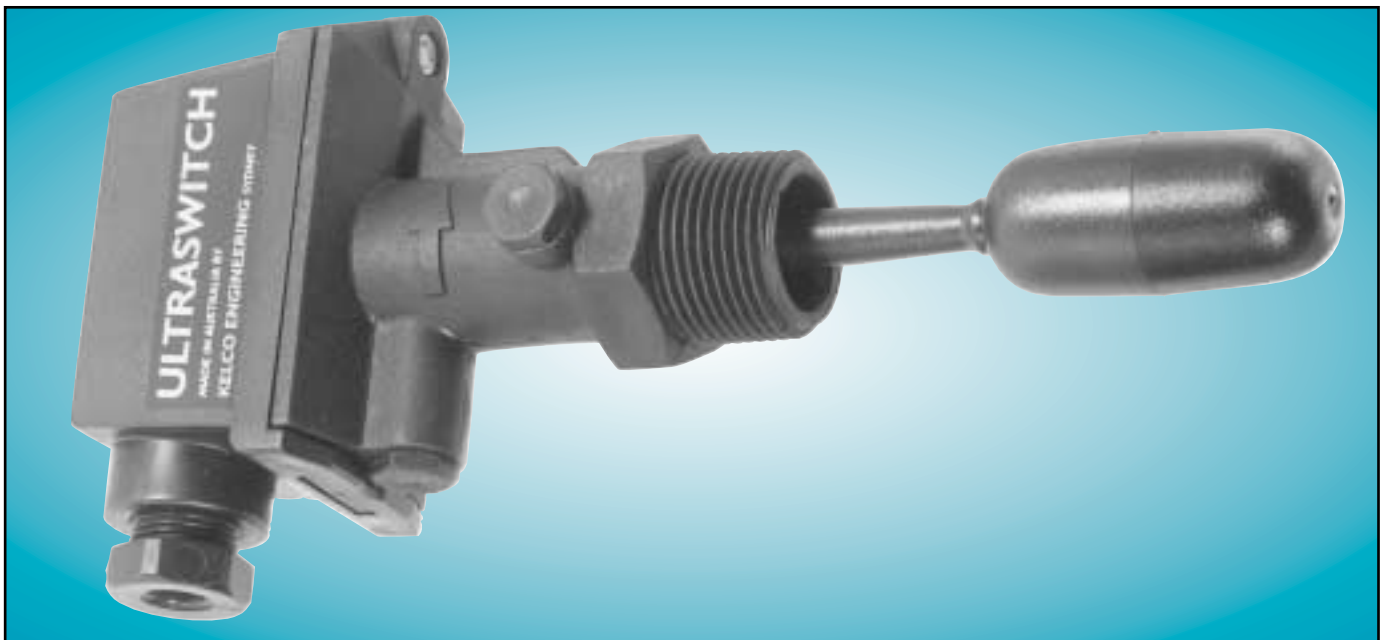


ULTRASWITCH L25 SERIES

CORROSION RESISTANT LEVEL SWITCHES

FEATURES

- RELIABLE ROBUST CONSTRUCTION
- WEATHERPROOF ENCLOSURE IP56
- ALL WETTED PARTS IN THERMO PLASTIC
- NO METAL PARTS IN CONTACT WITH FLUIDS
- FULLY ADJUSTABLE LEVEL SENSITIVITY
- SIMPLE TO INSTALL AND ADJUST
- REED SWITCH OR SOLID STATE RELAY OUTPUT
- TOTALLY SERVICEABLE DESIGN
- ENERGY AUTHORITY APPROVED



APPLICATIONS

- Low level protection for pumps
- Control and signalling in ultra pure water systems
- Tank level status signalling in water treatment plants
- Control of levels in effluent and fluid neutralising systems
- Applications involving sea water or brine solutions
- Safety and control signalling for chemical handling
- Control and protection of chemical pumps



