

Ultrasonic Energy meter A-EX6



ABOUT A-EX6

A-EX6 is a product that can carry out bidirectional and independent measurement of heat and cold, meeting the needs of users in different regions. Measure coldness in summer and heat in winter.

Uses the latest chip structure design, implement the full digital related technology and intelligent adaptive ultrasonic measurement technology, no moving parts, measurement stability, simple daily maintenance.

A-EX6 has independent flow measurement and temperature measurement circuit, greatly improving the reliability of the whole measurement, flow accuracy can reach 1.0%, temperature measurement is up to 0.02°C limit error, excellent overall performance.

A-EX6 has a friendly menu interface, big display screen, four touch buttons operation, making it no longer difficult to use, at any time query flow, temperature, heat, cold data, can also be daily, monthly and annual query.



APPLICATION

A-EX6 is widely used in central air conditioning, heating, power plants, paper and pulping, pharmaceuticals and medicine, petroleum, chemical, metallurgy, mining and other flow, heat, cold measurement.



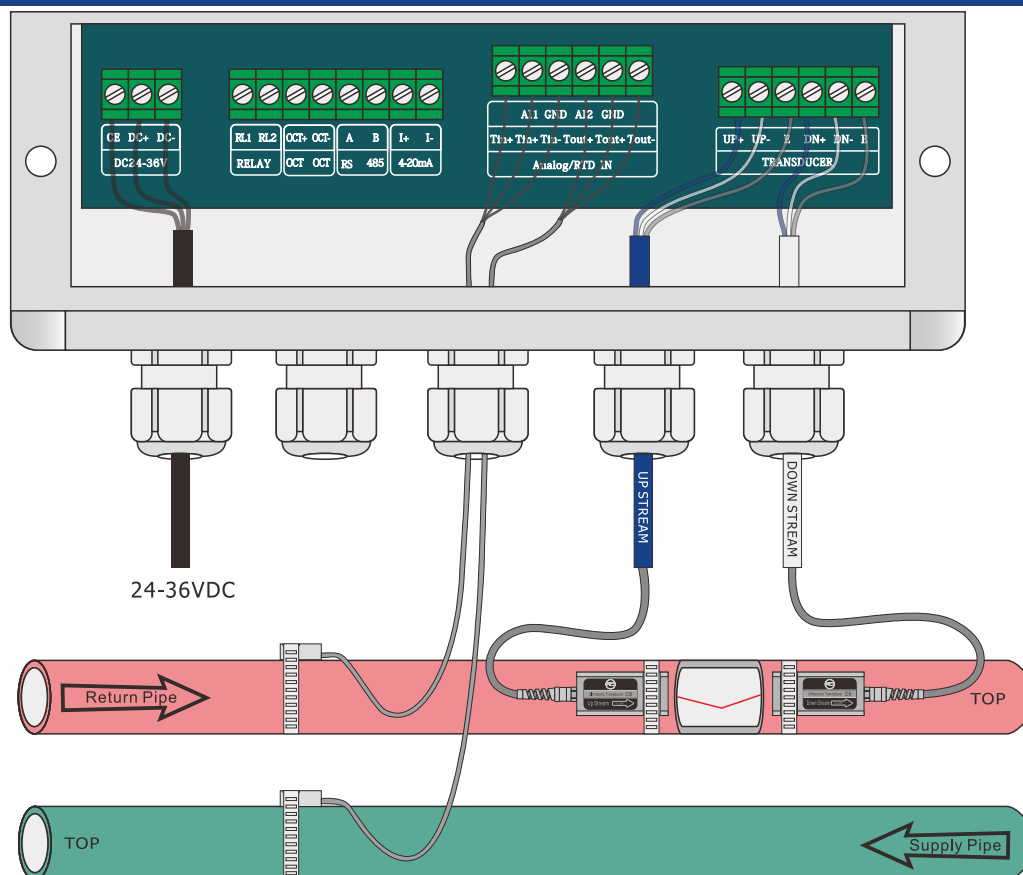
SPECIFICATION

Performance specifications	
Flow range	0~±40 ft/s (0~±12 m/s)
Flow accuracy	±1.0% of measured value (±0.01m/s~12m/s)
Accuracy of cooling	±2.0%
Pipe size	1" to 80" (25mm to 2000mm)
Function specifications	
