

AquaTrans™ UTX878

Panametrics Liquid Flow Ultrasonic Transmitter



Applications

The AquaTrans UTX878 is a loop-powered, full-featured clamp-on flow ultrasonic transmitter system for flow measurement of:

- Potable water
- Wastewater
- Discharge water
- Treated water
- Cooling and heating water
- Other liquids

Features

- 4-wire HART output
- 2-wire standard output option
- Low power consumption
- Suitable for pipe sizes from 1/2 in to 20 in (13 mm to 500 mm) diameter
- Full external keypad
- Large integral display
- Simple meter and transducer installation and setup
- Velocity, volumetric and totalized flow
- Economical non-intrusive flow measurement



The AquaTrans UTX878 flow ultrasonic transmitter combines the simplicity of a loop-powered meter installation with proven, advanced clamp-on ultrasonic flow transmitter technology. It provides customers with an economical solution for flow measurement in pipes up to 20 in (500 mm).

HART Output or 2-wire Standard

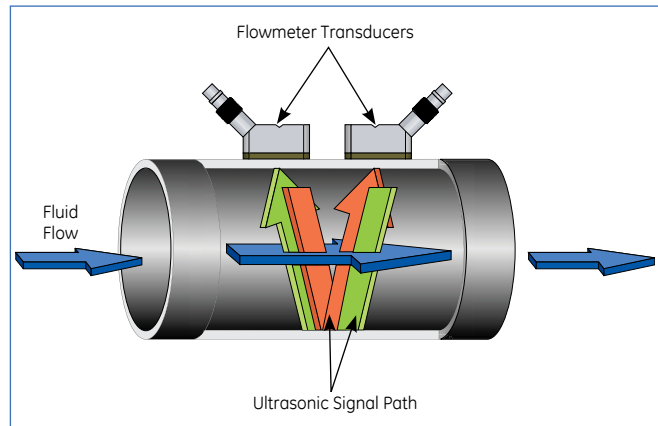
The AquaTrans UTX878 comes with HART protocol as an available output. This protocol requires the meter to be installed as a 4-wire device. The UTX878 is also available as a 2-wire device without HART; the 2-wire UTX878 may be preferable when replacing existing 2-wire devices.

Two-Channel Model

An optional second channel provides the capability to measure flow at a single point to obtain two-path averaging of the flow measurement for increased accuracy.

Uses the Transit-Time Flow Measurement Technique

The Correlation Transit-Time™ technique uses a pair of transducers with each transducer sending and receiving coded ultrasonic signals through the fluid. When the fluid is flowing, signal transit-time in the downstream direction is shorter than in the upstream direction; the difference between these transit-times is proportional to the flow velocity. The AquaTrans UTX878 measures the time difference and uses programmed pipe parameters to determine flow rate and direction.



Transit-time flow measurement technique

UTX878 Specifications

Operation and Performance

Fluid Types

Acoustically conductive fluids, including most clean liquids, and many liquids with entrained solids or gas bubbles. Maximum void fraction depends on transducer, interrogation carrier frequency, path length and pipe configuration.

Pipe Sizes

- 1/2 in to 1.5 in (13 mm to 40 mm): UTXDR-408
- 1 in to 4 in (25 mm to 100 mm): UTXDR-407
- 2 in to 12 in (50.8 mm to 300 mm): UTXDR-410
- 8 in to 20 in (200 mm to 500 mm): UTXDR-409

Pipe Materials

All metals and most plastics. Consult GE for concrete, composite materials, and highly corroded or lined pipes.

Flow Accuracy (Velocity)

0.5% of reading (achievable with process calibration)
Pipe ID > 6 in (150 mm): ±1% to 2% of reading typical
Pipe ID < 6 in (150 mm): ±2% to 5% of reading typical

Accuracy depends on pipe size and installation and whether measurement is one-path or two path.

Repeatability

±0.1% to 0.3% of reading

Range (Bidirectional)

-40 ft/s to 40 ft/s (-12.2 m/s to 12.2 m/s)

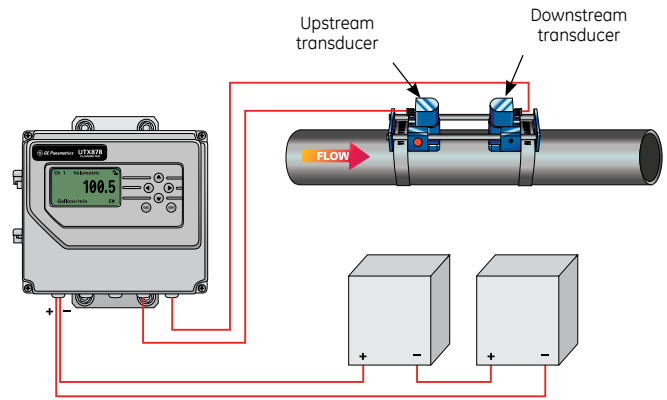
Rangeability (Overall)

400:1

Specifications assume a fully developed flow profile (typically 10 diameters upstream and 5 diameters downstream of straight pipe run) and flow velocity greater than 1 ft/s (0.3 m/s).

Measurement Parameters

Volumetric flow, totalized flow and flow velocity



Schematic of loop-power

Electronics

Flow Measurement

Patented Correlation Transit-Time mode

Enclosure

Epoxy-coated aluminum weatherproof Type 4X/IP67

Dimensions (h x w x d)

Size 8.8 in x 8.2 in x 3.6 in (220 mm x 210 mm x 90 mm), weight 3.9 lb (1.77 kg)

Display

128 x 64 pixel LCD graphic display

Keypad

6 button external keypad

Power Supply

15 to 30 VDC loop power

Power Consumption

700 mW maximum

Memory

FLASH memory; field upgradable

Operating Temperature

-4°F to 140°F (-20°C to 60°C)

Storage Temperature

-4°F to 158°F (-20°C to 70°C)

Standard Inputs/Output

- One 2-wire 4 to 20 mA output
- Optional 4-wire HART 4-20 mA output

Digital Interface

RS232

European Compliance

System complies with EMC Directive 89/336/EEC

