

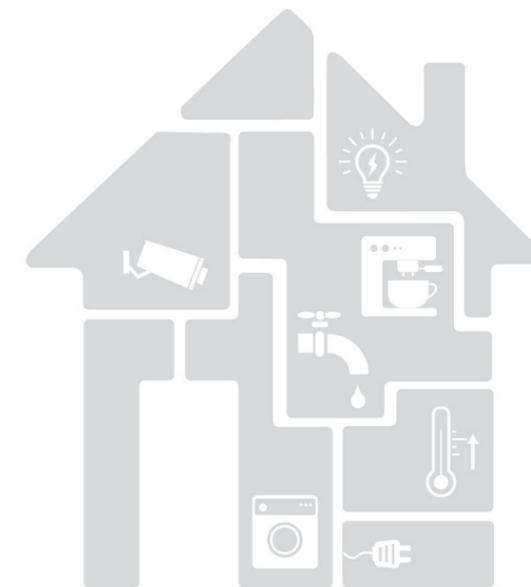
AUDIOWELL
SENSOR TECHNOLOGY

www.audiowell.com



SMART HOME

PRODUCT CATALOGUE



AUDIOWELL ELECTRONICS(GUANGDONG) CO.,LTD.

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Company Introduction

Established in 1999, Audiowell Electronics (Guangdong) Co., Ltd. (NEEQ: 832491) is a leading provider of 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.

Audiowell will uphold the “Be good, do better, create the best future” business philosophy and 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

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Sensor technology shapes an intelligent life



SMART HOME
APPLICATIONS & SOLUTIONS

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Ultrasonic Transducer

The ultrasonic transducer utilizes piezoelectric effect to convert electricity to mechanical vibration and form ultrasonic waves. Therefore no coil is contained and electromagnetic interference can be greatly reduced. The ultrasonic wave has excellent directivity and strong penetrability, and is interfered by neither the dust and electromagnetic fields in the air, nor the color and temperature at object surfaces.

Features

- Large detection range
- Good immunity to interference

Applications

- Location tracking and gesture recognition for VR equipment, directional speaker, security alarm device, rangefinder.



Model	AW8TR40-160 C01-06	AW8T40-100 A01-00	AW8R40-100 A01-00
Central Frequency	40.0±1.0 KHz	40.0±1.0 KHz	40.0±1.0 KHz
Sound Pressure	≥ 115 dB	≥ 113 dB	-
Sensitivity	≥ -65 dB	-	≥ -63 dB
Beam Angle	55° typical	80° typical	80° typical
Capacitance	2100±20% pF	1700±20% pF	1700±20% pF
Max.Drive Voltage	20V rms	30V rms	30V rms

Piezoelectric Speaker

A piezoelectric loudspeaker is an electro-acoustic component that utilizes the inverse piezoelectric effect to generate sound. It is composed of a piezoelectric vibration part and its packaging housing. The vibration part of a piezoelectric loudspeaker generally consists of a metal diaphragm and a conjoined multilayer ceramic transducer .

Features

- No magnetic coil
- Only 2mm thickness
- Low power consumption and high energy conversion rate
- High resistance to vibration, dust and electromagnetic interference

Applications

- Radio alarm system under sensitive environment
- Feedback end in intelligent home application
- Desktop AI and prompt system of intelligent vehicle



Model	MT0006-011
Sound Pressure Level	Min. 80 dB
Electrostatic Capacity	1300±30% nF
Resonant Frequency	1300±100 Hz
Frequency Range	300~20000 Hz
Max. Working Voltage	16 Vp-p
Operating Temperature	-20°C ~ +70 °C

Liquid Auto-fill Control Unit

By measuring the time of flight of ultrasonic waves, this unit calculates the depth of container and monitors the level of the liquid being added. Therefore it can control the liquid addition amount and prevent overflow regardless of the shape of containers. Non-contact measurement is performed to avoid contamination.

