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Golden Rules Co., Ltd

Liquid
Wall mount type

KC-7780W Series Ultrasonic Flowmeter



The nation's development item, 100% domestic goods, Patent **NO.** 10-1660226

11. ULTRASONIC FLOWMETER

11-3. Ultrasonic Flowmeter KC-7780W Series

Golden Ruled The KC-7780W series flowmeter can be virtually applied to a wide range of long-term online measurement. Converter protection class IP67, transducer protection class IP68.

A variety of liquid applications can be accommodated: ultra-pure liquids, potable water, chemicals, raw sewage, reclaimed water, cooling water, river water, plant, effluent. Etd

- Applications : Oil & Gas Industries / Chemical / Pharmaceutical / Food & Beverage / Metal / Mining / Pulp & Paper / Wastewater Industries.



Wall Mount Type
KC-7780W



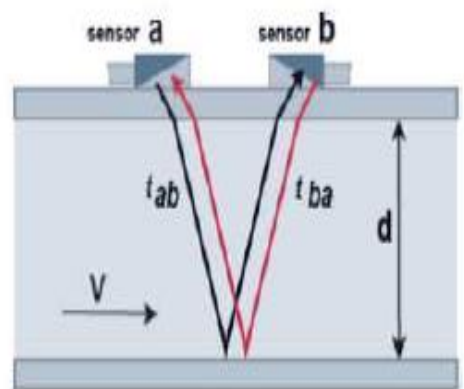
Transducers

Measurement Principle

When ultrasonic waves are irradiated into the pipe through which the fluid is flowing, the ultrasonic wave that propagates (t_{ab} up-stream \rightarrow down-stream) it reaches quickly in proportion to the sum of the flow rates, the ultrasonic wave (t_{ba} down-stream \rightarrow up-stream) the time difference ($t_{ab}-t_{ba}$) Δt is reached due to the slow arrival in proportion to the difference in flow rate.

Will occur. Since the propagation Δt generated here is a correlation function of the fluid velocity, the average flow velocity (V) in the sound wave path is calculated based on this, and the flow rate (Q) is calculated again taking into account the cross-sectional area of the pipe bore (d). In this case, ultrasonic waves have the characteristics of sound waves and pass through with a unique flow velocity depending on the fluid.

$$Q = A \times Vb$$



Wall Mount type Measuring Diagram-Clamp

Flow Measurement




Heat Measurement



Optional Temperature Transducer

Connect the temperature transducer can finish the heat / energy measurement

Picture	Specification	Model	Measurement Range	Temperature	Cut of water	Accuracy
	Pt100 Patch Type Surface Thermometer	PT.3M	< DN50	-40 ... +60 °C	No	100 °C ± 0.8 °C Exact match temperature difference ≤ 0.1 °C

Features

- No need to cut off water, no pressure loss
- Connect clamp-on temperature, transducer, can finish the heat / energy measurement
- Easy for installation
- Power Supply DC 8 ~ 36V or AC 85 ~ 264V
- Accuracy ± 1.0% F.S
- Wide measuring range DN15 ~ DN6000
- High reliability, low voltage application, 4-20mA technology, long life and reliability
- Single liquid can transmitter sound wave

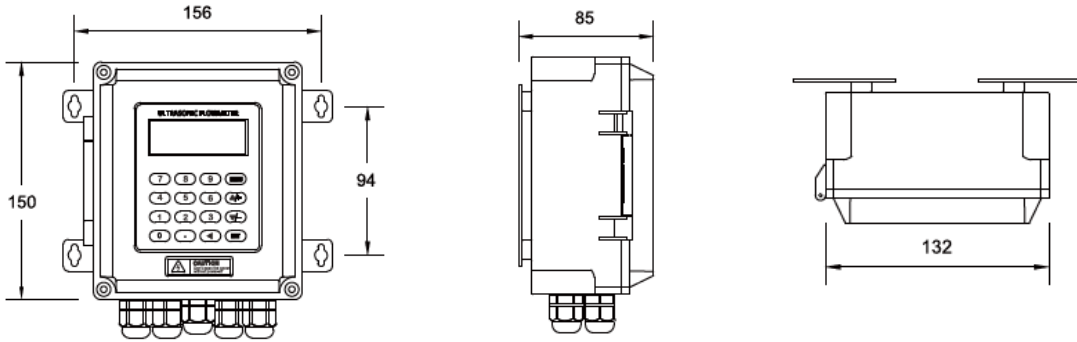
Performance Spec'

- Measurement Principle: Transit-time Ultrasonic Flowmeter
- Repeatability: $\pm 0.5\%$
- Response time: within 1 second
- Flow rate range: $0 \sim \pm 10$ m/s
- Function: Instantaneous & Accumulated
- Resolution: 0.5 mm/s
- Sensitivity: 0.03 m/s
- The clamp-on design is not necessary to shut down flow or cut the pipe when installing the Ultrasonic Flow Transmitter.

