Close Range Ultrasonic Distance and Level Sensor

LVTX-10 Series

- Temperature Compensated
- Works on Uneven Solids or Liquids
- Up to 32 Sensors on RS485 Multi-Drop
- 0 to 10V or 4 to 20 mA Models Available
- Easy User Programming
- Tamperproof and Rugged

LVTX-11 shown smaller tha actual size.

Applications

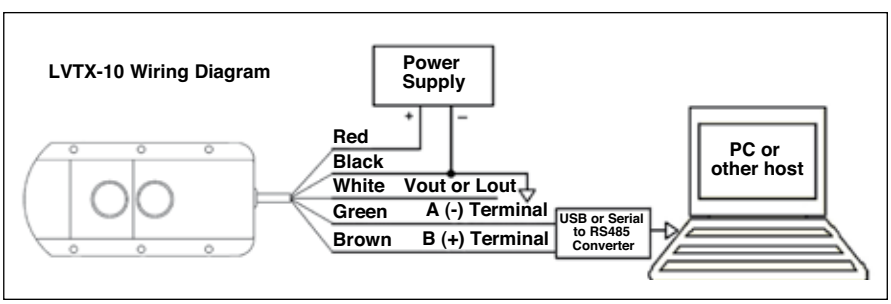
- Liquid Level Control
- Uneven Solids Control
- Bulk Material Management
- Pipe and Conduit Blockage Detection
- Conveyor Belt, Hopper and Chute Monitoring
- Position Detection

The OMEGA® LVTX-10 Series sensors are low profile designed ultrasonic transmitter modules optimized to provide continuous measurement of fluids, pastes, or uneven solid bulk materials in constrained working zones. Incorporating state-of-the-art dual-sensor ultrasonic technology and processing algorithms, all LVTX-10 sensors provide accurate measurement for factory automation, warehouse materials control, pipe and conveyor belt blockage, or tank level applications with non-uniform surfaces.

LVTX-10 sensors include an advanced diagnostic feature that will retrieve the ultrasonic waveform for analysis, and display it on any computer to aid users with debugging complex installations. For solid materials, surface unevenness is unlikely to affect maximum ranging capability. An integrated mounting plate with pre-formed holes is provided for easy installation. All models are equipped with continuous temperature compensation to ensure precise speed of sound calibration and measurement accuracy. Other friendly use features include diagnostic and monitoring outputs, protection from over voltage, short circuits, and reverse polarity. Operating from 12 to 24 Vdc, all OMEGA LVTX-10 sensors provide a linear output of either 0 to 10 Vdc or 4 to 20 mA, that are proportional to the measured distance to the target. The output range is readily programmable to accommodate a wide variety of set-up and application conditions. In addition, this output voltage can be set to operate as a digital switch within zones defined by specified target set-point distances, enhancing the sensor's flexibility for use in non-routine applications. The measurement parameters and outputs are programmed using a common standard RS485 data link to ensure set-up uniformity.

Compatible with Microsoft Windows® operating systems using a USB/RS485 or RS232/RS485 converter, up to 32 sensors can be connected in parallel onto the same multi-drop communication network using the supplied protocol. This network also enables users to remotely program their sensors and read target distances for quick integration into control applications. All LVTX-10 sensors are adjustable for sampling rate, averaging measurement, analog output slope, loss-of-echo time-out, set-point hysteresis (digital switch mode) and provide a software sensor transmit trigger.

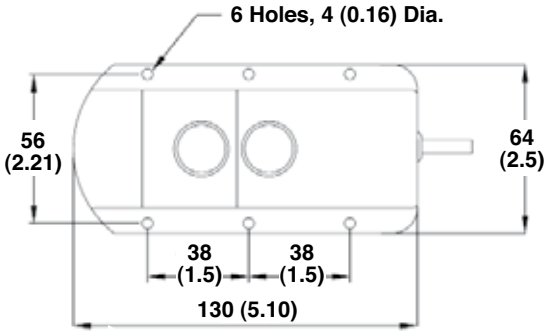
OMEGA LVTX-10 sensors provide versatile distance measurement for non-uniform liquid or solid surfaces where mounting headroom is restricted or a minimal dead-band is desired for accurate ranging with an affordable cost of ownership.



