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Insertion-type Ultrasonic Flow Meter

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APPLICATIONS

Insertion-type Ultrasonic Flow Meter

Insertion-type Ultrasonic Flow Meter utilizes advanced intelligence and integrative mixed signal processing technology, resulting in high-precision measurements. With a specialized opening tool, the insertion transducer can be installed without shutting off the water flow. Since the transducer is in direct contact with the fluid, it ensures stable and reliable measurement. This ultrasonic flow meter is widely used in process control, production measurement, trade settlement, and other fields. It has seen extensive application in water supply and drainage, metallurgy, petrochemical industries, water resource management, and energy monitoring sectors.

- No need to shut off water during installation
- One-channel, two-channel, and four-channel transducers available
- Measurement accuracy ranges from 0.5% to 1%, depending on the number of channels
- Compatible with pipe diameters from DN50 to DN6000
- Large LCD display provides abundant information
    - Operates with fluid temperatures ranging from -30°C to 160°C
    - Durable stainless steel transducers

- Can connect to three-wire or four-wire temperature transducers for heat/cooling energy measurement

THEORY & METHOD

Insertion-type Ultrasonic Flow Meter Classification

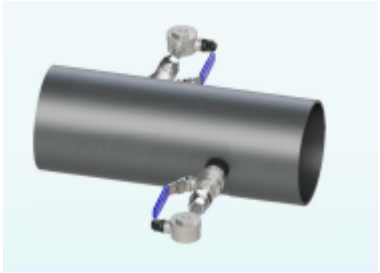
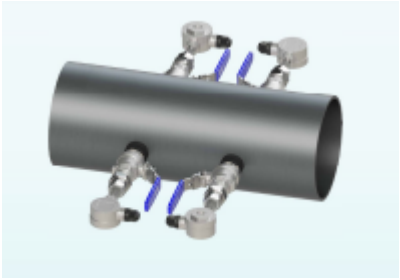
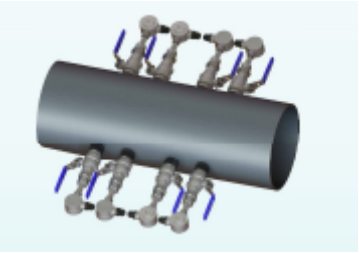
The multi-channel insertion ultrasonic flow meter consists of a converter and insertion transducers. The converter and insertion transducers can be combined in various configurations, allowing for one-channel, two-channel, or four-channel flow measurement to accommodate different precision requirements and measurement scenarios.