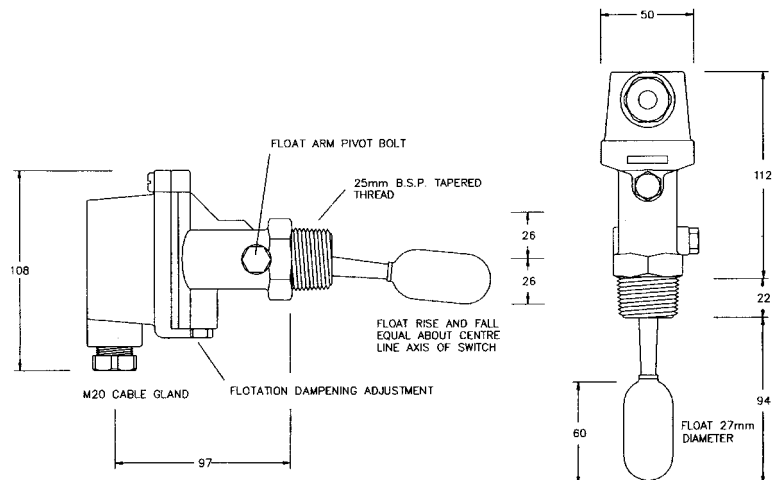
AUSTRALIAN MADE

TECHNICAL DATA

The L25 series level switch has been specifically developed to fill the need for a level sensor, capable of working reliably in applications in which metal level switches fail. Typical areas include chemical, process, pharmaceutical, scientific and agricultural uses, in which the metal components of traditional level switches either interfere with, or are attacked by, the liquids being handled.

Modern plastic and fibreglass tank systems are used extensively in agriculture, industry, and in commercial and domestic fluid handling. The L25 level switch has been specifically designed to integrate into plastic and fibreglass tank systems, and to enhance the advantages of such systems. Total avoidance of metal components, in contact with the liquid, has been achieved. In addition, an advanced frictionless sensitivity adjusting system gives total external control over the switching threshold.

DIMENSION SKETCH



ELECTRICAL DATA

Switch Model	Electrical Module	Switched Power in Watts Maximum	Switched Voltage AC(r.m.s.) Maximum	Switched Current Resistive AC(r.m.s.) Maximum	Maximum Starting Current Inductive Loads	Motors or Other Inductive Loads
L25-B	Dry Contact Reed switch S.P.S.T.	40W	250V	1A	-	-
L25-C	Dry Contact Reed Switch S.P.D.T.	40W	250 V	1A	-	-
L25-R	Solid State Relay output S.P.S.T.	750W	250V	5.2A	100A	1HP 0.75 Kw Maximum

CONSTRUCTION

The L25 series level switches are made from glass reinforced polypropylene with an ABS electrical enclosure and an ABS float and arm. Optional float and arm assemblies are available in PVC, for special applications.

Polypropylene is non-ageing and is unaffected by ground conditions. It will not support algae or bacterial growth, and has exceptional resistance to most acids, alkalis and solvents. ABS will withstand weak acids and both weak and strong alkalis. The L25 series level switch should not be used with oxidizing acids or chlorinated organic solvents. L25 series level switches are intended to be mounted horizontally, in a 25mm B.S.P. socket in the side of tanks. As supplied by the factory, the L25 level switch will give an off condition when the float arm is down, or not being lifted by liquid. The on state will occur when the float is raised by liquid level. This electrical function may be reversed by turning the switch electrical module end for end. Thus an on state will occur when the liquid level drops and the float is lowered.

OPERATING ENVIRONMENT

Maximum Operating Pressure (Static or Dynamic) at Ambient Temperature	1800 Kpa 260 P.S.I.
Minimum Burst Pressure at Ambient Temperature	7000 Kpa 1000-P.S.I.
Maximum Operating Temperature	80°C
Minimum Operating Temperature	-20°C
Ph Range Standard Switch	1 to 10
Ph Range with ABS Arm	1 to 14

NOTE: Maximum operating pressures must be derated at elevated temperatures.