Features

- Highly intelligent
- High accuracy
- Short response time
- High stability

Applications

- Water dispenser
- Water purifier
- Coffee machine and other liquid fill-in machines



Model	UM0034
Measuring Range	20~250mm
Cup-in Response Time	≤ 3s
Cup-out Response Time	< 2s
Operating Temperature	0~85°C
Operating Voltage	≤ 12mA

Ultrasonic Level Sensor

The liquid level sensor uses ultrasonic waves to measure the level of liquid continuously. It combines the transmitter and receiver in one unit and can be mounted at the external sidewall or bottom of a container. The ultrasonic waves emitted by the sensor travel through the container wall and propagate in the liquid. Part of them are reflected by the liquid surface and then received by the sensor. Accurate measurement is performed without any contact with the liquid or any drilling on the container.

Features

- High accuracy
- Good directivity
- Stable and reliable performance
- Water-proof

Applications

- Level control for appliances and equipment



Model	UM0017
Measuring Range	20~500mm
Accuracy	±5mm
Response Time	≤ 500ms
Operation Temp	+5°C~+50°C
Power	DC 5±0.3V
Rated Current	≤ 30mA

Oil Level Sensor

The oil level sensor is a high-frequency ultrasonic sensor and can penetrate a certain thickness of metal materials, with high precision, good direction, reliable performance, waterproof. It can be applied to level measurement of the common filling liquid.

Features

- High precision
- Can penetrate metal container
- Non-contact measurement
- Multipoint level measurement

Applications

- Measurement of industrial storage liquid level
- Measurement of gas cylinder level



Model	UM0041
Measuring Range	50~600mm
Accuracy	±2 mm
Response Time	≤ 1s
Operating Voltage	5±0.3 VDC
Working Current	≤ 50 mA
Operating Temperature	+5°C ~ +50 °C

Ultrasonic Flow Sensor Module

The Ultrasonic Flow Sensor Module measures the flow rate of liquid by calculating the transit time difference of upstream and downstream ultrasonic pulses. It contains no moving part in the pipe section, and therefore has lower pressure loss and higher accuracy than traditional flow meters.

Features

- No moving parts
- Low power consumption
- Active alert for abnormal status such as pipe dripping, transducer failure, etc.
- Water-contact materials conform with drinking water standards

Applications

- Measuring the outflow of water heaters
- Intelligent water management system
- Industrial equipment
- Smart irrigation system



Model	FS0001	FS0002
Nominal Diameter	DN 15	DN 10
Flow Range	1-2500 L/h	1-1200 L/h
Accuracy	±5% (15-25L/h) ±2% (25-1200L/h)	±5% (15-25L/h) ±2% (25-1200L/h)
Max. Operating Pressure	1.6 MPa	1.6 MPa
Power Supply	3.1-3.7 VDC	3.1-3.7 VDC
Operating Temp	+0.1°C~+50°C	+0.1°C~+50°C

Ultrasonic Rangefinder

The Ultrasonic Rangefinder measures the time interval between emitting the ultrasonic pulses and receiving the echo to determine the distance to nearby objects. The distance value is indicated by the pulse width of output signals. Advanced signal processing technique is used in this module to enhance the measurement reliability and the anti-interference ability.



Model	UP0152
Range of Measurement	30~2500 mm
Accuracy	±10 mm
Response Time	< 2ms
Rated Working Voltage	DC 5V
Working Current	< 10 mA
Working Temperature	+5°C~+50°C

Ultrasonic Rangefinder

Features

- Non-contact measurement
- Digital signal output
- Small blind zone
- Short response time
- Dustproof design

Applications

- UAV
- Robot
- Height measurement



Model	UM0090	UM0034-002
Range of Measurement	150~1500 mm	20~1000 mm
Accuracy	±10 mm	±10 mm
Response Time	< 1ms	< 1ms
Rated Working Voltage	DC 5V	DC 5V
Working Current	≤ 10 mA	≤ 9 mA
Working Temperature	-40°C~+80°C	0°C~+80°C

Laser Dust Sensor

The Laser Dust Sensor uses a laser diode as the light source to illuminate the sampling air boosted by the blower. When small particles enter the illuminated area, the laser beam is scattered. A photodetector placed in the specified position receives the scattered light and turns it into current signal which is then amplified and processed to indicate the concentration of particles. It can detect particles as small as $0.3\mu\text{m}$ diameter and output serial digital signal.

