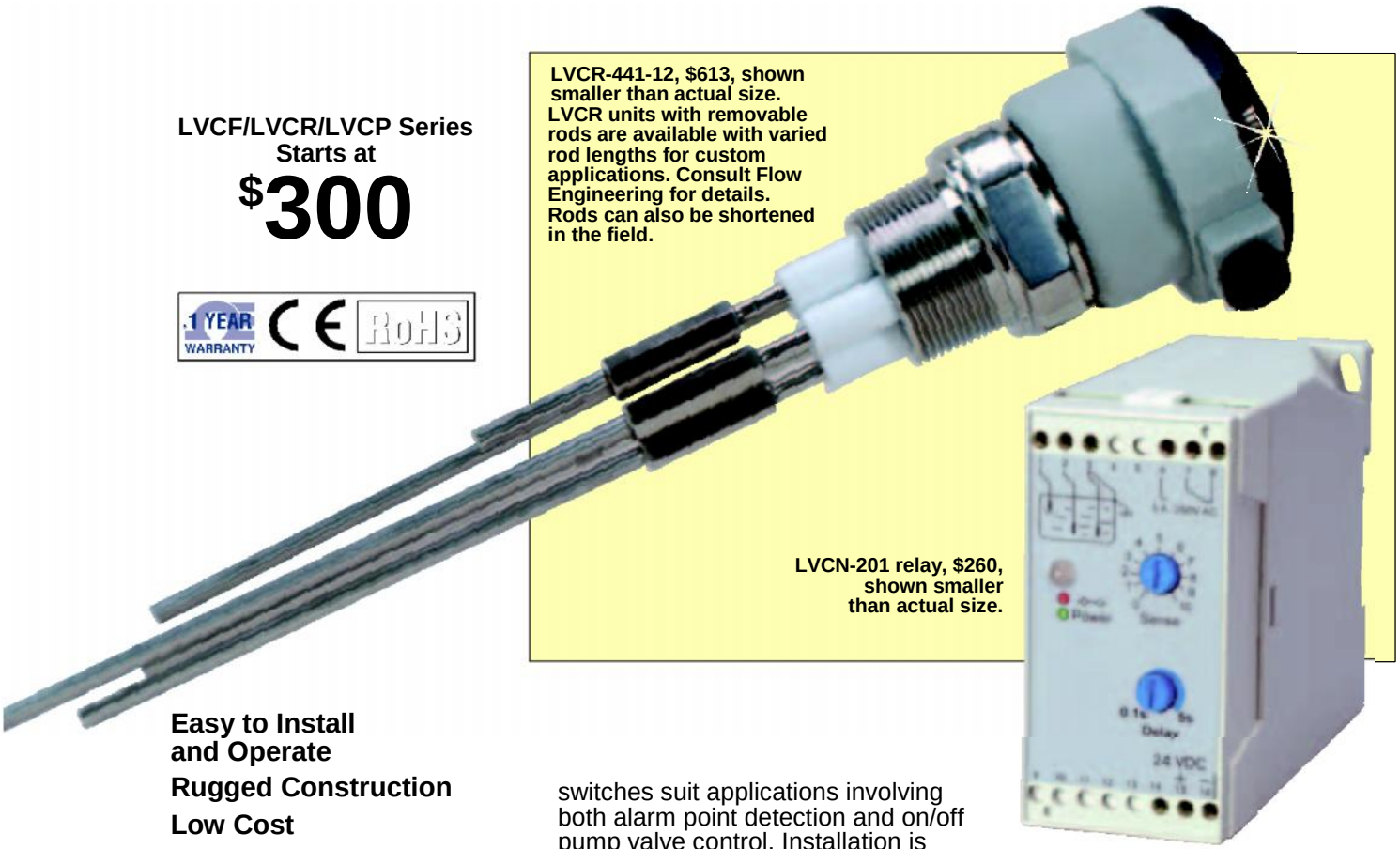
# CONDUCTIVITY LEVEL SWITCHES

**LVCF/LVCR/LVCP Series Starts at**

**$300**




- **Easy to Install and Operate**
- **Rugged Construction**
- **Low Cost**
- **Removable Rods**
- **Up to 5 Points of Level Control**
- **Rods Can be ETFE Coated**
- **Available with 316 SS Tri-Grip™ Sanitary, Flange, or Threaded Connections**

