

KELCO

C15 Series Inline Flow Switch

Features

- One piece brass body
- All position mounting
- Diesel-suited model available
- Choice of two electrical modules
- Detects very low flows
- Low head loss design
- Fully serviceable
- Weatherproof

Outline

The C15 Series inline flow switches are versatile magnetically actuated Normally Off flow switches that switch on in response to flow. They are ideal for a multitude of clean liquid applications including pressure boosting and for the direct control of pumps or fans. The C15 flow switches can be supplied with reed switch contacts for relay or PLC control or with a built in 40 Amp solid state switch for the direct control of single phase motors up to 3kW 4HP.

The C15 Series flow switches can be used in many clean liquids, including fresh water, sea water, and diesel fuel.

Switch Point Data

Switching point and sensitivity to flow depends on the orientation of the switch, liquid velocity, viscosity and piston clearance. To give users as wide a choice as possible, a nonmagnetic piston retainer is supplied with the C15 flow switches. With the switch mounted vertically and with flow passing upward through the switch, the non-magnetic piston retainer reduces the switch on flow rate by a factor of 2. That is, it makes the switch approximately twice as sensitive to flow.

Standard switch (as supplied) installed horizontally or vertically, with the magnetic piston retainer fitted.

Switching point on a slowly increasing flow	Switching point on a slowly decreasing flow
0.35 Litres per Minute	0.30 Litres per Minute

Switch installed vertically with flow passing upwards through the switch body, and with the non-magnetic piston retainer fitted.

Switching point on a slowly increasing flow	Switching point on a slowly decreasing flow
0.15 Litres per Minute	0.10 Litres per Minute

Note: The data shown in the tables above refers to water at ambient temperature as the test medium. Increasing fluid viscosity will decrease the flow rate required to actuate the switch. Decreasing the fluid viscosity will proportionally increase the switch on flow rate.



Installation

The C15 Series flow switches can be positioned in any orientation in pipework. In vertical piping, flow can be either upward or downward through the switch with very little difference in flow sensitivity. The C15 flow switches are suitable for use with hot or cold liquids up to 90°C. Systems can be steam sterilized at 100°C for short periods without damaging the switch.

Construction

The C15 Series flow switch consists of a sealed electrical switching module that saddles a one-piece metal body. The self contained electrical modules fitted to the C15 flow switches are easily removed without disturbing pipework, and can be reversed or rotated independently of the switch body. Within the metal body of the flow switch a free-fitting magnetically suspended piston actuates the switch as soon as flow starts. The C15 can tolerate static or dynamic pressures to 100 Bars (1450PSI) with a 4 to 1 safety factor.

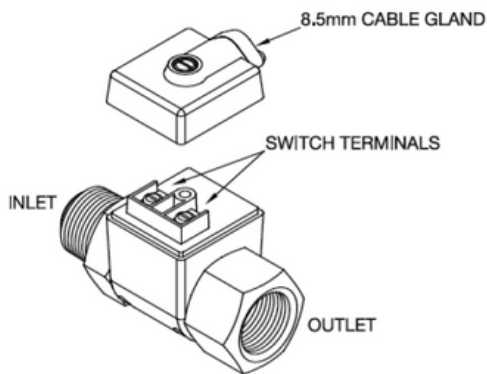
Hazardous Applications

The C15-B Series flow switch with an in built dry contact reed switch can be used in hazardous areas. The switches are classed as 'simple devices' as they do not contain components capable of storing or producing an electric charge. As simple devices the switches can be used in hazardous applications provided they are isolated by an intrinsically safe barrier, a Zener barrier. The model C15-R flow switch is not suited to such applications, and will only operate in AC circuits.

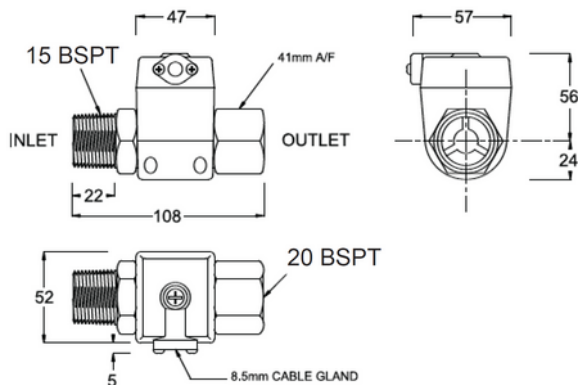
Note: Maximum recommended flow rate through the C15 flow switches is 30 Litres per Minute.

C15 SERIES DATA

General Layout



Dimensions



Electrical Data

Electrical Module	Module Type	Contact Configuration	Switched Power Maximum	Switched Voltage Maximum	Switched Current Resistive AC (rms)	Inductive Loads (Power Factor 4.0)	Typical Application
B	Dry contact reed switch	S.P.S.T Normally Open	40Watts	240V AC 200V DC	1 Amp Maximum	Not Suitable	PLC Telemetry and relay logic circuits
R	Solid state switch	S.P.S.T Normally Open	3kW 4HP	5 to 240V AC	10mA Minimum 40 Amps Maximum	40 Amps at 240V	AC control circuits and motor control

All C15 Series flow switches are Single Pole Single Throw Normally Open switches that switch on in response to flow. The model C15-B is suitable for PLC use, data logging, telemetry systems, relay logic circuits, or any light duty control application in either AC or DC circuits. The model C15-R is suitable for AC use only, and can directly control any AC motor load up to 3kW 4HP. The C15-R will not operate in DC circuits or in circuits that draw less than 10mA.

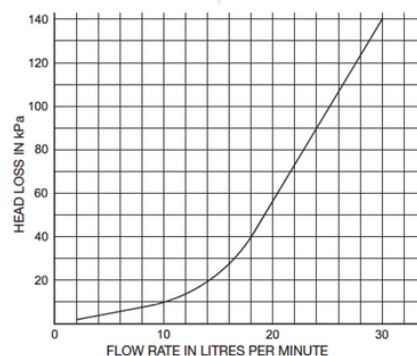
Note: The switched power of the C15-R module given above refers to a switch operating in a water pipe system at ambient temperature. In hot water applications the switched power must be proportionally reduced to avoid overheating the Triac. At the top operating temperature of 90°C the switched power must not exceed 375 Watts. The C15-B modules do not require de-rating at elevated temperatures.

Model Code	Description
C15-B	Dry Reed Switch S.P.S.T N.O 40 Watt 240VAC / 200VDC 1Amp Max. Suitable for PLC, telemetry and logic circuits.
C15-B-D	Diesel-suited Dry Reed Switch S.P.S.T. N.O 40 Watt. 240VAC / 200VDC. 1Amp Max. Suitable for PLC, telemetry and logic circuits.
C15-R	Solid State relay S.P.S.T. N.O 3kW 5-250VAC 10mA Min. 40Amps Max. Suitable for inductive loads.

Environment

Maximum Liquid Temperature	90°C, 100°C for short periods
Minimum Liquid Temperature	-20°C
Max. Liquid Pressure	100 Bars (1450 PSI)
Ingress Protection Rating	IP56

Head Loss Versus Flow Rate



Kelco Engineering Pty Ltd

ABN 20 002 834 844

Head Office & Factory
9/9 Powells Road,
Brookvale 2100 NSW Australia

Postal Address
PO Box 7485 Warringah Mall
Brookvale 2100 NSW Australia

Phone: +61 2 99056425
Fax: +61 2 9905 6420

Email: Sales@kelco.com.au
Web: www.Kelco.com.au

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