

## Sound & Vibration



# We offer comprehensive test systems for sound and vibration across the full range

MegaSig measurement techniques aim to equip engineers to create better products by providing simple and efficient software parameter settings, as well as clear and concise hardware wiring...

## Sensors



Independently developed high-quality sensors can fulfill diverse environmental measurement requirements.

- Acoustic sensor
  - Conventional and intelligent microphones
  - Handheld sound level meter
  - Specialized customized microphone
- Vibration sensor
  - Uniaxial, triaxial accelerometer
  - Specialized customized accelerometer

## Instruments



To ensure rapid and stable data acquisition, we offer a comprehensive range of sound and vibration-related instruments.

- PM Series
  - Mixed functional series facing industrial applications
- U Series
  - Single-function portable series
- LR Series
  - Bus-type series with customized functions

## Algorithms

Q Fitting  
P Hunting  
Q Trim  
P Smooth

Industry-leading algorithms to ensure high efficiency and precision in testing.

- Q-Fitting Algorithm
  - Industry-first automatic ANC filter calibration
- P-Hunting Algorithm
  - AI feature extracting technology for precise identification
- Q-Trim Algorithm
  - Automatic ANC gain calibration

## Software Platform



Universal sequential software platform ensures customers have the most advanced signal processing technology.

- Complete sound and vibration-related signal processing library
  - AudioExpert toolkit
  - ANC calibration toolkit
  - Advanced signal analysis toolkit
  - SoundExpert toolkit
  - SoundPower toolkit
  - OrderExpert toolkit
  - P-Hunting toolkit
  - Hearing aid test toolkit

## Services & Training



We offer technical training to ensure customers quickly grasp the application of MegaSig system.

- Onsite support
  - From component supply to system integration supply service
- Technical training
  - From basic theoretical training to practical training services
- Customizable project
  - From core component supply to system integration supply service





Located in Shenzhen Guangming Science City, Shenzhen MegaSig Measurement and Control Technology Co., Ltd. is a national high-tech enterprise focusing on design, R&D, production and application of instrument & sensor in the test and measurement industry.

**Company Mission**

Equips engineers to create better products;

**Company Vision**

Makes use of solid basic technology to be one of the best in the specific fields we serve;

**Company Values**

Ensure customer success, Ensure employee growth, Ensure continuous product improvement, and Ensure continuous micro-innovation.

Mainly targeting the sound and vibration measurement industry, Since 2014, the company has independently developed and produced a series of industrial measurement-grade microphones and acceleration sensors, as well as a series of industrial measurement-grade high-precision data acquisition cards, as well as a series of industry-leading sound vibration tests measurement software.

The company is presently exploring five main typical industries: consumer electronics industry, automotive electronics industry, engineering education industry, condition monitoring industry, and white household appliances industry.

• In the consumer electronics industry, MegaSig is well-known for its headphone acoustic testing system, especially the ANC noise-cancelling headphone acoustic testing system, which has been adopted by major brand manufacturers;

• In the automotive industry, MegaSig offer a complete motor test system solution to online test the noise and abnormal sound of new energy vehicle power motors and auxiliary motors, which has been adopted by major domestic brand manufacturers;  
 • In the engineering education industry, MegaSig continues to offer high-quality sound vibration sensors and high-precision data acquisition cards to domestic universities, providing basic testing and measurement products and technologies for basic scientific research work in universities;  
 • In the condition monitoring industry, MegaSig provides partners with high-quality industrial measurement-grade microphones and acceleration sensors to ensure the stable operation of the monitoring system;  
 • In the white appliance industry, MegaSig provides noise and abnormal sound detection solutions for semi-finished and finished products to help customers produce quieter white appliance products.

The company provides multi-level technical services to customers and partners in various industries, ranging from software algorithm support to sensor device assistance and system integration services. By upholding core values and ensuring customer success, the company has earned recognition from leading domestic brands. Additionally, products are exported to various countries and supported by local partners in Europe and Southeast Asia to facilitate risk-free deployment.

