

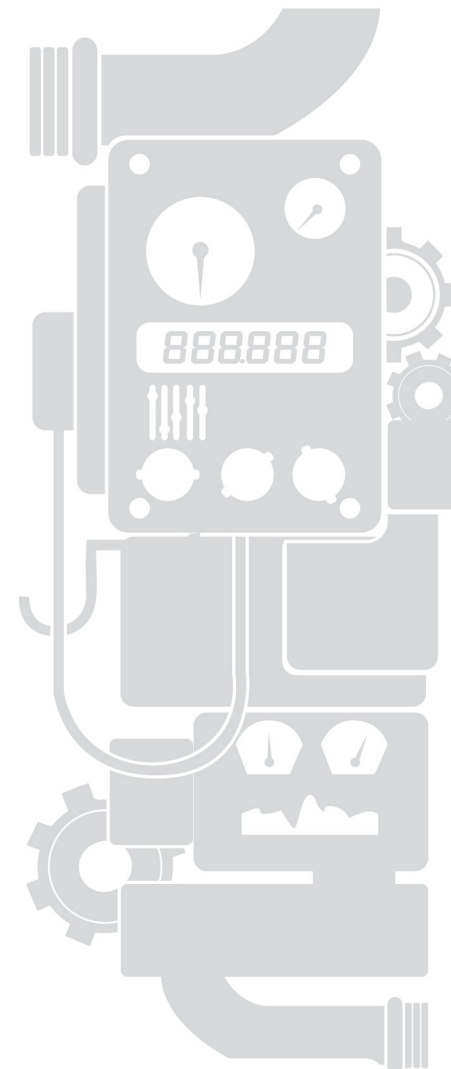
AUDIOWELL
SENSOR TECHNOLOGY

www.audiowell.com



SMART METERING

PRODUCT CATALOGUE



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COMPANY INTRODUCTION

Established in 1999, Audiowell Electronics (Guangdong) Co., Ltd. (NEEQ: 832491) is a leading provider of position, distance and speed sensor components and sensing solutions with focus on the research, design, production and sales of sensitive components, sensors and corresponding modular solutions.

As a sensor manufacturer and solution provider, Audiowell has the most comprehensive sensor component product line in China. Our ultrasonic sensors, flow sensors, electro-acoustic devices and ultrasonic transducer devices are market leaders and widely used in a variety of industries and fields including automotive electronics, instruments and meters, intelligent security systems and health appliances. While serving Chinese customers, we have also provided professional products and services for the global customers in many countries and regions.

Adhering to the business philosophy of “Be good, do better, create the best future”, we are committed to becoming a global major supplier of sensors (position, distance, speed) and will continuously concentrate on cutting edge technologies as well as advanced manufacturing techniques, to provide innovative and superior products for our society and create a safe, convenient and comfortable life for everyone.

Our Strength

- Ultrasonic technology leads domestic market and stays in front in the international market
- A number of intellectual properties and over 200 patents
- Two industrial parks covering over 65,000 square meters
- Over 15 years of experience cooperating with Fortune 500 companies

AUDIOWELL
SENSOR TECHNOLOGY

Sensor technology shapes an intelligent life



SMART METERING APPLICATIONS

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Flow Sensor for Heat Meter

The ultrasonic flow sensor measures liquid flow rate by transmitting ultrasonic wave in the liquid medium. In addition to flow metering, it can also be used for liquid level measurement.

Features

- Excellent consistency
- Stable performance
- High reliability

Applications

- Ultrasonic heat meter



Specification

Item	Resonant impedance(R)	Resonant frequency	Static capacitance	Pressure-resistant	Operating temperature
T/R975-US0005L340-01	≤110Ω	975±30KHz	900±20%pF	2.5MPa	+4~+90℃
T/R975-US0014L353-01	≤110Ω	975±30KHz	1150±20%pF	2.5MPa	+4~+90℃
T/R975-US0017L391-01	≤110Ω	975±30KHz	1150±20%pF	4.0MPa	+4~+130℃

Temperature Sensor

The sensing element of the Temperature Sensor is the platinum metal. It has a predictable change in resistance as the temperature changes, which can be used to determine temperature. The Temperature Sensor has been widely used to measure the temperature of air, soil and water.