Optional Converters

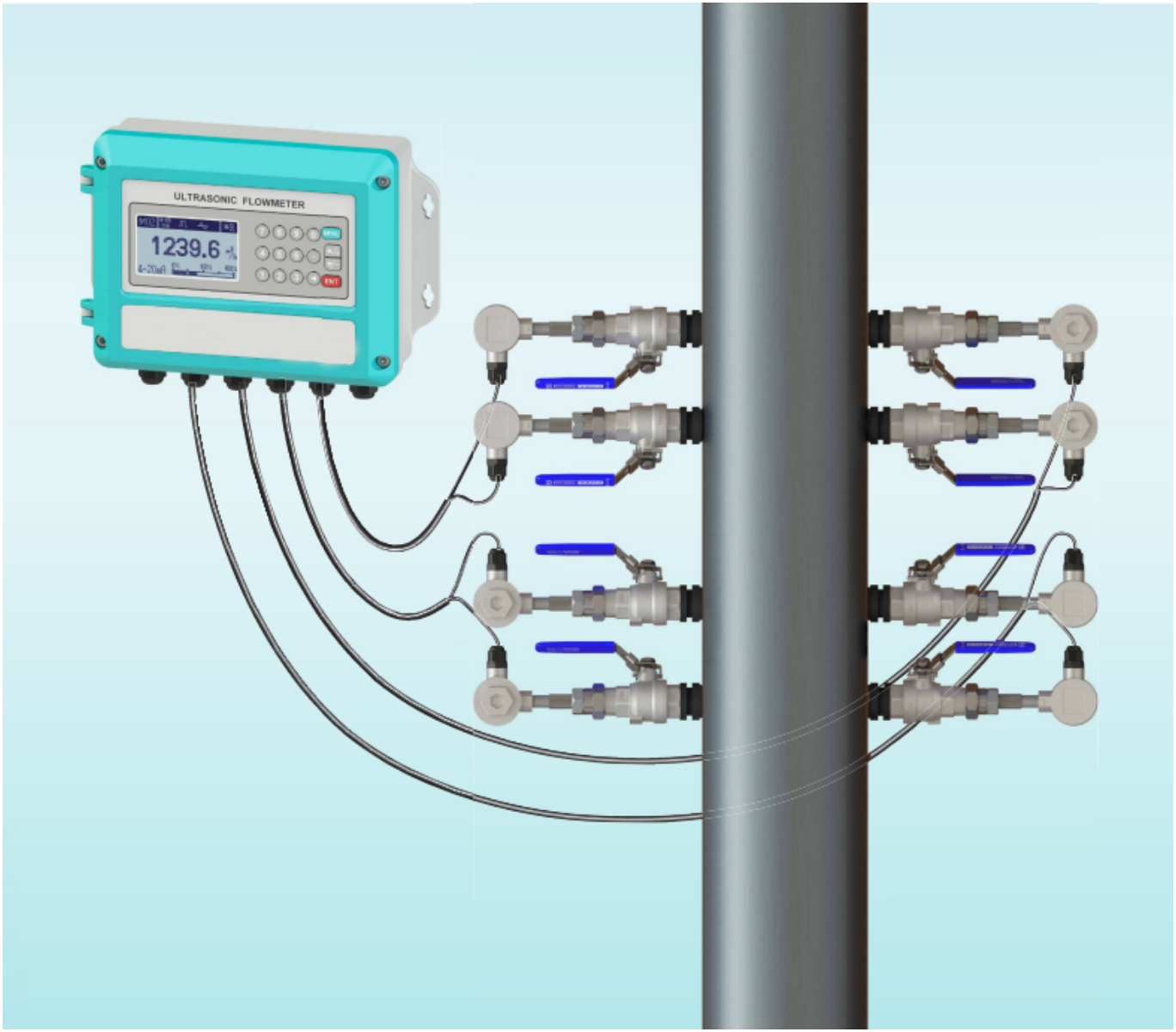
Fixed mount converter

 **Wall mount converter**	 **Module converter**
 **Explosion proof converter**	 **Panel mount converter**

Optional Transducer

 **One-channel transducer**	 **Two-channel transducer**	 **Four-channel transducer**

1. Insertion-type Ultrasonic Flow Meter Wall mount



- The converter can be mounted on walls or instrument boxes
- Large LCD display provides abundant information
- One-channel, two-channel, and four-channel options available
- Navigation menu with sixteen-digit key operation

- Durable die-cast aluminum converter
- Equipped with a stainless steel probe and probe column
- 32 megabytes of memory, with optional USB mass storage
- Can connect to three-wire or four-wire Pt100 temperature transducers for heat/cooling energy measurement

Working environment

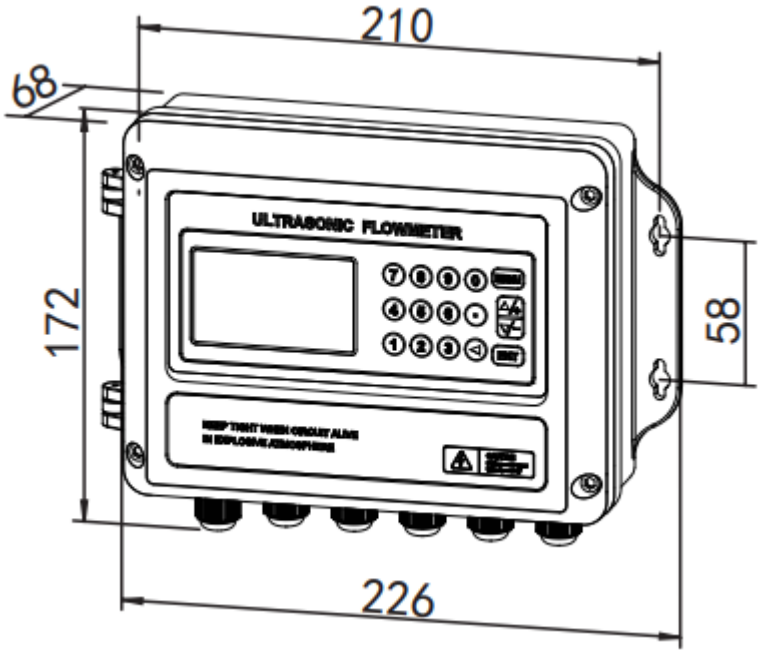
	Converter	**Transducer**
Protection class	IP67	IP68
Humidity	≤85%RH	IP68
Temperature	-20~60℃	-30℃~160℃

Essential parameter

	One-channel	**Two-channel**	**Four-channel**
Accuracy	±1%	±0.5%	±0.5%
Flow rate	≥0.3m/s	≥0.3m/s	≥0.1m/s
Pipe diameter	DN50~DN6000mm		
Liquid temperature	-30℃~160℃		
Type of liquid	Water, sea water, sewage, Acid-alkali solution, ethyl alcohol, beer, single and even liquid which can transmit sound wave, such as oil, etc.		
Signal output	1 way 4-20mA output, electric resistance 0-1K(DC24V power supply), accuracy 0.1% 1 way OCT pulse output , pulse width 6-1000ms 1 way relay output or frequency output		
Signal input	3 way 4-20mA input, can be a data collector Connect three wire/four wire PT100 temperature transducer to realize heat/cooling energy measurement		

Data interface	Insulate RS485 serial interface, support the MODBUS
Power supply	DC8-36V;AC10-30V;AC85-264V (110V also available)

Installation dimension



2. Insertion-type Ultrasonic Flow Meter Module

- DIN-rail mounting for batch installation in instrument boxes or distribution cabinets
- Large LCD display provides abundant information
- One-channel option available

- Navigation menu with four-digit key operation
- Built-in 32 megabytes of memory, capable of storing 2000 rows of data
- Equipped with a stainless steel probe and probe column
- Small size and cost-effective
- Can connect to three-wire Pt100 temperature transducers for heat/cooling energy measurement

