

SONEX

INNOVATIVE MEASUREMENT SOLUTIONS

**Fanavaran
Farasanjesh Sharif
Company**

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Resume of Fanavaran Farasanjesh Sharif Company

Fanavaran Farsanjesh Sharif Technology Co., a designer and manufacturer of precision instruments and advanced measuring equipment, since 2011 has carried out many activities in the field of designing and manufacturing a variety of precision instrument systems, including: flow measurement and Level measurement, non-destructive testing and etc., based on ultrasonic technology.

This knowledge-based company has become one of the main producers of this equipment with the presence of a group of elites, graduates and professors of the best universities in Iran.

The equipment manufactured in this company has obtained the level 1 of the knowledge-base certificate.

Products manufactured by the Fanavaran Farasanjesh Sharif Company

- Clamp-On Ultrasonic Liquid Flow Meter
- Ultrasonic Flare Gas Flowmeter
- Ultrasonic Level Meter
- Ultrasonic Flowmeter For Open Channels
- Multiphase Flowmeter
- Non-Destructive Testing Device

Fanavaran Farasanjesh Sharif Co., also has the ability to provide Technical consulting and propose new solutions as well as design and manufacture new equipment needed by the employer in the form of research contracts.

History of Fanavaran Farsangesh Sharif Knowledge Base Company:

- Signing a contract with the National Iranian South Oil Company to provide multi-phase flow measurement services
- Signing a contract with Water and Sewerage Department of Tehran to provide wastewater flow measurement services
- Successful installation of ultrasonic liquid flow meter in water and sewage industries, refineries, food, pharmaceutical and detergent industries and receiving satisfaction from employers
- Successful installation of ultrasonic level gauges in refineries, food, pharmaceutical and detergent industries and obtaining satisfaction from employers.
- Measuring the volume of bottles in the packaging line of food, pharmaceutical and detergent industries
- Providing services in the field of non-destructive inspection of parts to various companies and industries
- Entering the Vendor list of Water and Sewerage Department of Tehran
- Entering the Vendor list of Tehran Oil Refinery



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Clamp-On Ultrasonic Flow Meter



Oil & Gas | Chemical | Water & Wastewater | Energy Efficiency

Technical Data

Type	Single phase liquid
Measurement Uncertainty	1%*
Power Supply (Stationary)	21 to 30 VDC
Power Supply (Portable)	33000 mAh Li Battery (72 hours operation)
Output	4-20 mA / RS485 / Modbus / GSM
Internal Data Logger	Yes (Portable & Stationary)
Transducer Frequency	0.5-2 MHz
Pipe Size Range	1-70 inches
Degree of Protection for Transmitter	IP 67 (Stationary) – IP 66 (Portable)
Degree of Protection for Transducer	IP 68
Flow Velocity Range	0.3 – 10 (m/s)
Pipe Wall Temperature Range	0 °C to 60 °C
Ambient Temperature	-10 °C to 60 °C

* After Calibration



Stationary Model



Portable Model

Applications

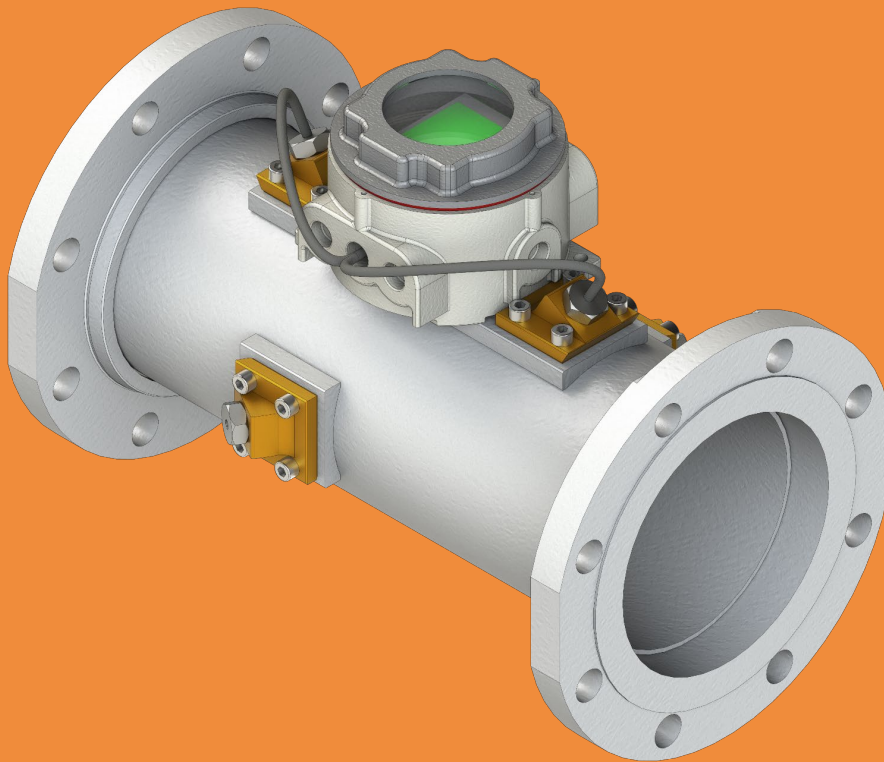
- Food industry
- Petrochemical industry
- Oil and gas industry
- Pharmaceutical industry
- Manufacturing industries
- Water and wastewater industry
- Mining industries