Moving forward, the company will continue to explore and enhance the applications of sound and vibration measurement technology across industries, equipping engineers to create better product.



Low-Code Testing Platform  
*One platform, All testing*



SOFTWARE

**Powerful analysis capabilities**

- Level & Gain
- Frequency response
- THD / THD+N
- SNR
- Sensitivity
- Crosstalk
- ANC analysis
- ANC gain adjust
- Wav recall analysis
- Octave analysis
- Phase response
- Sope/Generator
- Spectrum
- Swept
- Similarity
- Noise measure
- Rub & Buzz
- Impedance curve
- Thiele-small
- Customized vi
- Order analysis
- Sound quality
- Wavelet analysis
- NVH analysis
- .....

**Supported products**

- Intelligent speaker box(alex, echo)
- Earphone(ANC, USB, TypeC, Bluetooth)
- Mobile terminal
- Hearing-aid
- Car audio
- Power amplifier
- Mixer
- Speaker
- Mic(PDM, I2S)
- Automobile A2B power amplifier
- Automobile motor test
- Auyo parts
- .....



# Why PM series is so excellent

## PM 6682 data acquisition card (Lab-level)

### Multiple signal connections

- 2 input, 2 output
- Balanced/Unbalanced

### Multi-channels synchronization

- Acquire accurate phase measurements

### Supports internal and external triggers

- Acquire accurate latency measurements



### Ultra-high indicators

- THD+N  $\leq -110$ dB
- Idle Noise  $\leq 1.3$ uVrms
- Suitable for laboratory R&D testing

### Multi-range switching

- Automatic adjustment of 7 precision ranges for signal acquisition

### High dynamic range

- 230Vp max

The comparison table of the channel resource

	PC	ADC Bit	ADC/DAC	ADC Range	DAC range	IEPE	AMP
PM 0083	-	-	-	-	-	4	3
PM 0006	-	-	-	-	-	-	2 (100W)
PM 6044	-	24	4in / 4out (WDM)	+/- 4.5Vrms	+/- 3.5Vrms	4	3
PM 6143	-	24	4in / 4out	+/- 1Vrms	+/- 2Vrms	4	3
PM 6162	-	16	16in / 2out (Single-ended) 8in / 2out (Difference)	+/- 10Vrms	+/- 10Vrms	6	3
PM 6181	-	24	8in / 2out	+/- 4.5Vrms	+/- 3Vrms	8	2
PM 6182	-	24	16in / 2out	+/- 4.6Vrms	+/- 1Vrms	16	2
PM 6183	-	24	8in / 2out	+/- 10Vrms	+/- 10Vrms	8	-
PM 6281	-	16	8in / 2out	+/- 10Vrms	-	-	-
PM 6681	-	24	2in / 2out	+/- 88.3Vrms	+/- 8Vrms (Single-ended) +/- 16Vrms (Difference)	-	-
PM 6682	-	24	2in / 2out	+/- 162.6Vrms	+/- 10.7Vrms (Single-ended) +/- 21.4Vrms (Difference)	-	-
PM 6683	-	24	8in / 2out	+/- 88.3Vrms	+/- 10.5Vrms (Single-ended) +/- 21Vrms (Difference)	-	-
PM 6684	-	24	16in / 2out	+/- 88.3Vrms	+/- 10.5Vrms (Single-ended) +/- 21Vrms (Difference)	-	-
PM 6685	-	24	8in / 8out	+/- 120.2Vrms	+/- 10.5Vrms (Single-ended) +/- 21Vrms (Difference)	-	-
PM 6686	-	24	16in / 8out	+/- 120.2Vrms	+/- 10.5Vrms (Single-ended) +/- 21Vrms (Difference)	-	-
PM 6687	-	24	24in / 2out	+/- 120.2Vrms	+/- 10.5Vrms (Single-ended) +/- 21Vrms (Difference)	-	-
PM 8023	I3, 4G	24	8in / 3out	+/- 1Vrms	+/- 1Vrms	2	3

