1 YEAR
WARRANTY

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LVCN4300 & LVCN400 Series Capacitive Level Measurement

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Contents

LVCN4300 - Capacitive Point Level Sensor

LVCN400 Series - Relay Controllers

The LVCN4300 Series, together with the LVCN400 Series Relay Controllers are designed to detect the level of a wide variety of solids and liquids, including both conductive and non-conductive materials.

Because of its all 316SS construction the LVCN4300 is typically specified for high temperature or high pressure applications, or for appications requiring extremely high mechanical resistance in such products as cement, sand, coal, grains, etc. When supplied with Halar coated active sensing tip, the LVCN4300 can be applied in corrosive or aggressive mediums.

Made of 316 Stainless Steel, the LVCN4300 is available with various types of process connections such as threaded, flange or sanitary. Custom connections available upon request.

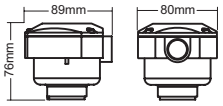
The LVCN400 Series can be ordered for varying supply voltages; 24Vdc (LVCN401), 110Vac (LVCN402) or 220Vac (LVCN403) with an SPDT relay output.

Features

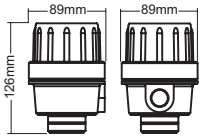
- Wide range of applications/industries:
  I.e. water, oils, corrosives, solids, powders, grains, etc.
- Accurate and reliable measurement
- No moving parts - Rugged construction
- Can operate at high temperatures and pressure
- Functions on conductive as well as non-conductive mediums

Mounting Options for LVCN4300

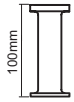
Nylon Housing



Aluminium Housing

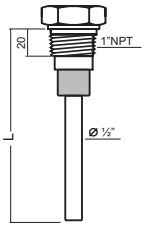


Extended Necks for High Temperature



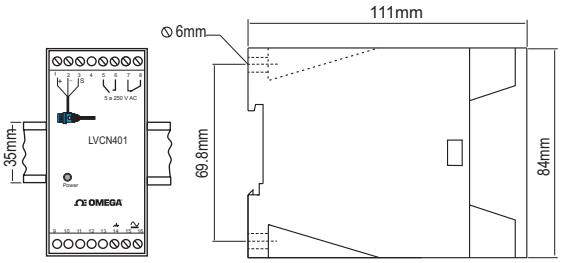
Extended necks for medium temperature (up to 120°C) and high temperature (up to 150°C)

LVCN4300 Standard



L= Insertion length

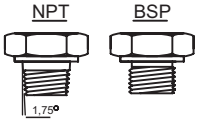
LVCN400 Series Relay Controllers



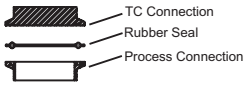
Note: Insertion Lengths greater than 150mm will require the balance to be ordered with a non-active portion of that insertion length. This can affect how coatings can be ordered with this model.

Process Connections

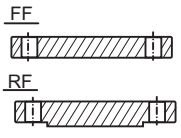
Threaded	
3/4"	NPT / BSP
1"	
1 ½"	
2"	



Tri-Clamp
1 ½"
2"
2 ½"
3"

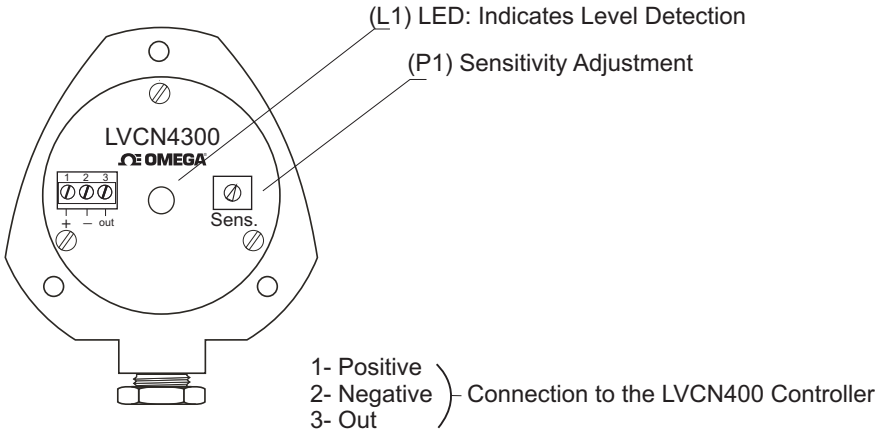


Flange	ANSI 150# ANSI 300#
1"	FF
1 ½"	
2"	RF
2 ½"	

