

PORTABLE FLOWSHARK® PULSE

The Portable FlowShark® Pulse from ADS® is a battery-powered, high-performance, liquid flow monitor for use in open and closed channels of virtually any shape. It is designed for high accuracy and reliability, utilizing the most advanced velocity measurement technology available – gated cross correlation with digital pattern detection. Ease-of-use is also a design priority. Programming can be done completely on the built-in backlit display and data can be viewed and manipulated with any software that can read text files, such as Microsoft® Excel®.

Portable FlowShark Pulse Features

- Profiling sensor measures average velocity by integrating up to 16 discrete point velocities in every sample
- Suitable for unusual or dynamic velocity profiles
- Powered by a rechargeable battery pack or an external DC source
- 1 analog input and 1 relay output
- No calibration required
- No laptop required – all functions accessible from touchpad
- No software required – data stored on Compact Flash Card in ASCII format readily opened in Microsoft Excel
- 8 MB internal storage plus up to 128 MB storage on Compact Flash Card
- Combination uplooking ultrasonic depth, gated cross correlation velocity, and pressure depth sensor
- 2-year warranty
- Cable lengths up to 820 feet (250 meters)
- Available Ex certification

Applications

The Portable FlowShark Pulse is designed for the most demanding temporary monitoring applications where measurement accuracy is most important or hydraulic conditions are not suitable for general purpose technologies:

- Billing verifications
- Performance studies for control systems, such as treatment plant operations, pump stations, inline storage controls, or collection system routing controls
- Temporary flow monitoring to meet the requirements of regulatory agencies, such as characterizing combined sewer overflows
- Hydraulic model calibration and verification
- Rehabilitation measurement and impact analysis
- Closed pipes requiring an insertion sensor



About ADS

ADS Environmental Services®, a brand of ADS® LLC, is a leading technology and service provider and a reliable source of knowledge to the global wastewater collection system industry. Monitors manufactured, installed, and maintained by ADS measure over 4 billion gallons of flow daily across the globe. ADS delivers value to its customers by providing industry-leading solutions for flow monitoring, data analysis, reporting and field services. These customers rely on Underground Intelligence® from ADS to manage planning and rehabilitation, satellite community billing, regulatory compliance, O&M, and model calibration.

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Portable FlowShark Pulse Sensors

The Portable FlowShark Pulse minimizes the cost and the footprint of underwater sensors by combining three sensor technologies within a single streamlined housing. This housing, measuring only 1.1 inches (2.8 cm) high x 1.6 inches (4.1 cm) wide x 9.4 inches (23.9 cm) long contains the following sensors:

Submerged Ultrasonic Depth Sensor

The ultrasonic depth sensor transmits a high-frequency sound pulse along a vertical path from the sensor to the water surface. The water surface acts as a reflecting boundary to the sound pulse. The sensor measures the short time interval that the pulse of sound requires to travel to the water surface and reflect back to the sensor. The computed speed of sound is then used to calculate the depth of flow.

Pressure Depth Sensor

The pressure sensor is a piezoresistive device that converts the water pressure above the sensor to a depth of flow. The pressure sensor overrides the ultrasonic depth sensor under three conditions: (1) when the ultrasonic sensor cannot obtain a reliable measurement, (2) when the sensor cannot be installed on the bottom of the pipe, and (3) when the water column exceeds the height of the pipe, such as during surcharge conditions.

Gated Cross Correlation Velocity Sensor

The velocity sensor in the Portable FlowShark Pulse is a state-of-the-art advancement in velocity sensing technology. This complex technology tracks the movement of velocity particle signatures within 16 separate "gates" of the vertical cross section of the flow. These gates are integrated across a two-dimensional cross section in order to compute average velocity.

Extended Model Combination Sensor

The new Extended Model sensor combines the three sensor technologies described above within a single, streamlined housing measuring 1.3 inches high x 1.6 inches wide x 9.8 inches long (3.3 x 4.1 x 24.8 cm). It offers an extended measurement range for measuring depths and velocities between 0 and 197 inches (0 and 500 cm).



Air-Ultrasonic
Level Sensor

Combination Sensor

Extended Model
Combination Sensor

Portable FlowShark Pulse Specifications

- Rechargeable battery pack: 12 volts/12 Ah capacity (charger included)
- Enclosure: Polypropylene
- Weight: 4.4 pounds (2.0 kg)
- Graphic display: back-lit, 128 x 128 pixels
- Touchpad: 18-button
- Data storage: 128 MB Compact Flash Card
- Cable length: 33 feet (10 m), extendable to 820 feet (250 m)

Submerged Ultrasonic Depth Sensor

- Technology: submerged ultrasonic transit-time
- Range: 2.0 to 78.7 inches (5 to 200 cm)
- Accuracy: +/- 0.08 inches (0.20 cm)

Pressure Depth Sensor

- Technology: piezoresistive pressure
- Range: 0 to 197 inches (500 cm)
- Error: less than or equal to 0.75% final value

Gated Cross Correlation Velocity Sensor

- Technology: gated cross correlation with digital pattern recognition operating at 1 MHz
- Range: -3.28 to 19.7 feet per second (-1.0 to 6.0 mps)
- Maximum depth for full velocity profile: 40 inches (101 cm)
- Scan layers: 16
- Error: less than or equal to 1%

ADS[®]

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