## PM 6143 data acquisition card (Production-level)



- \* 4 input, 4 output
- \* Multi-channels synchronization
- \* Embedded IEPE
- \* Embedded 3 channels power amplifier



# U series portable signal conditioners

## U 926 PDM signal conditioner



- \* 4 channels PDM
- \* Adjustable power range
- \* Adjustable clock
- \* Adjustable clock between 2 channels

## U 923 A2B audio bus transceiver tester



- \*Compatible with AD240x, AD241x, and AD242x transceivers
- \*Supports an adjustable internal TDM interface with strong compatibility
- \*Can make a simulation as both master and slave node
- \*Can acquire the working current of the slave node
- \*Supports S/PDIF input and output interfaces
- \*Adjustable output voltage to slave node from 5V-8V

## U 962 data acquisition card



- \* 2 input & 2 output
- \* Excellent SNR
- \* Differential input-output

## U 98x BT Adapter



- \* A2DP(SBC, AAC, aptX, LHDC)
- \* HFP (mSBC, CVSD)
- \* AVRCP
- \* Support analog / digital channel
- \* Support LDAC, LHDC, AAC and other high-definition
- \* audio code stream protocols



	ADC/DAC	Bluetooth	IEPE	ADC/DAC Bit	ADC/DAC Range	Amic Power	Electret Power	I2C	I2S	DIO	PDM	Notes
U 902	-	-	-	-	-	-	-	-	-	-	-	3.5mm earphones to BNC
U 903	-	-	-	-	-	-	-	1	-	-	-	-
U 905	-	-	-	-	-	-	-	-	-	-	-	PCBA test maincenter
U 920	-	-	-	-	-	-	-	-	-	-	2	-
U 921	-	-	2	-	-	-	-	-	-	-	-	-
U 922	-	-	-	-	-	1	1	-	-	-	-	-
U 923	-	-	-	-	-	-	-	-	-	-	-	SPDIF/3.5 Analog A2B test
U 924	-	-	-	-	-	-	-	-	1	-	-	Four channels data
U 926	-	-	-	-	-	-	-	-	-	-	2	-
U 951	-	-	-	-	-	-	-	-	-	16	-	-
U 960s	2in / 2out	-	-	32	+/- 3Vrms / +/- 3Vrms	-	-	-	-	-	-	-
U 962	2in / 2out	-	-	24 / 32	+/- 1Vrms / +/- 3Vrms	-	-	-	-	-	-	-
U 963	2in / 2out	-	2	24 / 32	+/- 1Vrms / +/- 3Vrms	-	-	-	-	-	-	-
U 964	4in	-	4	24	DAC +/- 1Vrms	-	-	-	-	-	-	-
U 965	Type C decoder	-	-	-	-	-	-	-	-	-	-	-
U 980	-	1(Analog)	-	-	-	-	-	-	-	-	-	-
U 981	-	1(Digital, SPP only)	-	-	-	-	-	-	-	-	-	-
U 982	-	1(Digital, Shuttle)	-	-	-	-	-	-	-	-	-	-
U 983	-	1(Digital, SPDIF)	-	-	-	-	-	-	-	-	-	-
U 984	-	1(Digital, Shuttle) 1(Analog)	-	-	-	-	-	-	1	-	-	-
U 985	-	1(BLE)	-	-	-	-	-	-	-	-	-	-
U 986	-	1(Sink)	-	-	-	-	-	-	-	-	-	-

