

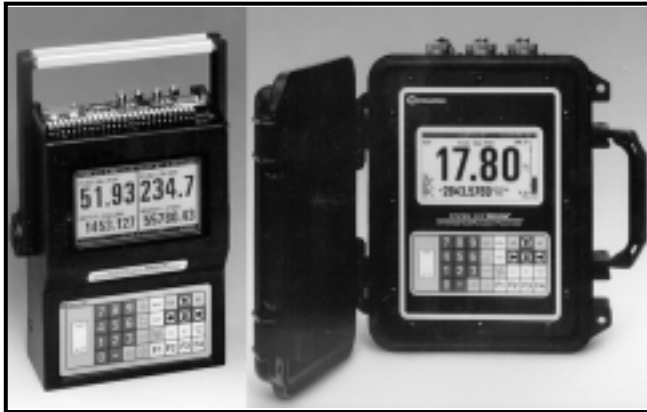


Advanced Test Equipment Rentals
www.atecorp.com 800-404-ATEC (2832)



Clamp-on Ultrasonic Flow Meter Family

Portable Clamp-On Multifunction Ultrasonic Flowmeter



Description

System 1010P/WP is a non-intrusive portable ultrasonic flowmeter which provides highly accurate measurements of liquid flow over a wide range of flow rates and liquid types. The 1010P/WP is capable of measuring volumetric flow, mass flow and HVAC thermal energy .

The Clamp-On Transducers used with the 1010P/WP support all pipes sizes. The Clamp-On method of transducer installation provides the advantages of easy installation, no cutting of the pipe, low maintenance and no pressure drop.

The 1010N/X accurately measures flow in all sonically conductive liquids. Having both Doppler and Transit-Time measurement techniques allow it's use on liquids ranging from deionized water to heavily aerated liquids.

Controlotron's portable flowmeters are packaged for rugged industrial environments. The 1010WP is submersible to 6 feet, the 1010P is smallest and lightest of the 1010 family.

Applications

System 1010P/DP provides accurate measurement of volumetric flowrates for a wide range of applications including:

- ◆ Batch totalization control
- ◆ Flow rate control
- ◆ Thermal Energy custody transfer
- ◆ Pump and valve monitoring
- ◆ Detection of aeration, entrained water, solids and gas in products

Common Performance Specifications

Typical Performance on 6 in. schedule 40 pipe

Flow Range ± 1-40 ft/sec

Liquid..... Any Sonically
Conductive
Liquid

Calibratable Accuracy 0.5%

Repeatability..... 0.15%

Slew Rate 80 ft/sec²

Zero Drift < 0.05 ft/sec

Response Rate (adjustable)

Time Damping 1-60 sec

Smart Slew 1 sec - 1 hr

Flow Computer

Operating Temp. Range..... 32°F -120°F

Battery life..... up to 24 hours

Maximum Liquid Temp...... 450°F

System 1010P, 1010WP Data Sheet

Input/Output Specifications

Specification	1010P/WP
Power	10.5 - 18.5 VDC
Digital Inputs	2 per channel
Digital Outputs ⁽¹⁾ (TTL level)	2 per channel
Analog Inputs (0-10volt) ⁽²⁾⁽⁴⁾	2 per channel
Analog Inputs (4-20mA) ⁽²⁾	2 per channel
Analog Output (4-20mA) ⁽³⁾	2 (user-powered)
Analog Output (0-10VDC)	2
Pulse Output (0-5KHz) ⁽³⁾	2
RTD Temp	2
RS232C	Up to 9600 bps

Notes:

- (1) Digital outputs assignable to flow rate alarm, temperature alarm, batch total, aeration alarm, fault
- (2) Analog inputs assignable to Temperature, Pressure, Viscosity, Specific Gravity
- (3) Analog outputs are rangeable & assignable to flow rate, sonic velocity, aeration indicator or signal strength
- (4) Not available on Portable Energy Meter

