F SERIES

CORROSION RESISTANT FLOW SWITCHES

For all pipe sizes 25 mm (1") and larger



FEATURES

- 5–500 VAC 15 A S.P.D.T. switch ('H' model)
- Low voltage gold contact 'L' model available
- Polypropylene or 316 stainless models
- ¾" and 1" models with BSP or NPT threads
- Manual override built in
- Modular construction
- High pressure 400 bar / 5800 psi models available
- Seal-less magnetic drive
- Weatherproof IP67 housing
- Easily serviceable

15 A
S.P.D.T. switch
rated 5–500 VAC

400 bar
5800 psi high
pressure models

IP67
Weatherproof
electrical housing

316 SS
or polypropylene
wetted parts

OUTLINE

The F Series is a tough yet highly sensitive paddle flow switch for a wide range of flow control applications in hot and cold liquids. The electrical housing locks onto the wet end with a single, externally accessible screw, so it can be removed for servicing – or the switch unscrewed from the pipework – without disturbing the wiring.

Every F Series switch is supplied with a glass fibre reinforced polypropylene paddle that can be cut and shaped to suit pipework 25 mm (1") and larger.

A built-in manual override switches the unit on at the press of a button, regardless of flow – so pumps can be started manually at any time, and testing and commissioning are simple.

Our well-proven magnetic repulsion system is built into each F Series flow switch. It couples the paddle's movement to the high compliance switch through a double wall of solid material. The result is a high-pressure flow switch with no seals, diaphragms, bellows or other points of potential failure.

The F Series is available with either a polypropylene or a 316 stainless steel high pressure process connection, with models to suit most applications – including seawater, bore water, acids, alkalis and many chemical solutions.

APPROVED STANDARDS

UL
UL1054 · File E41515

CSA
C22.2 No.55 · File LR21642

EN
EN61058-1

CE
Marked

Approvals apply to the 'H' and 'L' microswitches used in the F Series.

ORDERING

Build your part number from the codes below – for example **F-H-25B-SS**.

F – **H** – **25B** – **SS**

SERIES

F Series flow switch

SWITCH

- **H** Standard heavy duty switch
- **L** Low voltage switch with gold contacts

PROCESS CONNECTION

- **20B** ¾" BSP (stainless only)
- **20N** ¾" NPT (stainless only)
- **25B** 1" BSP thread
- **25N** 1" NPT thread

WETTED MATERIALS

- **Blank** All polypropylene wetted parts
- **SS** High pressure 316 stainless steel process connection and polypropylene paddle

PLEASE NOTE 20 mm (¾") fittings are only available in 316 stainless steel, not polypropylene.

OPERATING LIMITATIONS

PARAMETER	ALL POLYPROPYLENE MODEL	WITH 316 STAINLESS STEEL PROCESS CONNECTION
Maximum operating pressure (static or dynamic) at ambient temperature	**18 bar** 261 psi	**400 bar** 5800 psi
Minimum burst pressure at ambient temperature	**45 bar** 652 psi	**500 bar** 7215 psi
Maximum operating temperature	**60 °C** 140 °F *	**80 °C** 176 °F
Minimum operating temperature	**–20 °C** –4 °F	**–20 °C** –4 °F
Ingress protection rating	**IP67**	**IP67**

*** NOTE** The all-polypropylene model must be de-rated linearly with temperature, so that at 60 °C (140 °F) the maximum permissible operating pressure does not exceed 1 bar (15 psi) absolute.

FLOW SENSITIVITY

The flow rate needed to actuate the F Series depends on many variables, such as turbulence, liquid viscosity and the exact area of paddle face exposed to the flow. For an accurate estimate of switch performance, and the effect of trimming the paddle, use the Paddle Trimming Calculator on our website (see below).

HAZARDOUS AREAS

The F-H is not certified for use in hazardous areas and must not be installed in any area classified as hazardous under AS/NZS 60079.10 (Zone 0, 1, 2, 20, 21 or 22).

The F-L is simple apparatus under AS/NZS 60079.11 and may be used in a hazardous area only as part of an intrinsically safe circuit, connected through suitably certified associated apparatus. It is not Ex certified in its own right. The associated apparatus must not exceed Uo ≤ 30 V, Io ≤ 100 mA. The full conditions of use are given in the installation sheet.

Paddle Trimming Calculator ›

Not sure how much to trim the paddle? Go to **www.kelco.com.au/en/tools/paddle-calculator** and use the calculator – enter your pipe inside diameter, flow rate and liquid to check the switch will operate reliably at your flow.

'H' SWITCH ELECTRICAL DATA

The 'F-H' models use an S.P.D.T. (single pole, double throw) microswitch for general control circuits up to 500 VAC – ideal for pump starters, relay logic, contactors and timers.

IMPORTANT

Use at any voltage from 5 to 500 VAC (minimum load 160 mA at 5 VDC). Directly switches pump motors up to ¼ HP (approx. 185 W) at 240 VAC – use a contactor or relay for larger motors.