Working environment

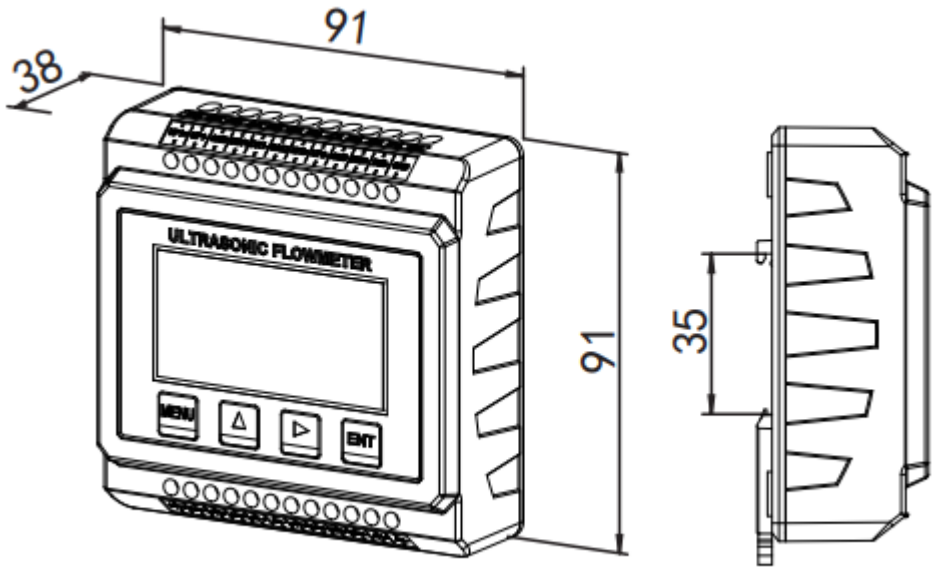
	Converter	**Transducer**
Protection class	IP30	IP68
Humidity	≤80%RH	IP68
Temperature	-20~60℃	-30℃~160℃

Essential parameter

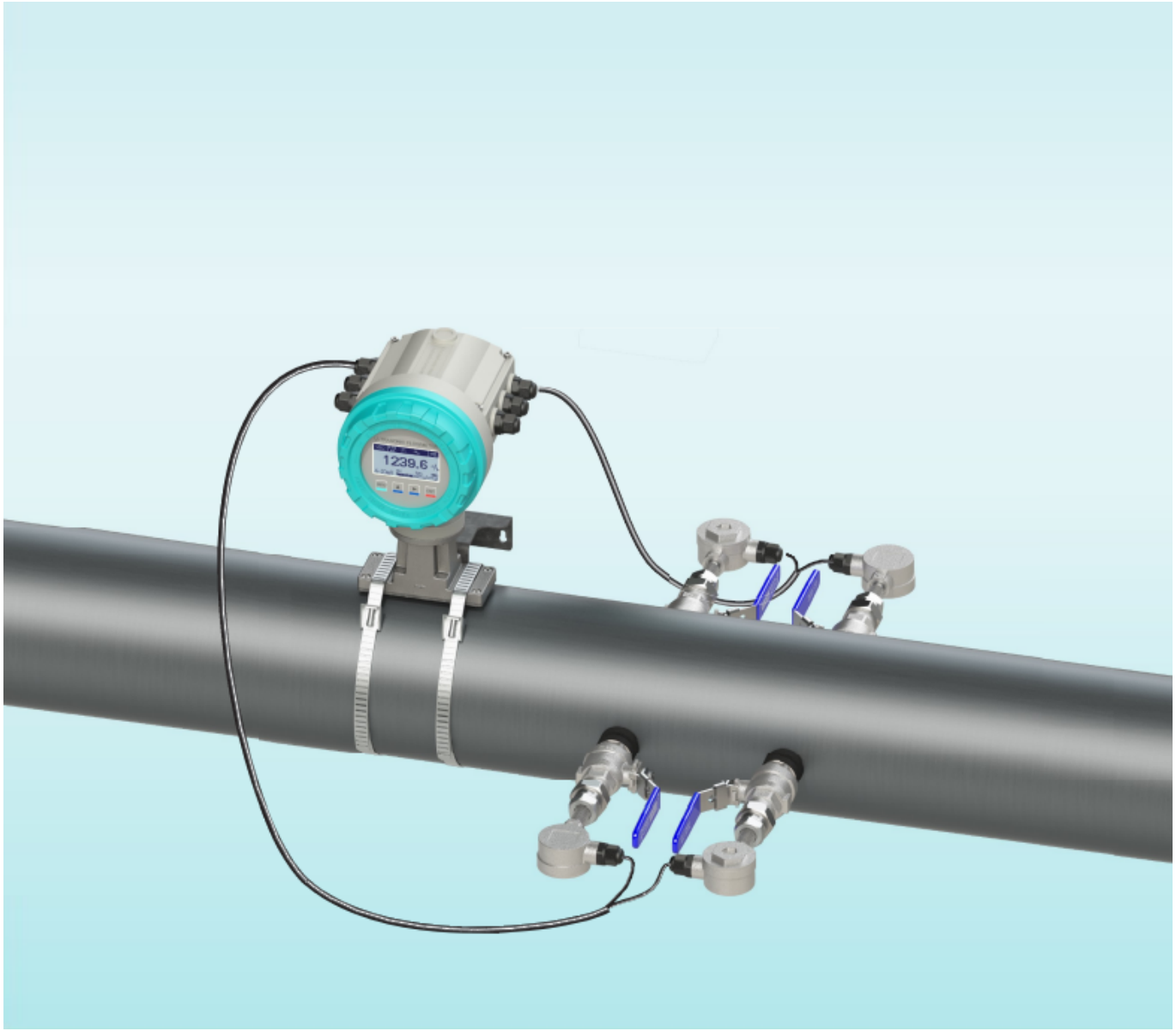
	One-channel		
Accuracy	±1%		
Flow rate	≥0.3m/s		
Pipe diameter	DN50~DN6000mm		
Liquid temperature	-30℃~160℃		
Type of liquid	Water, sea water, sewage, Acid-alkali solution, ethyl alcohol, beer, single and even liquid which can transmit sound wave, such as oil, etc		
Signal output	1 way 4-20mA output, electric resistance 0-1K (DC24V power supply), accuracy 0.1% 1 way OCT pulse output , pulse width 6-1000ms 1 way relay output or frequency output		

