Engineering Specifications: Portable Ultrasonic Flow Meter Greyline Portaflow PT400-B for Large Pipes (500-1000 mm)

PORTABLE ULTRASONIC FLOW METER SPECIFICATIONS

SCOPE: This specification covers a portable, ultrasonic Transit Time flow meter by Greyline Instruments, Massena, New York / Long Sault, Ontario. This portable instrument shall provide for non-intrusive flow measurement, indication, totalizing and transmitting of the flow rate in a full pipe.

GENERAL:

Each portable Transit Time flow meter shall have the following design features and engineering specifications:

A. PERFORMANCE SPECIFICATIONS

- Have an accuracy of ±2% of reading in most clean fluid applications. Have repeatability of ±0.5%.
- Operate on clean liquids in full pipes with less than 2% solids or gas bubbles.
- Operate on any sonic conducting pipe material such as carbon steel, stainless steel, galvanized steel, mild steel, copper, UPVC, PVDF, glass, brass and including pipes with bonded liners of epoxy, rubber or cement.
- Operate on AC/DC power. Include an internal NiMH rechargeable battery with capacity for 16 hours continuous battery operation. Recharge and operate with power input of 100-260VAC 50-60Hz.

B. ULTRASONIC TRANSDUCERS

- Have a dual 2 MHz transmitting/receiving, clamp-on transducers.
- The transducers shall be waterproof and operate continuously at temperatures from -4°F to 275°F (-20°C to 135°C).
- The transducers shall be designed to install on pipes with inside diameter ranging from 2" to 39.37" OD (50 mm to 1000 mm).
- Have a 6 ft (2 m) long cable from the transducers to the electronics.
- Shall include manufacturer's recommended sensor coupling compound.
- Shall include stainless steel sensor mounting guiderails with clamps permitting installation and removal of transducers.

- Shall include a transducer test block to allow the transducers and inter-connecting cables to be functionally checked.

C. ELECTRONICS

- Have a portable, hand-held ABS enclosure plus a padded carrying case containing the flowmeter, sensors and accessories. Total shipping weight shall not exceed 13 lbs (6 kg).
- Electronics shall be designed for continuous operation at temperatures from 32° to 122°F (0° to 50° C).
- Have a built-in 16-key programmer with user-friendly calibration menu and language selection including English, French, Spanish, Portuguese, Russian, Norwegian and Dutch.
- Have a 64 x 240 pixel backlit LCD graphics display indicating positive and negative flow rates and flow totals, calibration menu, signal strength, battery charge status, date and time.
- Have flow proportional opto-isolated 0/4-20mA output rated to maximum resistive load of 620 ohms.
- Have a response time of less than 500 ms and sampling resolution of 50 picoseconds.
- Have adjustable Reynolds number compensation for pipe wall roughness.
- Have automatic signal strength monitoring and indication.
- Have a battery status indicator with automatic low battery shut off and battery overcharge protection.

D. MANUFACTURER

The instrument shall be a Portaflow PT400-B Portable Ultrasonic Flow Meter by Greyline Instruments Inc., and warranted against defects in materials and workmanship for one year.