS TO 90°C

APPLICATIONS

- HOT & COLD WATER PRESSURE BOOSTING
- GRAVITY HOT WATER SYSTEM CONTROL
- HOT WATER CIRCULATOR ACTUATION
- SAFETY SHOWER ALARM SENTINEL
- WASH DOWN PUMP CONTROL
- SOLAR HOT WATER CONTROL
- MAINS PRESSURE BOOSTING

DESCRIPTION

The UB series inline flow switches are magnetically actuated piston style sensors that switch in response to very low fluid flows. They are ideal for all types of pressure boosting pump control and for the control of commercial or domestic hot and cold water systems. They find application in monitoring industrial safety showers and in many applications where extreme reliability is paramount. The UB series flow switches are also ideal for constant pressure pump control.

OPERATING PRINCIPLE

The solid brass body of the UB flow switch houses a free sliding piston. Any flow, either pulsed or continuous, causes the piston to be pushed back within the switch body to a point where liquid can pass around it and out of the switch. When pushed back by flow, the piston actuates a magnetically linked switch. When flow stops, the piston is pushed back to the off position by magnetic repulsion. There are no springs in the wet area of the switch, and the magnetically isolated piston provides an exceptionally reliable mechanism. The UB flow switches can be mounted in any orientation including upside down, in either horizontal or vertical pipework.

CONSTRUCTION

The body of the UB flow switch is machined from solid brass. The piston is glass reinforced polypropylene. The piston return mechanism and the electrical switching action within the switch are achieved using high power magnets operating through the solid body of the switch. The electrical housing is hoseproof & weatherproof, and is supplied with a 20mm cable gland, for conduit or cable entry. All of the parts of the UB flow switch are available as spare parts. The switch is supplied as standard in either 20mm $\frac{3}{4}$ " B.S.P. (model UB20) or 25mm 1" B.S.P. (model UB25). All models have a male inlet thread and a female outlet thread. Four electrical modules are available to suit the UB flow switches. Details of the various options are set out in the accompanying table.



TECHNICAL DATA

ELECTRICAL DATA

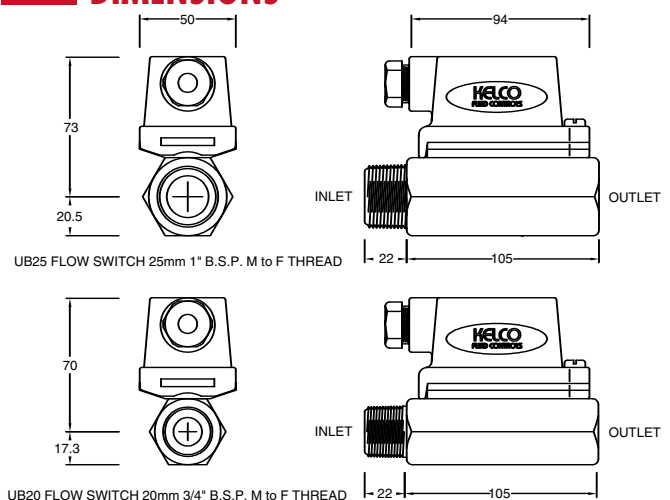
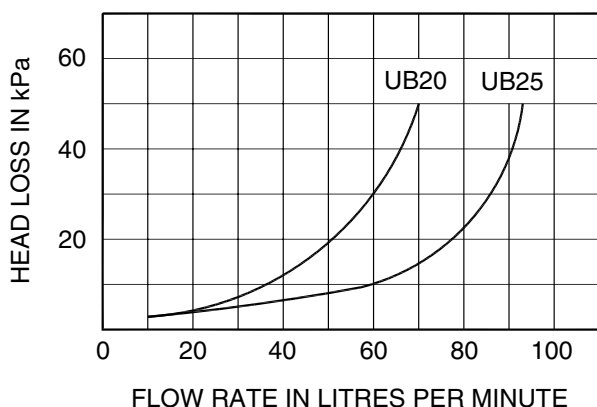
MODEL	Module Type	Contact Configuration	Switched Power Maximum	Switched Voltage Maximum	Switched Current Resistive AC (rms) Maximum	Inductive Loads (Power Factor 0.4)	Typical Application
UB20-B UB25-B	Dry Reed Switch	S.P.S.T. N.O	40W	240V AC 200V DC	1A	Not Suitable	PLC and General Control Circuits
UB20-R UB25-R	Solid State Relay	S.P.S.T. N.O	1500W	12 to 240V AC	Spike to 40A	8A at 240V AC	AC Control Circuits and AC Motor Control to a Maximum of 2 HP1.5kW in Cold Water <40°C. 1HP 0.75kW in Hot Water>40°C.
UB20-A240 UB25-A240	Standard Relay 240V AC Coil	S.P.D.T.	2500VA at 250VAC 300VA at 30VDC	0 to 240 V AC	10A	7.5A at 240V AC 5A at 30V DC	General AC or DC Control (Motors to 0.75kW 1HP Maximum)
UB20-A24 UB25-A24	Standard Relay 24V AC Coil	S.P.D.T.	2500VA at 250VAC 300VA at 30VDC	0 to 240V AC	10A	7.5A at 240V AC 5A at 30V DC	General AC or DC Control (Motors to 0.75kW 1HP Maximum)

OPERATING PARAMETERS

The environmental limitations and the main performance parameters of both the UB20 and the UB25 flow switches are set out in the table below.