NEW SOUTH WALES DEPARTMENT OF MINERALS AND ENERGY APPROVAL No. CS4937N

MADE IN AUSTRALIA BY

KELCO ENGINEERING

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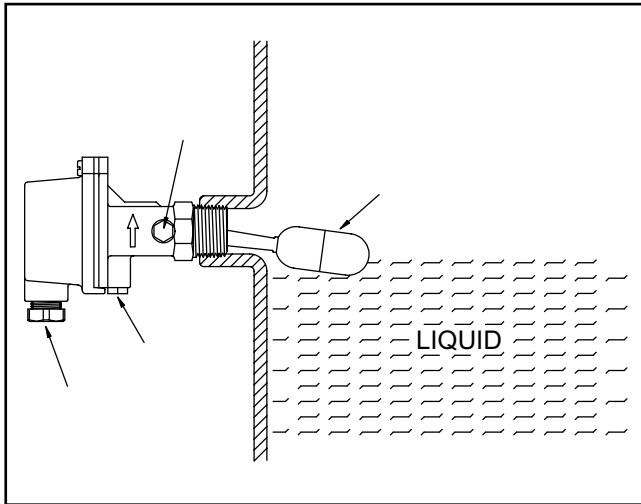
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INSTALLATION AND OPERATING INSTRUCTIONS FOR L25 SERIES LEVEL SWITCH

PLEASE READ THIS INSTALLATION SHEET CAREFULLY AND FULLY BEFORE ATTEMPTING TO INSTALL OR SERVICE THIS FLOAT SWITCH



APPLICATION

The L25 series level switch has been specifically designed to be used in both water and aggressive chemical solutions. All wetted parts of the switch are made from thermo-plastics, which resist a wide range of chemicals such as acids, bases, sea water, ground water, and many solutions containing dissolved ineral salts. This switch should not be used in organic solvents.

There are no metal parts in the wetted area of this switch. The spring action of the float arm and the actuation of the switch is achieved solely by magnetic force, acting through the polypropylene walls of the switch body.

If there is any doubt as to the suitability of this level switch to be exposed to specific chemicals, seek the advice of the manufacturer before installing this switch.

ENVIRONMENT

The L25 series level switch has an IP rating of 56, that is, the unit is weather proof and may be used for all exposed outdoor applications. In situations where the whole switch may be submerged in water for long periods, it is recommended that the electrical housing be filled with an electrical grade (non acid curing) silicon sealant. There are no moving parts in the electrical enclosure of this switch, so the entire housing can be simply potted in this way, if required.

GENERAL

Do not use this switch in either pressure vessels or vented tanks where the liquid temperature is greater than 80°C, or lower than -20°C. At temperatures approaching 80°C the maximum pressure rating of the switch (18 bars, or 264 PSI) must be reduced, preferably to less than 10 bars (150 PSI). Safety should always be considered when using these switches, particularly with high temperature, or dangerous solutions. Take special note that both the temperature and pressure ratings of this switch may need to be reduced, if the switch is to be used in chemical solutions, at elevated temperatures and or pressures.

INSTALLATION

This level switch is intended to be installed in the horizontal plane in the side of a tank or stand pipe. A 25mm (1" BSP socket must be provided on the side of the tank, at a level where the switch action is required. The L25 level switch is equipped with a float which is small enough to pass through a 25mm BSP socket. This allows the switch to be installed or serviced entirely from outside the tank. The level switch should be oriented so the float can rise and fall with fluctuations in liquid level. The orientation is indicated by the arrow on the side of the body of the switch. With the switch installed, the arrow may point up or down but should never point horizontally.

If the switch is oriented so the direction arrow points upward, the buoyancy of the float will be retarded by the magnetic dampening system. If the switch is oriented so the arrow points downward, the magnetic dampening system will enhance the buoyancy of the float. In effect making the float lighter and more buoyant. This added buoyancy may be used to advantage in liquids with specific gravities of less than 1.0, for example in diesel fuel

FLOAT ASSEMBLY

The float and arm assembly can be supplied in polycarbonate ABS or PVC. The standard arm and float supplied with the L25 switch is made from polycarbonate, and is suitable for use with water, bore water, sea water and a wide variety of chemicals. It should not be used with acids, alkalis or chlorinated water. ABS or PVC arm assemblies can be supplied where chlorinated or aggressive solutions are to be encountered. These are not quite as mechanically robust as the polycarbonate assemblies but are more than adequate for the majority of applications, and offer the advantage of inertness in many chemicals.

