Proven Measurement for A World of Applications

NIAGARA® meters

LIQUID • GAS • STEAM

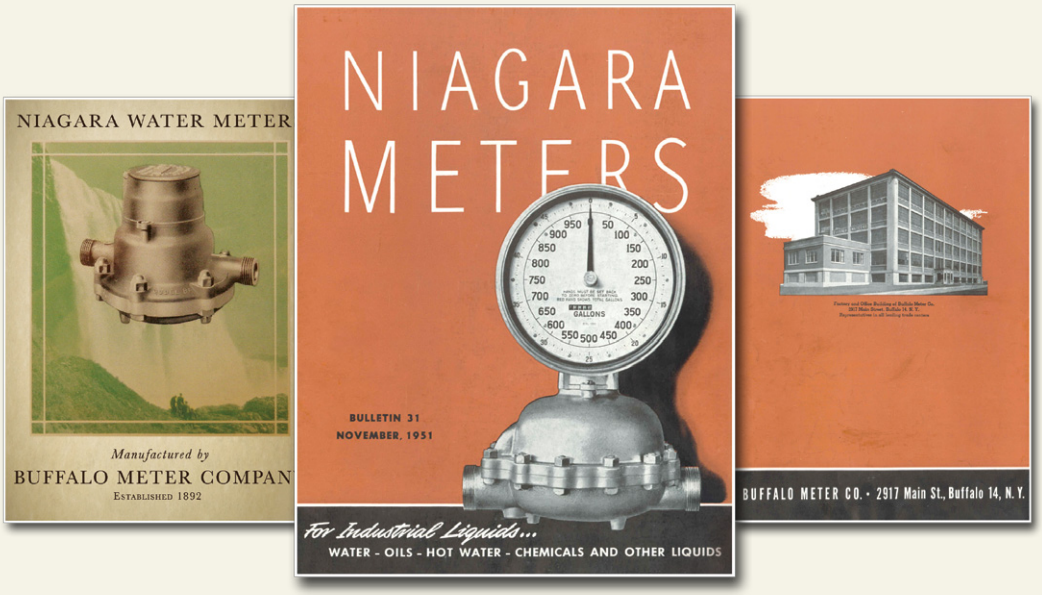
Building on Experience.

Niagara Meters is a flow meter company representing a complete line of flow meters manufactured by Venture Measurement Co., LLC in Spartanburg, South Carolina. Niagara Meters has produced flow meters for many industries since 1859 including agriculture, food & beverage, tobacco, mining, oil & gas, paper, petrochemical processing, plastics & rubber, pharmaceutical, as well as power generation.

Niagara Meters has been known for its robust and proven flow meter designs for over 150 years. Niagara Meters' technology has been in use with the US Navy and other government organizations, and to this day supplies flow meters for operation on naval ships. Niagara Meters is proud to be a company built on innovation and reliability for which the brand has become known.

Built to Last.

We build Niagara Meters products to withstand extreme environments and the toughest of industrial applications.



PROVEN MEASUREMENT FOR A WORLD OF APPLICATIONS

Application Expertise.

Niagara Meters' product offering includes Positive Displacement, Turbine, Magmeter, ForceMeter™, as well as Ultrasonic flow meters.

Niagara Meters' positive displacement flow meters are versatile in design and construction for measuring varying fluids. The turbine flow meter's durable design consists of one internal moving part and a sealed register to prevent condensation or fogging. Several registers and transmitters are available for both the positive displacement and turbine meters so the desired output can be selected for any application. The Magmeter is ideal for fluids that have particulates as there are no moving parts in the flow. The ForceMeter™ is designed for many applications and offers both an integral and remote transmitter. The ultrasonic solution can be used in both open channel flow and liquid level applications.

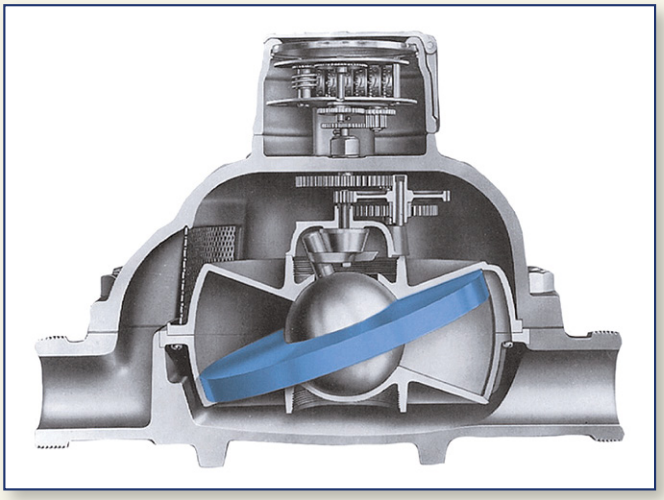
Our years of experience and range of products allow us to find the right solution for your application.