Features

- Stable performance
- High reliability

Applications

- Ultrasonic heat meter



Specification

Item	Accuracy	Resonant impedance(R)	Sensing element type	Operating temperature
TD0003	$\leq 0.1^{\circ}\text{C}$	$100\text{M}\Omega$	Pt1000	$0\sim+105^{\circ}\text{C}$

Brass Pipe for Heat Meter

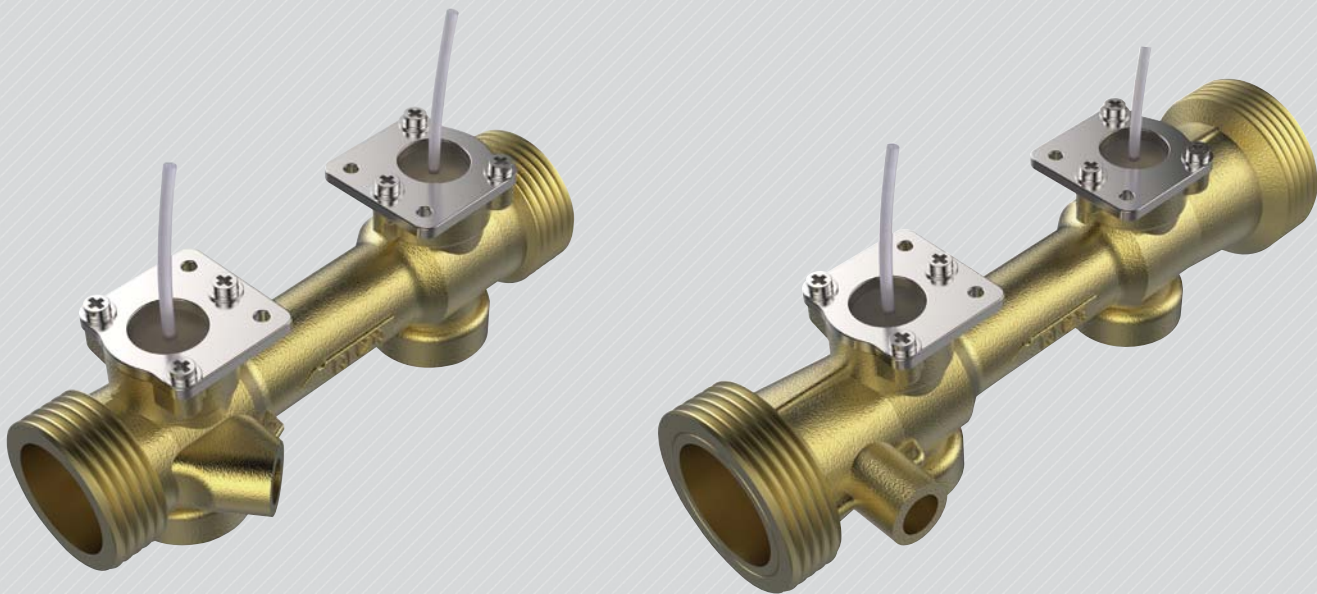
The Brass Pipe for Heat Meter contains a pair of ultrasonic sensors to detect the fluid flow in the pipe. When the ultrasonic wave and liquid flow direction runs in the same or reverse direction, the speed of the ultrasonic wave in liquid may be accelerated or decelerated accordingly. By this principle, the ultrasonic flow sensor detects the liquid flow speed in the pipe, and thus obtains the flow data for energy metering.

Features

- Streamlined design to reduce eddy currents and pressure loss
- Uniform velocity distribution to maintain a stable flow rate
- All-metal structure and all-in-one design

Applications

- Ultrasonic heat meter
- Ultrasonic water meter



Specification

Item	Nominal diameter	Max operating pressure	Pressure loss	Receiving voltage	Input signal
HS0002	DN20	2.5MPa	≤ 25KPa	380mV	1MHz/1Vp-p 20/sine wave/20 pulse
HS0003	DN25	2.5MPa	≤ 25KPa	380mV	1MHz/1Vp-p 20/sine wave/20 pulse

Ultrasonic Flow Sensor with Brass Pipe and Plastic Case

The Brass Pipe for Heat Meter contains a pair of ultrasonic sensors to detect the fluid flow in the pipe. When the ultrasonic wave and liquid flow direction runs in the same or reverse direction, the speed of the ultrasonic wave in liquid may be accelerated or decelerated accordingly. By this principle, the ultrasonic flow sensor detects the liquid flow speed in the pipe, and thus obtains the flow data for energy metering.