Take care that the float is able to pivot freely through its full arc of motion, unencumbered. This is particularly relevant when the switch is mounted in either a thick walled tank or in an extension or stand off socket, for example in tanks which are to be lagged. The float must be free to move fully up and down, through its full arc of motion in order to actuate the switch correctly.

Do not use this switch in situations where floating material in the liquid may jam or block the float arm cavity in the switch body. In addition do not use this switch where there is any likelihood of precipitous materials cakeing out in the switch cavity or on the float arm.

ELECTRICAL INSTALLATION

All electrical work associated with this level switch must conform to the relevant local codes, and should be carried out by qualified persons only.

The switch lid is fitted with a cable gland sized to accept 10mm cable, or by removing the inner gland rubber, 6mm cable. If the cable gland nut is removed, the thread will accept a 20mm conduit bush.

The switch should be connected in series with the load. The terminals are marked S1, S2 and Earth. The switch is bi-directional so the active can be fed to either S1 or S2 and the switch wire to the load taken from the other available terminal, S1 or S2. The earth terminal is provided for safety, and should be used on every mains voltage installation.

The L25 level switch is available with 3 different circuit boards. The details of the electrical rating of each model can be found inside the lid of the electrical housing. Some additional details are included here:-

1) L25-R (Circuit board is marked FL25R) Solid state relay, suited to control AC circuits between 2 and 250 volts. This switch is suitable for all general purpose applications, For example, control of contactors and relays, or direct control of small motors. This switch will not operate in DC circuits, or in AC applications where the load is less than 10mA. To test the FL25R circuit board, use a 240 volt lamp connected in series with the switch. Continuity testers and multimeters may yield false results if applied to the FL25R circuit board. The switch may be mounted with the direction arrow pointing either up or down, and the terminal block on the circuit board may also be independently oriented either at the top or bottom of the switch. The most common orientation is with the arrow pointing up and with the circuit board oriented so the terminal block is at the top of the switch. This orientation, will give a normally OFF switch which turns ON when rising liquid lifts the float. To convert the switch to a normally ON function, simply remove the 2 fixing screws and turn the circuit board end for end.

Due to thermal dissipation factors, the amount of power the FL25R circuit board can control is limited to 750 Watts, continuous. If the continuous load is not limited to this rating, the triac temperature will become excessive (>130°C) and the switch may lock in the ON state, until power is removed and the circuit board is allowed to cool.

2) L25-B (Circuit board is designated FL25B) Single reed contact switch, suited to control AC or DC circuits up to 250 volts at up to 40 VA. Principally intended for signalling of PLC's the F25-B can also be used as a light duty general purpose control switch. As with any reed switch based device, care must be taken not to overload, or to apply inductive loads to this switch. The F25-B is supplied as a normally OFF switch, and this may be reversed as required, by turning the circuit board end for end.

3) L25-C (Circuit board is designated FL25C) Double reed switch circuit board. Essentially similar to the F25-B, the F25-C gives a single pole double throw action by employing 2 reed switches. The circuit board should not be reversed on this model.

All 3 circuit boards have magnetically actuated reed switches, located under the boards. These are small green glass tubes, which are extremely fragile. Take care if removing or replacing the circuit board not to in any way damage the reed switch, or to bend its leads, or change its position.

