



## **PORTAFLOW D550** **Non-Contacting** **Doppler Flow Meter**

# **Portable Flow Meter for Dirty or Aerated Liquids Troubleshoot Flow from Outside a Pipe.**

Use a PF D550 Portable Doppler Flow Meter to monitor and balance flow, or to troubleshoot flow problems in full pipes. It is ideal to evaluate performance of in-line flow meters and can be installed, calibrated and started-up in minutes. Use it for projects where a permanent flowmeter is not required or to temporarily replace installed flow transmitters.

The PF D550 ultrasonic sensor is clamped on the outside of a pipe. An acoustic pulse is reflected back to the sensor from particles or gases in the flowing liquid. The flow rate of any fluid can be measured as long as it contains air bubbles or solids. It is ideal for wastewater, slurries, sludge and most chemicals, acids, caustics and lubrication fluids. With its internal battery the PF D550 can be operated all day and then recharged overnight. For continuous use it can be powered by a supplied 110-240VAC wall plug adapter. A 300,000 point data logger is built-in.

- **Simple 5-key Calibration**
- **300,000 Point Data Logger**
- **4-20mA Output**
- **10-Digit Totalizer**
- **AC/DC Operation**
- **Built-in Rechargeable Battery**

- **Displays, Datalogs  
Transmits and Totalizes  
Flow in Closed Pipes**
- **Fast, Easy Flow  
Measurement  
with Non-Contacting  
Ultrasonic Sensor**
- **Versatile, Easy to Use**
- **Ideal for Problem Liquids**



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## Solve Flow Problems

### Troubleshoot and Balance Flow Check Performance of Pumps or other Flow Meters

#### Quick, Easy Flow Measurements from Outside a Pipe

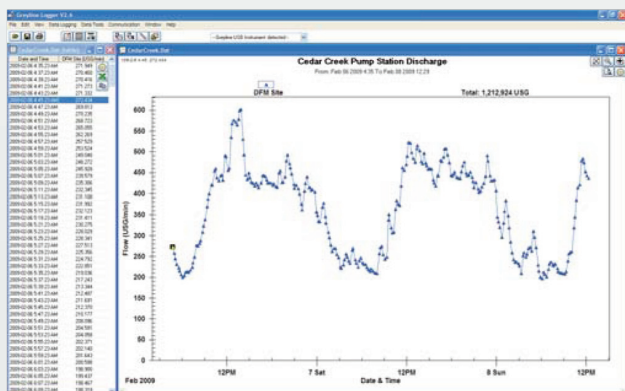
Each PF D550 comes complete with rugged watertight carry case, strap-on sensor and stainless steel mounting kit. Use the simple 5-key menu system to select units of measurement and to calibrate to any pipe diameter 12.5 mm (½") or larger.

#### Simple Start-up and Calibration

Sensor mounting and a full calibration can be done in just a few minutes. It is fast and easy! Put coupling compound gel (included) on the sensor face and mount the sensor on the outside of a pipe with the stainless steel mounting bracket (supplied). Use the five-key calibration system to enter pipe diameter and to select your choice of engineering units (gallons, litres etc.) The PF D550 will immediately begin to display, transmit and totalize.

#### No Calculations - No Programming Codes

Select your choice of display units: the PF D550 will display and totalize flow volume in gallons, litres, cubic feet or cubic metres. If you change from one measurement system to another, the PF D550 will automatically and instantly calculate and convert the flow display and totalizer. Calibrate to the pipe size using the keypad to enter inside diameter.



#### Built-in 300,000 Point Datalogger and PC Software

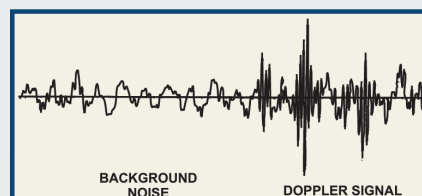
Set up the PF D550's data logger to store time and date stamped flow values from 10 second to 5 minute intervals. Or use the convenient 'Flow Report' format where total, minimum, maximum and average flow rates are stored in your choice of hourly or daily summaries. Transfer flow logs to your PC or laptop through the PF D550's USB output. Logger software (included) displays data in both graph and table formats and exports to graphic or text file formats for use in other programs.

#### "Sleep Mode" for Extended Data Logging on Battery Power

Sleep mode extends battery life for long-term data logging at locations where AC power input is not available. Between logging intervals the flowmeter drops into a stand-by mode until a flow reading is requested by the data logger. Flow rates are sampled continuously for 10 seconds and then the PF D550 returns to sleep until the next logger point is required. With 5 minute sample intervals the PF D550 can data log for about 18 days on battery power.

#### New Signal Processing for Reliable Accuracy

The PF D550 Doppler flow algorithm filters out background noise and interference. The high speed digital signal processor discriminates against weak and distorted signals. When the processor cannot measure accurately the meter will display zero flow and indicate low signal confidence.



#### Battery Powered for a Full Day's Work

With its built-in NiMH rechargeable battery, you can operate the PF D550 up to 18 hours continuously. Display brightness is adjustable to conserve power. Plug into an AC outlet (100-240VAC 50/60Hz) to activate the 4-20mA output and to recharge fully in 6 to 8 hours. You can continue to use the PF D550 while charging.

