

# ECONOMICAL LIQUID-LEVEL TRANSMITTERS

## SUITABLE FOR LEVELS TO 6 FEET

### LVR20/30 Series



- ✓ **Rugged Stainless Steel Construction**
- ✓ **4 to 20 mA or Resistance Output**
- ✓ **Immune to Density and Dielectric Changes**
- ✓ **1/4" Resolution**

The TRODEX® LVR20 and LVR30 Series continuous liquid-level sensors operate on a basic voltage divider network principle. As the float rises, a magnet in the float closes a series of reed switches in sequence, which varies the tapped-off portion of the voltage divider resistor network. The LVR20 has the basic voltage divider output—the regulated DC voltage input equals the maximum voltage output. The LVR20 has a nominal 1200 resistance; thus, with a 10 Vdc supply, 8.3 mA of current is required.

The TRODEX® DPF52 or DP24-E panel meters can be used to power and display the resistance from the LVR20; when relays are required, the DP25E-A meter can be used. For maximum accuracy, the readout device for the LVR20 should be zero and span adjusted after wiring is completed to compensate for any effects caused by the resistance of the lead-wires. The LVR20 can also be made intrinsically safe when used with OMEGA's intrinsic safety barriers and when properly powered. The LVR30 Series features a signal conditioner that provides a 4 to 20 mA output when powered by 10 to 30 Vdc. The LVR30 transmitters cannot be made intrinsically safe.

All LVR30 units come with a J-box with screw terminal connections. LVR20 units do not come with a

J-box but have 24 inches of bare wire coming out of the top of the unit with a 1/2 MNPT conduit connection. All LVR20 and LVR30 Series units can be wired for increasing output with either increasing or decreasing height of liquid; standard output is increasing output with increasing height. For other lengths, adaptor systems are available. These consist of 2 parts: the LVR-C coupling (2 x 2 FNPT) and an LVR-A pipe nipple (2 x 2 MNPT) of various lengths to change the insertion depth of the LVR20 or LVR30 sensor. When using the adaptors, a zero offset is introduced into the output signal, which must be compensated for in the readout device (for example, the mA signal, will not go down to 4 mA, nor will the voltage output go down to zero). Retaining clip pliers are required to remove the float when using the adaptor system.

### SPECIFICATIONS

**Wetted Parts:** 316 SS stem and mounting, 316 SS float, 18-8 SS float stop

**Liquid Temperature:**  
To 82.2°C (180°F) in water

**Minimum Liquid Specific Gravity:** 0.75

**Operating Temperature:**  
-40 to 110°C (-40 to 230°F)

**LVR30 Temperature Coefficient:**  
±0.00388% FS/°F

**Max Operating Pressure:** 300 psig

**Operating Voltage:**

**LVR30:** 10 to 40 Vdc

**LVR20:** 10 to 30 Vdc

**LVR30 Loop Impedance:** (Volts in - 10)  
x 46.66 = Ω with 24 Vdc power,  
maximum loop impedance = 653 Ω

**Connections:** LVR30 is 2-wire;  
LVR20 is 3-wire

**Accuracy:**

**LVR30:** 0.4% of FS or ±1/2", whichever is greater

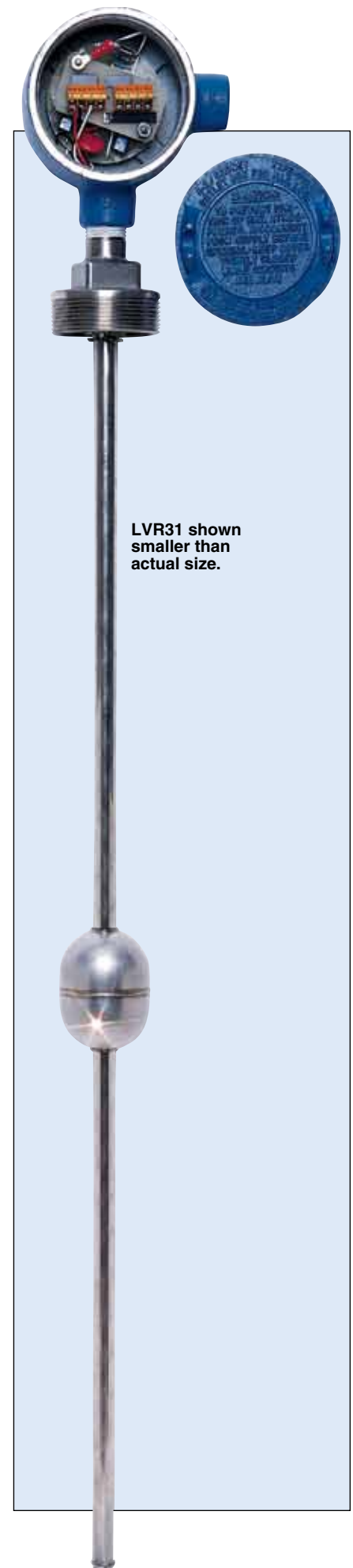
**LVR20:** ±1/2"

