Portable Transit Time Flow Meter

for Accurate Flow Measurement from Outside a Pipe

New!

Portable Ultrasonic Flowmeters

Models PT400 & PT500

Measure Flow of Clean Fluids in Full Pipes with Non-contacting Ultrasonic Sensors

Accurate Flow measurement of Clean Fluids from Outside Plastic or Metal Pipes

Clamp-on Ultrasonic Sensors

Recommended for clean fluids like water, glycol, oil and most chemicals. Portaflow ultrasonic sensors strap-on the outside of pipes from 1/2" to 78" (13 to 2000 mm) diameter. The ultrasonic signal penetrates all common metal and plastic pipe materials. Sensors can be mounted without shutting down flow and there is no obstruction or pressure drop.

Simple Calibration System

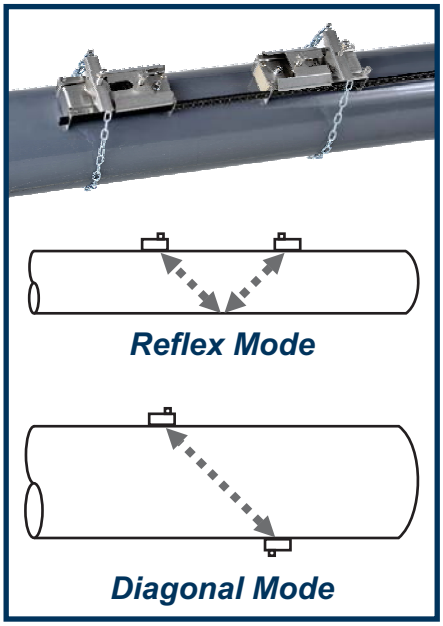
Calibration is easy with the onscreen menu system. Enter the pipe diameter, wall thickness and pipe material, and the Portaflow indicates the optimum mounting method and separation distance for the sensors. Calibration parameters can be stored for up to twenty different sites so that operators can recall calibration setups from the Portaflow memory.

GREYLINE instruments inc.

The Portaflow is powered by an internal, rechargeable NiMH battery or can be operated continuously with AC power input. Use it for spot checks or for extended operation as a 4-20mA flow transmitter. Each Portaflow includes a carrying case, transducer set, mounting track, cables and accessories.

Portable Ultrasonic Flowmeter

Non-Invasive with Clamp-on Sensors for Spot Checks, Troubleshooting and to Balance Flow



Sensor Mounting

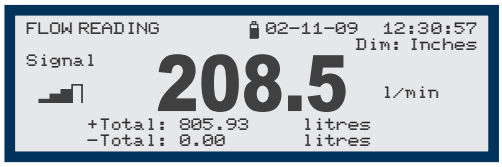
Portaflow transducers can be mounted on vertical or horizontal pipe. The pipe must be full.

Choice of “Reflex” or “Diagonal” operating modes depends on the application and pipe diameter. Through the calibration menu you are prompted to enter: pipe OD, pipe wall thickness and lining thickness, pipe material, fluid type and temperature. Once these values are entered into the calibration menu, the Portaflow indicates the transducer mounting mode and correct sensor separation distance.

In most applications Reflex mode mounting will be used for pipes 10" (250 mm) diameter or less, and Diagonal mounting will be used for pipes greater than 10" (250 mm) diameter.

Each Portaflow includes stainless steel clamps and a guiderail for easy mounting. Sensor separation distance can be adjusted, and sensors can be extracted and remounted without removing the guiderail or clamps. An acoustic gel (supplied) is used between the sensors and the outside of the pipe to ensure that sound is conducted from the sensors through the pipe wall.

Large Display with User-friendly Calibration Menu



Flow rate and total flow are displayed continuously along with battery status, signal strength, plus any error messages. Press one key to instantly change the units of flow measurement (eg. from gallons to litres). Real time flow can be displayed in large numeric values or as a graph.