Features

- Good matching of the ultrasonic transducers and pipe segment structure
- Simplifies heat meter development

Applications

- Ultrasonic heat meter
- Ultrasonic water meter



Specification

Item	Nominal diameter	Max operating pressure	Pressure loss	Receiving voltage	Input signal
HZ0002	DN20	2.5MPa	≤ 25KPa	380mV	1MHz/1Vp-p 20/sine wave/20 pulse
HZ0003	DN25	2.5MPa	≤ 25KPa	380mV	1MHz/1Vp-p 20/sine wave/20 pulse

Flow Sensor for Water Meter

As the core component of ultrasonic water meters, this flow sensor transmits ultrasonic wave in the liquid medium. The liquid flow speed can be calculated by measuring the change of ultrasonic speed in the pipe, so that the liquid flow volum during a certain period of time can be calculated.

Features

- High sensitivity, stability and reliability
- High and low temperature resistance, moisture resistance, impact and shock resistance
- Good consistency, has good performance under extreme temperature

Applications

- Ultrasonic water meter



Specification

Item	Resonant impedance(R)	Resonant frequency	Static capacitance	Pressure-resistant
T/R965-US0013L455-01	≤ 220 Ω	965 ± 30KHz	900 ± 20%pF	2.5MPa
T/R980-US0019L065-01	≤ 220 Ω	980 ± 30KHz	550 ± 20%pF	2.5MPa
T/R965-US0011L430-01	≤ 110 Ω	965 ± 30KHz	1150 ± 20%pF	2.5MPa

High Frequency Flow Sensor for Water Meter

As the core component of ultrasonic water meters, this flow sensor transmits ultrasonic wave in the liquid medium. The liquid flow speed can be calculated by measuring the change of ultrasonic speed in the pipe, so that the liquid flow volume during a certain period of time can be calculated.

Features

- High sensitivity, stability and reliability
- High and low temperature resistance, moisture resistance, impact and shock resistance
- Good consistency, has good performance under extreme temperature

Applications

- Ultrasonic water meter



Specification

Item	Resonant impedance(R)	Resonant frequency	Static capacitance	Pressure-resistant
US0064-000	$\leq 150 \Omega$	2080 \pm 3% KHz	480 \pm 20% PF	3.2 MPa
US0033-000	$\leq 50 \Omega$	3800 \pm 5% KHz	700 \pm 20% PF	3.2 MPa

Ultrasonic Flow Sensor with Plastic Pipe

The Ultrasonic Flow Sensor with Plastic Pipe measures the flow rate of the water flowing through it by transmitting and receiving ultrasonic pulses. It is comprised of a pair of ultrasonic flow sensors and a polymer pipe.

Features

- Low pressure loss
- Anti-deformation material
- High-temperature resistance
- High accuracy and consistency

Application

- Ultrasonic water meter



Specification

Item	Nominal diameter	Resonant frequency	Resonant impedance(R)	Static capacitance	Max. operating pressu
HS0014-000	DN 15	975 ± 30KHz	≤ 110 Ω	1150 ± 20%pF	1.6MPa
HS0016-000	DN 20	975 ± 30KHz	≤ 110 Ω	1150 ± 20%pF	1.6MPa
HS0017-000	DN 25	975 ± 30KHz	≤ 110 Ω	1150 ± 20%pF	1.6MPa

Ultrasonic Flow Sensor with Plastic Pipe and Case

The Ultrasonic Flow Sensor with Plastic Pipe measures the flow rate of the water flowing through it by transmitting and receiving ultrasonic pulses. It is comprised of a pair of ultrasonic flow sensors and a polymer pipe.

