

ToughSonic® Level Sensor

Liquids, Solids and Chemically Aggressive Environments

LVL-500 Series

LVL sensors and SenixVIEW software put the power of ultrasonics in your hands. You can quickly adjust, optimize, save and clone your applications quickly without calibration!

These sensors are housed in a rugged, chemically inert PVDF sealed housing for long life. They mount above the material surface and measure distance downward without contact. Outputs respond to that measured distance.

Applications include pump control, bulk inventory, batch processing, water management and high/low level alarms.



SenixVIEW PC Software included!

**PC Configured
Non-Contact
Ultrasonic
Level
Measurement**

Features

Level Measurements

- Long or short measurements
- Unaffected by optical factors like color and transparency
- Computer (PC) software allows remote adjustment

Packaging & Performance

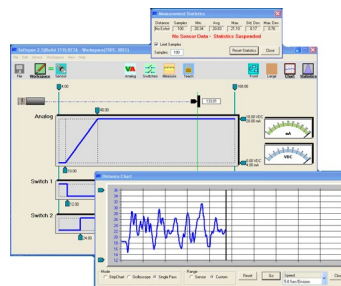
- Durable housing for long life
- Bottom and top thread mounts
- Short & overload protected I/O
- Adjustable filters compensate for tank mixers or turbulence
- Temperature compensation for improved accuracy
- Adjustable sensitivity

Free Functionality

Use adjustable interface features like switch hysteresis and time delays to build complete solutions such as pump controls to maintain level. Save cost by eliminating PLCs, delay circuits and time delay relays!

PC Setup Power!

Use SenixVIEW software (see separate data sheet) to adjust all sensor features. You can view, analyze or log data to optimize your application. Disconnect and the sensor retains the setup.



Copy without Calibration

Application setups can be saved for future recall. From a single sensor inventory part you can quickly clone sensors, without recalibration, for any number of different field installations.

Multiple Outputs

In addition to the model's serial data interface there are five simultaneous outputs. All have SenixVIEW configurable features including ranges, target responses and time delays.

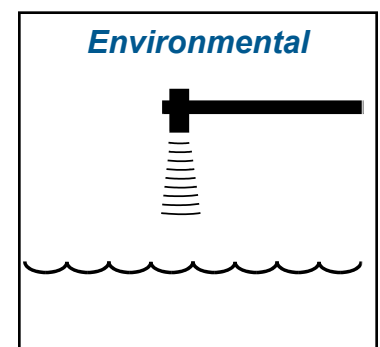
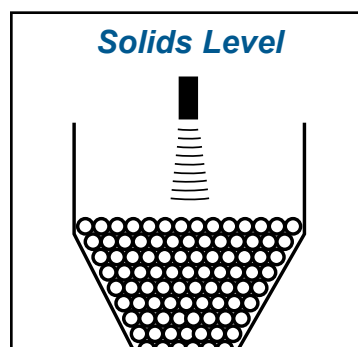
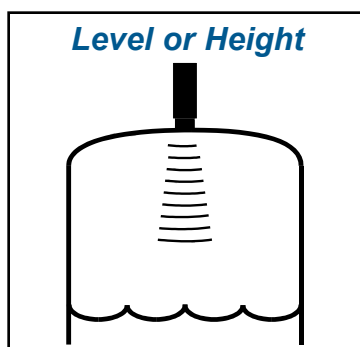
Analog Outputs (3)

These include voltage (0-10 VDC) and two current loops (4-20 mA sinking and sourcing).

The analog slope can increase or decrease value with distance. The analog output limits can be set for any distance, and have user-selected voltage/current values.

Switches (2)

Two switches are SenixVIEW configurable as either "PNP" or "NPN" type (sourcing or sinking). Each has adjustable set point, hysteresis, window, initial conditions, ON delay, OFF delay and loss of target response to easily create controls and alarms!





