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COMPACT VERTICAL LIQUID LEVEL SENSORS

VCS Series

High- or low-level switching

N.O. or N.C. SPST output

Can be mounted in the bottom or top of a tank

Certified reed switch (UL component listed)

Choice of several non-reactive wetted materials

18 different configurations available

Features

- Voltage rating up to 250VAC
- Current rating up to 1.0 amp
- Compact design and low profile
- Optional cable lengths

Applications

- Water and fuel storage tanks
- Full and/or empty detection
- Pump on/off controls
- Marine bilge and ballast tanks
- Flood detection and prevention
- Coolant level indication
- Livestock watering tanks
- Irrigation systems
- Water treatment plants
- Waste water tanks
- Chemical storage and processing

The VCS series of point liquid level switches demonstrates a high degree of reliability due to the use of non-reactive wetted components and a unique reed switch designed specifically for level sensing applications. The sensor utilizes a moving float with an embedded magnet to activate a reed switch located in the sensor stem. As the liquid level passes the sensor, the float moves up or down on the stem giving a normally closed or normally open switch indication.

The reliability of this sensor results from a very simple operating principle, a single moving part, media compatible wetted materials, and a unique reed switch design that has a UL recognized component certification.

The sensor mounts into the top or bottom of a liquid storage tank from the inside (internal fitting) using either a 1/8” NPT or M8 x 1.25 threaded fitting. The output is a simple N.O. or N.C. SPST reed switch that utilizes Ruthenium contact points for reliability. Changing from a N.O contact to a N.C. output is done by removing the float, inverting it and re-attaching. This change can be done in the field. Electrical outputs are a single pair of wires with PVC insulation and optional lengths of 100 mm or 600 mm.

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Absolute Maximum Ratings [1]

Parameter	Symbol	Min	Max	Units	Notes/Conditions
Contact voltage	$V_{contact}$		250 100	VAC VDC	Do not exceed the maximum wattage rating for each model number
Contact current	$I_{contact}$		1.0	Amp	
Operating temperature		0	70	°C	
Storage temperature		-30	110	°C	
Fitting pressure		-1	4	Bar	Internal tank pressure

[1] Maximum limits the device will withstand without damage

Material and Mounting Options

Model Number	Housing Stem Material			Float Material				Mounting	
	Glass filled Polypropylene	Glass filled Nylon 6.6	PVDF	Foam Polypropylene	Glass filled Polypropylene	Glass filled Nylon 6.6	PPS	1/8" NPT	M8 x 1.25
VCS-01	•			•				•	
VCS-02	•			•					•
VCS-03	•				•			•	
VCS-04	•				•				•
VCS-05		•				•		•	
VCS-06		•				•			•
VCS-07			•				•	•	
VCS-08			•				•		•
VCS-13	•			•				•	
VCS-14	•			•					•

Electrical and Temperature Specifications

Model Number	Maximum Switch Capacity [1]				Operating Temperature (°C)		
	250 VAC 100 VDC	1.0 A	15 W	50 W	Minimum (0°C)	Maximum (70°C)	Maximum (110°C)
VCS-01	•	•	•		•	•	
VCS-02	•	•	•		•	•	
VCS-03	•	•	•		•	•	
VCS-04	•	•	•		•	•	
VCS-05	•	•		•	•	•	
VCS-06	•	•		•	•	•	
VCS-07	•	•	•		•		•
VCS-08	•	•	•		•		•
VCS-13	•	•	•		•	•	
VCS-14	•	•	•		•	•	

[1] Ensure that application of voltages and currents do not exceed total power rating (W)

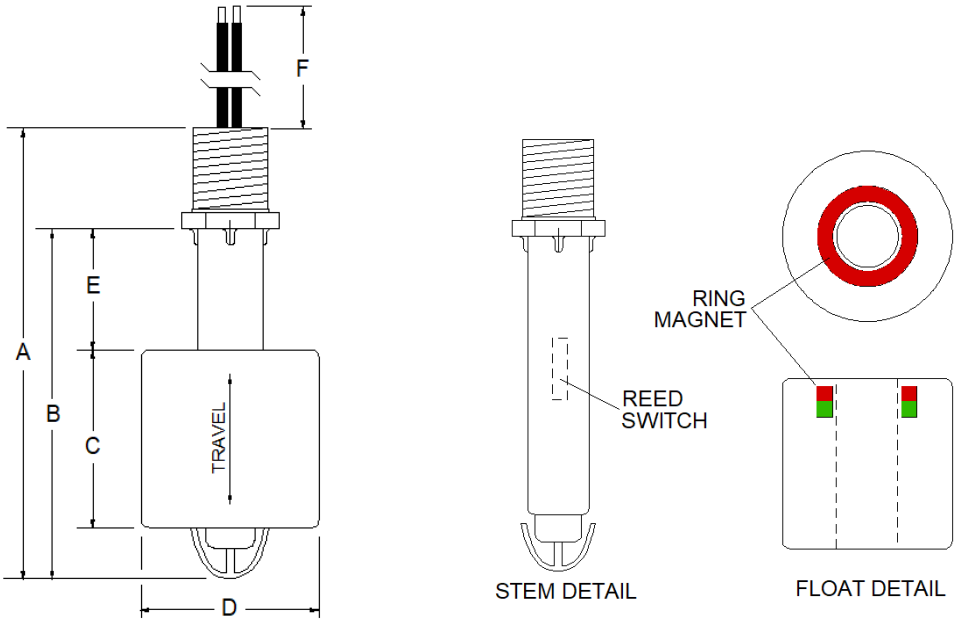
Environmental Specifications

(Unless otherwise specified, all parameters are measured at 25°C)