HAZARDOUS LOCATIONS

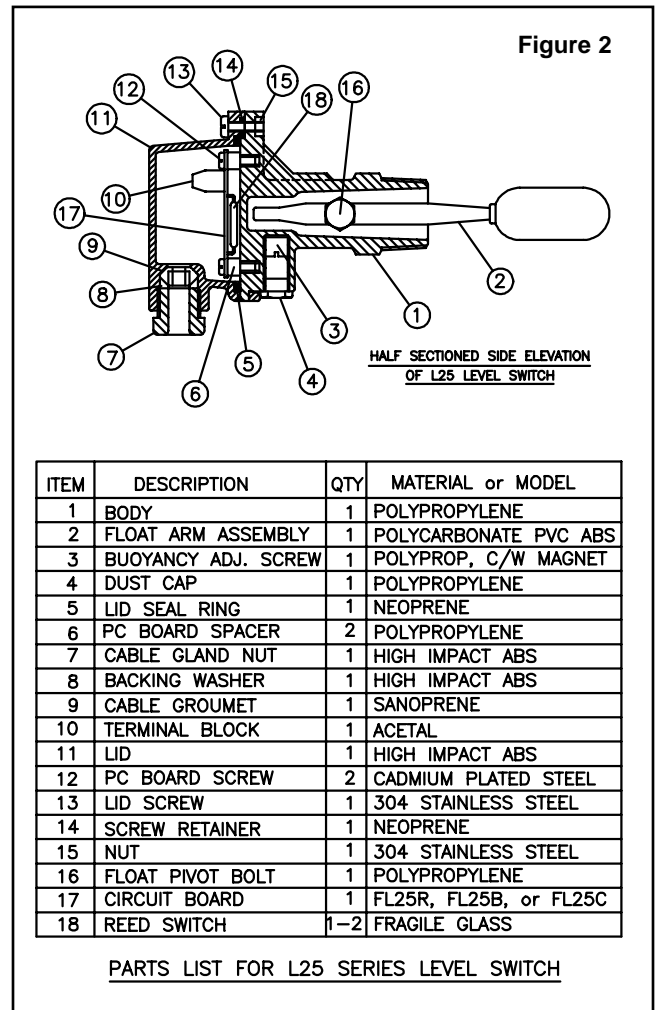
The L25 level switch is classed as a simple device, it contains no mechanism for the storage or production of electrical energy. The switch does not require separate certification to be used in hazardous locations. The L25-B and L25-C switches are suited to hazardous area use, when isolated via an intrinsically safe relay (zener barrier)

SENSITIVITY ADJUSTMENT

The L25 level switch is equipped with a unique magnetic dampening system which can be used to either enhance or retard the sensitivity of the level switch. With the switch oriented so the direction arrow points upward, the sensitivity will be retarded by the dampening mechanism. Surface conditions in the tank, such as ripples which may otherwise prematurely trip the switch, will be dampened. Fine adjustment of sensitivity can be achieved by adjustment of the sensitivity screw. The sensitivity adjusting screw is located under the end of the electrical housing. This is accessible by removing the hexagon headed plug, and adjustable using a broad bladed screwdriver. As supplied, the screw is wound fully in. The screw may be wound anticlockwise, to reduce the effect of the magnetic dampening. The screw should never be removed or wound out more than 6 full turns, and never wound in beyond its stop.

MAINTENANCE AND REPAIRS

Full overhaul and service of the L25 level switch may be carried out in the field. Note that repairs should only be carried out by qualified electrical personnel. All components of the switch are available as spare parts, from the manufacturer, or supplier. See Fig 2 for a complete parts list for this switch.



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L25 Installation Sheet Fig 2 and Parts List (1275x803x16M wmf)

ITEM	DESCRIPTION	QTY	MATERIAL or MODEL
1	BODY	1	POLYPROPYLENE
2	FLOAT ARM ASSEMBLY	1	POLYCARBONATE PVC ABS
3	BUOYANCY ADJ. SCREW	1	POLYPROP, C/W MAGNET
4	DUST CAP	1	POLYPROPYLENE
5	LID SEAL RING	1	NEOPRENE
6	PC BOARD SPACER	2	POLYPROPYLENE
7	CABLE GLAND NUT	1	HIGH IMPACT ABS
8	BACKING WASHER	1	HIGH IMPACT ABS
9	CABLE GROUMET	1	SANOPRENE
10	TERMINAL BLOCK	1	ACETAL
11	LID	1	HIGH IMPACT ABS
12	PC BOARD SCREW	2	CADMIUM PLATED STEEL
13	LID SCREW	1	304 STAINLESS STEEL
14	SCREW RETAINER	1	NEOPRENE
15	NUT	1	304 STAINLESS STEEL
16	FLOAT PIVOT BOLT	1	POLYPROPYLENE
17	CIRCUIT BOARD	1	FL25R, FL25B, or FL25C
18	REED SWITCH	1-2	FRAGILE GLASS

PARTS LIST FOR L25 SERIES LEVEL SWITCH

