

# MonoScan<sup>TM</sup>

**Ultrasonic Continuous Level Measurement  
of Liquids and Solids**



**Radar-like Performance at an affordable price**

**Automatic adaptation to virtually all environments**

**World smallest ultrasonic Open Channel Flow gauge**

**Superior reliability and accuracy under extremely harsh conditions**

**SolidScan**

*You Can Measure the Solid Benefits*

# MonoScan™

# Patented

## No More Compromises

## Now You Can

Self-adjustments to Virtually All Of Conditions

Affordable Solutions for a Range of Process Control and Storage Applications

Radar-Like Performance

Superior Reliability and Accuracy

### **You Know the Problem**

Current Ultrasonic Level Measurements Device just aren't accurate enough, Attempts to compensate for changing atmospheric conditions and temperature variations within tanks have not been successful. Sound wave remains in conditions and signal transmission and reception are unsynchronized. Even the most sophisticated and more expensive device, do not achieve the repeatability and linearity vital for accurate measurements, when translated into dollars and cents, the price of these uncertainties is too high.

### **The Solution: Full Compensation in Virtually All Environments**

SolidScan a family of non-contact, Ultrasonic instruments for continuous level measurements of liquids and solids, offers industry experts and engineers the accuracy and reliability they have been seeking at prices they can afford. Based on breakthrough, patented technology in ultrasonic level measurements, SolidScan achieves what other instruments just can't match. It delivers full compensation in virtually all environments, vapours, gases, temperature variations, wind, pressure, etc, to provide the highest accuracy especially under extremely harsh conditions. This is radar-like performance at Ultrasonic prices.

### **No Calibrations, No Maintenance Required**

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Requiring neither calibration nor maintenance, self-contained SolidScan instruments are easy to install and operate. SolidScan instruments are reasonably priced and they deliver cost-effective Ultrasonic level measurements for such "tough" industries as hydrocarbon processing.

### **Patented Technology Delivers Superior Resolutions and Linearity**

SolidScan Technology employs unique modules integrating hardware and software. Each instrument incorporates several of the modules according to a specific application.

# technologies

## Have it All!

### ● **Standing wave control module**

The innovative technology incorporated into SolidScan transmits a fixed pulse and frequency at constant voltage, enabling SolidScan to receive a similarly controlled oscillation where each wave is identifiable this provides a highly reliable signal at maximum amplitude for attaining an extremely high level of accuracy, resolution, repeatability and linearity. By measuring energy loss a function of the speed of sound, SolidScan can cope with even the most difficult environment. This module, in effect, enables complete control over energy.

### ● **Dynamic and Static Echo Control**

An innovative algorithm enables automatic (dynamic) identification learning and storage in memory of disturbances and noises without human intervention, the "Scan distance function" locates disturbances and noises in the tanks and provides appropriate compensation. Alternatively, it permits intervention and manual input of echo when necessary.

### ● **Temperature control Module**

The Module rapidly compensates for changes in temperature and corrects the reading accordingly. It is particularly suitable for process installation where there are extreme changes in environment's temperature or in where there are rapid temperature fluctuations, the dynamic compensation ensures that the instrument maintains optimal accuracy at all times.

### **Gain Control Module**

This special Module's algorithm enables full monitoring of signal amplification received from the sensor. It ensures an accurate and reliable reading even in the presence of gases or vapours. It also adapts the amplification to an optimized level when the liquid surface has waves and is turbulent. This algorithm has also proven to be especially effective for the measurements of powder and other solids. This module weakens the strong signals, and strengthens the weak signals for improvements of the signal to noise ratios.

# Applications

Chemical Processes Acids, bases, Differents Chemical and reagents in buffer tanks inventory storage tanks Benefit From improved performance in the presence of foam, gases, water vapour.

Silos bulky powders, fertilizer, ores, solids, stones. Benefit from improved longer-range and reliable signals. Petrochemicals most hydrocarbons, Benefit from improved performance in environments of volatile gases and Co2 Inventory tanks gauging with accuracy down to 3mm.

Food and Beverage beer, Juice, slurries in blending and mixing tanks, Grains, powder, flour in silos and more Benefit from improved accuracy and new implementations.

Water and Waste Water: water storage towers Accurate Open Channel flow measurements. Sludge and Slurries in waste water plants. Pump stations. Benefit from low cost and High Performance.

Pharmaceuticals: Fine Powders, aseptic, liquids, pastes. Benefit from a wide range of new applications. Pulp liquor, bleaching agents Benefit from superior performance, accuracy and reliability at an affordable price.

P,astic Granuted, Powders, Solvents Benefit from new solutions for the plastics industry.

## MonoScan, MonoScan485

MonoScan is an Ultrasonic Level Measuring instrument for Direct Installations on Tanks vessels and reactors. It is a Loop Powered 4-20 mA device with integral LCD display. Constructed of a ABS body. Its features a sensor with a diameter of just 2 thread. MonoScan is an excellent choice for measuring the level of Liquids and solids at ranges of up to 15 meters, with a 0.25% accuracy of measured range.

The MonoScan 485 includes all of MonoScan 's Features Plus communication on an RS-485 bus with modbus protocol remote monitoring via PC and compatibility to HART protoco. Additonally the MonoScan 485 offer 3 SPDT rela control that provides a complete solution for proces tanks in stand alone application and a Fast Dynamic Response (FDR) algorithm That excellint performance.



Extremely high levels of accuracy and reliability

Automatic adaptation to extreme conditions

Worldwide distributor network

Hot line service and application assistance

## Specifications

### Measuring Range

MonoScan L for LIQUIDS: Short Range: 0.2m (0.6-6ft)  
Standard-Range: 0.6-15m (1.9-49 ft)

MonoScan S for SOLIS: Short-Range: 0.2-5 m (0.6-16 ft)  
Standard-Range: 0.6-8.5m (1.9-28 ft)

MonoScan O for FLOW: Short-Range: 0.2-5m (0.6-16ft)  
Standard-Range: 0.6-15m (1.9-49 ft)

### Accuracy

0.25% of Measuring Range  
Resolution: 3 mm (0.12 inch)  
Ambient Temperature compensation: Automatic

### Mechanical

Enclosure: IP 65, Monoblock construction, Plastic.  
Wetted Part: Sensor Body: PP, Stainless Steel 316 or Aluminum  
\*Optional PVDF  
Operating Temperature: -40deg C to 70deg C (-40deg F to +158deg F)  
Mounting: 2" NPT or 2" BSP  
Operating Pressure: Atmospheric  
Dimensions: 289 x 107 x 85 mm (11.4 x 4.2 x 3.35 inch)  
Weight : Approx 1.5Kg (3.3lb)

### Electrical

Display: Integral LCD 4 digits, 7 Segments  
Loop Current: 4-20mA, 750 Ohm@28VDC  
Supply: 12-28 VDC (0.1A Surge)  
Transducer: 25 KHz  
Certificate: CE-EMC  
ATEX: EX is IIC T4  
FM: Class I Division 1 Group A T4  
CSA Class I, II, III, Group A,B,C,D,E,F and G

MonoScan 485 Additional Features

### Interface

Bi-Directional RS-485 output Supported by Modbus RTU

### External Adapter

3 Independent SPDT Relays  
6 Trigger Points  
Compatibility with HART Protocol\*  
\*Consuly Factory



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