Calibration is easy with the Portaflow menu system. Use the “Quick Start” menu to enter pipe OD, wall thickness, pipe material, fluid type and temperature. The flowmeter will prompt with the correct mounting method and sensor separation distance and begin reading flow as soon as the sensors are mounted.

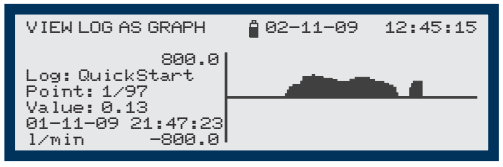
Measures, Totalizes and Transmits Flow in both Directions

Forward flow is displayed on the Portaflow as a positive value and reverse flow is shown as a negative value. Separate 12-digit totals for both forward and reverse flow are also displayed. The 4-20mA output can be configured with 4mA as zero flow, or with 4mA as a negative value and 20mA as a positive value.

Stores Calibration Set-up for Multiple sites

Calibration data can be stored for up to 20 different sites or applications. If you regularly return to the same pipe location for flow readings, this is a real time-saver. You can enter a site name and all your calibration parameters are automatically saved. When you return to that pipe location, simply recall the site name/number from the set-up menu, mount the sensors and start reading flow.

Built-in Data Logger (PT500 only)



Stores up to 98,000 data points at programmable intervals from 5 seconds to 1 hour. Scroll through stored data or view log files as a graph on the PT500 display. Use the USB or RS232 output to download log files to your PC for analysis and printing. Log files can be saved as text files and imported into database or spreadsheet programs like Microsoft Excel.

4-20mA Output

Connect the Portaflow to external displays, recorders, data loggers or controllers. Install sensors without cutting pipe so you can use the Portaflow as a spare or emergency transmitter when in-line flow meters fail. The analog output can be configured for 4-20mA or 0-20mA signal output.

PT500

Portaflow PT500

with Data Logger and Sensors for a Wide Range of Pipe Sizes

With two pairs of Transducers, the PT500 works on a wide range of pipe sizes from 0.51 to 78” (13 to 2000 mm) pipe diameters. It includes a 98,000 point data logger with USB and RS232 outputs.

The simple, quick-start calibration system calculates sensor separation distance based on pipe diameter and pipe wall material. Flow is displayed in your choice of engineering units. Data can be stored in selectable intervals from 5 seconds to 1 hour and displayed on the instrument in text or graph format.

The PT500 includes a watertight IP67 rated carrying case with foam padded compartments for the flowmeter components. Compact, rugged and reliable, the PT500 is designed for accurate performance in a wide range of industrial applications and environments.

Portaflow PT400

Select ‘A’ or ‘B’ Sensor Pairs for Small or Large Pipe Sizes

Order with ‘A’ Transducers for 0.51 to 4.5” (13 to 115 mm) outside diameter pipes, or ‘B’ size for 2 to 39.4” (50 to 1000 mm) pipes. Use it on any solid metal or plastic pipe material.

The PT400 displays, totalizes and transmits with isolated 4-20mA and programmable pulse outputs. The rechargeable NiMH batteries will power the unit for 16 hours continuous operation and charges overnight.

PT400

It takes just a few minutes to install the Transducers and measure flow from outside the pipe. Measure flow in volumetric units (gallons or liters) or switch to velocity units (ft/sec or m/sec) with a single key press. Forward and reverse flow is displayed and totalized on the large, backlit display.

Operate the PT400 or PT500 from internal NiMH batteries or continuously with the 110-240VAC charger supplied. Signal strength and battery state is displayed. Select from 9 menu system languages including English, Spanish, French, German and Russian.

