

1 YEAR
WARRANTY

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LVCN6000/7000 SERIES **Capacitive Point Level Detection**



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LVCN6000/7000 Capacitive Point Level Detection



The LVCN Series are capacitance switches ideal for High/Low level detection for liquid, solids, granular materials and pastes. These units can also detect level without being in contact with the product through a sight glass. Unlike other capacitance probes, the LVCN6000/7000 can detect conductive, non-conductive or low dielectric materials with extremely accurate performance without requiring an external reference or installation in a metal vessel.

Both models can be made with cable or rod rigid stainless steel giving more flexibility to complex applications.

Technology

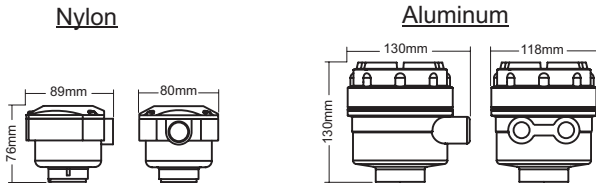
The sensor operates in a manner that is similar to a simple capacitor. A high frequency oscillator is located within the tip of the probe. When the tip of the probe comes in contact with the medium, the frequency of the oscillation reaches a preset point and the detection circuit signals the switch to change state.

Features

- No Moving Parts – Rugged Construction
- Highly customizable:
 - POM (Polyoxymethylene), PTFE or PVC Sensing Tip
 - Extended Lengths with both Rigid 316 rod or Cable
 - Threaded, Flange or Sanitary Process Connections
- Available in DC or Universal Power Supply versions
- Almost completely immune from build-up, coating media aggressive products
- Easily applied in a wide range of applications/industries such as: water, oils, corrosives, solids, powders, grains, conductive as well as non-conductive medias.

