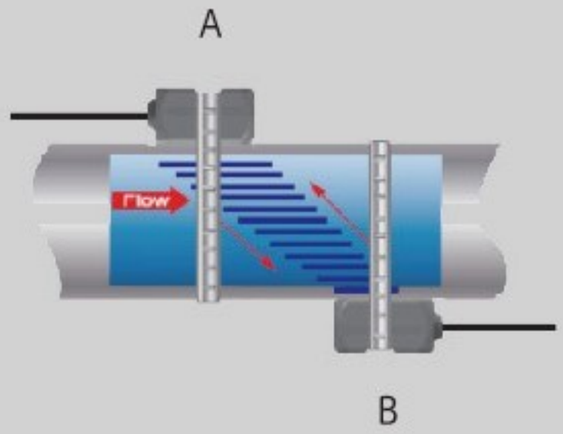
Panda PUTF Series
Transit-time Ultrasonic Flow Meter

Working Principle



Transit-time ultrasonic flow meter utilizes the difference of ultrasonic sound forwarding and reversing flow rate to measure flow. Two transducers that function as both transmitter and receivers are clamped on outside of a closed pipe at a specific distance from each other. The transducer signal travels faster downstream than upstream. By measuring transit time △t , the average flow velocity can be detained. The volume flow Q can be calculated out of the flow velocity V and pipe sectional area S.

$$V = K^{*}(t_{BA} - t_{AB}) = K^{*}\triangle t \quad Q = S \times V$$

tAB:travel time of downstream sound waves tBA:travel time of upstreamsound waves

V = Velocity △t = Time difference K = Constant

Technical Features

- 4 Lines Display Velocity, Flow Rate, Volume And Meter Status
- Clamp-on Mounted, Unnecessary Pipe Cutting Or Processing Interruption Acceptable Fluid
- Temperature Range -40℃~260℃
- Built-in Data Storage Is Optional
- Selecting Temperature Sensor PT1000 To Achieve Thermal Energy Measurement Function
- Suitable For DN20-DN6000 Flow Measurement By Selecting Different Size Transducers
- Bi-directional Measurement

Application

Suitable for measuring clean liquid in fully filled pipe, also for liquid with tiny amounts of solids, air bubbles. Widely applied to many fields, for examples as below...

Water supply and drainage

HAVC

Building energy efficiency

Petrochemical Industrial

Mechanical and Mining

Panda PUTF201 Series
Transit-time Ultrasonic Flow Meter

Summary

PUTF201 series clamp-on transit-time ultrasonic flow meter utilizes transit-time principle. The transducer is mounted outside surface of the pipe without requirements of flow stop or pipe cutting. It’ s very simple, convenient for installation, calibration and maintenance. Different sizes of transducers satisfy different measuring demand. Plus, select thermal energy measuring function to achieve completely energy analysis. It is widely applied in processing monitoring, water balance test, district heating balance test, energy efficiency monitoring as easy installation and simple operation advantages.

Features

- 4 Lines Display Velocity, Flow Rate, Volume And Meter Status
- Clamp-on Mounted, Unnecessary Pipe Cutting Or Processing Interruption
- Acceptable Fluid Temperature Range -40℃~260℃
- Built-in Data Storage Is Optional
- Selecting Temperature Sensor PT1000 To Achieve Thermal Energy Measurement Function
- Suitable For DN20-DN6000 Flow Measurement By Selecting Different Size Transducers
- Bi-directional Measurement, Flow Range From 0.01m/s To 12m/s

Panda PUTF201 Series

Clamp-on Transit-time Ultrasonic Flow Meter

Specification

· Transmitter

Measuring Principle	Transit-time
Velocity	0.01 - 12 m/s, 0.01 - 12 m/s, Bi-directional Measurement
Resolution	0.25mm/s
Repeatability	0.10%
Accuracy	±1.0% R
Response Time	0.5s
Sensitivity	0.003m/s
Damping	0-99s(settable by user)
Suitable Fluid	Clean or tiny amounts of solids, air bubbles liquid , Turbidity <10000 ppm
Power Supply	AC: 85-265V DC:12-36V/500mA
Installation	Wall Mounted
Protection Class	IP66
Operating Temperature	-40℃ ~ +75℃
Enclosure Material	Fiberglass
Display	4X8 Chinese Or 4X16 English, Backlit
Measuring Unit	meter, ft, m^3, liter, ft^3, gallon, barrel etc.
Communication Output	4~20mA, OCT, Relay, RS485 (Modbus-RUT), Data Logger ,GPRS
Energy Unit	Unit: GJ, Opt: KWh
Security	Keypad Lockout, System Lockout
Size	244*196*114mm
Weight	2.4kg

· Transducer

Protection Class	IP67
Fluid Temperature	Std. transducer : -40℃~85℃(Max.120℃) High Temp : -40℃~260℃
Pipe Size	20mm-6000mm
Transducer Size	S (20mm-50mm) M (40mm-1000mm) L (1000mm-6000mm)
Transducer Material	Std.Aluminum alloy, High Temp.(PEEK)
Temperature Sensor	PT1000
Cable Length	Std. 10m (customized)

Panda PUTF201 Series

Clamp-on Transit-time Ultrasonic Flow Meter

Model Selection

PUTF201——A——1——1——/M——N——N——1——N——10m

Model

PUTF201 Clamp-on Transit-time Ultrasonic Flow Meter

Power Supply

A. 85-265VAC+24VDC

B. Solar Power

Output

1. Standard Configuration (4-20mA+OCT+RS485+Relay)

2. Standard Configuration +Hart Protocol

3. Others

Optional

1. Data Storage

N. None

PUTF201 Transducer

S DN20-DN50

M DN40-DN1000

L DN1000-DN6000

Mounting Type

N Common

Y Magnetic

Cable

10m Std. 10m

Xm Common Cable (Max.300m)

XmH High Temp. Cable

Temperature Sensor

N None

1、Clamp on PT1000 (0～+200℃), only for thermal flow meter

2. Insertion PT1000 (0～+200℃), only for thermal flow meter

Stainless Steel Belt

1. 1m (DN20-DN200)

2. 2m (DN250-DN500)

3. 4m(DN600-DN1200)

4. Others

Transducer Temperature

N -40℃～+85℃(Max.120℃)

H -40℃～+260℃

For Example: PUTF201-A-1-1/M-N-N-1-N-10m
Stands for: PUTF201clamp-on ultrasonic flow meter, 220VAC power supply, 4-20mA, OCT, RS485 and relay output, with data storage, M transducer, common mounting type, normal temperature, stainless steel belt 1m, cable length 10m.