Features

- Lensless design to ensure good consistency
- High accuracy measurement
- Can detect particles as small as $0.3\mu\text{m}$ in diameter

Applications

- Ventilation system
- Air purifier
- Air quality monitor



Model	DL0001	DL0003
Detectable Sust Size	0.3~10 μm	0.3~10 μm
Effective range of particle mass concentration	999 $\mu\text{g}/\text{m}^3$	999 $\mu\text{g}/\text{m}^3$
Consistency	$\pm 10\%$ (100 ~ 500 $\mu\text{g}/\text{m}^3$) $\pm 10\mu\text{g}/\text{m}^3$ (0 ~ 100 $\mu\text{g}/\text{m}^3$)	$\pm 10\%$ (100 ~ 500 $\mu\text{g}/\text{m}^3$) $\pm 10\mu\text{g}/\text{m}^3$ (0 ~ 100 $\mu\text{g}/\text{m}^3$)
DC power Supply Voltage	5 V	5 V
Working current	≤ 100 mA	≤ 100 mA
Working Temp Range	-10°C~+50°C	-10°C~+50°C
Working Hum Range	35~85%	35~85%
Maximum size	50×40×25 mm	48×37×12 mm

Dust Sensor

The Dust Sensor is composed of optical sensing system, including infrared luminous diode and receive diode, lens, shading case, shielding case, circuit. When the airflow with dust particles goes through the detection area exposed by infrared light, the forward scattering light is received by photoelectric receiving tube. After signal amplification, the voltage signal is outputted which is proportional to dust concentration.

Features

- Good consistency
- High accuracy

Applications

- Environmental appliances
- Air purifier
- Air quality detector



Model	DW0001
Voltage	5±0.5V
Detectable Partical Diameter	0.5~2.5μm
Sensitivity	0.5V/(0.1 mg/m ³)
Operating Temp	-10°C~+65°C

Dust Sensor

DC0001 is an optical sensing system comprised of an infrared diode, an infrared receiver, a lens, a shielding cover and a circuit board. When the airflow with dust particles go through the detection area, the forward scattered light is collected by photoelectric receiver tube. After signal amplification and amplitude discriminating, the PWM pulse width signal is outputted. The subsequent receiving system calculates the dust concentration in the air according to the duty cycle of the PWM signal.

Features

- Good consistency
- High accuracy

Applications

- Environmental appliances
- Air purifier
- Air quality detector



Model	DC0001
Voltage	DC 5± 5%V
Detectable Partical Diameter	1.0~2.5 μm
Detecting Concentration Range	0~8000pcs/283ml
Operating Temp	-10°C~+65°C

Smart Atomizer

The Smart Atomizer integrates the ultrasonic transducer and its circuit board in a single unit. It has better compatibility and consistency than traditional two-piece solutions and is easier for installation. This module also has multiple interfaces for fan, water level sensor, knob switch, and other extended functions.

Features

- Integrated design to guarantee product compatibility and consistency
- Automatic power adjustment based on water level
- Anti-dry protection at water shortage condition
- Compact size for easy installation
- Reserved interfaces for LED lights, adjusting knob and water level detection, etc.

Applications

- Aromatherapy Beauty
- Humidifier
- Electric Fireplace



Model	UM0077
Power Supply	DC: 24±0.3V
Operating Current	0.77±0.07A
Transducer Frequency	1.7±0.05 MHz
Mist Volume	250-350mL/h
Service Life	≥ 8000H

Atomizing Transducer

The operation of the Atomizing transducer is based the high-frequency axial mechanical deformation of piezoelectric ceramic vibrator driven by electric signals. The ultrasonic energy accumulates at the water surface and forms a water column. Cavitation occurs around the column and generates shock waves with the same vibration frequency as the vibrator, which atomizes the water by surface tension variation.