PT500 - SPECIFICATIONS

General Specifications

Greyline Portaflow PT500 Portable Transit Time Flow Meter with Two Transducer Pairs and Data Logger

Fluid/Application:	Recommended for clean liquids with less than 2% solids or gas bubbles
Flow Rate Range:	0.65 to 40 ft/sec (0.2 to 12 m/sec)
Pipe Size:	'A' Transducers - 0.51" to 4.5" Outside Diameter (13 mm to 115 mm) 'B' Transducers - 2" to 78" Outside Diameter (50 mm to 2000 mm)
Pipe Wall Thickness:	0.039 - 2.95" (1 - 75 mm)
Pipe Materials:	Any sonic conducting material including carbon steel, stainless steel, PVC, PVDF, fiberglass, galvanized steel, mild steel, glass, copper, brass and pipes with bonded liners including epoxy, rubber and Teflon
Display:	Backlit 64 x 240 pixel LCD. Displays flow rates in m^3, liters, or gallons (per minute or hour), and flow velocity in feet per second or meters per second. Displays positive and negative flow and data log files in graphic or text modes.
Menu Languages:	English, French, German, Italian, Spanish, Portuguese, Russian, Norwegian, Dutch, Swedish, Polish
Totalizer:	12 digits - displays separate forward and reverse flow totals
Power Input:	Built-in rechargeable NiMH battery powers the Portaflow for 16 hours continuously. The external charger operates from 90-264 VAC power input
Outputs:	0/4-20mA, 5V pulse (1 pulse/sec maximum) RS232 and USB for data transfer to a Windows PC
Data Logger:	programmable, 98,000 data point capacity, time and date stamped values. Download to a PC or display onscreen
Electronics Operating Temperature:	32° to 122°F (0° to 50°C). Storage Temperature: 14° to 140°F (-10° to 60°C)
Electronics Enclosure:	rated IP54, ABS portable
Carry Case:	rated IP67 with protective molded foam insert
Accuracy:	±2% of reading in most applications, Repeatability: ±0.5%
Calibration:	Built-in 16-key programming with user-friendly calibration menu. Stores calibration parameters for up to 20 different sites.
Approvals:	CE (conforms to BS EN 61010, BS EN 61326 - 1:2006, BS EN 61326-2-3:2006). Charger is CE and UL approved. The Portaflow PT500 is *not* certified for use in hazardous rated locations.

Sensor Specifications

Includes <u>both</u> A and B Transducer Pairs

Transducer Pair PT-A:	2MHz - Clamp-on 0.51" to 4.5" (13 to 115 mm) pipe O.D.
Transducer Pair PT-B:	1MHz - Clamp-on 2" to 78" (50 to 2000 mm) pipe O.D.
Transducer Mounting Kit:	Includes set of stainless steel guiderails and coupling compound
Operating Temperature:	-4° to 275°F (-20° to 135°C)

Dimensions

Transducers:	2.4" x 1.2" x 1" (60mm x 30mm x 25mm)
Handheld Electronics Enclosure:	10.4" x 6.6" x 2" (264mm x 168mm x 50mm)
Carry Case:	16.2" x 13.4" x 8.5" (410mm x 340mm x 215mm)

PT400 - SPECIFICATIONS

General Specifications

Greyline Portaflow PT400 Portable Transit Time Flow Meter with One Transducer Pair

Fluid/Application:	Recommended for clean liquids with less than 2% solids or gas bubbles
Flow Rate Range:	0.65 to 40 ft/sec (0.2 to 12 m/sec)
Pipe Size: (select A or B Transducers)	'A' Transducers - 0.51" to 4.5" Outside Diameter (13 mm to 115 mm) 'B' Transducers - 2" to 39.37" Outside Diameter (50 mm to 1000 mm)
Pipe Wall Thickness:	0.039 - 2.95" (1 - 75 mm)
Pipe Materials:	Any sonic conducting material including carbon steel, stainless steel, PVC, PVDF, fiberglass, galvanized steel, mild steel, glass, copper, brass and pipes with bonded liners including epoxy, rubber and Teflon
Display:	Backlit 64 x 240 pixel LCD. Displays flow rates in m^3, liters, or gallons (per minute or hour), and flow velocity in feet per second or meters per second. Displays positive and negative flow and data log files in graphic or text modes.
Menu Languages:	English, French, German, Italian, Spanish, Portuguese, Russian, Norwegian, Dutch, Swedish, Polish
Totalizer:	12 digits - displays separate forward and reverse flow totals
Power Input:	Built-in rechargeable NiMH battery powers the Portaflow for 16 hours continuously. The external charger operates from 90-264 VAC power input
Outputs:	0/4-20mA, 5V pulse (1 pulse/sec maximum)
Data Logger:	Not available (see model PT500)
Electronics Operating Temperature:	32° to 122°F (0° to 50°C). Storage Temperature: 14° to 140°F (-10° to 60°C)
Electronics Enclosure:	rated IP54, ABS portable
Carry Case:	Polypropylene with protective molded foam insert
Accuracy:	±2% of reading in most applications, Repeatability: ±0.5%
Calibration:	Built-in 16-key programming with user-friendly calibration menu. Stores calibration parameters for up to 20 different sites.
Approvals:	CE (conforms to BS EN 61010, BS EN 61326 - 1:2006, BS EN 61326-2-3:2006). Charger is CE and UL approved. The Portaflow PT400 is *not* certified for use in hazardous rated locations.