THE RIGHT FLOW METER FOR YOUR APPLICATION

Positive Displacement Meters

How the Nutating Disc Works

A nutating disc meter has a measuring chamber that contains a disc that nutates. The position of the disc divides the chamber into compartments containing an exact volume. Liquid pressure drives the disc to nutate causing the disc to make a complete cycle. The compartments are filled and emptied with each cycle. The movements of the disc are transmitted to a register/transmitter.



Nutating Disc Internal Mechanism

Register and Transmitter Options for Positive Displacement Meters:

There are a variety of register and transmitter options available that offer both electrical and mechanical solutions for totalizing and batching.

Benefits

- Accuracy of 1.5% of rate
- Cost effective
- No power required
- No straight run piping requirements

Nutating Disc with R10 Register

Specifications	
Line Size	0.75″ to 4.0″
Operating Pressure	Up to 5,000 psig (345 bar)
Operating Temperature	Up to 400° F (204° C)
Repeatability	± 0.25% of rate
Accuracy	± 1.5% of rate, 0.5% available
Turndown	Up to 20:1
Flow Range	Line size dependent
Power	Register/transmitter dependent
Approvals	Register/transmitter dependent

ROBUST FLOW METERS WITH A VARIETY OF REGISTERS

Positive Displacement Meters

How the Oscillating Piston Works

An oscillating piston meter has a measuring chamber that contains a piston that oscillates. The position of the piston divides the chamber into compartments containing an exact volume. Liquid pressure drives the piston to oscillate and rotate in the center hub. Each revolution of the piston hub is equal to a fixed volume of fluid. The movement of the piston is transmitted to a register/transmitter.

Register and Transmitter Options for Positive Displacement Meters:

There are a variety of register and transmitter options available that offer both electrical and mechanical solutions for totalizing and batching.

Benefits

- Accuracy of 0.5% of rate
- Cost effective
- No straight run piping requirements
- No power required

Oscillating Piston Meter with R15 Register

Specifications	
Line Size	1.0″ & 2.0″
Operating Pressure	Up to 275 psig (19 bar)
Operating Temperature	Up to 150° F (66° C)
Repeatability	± 0.1% of rate
Accuracy	± 0.5% of rate
Turndown	Up to 10:1
Flow Range	Line size dependent
Power	Register/transmitter dependent
Approvals	Register/transmitter dependent

Turbine Meters & Registers

How the WPX and MTX Turbines Work

Liquid enters the precision metering insert containing the turbine rotor. The liquid pressure drives the turbine rotor producing a rotation which is proportional to the volumetric flow rate. The rotor's movement is magnetically coupled to a hermetically sealed register/transmitter. There are a variety of register and transmitter options available.

MTX Meter

MTX Meter

WPX Meter

Benefits

- Long lasting
- Reliable with only one integral moving part
- Register seal prevents fogging or condensation
- Easy to service due to modular construction

Specifications	
Line Size	MTX Series 0.75″ to 2.0″ WPX Series 2.0″ to 8.0″
Operating Pressure	Up to 227 psig (15 bar)
Operating Temperature	Up to 250° F (121° C)
Repeatability	± 0.25% of rate
Accuracy	± 1.0% of rate
Turndown	MTX: up to 32:1 WPX: up to 55:1
Flow Range	Line size dependent
Power	No power required

LONG LASTING WATER METER WITH A VARIETY OF LINE SIZES

Magmeter

How the Magmeter Works

A controlled electromagnetic field is applied to the metering tube by way of externally mounted coils. The conductive fluid flowing through the magnetic field generates a voltage at the sense electrodes that is proportional to the velocity of the fluid. Grounding electrodes detect any ambient noise that may be present. Dual signal processing of the signals from the sense and ground electrodes result in noise cancellation, resulting in higher accuracy across a greater flow range. The processed signal is then converted to volumetric flow.