Plastic Ball Valve

Approved for drinking water. No scaling. Easy to install

Specification

Size	Leak tightness	Maximum operating pressure	Pressure loss	Torque
DN15	2.0 Mpa (1min) 1.6 MPa (15min)	1.6MPa	0Kpa	$\leq 1.5 \text{ N}\cdot\text{M}$

Applications

- Ultrasonic water meter



Specification

Item	Nominal diameter	Resonant frequency	Resonant impedance(R)	Static capacitance	Ultimate pressure
HZ0014-000	DN 15	975 ± 30KHz	$\leq 110 \Omega$	1150 ± 20%pF	1.6MPa
HZ0016-000	DN 20	975 ± 30KHz	$\leq 110 \Omega$	1150 ± 20%pF	1.6MPa
HZ0017-000	DN 25	975 ± 30KHz	$\leq 110 \Omega$	1150 ± 20%pF	1.6MPa

Flow Sensor for Gas Meter

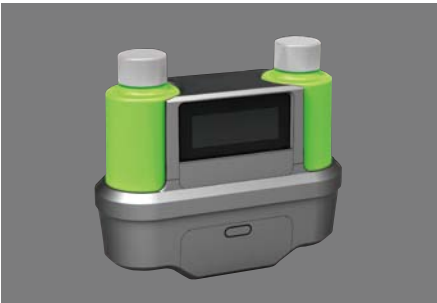
As a key component of the ultrasonic gas meter, the gas flow sensor uses novel acoustic matching material to enhance the transmission ability of ultrasonic signal in gas medium.

Features

- High accuracy
- Stable and reliable
- Good consistency

Applications

- Ultrasonic gas meter



Specification

Item	Resonant frequency	Static capacitance	Operating temperature	Operating humidity rang	Max. operating pressure
HT0008-001	200KHz	1100 ± 20%pF	-20°C~+70°C	15~90%RH	0.2MPa
HT0017-000	500 KHz	320 ± 20% pF	-30°C~+80°C	15~90%RH	0.2MPa

Doppler Flow Sensor

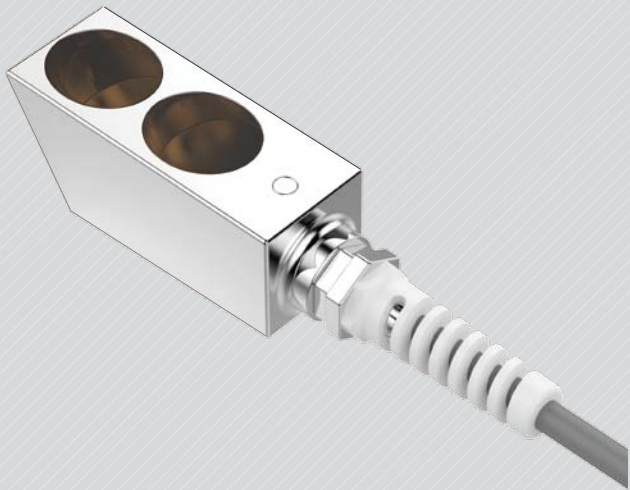
Doppler flow sensor uses Doppler effect for non-contact measurement of fluid flow velocity in pipes or channels. This sensor is mainly used in clamp-on ultrasonic Doppler flow meters. The measurement is not affected by the viscosity and electrical conductivity of fluids. Therefore this product is applicable to a variety of liquids.

Features

- Non-contact detection
- Stable and reliable performance
- Excellent consistency

Applications

- Industrial flow measurement
- Hydraulic engineering
- Agricultural irrigation



Specification

Item	Resonant impedance(R)	Thick Resonant frequency	Static capacitance	Storage temperature
US0055-000	≤ 55 Ω	600±20 KHz	5900±20% pF	-5 °C~+40 °C

140

+ Countries

10000

+ Customers

200

Million Users



SMART HOME
APPLICATIONS & SOLUTIONS



AUTOMOTIVE
APPLICATIONS & SOLUTIONS



ULTRASONIC FLOW SENSOR
FOR SMART METER

Audiowell Ultrasonic Sensor Manufacturing
Base (Zhaoqing) main building completed

2018

2016

Audiowell's <The Standard of Ultrasonic
Distance Measurement Sensor> adopted in
the Chinese industry standards

Successfully listed on NEEQ

2015

2014

Listed on the "Chinese Top 100
Electronic Companies"

Listed on the "Chinese most potential private
company of Forbes 2012"

2012

2008

Awarded the "Guangdong high-tech
enterprise"

Passed the ISO/TS16949 Quality Management
System Certification

2006

2002

Ultrasonic sensor production line established

Audiowell established

1999

MILESTONES