

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

CONTROLOTRON

System 1010 HANDSFREE Uniflow

Clamp-On Portable Multifunction Flowmeter



- Transit-time
- · Volumetric Flow
- · Mass Flow
- Pipewall Thickness Gauge
- Pipewall Flaw Gauge
- Reflexor Flowmeter
- Thermal Energy Flowmeter
- Liquid Analyzer
- Interface Detector

Controlotron's System 1010 MultiFunction Transit-Time Flowmeter

System 1010, the Most Powerful Ultrasonic Flowmeter Created
Since Controlotron Introduced the World's first Portable Transit-Time Flowmeter in 1972,
Offers the Ultimate in Wide Applicability, Accuracy, and Simplicity of Installation.

The key to 1010's extraordinary performance is Controlotron's exclusive MultiPulse Correlation Marker, which assures precise detection of Up/Down time difference and sonic propagation velocity, even under conditions of extreme turbulence and aeration. Controlotron's transducers are machined from ultrastable metallic or space age plastics to provide the ultimate in calibration stability.

Packaged for HandsFree use under the rugged application conditions you frequently encounter, 1010 is delivered complete with a convenient Soft CarryCase holding everything you'll need for field operation in new or previously visited Sites. Users of Controlotron's award winning System 990 will be pleased to know that System 1010 supports all previously purchased 990 transducer types, including Spool Sections and DFT InLine transducers.

MultiFunction Capability

System 1010 offers a choice of optional functions, which are frequently required in Portable Flowmeter applications. Basic **Single or Dual Path/Channel Volumetric Flow** measurement quickly converts to **Mass Flow** based on either 1010's ability to derive liquid density from the liquid's measured Sonic Propagation Velocity or from an external 4 to 20 mA density signal.

The built-in **Pipe Wall Thickness Gauge**, with resolution of .001" or .1mm, permits accurate Site Setup and performance. 1010's **Flaw Detection** capability identifies pipe defects which can affect meter operation and which could present a danger of future pipe leakage.

For applications involving liquids which contain considerable reflective matter or gas bubbles, 1010's built-in **Reflexor Flowmeter**, successor to the award winning Controlotron System 190, can be activated to obtain needed flow data.

1010 computes **HVAC Thermal Energy** from flow rate and heat exchanger temperature drop, measured via its **RTD** sensors. **Dual 4-20 mA analog data inputs** may be used to input pressure, density, temperature and viscosity data for special optional functions, when required.

What You'll Notice About 1010

1010 ain't no pocket computer! Considering its great computing power, its small size and weight are triumphs of computer design and rugged packaging. This assures long and reliable operation in the toughest industrial environments you may encounter.

You'll also see that when you turn 1010 on, it takes a few seconds before it starts to operate. During this short times, 1010 is going through a **Self Diagnostic** routine, making sure that its Site Setup is **Optimized** for the application's operating conditions to provide the best possible performance.

1010 MultiRange Transducer System

All pipes are actually **Sonic Waveguides**, each with a preferred range of operating frequencies, dependent only on the pipe material and wall thickness. While it would be most convenient to use only one transducer to measure flow on all pipes, this can only be done at the expense of the performance, and even operation under conditions frequently encountered in real applications, such as flow fluctuation and aeration. Therefore, Controlotron chooses not to offer a "Single Transducer" system.

However, System 1010 offers the best combination of convenience, performance and cost in its **WideRange Transducer** design. The Portable 1010 transducers are **broadbanded** to cover a wide frequency range to permit optimum operation on a wide range of different pipe wall thicknesses. Most users can measure flow on all their pipes with only one or two transducer sizes.

Extraordinary Performance

1010 provides 1% intrinsic accuracy, and can be flow calibrated to proved a Batch Total accuracy better than 0.1% for most applications. Such performance is made possible by Controlotron's time proved **Digitally Coded MultiPulse** transmit pattern, which assures accurate receive signal correlation even under conditions of high aeration and flowrate pulsation.