Senix® LVL-500 ToughSonic® Level Sensor

Specifications

Optimum Range	12 in. -25 ft. (30.5 cm-7.6 m)	Max Range	35 feet (10.7 meters)
Case Material	PVDF	Adjustment	SenixVIEW software
Temperature	-40 to 158 F (-40 to 70 C)	Configuration	Stored in non-volatile memory
Humidity	0 to 100% operating	Transducer	Rugged piezoelectric
Compensation	Temperature compensated	Protection	NEMA-4X, NEMA-6P, IP68
Resolution	Digital: 0.0135 in. (0.344 mm); Analog: 4099 steps (over full 0-10 VDC or 4-20 mA)		
Repeatability	Nominal 0.2% of range @ constant temp. Affected by target, distance, environment		
Update Rate	5 Hz (200 ms), SenixVIEW adjustable; affected by SenixVIEW filter selections		
Voltage Output	0-10, 0-5 VDC or PC customized; 10 mA max. (*)		
Current Loop #1	Current sourcing 4-20 mA or PC customized, max. loop 450Ω (*)		
Current Loop #2	Current sinking 4-20 mA or PC customized, max. loop 450Ω (*)		
Sinking Switch	150 mA max. @ 40 VDC max., teachable set point & polarity, fault indication		
Sourcing Switch	150 mA max. @ input voltage, teachable set point & polarity, fault indication		
RS-232, RS-485	Modbus protocol, 9600-115200 baud (selectable), 8 data bits, 1 stop, no parity		

Target Requirements

Target	Detects flat or irregular surfaces. Target surface must reflect sound back to sensor.
Max. Distance	Affected by vapor environment and target size, shape and orientation
Granular Solids	De-rate max range by 50%; range affected by material density and orientation
Orientation	Orient sensor beam perpendicular to target surface for best performance
Optical	Unaffected by target color, light level, transparency or other optical characteristics

Connections

Cable Connection	Wire	Description
Power	Brown	10-30 VDC @ 50 mA maximum; Typical: 45 mA @ 24 VDC (**)
Ground	Blue	Power and interface common
Voltage Output *	Violet	0-10 VDC, 0-5 VDC or custom end values between 0 and 10 VDC
Current Loop Output *	Green	4-20 mA sourcing (adjustable end values between 4 and 20 mA)
Current Loop Output *	Orange	4-20 mA sinking (adjustable end values between 4 and 20 mA)
Switch #1 Output	Black	Sinking ("NPN") or Sourcing ("PNP"), user selected
Switch #2 Output	White	Sinking ("NPN") or Sourcing ("PNP"), user selected
RS-232 out / RS-485-	Gray	Serial data connection (depends on model - see model selection)
RS-232 in / RS-485+	Yellow	Serial data connection (depends on model - see model selection)

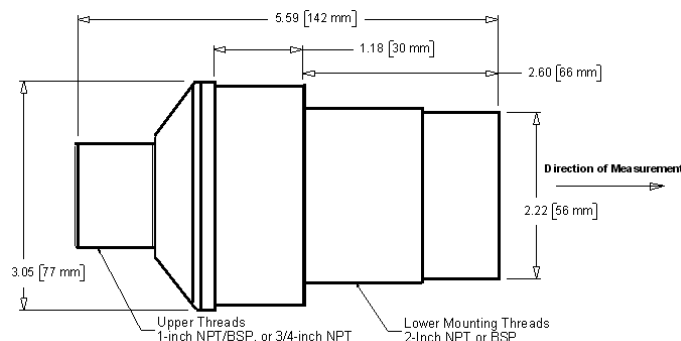
(*) Analog outputs share common distance endpoints. Both 4-20 mA outputs share the same adjustable max / min values. The max. loop resistance is derated below 15 VDC input voltage.

(**) At default update rate. Output currents not included. Sensitivity reduced below 15 VDC input voltage.

Part Numbers

Model Number	Description
LVL-500-232	Serial RS-232 interface (PC COM port compatible)
LVL-500-485	Serial RS-485 interface (allows addressable multi-sensor networks)
Senix also offers interconnection, communication, mounting, and display components	

Dimensions



Mechanical

Mounting Threads:

Lower 2-in. NPT / BSP
Upper 1-in. NPT

Attached Cable:

PUR jacket, 6.5ft (2 m) long

Weight:

24.7 oz. (0.70 kg)