Signal input	3 way 4-20mA input, can be a data collector Connect three wire/four wire PT100 temperature transducer to realize heat/cooling energy measurement
Data interface	Insulate RS485 serial interface, support the MODBUS
Power supply	DC8-36V;AC10-30V (110V also available)

Installation dimension



3. Insertion-type Ultrasonic Flow Meter Fixed mount



- Converters can be installed on wall surfaces or pipes
- Large LCD display provides abundant information
- One-channel, two-channel, and four-channel options available

- Navigation menu with four-digit capacitive key operation
- Durable die-cast aluminum converter
- Equipped with a stainless steel probe and probe column
- Can connect to three-wire or four-wire Pt100 temperature transducers for heat/cooling energy measurement

Working environment

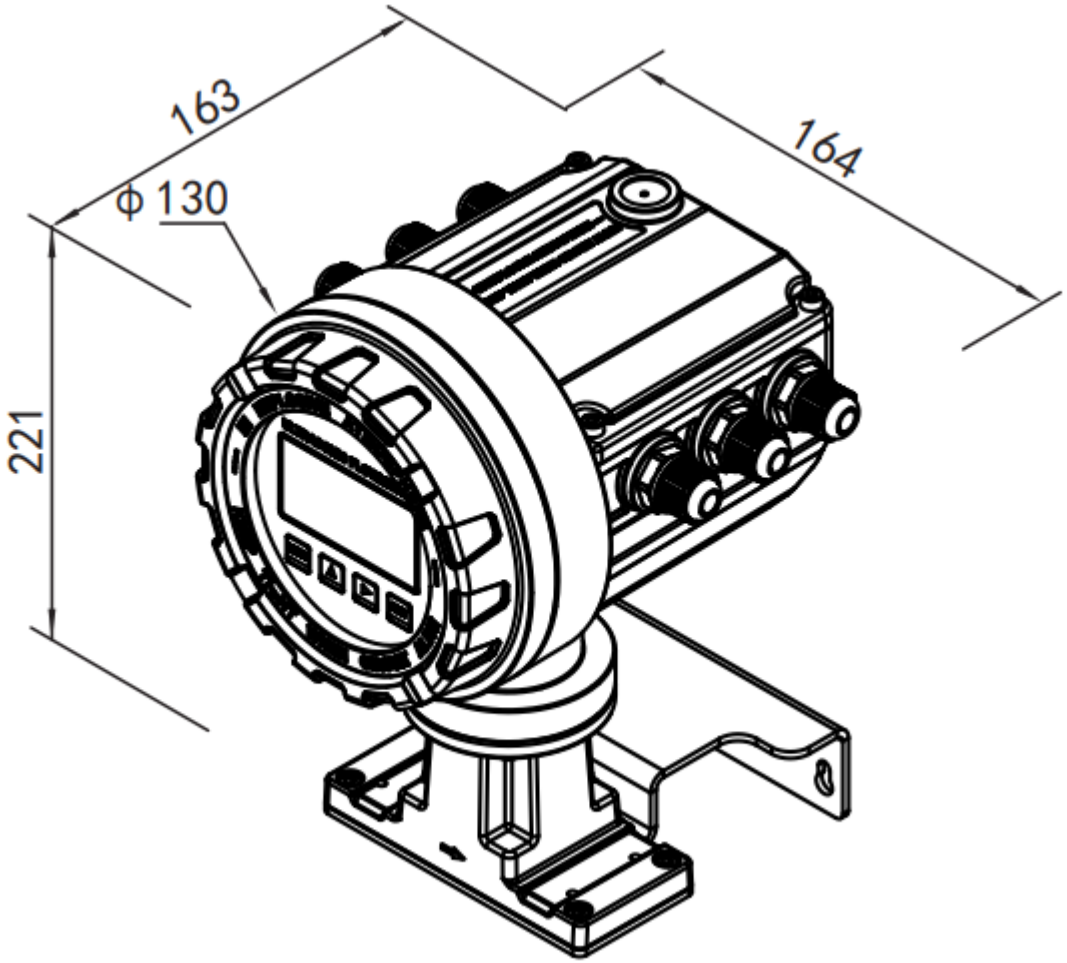
	Converter	**Transducer**
Protection class	IP68	IP68
Temperature	-20~60℃	-30℃~160℃