Sensor Specifications

Select A or B Transducer Pairs

Transducer Pair PT-A:	2MHz - Clamp-on 0.51" to 4.5" (13 to 115 mm) pipe O.D.
Transducer Pair PT-B:	1MHz - Clamp-on 2" to 39.37" (50 to 1000 mm) pipe O.D.
Transducer Mounting Kit:	Includes set of stainless steel guiderails and coupling compound
Operating Temperature:	-4° to 275°F (-20° to 135°C)

Dimensions

Transducers:	2.4" x 1.2" x 1" (60mm x 30mm x 25mm)
Handheld Electronics Enclosure:	10.4" x 6.6" x 2" (264mm x 168mm x 50mm)
Carry Case:	19.7" x 16.5" x 5" (500 x 420 x 125 mm)

Portaflow Portable Ultrasonic Flow Meter for Clean Fluids in Full Pipes

Non-Contacting - Measures Flow from Outside the Pipe

Recommended For:

- potable water
- river water
- cooling water
- demineralized water
- water/glycol solutions
- hydraulic oil
- diesel and fuel oils
- chemicals

Portaflow PT400-500 are ideal to measure flow rate of clean, non-aerated fluids in full pipes. Works best on fluids that have less than 2% particulate or gas bubbles.

How it Works

The PORTAFLOW is a Transit Time ultrasonic flow meter. It measures flow by injecting sound from a transmitting sensor, through the pipe wall into the flowing liquid and then to a receiving sensor. The elapsed time between transmitted and received signals is very precisely calculated by the flow meter.

Then the sensors trade functions. The original receiving sensor now becomes the transmitting sensor and the ultrasonic signal is transmitted in the opposite direction. Again the elapsed time between transmitted and received signals is calculated.

The transit time in the direction of flow is faster than the transit time against the flow. By comparing these time differences the PORTAFLOW is able to accurately calculate the flow rate. Because the ultrasonic signal is forced to cross the pipe, an average of the flow profile is calculated. So compensation for laminar or turbulent flow is automatic.

The Portaflow Transit Time flow meter is designed for clean, non-aerated liquids (<2% by volume). High concentrations of solids or gas bubbles will attenuate the ultrasonic signal and sound will not be able to cross the pipe. A Greyline Doppler-type flow meter is recommended for applications with solids or bubbles (eg. wastewater or slurries).

How to Order

Contact a Greyline sales representative in your area or phone one of our sales engineers. Describe your requirements and receive our prompt quotation.

Applications Support

Take advantage of Greyline's applications experience. Phone toll free 1-888-473-9546 for advice and information on applications, installation or service for Greyline instruments.

No Risk Appraisal

PORTAFLOW Transit Time Flow Meters must meet your requirements. Discuss your application with a Greyline representative to arrange a performance test.

The Greyline Guarantee

Quality of Materials and Workmanship - Each instrument manufactured by Greyline is warranted against defects in materials and workmanship for a period of one year from date of purchase. Refer to our limited warranty included with each product.

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RELIABLE MEASUREMENT AND CONTROL