

# INSTALLING AND OPERATING THE KELCO UB25 SERIES FLOW SWITCH



## WARNING



Please read these installation and operating instructions fully and carefully before installing or servicing this Flow Switch. The UB25 Series flow switch is a mains voltage device. Death or serious injury may result if this switch is not correctly installed and operated. All electrical work on this switch must be performed by a fully qualified and licenced Electrician.

## CHECK THE SWITCH MODEL NUMBER

UB25 - B - D

UB25  
Series

B = S.P.S.T NO Reed Switch  
C = S.P.D.T NO / NC Reed  
Switch  
R = S.P.S.T NO Solid State  
Relay

Blank = Standard  
D = Dieseline  
Model

## OUTLINE

The UB25 flow switch is a magnetically operated switch that will turn on or off in response to liquid flow. The body of the switch contains a piston that partly obstructs the line of flow. To pass through the switch, the process liquid must push the piston back and flow over it and out through the outlet of the switch. When flowing liquid pushes the piston back, a magnet inside the piston actuates a reed switch in the electrical housing. The reed switch is used to provide a set of closed (or open) electrical contacts that are either used directly as a switch, or to control an built in Triac which in turn is used as the output device. The output of the switch can be used in control circuits to indicate flow, or to directly actuate small pump motors. The body of the UB25 flow switch contains a second magnet that opposes the magnet in the piston. The repulsive force generated between the piston and the body magnets constantly pushes the piston back to the off position, against the incoming flow. This unique magnet system negates the need for metal springs and provides the switch with exceptional reliability.

## MECHANICAL INSTALLATION

The UB25 flow switch can be mounted in any orientation in the pipe work, including upside down. There is a direction of flow arrow on the electrical enclosure. This directionality must be adhered to, as the switch will not operate against a reversed flow. Pipe work can be used to support the switch, or the switch can be screwed directly into valve manifolds or pump ports. Use thread tape or sealant and do not use this flow switch as a non-return valve. For increased sensitivity, UB25 inline flow switch is supplied with a non-magnetic piston retainer. The non-magnetic piston retainer is for use in vertically mounted applications only. Please see maintenance details overleaf for information on installing the non-magnetic piston retainer.

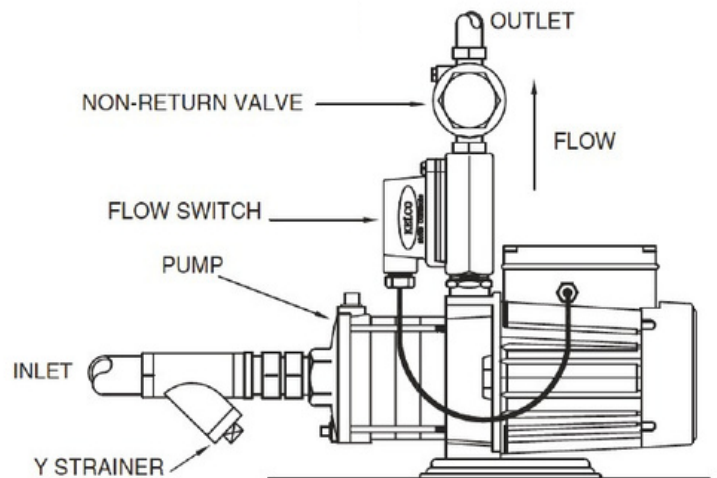
## MAINTENANCE

If the UB25 flow switch is correctly installed and if the process fluid is compatible with the materials of construction of this switch, then a very long maintenance free service life can be expected. Factors that may contribute to early failure of this flow switch include excess temperature, excess pressure or electrical loads in excess of the circuit boards rating.

To service the piston or to install the non-magnetic piston retainer, use a pair of long nosed pliers to remove the spring Circlip located in the outlet port of the switch. Press the piston back with your finger, it should pop out along with its three finned magnetic retainer. Ensure there are no pieces of iron scale adhered to the piston or retainer and that both parts are free of damage. Reassemble the switch and test it to ensure the piston is a free and smooth fit.