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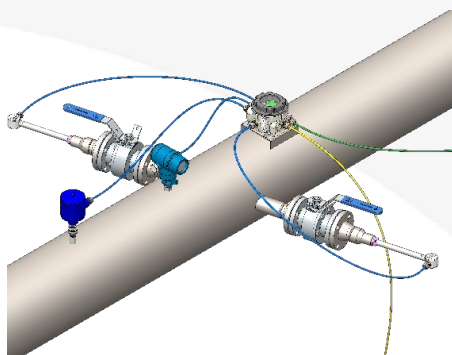
Ultrasonic Gas Flare Flowmeter



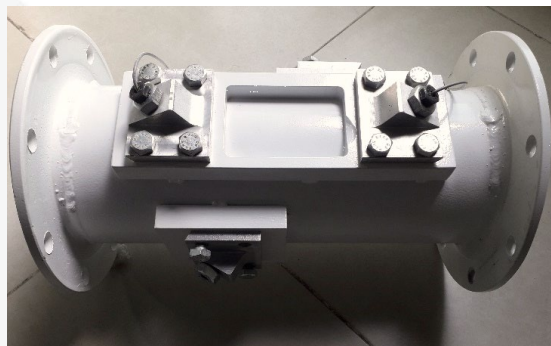
Oil & Gas | Chemical | Water & Wastewater | Energy Efficiency

Ultrasonic Flare Gas Flowmeter

Petroleum refineries, chemical plants, natural gas processing plants and a variety of other plants and sites, use gas flare to release and burn unmanageable gas. Measurement of flare gas provides the tool to manage waste gas and measure its environmental impact. Transit time ultrasound method is a standard and frequently used method to measure flare gas due to its insensitivity to gas composition, rangeability and other advantages. **SONEX Flare Gas Flowmeter** can be provided by a spool or be mounted on the site using hot-tap.



Hot-tap mounted probes



Flowmeter spool

Applications

- Measurement of flare gas volumetric flow rate and total volume
- Measurement of volumetric flow rate and total volume in low-pressure gas with variable composition

Advantages

- Ultrasonic transit time method
- State of the art signal processing algorithm for noisy environments
- Capable of speed measurement in low pressure
- Configurable
- Measurement of flow rate and total volume in both directions
- Insensitive to gas composition
- Real time measurement

Technical Data

Fluid	Flare gas
Pressure	0.7-4 bar
Uncertainty	5%
Output	RS485 / Pulse
Ambient temperature	-15°C to 60°C
Transducer frequency	200 kHz
Pipe diameter	4-60 inch
Speed range	0.05 – 120 (m/s)
Flow temperature	-20°C to 80°C
Ex-approval	Ex db [ia Ga] IIC T6 Gb*

* Test report available, certificate pending

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Multiphase Flow Metering System



GLCC MPFM

In different steps of production, measuring oil, water, and gas flow rates is crucial to understanding the well. Our designed GLCC multiphase metering system provides online flow rate information. The main components include a gas-liquid cylindrical cyclone (GLCC) separator, flow-metering instruments, and level control valves.

Our multiphase metering system can work in the real high pressures and real temperature range and the corrosive fluid. A cyclonic flow pattern is created which induces bulk separation of the liquid and gas phases into separate pipes.

Specifications

Gas Volume Fraction (GVF)	0 to 99%
Water in Liquid Ratio (WLR)	0 to 100%
Design Temperature	32 to 180 °F
Design Pressure	100 to 1500 psi

Measurement Error

GVF	Water Rate (absolute)	Oil Rate (Relative)	Gas Rate (Relative)
0 to 75 %	2.3%	4%	6%
75 to 90 %	2.3%	4%	6%
90 to 95 %	2.3%	5%	8%
95 to 99 %	2.3%	5%	10%

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Ultrasonic Level Meter



Storage tanks | Open Channels | Corrosive liquids | Potent products

Ultrasonic Level Meter

Ultrasonic Level Measurement provides continuous, contact-free and maintenance-free level measurement of fluids, pastes and sludges.