Essential parameter

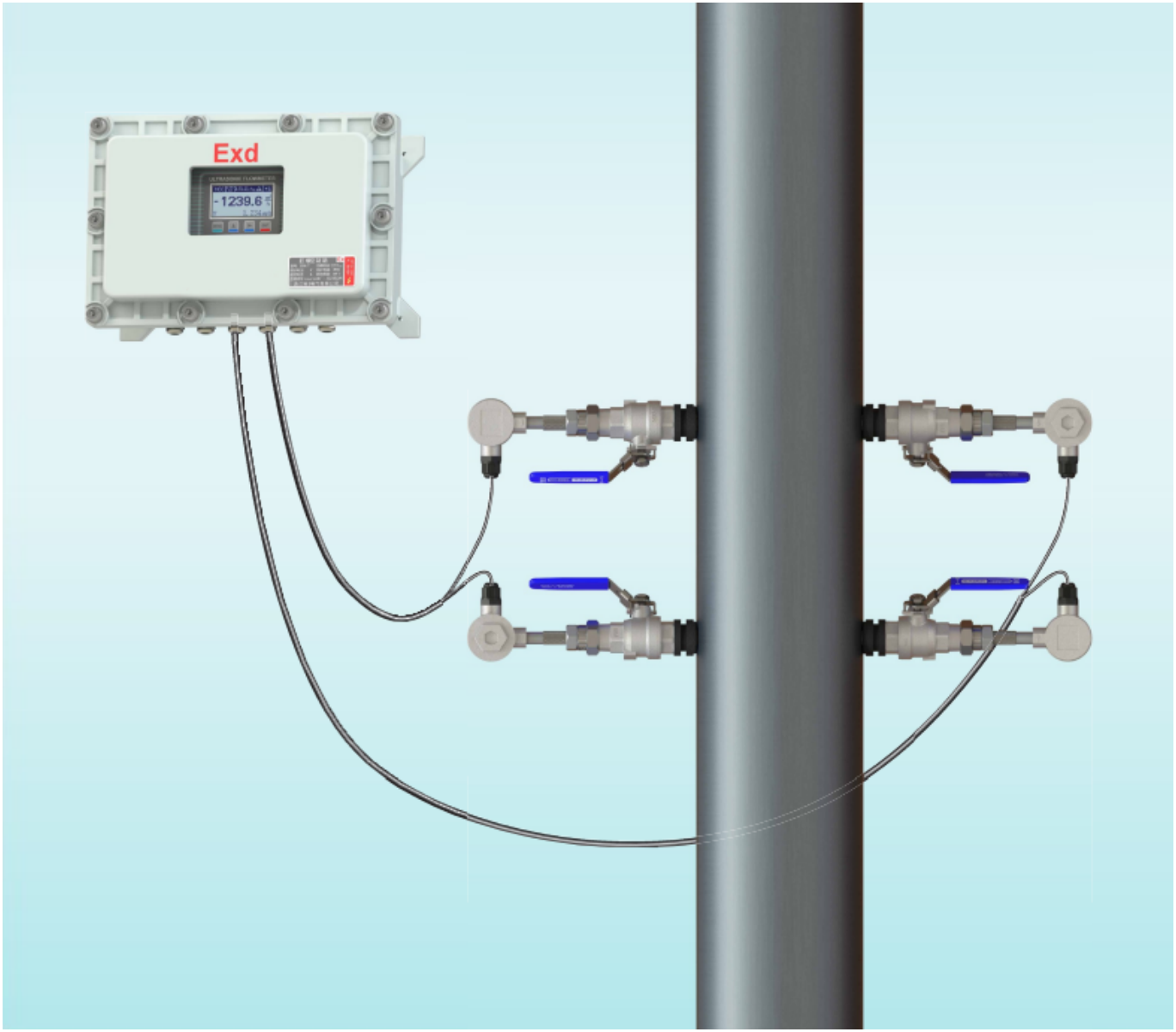
	One-channel	**Two-channel**	**Four-channel**
Accuracy	±1%	±0.5%	±0.5%
Flow rate	≥0.3m/s	≥0.3m/s	≥0.1m/s
Pipe diameter	DN50~DN6000mm		
Liquid temperature	-30℃~160℃		
Type of liquid	Water, sea water, sewage, Acid-alkali solution, ethyl alcohol, beer, single and even liquid which can transmit sound wave, such as oil, etc		
Signal output	1 way 4-20mA output, electric resistance 0-1K (DC24V power supply), accuracy 0.1% 1 way OCT pulse output , pulse width 6-1000ms 1 way relay output or frequency output		
Signal input	3 way 4-20mA input, can be a data collector Connect three wire/four wire PT100 temperature transducer to realize heat/cooling energy measurement		

Data interface	Insulate RS485 serial interface, support the MODBUS
Power supply	DC8-36V; AC10-30V; AC85-264V (Optional waterproof power adapter) (110V also available)

Installation dimension



4. Insertion-type Ultrasonic Flow Meter Explosion proof



- Isolation-type explosion-proof, suitable for flammable and explosive environments