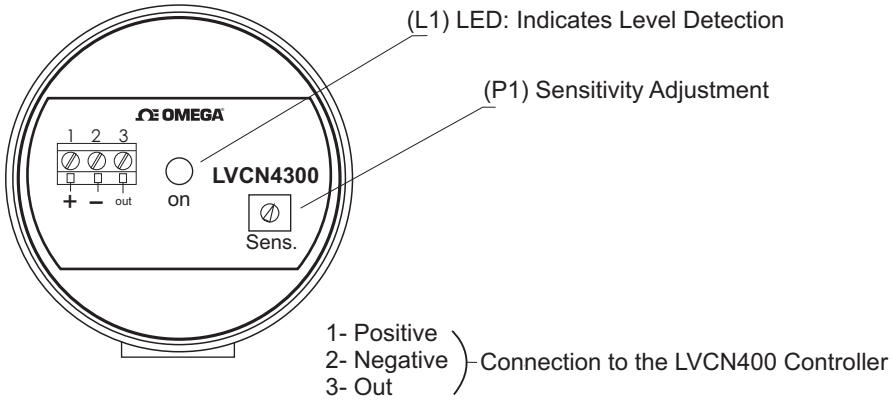


Wiring Diagram

LVCN4300- Nylon Housing



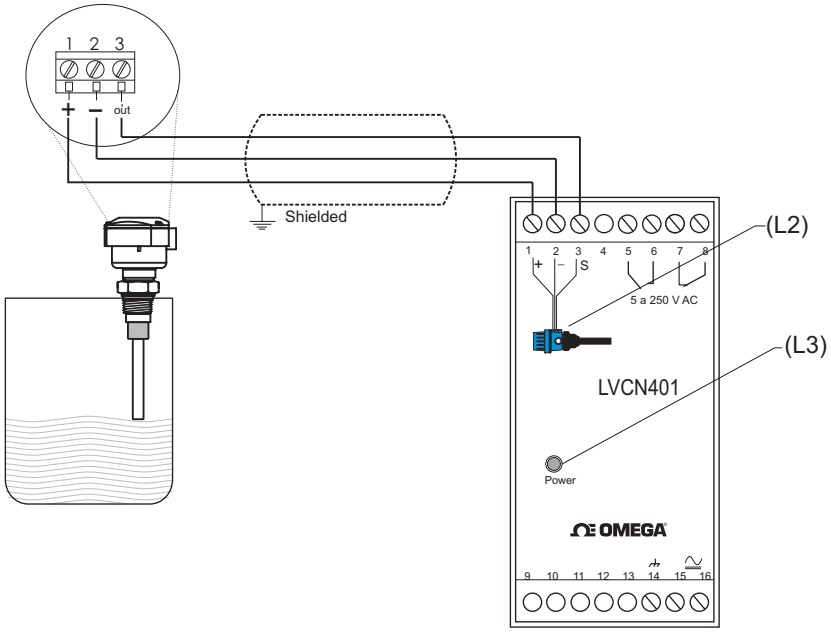
LVCN4300 - Aluminum Housing



LVCN400 Series Relay Controller

Note: The LVCN4300 series works in conjuction with the LVCN400 Relay controller and will not work without it.

LVCN4300 Probe & LVCN401 Controller



1-
2-
3- } Out (Probe Power supply)
5- Contact NO
6- Common
7- Common
8- Contact NC
14- Ground
15- Power Supply (∿)(−)
16- Power Supply (∿)(−)

L2- LED: Level Indication
L3- LED: Power

When making connections between the controller and the probe use reliability cables and make sure they are grounded.

Shielded cables prevent interference to the eletronic signal and protect against false measurements.

To avoid radio frquency interference and possible malfunction, keep hand held communication equipment away from the LVCN4300 and LVCN400 Series. If this unavoidable make a metal shield around the the level switch and confirm that the unit has been properly grounded.

Do not install the controller in harsh environments and humid. Respect class protection, working temperature and protect the same from rain and excessive heat.