Outputs	Analog output: 4~20mA (max load 750Ω) Pulse output: 0~9999Hz, OCT, (min. and max. frequency is adjustable) Relay output: SPST, max 1Hz, (1A@125VAC or 2A@30VDC)
Communication	RS485, support Modbus communication protocol
Power supply	24 to 36 VDC
Keypad	Four Touch Key
Display	2.2" TFT LCD 320*240
Temperature	Transmitter: -40°F~140°F (-40°C~ 60°C) Transducer: -40°F~176°F (-40°C ~ 80°C) (standard)
Temperature range	14°F~221°F (-10°C~105°C)
Humidity	Up to 95% RH, non-condensing
Physical specifications	
Transmitter	PC Plastic enclosure. Enclosure:IP54
Clamp On Transducer	Encapsulated design, double-shielded transducer cable. Standard/maximum cable length: 33ft (10m).Enclosure: IP68
Temperature sensor	Clamp On, 3 Wire PT1000, Cable Length: 5m
Weight	Transmitter: approximately 1.1 lb (0.5kg) Transducer: approximately 2.2 lb (1.0 kg) (standard)

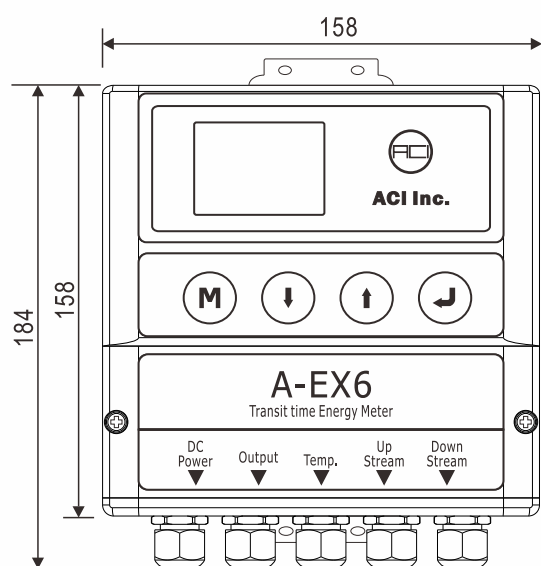
Remark

1. Flow Transducer: Clamp On(Standard), Optional: Wetted Transducer.
2. Temperature Sensor: Clamp On PT1000 (Standard), Optional: Wetted PT1000 Temperature Senso.

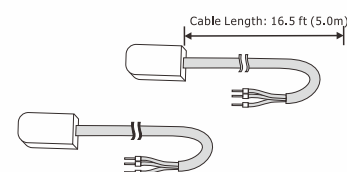
WIRING DIAGRAM



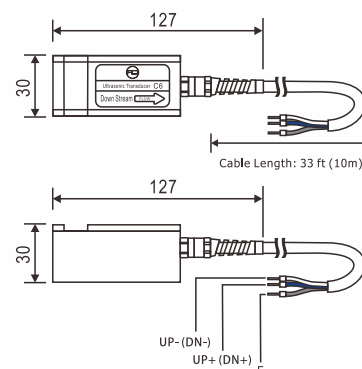
DIMENSIONS



Transmitter dimensions(mm)

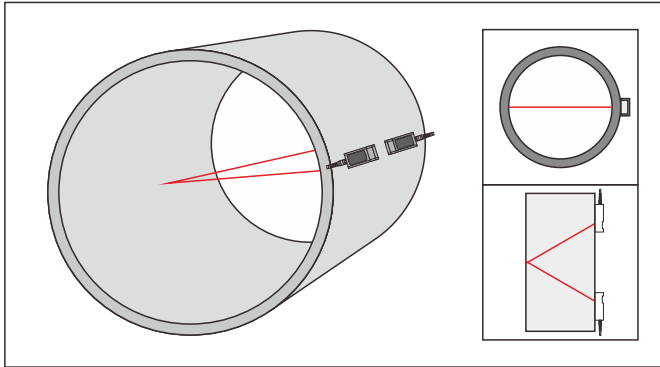


Temperature Sensor dimensions(mm)



Transducer dimensions(mm)

INSTALLATION METHODS



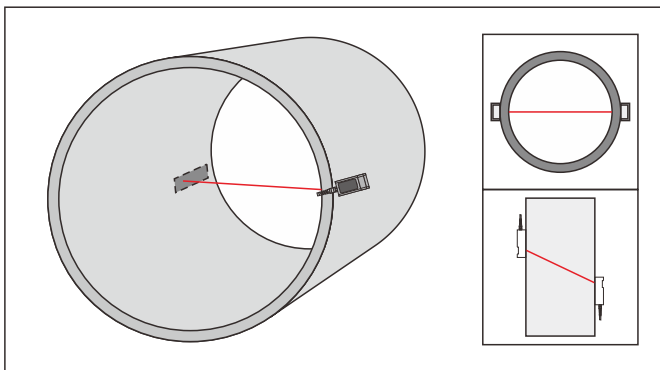
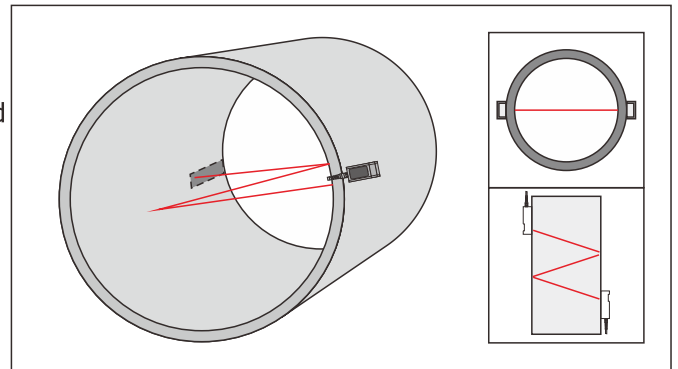
V Method

