

## F SERIES HEAVY DUTY FLOW SWITCHES FOR ALL PIPE SIZES 20MM (3/4") AND LARGER

### FEATURES

- 0 to 500V AC 15 Amp S.P.D.T switch
- PLC versions available
- 316 Stainless or Polypropylene models
- 3/4 - 1" BSP & 3/4 - 1" NPT models available
- Manual override built in
- Modular construction
- 200 Bar pressure rating
- Seal-less magnetic drive
- Diesel models available
- Weatherproof IP67 housing
- Easily serviceable

### OUTLINE

The F Series flow switch is a tough but highly sensitive paddle flow switch suitable for a wide range of flow control applications in both hot and cold liquids. The electrical housing of the switch is a separate assembly and locks onto the wet end of the switch. It can be easily and safely removed for servicing, without disturbing electrical wiring. This unique feature, and the inclusion of a built in manual override make the F Series a very versatile flow switch. In addition to the standard microswitch models the F Series is available fitted with reed switches for PLC, relay logic and telemetry applications.

The electrical module of the F Series flow switch is completely separate from the process connection and wet end of the switch. The wet end assembly and the electrical module lock together with a single externally accessible screw. This feature allows the flow switch to be disassembled and unscrewed from pipework without the need to disturb electrical wiring. All F Series flow switches are supplied with an glass fibre reinforced paddle. The paddle can be cut and shaped as required to suit pipework 20 mm (3/4") or larger. A unique feature of the standard F Series flow switch is its built in manual override. The manual override allows the flow switch to be switched on at any time at the press of a button regardless of lack of flow. Using the manual override allows pumps to be manually started at any time by simply pressing the button. It also makes the testing and commissioning of systems very simple.

Our well proven magnetic repulsion system is built into each F Series flow switch and 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 or bellows or other points of potential failure. The F Series is available in all stainless steel or Polypropylene construction. There are models to suit most applications including use in seawater, bore water, acids, and alkalis and in many chemical solutions and fuels. There is also a dedicated Diesel compatible version available.



### OPERATING LIMITATIONS

Model	F20/21-S (All Poly)	F20/21-SS (Stainless)	F20/21-D (Diesel)
Maximum operating pressure (Static or Dynamic) at ambient temperature	18 Bars (261 PSI)	200 Bars (2900 PSI)	200 Bars (2900 PSI)
Minimum burst pressure at ambient temperature	45 Bars (652 PSI)	500 Bars (7251 PSI)	500 Bars (7251 PSI)
Maximum operating temperature	60°C See note below	80°C	80°C
Minimum operating temperature	0°C	0°C	0°C
Ingress protection rating	IP67	IP67	IP67

**Please note:** Maximum operating pressure of the Polypropylene F Series must be linearly de-rated as operating temperature is increased so that at 60°C the maximum permissible operating pressure for the switch does not exceed one Bar absolute.

# F SERIES

## ELECTRICAL DATA

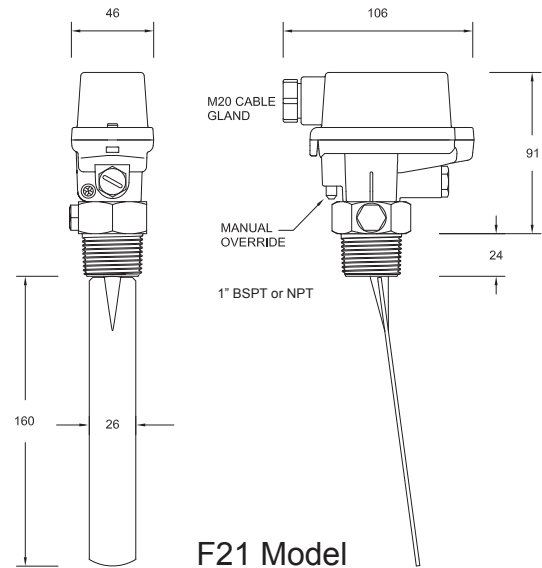
The standard F21 flow switch is suitable for all general control circuit applications up to 500V AC. It is ideal for the control of pump starters, relay logic circuits, and for the direct control of contactors and electronic timers.