Description	P/N>>>>>	Portable Family												FlexTube Family											
		Clamp-On Flowmeters						Portable Thermal Energy						Portable Family											
		Compact			WeatherProof			Compact			Weatherproof			Compact			Weatherproof								
		1010P1	1010P2	1010P3	1010DP1	1010DP2	1010DP3	1010WP1	1010WP2	1010WP3	1010WDP1	1010WDP2	1010WDP3	1010EP1	1010EP2	1010EP3	1010EWP1	1010EWP2	1010EWP3	1010UFP1	1010UFP2	1010UFP3	1010UFD1	1010UFD2	1010UFD3
Single Channel, Dual Path		x	x	x				x	x	x				x	x	x				x	x	x			
Dual Channel					x	x	x				x	x	x				x	x	x				x	x	x
Dual Beam, Four Path					x	x	x				x	x	x				x	x	x						
Compact Portable		x	x	x	x	x	x							x	x	x				x	x	x	x	x	x
WeatherProof Portable								x	x	x	x	x	x				x	x	x						
Thickness/Flaw Gauge Operating System		x		x	x		x	x		x	x		x	x		x	x		x						
Reflexor Operating System		x		x	x		x	x		x	x		x	x		x	x		x						
RTD Operating System				x			x			x			x									x			x
RTD OpSys + Thermal Energy Operating System														x	x	x	x	x	x						
Clamp-On + FlowTube+Spool Operating System		x		x	x		x	x		x	x		x	x		x	x		x	x	x		x	x	
Clamp-On Transducers Operating System Only			x			x			x			x			x			x			x			x	
Standard Analog Outputs* (Io, Vo, Pgen)		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Upgraded Datalog/Site Memory (1 MByte)				x			x			x			x			x			x			x			x
Analog Inputs, [2x(4 to 20 mA)+2x(0 to 10VDC)]				x			x			x			x			x			x			x			x
Full Graphic Display (240x128 Pixels)		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10 TO 18 VDC, Portable's Power Supply		x	x	x	x	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x	x



POWER

HVAC

WATER

WASTEWATER

OIL & GAS

AEROSPACE

MILITARY

TRANSPORTATION

PROCESS CONTROL

PULP & PAPER

FOOD

SEMICONDUCTOR

CHEMICAL

PHARMACEUTICAL

TECHNOLOGY

WideBeam™ Technology differentiates Controlotron's ultrasonic flowmeters from all others by enabling the 1010N to precisely match the sonic characteristics of the installed pipe. It automatically adjusts its operating frequency to match the application's sonic waveguide properties by fine tuning its own performance. This allows for much greater accuracy and applicability range than other transit-time flowmeters. Other transit-time flowmeters simply take a "one size fits all" approach, without the ability to self-adjust for application conditions. WideBeam also enables the Zeromatic™ path feature, which is key to stable calibrations over the entire flow range.

FEATURES & BENEFITS OF SYSTEM 1010

FEATURE

BENEFIT

WideBeam™ Technology

High accuracy flow measurement even under widely varying application conditions.

Broadband Signal Transmission

Measures flow under severe application conditions including high levels of solids or bubbles.

Automatic Meter Optimization

Meter automatically self-adjusts settings to the specific application upon installation

Zeromatic™

Eliminates zero drift, allowing for the most accurate possible flow measurement, even at low flow. Stopping flow is not required for zero set.

Multifunction Flowmeter

Both Transit-Time and Doppler measurement techniques are combined in one instrument, providing the widest application range of all available flowmeters.

Multipath Measurement

Available in single, dual and four beam versions, offering the proper number of paths (2, 4, & 8) to meet the required accuracy for a given application.

Multichannel Capability

Available in single, dual and four channel versions providing economical approaches to meet budget requirements.

Meter and Application Data

Allows the user a true "window into the pipe" with diagnostic information for both meter performance and application conditions.

