AUDIOWELL

SENSOR TECHNOLOGY

PRODUCT CATALOGUE

Automotive Electronics

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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

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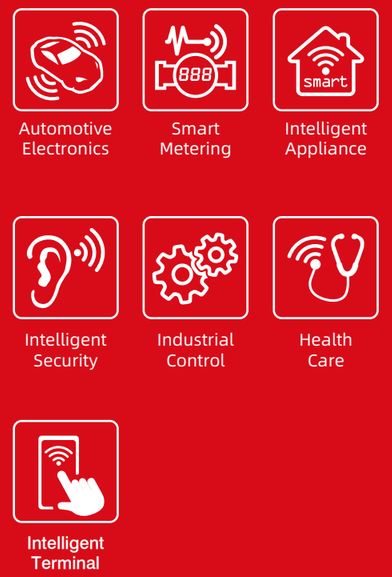

AUTOMOTIVE ELECTRONICS

Ultrasonic Parking Transducer

Ultrasonic Assembled Sensor

Ultrasonic Parking Assist Sensor

AK2 Ultrasonic Sensor

Millimetre Wave Radar

MEMS Ultrasonic Transducer for CPD

Life Detection Module

Haptic Feedback Actuator

Ultrasonic DEF/AdBlue Quality Sensor

AdBlue Quality and Level Sensor

Forward Collision Warning Sensor

Door Hidden Ultrasonic Sensor

Ultrasonic Lens Cleaning

Collision Warning Solution

Car Signal Booster

Haptic Feedback Actuator for Solid Buttons

Automotive Fragrance Solution

CO2 Sensor

Buzzer

Parking Space Detection Sensor

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Ultrasonic Parking Transducer

Features

- Quality control standard of Automotive OEM manufacturers
- Outstanding consistency and stability
- High sensitivity and low power consumption

Applications

- Reverse parking system
- Parking assist system

Model	TC0120-001	TC0121-002	TC0062-003	TC0223-000
Appearance				
Resonant frequency (KHz)	48	55.5	58	55.5
Direction angle (°)	X: 60 Y: 60	X: 90 Y: 45	X: 90 Y: 45	X: 90 Y: 45
Decay time (ms)	≤1.8	≤2.2	≤1.8	≤2.0
Size (mm)	Φ15.5 x H9.0	Φ15.5 x H9.0	Φ14.0 x H9.0	Φ15.5 x H9.0

Ultrasonic Assembled Sensor

Features

- Integrated design, easy to install
- High sensitivity

Applications

- Parking Distance Control(PDC)
- Reversing aid system

Model	TK0152	TK0158	TK0219
Appearance			
Frequency (Khz)	55.5±1	55.5±1	51.0±1
Direction angle (°)	X: 85 Y: 45	X: 90 Y: 45	X: 120 Y: 60
Decay time (ms)	≤1.50	≤1.50	1.0~1.45
Detection range* (cm)	20~250	20~500	15~550

* Φ75mm tube measurement

Ultrasonic Parking Assist 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

-Parking assist system

AK2 Ultrasonic Sensor

Features

- Long and short range (APA & UPA) fusion
- Codable modulation to reduce interference
- DSI3 interface for fast signal propagation
- Functional safety (ASIL B) level

Applications

- Auto Parking Asist (APA)
- Automated Valet Parking (AVP)

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* (cm)	500	250	250	500
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

Model	VU0012	VU0014
Appearance		
Frequency (Khz)	55.5	55.5
Directivity (°)	X: 120 Y: 60	X: 120 Y: 60
Max.range* (cm)	15~550	15~600
Accuracy (cm)	±3	±3
Communication Protocol	DSI3	DSI3
Protection class	IP69	IP69
Dedicated Chip	elmos 524.17	elmos 524.20

*Φ75mm tube measurement

Millimetre Wave Radar

Features

- Small size with only 78*67*22mm
- Product detection range of 0.3~70m
- IP67 protection class, with good weather resistance

Applications

- Blind spot detection (BSD)
- Rear crossing vehicle alert (RCTA)
- Door opening warning (DOW)
- Lane change assist (LCA)

Model	HMR-CS-2461
Detiction Range (m)	0.3-70
Detection Accuracy (cm)	±0.1
Operating Frequency (GHz)	76~77
Tracking target	≥64
Data refresh rate (Hz)	20
Power supply (V)	4~16
Communication Method	CAN
Operating Temperature (℃)	-40~+85
Protection Rating	IP67

MEMS Ultrasonic Sensor for CPD

Features

-High sensitivity, quickly detect breathing or small movements

-Not affected by light, temperature and humidity

-Low power consumption

Applications

- Rear occupant alert system

Model	AW101
Frequency (Khz)	50±2.5
Size (mm)	4.5x4.5x2
Detection range (cm)	20~150
Field of View (°)	180
Protection class	IP67

