**CLAMP-ON ULTRASONIC FLOW METER**

*Ideal for measuring the flow rate of clean, non-aerated fluids in full pipes such as water, chemicals and oils.*

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**FEATURES**

- Transit Time Ultrasonic Principle of Measurement
- 1/2" through 48" Pipe Size Range
- Simple 5-Key Configuration (English, French, Spanish selectable)
- 4–20mA/0–5V Analog Output
- 26 Million–Point Data Logger
- Password Protected Backlit LCD Display
- Watertight & Dust Tight NEMA4X (IP66) Polycarbonate Enclosure
- Modbus® RTU or HART® Optional
- CE, UL/EN 61010-1 Approvals

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**TECHNICAL SPECIFICATIONS**

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<tr>
<th>Feature</th>
<th>Specification</th>
<th>Operating Temperature Range</th>
<th>Power Input</th>
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<th>Control Relays</th>
<th>Hazardous Area Certifications</th>
<th>Approximate Shipping Weight</th>
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<tr>
<td>Measuring Accuracy</td>
<td>±1.0% of reading from 1.5 to 40 ft/sec (0.5 to 12.0 m/sec) and ±0.015 ft/sec (±0.0046 m/sec) for velocity below 1.5 ft/sec (0.46 m/sec).</td>
<td>Transducer: –40°F to 300°F (–40 to 150°C)</td>
<td>Electronics: –5°F to 140°F (–20 to 60°C)</td>
<td>Isolated 4–20mA/0–5V, 1000 ohm max.</td>
<td>2 Relays, form C dry contacts rated 5 amp SPDT; programmable flow alarm and/or flow proportional pulse</td>
<td>Non-Incendive for Class I Division 2, Groups A,B,C,D; Optional: Intrinsically safe for Class I Division 1, Groups A,B,C,D</td>
<td>12 lbs. (5.5kg)</td>
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<tr>
<td>Repeatability &amp; Linearity</td>
<td>±0.25%</td>
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<tr>
<td>Flow Measuring Range</td>
<td>±0.07–40 ft/sec (±0.02–12 m/sec)</td>
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<tr>
<td>Pipe Diameter</td>
<td>SE16A: 0.5” to 4” (15 mm to 100 mm) SE16B: 2” to 48” (50 mm to 1200 mm)</td>
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<td>Pipe Materials</td>
<td>Any metal or plastic sonic conducting materials, including carbon steel, stainless steel, ductile iron, concrete lined ductile iron, cast iron, PVC, HDPE, PVDF, fiberglass, copper, brass, aluminum, and pipes with bonded liners, including epoxy, rubber, and PTFE.</td>
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<td>Operating Frequency</td>
<td>SE16A: 2.56 MHz SE16B: 1.28 MHz</td>
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**BENEFITS**

- **Non-Contacting Flow Measurement**
  Ultrasonic transducers clamp on the outside of pipes, allowing for installation without system shutdown, and produces no pressure drop.

- **User-Friendly Operating System**
  Built-in keypad and simple menu system for fast and easy programming of pipe diameter, pipe material, liquid type, and measurement units. All settings, calibration values, and totalizer are retained during power interruptions.

- **Industrial Automation Protocols**
  Modbus RTU and HART communications allow for instantaneous flow rate, volumenototal, run hours, and diagnostic information.

- **Wide Range of Applications**
  Compatible with a wide range of pipe materials and fluids, including treated, raw, cooling and low-conductivity water, water/glycol solutions, chemicals, and hydraulic, diesel and fuel oils.

- **Safe in Wet Locations**
  IP67 (NEMA 6) rating allows for safe operation during temporary periods of submergence.

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MEASUREMENT OPERATION

The Transit Time Flow Meter measures flow from the outside of pipes. It works by measuring the time of flight difference for ultrasonic sound pulses transmitted from one transducer to another. Depending on the mounting configuration, the signal may cross the pipe once, twice, or four times. The time between transmitted and received signals is precisely measured by the flow meter. Ultrasonic signals are sent upstream and then downstream with the transducers alternating their functions as transmitters/receivers.

The transit time in the direction of flow is always faster than the transit time against the flow. By comparing these differences with precision timing circuits, the meter is able to accurately calculate the flow rate. Because the ultrasonic signal is transmitted across the pipe, an average of the flow profile is calculated.

The transducers can be mounted on vertical or horizontal pipes, and the pipe must be full. Choice of V, Z, or W mounting method depends on the application and pipe diameter.

DIMENSIONS
CLAMP-ON ULTRASONIC FLOW METER

Ideal for measuring the flow rate of clean, non-aerated fluids in full pipes such as water, chemicals and oils.

PART NUMBER GUIDE

CUTT -

Power Input
A = Standard: 100–240VAC
   50/60Hz, 10VA Max.
B = 9–32VDC, 10W Max.

Control Relays
A = Standard – 2 relays, rated 5 amp SPDT, programmable
B = 4 Extra Relays (6 total), rated 5 amp SPDT, programmable

Enclosure & Electronics Protection
1 = Standard – NEMA4X (IP66) polycarbonate enclosure
2 = NEMA4X polycarbonate enclosure with conformally coated electronics
3 = CXJ8106 – Explosion Proof NEMA7 (non-returnable & non-refundable)*

Serial Communications
1 = Standard – None
2 = Modbus® RTU via RS-485 or HART (field selectable)

Cables & Connections
A = Standard – 25 ft/7.6 m pair triaxial with BNC connectors and seal jackets
B = 50 ft/15 m pair triaxial with BNC connectors and seal jackets
C = 100 ft/30 m pair triaxial with BNC connectors and seal jackets

Enclosure Temperature Rating
A = Standard – (-5° to 140°F / -20° to 60°C)
B = Heater and Thermostat, 115VAC, 15 VA additional to Power Input (25 VA total)
C = Heater and Thermostat, 230VAC, 15 VA additional to Power Input (25 VA total)

Intrinsic Safety Rating
1 = Standard – No certification
2 = QTY 2 ISB Intrinsic Safety Barriers for transducer installation in Class 1 Div 1, Groups C, D; Class 2, Groups E, F, G; Class 3; Type 4

Transducers
B = Standard – SE16B pair, clamp-on for 2” to 48” (50 mm to 1200 mm) pipes
A1 = SE16A pair, clamp-on for 0.5” to 4” (15 mm to 100 mm) pipes, BNC connectors and IP65 rating
A2 = SE16A pair, clamp-on for 0.5” to 4” (15 mm to 100 mm) pipes, sealed cable with IP67 rating, for installation in wet environments
C = SE16C pair, recommended for 12” to 48” (300 mm to 1200 mm) pipes, suitable for 4” to 48” (100 mm to 1200 mm) pipes, BNC connectors and cable strain-relief fittings for IP67 rating

* Lead Time for this option is 2 weeks.

Products may be subject to change without notice - Contact factory for the most up-to-date product information.