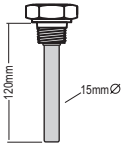
Models and Dimensions

Housing Options

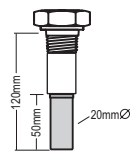


Mounting Options for LVCN6000/7000

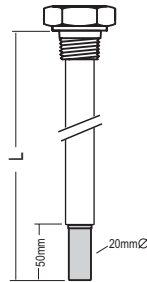
POM Standard



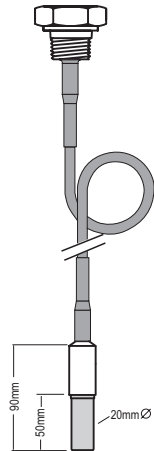
PTFE or PVC Standard



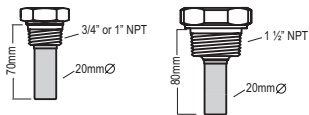
Extended Length



Cable Extension

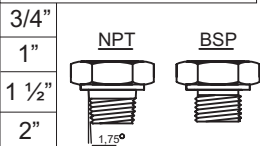


PTFE or PVC Tip Minimum Sizes

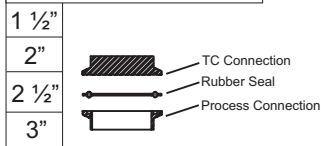


Process Connections

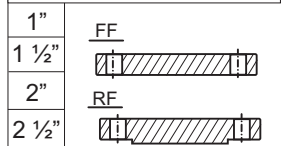
Threaded Connections



Tri-Clamp Connection



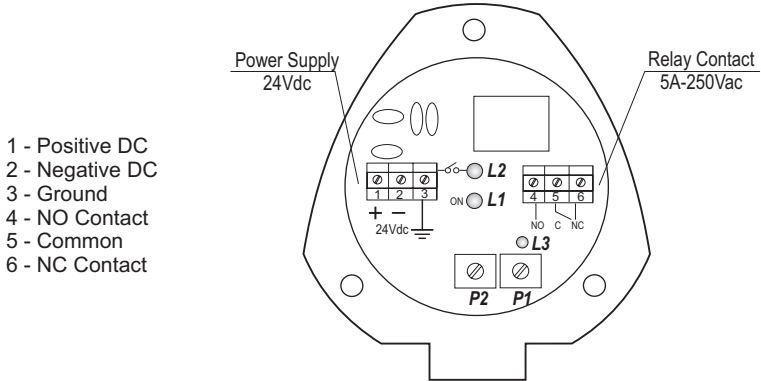
Flange Connections



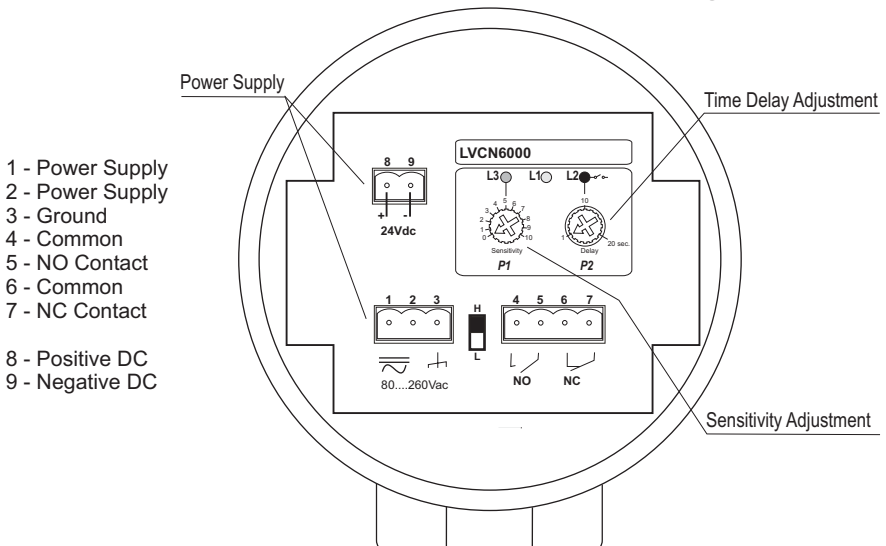
Wiring Diagram

- L1 - Power ON (Green)
- L2 - Output Status (Red)
- L3 - Sensor Status (Delay) Yellow
- P1 - Sensibility Adjustment
- P2 - Time Delay Adjustment



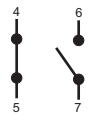

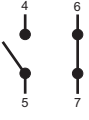


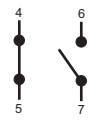

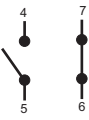
LVCN7000 Nylon Housing







LVCN6000 Aluminum Housing



LVCN6000

Switch Position	Level	NO - NC	Green LED	Yellow LED	Red LED
 Maximum fail-safe	 Probe covered		ON	ON	ON
	 Probe uncovered		ON	OFF	OFF
 Minimum fail-safe	 Probe covered		ON	ON	OFF
	 Probe uncovered		ON	OFF	ON

LVCN7000

Level	SPDT	Green LED	Yellow LED	Red LED
 Probe uncovered		ON	OFF	OFF
 Probe covered		ON	ON	ON

Installation

Installation

Verify that the location the probe is to be mounted is clear from the stream of product (Fig. 1).

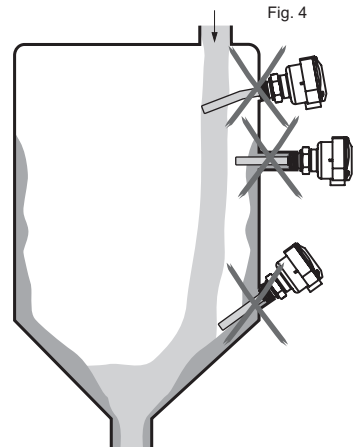
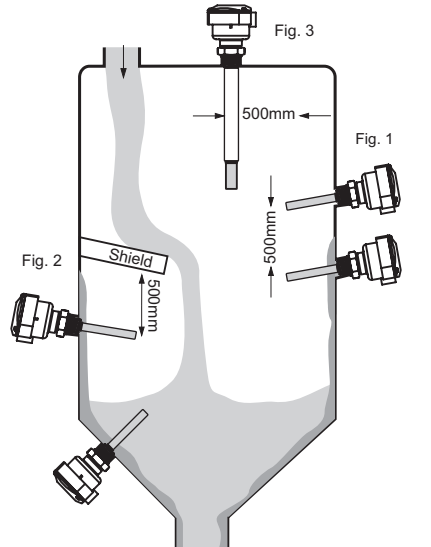
When installing more than one probe in your process, verify that they are separated by a minimum distance of 500mm (Fig. 1).