**Models**

- **LVCF (1-5) Fixed Rods**
- **LVCR (1-5) Removable Rods**
- **LVCP (1-5) Pendular Electrodes**
- **CLE-P Pendular Electrode Without the Housing**
- **LVCN-200 Series Controllers**

OMEGA's conductivity level switches offer a wide range of customized options to meet any application's needs. They are designed to control the level of all conductive mediums, offering up to 5 different points of level control. Models are available with fixed rigid rods, with removable rigid rods, or with pendular electrodes attached to the housing with cables. These switches suit applications involving both alarm point detection and on/off pump valve control. Installation is easy and operation is maintenance-free.

The probes work through the variation of the electrical resistance between the reference electrode and the level-control electrode. Conductivity level switches detect the level resistance when their electrodes are covered by the medium.

An electrically conductive tank wall can be used as the reference electrode. If the tank is made of plastic, concrete, or any other non-conductive material, an additional electrode is required as a reference.

The LVCF switches can accommodate up to five 316 SS fixed rods for 5 different levels of control. The rods are isolated with a ETFE joggle and can be coated with ETFE when the probe is used with aggressive or sticky media that cause buildup. The user can easily modify operating levels in the tank by cutting the length of the electrodes. The LVCF switches are rugged and compact and have no moving parts. This makes them reliable for controlling conductive media as well as for high-pressure applications.

LVCF models are compatible with LVCN-200 Series controllers only.

The LVCR models offer the same features as the LVCF, plus removable 316 SS threaded rods that make it possible to switch the rods. Rods can be ordered separately in longer length and can then be custom cut. Removable rods make the system more versatile, easier to handle, and more forgiving if the rod's length is cut incorrectly.

LVCR models are compatible with LVCN-200 Series controllers only.

Along with the same features as the rigid rod probes, LVCP pendular probes can accommodate up to 5 model CLE-P electrodes. The LVCP probes are ideal for deep measurements in wells or large tanks where long rods would be impractical, but they work equally well for shorter-length applications. The electrodes are suspended from PVC cables that allow for longer lengths, as well as for different applications and installations. LVCP models are compatible with LVCN-200 controllers.