SONEX ultrasonic level meter is available in two types, Portable and Stationary. In the Portable type, the transducer is separate from the electronic circuitry. This type of level meter is used when the user needs to measure the level of a tank temporarily, but the Stationary type is for measuring the tank level continuously.

In the Stationary type of SONEX level meters, the transducer and the electronic circuit are all placed in one housing. The Stationary type of SONEX ultrasonic level meter is resistant to water and dust.



Technical Data

Measuring principle	<i>Ultrasonic</i>
Measurement distance	<i>0.3 to 15 m</i>
Transducer Frequency	<i>20 to 100 KHz</i>
Accuracy	<i>0.5% full range or 5 mm</i>
Repeatability	<i>0.2% full range or 2 mm</i>
Supply Voltage	<i>21 to 30 VDC</i>
Ambient Temperature	<i>-10°C to 60°C</i>
Output	<i>RS485 / Modbus / 4-20 mA</i>
Ex-approval	<i>Ex ia IIC T6 ... T4 Ga (Pending)</i>

Applications

- Storage tanks
- Open Channels
- Corrosive liquids
- Potent products

Type of Ultrasonic Level Meter

There are two types of ultrasonic level meters manufactured by Sonex.

In the first type, the transducer or sensor is separated from the transmitter and display screen. In this type, the sensor is installed at the top of the tank and the transmitter, which includes the display, is installed at the bottom of the tank and at the ground level. there is no need to climb the tank to make settings or view the screen. In this model, the sensor must be connected to the transmitter with a cable.



In the second type, both the transducer and the transmitter are located in a housing and it is installed on top of the tank. In this type, you have to access the top of the tank to make settings or view the screen. This model can be used when it is easy to access the top of the tank.

Applications

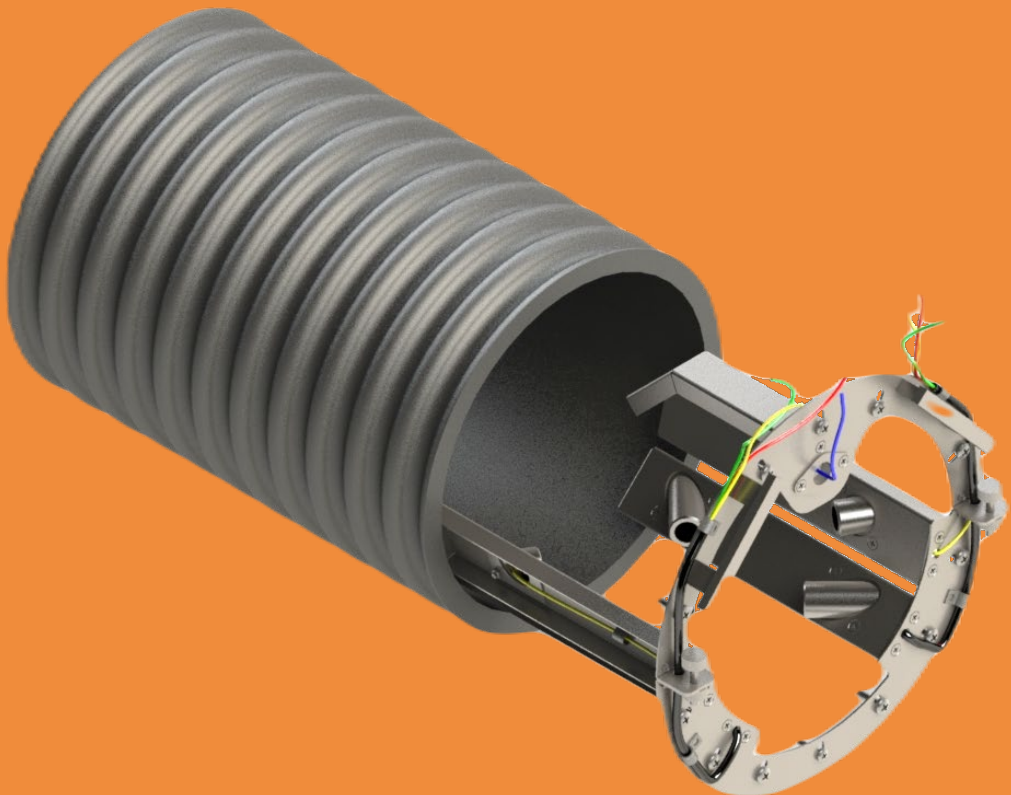
- Storage tanks
- Open Channels
- Corrosive liquids
- Potent products

