



Technology Solutions

TEK-CLAMP 1200A-100H

Handheld Ultrasonic Flow Meter



FLOW



Introduction

Tek-Clamp 1200A-100H Handheld Ultrasonic Flow Meter is a completely non-invasive ultrasonic flow meter. The flow meter uses the ultrasonic signal to measure the flow rates with the transit time method. It consists of the built-in data logger for over 2000 lines of data and is optional as an external data logger. Tek-Clamp 1200A-100H has a pair of transducers capable of measuring flow rates in pipes from 1/2" (12.5 mm) to 28" (700 mm) at temperatures of between 32°F (0°C) to 320°F (160°C). This flow meter can be virtually applied to a wide range of measurements. A variety of liquid applications contain potable water, cooling water, river water, raw sewage, reclaimed water, plant effluent, ultra-pure liquids, chemicals.

Measuring Principle

When the ultrasonic wave is transmitted through the flowing liquid, the difference between the upstream and downstream transit time (travel time or time of flight) can be calculated, which is proportional to flow velocity.

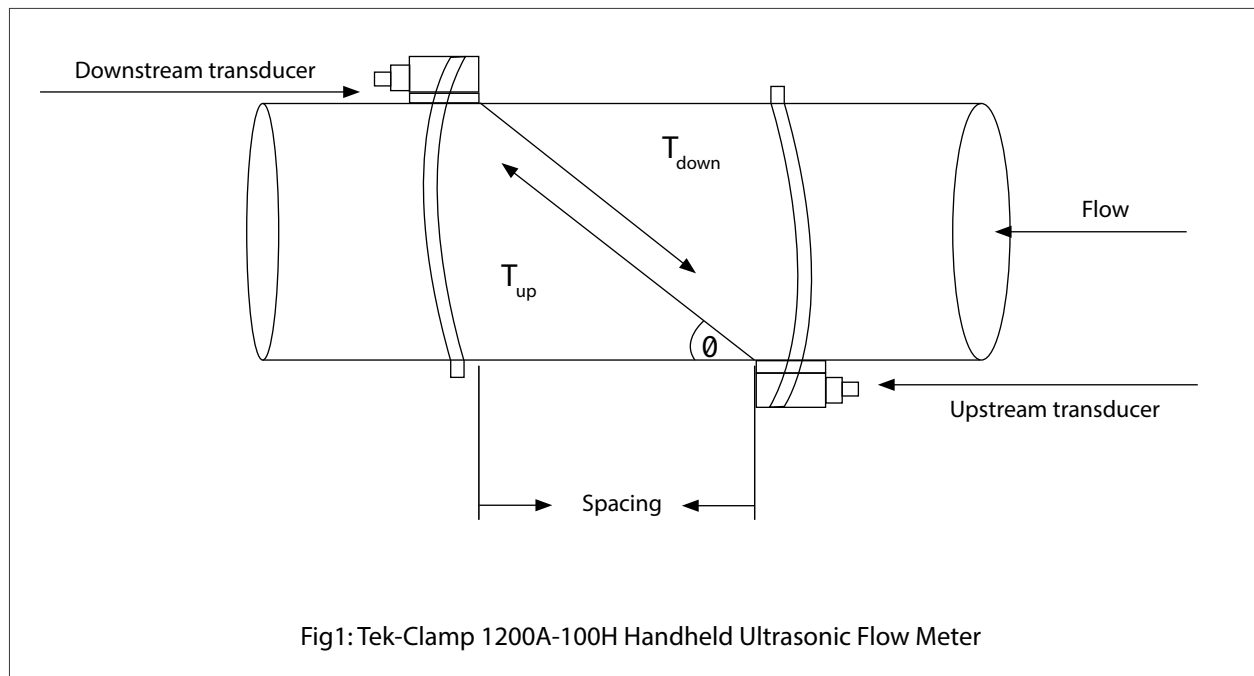


Fig1: Tek-Clamp 1200A-100H Handheld Ultrasonic Flow Meter

The formula for calculating velocity is:

$$V = \frac{MD}{\sin 2\theta} \times \frac{\Delta T}{T_{up} \times T_{down}}$$

- Where, θ : Includes angle to the flow direction
M: Travel times of the ultrasonic beam
D: Pipe diameter
 T_{up} : Time for the beam from upstream transducer to the downstream one
 T_{down} : Time for the beam from downstream transducer to the upstream one

$$\Delta T = T_{up} - T_{down}$$

Features

- Better than $\pm 1.0\%$ accuracy.
- Pipe diameters from 1" to 28".
- Protection class: IP67 for Flow Transducer.
- 4x4 key Touch Membrane Keypad.
- 3 AAA built-in Ni-MH batteries 1.2V(for over 12 hours of operation). 90V-260V AC Adapter.
- 4x16-character LCD with backlight.

Application

- Power plants
- Water and Wastewater treatment plants
- Mining and metallurgy plants
- Petroleum process monitoring and control
- Chemical process monitoring and control

Specifications

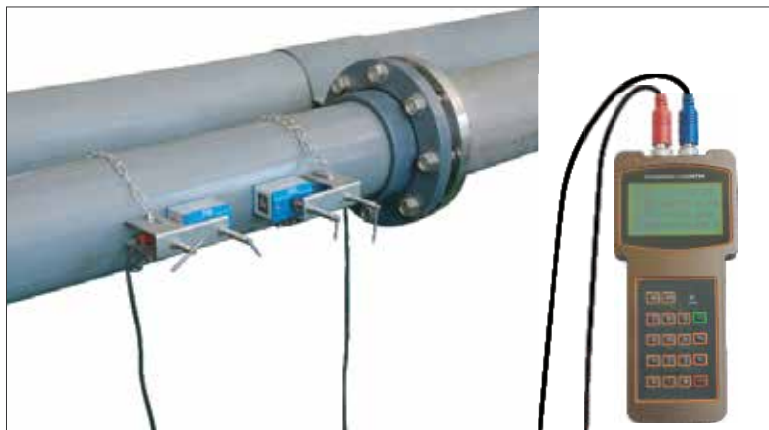
Parameters		Specification
Main Unit	Accuracy	±1% of reading at rates >0.2 mps
	Velocity	0.03 to 100ft/sec
	Repeatability	0.2%
	Measurement Period	0-999 seconds, user-configurable
	Measurement Principle	Transit Time Ultrasonic Flow Meter
	Weight	Portable transmitter weight 514g Package with accessories weight 6kg Volume weight for whole package 12kg
	Power	100H 3 AAA built-in Ni-MH batteries 1.2V (for over 12 hours of operation) 90V-260V AC Adapter
	Power Consumption	1.5W
	Environment Temperature	Convertor: -4°F to 140 °F (-20 to 60°C) Flow Transducer: -22°F to 320°F (-30 to 160°C)
	Environment Humidity	Convertor: 85% RH
Transducers	Protection Class	Flow Transducer: IP67
	Clamp-on	HS-type: for pipe size ½" - 4" (12.5mm - 100 mm) HM-type: for pipe size 2" - 28" (50mm- 700 mm) Other Pipe size Available on Request
Liquids	Type	Following Liquids transmit sound wave: <ul style="list-style-type: none"> • Single liquid such as, Water (Hot water, Chilled water, City Water, Sea Water, Wastewater, etc.) • Sewage with small particle content • Oil (crude oil, lubricating oil, diesel oil, fuel oil, etc.) • Chemicals (alcohol, etc.) • Plant Effluent • Beverage • Ultra-pure liquids
	Process Temperature	-22°F to 320°F (-30°C to 160°C)
Pipe	Pipe material	Steel, Stainless Steel, Cast Iron, Copper, Cement Pipe, PVC, Aluminum, Glass Steel Product, Liner is allowed
	Pipe size	½" to 28"
	Pipe Straight Run	Transducer installation should be satisfied: upstream 10D, downstream 5D, 30D from the pump
	Dimensions	8" X 3¾" X 1¼" (200 X 93 X 32mm) (Convertor)