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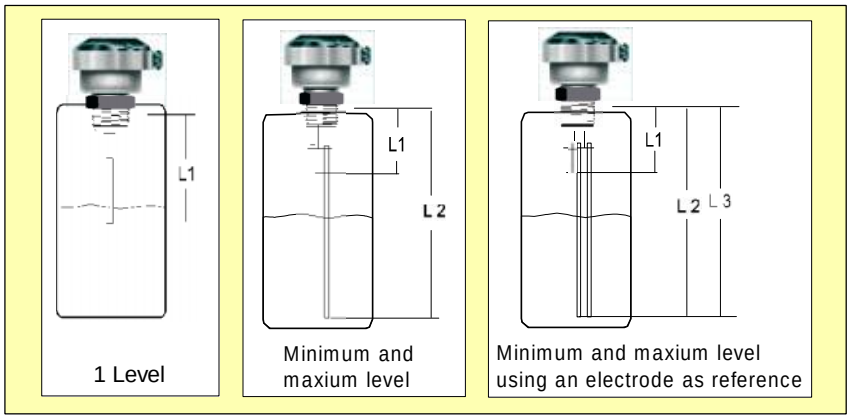
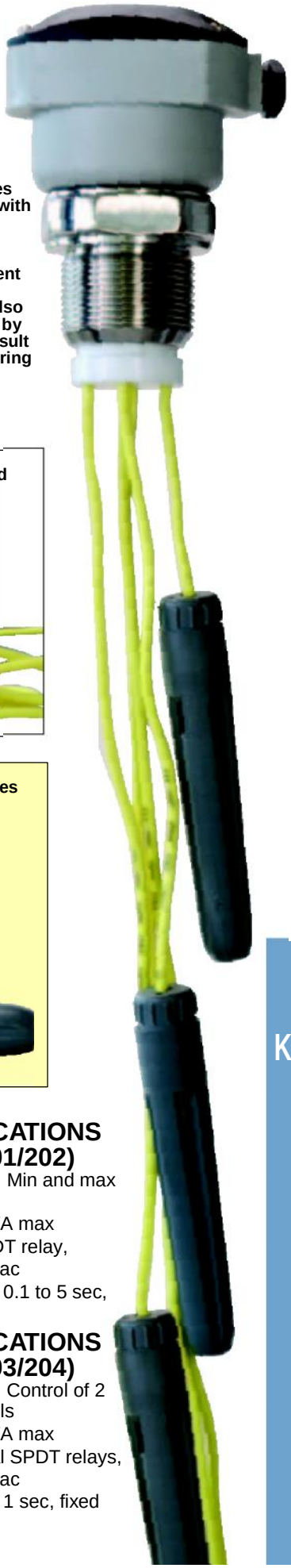
**LVCR Mounting Diagram**



**LVCP, shown smaller than actual size. LVCP switches are available with varying cable lengths to monitor and control different fluid levels. Cables may also be shortened by the user. Consult Flow Engineering for details.**

The electrode model CLE-P is the simplest version of all conductivity probes. A small polypropylene enclosure houses a 316 SS rod that is attached to a PVC cable. This option eliminates the need for a process connection.

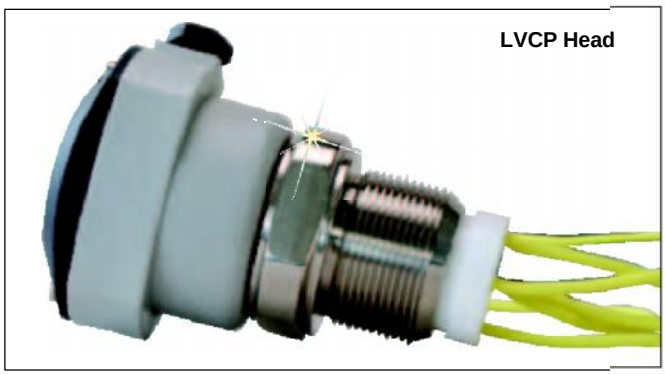
LVCN-200 Series conductive liquid on/off level controllers are used to power all level probes. The LVCN-200 models are electronically controlled devices that open and close an electrical contact to effect the operation of other devices in the same, or another, electrical circuit.

The LVCN-201/202 models can control the differential of minimum and maximum level, with an adjustment for sensitivity. The relay has 1 reverse SPDT contact.

The LVCN-203/204 models control 2 independent levels and 2 reverse SPDT contacts. They also include a sensitivity adjustment.

The LVCN-200 Series is designed so that multiple units can be used in combination to provide a variety of control functions, including multiple alarms and on/off control for alternating pumps.

Both models are available with DIN rail sockets or with screws.