1010's fast response rate, slewing at over 20 ft/sec2 (6 m/sec2) permits detection of transient flow conditions or use in high-speed flow control applications. Controlotron's **SmartSlew** minimizes data scatter while permitting flow rate resolution up to 1/1000 ft/sec (0.0003 m/sec).

In those rare instances when liquid sonic conductivity is below transit-time requirements, 1010's **Reflexor** measures flow by detecting the sonic signals reflected from particulate or turbulent scattering sources. Reflexor's **Suppressed Carrier Demodulation** system makes it the most accurate system of this type available.

© Copyright 2000
Controlotron Corporation

Packaged for the Real World of Flowmetering For All Indoor and Outdoor Environments

All About Submersible System 1010WP Uniflow

Model 1010WP is designed for heavy industrial use, including operation in inclement weather or, with its door closed, in locations subject to flooding, such as pits and vaults. Its backlit 1 1/8 inch (28.6mm) character display can be seen from as far as 40 feet (12 meters), permitting **HandsFree** operation.

1010WP supports all standard and optional 1010 funtions, and provides a full day of normal operation on its internal SmartCharge battery, or up to 24 hours on the available Portable Battery. All accessories needed for fast installation in the field are carried in one small soft CarryCase.



System 1010WP MultiFunction Flowmeter

Rugged HandsFree Operation

System 1010's Portable Meters are packaged for the rugged industrial environments common to flowmetering applications. Both **HandsFree 1010P** and **Submersible 1010WP** are equipped with alphanumeric display characters 1 1/8 inch (28.6mm) high. This permits users to work HandsFree, and see the meter readings from as far away as 40 feet (12 meters).

The New State-of-the-Art in Clamp-O
Measures All Liquid - All pip

All About System 1010P Uniflow

Miniaturized Model 1010P is the smallest and lightest of the Portable 1010 Family, but large enough to support the 1 1/8 inch (28.6mm) high backlit character display for HandsFree operation. Its EasyTilt carry handle can be used to set the display at any convenient viewing angle. Designed primarily for use in light industrial environments, it can be used in extreme environments when operated inside its PeekaBoo CarryCase. Alternatively, the 1010P Flow computer can be located in safe areas as far as 1000 feet (300 meters) from its transducers.

1010P supports all standard and optional 1010 functions and provides a full day of normal operation on its SmartCharge internal battery, or on external battery or on any form of external power.

1010 provides a wide range of **Analog and Digital Data Outputs**, plus **Datalogging** to permit 1010 to temporarily replace any type of Dedicated Flowmeter which may be out of service for repair or calibration.



System 1010DP Dual Channel/Path MultiFunction Flowmeter

Data Outputs

- RS-232 Serial Port
- Two 4-20 mA and 0-10 VDC ports
- Two 0-5000 Hz pulse & RS-232 ports
- Optional **InfraRed** Communication
- Datalogger with storage of over 1000,000 time or event driven reports

Data Inputs

- RS-232 Serial Port
- Two 4 to 20 mA & 0 to 10 VDC ports
  - Temperature
  - Density
  - Pressure
  - Viscosity

PeekaBoo CarryCase

The System 1010 CarryCase holds everything needed for field operation in one light and easy to carry PeekaBoo case. No need to remove 1010P from its compartment. Simply open the Peekaboo Zipper to expose the large lighted display and keyboard, connect the transducer cables, and you're ready to operate. And in the case of inclement weather, simply Zip it up, and let it run.



n Portable Transit-Time Flowmetering
es - Any Flowrate - Anywhere

Simple FaStart Site Setup

FaStart Site Setup permits instant setup and operation by simply selecting the application's pipe size from 1010's internal Pipe Table. Use the predefined **Factory or User Default** settings, either in **English or Metric** units, or use the full Site Setup men to customize operation for any application requirements.

Recall any Site Setup by name from 1010's over **50 Site Station Memory Bank**. Also save even thousands of Site Setups on your PC for quick transfer to any of your 1010 flowmeters.

