

# CAPACITANCE CONTINUOUS LEVEL MEASUREMENT PROBES

LV3000/4000 Series  
Starts at

**\$636**



LV4021-24, \$786,  
shown smaller  
than actual size.

- ✓ Can Operate at High Temperatures and Pressure
- ✓ Unaffected by Coating Media
- ✓ Accurate and Reliable Measurement
- ✓ Easy, Economical Installation
- ✓ Rugged Construction
- ✓ No Moving Parts
- ✓ Compatible with Both Conductive and Non-Conductive Media
- ✓ Wide Range of Applications/Industries (e.g., Water, Oils, Corrosives)
- ✓ Sanitary Mount Available

The LV3000/LV4000 Series continuous level measurement probes are flexible, cost-effective solutions for applications involving liquids, pastes, and some solids. The built-in (one-piece) electronic module provides a 4 to 20 mA output (2-wire) signal that is proportional to the process level. Zero and span adjustment helps account for various media, tank dimensions, rod lengths, and positions of installation.

OMEGA® offers these probes in several different models. The user must choose the probe that suits his or her application and install it in the proper location. When submerged, the probe must be able to produce enough capacitance variance. The probe's success depends on these important factors:

A) Conductive materials can cause a short circuit between a bare stainless steel probe and the tank wall. For this situation, we recommend using PTFE sleeving on the rod surface.

iSeries CNI16D33 controller, \$245, shown smaller than actual size. Visit [omega.com/cni\\_series](http://omega.com/cni_series)



B) Material buildup affects the accuracy of RF capacitive measurements. Additional adjustment to the probe's sensitivity is therefore recommended.

Housings must be compatible with the requirements for hazardous, washdown, wet, or dusty environments. For explosion-proof environments, the housing may need to be certified. In addition, the active probe might need to be intrinsically safe or have an intrinsic safety barrier.

The electronic circuitry of the probe performs several functions, such as rectifying and filtering the incoming power, generating the radio frequency signal, and measuring the changes in current flow.

## SPECIFICATIONS (LV3000 SERIES)

**Accuracy:** 0.5%  
**Repeatability:**  $\pm 1$  mm  
**Level Indication:**  
 Bar graph, 0 to 1000%  
**Process Connection:**  
 $\frac{3}{4}$  to  $1\frac{1}{2}$  NPT, Tri-Grip™ or flange  
**Wetted Material:** 316 SS or PTFE  
**Enclosure Material:** Aluminum die cast  
**Max Pressure:** 290 psi (20 bar)  
**Operating Temperature:** -10 to 120°C  
 (14 to 248°F)  
**Class Protection:**  
 LV3000: NEMA 4 (IP65)  
 LVCN410: IP40  
**Max Probe Length:** 1.8 m (6')  
**Dimensions:**  
**Aluminum Die-Cast Head:**  
 89 W x 108 mm H (3.5 x 4¼")  
**Diameter of Probe:** 16 mm ( $\frac{5}{8}$ ")  
**Electrical Connection:** Cable gland  
 with  $\frac{1}{2}$  NPT conduit  
*Note: The LV3000 Series probes require a  
 LVCN400 Series controller.*

## SPECIFICATIONS (LVCN410 SERIES)

**Operating Voltage:** 24 Vdc, 110 or  
 240 Vac (50/60 Hz)  
**Current Consumption:** 4 mA  
**Adjustment:** Zero and span  
 (potentiometer) and 2 switch point  
 (potentiometer)  
**Range of Sensitivity:** 50 to 1000 pF  
**Output:** 4 to 20 mA and 2-relay SPDT  
**LVCN411/LVCN412:**  
 73 W x 110 H x 110 mm L  
 (2¾ x 4¾ x 4¾")

## SPECIFICATIONS (LV4000 SERIES)

**Accuracy:** 0.5%  
**Repeatability:**  $\pm 1$  mm  
**Operating Voltage:** 12 to 30 Vdc  
**Adjustment:**  
 Zero and span (potentiometer)  
**Range of Sensitivity:** 100 to 5500 pF  
**Frequency Oscillation:** 400 kHz  
**Output:** 4 to 20 mA (2-wire)  
**Process Connection:**  
 $\frac{3}{4}$  to  $1\frac{1}{2}$  NPT, Tri-Grip or flange  
**Wetted Material:** 316 SS or PTFE  
**Enclosure Material:** Glass-filled nylon  
 or aluminum die cast  
**Max Pressure:** 290 psi (20 bar)  
**Operating Temperature:**  
 -10 to 120°C (14 to 248°F)  
**Class Protection:** NEMA 4 (IP65)  
**Max Probe Length:** 1.8 m (6')  
**Dimensions:**  
**Nylon Head:** 89 W x 64 mm H  
 (3.5 x 2.5")  
**Aluminum Die-Cast Head:**  
 89 W x 108 mm H (3.5 x 4.25")  
**Diameter of Probe:** 16 mm ( $\frac{5}{8}$ ")  
**Electrical Connection:**  
 Cable gland with  $\frac{1}{2}$  NPT conduit  
*Note: The LV4000 Series probes require a  
 galvanic isolator, LI-420.*