The V method is considered as the standard method. It usually gives a more accurate reading and is used on pipe diameters ranging from 25mm to 400mm (1"~16") approximately. Also, it is convenient to use, but still requires proper installation of the transducer, contact on the pipe at the pipe's centerline and equal spacing on either side of the centerline.

N Method

With the N method, the sound waves traverse the fluid three times and bounce twice off the pipe walls. It is suitable for small pipe diameter measurement.

The measurement accuracy can be improved by extending the transit distance with the N method (uncommonly used).



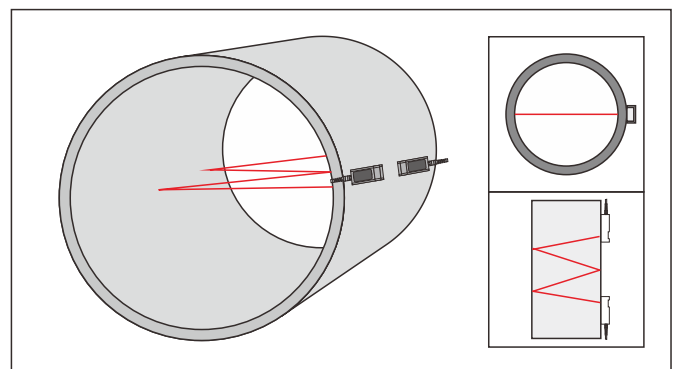
Z Method

The signal transmitted in a Z method installation has less attenuation than a signal transmitted with the V method. This is because the Z method utilizes a directly transmitted (rather than reflected) signal which transverses the liquid only once.

The Z method is able to measure on pipe diameters ranging from 100mm to 2000mm (4"~80").

W Method

As with the N method, the measurement accuracy can also be improved by extending the transit distance with the W method. The sound wave traverses the fluid four times and bounces three times off the pipe walls. It is suitable for very small pipe (diameters less than 50mm, 2").