Features

- Acid, alkali and cavitation corrosion resistant
- No scaling
- Excellent temperature stability
- Reliable and durable

Applications

- Aromatherapy Beauty
- Humidifier



Aromatherapy Atomizing Module

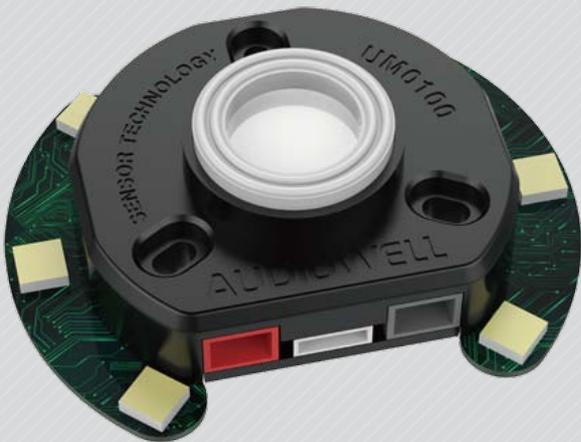
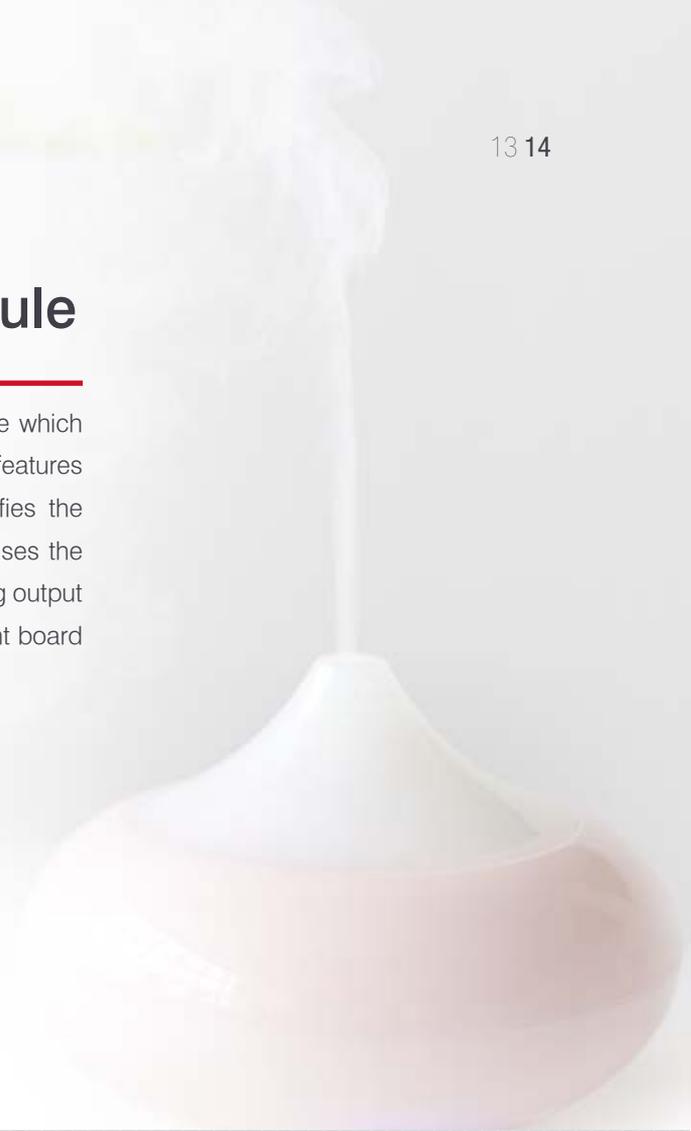
The aromatherapy atomizing module is an ultrasonic atomizing device which integrates the ultrasonic transducer and its circuit board in one unit. It features compact size and easy installation. The standardized design simplifies the assembly process and improves production efficiency. This product uses the novel level detection technology to stabilize the mist volume by adjusting output power according to the liquid level. Two interfaces are reserved for light board connection, which improves the extensibility of the module.