Maintenance Free

- No moving parts
- All welded construction
- No strainers needed
- No obstructions in flow tube
- No grounding rings required

Versatile

- ± 0.5% of flow rate
- Bi-directional flow
- Not impacted by fluid viscosity, temperature, or solids in the flow

NIST Traceable

Approved for Hazardous Locations

IP67 Protection

Multiple Signal Outputs

Specifications	
Line Size	0.5″ to 24″
Operating Pressure	Up to 232 psig (15 bar)
Operating Temperature	Up to 248° F (120° C)
Repeatability	0.1% of rate
Accuracy	± 0.5% of rate
Turndown	Up to 200:1
Flow Range	Line size dependent
Power	90 - 265 VAC 50/60 Hz
Approvals	FM

Magmeter

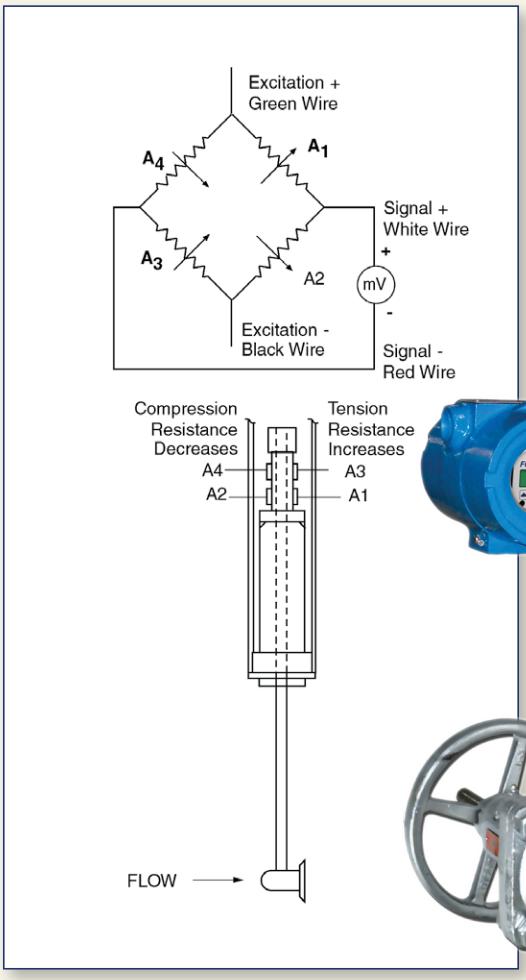
Ideal for conductive fluids and slurries.

PERFORMANCE & COMPETITIVE PRICE WITHOUT MOVING PARTS

ForceMeter™

How the ForceMeter™ Works

The ForceMeter™ is a liquid, steam or gas flow meter. The force of the fluid is sensed on the target in the flow stream using a hermetically sealed four-arm, bridge circuit strain gage. The transmitter converts the force to a 4-20mA output that is proportional to the flow rate.



Retractable Insertion

Rugged Design

- No frictional moving parts
- All welded construction
- Withstands thermal shock
- Hermetically sealed
- Bi-directional option

Easy to Service

- Calibration verification without a flow stand
- Simulation mode for testing
- Error and fault history stored

Ease of Use

- 2 Line display
- Removable display
- 4 Button operation
- HART™ compliant
- Loop powered

Approvals

- FM, CE

Approved for Hazardous Locations

ONE METER, MANY SOLUTIONS

ForceMeter™

About the Transmitter

The ForceMeter™ is designed with a transmitter that is offered for both remote and integral mounting conditions. The remote transmitter option allows the transmitter to be installed in desired locations. The transmitter can be configured in three unique ways. The meter can show rate and total, rate only, or total only. The ForceMeter™ also has HART™ compliant communication.