Most components of this switch are available in spare part kits.

## TYPICAL APPLICATION





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Please read these installation and operating instructions fully and carefully before installing or servicing this switch. All electrical work on this switch must be performed by a fully qualified and licenced Electrician, conforming to AS/NZ (or equivalent) standards and wiring rules

## ELECTRICAL INSTALLATION

This flow switch can be supplied with one of three optional electrical modules. The details of the various modules are set out in the table below. The model of the switch and its electrical module is indicated by a label fixed to the inside of the electrical enclosure of every 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
UB25-B	Dry Reed Switch	S.P.S.T N.O	40W	240V AC 200V DC	1 Amp	Not Suitable	PLC and General Control Circuits
UB25-C	Dry Reed Switch	S.P.D.T. Break Before Make	20W	140V AC 150V DC	1 Amp	Not Suitable	PLC Control and Safety Showers
UB25-R	Solid State Relay	S.P.S.T	750W	12 TO 240V AC	Spike to 40 Amp	4A at 240V AC	AC Control Circuits and AC Motor Control to a Maximum of 1 HP, 0.75KW

**Please Note:** All UB25 series flow switches use reed switches as the primary switching element. Reed switches are one of the most reliable mechanical switching devices ever devised. They offer an operating life in excess of 100 million cycles, however, care needs to be taken to ensure they are not electrically overloaded or if applied in questionable applications, suitable protection should be added to the control circuit.

## ENVIRONMENTAL LIMITATIONS

The UB25 flow switch has a high pressure rated solid 316 stainless steel body, suitable for applications involving neutral liquids such as hot or cold water, or oils. The UB25 flow switch contains a close fitting piston, and should only be used in applications where the process fluid is reasonably clean and free of entrained or suspended material. This switch should not be used with fluids containing large particulate matter, ferrous materials or fibrous matter. If the degree of contamination of the process fluid can't be guaranteed, then suitable line filtration should be fitted to the system. The piston and electrical housing are made from glass reinforced polypropylene.

The UB25 flow switch is supplied as standard fitted with a magnetic piston retainer that allows the switch to be oriented in any required position in pipework. In vertical pipe work flow can be either upward or downward through the switch.

In addition to the standard magnetic piston retainer, a non-magnetic piston retainer is also supplied with each switch. When the non-magnetic piston retainer is fitted to the switch, the switch must be oriented vertically with flow passing upward through its body. When set up this way the flow rate required to actuate the switch will be approximately 6.5 times lower than it is with the magnetic piston retainer fitted. The non-magnetic piston retainer is commonly used to enhance the sensitivity of the switch in gravity head applications such as boosting water pressure in gravity fed hot water systems.

Parameter	As Supplied Standard with Magnetic Piston Retainer Fitted)	With Non-Magnetic Piston Retainer Fitted
Switching Point on a Slowly Rising Flow +/- 15%	1.5 L/min.	0.23 L/min.
Switching Point on a Slowly Falling Flow +/- 15%	1.2 L/ min.	0/18 L/min.
Minimum Gravity Head Required to Actuate the Switch	1.5 Metres	
Maximum Recommended Continuous Flow (Water)	100 L/min	
Maximum Recommended Operating Pressure, Static or Dynamic	200 Bars (2900 PSI)	
Minimum Burst Pressure	400 Bars (5800 PSI)	
Maximum Liquid Temperature	90°C	
Minimum Liquid Temperature	-20°C	
Ingress Protection Rating (Weatherproof Rating)	IP67	

## Kelco Engineering Pty Ltd

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PLEASE NOTE: Kelco Engineering Pty Ltd reserves the right to change the specification of this product without notice. Users will use their own judgment to determine the appropriateness of using Kelco Products in an application, any safety measures required and that the product is properly installed for that application. To the extent permitted by law Kelco Engineering Pty Ltd disclaims and excludes all and any liability for the use of this product in any particular application or for defective installation. Kelco switches are warranted against malfunction by a 12 month return to base manufacturer's warranty. Full details of our warranty and limitation of liability can be found in this document or downloaded from: <http://www.kelco.com.au/warranty>

# Warranty and Limitation of Liability

Thank you for purchasing Kelco Engineering Pty Ltd, (ABN 200 002 834 844) ("Kelco") products (*Kelco Products*). This document sets out the terms and conditions of the product warranty and Limitation of Liability for *Kelco Products*. It is an important document. Please keep it with your proof of purchase documents in a safe place for future reference should you need to lodge a claim.