Extensive Display Capability

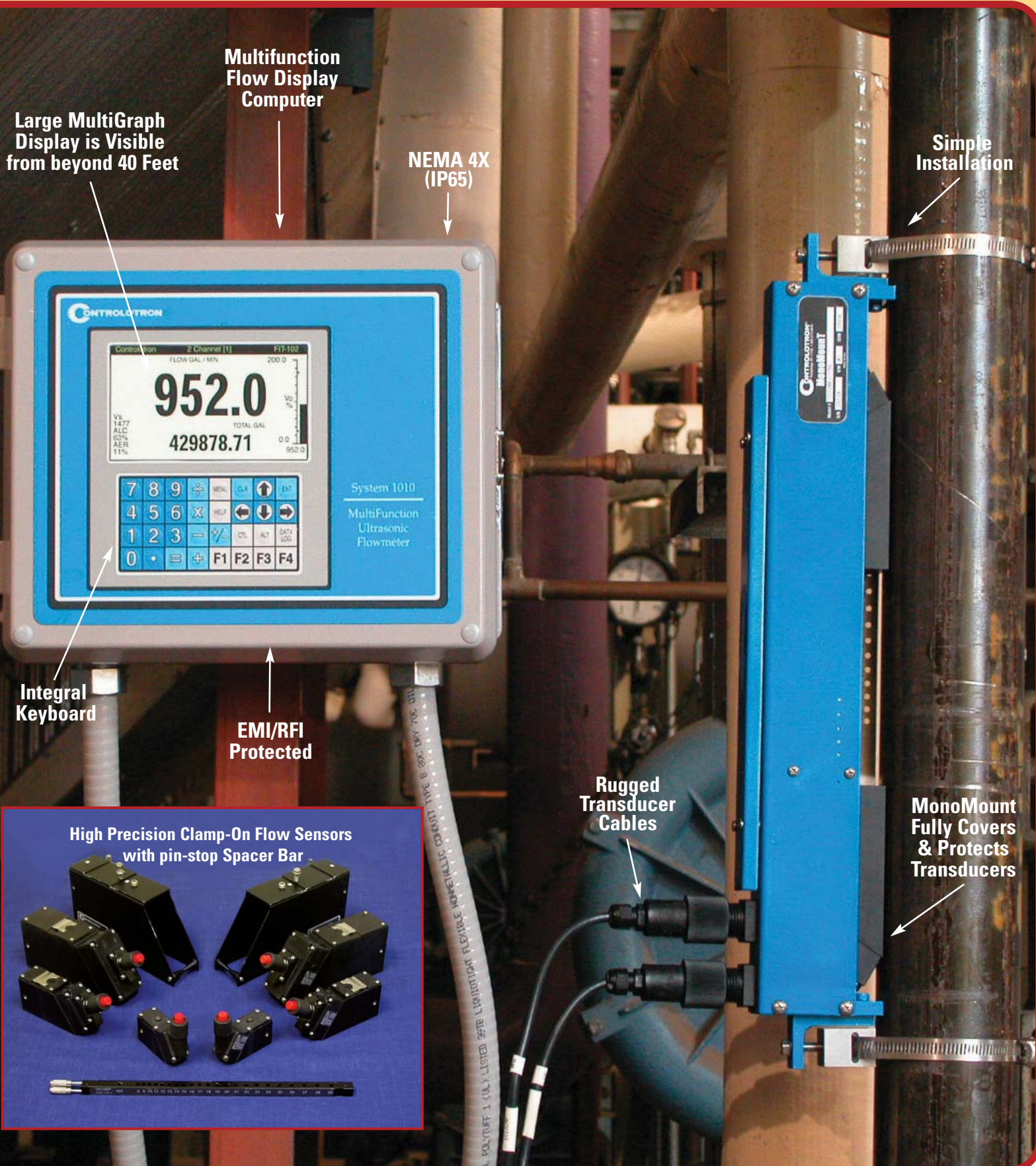
Easy to read graphic display for all measured and calculated variables and diagnostics.

Communication Protocols

RS-232, RS-485, Modbus, N2 & Ethernet capabilities to meet customers' communication requirements.

SYSTEM 1010 DEDICATED MULTIFUNCTION ULTRASONIC FLOWMETER

System 1010 is available in single, dual and four channel or path configurations. Available enclosures include both NEMA 4X (IP65) & NEMA 7 explosion proof. System 1010 is the only true multifunction ultrasonic flowmeter offering the award winning WideBeam™ Transit-Time and Reflexor (Doppler) measurement techniques.



Large MultiGraph Display is Visible from beyond 40 Feet

Multifunction Flow Display Computer

NEMA 4X (IP65)