- Explosion-proof class: DIIBT5
- Large LCD display provides abundant information
- One-channel, two-channel, and four-channel options available
- Navigation menu with four-digit key operation
- Durable die-cast aluminum converter
- Equipped with a stainless steel probe and probe column
- Can connect to three-wire or four-wire Pt100 temperature transducers for heat/cooling energy measurement

Working environment

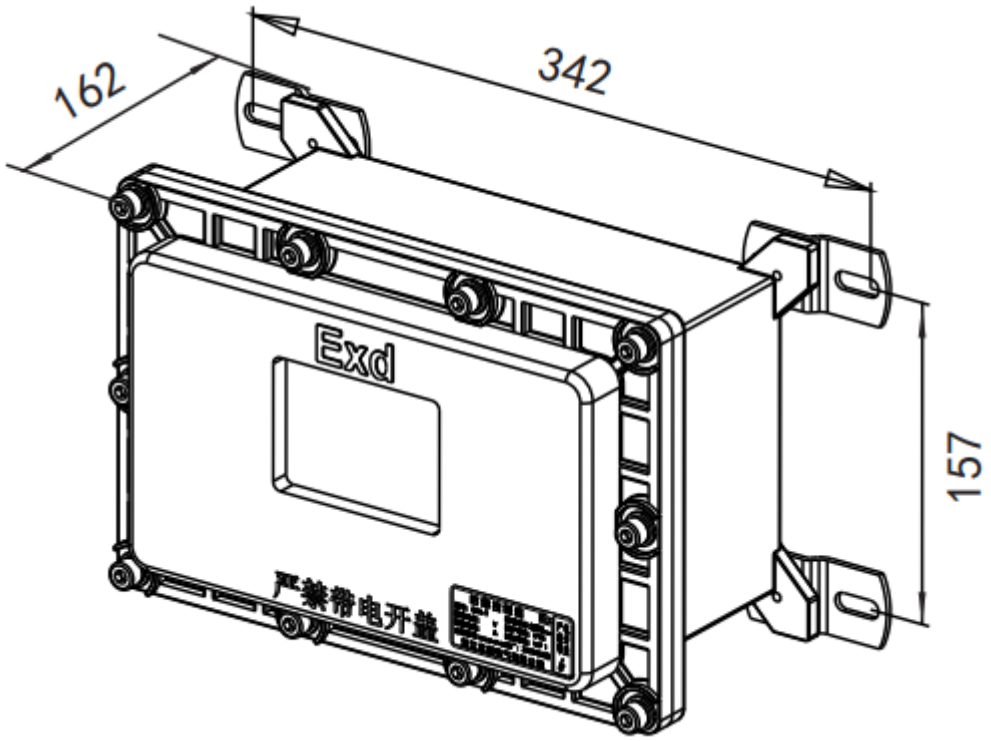
	Converter	**Transducer**
Protection class	IP65	IP68
Humidity	≤85%RH	IP68
Temperature	-20~60℃	-30℃~160℃

Essential parameter

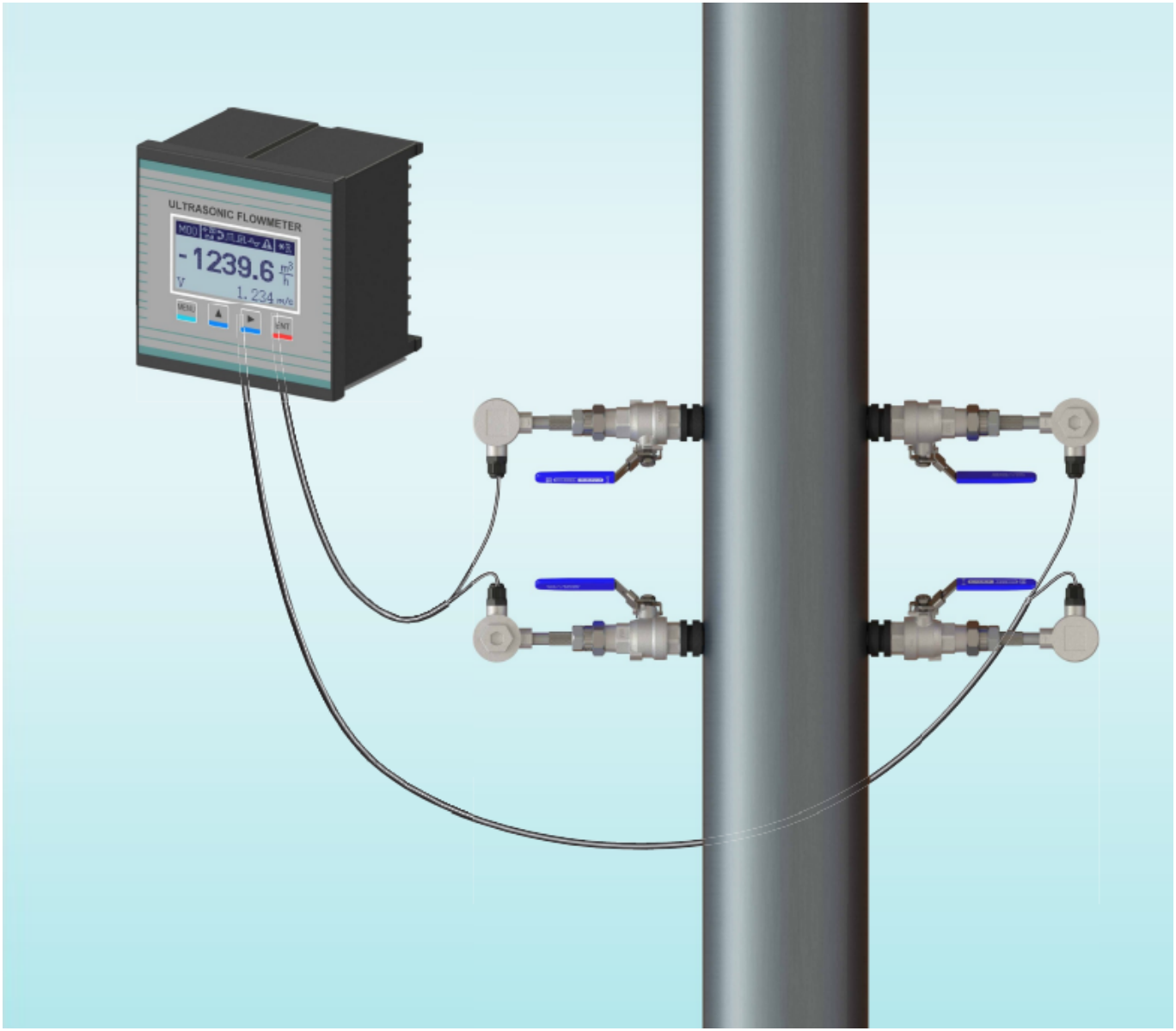
	One-channel	**Two-channel**	**Four-channel**
Accuracy	±1%	±0.5%	±0.5%
Flow rate	≥0.3m/s	≥0.3m/s	≥0.1m/s
Pipe diameter	DN50~DN6000mm		
Liquid temperature	-30℃~160℃		
Type of liquid	Water, sea water, sewage, Acid-alkali solution, ethyl alcohol, beer, single and even liquid which can transmit sound wave, such as oil, etc.		