Electrical data for - S models								
RATED VOLTAGE	NON INDUCTIVE LOADS				INDUCTIVE LOADS			
	RESISTIVE LOAD		LAMP LOAD		INDUCTIVE LOAD		MOTOR LOAD	
	NO	NC	NO	NC	NO	NC	NO	NC
125 VAC	15A	3A	1.5A		15A	5A	2.5A	
250 VAC	15A	2.5A	1.25A		15A	3A	1.5A	
500 VAC	10A	1.5A	0.75A		6A	1.5A	0.75	
8 VDC	15A	3A	1.5A		15A	5A	2.5A	
14 VDC	15A	3A	1.5A		10A	5A	2.5A	
30 VDC	6A	3A	1.5A		5A	5A	2.5A	
125 VDC	0.5A	0.5A	0.25A		0.05A	0.05A	0.05A	
250 VDC	0.5A	0.5A	0.25A		0.03A	0.03A	0.03A	

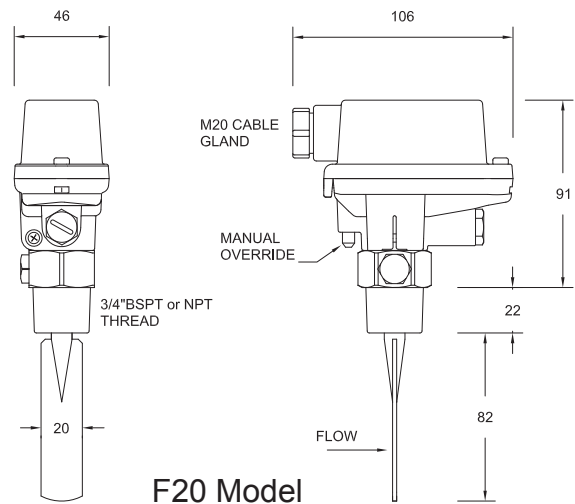
The reed switch models are supplied with a high compliance single pole double throw reed switch suitable for all low wetting current and low voltage applications. Such applications include PLC control, signalling in telemetry systems and relay logic circuits **Please note: the reed switch models are not suitable for use with inductive loads such as contactors or high wattage relays.**

Electrical data for Reed Switch Models	
SWITCH TYPE	DRY CONTACT REED SWITCH
CONTACT	S.P.D.T BREAK BEFORE MAKE
SWITCHED POWER	20W / VA MAXIMUM
SWITCHED VOLTAGE MAXIMUM	140V AC 150V DC
SWITCHED CURRENT (RESISTIVE)	1 AMP MAXIMUM
CARRY CURRENT	2 AMP MAXIMUM
BREAKDOWN VOLTAGE	200V MINIMUM
TYPICAL APPLICATIONS	PLC, TELEMETRY & GENERAL LOW VOLTAGE CONTROL APPLICATIONS

## DIMENSIONS



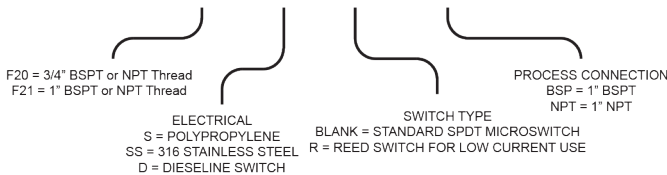
F21 Model



F20 Model

## ORDERING

F20 - S - R - BSP



**Please Note:** The Stainless Steel model with NPT thread is subject to 120 piece minimum order quantity.

## APPROVED STANDARDS

The high compliance single pole double throw switch used in the F Series flow switch is approved to the following international standards: UL (File No. E32667), CSA (File No. LR21642) SEV (File No. S20/163) and CE.

## FLOW SENSITIVITY

The flow rates required to actuate the F Series will depend on many variables such as turbulence, liquid viscosity and the exact area of the paddle face exposed to the flow. For an accurate estimate of the switch performance and to determine the effect of paddle trimming, an online flow calculator is available at <http://www.kelco.com.au/paddle-trimming-calculator-2>

## HAZARDOUS APPLICATIONS

The F Series flow switch can be used in hazardous areas. The flow switch is classed as a simple device and does not contain components capable of storing or producing an electric charge. As a simple device the F Series can be used in hazardous applications provided it is isolated by an intrinsically safe barrier, a zener barrier.

## KELCO Engineering Pty Ltd

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