This Warranty and Limitation of Liability (or any more recent version in effect when you purchase a *Kelco Product*) ("*Warranty*") applies to all *Kelco Products* regardless of where you purchased the *Kelco Products*.

When you place an order, you are deemed to agree to the *Warranty*, unless otherwise agreed in writing with *Kelco*.

Kelco is located at 9/9 Powells Road, Brookvale, NSW 2100, AUSTRALIA and may be contacted by calling 61 2 99056425 or emailing: sales@kelco.com.au

## 1. Definition

The following terms used herein are defined as follows:

- (1) *Australian Consumer Law or ACL*: Schedule 2 to the Competition and Consumer Act 2010 (Cth).
- (2) *Brochures and Technical data sheets*: *Kelco* brochures, including, without limitation, sales brochures and technical data sheets, whether or not provided electronically.
- (3) *Customer Application*: Any application of *Kelco Products* or component parts by a you including, but not limited to, embedding and/or using *Kelco Products* in your parts/components, electronic substrates, devices, equipment and /or systems manufactured by customers.
- (4) *Non- Excludable Guarantee*: a Consumer Guarantee applicable to these *Warranty Terms* under the *Australian Consumer Law or New Zealand Consumer Guarantee Act 1993*.
- (5) *Fitness*: (a) fitness for a particular purpose, (b) performance, (c) compliance with laws and regulations and (d) conformity to standards of a *Kelco Product*.
- (6) *Kelco Products*: flow switches, level switches and float switches, related products and electronic/mechanical components under the *Kelco* brand.
- (7) 'You' or "Customer" means the purchaser of the *Kelco Products* not having purchased the *Kelco Products* for re-sale, and 'your' has a corresponding meaning.
- (8) *Usage Conditions*: Usage conditions, rating, performance, operating environment, handling instructions, warnings, restrictions on use, etc. of *Kelco Products* described in the *Brochures and technical data sheets*.

## 2. Descriptions

You are deemed to accept the following terms and conditions regarding the descriptions provided of *Kelco Products* in the Brochures and technical data sheets when you adopt or use a *Kelco Product* or component thereof.

- (1) Rated values and performance values are based on average performance established from batch production runs and *Kelco* does NOT warrant any rated values and performance values for multiple composite conditions.
- (2) Reference data is provided for your reference only. *Kelco* does NOT warrant that *Kelco Products* work properly at all times or continuously as provided in the reference data.
- (3) Application examples ( if any) are provided for your reference only. *Kelco* does NOT warrant the *Fitness* of *Kelco Products* under such applications.
- (4) *Kelco* may discontinue the production of *Kelco Products* or change their specifications for the purpose of improving such products or for other reasons entirely at its own discretion and is under no obligation to notify you of any such change.

## 3. Precautions

You are deemed to accept the following terms and conditions when you purchase *Kelco Products*:

