

INSTALLING AND OPERATING THE KELCO P25 SERIES FLOW SWITCH



WARNING

Please read these installation and operating instructions fully and carefully before installing or servicing this Inline Flow Switch. The P25 Series 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.

INSTALLATION

The P25 flow switch is a 25mm (1") magnetically operated inline flow sensor that will provide an electrical signal in response to liquid flow through the switch body. The switch is available with a choice of 3 electrical configurations and 3 different size pipe terminations. The following model designation describes the various options.

P25 - B - 25

ELECTRICAL MODULE

B = SPST NORMALLY OPEN REED SWITCH
C = SPDT DOUBLE THROW REED SWITCH
S = 500VAC 15A 2HP RATED STDT SWITCH

PROCESS CONNECTION

PVC SOCKETS TO SUIT
PVC PRESSURE PIPE

15 = 15 NB PIPE
20 = 20 NB PIPE
25 = 25 NB PIPE

The P25 flow switch has no metal parts in contact with the process liquid. Inert thermoplastics are all that come in contact with liquid passing through the switch. This means the P25 can be used in aggressive chemical solutions, seawater and bore water and in many fluids that would attack metal parts, including most acids and alkalis. The P25 contains a close fitting piston and should only be used in applications where the process fluid is clean and free from entrained or suspended materials. Solutions that contain large particulates, ferrous materials or fibrous matter should not be used in this switch. If the degree of contamination of the process liquid can't be guaranteed then a suitable line strainer should be installed prior to the flow switch. The P25 flow switch is made from glass reinforced polypropylene with nitrile o-rings. The switch is weatherproof and it is suitable for all outdoor exposed applications. The switch should be protected from freezing and from exposure to hot liquids >60°C. The P25 flow switch must not be used in applications where the static or dynamic pressure exceeds 18 Bars. Care should be taken to ensure the switch is not exposed to water hammer. The following table sets out the environmental limitations of the P25 flow switch.

OPERATING LIMITATIONS

Maximum Recommended Continuous Flow Rate	100 Litres per Minute (Head loss across the switch <50kPa at 100L/min.)
Maximum Recommended Operating Pressure (Static or Dynamic) at Ambient Temperature	18 Bars (260 P.S.I.)
Minimum Burst Pressure at Ambient Temperature	60 Bars (865 P.S.I.)
Maximum Liquid Temperature	60°C
Minimum Liquid Temperature	-20°C
Liquid Ph Range	1 to 14
Ingress Protection Rating	IP67

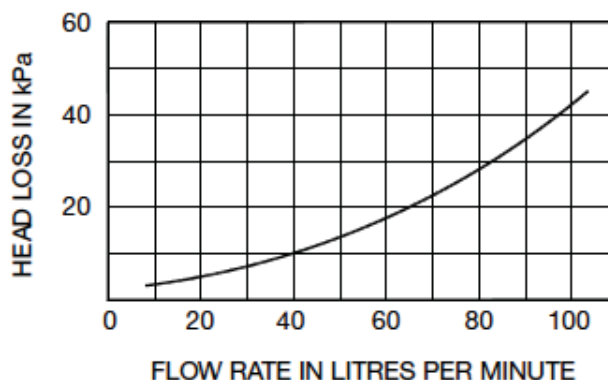
IMPORTANT NOTE: Maximum operating pressure given in the table above must be de-rated in proportion to temperature increase and in consideration of any chemical solutions being processed. At top operating temperature (60°C) the maximum operating pressure is 1 Bar absolute. (Fully open atmospheric discharge).

SWITCHING POINTS

The flow required to actuate the P25 is different for each model. The table below sets out the flow required to actuate and de-actuate each of the 3 models.

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
P25-B	9	7	0.1
P25-C	3	2.5	0.1
P25-S	9	7	0.1

The maximum recommended flow rate through the P25 flow switch is 100 Litres per minute. The graph below shows the head loss across the P25 at flows up to 100 Litres per minute.



INSTALLATION

The P25 flow switch can be mounted in any orientation 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 reverse flow. Pipework can be used to support the switch, or the switch can be connected directly to valve manifolds or pump ports. Do not use this flow switch as a non-return valve.

OVERRIDE SWITCH (P25-S MODEL ONLY)

The P25-S flow switch is fitted with a manual override. This allows the switch to be actuated even if there is no flow. The override is located on the side of the switch body, under a locking cap. The locking cap can be removed by placing a small screwdriver in the notch provided on the underside of the cap. The cap simply pops off when lifted gently. The override dial turns through 90 degrees between AUTO and ON. In the ON position the state of flow is ignored and the flow switch will be on. The override can be used to override the off state of the flow switch and allow pumps to be started. It can also be used when installing or commissioning systems to simulate switch operation.

