ECHO

Process Instrumentation

HandHeld Transit-Time Flowmeter

- *Portable non-invasive flowmeter for clean or dirty liquids*

- *Transit-time Technology for use on all metal and plastic pipes with any liners from 0.4" to 118" diameters*

- *Dual DSP Microprocessor with digital signal for High Accuracy*

- *Light-weight, hand-held unit with graphical display*

- *Easy to install clamp-on sensors*

- *Battery life > 24 hours*

The ECHO Arrow Hunter *Plus* range of non-invasive flowmeters utilize transit-time ultrasonic technology for the accurate flow measurement of clean or dirty liquids and liquefied gases in full pipes.

The measurement of flow is based on the principle that sound waves are influenced by a flowing medium. Measurements are made by penetrating the pipe with ultrasound and measuring the frequency variations and phase shifts of the signals received. This measuring technique has no effect on the flowing medium. There is no pressure loss in the pipe and no wear on components of the measuring device.

The ultrasonic sensors are clamped onto the outside of the pipe, thus eliminating the need to dismantle the pipe work and interrupt the process. The AH+HH can be applied to any type of metal or plastic pipe with or without a liner carrying clean or dirty liquids. We have several transducers to chose from depending on pipe size, process temperature and required hazardous approvals.
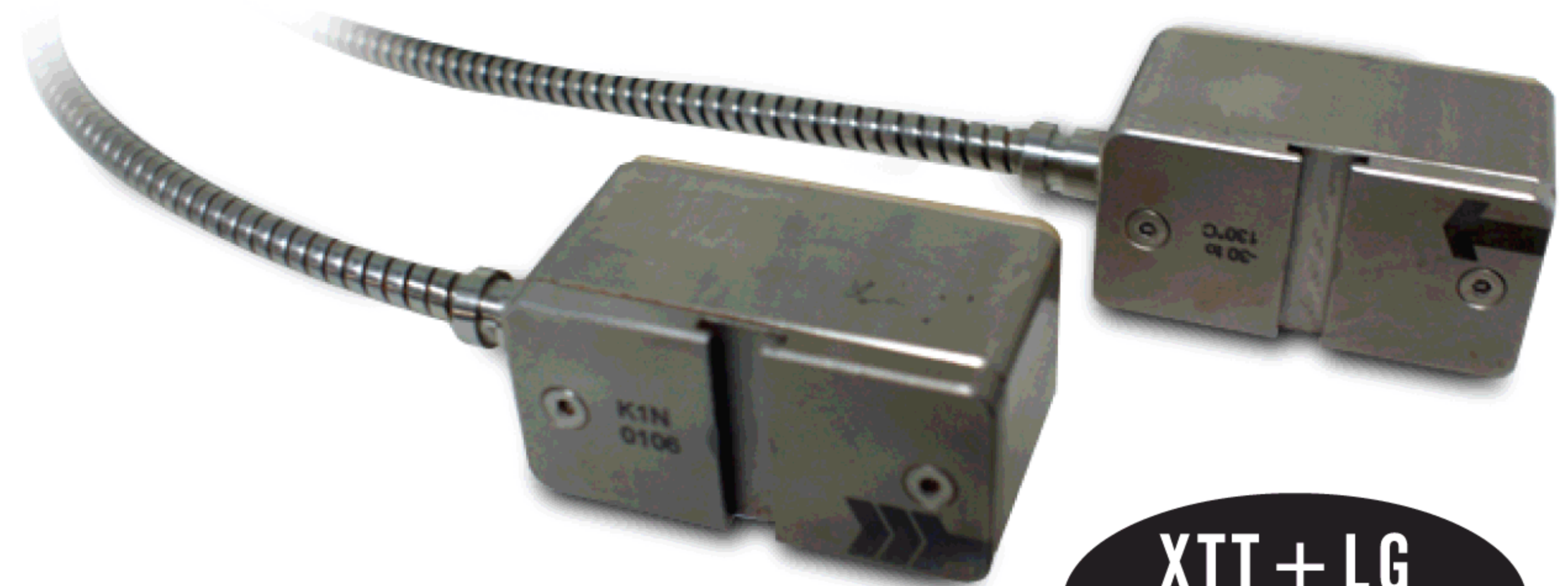
Ultrasonic Clamp-on Portable Handheld Flowmeter Model: AH+HH

ECHO Process Instrumentation offers a 60 day Performance Guarantee!

