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 **PANAMETRICS**



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**TRANSPORT® PT868**  
**PORTABLE LIQUID**  
**FLOWMETER**

# The TransPort Flowmeter, The Ultim

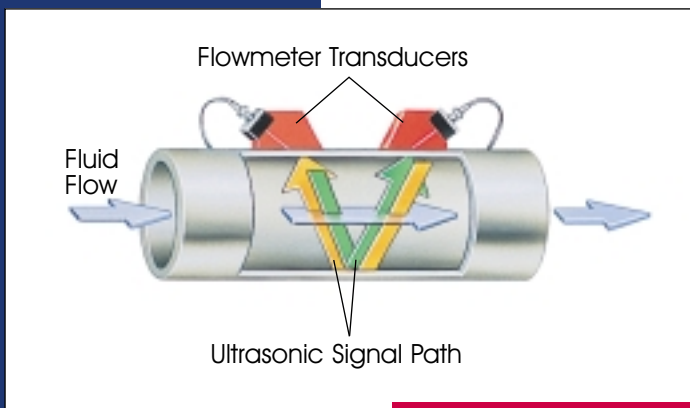
## The TransPort Flowmeter Uses The Transit-Time Flow Measurement Technique.

In this method, two transducers serve as both ultrasonic signal generators and receivers. When mounted on a pipe, they are in acoustic communication with each other, meaning the second transducer can receive ultrasonic signals transmitted by the first transducer and vice versa.

In operation, each transducer functions as a transmitter generating a certain number of acoustic pulses, then as a receiver for an identical number of pulses.

The time interval between transmission and reception of the ultrasonic signals is measured in both directions. When the liquid in the pipe is not flowing, the transit-time downstream equals the transit-time upstream. When the liquid is flowing, the transit-time downstream is less than the transit-time upstream.

The difference between the downstream and upstream transit-times is proportional to the velocity of the flowing liquid and its sign indicates the direction of flow.



*Transit-Time Flow Measurement Technique.*

**THE COMPLETE SOLUTION.** The Panametrics TransPort flowmeter system has everything needed to successfully perform clamp-on flow measurements in the field. Included in its microprocessor-based electronics are an ultrasonic thickness gage function (transducer optional) which accurately determines pipe wall thickness for proper setup of the transducers, and a waveform display function for troubleshooting.

Self-contained, built-in rechargeable batteries for up to ten hours of portable operation are standard, as are digital and analog outputs for data uploading and chart recording (a portable printer is optionally available). To calculate energy flow rates, the TransPort flowmeter comes with inputs for optional RTD temperature sensors.

The complete TransPort flowmeter system, including the meter, two transducers, clamping fixtures and all ancillary equipment, is contained in a durable carrying case about the size of a briefcase, perfect for easy transporting from site to site.

**ON-SITE DATA LOGGING LETS YOU TAKE IT ALL WITH YOU.** To complete the system, we've built in a powerful data logging function that can store up to 43,000 data points for later uploading to a personal computer. You can collect data in the field, then import it into

standard spreadsheet or Instrument Data Manager™ custom software for analysis and storage in your office. Instrument Data Manager software also permits operation and data retrieval remotely from a personal computer.

A separate memory function stores up to 20 sets of site parameters, eliminating the need to re-enter data when returning to a site for additional measurements. The meter can even be programmed to automatically begin and end measurements at predetermined times for unattended operation.

**AN ALPHANUMERIC AND GRAPHIC LIQUID CRYSTAL DISPLAY COMPLETES THE PICTURE.** This flowmeter's large, multifunction LCD presents measured data in both alphanumeric and



graphic forms. In addition, it helps make programming easy by presenting a software menu that walks you through data entry and function selection.

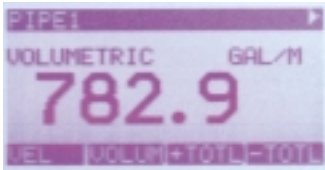
Standard alphanumeric functions include flow velocity, volumetric or energy flow rates and totalized flow in single or double line displays in either English (U.S.A.) or metric units.

In graphic mode, the LCD shows both real-time and logged data. The result is a chart recording right on the display; very useful for reviewing data and observing trends while on site.