**LVCP Head**

**LVCP Probes**

## SPECIFICATIONS (LVCF/LVCR/LVCP)

**Electrical Connection:** Cable gland with ½ NPT conduit
**Electrodes:** Available in configurations from 1 to 5 electrodes
**Fixed Rod Length:** 100 mm to 2 m (3.9" to 6.5')
**Pendular Cable Length:** 500 mm (19.7") to 20 m (65.6')
**Enclosure:** Glass filled nylon or die cast aluminum; NEMA 4 (IP65)
**Operating Ambient:** -10 to 120°C (14 to 248°F); 20 bar (290 psi) max

## COMMON SPECIFICATIONS (LVCN-200)

**Power:** 24 Vdc ±10%, 115 or 230 Vac (50/60 Hz)
**Sensitivity:** 0.5 to 50 k∧; potentiometer adjust
**Operating Ambient:** -10 to 60°C (14 to 140°F)
**Enclosure:** ABS; DIN rail mount or screw attachment; IP40 protection

## SPECIFICATIONS (LVCN-201/202)

**Application:** Min and max level control
**Current:** 2 VA max
**Output:** SPDT relay, 5 A @ 250 Vac
**Time Delay:** 0.1 to 5 sec, adjustable

## SPECIFICATIONS (LVCN-203/204)

**Application:** Control of 2 different levels
**Current:** 3 VA max
**Output:** Dual SPDT relays, 5 A @ 250 Vac
**Time Delay:** 1 sec, fixed

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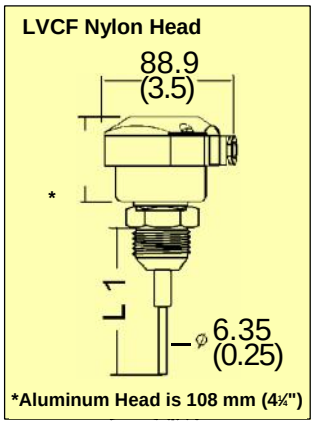
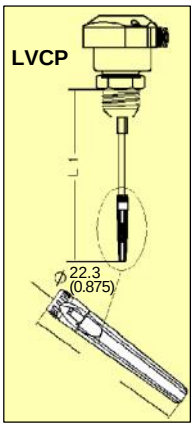
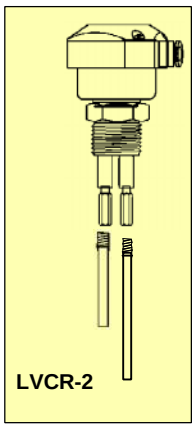
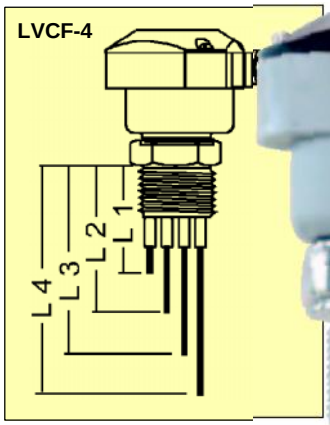


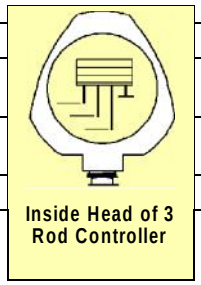



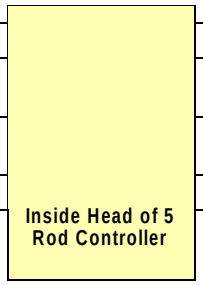



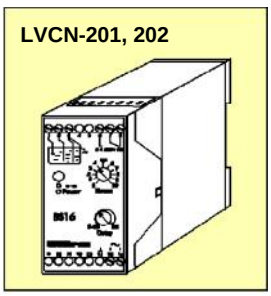



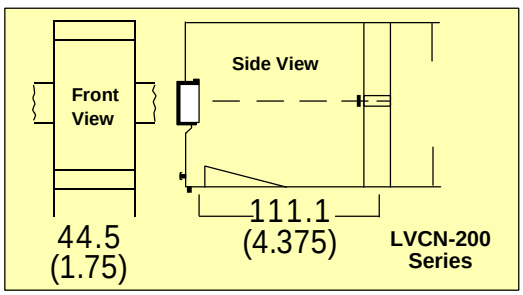
**Dimensions: mm (in)** **ø = diameter**