Advantages

- *Low installation effort and costs*
- *Measurement is independent of fluid conductivity*
- *No pressure loss, no possibility of leakage*
- *Easily retrofits failed mag meters in older plants*
- *No cutting of pipes necessary, no interruption of process, no plant shut down*
- *Quick Start Menu for intuitive programming*
- *"Audible Sensor Positioning Assistant" for easy transducer positioning*
- *Hygienic measurement, no risk of contamination, suitable for ultra clean liquids*
- *Cost advantages when used with large diameter pipes, high pressure systems, etc.*

XTT+LG Transducer

General

Measuring principle: Ultrasonic Transit-time
Flow velocity range : 0.03 … 82 ft/s (0.01 … 25 m/s)
Resolution : 0.00082 ft/s (0.25 mm/s)
Repeatability : 0.15 % of measured value ±0.015 m/s
Accuracy :
Volume flow : ± 0.5% factory calibrated (process
   conditions can reduce accuracy)
   ± 0.5% of measured value with process calibration
Flow velocity : ± 0.5 % of measured value
Turn down ratio : 1/100
Max particulates : < 10 % of volume

Flow transmitter

Enclosure : Hand-held
Protection rating : NEMA 12 (IP 65 according EN60529)
Operating temp. : 14 …140 °F (-10 … 60 °C)
Housing material : ABS (UL 94 HB)
Flow channels : 1
Power supply : Internal rechargeable batteries 4 x NiMH-
   AA 2850 mAh or external power supply 9V DC
Operating Time : >24 hours with full charge
Display : LCD graphic display, 128 x 64, backlight
Dimensions : 8.9 H x 2.8/4.6 W x 1.8 D inch
   (228 H x 72/117 W x 47D mm)
Weight : Approx. 1.4 lbs (0.65 kg)
Power consumption : < 1 W in measurement mode
Signal damping : 0 … 99 s
Measurement rate : 10 … 1000 s-1
Languages : English, German, French, Spanish, Russian
Response time : 1 s, faster rates upon request

Units of Measurement

Volumetric flow rate : m3/h, m3/min, m3/s, l/h, l/min, l/s, USgal/h,
   USgal/min, USgal/s, USMGD, bbl/d, bbl/h,bbl/min, bbl/s
Flow velocity : m/s, ft/s, inch/s
Mass flow rate : g/s, t/h, kg/h, kg/min
Volume/ Mass : m³, l, US gal, bbl, g, kg, t

Internal data logger

Storage capacity : 100,000 samples (16MB)
Logging data : All measured and totalized values

Communication

Serial interface : RS 232
Data : Instantaneous measured value, parameter
   set and configuration, logged data

Software AH+PC Software

Functionality : Downloading of measured values/ parameter sets,
   graphical presentation, list format, export to third party software, on-line
   transfer of measured data
Operating systems : Windows 2000, NT, XP, Vista, 07

Process outputs

Serial : RS232 only, (USB Adapter optional)

Clamp-on Sensors

Type XTT+SM-P

Pipe Diameter range : 0.39 … 9.8 inch (10 … 250 mm)
Dimensions : 1.7 x 0.7 x 0.8 inch (43x18x22mm)
Material : Stainless steel
Temperature range : XTT+SM-P: -22 … 266 °F (-30 … 130 °C)
   XTT+SM-HT-P: -22… 392°F (-30 … 200°C)
Cable : 4m Armored Cable, ODU Connector
Protection rating : NEMA 6P (IP 68) submersible
Hazardous rating : General Purpose

Type XTT+LG-P

Pipe Diameter range : 1.96 … 118 inch (50 … 3000 mm)
Dimensions : 2.3 x 1.2 x 1.3 in (60x30x34 mm)
Material : Stainless steel
Temperature range : XTT+LG-P: -22 … 266 °F (-30 … 130 °C)
   XTT+LG-HT-P: -22… 392 °F (-30 … 200 °C)
Cable: 4m Armored Cable, ODU Connector
Protection rating : NEMA 6P (IP 68) submersible
Hazardous rating : General Purpose

Options

XTT+WTG : Wall Thickness Gauge

XTT+CC - Clips & Chains

- includes a pair of both Special Stainless Steel XTT+ Transducer clips and chains for easy mounting.
XTT+CC-0.5 : Pair of Clip and 0.5m chains
XTT+CC-1.0 : Pair of Clip and 1.0m chains
XTT+CC-2.0 : Pair of Clip and 2.0m chains

XTT+SS - Stainless Steel Straps & Clamps

- includes a pair of both Stainless Steel Straps & Quick Release Worm Gear for transducer mounting.
XTT+SS-0.25-4 : SS Straps for 0.25 - 4 inch pipe dia.
XTT+SS-3-18 : SS Straps for 3.0 - 18 inch pipe dia.
XTT+SS-18-38 : SS Straps for 20 - 38 inch pipe dia.
XTT+SS-38-50 : SS Straps for 38 - 50 inch pipe dia.
XTT+PS-4-100 : Pair of both Polyester Straps & Quick
   Release Clamps for 4 - 100 inch pipe dia.