**DIGITAL SIGNAL PROCESSING BRINGS HIGHER ACCURACY TO TWO-PHASE APPLICATIONS.** Panametrics' patented acoustic signal-coding technique extends the benefits of transit-time measurement to applications in liquids with higher concentrations of entrained solids or gas bubbles than was previously possible.

Digital signal-processing (DSP) and correlation detection increase this flowmeter's effective signal-to-noise ratio significantly.

# ate In Portability – From Panametrics.



*Volumetric Flow Rate.*



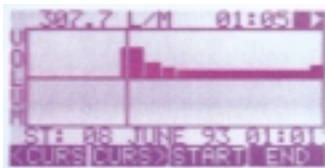
*Energy Measurement.*



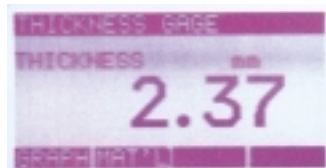
*Dual Display.*



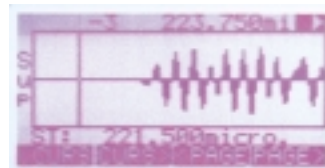
*Bidirectional Real-Time Graphic Display*



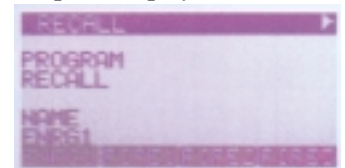
*Logged Data Display.*



*Pipe Wall Thickness Measurement.*



*Diagnostic Waveform Display.*

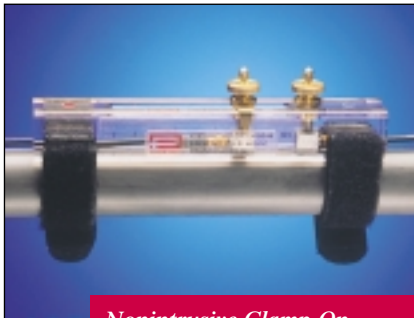


*20 Sets of Site Parameters.*

*Large Alphanumeric and Graphic Liquid Crystal Display (LCD) has Multiple Functions Including Measurement Display, Data Logging and Diagnostics.*

DSP also eliminates electronic drift adjustments. Now, the higher accuracy of the TransPort flowmeter is available for many applications where only less accurate meters could be used before.

**ACCURACY WITHOUT PENETRATING THE PIPELINE.** There's no longer any need to break into the pipeline to get accurate flow measurement. Now you can get it with a TransPort flowmeter.



*Nonintrusive Clamp-On Transducers Mean No Leaks, Corrosion or Contamination.*

This flowmeter's accuracy is typically 1/2 to 2% of reading. For greater accuracy, both clamp-on and wetted installations can be calibrated. With the TransPort flowmeter you get high accuracy without pressure drop or pipeline obstruction.

**SO VERSATILE YOU CAN USE IT ANYWHERE.**

The TransPort flowmeter lets you measure flow rate with a turn-down ratio of 400 to 1, in pipe sizes from 1/2 inch (12.7 millimeters) to more than 16 feet (5 meters), at temperatures up to 500°F (260°C). Use the TransPort flowmeter to measure the flow rate of potable water, effluent water, ultrapure liquids, and corrosive or erosive liquids, as well as to perform mass or energy balances in heating and cooling systems.

The TransPort flowmeter can also be used to troubleshoot other flowmeter installations. From pure water to crude oil, this meter does it all.

**QUICK AND EASY TO USE.**

It's possible to make your first flow measurement within minutes of opening the box. The TransPort flowmeter is that easy to use. Simply input the site parameters, clamp the transducers onto the pipe, adjust the spacing, and you're underway. No ancillary equipment is needed, and there's no need to break into the pipeline.

This flowmeter's software is menu driven. On-line help functions include pipe dimensions and sound speed data for various liquids and pipe materials. When needed, you can measure liquid sound speed and pipe wall thickness directly with the meter. An experienced user can make scores of different measurements in a single day. The TransPort flowmeter is ideal for all kinds of flow survey work.

**BUILT TO BE ECONOMICAL AND TO STAY ECONOMICAL.**

To be of real value, a portable flowmeter must be as economical to own and operate as it is capable in the field. Using the latest microcircuit and manufacturing technologies, the TransPort flowmeter is built to stay in service for many years. Completely solid state, the device never wears out or needs servicing, which means no downtime and no maintenance costs.