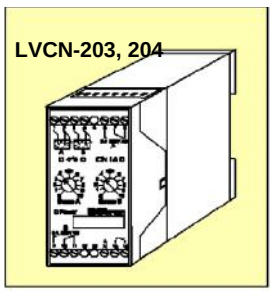
| | | | | | |
|---|---|---|---|---|---|
| **Application** | Point level of conductive liquids in tanks and pipes | | | | |
| **Process Connection** | ½ to 1½ NPT or BSP 1½" sanitary or flange | ¾ to 1½ NPT or BSP 1½" sanitary or flange | 1 to 1½ NPT or BSP 1½" sanitary or flange | 1½ NPT or BSP 2" sanitary or flange | 2" sanitary or flange |
| **Electrical** | Cable entry or ½ NPT conduit entry | | | | |
| **Electrode** | 1 fixed rod | 2 fixed rods | 3 fixed rods | 4 fixed rods | 5 fixed rods |
| | 1 removable rod | 2 removable rods | 3 removable rods | 4 removable rods | 5 removable rods |
| | 1 pendular by cable | 2 pendular by cable | 3 pendular by cable | 4 pendular by cable | 5 pendular by cable |
| **Length (L)** | **Rod:** 100 mm to 2 m (3.9" to 6.56') | | | | |
| | **Cable:** 500 mm to 20 m (19.7" to 65.6') | | | | |
| **Enclosure Material** | Glass-filled nylon or aluminum die cast | | | | |
| **Temperature** | -10 to 120°C (14 to 248°F) | | | | |
| **Max Pressure** | 290 psi (20 bar) | | | | |
| **Class Protection** | NEMA 4 (IP65) | | | | |




| Application | Control of Min and Max Level for Conductive Level Probes | Control of 2 Different Levels for Conductive Level Probes |
|---|---|---|
| **Operating Voltage** | 24 Vdc (±10%) or 115 or 230 Vac (50/60 Hz) | 24 Vdc (±10%) or 115 or 230 Vac (50/60 Hz) |
| **Current Consumption** | 2 VA | 3 VA |
| **Sensitivity Adjustment** | 0.5 to 50 k∧ (potentiometer) | 0.5 to 50 k∧ (potentiometer) |
| **Output** | 5 A max, 250 Vac relay (SPDT) | 5 A max, 250 Vac relay (2-SPDT) |
| **Time Delay** | 0.1 to 5 seconds | 1 second |
| **Operating Temperature** | -10 to 60°C (14 to 140°F) | -10 to 60°C (14 to 140°F) |
| **Enclosure Material** | ABS | ABS |
| **Mounting** | DIN rail or screws | DIN rail or screws |
| **Class Protection** | IP40 | IP40 |



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## To Order (Specify Model Number)

| Model No. | Price | Description |
|---|---|---|
| **LVCF-111-12-ETFE** | **$300** | Fixed rod conductivity level switch; one 12" rod, ½ NPT process connection, nylon enclosure, ETFE coating |
| **LVCF-231-24-ETFE** | **591** | Fixed rod conductivity level switch; two 24" rods, 1 NPT process connection, nylon enclosure, ETFE coating |
| **LVCR-231-60** | **568** | Removable rod conductivity level switch; two 60" rods, 1 NPT process connection, nylon enclosure |
| **LVCR-341-72** | **1067** | Removable rod conductivity level switch; three 72" rods, 1½ NPT process connection, nylon enclosure |
| **LVCP-121-96** | **311** | Pendular rod conductivity level switch; one electrode, 96" cable, ¾ NPT process connection, nylon enclosure |
| **LVCP-231-96** | **434** | Pendular rod conductivity level switch; two electrodes, 96" cables, 1 NPT process connection, nylon enclosure |
| **LVCP-341-96** | **764** | Pendular rod conductivity level switch; three electrodes, 96" cables, 1½ NPT process connection, nylon enclosure |