Dimensions: mm (inch)

LVTX-11, 95 kHz

LVTX-12, 160 kHz



Specifications

Measurement Resolution: 0.25 mm (0.01")
Measurement Accuracy: ±0.1% of target range
Echo Detection Sensitivity: User selectable
System Beam Angle: 15° conical
Response Time: 60 mS
Resolution: 11 bits
Temperature Compensation: Internal probe
Housing Material: PVC
Transducer Surface: PPA
Cable: 5 conductor, PVC jacket, shielded 24 AWG [user extendable for RS485 communication to 1500 m (5000')]

Environmental

Operational Temperature: -20 to 65°C (-4 to 149ºF)
Storage Temperature: -40 to 85°C (-40 to 185ºF)
Relative Humidity: 0 to 95%, non-condensing
Enclosure Rating: NEMA 4X (IP67)

Zero & Span Distance: Programmable over a range from minimum distance to greater than maximum distance
Factory Default:
160 kHz: From 1" to 5'
95 kHz: From 4" to 13'
Trigger Modes: Internal or software trigger
Target Distance Averaging:
Rolling Averages: From 1 to 32 samples
Boxcar Averages: From 1 to 1024 samples
Factory Default: 1
Loss of Echo Time-Out: Programmable from 1 to 254 consecutive samples missed before time-out
Factory Default: 1
Sampling Rate: 0.1 to 20 Hz in 0.1 Hz increments
Factory Default: 10 Hz

Programming Requirements

Communications Converter: USB automatic send data control
Operating System: Windows® 8, 7, Vista, and XP SP3

Programmable Outputs: 0 to 10V
Power Required: 12 to 24 Vdc (reverse polarity protected), 30 mA, typical
Setpoints: 0 or 10.25 Vdc (progammable options in range minimum to > maximum detection range)
Output Impedance: 100 Ω (both operational modes)
Zero & Span (Voltage): Programmable from 0 to 10.25 Vdc
Factory Default: 0 to 10.0 Vdc
Loss of Echo (Voltage): Programmable from 0 to 10.25 Vdc
Factory Default: 10.25 Vdc
Programmable Outputs: 4 to 20 mA
Power Required: 12 to 24 Vdc (reverse polarity protected), 30 mA, typical (not including I-out)
Setpoints: 0 or 20.5 mA DC (progammable options in range minimum to > maximum detection range)
Current Loop Output: 0 to 20 mA or 4 to 20 mA DC sourcing, invertible
Zero & Span (Current): Programmable from 0 to 20.5 mA DC
Factory Default: 0 to 20.0 mA DC
Loss of Echo (Current): Programmable from 0 to 20.5 mA DC
Factory Default: 20.5 mA DC

To Order

Model No.	Description	Range mm (in/ft)	Output	Cable Length m (feet)
LVTX-11	Level transmitter	102 to 3962 (4" to 13')	95 kHz, 4 to 20 mA	1.80 (6)
LVTX-12	Level transmitter	25 to 1524 (1" to 5')	160 kHz, 4 to 20 mA	1.80 (6)
LVTX-11-V	Level transmitter	102 to 3962 (4" to 13')	95 kHz, 0 to 10V	1.80 (6)
LVTX-12-V	Level transmitter	25 to 1524 (1" to 5')	160 kHz, 0 to 10V	1.80 (6)
LVTX-11-30FT	Level transmitter	102 to 3962 (4" to 13')	95 kHz, 4 to 20 mA	9 (30)
LVTX-12-30FT	Level transmitter	25 to 1524 (1" to 5')	160 kHz, 4 to 20 mA	9 (30)
LVTX-11-V-30FT	Level transmitter	102 to 3962 (4" to 13')	95 kHz, 0 to 10V	9 (30)
LVTX-12-V-30FT	Level transmitter	25 to 1524 (1" to 5')	160 kHz, 0 to 10V	9 (30)

Comes complete with operator's manual.