Transmitter Display

Inline

Specifications	
Line Size	0.5″ to 60″
Operating Pressure	Up to 10,000 psig (689 bar); limited by process connection
Process Temperature	-320° to 500° F (-195° to 260° C)
Transmitter Temperature	-13° to 185° F (-25° to 85° C)
Repeatability	± 0.15% of rate
Accuracy	± 1.0% of rate
Turndown	15:1
Flow Range	Line size dependent
Power	18 - 36 DC Loop powered
Approvals	FM, CE

RUGGED AND RELIABLE FOR LIQUIDS, GASES & STEAM

Ultrasonic Open Channel Flow

How the 5600 Works for Open Channel Applications

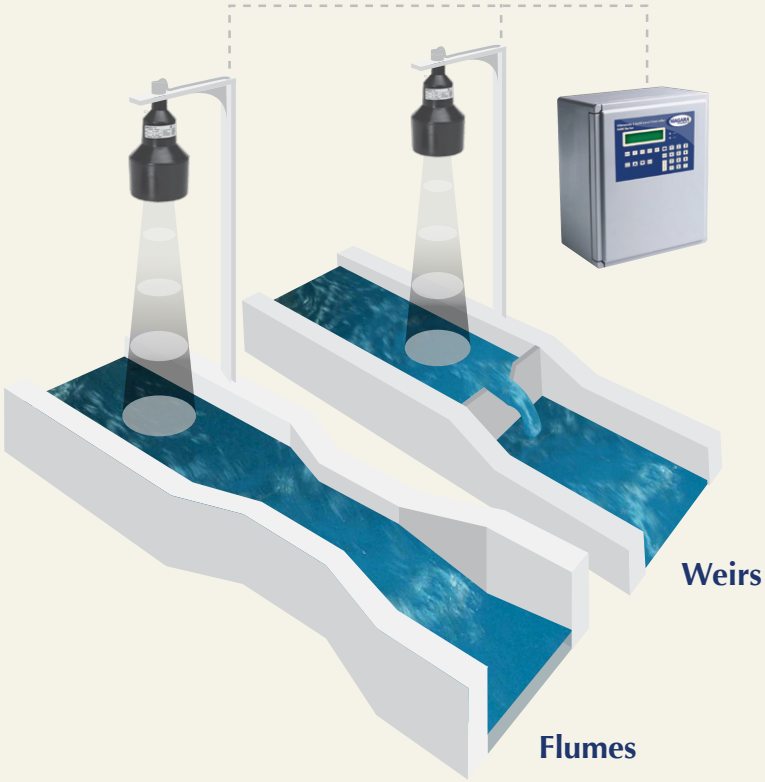
The 5600 Ultrasonic non-contact measurement system operates by transmitting an ultrasonic signal (sound wave) from the transducer to the surface of the liquid being measured. A reflection or echo is received, processed and the distance to the fluid is obtained. This distance, combined with the pre-programmed dimensions of the flume, weir or nozzle, is converted to flow.

Benefits

- Continuous and reliable measurement
- Accuracy of 0.25% of measured distance or 0.25" whichever is greater
- 4-20mA output and RS422, RS485 communication
- Sentry DSP™ offers stability even in noisy environments
- Each controller monitors up to 4 ultrasonic transducers

Approvals

- CSA, FM, CE



Specifications	
Power	110/230 VAC (±10%) 50/60 Hz, 24 VDC
Operating Temperature	-5° to 140° F (-20° to 50° C)
Storage Temperature	-22° to 140° F (-30° to 60° C)
Output	4-20mA, relay set points
Communication	Serial, Profibus

FLOW MEASUREMENT FOR FLUMES, WEIRS OR NOZZELS

Ultrasonic Level

How the 5600 Works for Level Applications

The 5600 Ultrasonic non-contact continuous level measurement system operates by transmitting an ultrasonic signal (sound wave) from the transducer to the surface of the liquid being measured. A reflection or echo is received, processed and the distance to the fluid is obtained. This distance, combined with the dimensions of the vessel, is converted to volume.

Benefits

- Continuous and reliable measurement
- Accuracy of 0.25% of measured distance or 0.25″ whichever is greater
- Measures distances up to 50 feet
- 4-20mA output and RS422, RS485 communication
- Sentry DSP™ offers stability even in noisy environments
- Each controller monitors up to 8 ultrasonic transducers

Approvals

- CSA, FM, CE

Specifications	
Power	110/230 VAC (±10%) 50/60 Hz, 24 VDC
Operating Temperature	-5° to 140° F (-20° to 50° C)
Storage Temperature	-22° to 140° F (-30° to 60° C)
Output	4-20mA, relay set points
Communication	Serial, Profibus

NON CONTACT CONTINUOUS LEVEL MEASUREMENT

NIAGARA® meters

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