All About 1010's Thickness/Flaw Gauge

Controlotron's new **Pipe Wall Thickness Gauge** operates on a similar signal detection principle as the 1010 Flowmeter. This permits considerably higher resolution and repeatability than available from conventional amplitude based thickness gauge devices. Both numeric indication and screen display assure greatest accuracy.

By addition of a Controlotron flaw transducer, 1010 is operable as a **Pipe Wall Flaw Detector**. Sonic reflections originating at such flaws are displayed on the 1010 Graphic Screen with indication of size and location.

All About 1010's Reflexor Flowmeter

1010's Reflexor Flowmeter is an advanced form of Doppler Flowmeter, a successor to Controlotron's award winning System 190, Fast Fourier Transform **Spectra**. Since 1010's Transit-Time Flowmeter is capable of operating under highly aerated conditions which normally cause other transit-time instruments to fail, Controlotron offers Reflexor to be used only when application conditions are clearly beyond transit-time capability, such as in sand dredging operations.

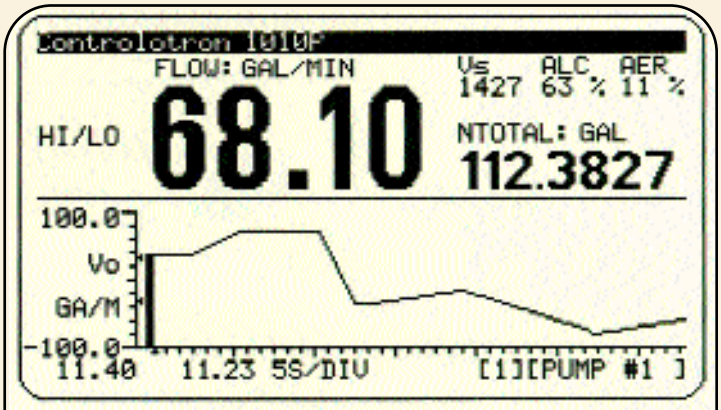
Rugged Industrial Grade Packaging

Both 1010{and 1010WP provide small, light **environmentally hardened packages** designed for the extreme conditions frequently encountered in industrial use. Choose either the **Miniaturized 1010P** or the **Submersive Weatherproof 1010WP Uniflow**. One soft case carries all you need for installation anywhere and anytime, fully protected even when thrown into your pickup.

Wide Choice of Data Display Screens

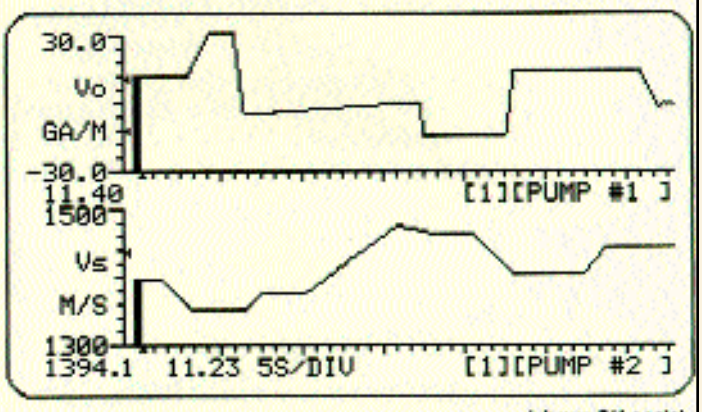
Both 1010P and 1010WP include the largest Dual Channel or Dual Path Graphic Display now available in any portable flowmeter, backlit for visibility from over 40 feet. Select **Digital, Stripchart or Hybrid** Display. Dual Channel Data may be mathematically added or subtracted if desired.

System 1010's **MultiGraph Display Screens** are patterned after the famous Controlotron System 990LD, now providing exquisitely accurate Leak Detection on major hydrocarbon pipelines all over the world. MultiGraph lets you compare various selectable data items against each other, in real time, so that you can see cause and effect relationships.