This flowmeter's state-of-the-art design is more economical to produce, and we pass the savings on to you. The TransPort flowmeter is affordable and will continue to save money by streamlining your measurement process and trimming labor costs.



*The Complete TransPort Flowmeter System Fits in a Compact Carrying Case.*

**The TransPort Flowmeter Uses Digital Signal Processing For Higher Accuracy In Two-Phase & Perfectly Clean Liquids.**

This flowmeter's patented digital signal-processing (DSP) technique greatly increases its signal-to-noise ratio for accurate, drift-free flow measurement in two-phase liquids containing entrained solids, liquid droplets or gas bubbles. The TransPort flowmeter operates in these and other difficult applications where conventional transit-time flowmeters fail.

The TransPort flowmeter also accurately measures flow rate in perfectly clean liquids containing no "scatterers," where Doppler-type flowmeters cannot work. The TransPort flowmeter is suited for all standard transit-time applications, plus many that would prevent other transit-time flowmeters from working.

Compared to Doppler-type ultrasonic flowmeters, the TransPort flowmeter is more accurate. That's because this flowmeter's transit-time method gives an actual measurement of the fluid velocity. Doppler-type ultrasonic flowmeters are less accurate because they measure the velocity of the moving particles in the fluid, not the average flow rate of the fluid. You no longer need a less accurate Doppler-type flowmeter for these "dirty" applications.

The TransPort flowmeter system offers all the superior performance of a technologically advanced transit-time flowmeter in a compact, lightweight, portable package.

# In Portability – From Panametrics.

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## Portable Flowmetering At Its Best.

The Panametrics TransPort Model PT868 flowmeter is a highly versatile, self-contained, portable transit-time liquid flowmeter system. Measuring only 5 × 9 × 2.3 inches (12.7 × 22.9 × 5.8 centimeters) and weighing only 2.2 pounds (1 kilogram), the TransPort flowmeter is small, lightweight and easy to use. Its compact size and hand-held design make it the ideal go-anywhere flowmeter.

Using clamp-on transducers, the TransPort flowmeter measures flow rate through metal, plastic, or even concrete-lined pipes, without penetrating the pipe wall. From ultrapure water to corrosive and toxic liquids, the TransPort flowmeter assures non-contaminating, leak-free measurement with drift-free accuracy. The TransPort flowmeter has no moving parts to wear or orifices to clog. It can't be fouled, and it never needs regular maintenance.

This flowmeter's large LCD displays flow velocity, volumetric and energy flow rates, as well as totalized flow and trend data in alphanumeric and graphic formats. A battery power supply, nondestructive pipe wall thickness gage and powerful diagnostic functions are all built-in for total portability.



***THE METER THAT DOES IT ALL.***

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## INDUSTRIES:

### AEROSPACE

### AGRICULTURE

### ENERGY MANAGEMENT:

- Hot Water • Chilled Water

### FOOD & BEVERAGE

### MANUFACTURING

### MEDICAL

### PETROCHEMICAL:

- Refining • Chemical Processing
- Process Control

### PHARMACEUTICAL

### POWER:

- Fossil Fuel • Nuclear • Hydroelectric

### PULP & PAPER

### SEMICONDUCTOR MANUFACTURING:

- Ultrapure Liquids • De-ionized Water

### SEWAGE TREATMENT

### WATER & WASTEWATER MANAGEMENT

## TYPICAL APPLICATIONS:

### ACIDS

### CORROSIVE, EROSIVE & TOXIC LIQUIDS

### CRYOGENICS:

- Argon • LPG • Nitrogen

### PETROLEUM PRODUCTS:

- Benzene • Crude Oil • Ethylene • Fuels
- Heating, Lubricating Oil • Propane
- Solvents • Xylene

### POTABLE WATER

## USES:

- Balancing Systems • Batching • Billing/Accounting • Check Metering
- Cooling • Efficiency Studies • Flow Surveys • Heating • Large Pipes
- Leak/Rupture Detection • Pollution Control • Process Control
- Small Pipes

# PANAMETRICS

## MAIN OFFICES:

ISO 9001  
CERTIFIED



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