MODEL	UB 20	UB25
Switching Point on a Slowly Rising Flow +/-15%	0.25 Litres per Minute	1.5 Litres per Minute
Switching Point on a Slowly Falling Flow +/-15%	0.2 Litres per Minute	1.2 Litres per Minute
Minimum Gravity Head Required to Actuate the Switch	1.2 Metres	1.2 Metres
Maximum Recommended Continuous Flow (Water)	65 Litres per Minute	90 Litres per Minute
Maximum Recommended Operating Pressure, Static or Dynamic.	200 Bars (2940 PSI)	200 Bars (2940 PSI)
Minimum Burst Pressure	400 Bars (5800 PSI)	400 Bars (5800 PSI)
Maximum Liquid Temperature	90°C	90°C
Minimum Liquid Temperature	-30°C	-30°C
Liquid Ph range	6.8 to 8	6.8 to 8
Ingress Protection Rating (Weatherproof Rating)	IP67	IP67

DIMENSIONS



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INSTALLATION AND OPERATING INSTRUCTIONS FOR UB SERIES INLINE FLOW SWITCHES

**PLEASE READ THIS INSTALLATION SHEET CAREFULLY AND FULLY
BEFORE INSTALLING OR SERVICING THIS FLOW SWITCH**

INTRODUCTION

The UB 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 inbuilt Triac or relay 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 UB 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.

OPERATING ENVIRONMENT

The UB flow switch has a high pressure rated solid brass body, suitable for applications involving neutral liquids such as hot or cold water, or oils. The UB 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 UB flow switch is constructed from solid brass. The piston and electrical housing are made from glass reinforced polypropylene. The UB flow switches are weatherproof to IP67 and they are suitable for all outdoor exposed applications. The switch should be protected from exposure to liquid temperatures in excess of 90°C. The UB series flow switch should not be used in applications where the line pressure exceeds 200 bars, in the interest of safety, the switch has a burst pressure rating of >400 bars. Care should be taken not to expose this flow switch to excess back pressures such as may be generated by a sudden reverse flow. In such applications, a dedicated non-return valve should be fitted to the system.

The UB series flow switches are available in 20mm (3/4") and 25mm (1") pipe sizes. The environmental limitations and the main performance parameters of both models are set out in the table below.

INSTALLATION

The UB flow switch can be mounted in any orientation in the pipework, including upside down. There is a direction of flow arrow on the switch body. This directionality must be adhered to, as the switch will not operate against a reversed flow.

Pipework 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.

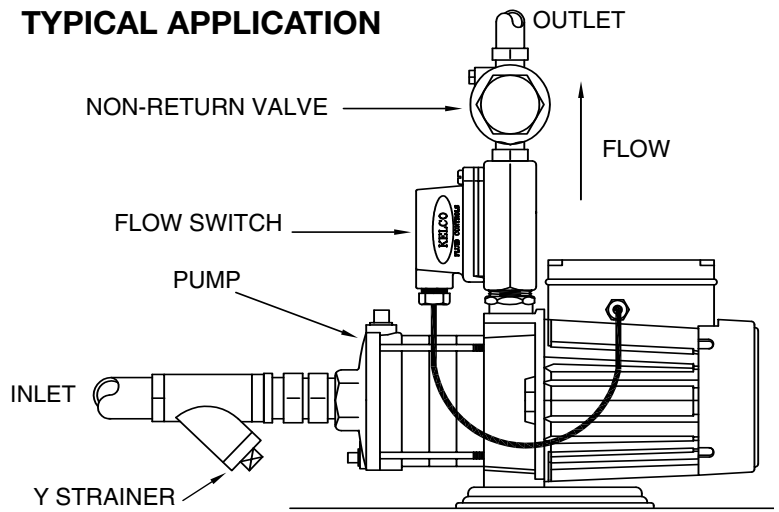
OPERATING PARAMETERS

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Minimum Burst Pressure	400 Bars (5800 PSI)	400 Bars (5800 PSI)
Maximum Liquid Temperature	90°C	90°C
Minimum Liquid Temperature	-30°C	-30°C
Liquid Ph range	6.8 to 8	6.8 to 8
Ingress Protection Rating (Weatherproof Rating)	IP67	IP67

ELECTRICAL

All electrical work associated with this flow switch must be carried out by qualified persons only and must conform to the relevant local codes.

This flow switch can be supplied with one of four 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.



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
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Note

All UB 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 UB 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.

Please Note: All of the components of this switch are available as spare parts.

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