pulsar MEASUREMENT

Greyline
SFM 6.1

Non-contacting, slurry, flow meter monitors, displays, totalizes, and controls from outside a pipe

Easy to Use, Accurate, Slurry, Flow Meter Measures with Clamp-on, Ultrasonic Sensor

Specifically Designed for Limestone Slurry, Fly Ash Slurry, Gypsum Slurry, & Many Others

The Greyline SFM 6.1 was specifically developed for the slurry applications found in today's industrial facilities. The SFM 6.1 incorporates more than 25 years of Pulsar Measurement ultrasonic flow measurement experience.

The SFM 6.1 works best in applications that would prove problematic for regular contacting flow meters. Since the sensor is mounted on the outside of a pipe, rather than directly contacting the material, it is unaffected by the wear and tear of abrasive slurries. A non-contacting sensor means there is no interruption to flow and no pressure drop.

No Contact, No Maintenance, External Sensor

Installation of the Greyline SFM 6.1 is fast and easy. The sensor mounts directly to the outside of a pipe meaning there is no need to shut down flow or cut into the pipe. The SFM 6.1 sends an ultrasonic signal into the pipe and measures acoustic reflections off solids and gas bubbles suspended in the slurry.

THE RIGHT METER FOR

- Fly Ash Slurry
- Gypsum Slurry
- Sludge
- Raw Sewage
- Chemicals & Acids
- Solvents
- Limestone Slurry
- Viscous Liquids
- Lubricating Oils
- Crude Oil
- Cooling Water

Easy to Install

Each SFM 6.1 includes a clamp-on ultrasonic sensor, an adjustable stainless steel mounting clamp, and sensor coupling compound. The sensor fits on the outside of any pipe diameter 12.7 mm (0.5 in) or larger.

Simple, Single-Head Sensor Design

Ultrasonic signals are transmitted and received from a single-head sensor, the accompanying mounting clamp ensures that the sensor is correctly aligned on both horizontal and vertical pipes. The SFM 6.1 automatically self-tunes to the cable length - up to 152.4 m (500 ft).

Works on Most Pipes

The Greyline SFM 6.1 measures flow in PVC, carbon steel, stainless steel, cast iron, HDPE, ductile iron, and lined ductile iron... any pipe material that conducts ultrasound. Doppler signals cannot transmit through pipe walls that contain air pockets (e.g. concrete or wood), or loose pipe liners (with an air gap between the liner and pipe wall).

Backlit, Matrix Display with Simple, 5-key Menu System

Configuration is easy with the new SFM 6.1 user-friendly menu system. Press the arrow keys to scroll through menus, change settings, and enter calibration values. You can select English, Spanish, or French menus, enable a password to protect settings, and control the brightness of the digital display.

Reverse Flow Measurement

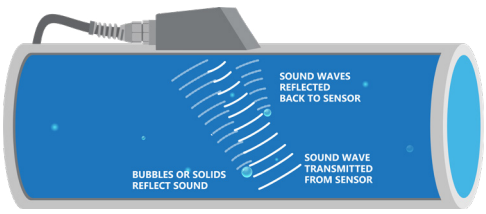
The SFM 6.1 measures flow in either direction and displays positive or negative values. You can control the totalizer to subtract reverse flow or to totalize forward flow only. The 4mA setting can also be adjusted to a negative flow setting.

26 Million Point Data Logger

The Greyline SFM 6.1 comes standard with a built-in 26 million point data logger and includes Windows software to display flow charts and tables and to create dynamic flow reports. Just plug in a standard USB flash drive and log files are downloaded automatically.

Principle of Operation

The SFM 6.1 Sensor transmits continuous high-frequency sound through the pipe wall into the flowing slurry. Sound is then reflected to the sensor from particles or gas bubbles within the liquid. If the liquid is flowing, the reflected sound returns at an altered frequency - this is called the Doppler effect. The unit continuously monitors this frequency shift to accurately measure flow inside the pipe.