(shown 3/4 scale)

Hybrid Digital/Stripchart Screen



(shown 3/4 scale)

Dual Stripchart Multigraph Screen

Where Performance Begins: Controlotron Wide Range/ Wide Beam Transducers & Mounting Assemblies

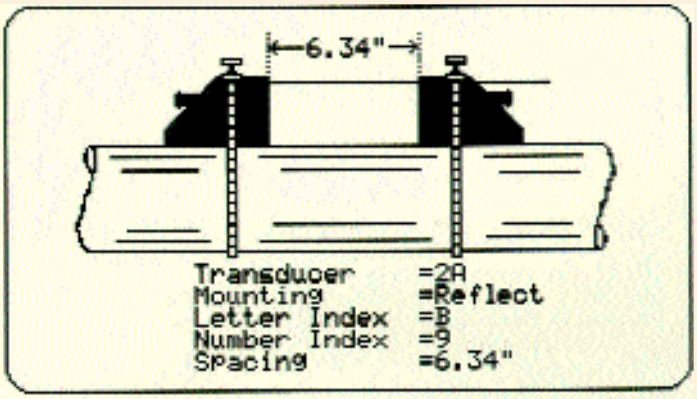
1010 Transducer Mounting Frames

System 1010 breaks from the practice of using rigid Mounting Tracks to clamp the transducers to the pipe. Since these tend to be long in proportion to the pipe's diameter, tracks are especially inconvenient in Portable Flowmeter Systems.

Controlotron's new **Mounting Frame** overcomes this by use of flexible **PinStop Index Strips**, which permit accurate location of transducers on the pipe, without the need for hard to see ruler measurements. Index strips roll up for convenient storage in the 1010 CarryCase.

Text and Graphic Help Screens

The **Onscreen Help** menu and **Graphic Screen Pictorials** show installers the proper transducer mounting. Selection of the applicable graphic piping configuration display automatically installs the correct calibration factor, even for installations near bends and elbows.



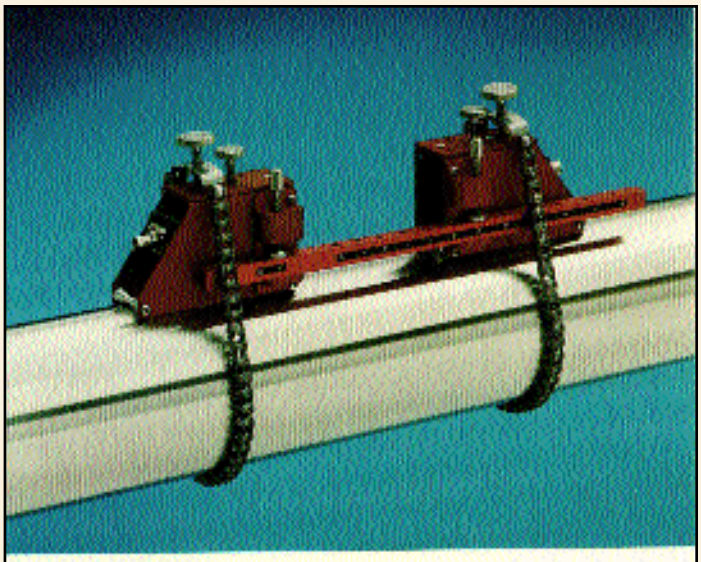
Typical Graphic Help Screen
(Transducers shown for clarity; recommended mounting is on side of pipe)

Communication and Factory Support

System 1010 has full featured RS-232 **Remote Menu Control**, permitting diagnosis and monitoring of operating conditions. This also allows direct **Controlotron Factory Support** in network, cable and dial-up modes. Portable 1010 models equipped with InfraRed communication can be used for Site Setup of economical Blind Dedicated 1010 Models.

Fast SmartCharge Battery

System 1010's internal battery is capable of supporting a full day of normal use. The internal **SmartCharge** System recharges the battery fully in the time it takes to have lunch. For extended use, consider Controlotron's external 24-hour portable battery.