Life Detection Module

Features
- Compact size, with a mounting hole of only 2.2mm
- Vital signs detection is possible
- Low cost of ownership

Applications
- Child presence detection (CPD)
- Rear Occupant Alert (ROA)

Model	AW103
Detection range (cm)	20~150
Field of view (°)	±60
Communication Protocol	CAN
Operating voltage (V)	12
Size (mm)	28x24x1.2

Haptic Feedback Actuator

Features
- High sensitivity and stable performance
- Low power consumption
- Better dust / water proof

Applications
- Display touch panel
- Car central control screen

Model	HM0873	HM0003	HM0007	HM0011-000	HM0011-001
Appearance					
Operating voltage (V)	-100 ~ +200 (15ms max)	-30 ~ +100 (15ms max)	-30 ~ +100 (15ms max)	+15~ +55 (15ms max)	+15~ +55 (15ms max)
Layer(s) of ceramic	Single Layer	Multi-Layer (7 Layers)	Multi-Layer (3 Layers)	Multi-Layer (12 Layers)	Multi-Layer (12 Layers)
Capacitance (nF)	6±20%	400±20%	150±20%	180±20%	240±20%
Size (mm)	Φ15x0.25	Φ21x1.55	Φ24x0.46	9x4x1.41	12x4x1.65

Ultrasonic DEF/AdBlue Quality Sensor

Features
- High reliability
- High accuracy

Applications
-SCR system for Diesel Engines

Model	UQ0002	UQ0003
Appearance		
Frequency (KHz)	700±100	840±30
Capacitance (pF)	860±22%	750±20%
Protection class	ip67	IP67
Clutter to active signal ratio	1:4	/

AdBlue Quality and Level Sensor

Features

- High accuracy liquid level sensor that meets Euro IV OBD C consumption monitoring requirements.
- Level measurement is not affected by the nature of the liquid.
- Digital filtering eliminates level reading errors due to vehicle motion.

Applications
-SCR system for Diesel Engines

Model	UQD0001
Concentration measurement range	0~50%
Level measurement range (mm)	20~400
Temperature measurement range (℃)	-45~+85
Communication method	CAN
Supply voltage (V)	7.5~32

Ultrasonic Forward Collision Warning Sensor

Features
- Long detection range, up to 5m
- Built-in circuit which matches the self-developed transducer
- IP69 Protection class

Applications
- Forward Collision Warning

Model	VU0001-001	VU0005-000
Appearance		
Frequency (Khz)	48	48
Directivity (°)	X: 60 Y: 60	X: 60 Y: 60
Max.range* (mm)	5000	5000
Accuracy (cm)	≤ ±5	≤ ±5
Communication Protocol	LIN 2.2	I/O
Protection class	IP69	IP69

*Φ75mm tube measurement

Door Hidden Ultrasonic Sensor

Features
- Self-developed matching layer, using ultrasonic penetration technology
- Concealed assembly to maintain beautiful body lines
- Penetrating steel and aluminum materials for accurate detection

Applications
- Automotive door sensing system

Model	VU0015
Frequency (Khz)	48
Detecting angle (°)	X: 55 Y: 55
Detecting distance (mm)	1800
Accuracy (cm)	≤ ±5
Communication Protocol	LIN 2.2
Protection class	IP69

Ultrasonic Lens Cleaning

Features

- Small size, flexible development, wide range of applications
- Intelligent design can be matched to realize intelligent system control
- Applicable to a variety of scene cleaning, high cleaning efficiency

Applications

- Camera Monitor System (CMS)

Model	UL0001
Applicable Camera Wide-Angle	87°、110°
Voltage (V)	12
Communication Protocol	IIC、UART
Frequency (Khz)	40~3500
Melting Ice Time (s)	≤10 (1.9 mm of ice thickness)
Dewatering time (s)	≤5 (110 ml water)
Current (A)	0.1~2

Collision Warning solution

Features

- Hidden mounting on the underside of a metal plate (aluminium, steel)
- Integrated controller with direct digital output
- Recognises the energy intensity of the collision, the type of impact and the relative position of the impactor
- Support for customised functionsIndividualisation supported

Application

Knock & Knock

Pedestrian Protection System

Collision Sensing for Automotive

Parking ‘Sentinel’ Mode for Automotive

Car Signal Booster

Features
- 2X more power to keep fleets
- 5G compatible，including cellular hotspots and MIFi datahubs
- Fastest upload and download data speeds in weak signal areas
- Easy to install with no software, no service fees, and no need to adjust the booster

