ULTRASONIC FLOW METER / ENERGY FI-51

Introduction

FI-51 is a wall-mount, clamp- on type ultrasonic flow meter which uses the transfer time technology.
Designed using FPGA chip and low-voltage broadband pulse transmission.
Both Clamp on type sensors and Insertion type sensors are available.
FI-51 has a 240*128 back lit LCD with 4 line menu display and also the clear, user-friendly menu selections make flow meter more simple and convenient to use.
Daily, monthly and yearly totalized flow.
Parallel operation of positive, negative and net flow totalizes with scale factor (span) and BTU Capacity. While the output of totalize pulse and frequency output are transmitted via relay and open collector.

FI-51 could add the RTD model and temperature sensor become an energy meter to monitoring the energy use, help to save the energy.

Application

FI-51 ultrasonic flowmeter widely application in HVAC, water treatment, irrigation.

Specification

Performance	
Flow range	±0.09ft/s ~ ±16ft/s (±0.03m/s ~ ±5m/s)
Accuracy	±1% of measured value
Repeatability	0.2% of measured value
Linearity	±1%
Pipe size	1”to 48” (25mm to 1200mm). Pipe size under 1” is an option
Fluid	Water

Function	
Outputs	Analog output: 4~20mA, max load 750Ω. Pulse output: 0~10KHz, Options: Mbus (EN1375 version) POE (Ethernet power supply and output) HART (4 Wires not the registered version)
Communication	RS232/RS485 Modbus
Power supply	10~36VDC/1A and 90 to 245 VAC (48 to 63Hz)
Display	240*128 back lit LCD
Temperature	Transmitter: -14°F~140°F(-20°C~60°C) Transducer: -40°F~176°F(-40°C~80°C, standard)
Humidity	Up to 99% RH, non-condensing

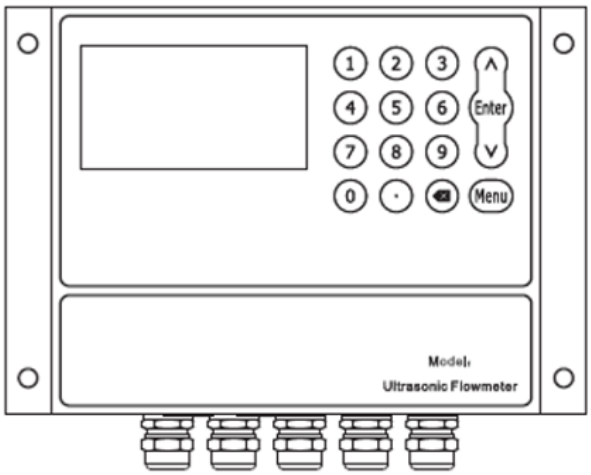
Physical	
Transmitter	PC/ABS,IP65
Transducer	ABS, IP68 Encapsulated design Double-shielded transducer cable Standard/maximum cable length:30ft/900ft(9m/274m)

Transmitter size

Length: 217,80mm

Hight: 152,40 mm

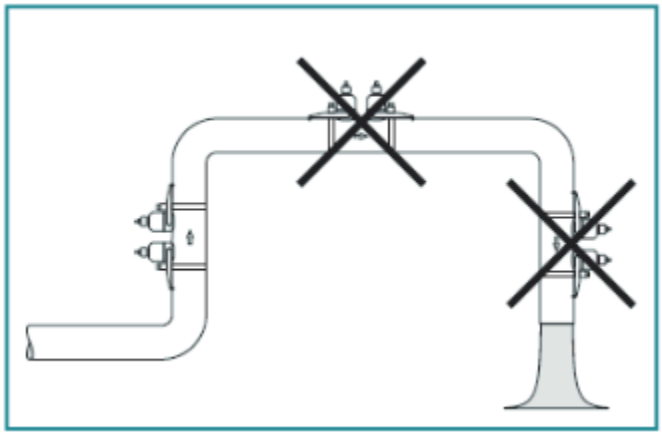
Depth: 64,0 mm



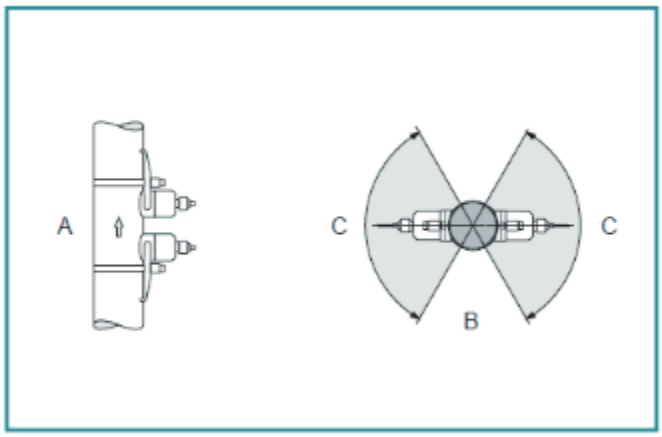
Transducer size

Installation site selection

The first condition for ultrasonic flow meter is the pipe must be full of liquid, the bubbles will greatly influence the accuracy of the measurement, please avoid the follow installation position:



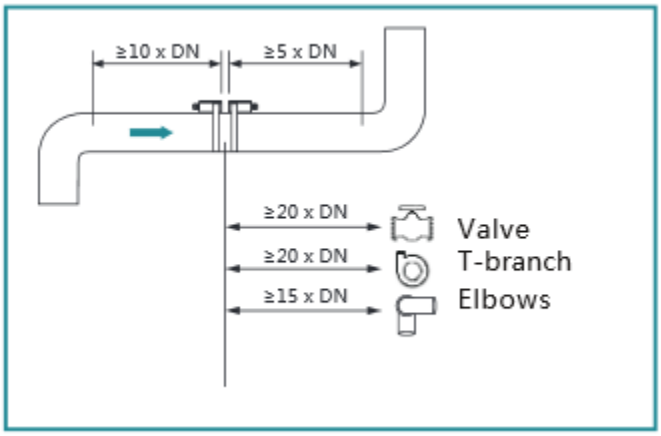
The suggestion installation area is as following:



A is for upright pipeline, please notice the water direction is from the bottom to top.
B is for horizontal pipeline, the transducers need to be installed inside the C area, angle for area C, max 120°.

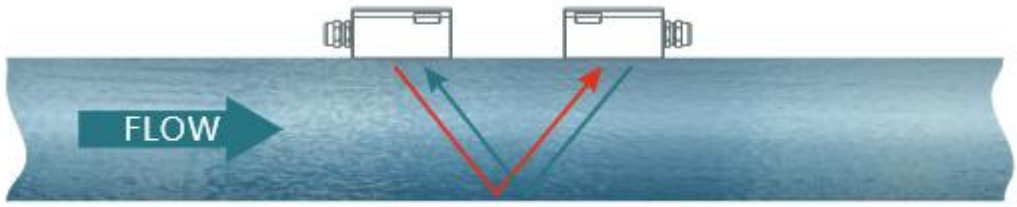
Straight pipe demand

We suggest avoiding the valve, T-branch pipe and elbows if the condition allow. Please satisfied the hardest position installation requirements when you face more than one interfering resource



Measuring principle

Transfer time technical means the ultrasonic signal from the transducer is transmitted and received through the moving liquid, there will be a difference between the upstream and downstream transit time, which can be used to calculate flow and velocity.



Ordering Confirmation

Model	Transmitter
FI-51	Ultrasonic flowmeter Wall mount Flow range：±0.09ft/s ~ ±16ft/s (±0.03m/s ~ ±5m/s) Accuracy ：±1% of the measure value Repeatability：0.2% of the measure value Display：240*128 back lit LCD Power supply： 10-36VDC@1A max / 90 to 245 VAC (48 to 63Hz) Transmitter enclosure: IP65, ABS (Temperature: -20°C~50°C) Output: OCT pulse output 0-10KHz, Relay output, 4-20mA optional Communication: RS232, Modbus Protocol
Code	Output
1	OCT, Relay, RS232/RS485, 4-20mA
2	OCT, Relay, RS232/RS485, 4-20mA, RTD
Code	Transducer
CD01	Clamp-on, IP68. Operating temperature: -40°F ~ +140°F(-40°C ~ +60°C)
C1	Clamp-on, IP68. Operating temperature: -40°F ~ +176°F(-40°C ~ +80°C)
C2	Clamp-on, IP68. 2MHz Pipe size DN15 to DN25 only Operating temperature: -40°F ~ +140°F(-40°C ~ +60°C)
C1U	Clamp-on, IP68. Operating temperature: -40°F ~ +266°F(-40°C ~ +130°C)
W1	Insertion, IP68. Operating temperature: -40°F ~+266°F(-40°C ~ +130°C)
XXX	Transducer cable length
030	Standard length 30ft (9m)
XXX	Max length to 900ft (274m)
Code	Temperature sensor
PT1000	Pt1000 temperature sensor

Standard model: FI-51-1-CD01-030
Description: Standard ensure clamp-on type ultrasonic flowmeter, OCT, Relay, RS232/RS485, 4-20mA , 30ft cable.

Standard energi/btu meter model: FI-51-2-CD01-030-PT1000
Description: Standard enclosure ultrasonic energy/but meter, OCT, Relay, RS485, 4-20mA, with a pair of CD01 clamp on transducer (30ft cable) and a pair of clamp on type PT1000 sensor (30ft cable).