SONEX

INNOVATIVE MEASUREMENT SOLUTIONS

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Ultrasonic Flow Meter For Open Channels



Storage tanks | Open Channels | Corrosive liquids

Ultrasonic Flow Meter For Open Channels

Sonex open channel flow measurement works based on the level measurement of fluid over a section of channel which is designed according to standards. This section of channel is so called Parshall Flume. The Parshall Flume is an economical and accurate way of measuring water flow in open channels and non-full pipes. Originally the flume was developed to measure surface waters, water rights apportionment, and irrigation flows. However, its use has expanded to include measuring sewage flow (both in pipe and treatment plants), industrial discharges, dam seepage, and other applications. the Parshall Flume is the most commonly used and widely recognized flow measurement flume.

Ultrasonic Flow Measurement For Open Channels provides continuous, contact-free and maintenance-free flow measurement of fluids, pastes and sludges.

In the SONEX ultrasonic flow meter for open channels , the transducer is separate from the electronic circuitry. This type of level meter is used for measuring the open channel level and flow rate continuously.

The SONEX ultrasonic flow meter for open channels is resistant to water and dust.



Applications

- Storage tanks
- Open Channels
- Corrosive liquids

Technical Data

Measuring principle	<i>Ultrasonic Level Measurement & Parshall Flume Relations</i>
Measurement distance in open channels	<i>0.3 to 15 meter</i>
Frequency	<i>20 to 100 KHz</i>
Accuracy (for liquid level measurement)	<i>0.5% full range or 5 mm</i>
Accuracy (for liquid flow rate measurement)	<i>According to ISO9826 (Parshall and SANIIRI flumes)</i>
Repeatability	<i>0.2% full range or 2 mm</i>
Supply Voltage	<i>21 to 30 VDC</i>
Output	<i>RS485 / Modbus / 4-20 mA / LCD Display</i>
LCD Display output	<i>Flowrate, Total volume, Fluid level</i>
Liquid Temperature Range	<i>-10°C to 70°C</i>
Ambient Temperature Range	<i>-10°C to 60°C</i>
Temperature Compensation	<i>with temperature sensor in transducer</i>
Transducer Protection Class	<i>IP 67</i>
Electronic Box Protection Class	<i>IP 65</i>
Installation	<i>Electronic: inside box (wall mounted) Transducer: over the flume</i>
Weight	<i><4 kg</i>
Dimension (mm)	<i>Electronic box: 350 x 250 x 150 Transducer: 75 (diameter) x 130 (height)</i>
Channel Size Range	<i>No limitation (According to standard)</i>
Flow Velocity Range	<i>No limitation (According to standard)</i>
Fluid material	<i>No limitation (According to standard)</i>

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Ultrasonic Non Destructive Testing Device



Oil & Gas | Metallurgy | Construction Industry | Welding test

Non Destructive Testing Device

SONEX ultrasonic non-destructive testing device, is designed to excite and use the ultrasonic NDT probes with the center frequencies of 0.5 to 10 MHz. This device is capable of producing "Spike" and "Burst" modes of excitation with the maximum voltage of 250V. This device has high frequency Amplifiers and filters for the received signals. To digitize the received signals, an ADC with the sampling frequency of 80 MHz and 12 bits of resolution is used. The LCD and the keys have been designed to easily control the excitation and see the resulting signals.

The designed and manufactured ultrasonic Non-Destructive Test probes have the center frequencies of 1 and 2 MHz and can be used to show the Cracks, holes and other imperfections in Steel with a resolution of 500 micrometers. Both Shear and Normal Probes are available at these frequencies.

- 7-inch screen
- Battery for 5-6 hours of continuous operation.
- Ability to generate excitation pulses in two modes, Spike and Burst
- Adjustable excitation voltage from 60 to 250 volts
- Designed for ultrasonic probes from 0.5 MHz to 10 MHz
- Signal averaging up to 16x
- Adjustable gain up to 80 dB (10,000 times)
- Two Gates for pointing and calculation
- Adjustable detection range up to 2 meters
- Supports DAC Standard with 6 Points
- Supports AWS Standard
- Ability to calibrate the time axis and calculate the sound speed of the material and the delay of the probe
- Standard Lemo connectors
- Able to save settings, DAC charts and AWS in internal memory
- Able to capture and save screenshots in the internal memory, which can later be transferred to USB Flash

Applications

- Chemical industry
- Petrochemical industry
- Oil and gas industry
- Construction Industry
- Steel industry
- Casting industry