Simple Installation

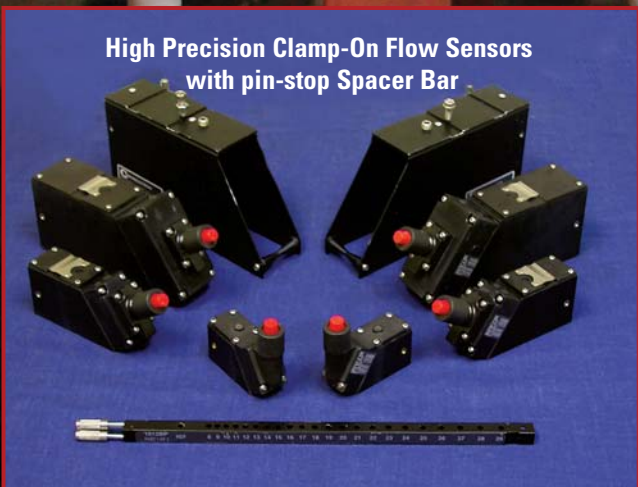
Integral Keyboard

EMI/RFI Protected

Rugged Transducer Cables

MonoMount Fully Covers & Protects Transducers

High Precision Clamp-On Flow Sensors with pin-stop Spacer Bar



SYSTEM 1010N FAMILY



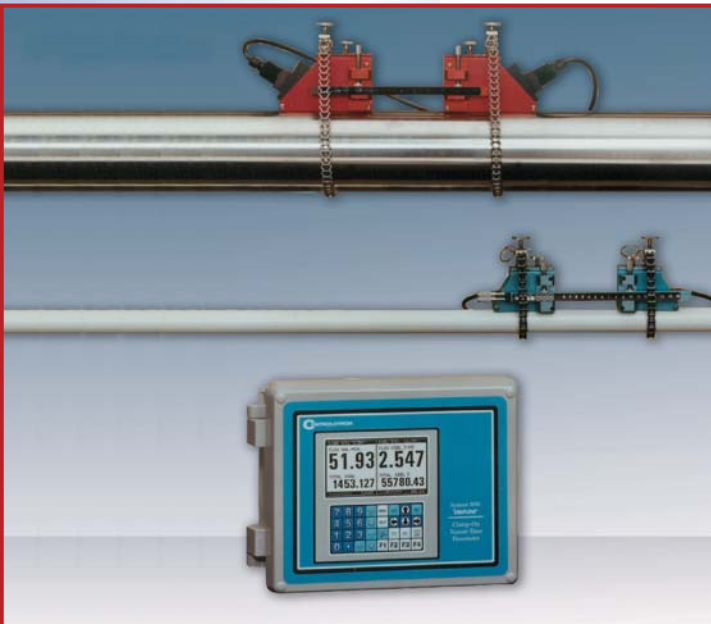
1010N Dedicated General Purpose Family

Easily installed without cutting pipe or stopping flow, these meters provide extremely accurate WideBeam™ Transit-Time ultrasonic flowmetering. They are suitable for essentially any liquid and are capable of operating even under high aeration conditions that usually require less accurate Doppler flowmeters.



1010MN Dedicated Four Channel/Path Flowmeter

1010MN is available for four channel or path applications. Four channels allow flow measurement of four independent pipe at one time, significantly reducing the overall cost of ownership. Four paths provide the best possible accuracy on installations with poor flow profiles due to limited pipe configuration.



1010DN Dedicated Dual Channel/Path Flowmeter

1010DN is available for dual channel or path applications. Dual channel allows flow measurement of two independent lines at one time, reducing the overall cost of installation. Dual path provides for improved accuracy on installations with poor flow profiles due to limited straight piping runs. Additionally, System 1010DN has the ability to utilize both Transit-Time and Reflexor (Doppler) operation at the same time on the same pipe for applications with significantly varying levels of entrained gases or suspended solids.



1010N Dedicated NEMA 4X Flowmeter

1010N dedicated Clamp-On Transit-Time Multifunction Flowmeter is also available with Reflexor (Doppler) capability for use on applications with a very high level of entrained gases or suspended solids. System 1010N is the only flowmeter available that offers these two operational modes in one device allowing the meter to be used on the widest range of applications.

SYSTEM 1010X FAMILY



**NEMA 7
Enclosure**

**Dual Beam
Enclosure Design**



**Rotatable
AlphaNumeric
Display Assures
Visibility**

Simple Setup Key

**Safety
Interface**

1010X Dedicated Explosion Proof Family

The entire 1010 product family is available with the necessary approvals (FM, CSA, ATEX, CEPEL) for installations into hazardous areas. System 1010X is a fully functional member of the 1010 family provided in a NEMA 7 explosion proof enclosure to meet hazardous area approval requirements or customer preference.

EXPERIENCE

Controlotron was founded in 1962 providing advanced measurement systems to the Industrial & Aerospace markets. With the introduction of System 240 in 1971, Controlotron offered the world's first industrial-grade clamp-on transit-time ultrasonic flowmeter. Through the years, as a result of extensive development efforts,

Controlotron established itself as the technology and market leader in the clamp-on ultrasonic flowmeter field. System 1010 is the sixth generation of Controlotron ultrasonic flowmeters, and has redefined the state-of-the-art for all flow measurement technologies.

INDUSTRIES

Heating/Ventilation/Air Conditioning

Power

Water

Wastewater

Hydrocarbon Processing & Pipelines

Processing

Aerospace

Semiconductor

Pulp & Paper

Automotive

And Many Others

APPLICATIONS

Chillers, condensers, hot and cold water systems, thermal energy rate and total, including billing

Nuclear, fossil, hydroelectric

Raw water, potable water, sludges and chemicals

Raw sewage, mixed liquor, sludges, effluent and chemicals

From crude oil to refined products, produced water, check metering, interface detection

Process control, batching, rate indication, volumetric and mass measurement

In-flight and ground support measurements

Process facilities, water and wastewater treatment

Paper stock, white and black liquors

On-board and test facility measurements

From 1/4 to 360 inch measurements, from ultrapure to solid laden and/or highly aerated liquids, from simple flowrate measurement to custody transfer billing applications



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