Applications
- Automotive Communication System

Item	FUSION2GO 5G	FUSION2GO 3.0	FUSION2GO MAX	FUSION2GO XR Fleet	FUSION2GO XR OTR	FUSION2GO XR RV
Uplink Frequency (MHz)	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1780 / 2500-2570	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1755 (G Block Included)	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1755	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1780	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1780	698-716 / 776-787 / 824-849 / 1850-1915 / 1710-1780
Downlink Frequency (MHz)	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2180 / 2620-2690	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2155 (G Block Included)	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2155	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2180	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2180	728-746 / 746-757 / 869-894 / 1930-1995 / 2110-2180
Supported Standards	4G, LTE, 5G cellular standards	CDMA, WCDMA, GSM, EDGE, HSPA+, EVDO, 4G and all cellular standards	CDMA, WCDMA, GSM, EDGE, HSPA+, EVDO, 4G and all cellular standards	5G, 4G, LTE cellular standards	5G, 4G, LTE cellular standards	5G, 4G, LTE cellular standards
Max Gain (dB)	50	50	50	50	50	50
Gain Adjustment (dB)	20 (Automatic)	20 (Automatic)	20 (Automatic)	20 (Automatic)	20 (Automatic)	20 (Automatic)
Max Uplink Power (dBm)	29	29	29	29	29	29
VWSR	≤ 2.0	≤ 2.0	≤ 2.0	≤ 2.0	≤ 2.0	≤ 2.0
RF Connectors	FME Male (both ends)	FME male, both ends	FME male, both ends	FME Male (both ends)	FME male, both ends	FME male, both ends
Power Consumption (W)	≤12	≤12	≤12	≤12	≤12	≤12
Usage	Car, Truck, Van, or SUV	Car, Truck, Van, or SUV	Car, Truck, Van, or SUV	Car, Truck, Van, or SUV	Over-the-Road Vehicles	RVs, Motorhomes and Trailers

Haptic Feedback Actuator for Solid Buttons

Features
- Multi-position adjustable vibration
- Interaction method can be customised by software
- Support intelligent expansion, matching multi-terminal control
- Smooth and smooth line, beautify the appearance design.

Applications
- Steering wheel

- Multi-position adjustable vibration

- Interaction method can be customised by software

- Support intelligent expansion, matching multi-terminal control

- Smooth and smooth line, beautify the appearance design

Automotive Fragrance Solution

Features

- Anhydrous fragrance expansion and direct atomization to avoid pollution and deterioration
- Integrated design, good sealing performance and no leakage of essential oil
- Adopt POM material, which is corrosion resistant, safe and environmentally friendly

Applications

- Automotive Cockpit Management
- Automobile Car Scenting Systems

Model	UM0129-002
Voltage (V)	12
Frequency (Mhz)	3.0±0.15
Atomization accuracy (mg)	1
Communication method	LIN

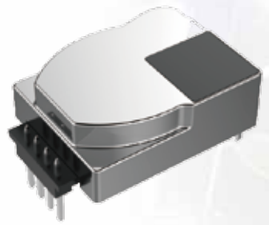
CO2 Sensor

Features

- Excellent precision
- Good consistency

Applications

- Automotive Environmental System



Model	GC0001
Appearance	
Effective range (ppm)	0~3000
Max. Range (ppm)	0~5000
Accuracy (ppm)	± 50+5%
Input voltage (V)	(DC)+4.7 to +5.3
Current consumption (mA)	≤150
Size (mm)	33x20x9.2

Buzzer

Features

- High reliability
- Small size, easy to install

Applications

- Car security system

Model	QJ0853	QJ0861	QJ0890	QJ0855
Appearance				
Frequency (Hz)	2000	3200	2000	800
S.P.L (dB)	≥100(10cm)	≥98(30cm)	≥80(100cm)	88(50cm)
Driving voltage	30Vp-p	12VDC	12Vp-p	12VDC
Size (mm)	Φ30×13.5	Φ42×16.5	38.5×30×27.6	Φ43.2×16.8

Parking Space Detection Sensor

Features

- Signal transceiver integration, a single sensor can independently complete the parking space state awareness
- Supports multi-directional installation on the top and side walls of the parking space to meet the deployment requirements of different scenarios.
- Digital Signal Output

Applications

- Intelligent parking system

Model	AU0013
Frequency (Khz)	40±1
Detecting Angle (°)	±20
Detection Distance (m)	0.5~6
Communication Method	IIC
Voltage (V)	12
Average Current (mA)	≤20

Lineup

Products	Appearance	Parking system	Parking assist system	BSD system	SCR system	Automotive communication system	Intelligent parking system	FCW system	CPD system	Automotive Door Sensing System	Environmental system	Smart Screen	Camera Monitor System	Anti-theft alarm system
Ultrasonic Transducer		■	■	■										
Ultrasonic Sensor		■	■	■				■		■				
MEMS Ultrasonic Sensor									■					
DEF/AdBlue Quality Sensor					■									
AdBlue Quality and Level Sensor					■									
Parking Space Detection Sensor							■							
Haptic Feedback Actuator												■		
CO2 Sensor											■			
Ultrasonic Lens Cleaning													■	
Automotive Fragrance Solution											■			
Buzzer		■	■	■				■	■	■			■	■
Millimetre Wave Radar		■	■	■										
Car Signal Booster						■								