Parameter	Min	Typ	Max	Units	Notes/Conditions
Ambient humidity	0		95	%RH	Non-condensing
Ingress protection	IP68 IP65				Wetted surfaces Non-wetted Surfaces

Compliance
UL Recognized Component File – E153493 (Reed switch only)

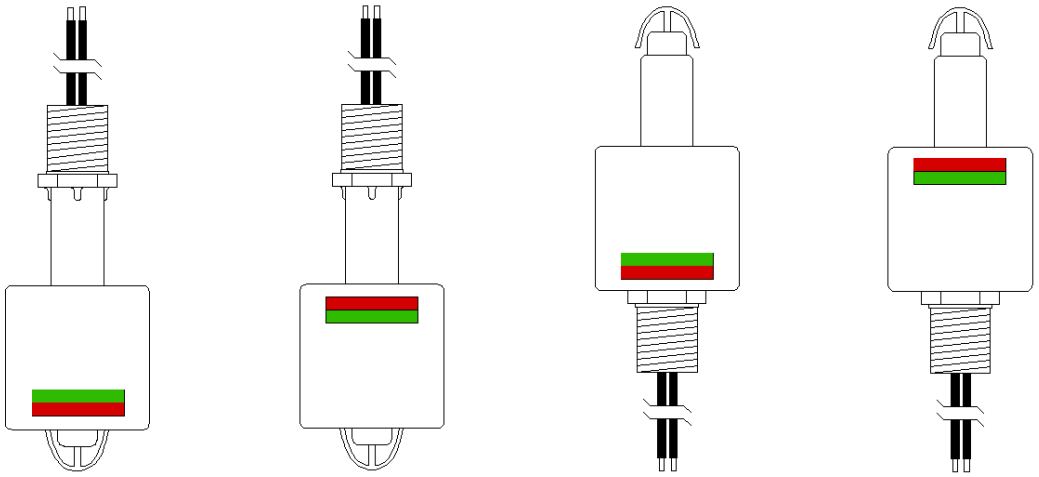
Mechanical Dimensions



Model Number	Dimensions mm (in)						Mounting Config.		Wire Length	
	Overall Length (A)	Interior Length (B)	Float Length Max (C)	Float Diameter Max (D)		Travel Length Nom. (E)			Dim. (F)	
	59 (2.32)	45 (1.77)	22 (0.87)	22 (0.87)	30 (1.18)	15 (0.59)	1/8" NPT	M8 x 1.25	100 (3.94)	600 (23.6)
VCS-01	•	•	•		•	•	•		•	
VCS-02	•	•	•	•		•		•	•	
VCS-03	•	•	•		•	•	•		•	
VCS-04	•	•	•	•		•		•	•	
VCS-05	•	•	•	•		•	•		•	
VCS-06	•	•	•	•		•		•	•	
VCS-07	•	•	•	•		•	•		•	
VCS-08	•	•	•	•		•		•	•	
VCS-13	•	•	•		•	•	•			•
VCS-14	•	•	•	•		•		•		•

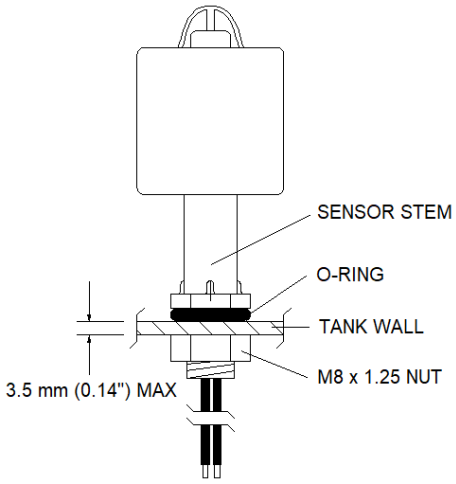
Application Information

The versatile design of the VCS series level sensor provides four different mounting and operating modes. The sensor can mount at either the top or bottom of a liquid storage tank. In either position, the float can be oriented to provide a N.O. or N.C. contact. Because the magnet is positioned at one end of the float, it can be removed from the stem, turned upside down, and reinstalled to provide any of the four configurations shown below.



To remove and re-orient the float, gently squeeze the retainer clips at the end of the sensor and slide the float off the stem. Reinstall the float by sliding it back over the stem ensuring that it passes the clips and allows them to return to their original position.

To avoid leaks, especially when mounting at the bottom of a tank, use appropriate sealing techniques around the threaded area. For the 1/8” NPT fitting, wrap PTFE tape on the threads prior to installation. For the M8 x 1.25 fitting, use an O-ring or sealing washer around the threads on the interior of the tank along with a properly sized locking nut on the outside.



O-ring Placement