KELCO

P20 Series Corrosion Resistant Inline Flow Switches

Features

- Detects very low flows
- No metal parts in contact with the liquid
- All position mounting
- Easy to install
- High flow through
- 18 Bar pressure rating
- Very low head loss

Outline

The P20 Series inline flow switches are simple and reliable flow switches that can detect the flow of liquids or gases in tubes and small diameter pipes. The P20 can detect either continuous or pulsed flows. Typical applications include monitoring flow in water treatment and irrigation systems, domestic constant pressure system control, gland cooling systems and a myriad of uses in industrial process control. The P20 flow switches give a simple On or Off response to liquid flow. With no metal wetted parts, the P20 is ideal for use in aggressive liquids such as seawater, groundwater, acids and many chemical solutions. The standard switch is supplied complete with pipe spigots and unions, for direct fitting into PVC or ABS pipe work. In addition, three electrical modules are available that give a wide choice of control options.

Applications

- Liquid or gas flow detection
- Constant pressure pump control
- Loss of prime pump protection
- Water treatment control
- Industrial process control
- Irrigation control
- Chemical dosing systems
- Chilled water control
- Vapour flow detection

Operating Principle

The body of the P20 flow switch houses a fluted piston. Any flow, either pulsed or continuous, causes the piston to be pushed back within the switch body to a point where the liquid can pass over the piston and out of the switch. The piston contains a magnet that actuates a reed switch and this provides the switching output. When flow stops, the piston is pushed back to the off position by a second magnet built into the switch body. The magnetically sprung piston provides an exceptionally reliable corrosion proof mechanism. The sensitivity of the flow switch and its switching point are determined by the viscosity of the fluid and by the clearance between the piston and the switch body. The P20 flow switch can be mounted in any orientation in pipe work, including upside down, with no adverse effects.

Construction

The standard P20 flow switch is made entirely from glass reinforced polypropylene, with Nitrile O-ring seals. 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 hose-proof & weatherproof, and is supplied with a built in 20mm cable gland, for conduit or flexible cable entry. The electrical circuit boards used in the switch are interchangeable and all of the parts of the P20 flow switch are available as spare parts.

Switch Point Data

Model	Switching Point on a Slowly Rising Flow in Litres per Minute	Switching Point on a Slowly Reducing Flow in Litres Per Minute	Electrical Response Time in Seconds
P20-B & P20-R	0.14	0.065	0.4
P20-C	< 0.50	0.30	0.4

P20 SERIES DATA

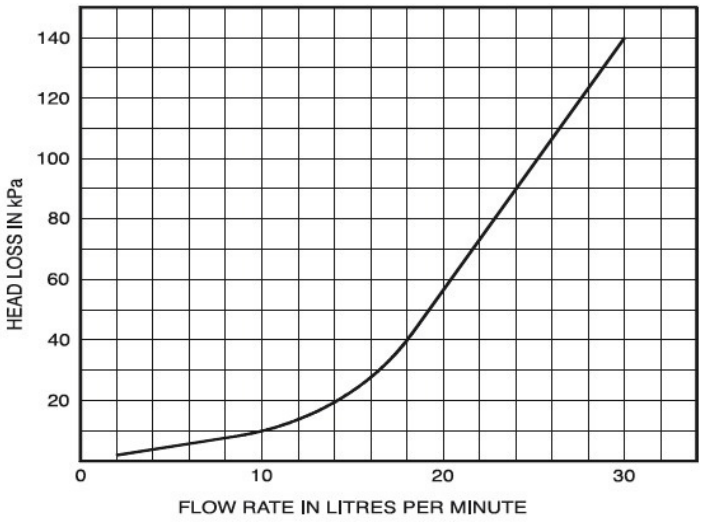
Electrical Data

The P20 Inline Flow Switch is available in a variety of electrical configurations to suit specific applications. The model numbers and details of these option are outlined in the table below

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
P20-B	Dry Reed Switch	S.P.S.T N.O	40 Watts	240V AC 200V DC	1 Amp	Not Suitable	PLC and General Control Circuits
P20-C	Dry Reed Switch	S.P.D.T	20 Watts	140V AC 150V DC	1 Amp	Not Suitable	PLC and General Control Circuits
P20-R	Solid State Relay (Triac)	S.P.S.T N.O	740 Watts	2 to 240V AC	4 Amp Continuous (Spike to 15A)	4A at 240V AC 5A at 30V DC	AC Control Circuits and AC Motor Control

Head Loss Versus Flow Rate

The graph below sets out the dynamic head loss across the P20 flow switch. The graph data refers to water at 15°C as a test medium.



Operating Limitations

Maximum operating pressure (static or dynamic) at ambient temperature	1800 kpa (261 psi)
Minimum burst pressure at ambient temperature	9700 kpa (1406 psi)
Maximum liquid temperature	60°C at a pressure of 1 Bar absolute (see note below)
Minimum liquid temperature	-30°C
Maximum recommended continuous flow rate (water)	IP67
Liquid pH range	1 to 14

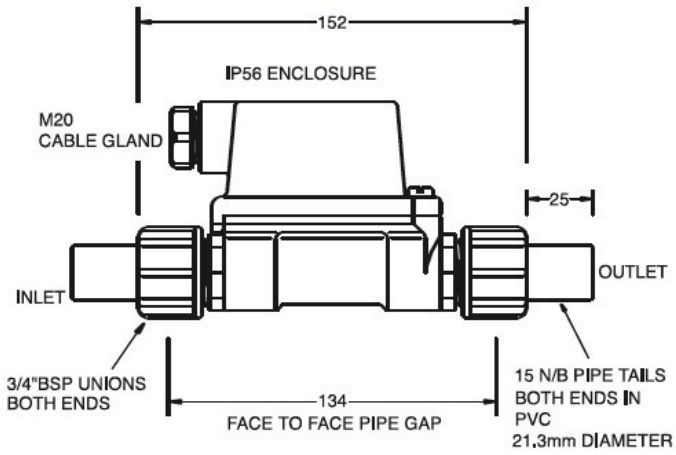
Warning: The maximum operating pressure for the P20 Series switches must be linearly de-rated as operating temperature is increased so that at 60°C the maximum permissible operating pressure for the switch is not more than 1 Bar absolute.

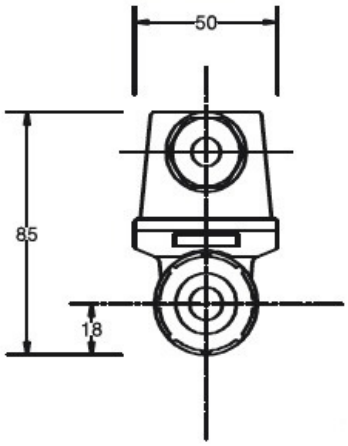
Ordering

P20 - B - 20

- P20 SERIES
- ELECTRICAL MODULE
  B = S.P.S.T N/O REED SWITCH
  C = S.P.D.T REED SWITCH
  R = S.P.S.T N/O SOLID STATE RELAY
- PROCESS CONNECTION (SUITS PVC PIPE) 20 = 20NB

Dimensions





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