Signal output	1 way 4-20mA output, electric resistance 0-1K (DC24V power supply), accuracy 0.1% 1 way OCT pulse output, pulse width 6-1000ms 1 way relay output or frequency output
Signal input	3 way 4-20mA input, can be a data collector Connect three wire/four wire PT100 temperature transducer to realize heat/cooling energy measurement
Data interface	Insulate RS485 serial interface, support the MODBUS
Power supply	DC8-36V;AC10-30V;AC85-264V (110V also available)

Installation dimension



5. Insertion-type Ultrasonic Flow Meter Panel Mount



- Suitable for instrument panel mounting
- Large LCD display provides abundant information
- One-channel and two-channel options available
- Navigation menu with four-digit key operation
- Shell made of ABS engineering plastics
- Equipped with a stainless steel probe and probe column
- Can connect to three-wire or four-wire Pt100 temperature transducers for heat/cooling energy measurement

Working environment

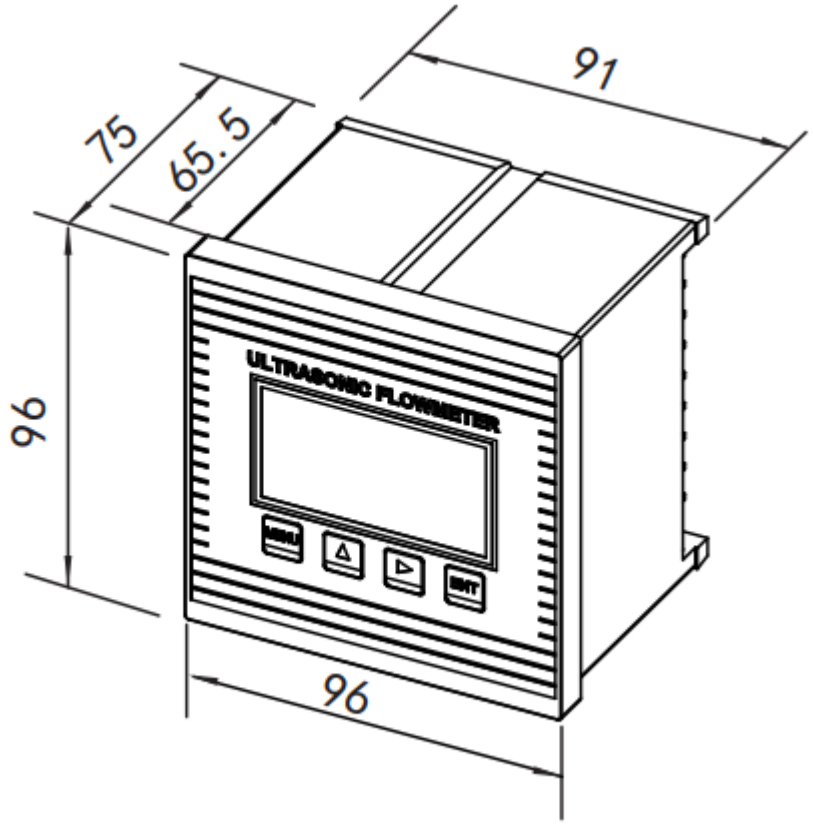
	Converter	**Transducer**
Protection class		IP68
Humidity	≤80%RH	IP68
Temperature	-20~60℃	-30℃~160℃

Essential parameter

	One-channel	**Two-channel**	
Accuracy	±1%	±0.5%	
Flow rate	≥0.3m/s	≥0.3m/s	
Pipe diameter	DN50~DN6000mm		
Liquid temperature	-30℃~160℃		
Type of liquid	Water, sea water, sewage, Acid-alkali solution, ethyl alcohol, beer, single and even liquid which can transmit sound wave, such as oil, etc.		