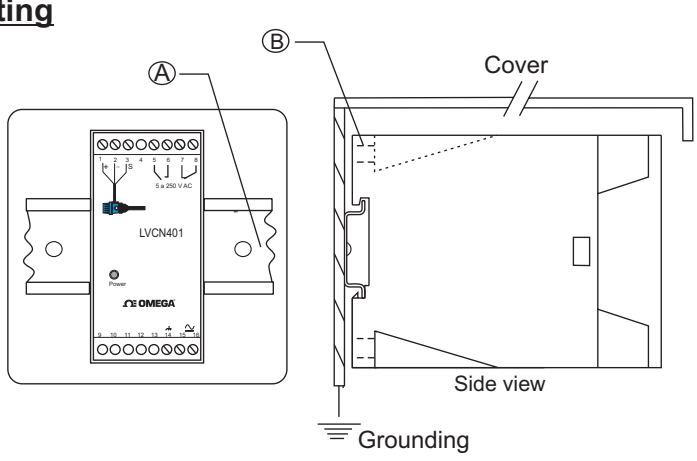
Also confirm that a stable Power Supply is used to prevent equipment malfunction.

Controller Mounting

Panel mounting with the protection cover

A- DIN trail (35mm)

B- Screws



Verify that the location the probe is to be mounted is not directly in the path of the product as it enters the vessel. (Fig. 1)

When installing more than one probe, 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. The shield is also recommended when the probe is use for a low level switch or in the outflow of the product. (Fig. 2)

The tip of the probe should point slightly downward (when possible) so that if there is 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)

Ensure that the conduit is facing downward so that water does not enter the housing from the cable entry point. (Fig. 5)

Fig. 3

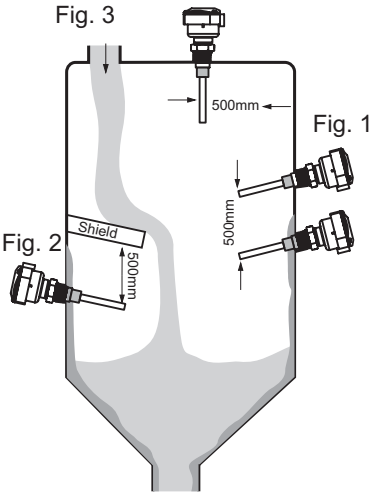


Fig. 4

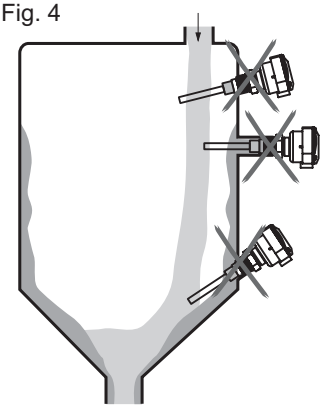
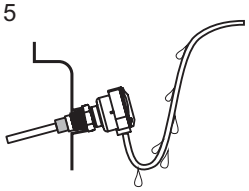


Fig. 5



Calibration

1. Install the probe and power it on. The green LED (L3) on the controller should be on.

2.Turn the potentiometer (P1) counter-clockwise (Fig.1) before the tank is filled.

4.Fill the tank until the probe is in contact with the medium.

5. Turn the potentiometer clockwise until the LED (L1) of the probe and the red LED (L2) on the controller are on. (Fig.2)

Products with a low dielectric constant may require most or all of the active length of the probe to be covered by the product before the controller activates the relay.

Fig.1

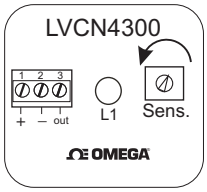
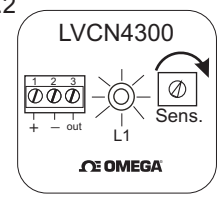
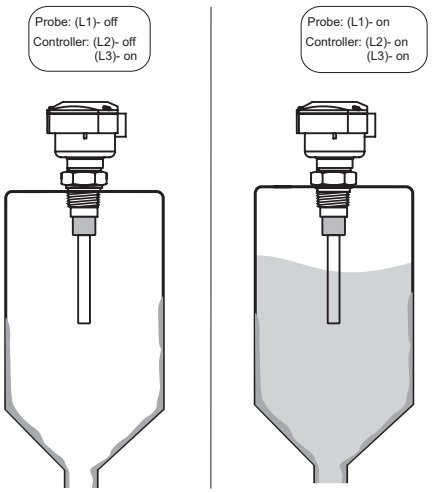
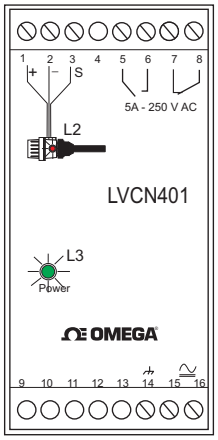