Features

- Standardized design for easy replacement and structure design
- Simplifies assembly process
- Anti-dry protection
- Reserved interface for light board connection
- Proprietary liquid level detection technology

Applications

- Aromatherapy Beauty
- Humidifier



Model	UM0100
Power Supply	DC :12±0.5V/1A
Power Range	8.5±1W
Transducer Frequency	2.45±0.1MHz
Mist Volume	20 mL/h

Microporous Atomizer

A porous metal diaphragm driven by piezoelectric ceramic vibrator vibrates at a very high frequency, so that the liquids is extruded through the pores and its molecules are broken apart, which turns the liquid into mist. This module can work with low-temperature water. And it uses Automatic Frequency Tracking Technology to ensure stable mist volume.

Features

- Special structure to form an intensive beam of atomized liquid
- Good consistency
- Customizable hole size for various applications



Model	HQ0047-020	HQ0047-016
Working Frequency	108±5 KHz	109±5 KHz
Capacitance	300±80 mA	300±80 mA
Resonant Impedance	≤180 Ω	≤180 Ω
Micropore Aperture	7μm	7μm

Microporous Atomizing Module

Applications

- Mini Humidifier
- Toys
- Medical atomizing
- Cosmetic appliances
- Aroma diffuser



Model	UP0096-00
Power Supply	DC :5±0.3V/1A
Current	300±80mA
Transducer Frequency	100~120KHz
Other	Automatic shutdown without water

Piezoelectric Air Pump

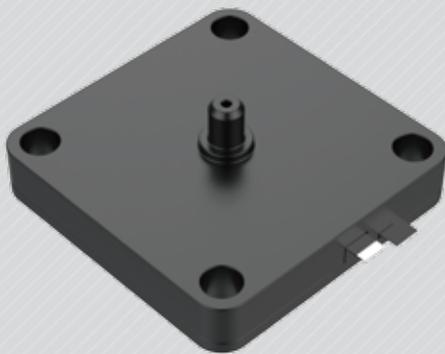
The Piezoelectric Air Pump uses converse piezoelectric effect to transform electric signals into mechanical deformation of piezoelectric ceramic. This causes rapid change of gas volume in an enclosed space, which generates high-pressure, high-speed stable air flow through a tiny vent.

Features

- Small and lightweight
- Adjustable driving voltage for the regulation of air pressure and air flow in accordance with actual work requirement
- Concentrated air flow

Applications

- Small-size aromatherapy machine
- Heat dissipation of core chips
- Micro-flow test instrument



Model	HQ0067-000
Resonant Frequency	24 ± 2 KHz
Resonant Impedance	$\leq 200 \Omega$
Static Capacitance	$14 \pm 20\%$ nF
Operating Voltage	10~20 Vp-p
Max. Working Voltage	30 Vp-p
Static Pressure	≥ 1.0 KPa
Flow Rate	≥ 0.3 L/min
Operating Temp	+5°C~+50°C

Ultrasonic Air Pump Module

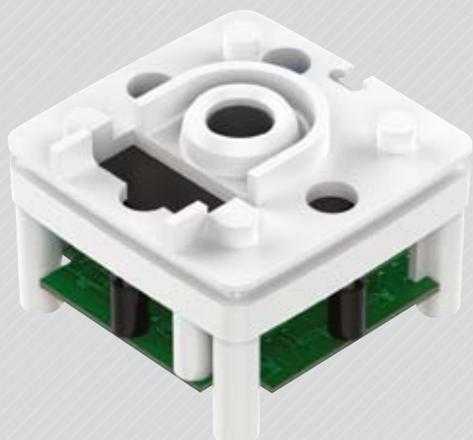
With a piezoelectric pump and its drive circuit integrated in a single unit, the Ultrasonic Air Pump Module features compact size and steady flow rate. The working principle of this product is based on the inverse piezoelectric effect of piezo ceramic. It generates deformation of the piezo vibrator to compress the air and form air flow. This module can be used in aroma diffusing and other gas delivery devices.