ELECTRICAL



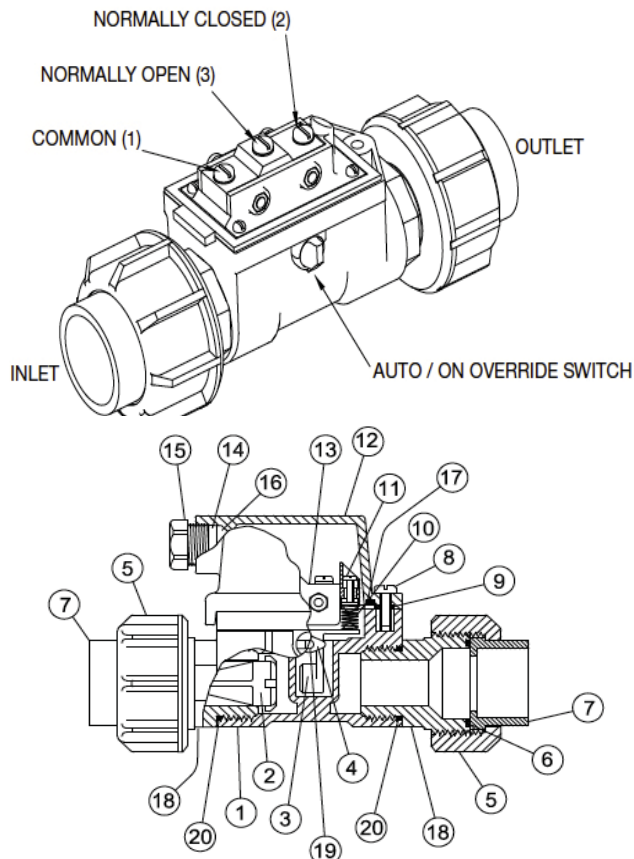
WARNING

All electrical work associated with the P25 Series 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.

Switch Model	Module Type	Contact Configuration	Switched Power Maximum	Switched Voltage Maximum	Switched Current Resistive AC (rms)	Inductive Loads	Typical Application
P25-B	Dry contact reed switch	S.P.S.T Normally Open	40 Watts	240V AC 200V DC	1 Amp Maximum	Not Suitable	PLC Telemetry & Relay Logic Circuits
P25-C	Dry contact reed switch	S.P.D.T	20 Watts	140V AC 150V DC	1 Amp Maximum	Not Suitable	PLC Telemetry & Relay Logic Circuits
P25-S	Heavy Duty Mechanical Switch	S.P.D.T	1.5 kW	500V AC 250V DC	20 Amps @ 240V AC	Direct Control of Motors to 1.5 kW / 2HP	AC Control Circuits & AC Motor Control

The P25 flow switch is available in three electrical configurations, outlined above. The standard version (P25-S) of the flow switch is supplied with an SPDT microswitch fitted. Two reed switch versions (S.P.D.T and S.P.S.T) of the flow switch are available for low power applications. The model number of the switch is located on a label inside the switch lid. The standard flow switch houses a magnetically coupled high current high voltage single pole double throw microswitch that is suitable for most general-purpose control circuit applications at any voltage up to 500VAC. The reed switch versions of the P25 house a gas filled reed switch that provide either an S.P.D.T (make before break) or S.P.S.T switching action. The cable gland on the P25 flow switch is threaded M20 and will accept standard M20 conduit bushes in addition to flexible cable. When wiring an P25 flow switch, ensure the lid and cable gland are securely tightened and in fully exposed locations use secondary precautions such as cable drip loops to make sure no water can enter the switch housing.

DETAILS OF THE P25-S



Item	Description	Qty	Material
1	Body	1	Glass reinforced Polypropylene
2	Piston	1	Glass reinforced Polypropylene
3	Switch arm and magnet	1	ASA
4	Toggle assembly	1	ASA
5	Union nut	2	Glass reinforced Polypropylene
6	O-Ring	2	Nitrile
7	Pipe socket	2	PVC
8	Lid Screw	1	M5 X 15 Stainless pan head
9	Retainer ring	1	Nitrile
10	Spring	1	Stainless steel
11	Sensitivity Adjustment	1	M3.5 X 14 Stainless pan head
12	Lid	1	Glass reinforced Polypropylene
13	Microswitch Assembly	1	Microswitch and carrier (carrier ASA)
14	Gland backing ring	1	Glass reinforced Polypropylene
15	Gland nut	1	Glass reinforced Polypropylene
16	cable grommet	1	Santoprene
17	lid gasket	1	Santoprene
18	adaptor	2	Glass reinforced Polypropylene
19	toggle O-Ring	1	Nitrile
20	Body O-Ring	2	Nitrile

Please Note: Spare part kits are available for the P25 Inline Flow Switch

KELCO Engineering Pty Ltd

ABN 20 002 834 844 **Head office and factory:** 9/9 Powells Road Brookvale NSW 2100 Australia. **Postal Address:** PO Box 7485 Warringah Mall Post Shop Brookvale NSW 2100 Australia. **Phone:** +61 2 9905 6425 **Fax:** +61 2 9905 6420 **Email:** Sales@kelco.com.au **Web:** www.Kelco.com.au

PLEASE NOTE: Kelco Engineering Pty Ltd reserves the right to change the specification of this product without notice. Kelco Engineering Pty Ltd accepts no liability for personal injury or economic loss as a consequence of the use of this product. All rights reserved copyright Kelco Engineering Pty Ltd © 2017 The Kelco P25 Inline Flow Switch is protected by a 12 month return to base warranty. Full details of our warranty can be downloaded from: <http://www.kelco.com.au/warranty>