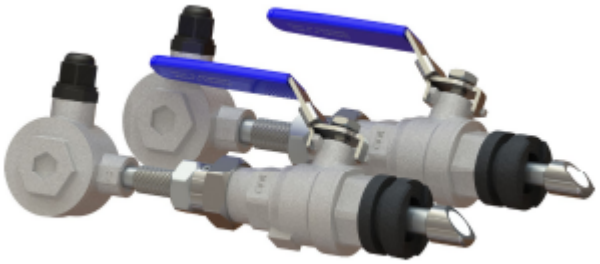
Signal output	1 way 4-20mA output, electric resistance 0-1K (DC24V power supply), accuracy 0.1% 1 way OCT pulse output , pulse width 6-1000ms 1 way relay output or frequency output
Signal input	3 way 4-20mA input, can be a data collector Connect three wire/four wire PT100 temperature transducer to realize heat/cooling energy measurement
Data interface	Insulate RS485 serial interface, support the MODBUS
Power supply	DC8-36V;AC10-30V (110V also available)

Installation dimension

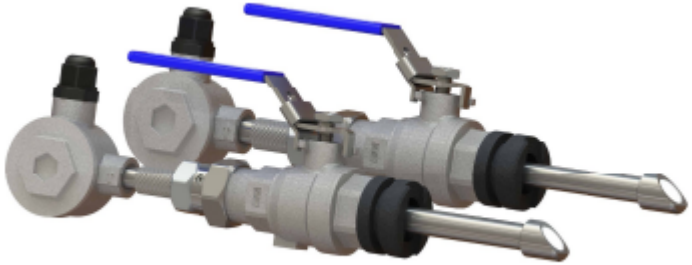


6. Insertion-type Ultrasonic Flow Meter Transducer introduction

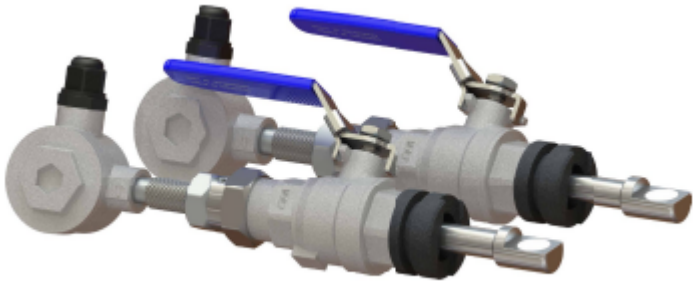
Standard Insertion Transducer(ATC-1)

	• Suitable for carbon steel pipe, stainless steel pipe, cement pipe, cast iron pipe, steel pipe, PVC pipe, or composite pipe • Pipe wall thickness up to 20 mm • Measurement diameter range from DN50 to DN6000 • Temperature range: -30°C to +160°C

Lengthen Insertion Transducer(ACT-2)

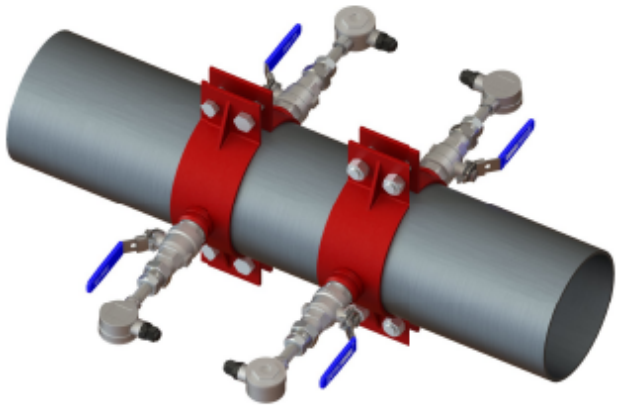
	• Suitable for carbon steel pipe, stainless steel pipe, cement pipe, cast iron pipe, steel pipe, PVC pipe, or composite pipe • Pipe wall thickness up to 70 mm • Measurement diameter range from DN50 to DN6000 • Temperature range: -30°C to +160°C

Parallel Insertion Transducer(ATP-1)

	• Suitable for locations with limited installation space • Compatible with both weldable and non-weldable pipes • Unlimited wall thickness with insertion depth at 1/3 of pipe diameter • Measurement diameter range from DN80 to DN6000 • Temperature range: -30°C to +160°C

Pipe hoop

The insertion transducer can be installed without welding using a pipe hoop, allowing for the installation of the insertion ultrasonic flow meter without interrupting water flow. This method is particularly suitable for installing on cement pipe, cast iron pipe, PVC, copper pipe, or composite pipe.



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