Fast Mounting Frame Installation
(Transducers shown for clarity; recommended mounting is on side of pipe)

All About Controlotron Transducers

Controlotron assures accuracy by offering the most advanced transducer technology in the industry. All Controlotron **Wide Range** transducers are manufactured from extremely stable sonic materials, never from unstable potted epoxy. Most significant is Controlotron's patented **Wide Beam** technology, which assures operation even when the application's liquid had highly variable sonic properties, as in most hydrocarbon and compressed gas applications. And, 1010 supports all System 990 transducers, enabling owners of 990 systems to save additional transducer cost, while obtaining the most advanced performance available.

Controlotron also offers transducers for extreme temperature conditions, up to 450*F. Also available are DFT InLine transducers for Sanitary use and measurement of extremely low flow, as in additive control operations.

Long 1010 Transducer Cables Available

Application conditions for Portable Flowmeters are highly unpredictable. In many cases, the pipe to be measured is far from a safe and convenient location for operators, as in hazardous or submerged pipe locations. For that reason, System 1010 has been designed to handle transducer cables of **over 1000 feet (300 meters)**. Naturally, both submersible cables and transducers are available.

Most Experience in Clamp-On Transit-Time Flowmetering
Most Installations • Applications • Field Support

Industries and Applications

Controlotron Ultrasonic Flowmeters have been widely used in most industries and in most industrialized countries throughout the world since 1972. Typical industries serviced, and typical applications are listed below:

Hydrocarbon Pipelines and Refineries

- Pipeline Leak Detection/ Management
- Interface Detection
- Custody Transfer
- Inventory Control
- Liquid Type/Quality Identification

Municipal Water and Wastewater

- Portable Water
- Finished Water
- Effluent
- Return Activated Sludge
- Raw Water
- Primary Sludge
- Chemical Feed
- Waste Activated Sludge

HVAC Thermal Energy

- Efficiency Control
- Energy Billing
- Flow Balance
- Performance Proof

Chemical Processing

- Mass Flow
- Additive Feed
- OnLine Batching Control
- Mixing Control
- Process Control

Nuclear and Fossil Energy

- Feedwater Flow Measurement
- Fuel Consumption Control
- Cooling System Control
- Leak Detection
- InLine Meter Calibration Verification

Aerospace and Shipboard

- Fuel Consumption
- Nonintrusive Hydraulic System Test
- Trim/Drain Control
- Nonintrusive Pump/Valve Test

Paper and Pulp

- White Liquor
- Pulp Flow
- Black Liquor
- Additive Control

Food Processing

- Milk
- Wine
- Ketchup
- Additive Control
- InLine Meter Calibration
- Juice
- Peanut Butter
- Cooking Oils
- Batch Control

Pharmaceutical

- Additive Control
- Low Flow Rate Measurement
- Mix Ratio Control
- OnLine Batching Control

Semiconductor Production

- DI Water Flow Measurement/Control
- Solvents & Etchant Flow Control
- Acid & Base Flow Measurement

Automotive/Transportation

- Fuel & Hydraulic System Testing
- Cooling System Tests
- Tanktruck Loading Control

Ordering Checklist

For price and delivery quotation, check the functions and features desired, and contact either your local Controlotron representative, or call/fax this information direct to Controlotron.

Model Choice

❑1010P ❑1010DP (Dual Channel/Path)
❑1010WP ❑1010WDP (Dual Channel/Path)

Functions Required

❑ Transit-Time Flowmeter
❑ Thickness and Flaw Gauge
❑ Reflexor Flowmeter
❑ Thermal Energy Meter
❑ Mass Flow
❑ Hydrocarbon Interface Detector

Pipe Material

❑ Steel ❑ Other_____

Wall Thickness Range

Possible range: 0.025 inch min. to 3 inch max.
(0.635mm to 76.2mm)
Expected range: from _____ to _____ inch/mm _____