Technical Specifications

GENERAL SPECIFICATIONS

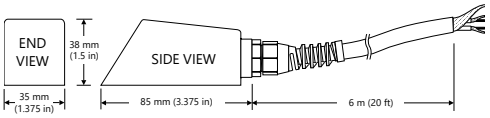
Flow Rate Range:	±0.038 m/s to 12.2 m/s (±0.125 ft/s to 40 ft/s) in most applications
Pipe Size:	Any pipe ID from 12.7 mm to 4.6 m (0.5 in to 15 ft)
Accuracy:	±2% of reading or 30.5 mm/s (1.2 in/s) whichever is greater. Requires solids or bubbles minimum size of 100 microns, minimum concentration 75 ppm. Repeatability: ±0.1%, Linearity ±0.5%
Display:	100-240 V AC 50/60 Hz (see Options), 2.4 to 5.6 W depending on options
Configuration:	Built-in 5-button keypad with English, French, or Spanish language selection
Power Input:	100-240 V AC 50/60Hz 10 VA maximum. Optional: 9-32 V DC, 10 Watts maximum
Output:	Isolated 4-20mA (1 kΩ load max.) or 0-5 V DC (Field Selectable)
Control Relays:	Qty 2, rated 5 A SPDT, programmable flow alarm and/or proportional pulse
Data Logger:	Built-in 26 million point logger with USB output and Windows software
Enclosure:	NEMA4 stainless steel with window
Electronics Operating Temperature:	-23 °C to 60 °C (-10 °F to 140 °F)
Shipping Weight:	6.3 kg (14 lb)
Approvals:	CSA, UL/EN 61010-1

SENSOR SPECIFICATIONS

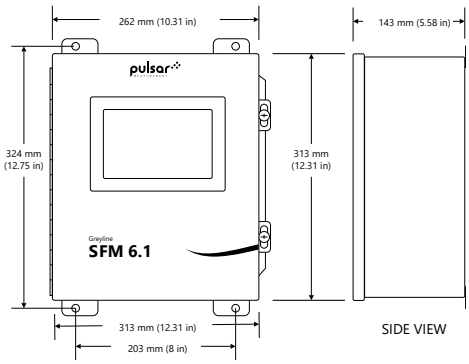
Model:	• SE4 single-head ultrasonic with 7.6 m (25 ft) shielded cable and stainless steel mounting kit for pipes 12.7 mm (0.5 in) ID or larger. Designed to withstand accidental submersion to 10 psi. • Certified non-incendive for Class I, Div 2, Groups A, B, C, D hazardous locations
Sensor Operating Temperature:	-40 °C to 150 °C (-40 °F to 300 °F)
Exposed Materials:	316SS

POPULAR OPTIONS

Sensors:	Intrinsic Safety Barriers for sensor mounting in Class I, Div 1, Groups C, D; Class II, Groups E, F, G; Class III; Encl. Type 4 hazardous locations
Industrial Automation Protocols:	Modbus RTU via RS485 or HART (field selectable)
Sensor Cable:	15.2 m or 30.5 m (50 ft or 100 ft) continuous shielded coaxial pair, or splice up to 152.4 m (500 ft) with junction box. Self tunes to extended cable
Enclosure Heater:	For outdoor installation, thermostatically controlled to -40 °C (-40 °F)
Pipe Materials:	Steel, stainless steel, cast iron, PVC, fiberglass, any contiguous pipe material that conducts sound, including lined pipes with a liner bonded to the pipe wall



SE4 Doppler Sensor



Greyline SFM 6.1 Enclosure

Greyline SFM 6.1 Slurry Flow Meter

The SFM 6.1 flow sensor is mounted to the outside of a pipe with no need to interrupt the flow or cut the pipe. Calibration is easy with the built-in, 5-button keypad, featuring password protection to prevent tampering. Select your choice of flow units and enter the pipe diameter through the user-friendly calibration menu.

Special Features

- Digital processing system tracks flow signals accurately and auto-zeroes with signal loss
- Noise suppression circuitry filters “dirty” power and electrical interference
- Automatically converts between measurement units (e.g. liters, gallons)
- Calibration data and totalizer values are stored automatically during power interruptions
- Output “simulation” function simplifies calibration of remote devices (e.g. chart recorders or controllers)
- Self-tunes to sensor cable length

Benefits of Non-Contacting Flow Measurement

No Contact means no maintenance, no sensor fouling, no obstruction to flow, no pressure drop, no corrosion, and no pipe cutting or drilling for installation.

Delivering the Measure of Possibility

Pulsar Measurement offers worldwide professional support for all of our products, and our network of global partners all offer full support and training. Our facilities in Malvern, UK and Largo, USA are home to technical support teams who are always available to answer your call or attend your site when required. Our global presence, with direct offices in the UK, USA, Canada, and Malaysia, allows us to create close relationships with our customers and provide service, support, training, and information throughout the lifetime of your product.

By taking a step forward in echo processing technology, Pulsar Measurement addresses applications previously thought to be beyond the scope of ultrasonic measurement. This technology improves signal processing at the transducer head which has made it possible to increase resistance to electrical noise, enabling the transducer to ‘zone in’ on the true echo.

For more information, please visit our website:

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