# PORTAFLOW D550 Specifications

## General Specifications PORTAFLOW D550 Portable Doppler Flow Meter

<b>Flow Rate Range:</b>	$\pm 0.03$ to 12.2 m/sec ( $\pm 0.1$ to 40 ft/sec) in most applications
<b>Pipe Size:</b>	Ultrasonic sensor mounts on any pipe from 12.5 mm to 4.5 m ( $\frac{1}{2}$ " to 180" ID)
<b>Display:</b>	White, backlit matrix - displays flow rate, totalizer, operating mode and calibration menu
<b>Power Input:</b>	Built-in NiMH battery for up to 18 hours continuous operation External charger with 100-240VAC 50/60Hz input
<b>Outputs:</b>	4-20mA (500 ohm) when AC powered USB for Data Log transfer by direct PC connection
<b>Data Logger:</b>	Programmable 300,000 data point capacity, time and date stamped or formatted reports including total, average, minimum, maximum and times of occurrence
<b>PC Software:</b>	'Logger' for Windows Vista or higher. Retrieves, displays and saves data log files
<b>Electronics Operating Temperature:</b>	-23° to 60°C (-10° to 140°F)
<b>Electronics Enclosure:</b>	Portable, ABS enclosure
<b>Carry Case:</b>	Rated IP67 with protective molded foam insert
<b>Accuracy:</b>	$\pm 2\%$ of reading or 0.03 m/sec (0.1 ft/sec). Requires solids or bubbles minimum size of 100 microns, minimum concentration 75 ppm. Repeatability: $\pm 0.1\%$ , Linearity: $\pm 0.5\%$
<b>Calibration:</b>	Built-in 5-key programming with user-friendly calibration menu, password protected
<b>Language Selection:</b>	English, French, Spanish
<b>Sensitivity:</b>	Adjustable cut-off, Damping: adjustable
<b>Approvals:</b>	Charger is CE and UL approved. The PF D550 is not certified for use in hazardous rated locations

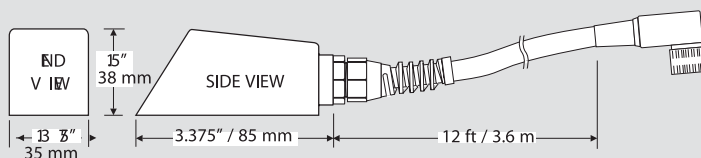
## Sensor Specifications

<b>Standard Model PSE4:</b>	Clamp-on, single-head ultrasonic for pipes from 12.5 mm to 4.5 m ( $\frac{1}{2}$ " to 180" ID) with 3.4 m (12 ft) shielded dual-coaxial cable
<b>Sensor Mounting Kit:</b>	Stainless steel pipe clamp and 150 g (5.3 oz.) silicone coupling compound
<b>Operating Temperature:</b>	-40° to 150°C (-40° to 300°F)

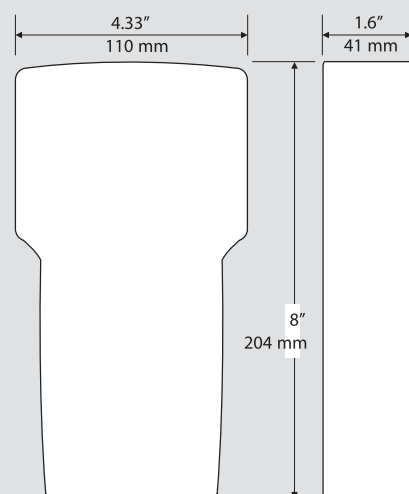
## Options

<b>Sensor Cable:</b>	15 m (50 ft) sensor cable extension, shielded, with connectors
<b>Sensor Mounting:</b>	Extra silicone coupling compound. Additional stainless steel pipe clamps

## Dimensions



PSE4 ULTRASONIC  
DOPPLER SENSOR



ENCLOSURE



# **PORTAFLOW D550**

## **Non-Contacting Doppler Flow Meter**

## **New PF D550**

## **Portable Doppler Flow Meter**

- **No Obstruction - No Pressure Drop**
- **Just Minutes to Install and Calibrate**

### **Recommended for:**

- **Sewage**
- **Treated Wastewater**
- **Aerated Water**
- **Sludge and Slurries**
- **Chemicals and Solvents**
- **Viscous Liquids**
- **Abrasives**
- **Food Products**
- **Pulp Stock**
- **Acids and Caustics**

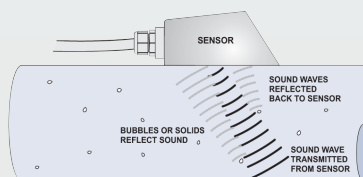
**The PF D550 is ideal to measure full pipe flow of any liquid containing gas bubbles or solids larger than 100 microns and in concentrations greater than 75 ppm.**

### **Ideal for Tough Flow Applications**

The PF D550 works best with difficult liquids in applications that would damage regular flow meters. Because the sensor is mounted on the outside of the pipe, there is no contact with the moving fluid. The ultrasonic sensor straps onto the outside of pipes 12.5 mm (½") ID or larger and measures flow in common pipe materials: PVC, carbon steel, stainless steel, cast iron, fiberglass and lined pipes... any pipe that conducts ultrasound. Doppler signals cannot be transmitted through pipe walls which contain air pockets (materials like concrete and wood), or loose insertion liners (with an air gap between the liner and pipe wall). Because the sensor is so easy to install you can test any application and pipe material in a few minutes.

### **How it Works**

The PF D550 ultrasonic sensor injects high frequency sound through the pipe wall and into the flowing liquid. Gas bubbles or solids suspended in the liquid reflect the ultrasonic signal back to the sensor. When this sound is reflected from moving bubbles or particles it is returned to the sensor at an altered frequency. This frequency shift is called the Doppler effect. The PF D550 continuously measures the change from it's transmitted frequency to the received frequency to accurately calculate flow.



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