AUDIOWELL

SENSOR TECHNOLOGY

# PRODUCT CATALOGUE

Industrial Control


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# AUDIOWELL INTRODUCTION

Audiowell Electronics(Guangdong) Co., Ltd. (AUDIOWELL) was established in 1999, stock abbreviation: Audiowell, stock code: 832491. The company is a high-tech enterprise specializing in the research, design, production and sales of intelligent sensors and actuators and related applications.

Owning four manufacturing bases, Audiowell possesses the ability of of transducer chip preparation, structural design,intelligent algorithm, precision machining and packaging and testing technology and the main products are intelligent sensors and actuators. Products are widely used in intelligent vehicle, intelligent meters, smart homes, smart security, smart terminals and other fields. Audiowell committs to becoming the main provider of the core components of the perception layer and the execution layer and their solutions.

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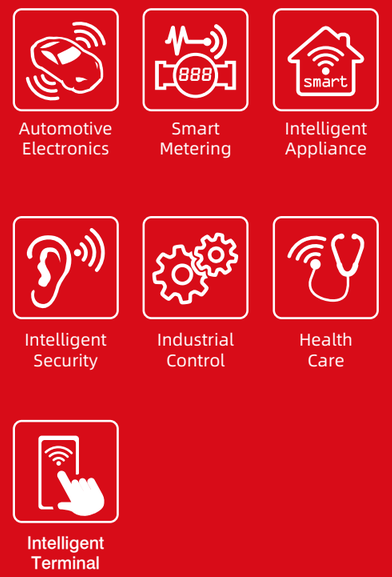


Sensor technology shaping an intelligent life.

# INDUSTRIAL CONTROL

Ultrasonic Flow Sensor Module

Clamp-on Ultrasonic Flow Sensor

Vortex Flow Sensor

Piezo Stack Actuator

Piezoelectric Jetting Valve

Flexible Sensor

Electric Gripper

High-power Ultrasonic Transducer

Ultrasonic Obstacle Avoidance Sensor

Seisimic Hydroacoustic Geophone

Buzzer

PRODUCTS
CATALOGUE

# INDUSTRIAL CONTROL


Ultrasonic Flow Sensor 04
Clamp-on Ultrasonic Flow Sensor 05
Vortex Flow Sensor 06
Piezo Stack Actuator 07
Piezoelectric Jetting Valve 08
Flexible Sensor 09
Electric Gripper 10
High-power Ultrasonic Transducer 11
Seisimic Hydroacoustic Geophone 12
Ultrasonic Obstacle Avoidance Sensor 13
Buzzer 14
Lineup 15




## Ultrasonic Flow Sensor

### Features
- No moving parts
- High accuracy
- Low power consumption
- Digital output

### Applications
- Intelligent water management system
- Industrial equipment
- Smart irrigation system

| Model | FS0016 | FS0023 | FS0024 |
|---|---|---|---|
| Nominal Diameter (mm) | 15 | 20 | 25 |
| Operating voltage (V) | 5 | 5~24 | 4.7~5.3 |
| Flow range (L/min) | 0.04~42 | 0.04~83 | 0.04~100 |
| Max. operating pressure (MPa) | 1.6 | 1.6 | 1.6 |
| Communication method | UART | UART | UART |
| Operating temp. (℃) | +0.1~+50 | +0.1~+50 | +0.1~+50 |

## Clamp-on Ultrasonic Flow Sensor

### Features

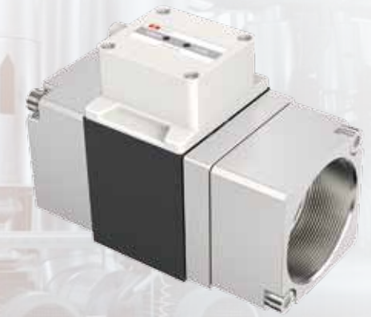
- Non-contact, high-precision measurement by external clamping
- Adaptable to rigid metal and soft plastic tubing
- Compatible with a wide range of fluids such as water, ethanol, chemical solutions, etc.

### Applications

- Industry, light industry, food, chemical industry, petroleum, electric power, metallurgy, urban utilities, etc.

| Model | HZ0029-000 | |
|---|---|---|
| Pipe O.D. (mm) | 18~23 | 23~28 |
| Nominal diameter | DN15 | DN20 |
| Piping material | Metal/Resin | |
| Available liquids | All liquids (water, oil, adhesives, lubricants, pharmaceuticals) | |
| Flow rate range (L/min) | 60 | 100 |
| Operating temperature (° C) | 0~+85 | |
| Repeatability (Response time) | 0.5 s:+2.0%/5 s:+0.5%/ 10 s: +0.35%/60 s: +0.15% | |

## Votex Ultrasonic Flow Sensor



### Features

- Instantaneous flow measurement range 50~250L/min
- Modular design, small size, low pressure loss
- Strong resistance to air bubbles and impurities
- Instantaneous flow rate accuracy ±3%F.S.

### Applications

- Industry, light industry, chemical industry, petroleum, electric power, etc.

| Model | FV0001 | FV0004 |
|---|---|---|
| Nominal Diameter | DN10 | DN40 |
| Instantaneous Flow Test Range (L/min) | 2~16 | 50~250 |
| Instantaneous Fow Rate Accuracy (F.S.) | ±3% | ±3% |
| Response Time (s) | ≤1 | ≤3 |
| Operating Voltage (VDC) | 12~24 | 12~24 |
| Operating Temperature (℃) | +0.1~+50 | +0.1~+50 |
| Max. Operating Pressure (MPa) | 1.0 | 1.0 |

## Piezo Stack Actuator

### Features

- Displacement movements down to the micron level
- With High thrust and fast response time
- High reliability due to longitudinal stacked structure.
- Resistant to high and low temperatures, strong vibration, long life of up to 1 billion cycles.

