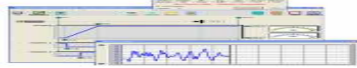


CHEM series sensors and SenixVIEW software put the power of ultrasonics in your hands. You can quickly adjust, optimize, save, and clone your applications quickly without calibration!

The CHEM 12 is housed in a rugged, chemically inert PVDF sealed housing for long life. A new **shorter design** and **smaller diameter transducer** allows for easier installation in tight locations, and measurements closer to the top of a tank. The CHEM 12 also has an improved **rugged strain relief** design.

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



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!

Up to 12 ft (3.7m) maximum range in IP68 rated PVDF housing



Free SenixVIEW PC Software



Non-Contact Ultrasonic Distance & Level Measurement

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

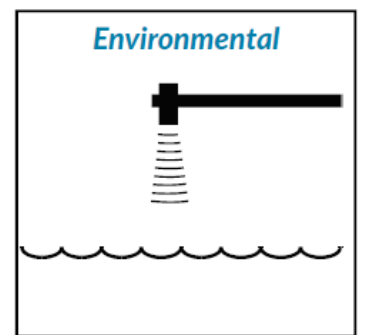
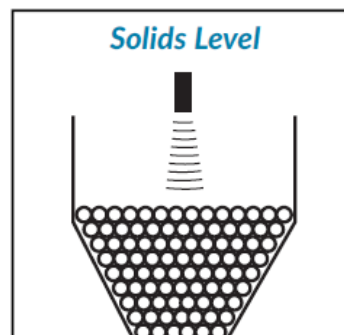
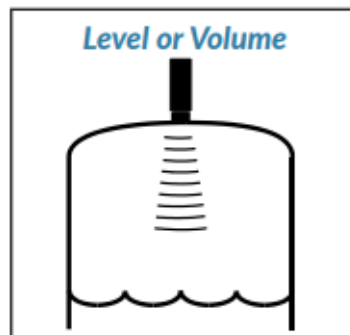
In addition to the model's serial data interface there are five simultaneous outputs, fully configurable with SenixVIEW.

Analog Outputs (3)

These include voltage (0-10 VDC) and two current loops (4-20 mA sinking and sourcing). Both output types have user-selectable voltage/current ranges and endpoints for best resolution. Easily invert the analog output slope.

Switches (2)

Two switches are SenixVIEW configurable as "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



ToughSonic CHEM 12 Level & Distance Sensor

Specifications

Optimum Range	4 in. to 10 ft. (102mm to 3m)	Max. Range	12 ft. (3.7m)
Case Material	PVDF	Adjustment	SenixVIEW software
Temperature	-40 to 158 F (-40 to 70C)	Configuration	Stored in non-volatile memory
Humidity	0-100% operating	Outputs	Five selectable, plus serial data
Compensation	Temperature Compensated	Transducer	Ruggedized piezoelectric
Protection	NEMA-4X, NEMA-6P, IP68		
Resolution	Serial Data 0.0033844 in. (0.086mm); Analog: 4099 steps (0-10VDC), 3279 steps (4-20mA)		
Repeatability	Greater of +/-0.03 in. (0.76 mm) or < 0.2% of target distance in a stable environment		
Update Rate	20 Hz (50 ms), SenixVIEW adjustable; also 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 450 Ohms		
Current Loop #2	Current sinking 4-20 mA or PC customized, max. loop 450 Ohms		
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 to 115200 baud, 8 data bits, 1 stop, no parity		
SYNC Feature	Permits up to 32 sensors to operate in close proximity without interaction		

Target Requirements

Target	Detects flat or curved targets or objects. Surface must reflect ultrasound to sensor
Max. Distance	Affected by size, shape, orientation of target environment (sound level reflected back to sensor) Restrict use to Optimum Range when using over a wide range of environmental conditions
Granular Solids	De-rate max range by 50%; range affected by material density and orientation
Orientation	Flat surfaces should be oriented perpendicular to the sensor output beam
Optical	Unaffected by target color, light, and transparency or other optical characteristics

Connections

Cable Connection	Wire	Description
Power	Brown	10-30 VDC @ 150 mA max., 50mA nominal; 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 maximum loop resistance is derated below 15 VDC input voltage.

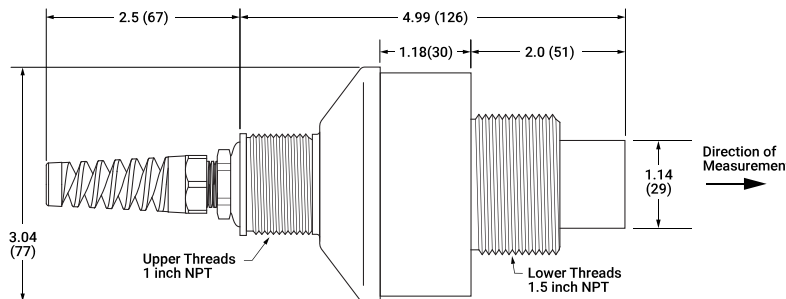
(**) At default update rate. Output currents not included. Sensitivity reduced below 15 VDC input voltage.

Part Numbers

Model Number	Description
LVL-120-485	Analog, switch, and RS-485 Interface (allows addressable multi-sensor networks)
LVL-120-485A	Same as above but with only RS-485 serial data interface
LVL-120-232	Analog, switch and RS-232 Serial data interface (PC COM port compatible)
LVL-120-232A	Same as above but with only RS-232 serial data interface

Senix also offers interconnection, communications, mounting and display accessories

Dimensions



Mechanical

Mounting Threads:

Lower, 1-1/2" NPT

Upper, 1" NPT

Attached Cable:

PUR Jacket, 6.5 ft. (2m) long

Weight:

21.2 oz. (0.60 kg)

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