

INSTALLING AND OPERATING THE KELCO L SERIES LEVEL SWITCH



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

OVERVIEW

The L Series level switch is a side entry tank level switch that provide a single switch point level reference when installed in the side wall of a tank or vessel. This document sets out in detail the installation and functions of the level switch and some of the main ways in which it can be used.

APPLICATION

The L Series level switch has been specifically designed to be used in both water and aggressive chemical solutions. The process connection on the switch is available in either Polypropylene or 316 Stainless Steel. The float and all other wetted parts of the switch are made from glass reinforced Polypropylene (for general use) or glass reinforced Nylon (for Diesel applications).

The all Polypropylene models are suitable for use in a wide range of liquids including potable water, sea water, acids, bases, ground water and many chemical solutions containing dissolved mineral salts. The switches should not be used in organic solvents. If there is any doubt about the suitability of this switch for a specific application, please contact the manufacturer before installing the switch.



Without its lid in place the L Series Level Switch is not water resistant and present a potential shock hazard. Take great care not to splash water onto the switch when the lid is not in place. Always replace the lid and fully tighten its securing screw after wiring or servicing this switch.

INSTALLATION

This level switch should be installed in a tank socket on the side wall of a tank. The switch requires a minimum of 25mm of clearance above and below its centre line axis to facilitate the free movement of its float, see drawing.



After installing or servicing this level switch always replace its lid and fully tighten its lid screw. Also ensure the cable gland is fully tightened. Never leave the lid off the level switch for extended periods. Without its lid in place this level switch is not water resistant and presents a potential shock hazard. Take great care not to splash water onto the inside of the level switch's electrical housing when the lid is not in place. Without its lid the level switch is not weather or insect proof and presents a potential shock hazard that may result in death or serious injury.

Do not install this switch in either pressure vessels or in vented tanks where the liquid temperature is greater than the ratings in the table below. Safety should always be considered when installing this switch, particularly where aggressive or dangerous process liquids are involved.

This level switch is intended to be installed in the horizontal plane in the side of a tank or riser pipe. A suitable female threaded tank socket should be installed at a level where the switch point is required. The level switch is supplied with a float designed to pass through the inside diameter of a standard pipe thread socket. This allows the switch to be installed from the outside of the tank. Apply thread tape or sealant to the thread on the switch and screw the switch into the tank socket using the spanner flats on the process adaptor of the switch. Do not screw the switch into the tank socket by twisting the electrical housing, always use the spanner flats provided. Do not wind the switch all the way into the tank socket, leave a gap of approximately 4mm between the end of the thread on the switch and the face of the tank socket. Orient the switch so the float arm rises and falls vertically. The cable entry on the switch must be on the underside of the switch and pointing straight down.

1) Do not expose this level switch to freezing. If the level switch is to be used in areas where low temperatures will be encountered, always lag the tank and switch to prevent the unit from freezing. 2) Do not use this level switch in hot liquid applications. 3) This Level Switch is not designed to be used in water hotter than 50°C 4) Do not exceed the recommended pressure limitations outlined in the document



WARNING

After installing or servicing this flow switch always replace its lid and fully tighten its lid screw. Also ensure the cable gland is fully tightened. Never leave the lid off the switch for extended periods. Without its lid in place this flow switch is not water resistant and presents a potential shock hazard. Take great care not to splash water onto the inside of the flow switch's electrical housing when the lid is not in place. Without its lid the flow switch is not weather or insect proof and presents a potential shock hazard that may result in death or serious injury.

ENVIRONMENTAL LIMITATIONS

Please note: Maximum operating pressure of the all Polypropylene TW switch must be linearly de-rated as operating temperature is increased so that at 60°C (140°F) the maximum permissible operating pressure for the switch does not exceed one Bar (15 psi) absolute.

Parameter	L Series with Polypropylene process connection	L Series with Stainless process connection
Maximum operating pressure (Static or Dynamic) at ambient temperature	18 Bars (261 PSI)	400 Bars (5800 PSI)
Minimum burst pressure at ambient temperature	45 Bars (652 PSI)	800 Bars (11800 PSI)
Maximum operating temperature	60°C See note below	80°C (176°F)
Minimum operating temperature	-20°C (-4°F)	-20°C (-4°F)
Ingress protection rating	IP67	IP67

ELECTRICAL DATA FOR THE "L" SWITCH

The model "L" microswitch is a Single Pole Double Throw low voltage low wetting current switch with gold contacts, it is suitable for low voltage signalling applications up to 30VDC.

Maximum Switched Voltage	30VDC
Maximum Switched Current	26mA
Minimum Switched Voltage	5VDC
Minimum Switched Current	1mA

Note: Do not apply loads in excess of the limits in the table above. Do not apply inductive or capacitive loads to the "L" microswitch. The "L" microswitch will be damaged by loads in excess of the limits in the table.

ELECTRICAL DATA FOR THE STANDARD SWITCH

The standard microswitch is a Single Pole Double Throw switch suitable for general purpose control circuit applications up to 500VAC. The standard switch can also be used in low voltage AC and DC application, for example at 12 or 24VAC or DC.

RATED VOLTAGE	NON INDUCTIVE LOADS				INDUCTIVE LOADS			
	RESISTIVE LOAD		LAMP LOAD		INDUCTIVE LOAD		MOTOR LOAD	
	NO	NC	NO	NC	NO	NC	NO	NC
125 VAC	15A		3A	1.5A	15A		5A	2.5A
250 VAC	15A		2.5A	1.25A	15A		3A	1.5A
500 VAC	10A		1.5A	0.75A	6A		1.5A	0.75
8 VDC	15A		3A	1.5A	15A		5A	2.5A
14 VDC	15A		3A	1.5A	10A		5A	2.5A
30 VDC	6A		3A	1.5A	5A		5A	2.5A
125 VDC	0.5A		0.5A	0.25A	0.05A		0.05A	0.05A
250 VDC	0.5A		0.5A	0.25A	0.03A		0.03A	0.03A

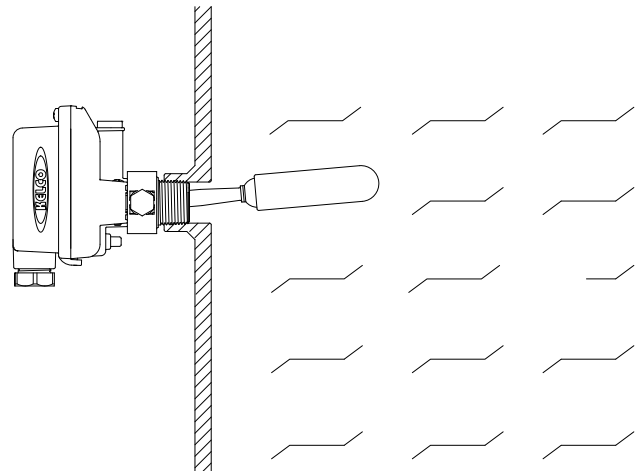
Maximum Switched Voltage	500VAC
Maximum Switched Current	15A
Minimum Switched Voltage	5VDC
Minimum Switched Current	160mA

Note: Do not apply maximum voltage at maximum current across the switch contacts. See main data table for current limits at specific voltages and for specific loads

HAZARDOUS APPLICATIONS

The TW-L trailing wire flow switch can be used in hazardous areas. The flow switch is classed as a simple device and does not contain components capable of storing or producing an electric charge. As a simple device the TW-L can be used in hazardous applications provided it is isolated via an intrinsically safe barrier (a Zener barrier).

TYPICAL INSTALLATION



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