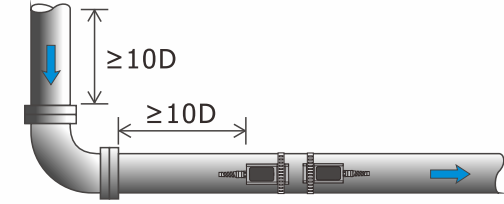
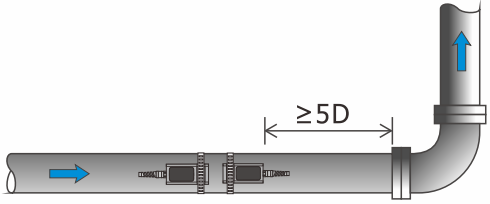
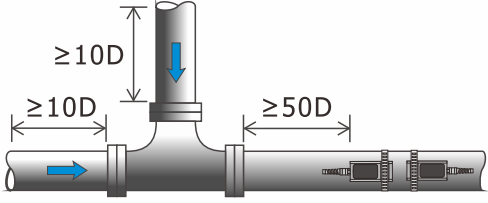
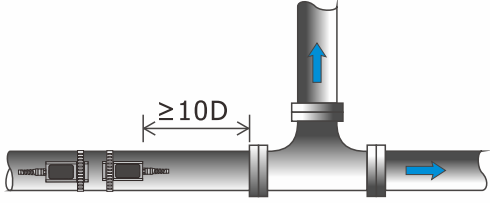
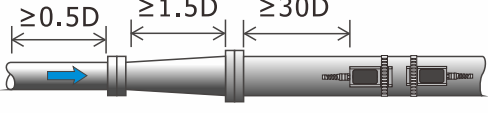
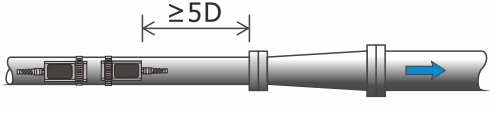
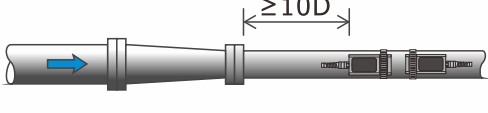
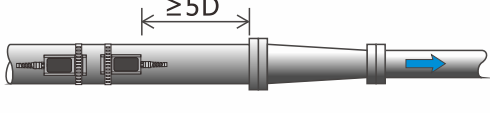
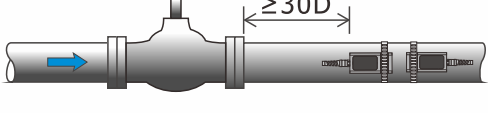
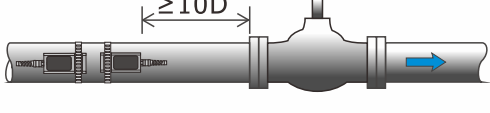
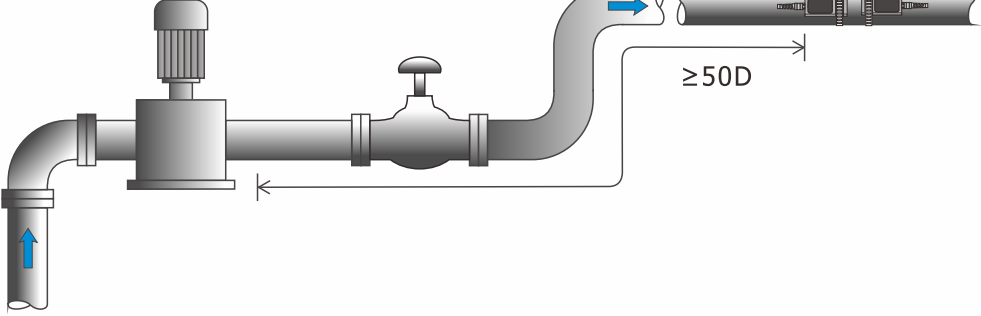
INSTALLATION SITE SELECTION

Choose a section of pipe, which is always full of liquid, such as a vertical pipe with flow in the upward direction or a full horizontal pipe.

Ensure that the pipe surface temperature at the measuring point is within the transducer temperature limits.

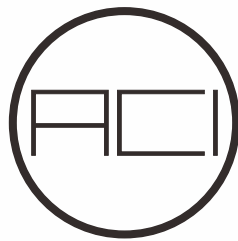
Consider the inside condition of the pipe carefully. If possible, select a section of pipe where the inside is free excessive corrosion or scaling. Choose a section of sound conducting pipe.

Examples acceptable measurement site selection is illustrated on the figure on the below.

Site	Installation point front straight section	Straight pipe section after installation point
90° bend		
Tee		
Diffuser		
Reduce		
Valve		
Pump		

ORDERING INFORMATION

Code	Description
A-EX6	Ultrasonic Energy meter A-EX6 Installation method: Wall mount Flow accuracy: $\pm 1.0\%$ of measured value ($\pm 0.01\text{m/s} \sim 12\text{m/s}$) Accuracy of cooling: $\pm 2.0\%$ Pipe size: 1" to 80" (25mm to 2000mm) Keypad: Four Touch Key Display: 2.2" TFT LCD 320*240 Power supply: 24 to 36VDC Transmitter enclosure: IP54, PC Plastic enclosure Output: 4~20mA, OCT pulse output, relay output Communication: RS-485 terminal Modbus Protocol
Code	Transmitter enclosure area classification
1	IP54, PC Plastic enclosure
2	Customer specific requirements
Code	Flow Transducer
C6	Clamp on transducer. Operating temperature: $-40^{\circ}\text{F} \sim 176^{\circ}\text{F}$ ($-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$). Enclosure: IP68
CH8	Clamp on transducer. Operating temperature: $-40^{\circ}\text{F} \sim 221^{\circ}\text{F}$ ($-40^{\circ}\text{C} \sim 130^{\circ}\text{C}$). Enclosure: IP68
Code	Temperature Sensor
0	User self-supporting
1	PT1000 Clamp on Temperature Sensor. Operating temperature: $14^{\circ}\text{F} \sim 221^{\circ}\text{F}$ ($-10^{\circ}\text{C} \sim 105^{\circ}\text{C}$)
2	PT1000 Wetted Temperature Sensor. Operating temperature: $14^{\circ}\text{F} \sim 221^{\circ}\text{F}$ ($-10^{\circ}\text{C} \sim 105^{\circ}\text{C}$)
Code	Flow Transducer Cable
033	Cable length 33 feet (10m)
xxx	Extended length, up to 656 feet (200m), per 16 feet (5m) is a lengthen unit



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