Installation

Tek-Clamp 1200A-100H Handheld Ultrasonic Flow Meter can simplify the ultrasonic flow meter installation process, by shortening installation time and improving installation accuracy. TEK-CLAMP 1200A -100H Handheld Ultrasonic Flow Meter installed by two methods:

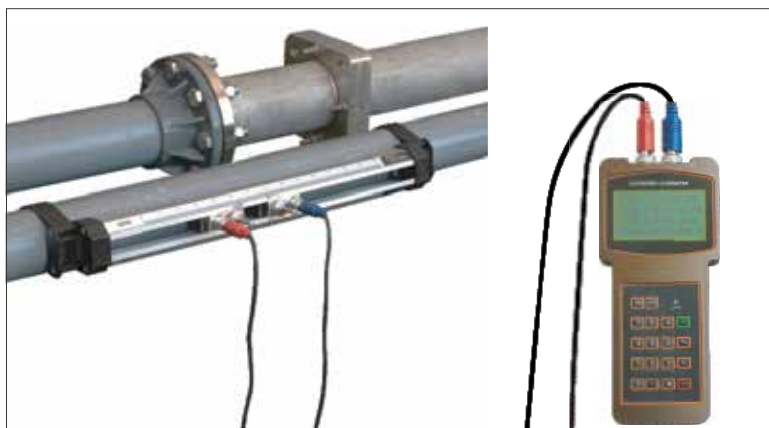
- *Clamp-On Transducer*

- o Install the Tek-Clamp 1200A-100H Handheld Ultrasonic Flow Meter (with magnet) on the pipe. It can help finish the flow measurement without any pressure drop. Also, the need for cutting the pipe is eliminated.
- o Tek-Clamp 1200A-100H Handheld Ultrasonic Flow Meter measures pipe size from ½" to 28" .



- *Clamp-On Mounting Bracket Transducer*

- o Install Tek-Clamp 1200A - 100H on the pipe, to finish the flow measurement. The need for cutting pipe gets eliminated.
- o Several types of bracket Tek-Clamp 1200A - 100H are used to measure pipe size from ½" to 28" .
- o Several types of bracket Tek-Clamp 1200A - 100H are used to measure temperature range from -22°F to 320°F (-30°C to 160°C)



Parts Descriptions



Transducer Interface



Display



4×16 character screen with backlight can display instantaneous flow, accumulated flow (positive, negative and net), velocity, working status etc.

Aluminum alloy Carrying Case



- Carry Case
- Handheld
- Measuring Tape
- Mounting Chain
- Power Supply
- Single Cable

Standard (without sensors)



- Carry Case
- Handheld
- Measuring Tape
- Mounting Chain
- Power Supply
- Single Cable
- HS Sensor

Customized (with sensor)

Customer Service & Support




TEKTROL LLC reserves the right to change the designs and/or materials of its products without notice. The contents of this publication are the property of TECTROL LLC and cannot be reproduced by any other party without written permission. All rights reserved. Copyright © 2020 TECTROL LLC
TEKTROL LLC
DOC # TEK/TPS/CAT7/240520/1200A-100H/000.2



www.tek-trol.com

Tek-Trol LLC

796 Tek Drive Crystal Lake,
IL 60014, USA

 +1 847-857-6076

 tektrol@tek-trol.com

 www.tek-trol.com

Tek-Trol is a fully owned subsidiary of TEKMATIION LLC. We offer our customers a comprehensive range of products and solutions for process, power and oil & gas industries. Tek-Trol provides process measurement and control products for Flow, Level, Temperature & Pressure measurement, Control valves & Analyzer systems. We are present in 15 locations globally and are known for our knowledge, innovative solutions, reliable products and global presence.