- (1) You will use *Kelco Products* in compliance with *Usage Conditions* including rating and performance.
- (2) You will confirm *Fitness* and use your own judgment to determine the appropriateness of using of *Kelco Products* in a *Customer Application*. *Kelco products* are unlike conventional flow and level switches and pump controllers in that they can be applied to virtually any fluid or pumping system in any manner defined by an original equipment manufacturer, a wholesaler or end user or their agents. The knowledge and experience of such parties is outside the control of *Kelco*, and their having relevant knowledge and experience is critical to the successful application and operation of the *Kelco Products*. *Kelco* does NOT warrant the *Fitness* of *Kelco Products* in a *Customer Application*.
- (3) You will confirm that *Kelco Products* are properly wired and installed for their intended use in your overall system. In the case of *Kelco* pump controllers, the flexibility of their operating system means it requires an extensive knowledge of pumps and their characteristics and the intended overall goal of the system in order to select the correct functions and settings. Failure to understand the ramifications of incorrect settings may result in a system that fails to perform to your expectations and or may even damage the pump or system itself. It is therefore critical that correct settings are used to achieve a stable and reliable overall system and to provide any such system with appropriate pressure and or flow protection the pump controller is intended to provide. *Kelco* does NOT warrant *Kelco Products* against defective installation, incorrect programming, incorrect wiring or electrical overload in any form.
- (4) When using *Kelco Products*, you will make sure to (i) maintain a margin of safety in relation to the published rated and performance values, (ii) design to minimize risks to any *Customer Application* in case of failure of any *Kelco Products*, such as introducing redundancy i.e. critical systems should include double redundancy of all controls, (iii) adopt system-wide safety measures to notify risks to users such as independent backup protection. Such backup may consist of a simple or complex independent alarm system to alert an operator to any issue with the system, and (iv) conduct regular maintenance on *Kelco Products* and the *Customer Application*.
- (5) It will be your sole responsibility as user to determine and use adequate measures and checkpoints to satisfy your particular requirements for (i) data input and output, (ii) maintaining a means for reconstruction of lost data, (iv) preventing *Kelco Products* installed thereon from being infected with computer viruses and (v) protecting *Kelco Products* from unauthorized access. *Kelco* shall not be responsible and/or liable for any loss, damage, or expenses directly or indirectly resulting from any third-party software or hardware not contained in the product as originally configured by the manufacturer, the infection of *Kelco products*, or any computer equipment, computer programs, networks, databases or other proprietary material connected thereto, by service attack, computer viruses, other technologically harmful material and/or unauthorized access.
- (6) *Kelco Products* are designed and manufactured as general-purpose products for use in general industrial products. They are not intended to be used in the applications described in subsection 3...(5)(a), (b), and (c). If you are using *Kelco Products* in the applications described below, *Kelco* does not provide any warranty for such *Kelco Products*, except for specific applications where *Kelco* has specified that it intends to provide a warranty or by separate written agreement between the customer and *Kelco*.

- a. Applications with stringent safety requirements and applications that could cause physical injury to a person or result in loss of life.
- b. Applications under severe conditions or in severe environment, including but not limited to outdoor equipment, equipment exposed to chemical contamination, equipment exposed to electromagnetic interference and equipment exposed to vibration and shocks.

- c. Applications under conditions or environments not described in any of the Brochures and Technical data sheets.
- d. *Kelco Products* are not intended for use in Hydrocarbons other than Dieseline.

#### 4. Warranty

*Kelco* warrants that *Kelco Products* will perform in accordance with the specifications set out in the Technical data sheets, subject to and in accordance with the following:

- (1) Warranty period: The *Warranty* shall apply for 12 months from the date of original purchase of *Kelco Products* by the customer. .
- (2) Sole Remedy: Unless required to do otherwise as a result of statutory guarantees applicable under *ACL*, *Kelco* will provide, at its own discretion, either of the following two services as the sole remedy for a malfunctioning *Kelco Product*:  
Repair of the malfunctioning *Kelco Product(s)* or components by *Kelco* or *Kelco* authorised dealer at no charge to the customer, or

- a. Replacement of the malfunctioning *Kelco Product(s)* or components by *Kelco* or *Kelco* authorised dealer with the same number of replacement/alternative products or components at no charge to the customer.
- (3) Exceptions: This *Warranty* of *Kelco Products* does not apply if the cause of the malfunction falls under any of the following:

Usage in a manner other than the original intended use for the *Kelco Products* or component thereof.