**Weights:**

**LVR30:** 5 lb + 1/4 lb per foot

**LVR20:** 1 1/4 lb + 1/4 lb per foot

**LVR-C:** 1 1/4 lb

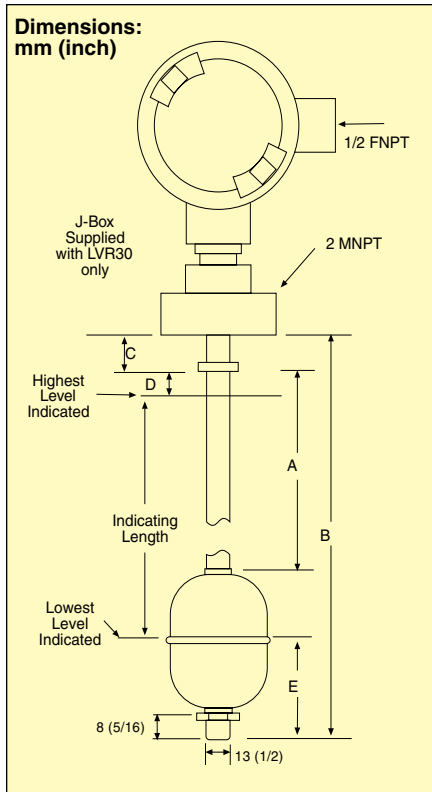


LVR31 shown smaller than actual size.

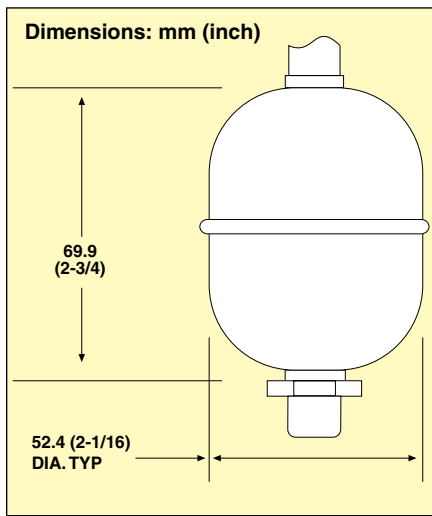
## Dimensions for LVR20 and LVR30

- A:** Float travel =  
indicating length  $\frac{3}{8}" \pm \frac{1}{16}"$
- B:** Stem length =  
indicating length  $3\frac{9}{16}" \pm \frac{1}{16}"$
- C:** Distance to float stop =  
6.4 mm ( $\frac{1}{4}"$ )  $\pm \frac{1}{16}"$
- D:** 39.7 mm ( $1\frac{9}{16}"$ )
- E:** 44.5 mm ( $1\frac{3}{4}"$ )  
(assumes 1.0 SG fluid)

## Assembly Dimensions



## Float



## 150 lb, 304 SS Coupling, 2 x 2 FNPT

Model No.
LVR-C



Use the LVR20 and LVR30 transmitters with the DPF50 Series indicators.

## To Order

Isolated 4 to 20 mA Output		Voltage Divider Voltage in = Voltage out
Model No.	Model No.	Indicating Length
LVR31	LVR21	1 ft
LVR32	LVR22	2 ft
LVR33	LVR23	3 ft
LVR34	LVR24	4 ft
LVR35	LVR25	5 ft
LVR36	LVR26	6 ft

**Ordering Examples:** LVR31, 316 SS level sensor with mounted J-Box and 0.3 m (1') indicating length.

LVR22, 316 SS level sensor with 0.6 m (2') long indicating length, nominal 0 to 1200  $\Omega$  resistance change and a 2 MNPT mounting thread.

## Pipe Nipples, 304 SS, 150 lb fittings, 2 x 2 MNPT

Model No.	Weight (lb)	Indicating Length Change
LVR-A4	1 $\frac{1}{4}$	4"
LVR-A5	1 $\frac{1}{2}$	5"
LVR-A6	1 $\frac{3}{4}$	6"
LVR-A7	2	7"
LVR-A9	2 $\frac{1}{2}$	9"
LVR-A11	3	11"
LVR-A13	3 $\frac{1}{2}$	13"

LVR-A4 shown smaller than actual size.



LVR-C shown smaller than actual size.