Operating Spec'

- Measurement Liquid: Clean fluid or slightly turbid fluid (turbidity < 10,000ppm : less bubble)
- Enclosure type: Wall mount or Handheld type
- Display: 2 x 20 character LCD with backlight
- Enclosure Protection class: IP67 or IP68
- Enclosure material: Aluminum alloy
- Measuring medium : Water, Oil, Alcohol, Beverage, Ultra-pure liquid, etc.
- Fluid temperature: $-30 \sim +160^{\circ}\text{C}$ standard
- Ambient temperature: Converter: $-20 \sim 60^{\circ}\text{C}$ standard / Flow Transducer: $-30 \sim +160^{\circ}\text{C}$
- Ambient Humidity: Converter 85% RH / Flow Transducer: Water depth < 2m
- Units: Metric & imperial units are available
m³/h, L/h, GAL/h, m³/min, L/min, GAL/min, Default unit setting : m³/h
- Output: 4 – 20mA DC, electric resistance $0 \sim 1$ K, accuracy 0.1%
- Connect the temperature transducer PT100
- Communication protocol: Modbus RS – 485
- Auxiliary output: OCT, Relay output (Pulse width 1000 ms, default is 200ms)
- Power Supply DC 8 ~ 36V or AC 85 ~ 264V
- Power consumption : 1.5 W
- Line Size: 15 ~ 6000 mm
- Pipe Mat'l: Carbon Steel, Stainless Steel, Cast Iron, Copper, Cement, Pipe, PVC, Aluminum, Glass steel product, liner is allowed
- Straight pipe : Transducer installation should be satisfied : upstream 10D, downstream 5D, 30D from pump
- Special cable : Twisted-pair cable, generally, the length under 50 meters ; Select the RS-485, transmission distance can over 1000m
- Converter Dimension : 132 x 150 x 85 mm

제품치수 I



옵션 트랜스듀서 II

Please choose the suitable transducer, according to different liquid pipe condition and installation method, (please refer to the measuring diagram P2).

Types	Picture	Model	Measurement Range	Temperature	Dimension
Clamp on		TS-2 (Small)	DN25 ... 100	-30 ... +90 °C	45 x 25 x 32 mm
		TM-1 (Medium)	DN50 ... 700		64 x 39 x 44 mm
		TL-1 (Large)	DN300 ... 6000		97 x 54 x 53 mm
High temp clamp on		TS-2-HT (Small)	DN25 ... 100	-30 ... +160 °C	45 x 25 x 32 mm
		TM-1-HT (Medium)	DN50 ... 700		64 x 39 x 44 mm
		TL-1-HT (Large)	DN300 ... 6000		97 x 54 x 53 mm

Optional SD card memory

Convenience for long-term and large data storage. Available to do the data processing like tabulation, statistical, data analysis, printing reports and production flow curve by using data analysis software.

SD card optional



Order Code KC-7780W Series (Ultrasonic Flowmeter)

KC-77 8 W P

Type
Diameter
Transducer
Power
Output
Display
Converter
Pipe mat'l
Liquid
Cable
Option

1
2
3
4
5
6
7
8
9
10
11

Type	Code 1
Wall mount	W

Input power	Code 4
DC 24V	2
AC 85 ~ 264V, 60Hz	3

Liquid	Code 9
Water	1
Chemical	2
Oil	3
Alcohol	4
Agency approved, customer specified	w

Pipe outside diameter	Code 2
DN25 ~ 100	1
DN50 ~ 700	2
DN300 ~ 6000	3
Agency approved, customer specified	W

Output	Code 5
Modbus RS-485	1
4~20 mA DC	2
Alarm: High & Low (Optional)	3

Flow transducer (-30 ~ +90°C)	Code 3
TS-2 (Small)	1
TM-1 (Medium)	2
TL-1 (Large)	3
Flow transducer (-30 ~ +160°C)	HT
TS-2-HT (Small)	4
TM-1-HT (Medium)	5
TL-1-HT (Large)	6

Display	Code 6
No Readout	NR
Digital Display (Flow & Total)	DD
Agency approved, customer specified	W

Remote Cable	Code 10
10 m (std.)	1

Converter Ambient Temp'/Humidity	Code 7
-20 ~ 60°C	1
85% RH	2
Agency approved, customer specified	W

Option	Code 11
Calorimeter	1
SD card memory	2
Agency approved, customer specified	w

Pipe Material	Code 8
Carbon Steel	CS
Stainless Steel	SS
Cast Iron	CI
Agency approved, customer specified	W



Golden Rules

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Gases & Liquid

Mass & Magnetic & Total Flowmeter

Specialty Manufacture

Distributor

Certified in accordance with

KC Q ISO 9001 : 2015

KC Q ISO 14001 : 2015

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