### Applications

- High precision valve control for industrial equipment
- Dispensing Valve

| Model | PA0001 |
|---|---|
| Drive Voltage (V) | 0~120 |
| Displacement (no load) (μm) | 35±15% |
| Hysteresis | ＜15% |
| Resonant Frequency (KHz) | 35±10% |
| Capacitance (μF) | 6.0±15% |
| Dielectric Loss (W) | ＜2.5% |
| Size (mm) | 7x7x36.0 |



## Piezoelectric Jetting Valve

### Features

- High accuracy and fast dispensing speed
- Modular design, high configurability
- Adjustable stroke for precise dispensing control
- Continuous operating frequency up to 3000Hz

### Applications

- Semiconductor packaging
- Device packaging and bonding

| Model | ADW PV0200 |
|---|---|
| Operating frequency(MAX) (Hz) | Single point:3000<br>Succession:1000 |
| Spray volume(MIN) (nL) | 1 |
| Tolerance of accuracy | ±1% |
| Applicable Viscosity (mPa.s) | 500,000 |
| Stacking life (million) | 800 |
| Size (mm) | 98x26x115 |
| Glue point diameter (mm) | 0.15 |

## Flexible Sensor

### Features

- Flexible and ultra-thin, 200-400 microns, down to 100 microns
- High sensitivity, large response
- Ultra-fast response, 10 ms fast response and recovery time
- Wide range, 0~2 MPa linear operating range

### Applications

- Intelligent robot

| Model | AW105 |
|---|---|
| Thickness (μm) | 200-400 |
| Response time (ms) | 10 |
| Linear operating range (MPa) | 0~2 |
| Detection limit (Pa) | ≤0.5 |
| Size range (mm) | 1x1~10x10 |



## Electric Gripper

### Features

- Precision force control, the highest accuracy ± 0.01N
- Flexible gripping, easy to deal with fragile and brittle workpieces
- Intelligent control, support a variety of motion control mode
- Support customisation to meet various precision force control

## Applications

Healthcare

Agricultural

Intelligent factory

Intelligent Home

Intelligent Warehouse

Robotics

## High-power Ultrasonic Transducer

### Features

- High power drive, large amplitude
- High Qm value, stable performance
- Low resonance impedance and low dielectric loss.

### Applications

- Ultrasonic welding equipment
- Ultrasonic cleaning

| Model | HN0775 |
|---|---|
| Resonant frequency (KHz) | 36.1±5% |
| Static capacitance (pF) | 2500±20% |
| Quality factor | >800 |
| Dimension (mm) | 50x17x6.5<br>50x20x6.5 |

## Seisimic Hydroacoustic Geophone

### Features

- High reliability
- High sensitivity, small vibration and shock can be detected
- High strength structure ensures service life

### Applications

- Ocean landform exploration



| Model | US0076 |
|---|---|
| Appearance | |
| Resonance frequency (KHz) | 14±1.5 |
| Sensitivity (dB) | -192.5±1.5( 0-1KHz) |
| Insulation resistance (MΩ) | ≥10000 |
| Free capacitance (pF) | 9.3±5% |
| Max. allowable water depth (m) | 250 |

## Ultrasonic Obstacle Avoidance Sensor

### Features

- Long detection range, up to 5m
- Built-in circuit which matches the self-developed transducer
- IP69 protection class, superior weather resistance, stability and anti-interference

### Applications

- AGV
- Intelligent unmanned vehicle (UAV)

| Model | VU0001-001 | VU0002-001 | VU0004-001 | VU0005-000 |
|---|---|---|---|---|
| Appearance | | | | |
| Frequency (Khz) | 48 | 55.5 | 55.5 | 48 |
| Directivity ( °) | X: 60 Y: 60 | X: 90 Y: 45 | X: 90 Y: 45 | X: 60 Y: 60 |
| Max.range* (mm) | 5000 | 2500 | 2500 | 5000 |
| Accuracy (cm) | ≤ ±5 | ≤ ±5 | ≤ ±5 | ≤ ±5 |
| Communication Protocol | LIN 2.2 | LIN 2.2 | I/O | I/O |
| Protection class | IP69 | IP69 | IP69 | IP69 |
| Dedicated Chip | elmos 524.24 | / | elmos 524.09 | / |

*Φ75mm tube measurement



## Buzzer

### Features

- Small size, easy to install
- Stable performance

### Applications

- Device alarm

| Model | QJ0609-012 |
|---|---|
| Appearance | |
| Resonant frequency (Khz) | 3000 |
| S.P.L (dB) | ≥85(12V/100cm) |
| Operating voltage (V) | 5.0~18.0 |
| Protection class | IP66 |
| Dimensions (mm) | D36.5×26 |

## Lineup

| Products | Appearance | Water management | Intelligent device/AGV | Dispenser | Welding/CleaningEquipment | Seismometer |
|---|---|---|---|---|---|---|
| Ultrasonic Flow Sensor | | ■ | | | ■ | |
| Clamp-on Flow Sensor | | | | ■ | | |
| Vortex Flow Sensor | | | | ■ | | |
| Piezo Stack Actuator | | | | ■ | | |
| Piezoelectric Jetting Valve | | | | ■ | | |
| Flexible Sensor | | | ■ | | | |
| Electric Gripper | | | ■ | | | |
| High-power Ultrasonic Transducer | | | | | ■ | |
| Ultrasonic Sensor | | | ■ | | | |
| Seisimic Hydroacoustic Geophone | | | | | | ■ |
| Buzzer | | | ■ | ■ | ■ | |