## SPECIFICATIONS (LI-420)

**Input Current from the Evaluation  
 Instrument:** 4 to 20 mA  
**Input Voltage:** 22 to 24 Vdc  
**Output Current:** 4 to 20 mA  
**Output Voltage to the Transducer  
 at 20 mA:** 12.5 V  
**Output Voltage to the Transducer  
 at 4 mA:** 15.5 V  
**Resistance per Conductor:** 15  $\Omega$   
**Testing Voltage:**  
 Input/output circuit: 2000 V<sub>eff</sub>  
**Domestic Current Demand:**  
 300  $\pm 60$   $\mu$ A  
**Ambient Temperature:**  
 -20 to 70°C (-4 to 158°F)  
**Enclosure Dimensions:**  
 44 W x 82 H x 110 mm L  
 (1¾ x 3¼ x 4¾")



<b>To Order (Specify Model Number)</b>		
Model No.	Price	Description of Capacitance Transmitter with 4 to 20 mA Output and Switch
LV4111-24	\$966	60 cm (24") long probe with ¼ NPT connection, with PTFE sleeving and nylon head
LV4121-36	1056	90 cm (36") long probe with 1 NPT connection, with PTFE sleeving and nylon head
LV4121-48	1146	1.2 m (4') long probe with 1 NPT connection, with PTFE sleeving and nylon head
LV4121-60	1236	1.5 m (5') long probe with 1 NPT connection, with PTFE sleeving and nylon head
LV3123-48-HT	3648	1.2 m (4') long probe with 1 NPT connection, with high temperature PTFE sleeving and aluminum die-cast head, 177°C (350°F); Remote electronics required LVCN410 Series
LVCN411	805	24 Vdc powered controller with relay and 4 to 20 mA output for LV3000 Series only
LVCN412	840	115 Vac powered controller with relay and 4 to 20 mA output for LV3000 Series only

**Accessories**

Model No.	Price	Description
CNI16D33	\$245	¼ DIN dual display with two 3 A relays and 24 Vdc excitation
TX4-100	35	30 m (100') spool of 4-conductor wire
FPW-15	75	15 Vdc power supply
LI-420	390	Loop isolator (required for the LV4000 Series)

**Custom Models Available**

Model No.	Base Price	Description for Built to Order Unit
LV4XYZ-LENGTH (inches)	\$720	Custom capacitance system, specify X, Y, Z from <b>Options</b>
LV3XYZ-LENGTH (inches)	600	Custom remote capacitance system, requires LVCN410 Series remote electronics, specify X, Y, Z from <b>Options</b>

Specify all length in inches. Maximum length is 72" (6') for **LV4000/LV3000**.

**Options**

Ordering Suffix	Price	Description
<b>X-Insulation Connection</b>		
0	N/C	316 SS rod
1	\$60 ea + 60/ft	PTFE sleeve*
<b>Y-Process Connection</b>		
1	N/C	¼ NPT thread
2	N/C	1 NPT thread
3	\$150	1.5 NPT thread
4	186	1.5 Tri-Grip, sanitary
5	300	Flange 2" ANSI, 15016 316 SS
Others	Consult for price	Please specify
<b>Z-Enclosure</b>		
1	\$6	Glass-filled nylon with ¼ NPT conduit entry and cable gland
2	390	LV4000 Aluminum die cast with ¼ NPT conduit entry
3	396	LV4000 Aluminum die cast with cable gland entry
4	102	LV3000 Aluminum die cast with ¼ NPT conduit entry
5	108	LV3000 Aluminum die cast with cable gland entry
<b>Length of Rod (-LENGTH)</b>		
Specify Inches	\$30/ft	Length of rod
<b>High Temp to 350°F (-HT)</b>		
Add "-HT" to Model No.	\$180	High temperature to 177°C (350°F)*

Comes with complete operator's manual.

\* High temperature PTFE sleeving available for temperatures up to 200°C (382°F). For PTFE sleeving add suffix "**HTPTFE**" to model number and add \$660/ft to price.

**Ordering Examples:** LV4111-24, 60 cm (24") level transmitter, CNI16D33, process controller, and TX4-100, multiconductor wire, \$966 + 245 + 35 = **\$1246**.  
LV4121-36, 90 cm (36") level transmitter, FPW-15, power supply, \$1056 + 75 = **\$1131**.

Recommended Reference Book: Water Wells and Septic Systems Handbook, FW-300, \$100. Visit [omega.com/bobi](http://omega.com/bobi) for Additional Books 



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