RATED VOLTAGE	NON-INDUCTIVE LOADS (A)			INDUCTIVE LOADS (A)		
	RESISTIVE	LAMP		INDUCTIVE	MOTOR	
	NC / NO	NC	NO	NC / NO	NC	NO
125 VAC	15	3	1.5	15	5	2.5
250 VAC	15	2.5	1.25	15	3	1.5
500 VAC	10	1.5	0.75	6	1.5	0.75
8 VDC	15	3	1.5	15	5	2.5
14 VDC	15	3	1.5	10	5	2.5
30 VDC	6	3	1.5	5	5	2.5
125 VDC	0.5	0.5	0.5	0.05	0.05	0.05
250 VDC	0.25	0.25	0.25	0.03	0.03	0.03

NOTE Absolute limits: 500 VAC maximum; 15 A maximum (10 A at 500 VAC); 5 VDC and 160 mA minimum. Maximum voltage and maximum current cannot be applied together – use the table for the limit at each voltage and load type.

'L' SWITCH ELECTRICAL DATA

The 'F-L' models use an S.P.D.T. gold contact microswitch rated down to 1 mA at 5 VDC, so they switch reliably at the low wetting currents of PLC inputs, telemetry and relay logic.

PLEASE NOTE

Not suitable for inductive or capacitive loads such as contactors and relays. Loads above the rating will damage the switch.

Switch type	**Gold contact microswitch**
Contact configuration	**S.P.D.T.**
Contact material	**Gold alloy**
Rated current (resistive)	**0.1 A at 125 VAC** **0.1 A at 8, 14 and 30 VDC**
Inrush current	**0.1 A maximum (NC and NO)**
Minimum applicable load	**1 mA at 5 VDC**
Operating range (micro load)	**5 to 30 V, 5 to 800 mW** **(26 mA maximum at 30 V)**
Contact resistance	**50 mΩ maximum (initial)**
Typical applications	**PLC, telemetry and low voltage control**

DIMENSIONS

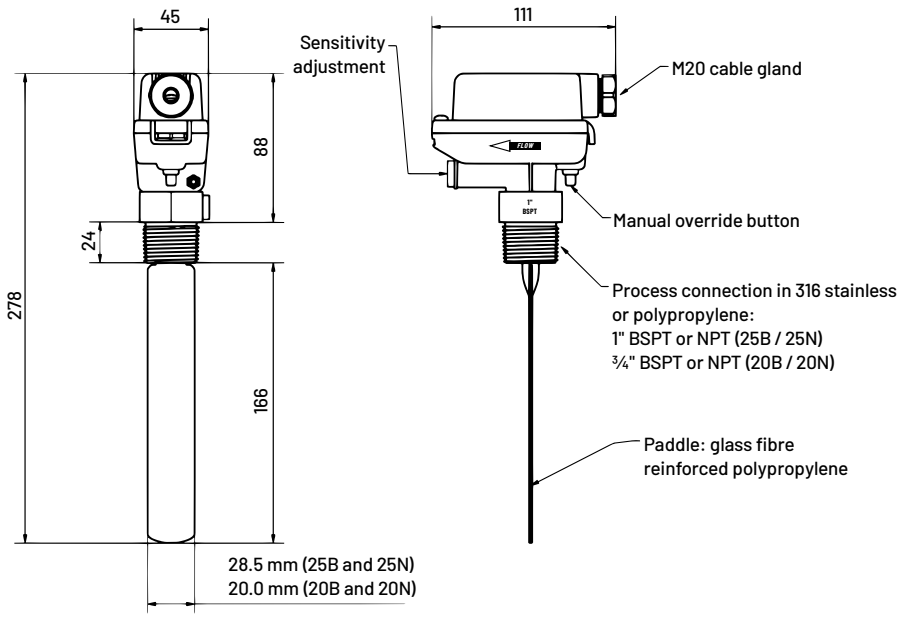


FIG. 1 Overall dimensions in millimetres

TYPICAL MOUNTING

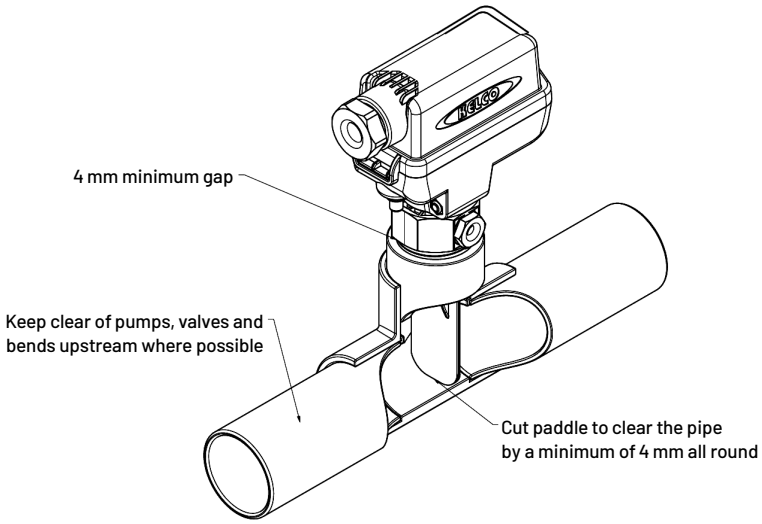


FIG. 2 F Series mounted in a standard pipe tee

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