- a. Usage other than as described in the *Usage Conditions*.
- b. Usage that is not in accordance with Section 2 (Descriptions) and Section 3 (Precautions) above.
- c. Modification or repair made to the *Kelco Products* by persons other than *Kelco*.
- d. Causes which could not have been foreseen with the level of science and technology at the time of shipping from *Kelco*.
- e. Replacement or repair of any (1) consumables (including cables, paddles and circuit boards), or (2) lost parts or accessories.
- f. Service of any product whilst it is outside Australia.
- g. Causes originating from other than *Kelco* or *Kelco Products* (including force majeure such as but not limited to natural disasters)
- h. Causes from any environmental factors. Such factors may include but are not limited to water or chemical ingress, fire damage, lightning damage, mechanical damage, sun damage or degradation, failure due to over-heating, freezing or vibration. Failure due to customers over tightening threads or fittings. Failure due to power supply fluctuations, surges, spikes, brown outs. or AC supplies that do not provide a pure sine wave output.
- i.

(4) If you intend to make a claim under this *Warranty* you must contact *Kelco* to register your claim by telephone on (02)99056425 and provide the following details to enable *Kelco* to assess the claim: (i) proof of purchase; (ii) evidence of the particulars of the claim that gives rise to the application of the *Warranty* ; (iii) confirmation that the cause of the malfunction was not an Exception set out above; and (iv) your phone number, email and address details.

You must provide or make the *Kelco product* available to *Kelco* for evaluation. If you are required to return the product to *Kelco* for repair replacement or evaluation, *Kelco* will provide delivery details and a return goods authorisation number to you. The *Kelco Products* will be at the owner's risk whilst in transit to and from *Kelco*, unless transported by *Kelco* or its authorised representatives.

The *Kelco Product* presented for repair may be replaced by refurbished products of the same type rather than being repaired. Refurbished parts may be used to repair the product.  
To the extent permitted by law replacement of the product or a part does not extend or restart the *Warranty Term*.

*Kelco* may seek reimbursement of any costs incurred by them when the *Kelco* product is found to be in good working order.

#### 5. Non-excludable Statutory Guarantees

(1) The *Warranty* is given by *Kelco* in addition to other rights and remedies which you may be entitled to under by law, nothing contained in this agreement excludes, restricts or modifies any condition, guarantee, warranty or other obligation which is applicable to or is conferred on *Kelco* pursuant to law where to exclude, restrict or modify any such condition, warranty or other obligation is unlawful. (2) Australia: To the extent that you are a consumer for the purposes of the *ACL*, *Kelco Products* come with guarantees that cannot be excluded under the *ACL*. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. "Acceptable Quality" and "major failure" have the meaning they have in the *ACL*. (3) New Zealand: For *Kelco Products* provided by *Kelco* in New Zealand, the *Kelco Products* come with a guarantee by *Kelco* pursuant to the provisions of the Consumer Guarantees Act, section 345(1)(i) of the Contract and Commercial Law Act 2017 and the Fair Trading Act. Where the *Kelco Product* was purchased in New Zealand for commercial purposes the Consumer Guarantee Act does not apply.

#### 6. Disclaimer and Limitation of Liability

TO THE EXTENT PERMITTED BY APPLICABLE LAW:

(1) SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, OTHER THAN AS STATED IN SECTION 4 ABOVE AND SELLER DISCLAIMS AND EXCLUDES ANY WARRANTY OF ANY OTHER KIND. (2) THE SOLE AND EXCLUSIVE REMEDY FOR MALFUNCTIONING KELCO PRODUCTS SHALL BE AS SET FORTH IN SECTION 4. ABOVE. (3) *KELCO* AND THE DISTRIBUTORS OF *KELCO PRODUCTS* ARE NOT LIABLE FOR ANY DAMAGES WHICH MAY ARISE FROM OR BE RELATED TO *KELCO PRODUCTS*.

**7. Confidentiality:** You accept that if you make a *Warranty* claim, *Kelco* and its agents may exchange information in relation to you to enable *Kelco* to meet its obligations under this *Warranty*.

#### 8. Export/ Import Controls

Customers of *Kelco Products* shall comply with all applicable laws and regulations of Australia and/or other relevant countries with regard to security export/import control, when exporting/importing *Kelco Products* and/or technical documents or providing such products and/or documents to a non-resident of Australia. At its discretion *Kelco* may not provide customers with *Kelco Products* and/or technical documents should they fail to comply with such laws and regulations.

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