Material falling onto the probe can cause damage or switching errors. If this is unavoidable, it is recommended that a protective shield be installed above the probe to protect it. The shield is also recommended when the probe is used for a low level switch or in the outflow of the product (Fig. 2).

The tip of the probe should slightly point downward (when possible) so that if there are any excess of product it will easily slide from the probe (Fig. 2).

When installing from the top of the tank confirm that the tip of the probe has cleared the side of the vessel at least 500mm (Fig. 3).

When installing the sensor directly to the tank make sure that the rod extends beyond the inner wall of the tank, by as much as possible, so that internal build up or other debris does not interfere with the sensor's performance (Fig. 2 correct Fig. 4 incorrect).



For probes with cable extensions, installation should be from the top of the tank. It is also recommended that for these probes the process shouldn't have any agitation as this can cause fluctuating readings or damage to the probe (Fig. 5).

The LVCN with rigid rod is recommended for applications that have turbulence or vortices throughout use (Fig. 6).

Ensure that the conduit is facing downward to avoid water from entering the housing (Fig. 7).

Before installing the probe, ensure that the available power supply is correct.

Verify that the probe has been wired as per the instructions on page 7.

Verify that the operating pressure and temperature of the process corresponds to the operating parameters of the probe.

The probe must be installed utilizing the type of connection provided.

Caution:

The Capacitance Probes Series will not work properly in viscous, coating mediums with high salt content (high di-electric), especially when mounting from the side of the vessel. Sitron does not recommend using this product in this type of application unless otherwise specified.

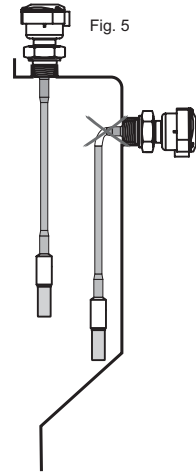


Fig. 5

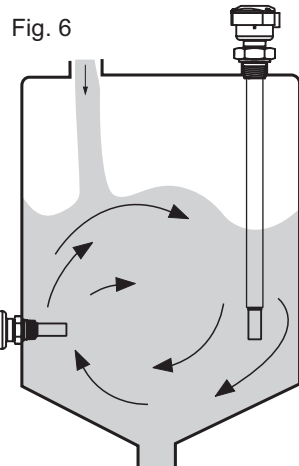


Fig. 6

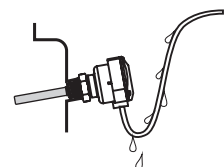


Fig. 7

Calibration

1. Turn both potentiometers (P1 and P2) fully counterclockwise before you begin (Fig. 1).

2. Install the probe and power it on. The L1 green LED should be on.

3. With the vessel empty (or the medium not in contact with the sensor), turn the sensibility potentiometer (P1) clockwise until the yellow LED (L3) turns On. Mark that location on the electronics' label using a pencil. If this LED (L3) does not turn on, mark the maximum position on the label with a pencil (Fig. 2).

4. Fill the vessel until the medium is in contact with the sensor.

5. Turn the potentiometer (P1) counter-clockwise until the yellow LED (L1) turns Off. Mark the location where the yellow LED shuts off on the electronics' sticker using a pen or pencil. If the LED does not turn Off, leave the potentiometer completely turned counter-clockwise (Fig. 3).

6. Now that you have marked minimum and maximum settings for your particular application, turn the sensibility potentiometer (P1) clockwise half way between the two pencil marks. This point should be the ideal setting where the probe is neither too sensitive or not sensitive enough. This method of calibration should also prevent false alarms.

Delay

Adjust the delay time from 0,1 to 20 seconds by setting potentiometer P2.