### Switch Sensors

| Model No. | Price | Description |
|---|---|---|
| **LVCF-(A)(B)(C)-(D)** | **$202** | Custom fixed rod conductivity level switch; select number of rods (A), process connection (B), enclosure (C) and rod length in inches (D) |
| **LVCR-(A)(B)(C)-(D)** | **202** | Custom removable rod conductivity level switch; Select number of rods (A), process connection (B), enclosure (C) and rod length in inches (D) |
| **LVCP-(A)(B)(C)-(D)** | **202** | Custom pendular conductivity level switch; Select number of electrodes (A), process connection (B), enclosure (C) and cable length in inches (D) |

### Ordering Options

| Order Suffix | Add'l Price | Description |
|---|---|---|
| **A-Rods/Electrodes** | | |
| **1** | **N/C** | 1 rod/electrode; single point detection |
| **2** | **$22** | 2 rods/electrodes; min/max detection |
| **3** | **42** | 3 rods/electrodes; 3-point detection |
| **4** | **59** | 4 rods/electrodes; 4-point detection |
| **5** | **76** | 5 rods/electrodes; 5-point detection |
| **B-Process Connection** | | |
| **1** | **N/C** | ½ NPT thread (LVCF-1, LVCR-1, LVCP-1 only) |
| **2** | **N/C** | ¾ NPT thread (LVCF/LVCR/LVCP-1 or 2 only) |
| **3** | **N/C** | 1 NPT thread (LVCF/LVCR/LVCP-1 2 or 3 only) |
| **4** | **$210** | 1½ NPT thread (LVCF/LVCR/LVCP-1 2, 3 or 4 only) |
| **5** | **210** | 1.5" Tri-Grip™, sanitary (LVCR-1 2 or 3 only) |
| **6** | **420** | 2" flange, ANSI, 316 SS (all models) |
| **C-Enclosure** | | |
| **1** | **$8** | Glass filled nylon with ½ NPT conduit with cable gland |
| **2** | **118** | Aluminum die cast with ½ NPT conduit entry |
| **3** | **126** | Aluminum die cast with cable gland entry |
| **D-Rod Length/Cable Length** | | |
| **Specify** | **$31/rod** | Fixed rod length (in) for LVCF |
| **Specify** | **34/rod** | Removable rod length (in) for LVCR |
| **Specify** | **67/electrode + 4/ft** | Cable length (in) for LVCP |
| **ETFE Coating** | | |
| **-ETFE** | **$59/ft/rod** | ECTFE/ETFE coating for LVCF or LVCR rod sensors |

**LVCR-441-12, $613, shown actual size.**

### Controllers

| Model No. | Price | Description |
|---|---|---|
| **LVCN-201** | **$260** | Min/max level controller, 24 Vdc power |
| **LVCN-202** | **277** | Min/max level controller, 115 Vdc power |
| **LVCN-203** | **328** | Level controller for 2 independent levels, 24 Vdc power |
| **LVCN-204** | **344** | Level controller for 2 independent levels, 115 Vac power |

Comes complete with operator's manual.

**Ordering Examples: LVCF-111-12-ETFE,** 1 fixed rod, **LVCN-202,** controller, **70A-1,** alarm, $300 + 277 + 25 = **$602. LVCP-231-96,** 2 pendular electrode switch, **LVCN-204,** controller, **70A-1,** alarm, $434 + 344 + 25 = **$803.**

### Accessories

| Model No. | Price | Description |
|---|---|---|
| **70A-1** | **$25** | Continuous tone alarm |
| **TX4-100** | **49** | 30.5 m (100') spool of 4-conductor wire |
| **PSU-93** | **56** | Unregulated power supply |
| **LVCR-(**)** | **56/ft** | Replacement rods for LVCR Series |
| **CLE-P** | **67** | Electrode |

** Specify rod length (in inches): 12, 24, 36, 60.

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