Features

- Small size and simple structure
- Stable work and steady flow rate
- Reliable performance

Applications

- Small-size aromatherapy machine
- Heat dissipation of core chips
- Micro-flow test instrument



Model	UM0086
Power Supply	DC :5±0.3V/1A
Current	< 300mA
Frequency	23±2 KHz
Flow Rate	≥0.5L/min
Static Pressure	≥1.0KPa

140 + Countries
1500 + Customers
200 Million Users



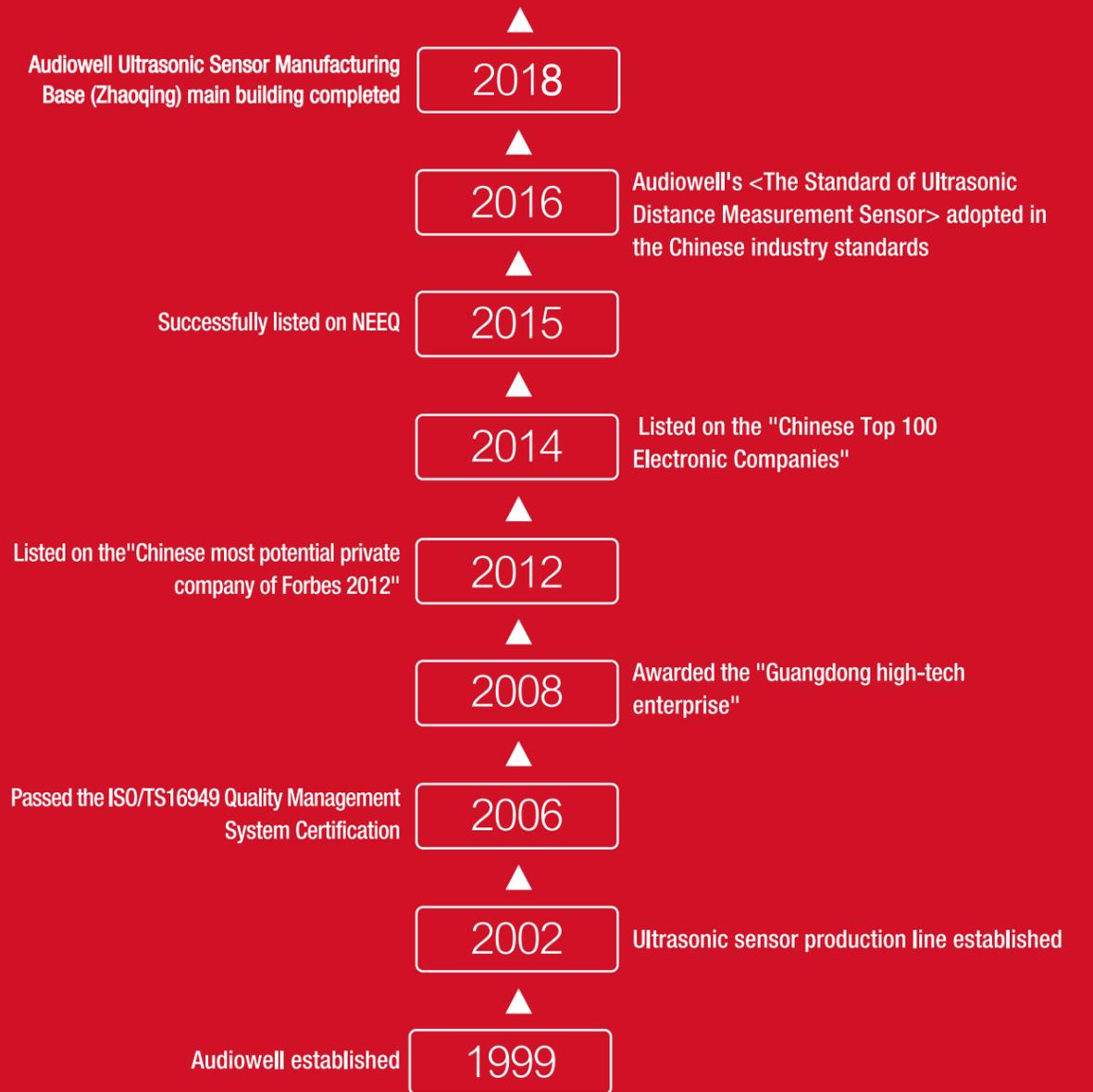
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