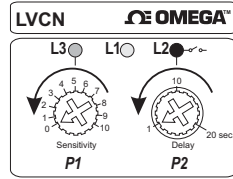


Fig.1

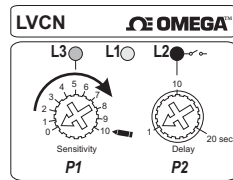


Fig.2

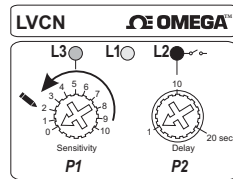


Fig.3

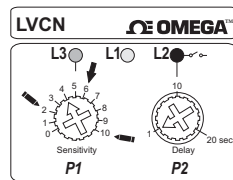


Fig.4

Probes:

Seal the thread with Teflon tape before installation (Fig. 1).

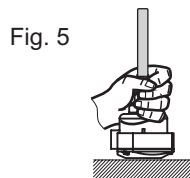
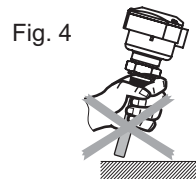
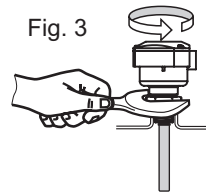
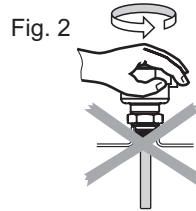
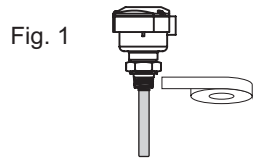
Do not turn or handle by the housing when tightening the process connection. However, the housing is suitable to be reoriented by once the process connection has been tightened.(Fig. 2).

Use the correct tool during installation (Fig. 3)

The probe should not be dropped or suffer any impact or fall that could damage the electronics or the plastic tip of the probe (Fig. 4 and 5).

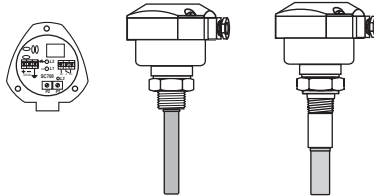
Periodic visual inspection of the probe is required to check for corrosion or deposit build-up. If deposits are found, clean the sensor to ensure optimum performance.

When cleaning the rod use a soft brush or any other similar object.



Technical Specifications

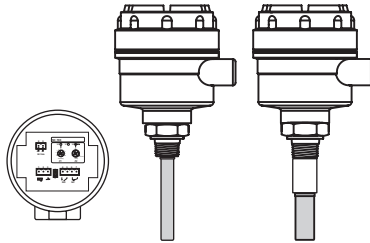
LVCN7000



Application	Level switch for liquids solids and granular
Operating Voltage	24 Vdc +/- 10%
Current Consumption	2VA
Output	Relay (SPDT) 5A max (250Vac)
Adjustment	Potentiometer - Switch Point
Time Delay	Potentiometer 1 to 20 seconds
Frequency oscilation	5MHz
Level indication	Led status on/off
Electrical Connection	Cable gland - 1/2"NPT cond. entry or M12 connector
Process Connection	3/4" to 1 1/2" BSP or NPT flange or sanitary connections
Wetted Material	POM (Polyoxymethylene), PTFE or PVC
Enclosure Material	Glass filled nylon
Max pressure	145 PSI (10 Bar)
Operating Temperature	14 to 176° F (-10 to 80°C)
Class Protection	IP 65

Technical Specifications

LVCN6000



Application	Level switch for liquids solids and granular
Operating Voltage	85...230 Vac 24 Vdc
Current Consumption	4VA
Output	Relay (NO + NC) 5A max (250Vac)
Adjustment	Potentiometer - Switch Point
Time Delay	Potentiometer 1 to 20 seconds
Frequency oscilation	5MHz
Level indication	Led status on/off
Electrical Connection	Cable gland - 1/2"NPT cond. entry or M12 connector
Process Connection	3/4" to 1 1/2" BSP or NPT flange or sanitary connections
Wetted Material	POM (Polyoxymethylene), PTFE or PVC
Enclosure Material	Glass filled nylon, Aluminium
Max pressure	145 PSI (10 Bar)
Operating Temperature	14 to 176° F (-10 to 80°C)
Class Protection	IP 65

Trouble Shooting

Fault	Cause	Solution
Doesn't Power Up	Green LED Off No power	Verify current supply
	Bad contact	Verify cable connection
Doesn't Detect Medium	Low sensibility	Adjust sensibility trimpot
Always On	Build up on the sensor	Clean sensor then adjust sensibility

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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