Fig.2



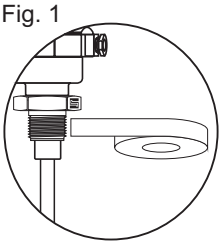




Probes:

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

Fig. 1

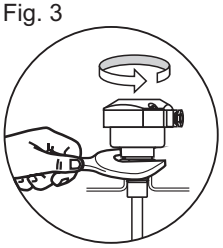


Do not turn or handle by the housing. (Fig. 2)

Fig. 2

When tightening the sensor, use only use the 316S.S. hexagon fitting to achieve a seal, do not twist with the body of the sensor. (Fig. 3)

Fig. 3



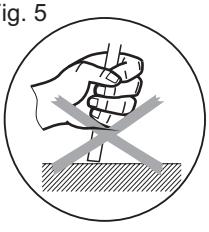
The probe should not be dropped or suffer any impact or fall that could damage the electronics or the coating of the probe. (Fig. 4 and 5)

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.

Fig. 4

Care should be taken when handling and installing probes with coated rods to avoid scratching them. Scratching the coating could interfere with the probe performance.

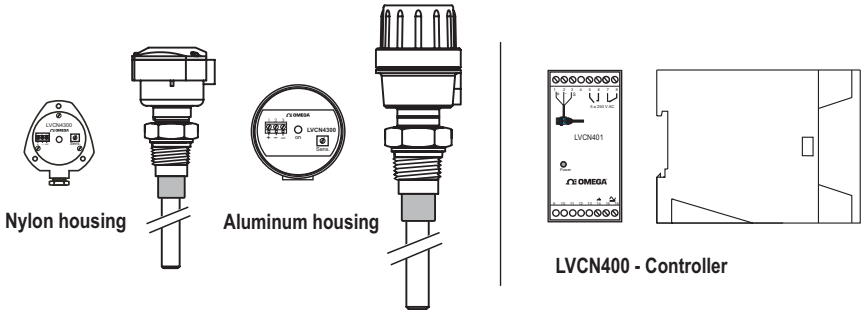
Fig. 5



When cleaning the rod use a soft brush or rag.

Technical Specification

LVCN4300 + LVCN400 Series



Application	Level Detection for Solids and liquids.
Power Supply	LVCN401: 24Vdc (+/- 10%) LVCN402: 110Vac (50/60Hz) LVCN403: 220Vac (50/60Hz)
Consumption	2VA
Adjustment	Sensibility
Sensitivity	0 to 5pF
Level Indication	LED ON/OFF
Output	Relay (SPDT) 5A-250Vac
Electrical Connection	Cable Gland - 1/2" NPT or M12 connector
Process Connection	3/4" to 1 1/2" BSP or NPT Flange or Sanitary
Wetted Parts	316SS, ETFE or ECTFE Coated
Enclosure Material	Relay : ABS (Resistant thermoplastic)
Housing	Nylon Fiberglass (Optional Aluminum)
Max. Pressure	290 PSI (20 Bar)
Operating Temperature	Probe: (-10 to 120ºC) / Controller -10 to 60°C
Class Protection	Probe: IP 65 / Controller: IP40

Trouble Shooting

Fail	Cause	Solution
Relay does not work	LED off, without Power Supply	Check the Power Supply
	Lack of signal from LVCN400	Verify the connections
	Low sensitivity	Adjust sensitivity with the potentiometer
Relay does not turn off	Coating on the rod is damaged	Consult for repair or replacement
	Material Build-up on the rod	Clear the rod

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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 theproduct, and
3. Repair instructions and/or specific problems relative to the product.

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