Pipe Diameter Range

❑ ¼ to 4" (6.35 to 100mm)
❑ 2 to 8" (50 to 200mm)
❑ 6 to 24" (150 to 500mm)
❑ 16 to 48" (400 to 1200mm)
❑ 42 to 360" (1, 060mm to 9meters)

Cable Requirements

Standard Submersible
Length:
❑ 20 feet (6 meters)
❑ 100 feet (30 meters)
❑ 250 feet (76 meters)
❑ _____feet/meters

Data Formats Required

❑ RS-232 Serial Port
❑ Dual 4 to 20 mA and 0 to 10 V
❑ Pulse Rate Output
❑ Alarm Relay Output
❑ Datalogger
❑ Analog Data Input (4 to 20 mA):
  ❑ Temperature
  ❑ Density
  ❑ Pressure
  ❑ Viscosity

Dedicated 1010 Family Compatibility

As in all other Controlotron system families, Portable 1010P and 1010WP are of design and function identical to Dedicated NEMA 4 (IP65) and NEMA 7 (EExd) System 1010 family members. Portable 1010P and 1010 WP Models can thus be used to demonstrate the performance to be expected of Dedicated 1010 Models.

All About Controlotron

Controlotron Firsts

Controlotron's leadership in non-intrusive Transit-Time flowmetering began in 1972, by being the first to successfully introduce a practical Clamp-On Transit-Time Ultrasonic Flowmeter. This leadership has been maintained by being the first to introduce a wide range of innovations which are now standards in the industry.

As a result, Controlotron now has the largest installed base of Clamp-On Flowmeters in the world, used in every industry and industrialized country. 1010 continues this tradition of leadership by achieving the new State-of-the-Art in Transit-Time technology.

- 1972 First Practical **Clamp-On Wide Beam Transit-Time** Flowmeter
- 1972 First **Portable** Flowmeter
- 1974 First **Dual Channel** Flowmeter
- 1974 First **Hybrid Transit-Time/Doppler** Flowmeter
- 1975 First **Clamp-On Thermal Energy** Flowmeter
- 1976 First **Four Channel** Flowmeter
- 1977 First **MultiPath Clamp-On** Flowmeter
- 1978 First **PinStop Mounted** Transducers
- 1979 First **Microprocessor Based Clamp-On** Flowmeter
- 1987 First **MultiPulse® Digitally Coded Transmit** Flowmeter
- 1995 First **Synchronously Demodulated Transit-Time** Flowmeter

Controlotron's innovations are protected under a number of United States and Foreign patents. Controlotron products meet a variety of international quality assurance standards, including ISO 9000 and CE requirements.

Test and Compare 1010 to Any Other Conventional or Ultrasonic Flowmeter

System 1010 was designed to be not only the best Transit-Time Ultrasonic Flowmeter, but also the best compared to any other flowmeter, regardless of type. Prove it for yourself by a **Head to Head** Test against any and all flowmeter types, under any application condition, such as pulsating, turbulent, aerated and non-homogeneous flow conditions. See how much extra performance 1010 offers, even under conditions in which other meters quit.

Contact your local Controlotron representative to arrange for a free OnLine test of System 1010.

Worldwide Support

Controlotron's customers are supported by a network of company offices, representative and distributors covering the entire world.

Corporate Headquarters
Hauppauge, NY

Domestic Office
Houston, Texas

Controlotron International Japan, Inc.
Osaka, Japan

Controlotron Europe GmbH
Munich, Germany

Controlotron de Mexico
Mexico City, Mexico

Controlotron Latin America Inc.
Brazil, Sao Paolo

Controlotron Middle East
Jubail, Saudi Arabia

To contact Representatives and Distributors throughout the world, please call or fax Controlotron in New York or visit our Website at www.controlotron.com

Your Local Representative/Distributor:

CONTROLOTRON®
155 Plant Avenue, Hauppauge, NY 11788

(631) 231-3600 Fax: (631) 231-3334
info@controlotron.com
www.controlotron.com

1010P-3
01/00

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP