![FISKAL logo]

## 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.<br>Pulse output: 0~10KHz |
| 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)<br>Transducer: -40°F~176°F(-40°C~80°C, standard) |
| Humidity | Up to 99% RH, non-condensing |

### Physical

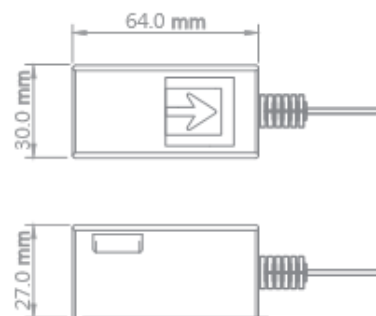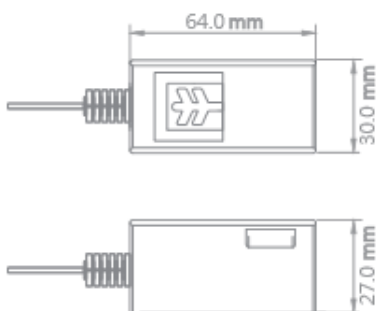| | |
|---|---|
| Transmitter | PC/ABS,IP65 |
| Transducer | ABS, IP68<br>Encapsulated design<br>Double-shielded transducer cable<br>Standard/maximum cable length:30ft/900ft(9m/274m) |

## Transmitter size

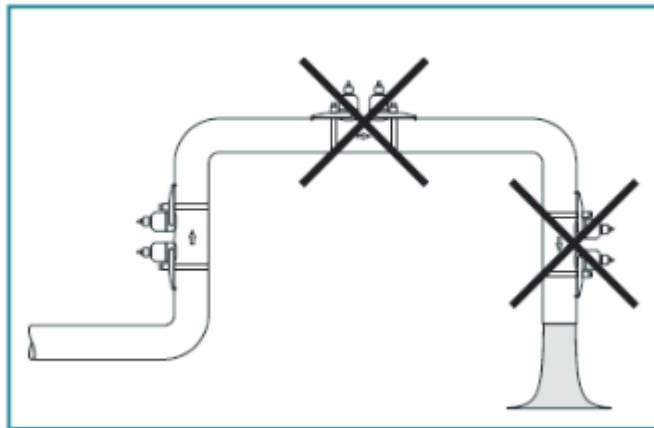Length: 217,80mm

Hight: 152,40 mm
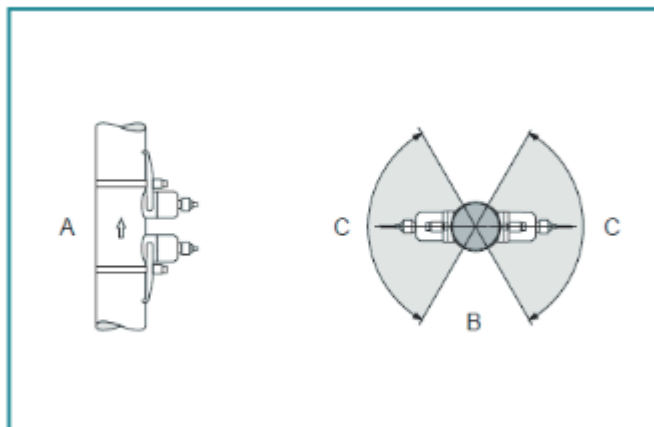
Depth: 64,0 mm
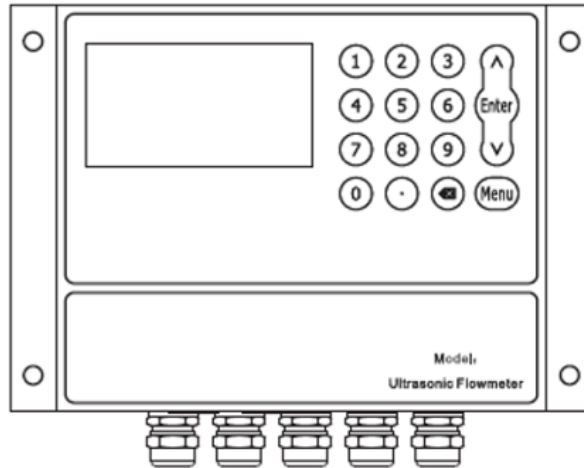
## Transducer size

## 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°.
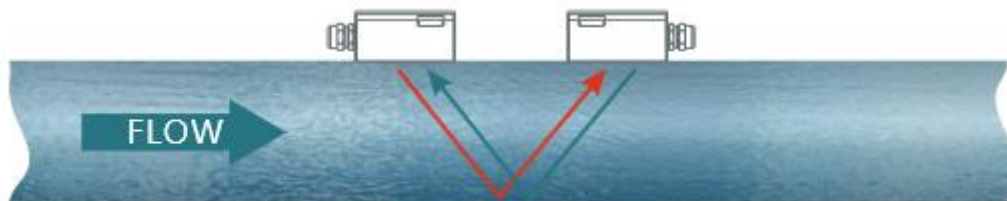
**Straight pipe demand**

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
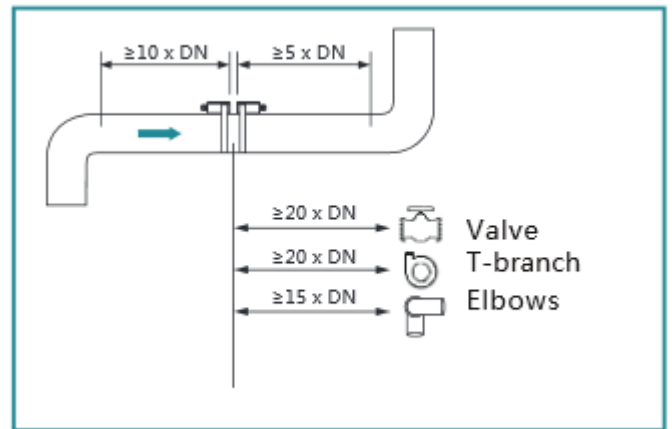
## Measuring principle

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 |
|---|---|
| FT-51 | Ultrasonic flowmeter<br>Wall mount<br>Flow range：±0.09ft/s ~ ±16ft/s (±0.03m/s ~ ±5m/s)<br>Accuracy ：±1% of the measure value<br>Repeatability：0.2% of the measure value<br>Display：240*128 back lit LCD<br>Power supply： 10-36VDC@1A max / 90 to 245 VAC (48 to 63Hz)<br><br>Transmitter enclosure: IP65, ABS (Temperature: -20°C~50°C)<br>Output: OCT pulse output 0-10KHz, Relay output, 4-20mA optional<br>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<br>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).