U SERIES

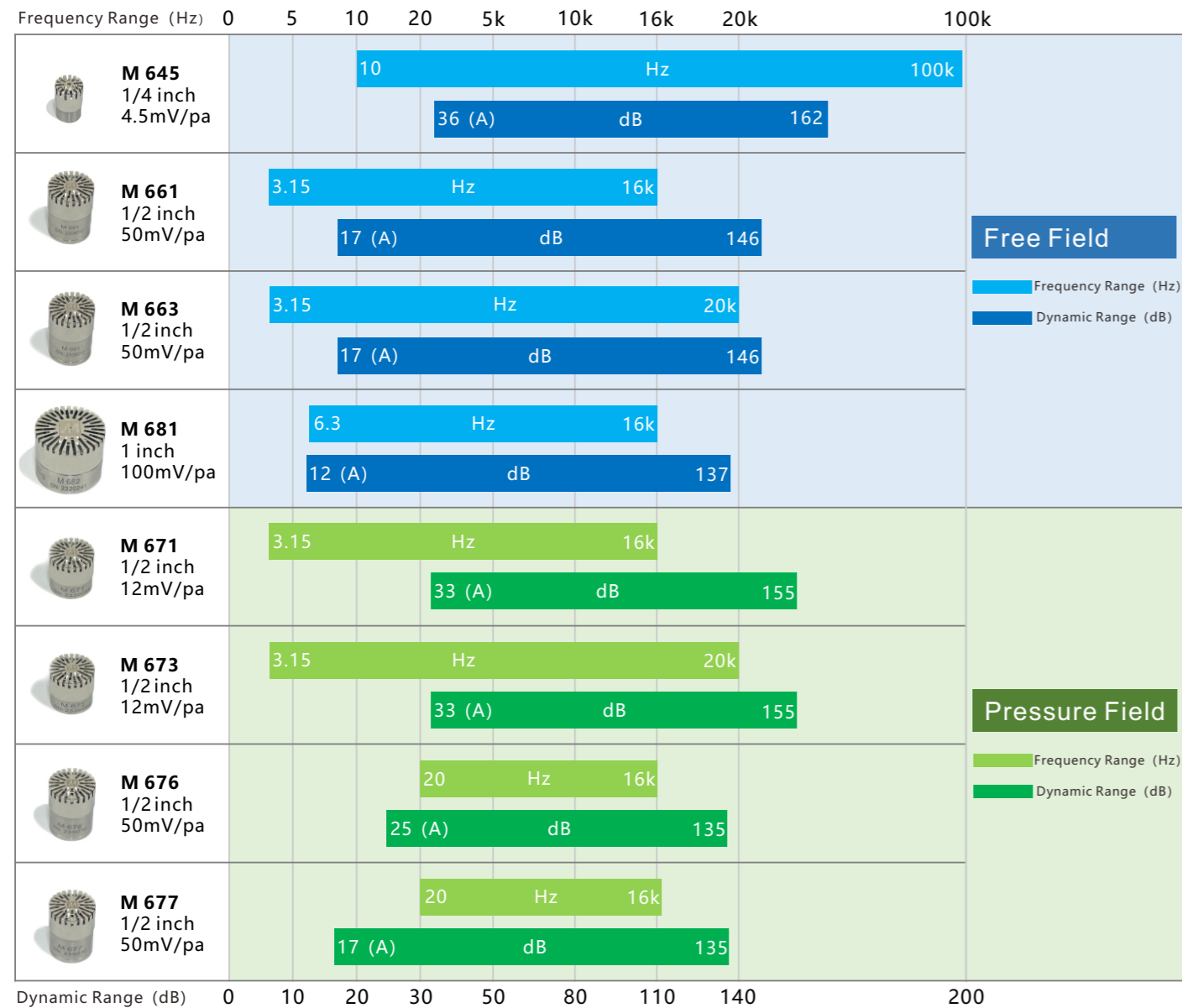
# Microphone cartridges

As precision devices used for measurement, the microphones manufactured by MegaSig are subject to stringent production requirements. Each microphone head is meticulously crafted to minimize factors that could affect its performance. Furthermore, they undergo thorough testing and strict quality control before being integrated into the testing system.

## Application

- Sound power testing
- Hearing aid testing
- Equipment condition monitoring
- Environmental noise monitoring
- Automobile motor NVH testing
- Conventional acoustic noise reduction testing

# Microphone cartridges comparison



# Microphone cartridges

Measurement microphone				
<b>Model</b>	M 645	M 661	M 663	M 671
<b>Dimensions</b>	1/4 Inch	1/2 Inch	1/2 Inch	1/2 Inch
<b>Sound Field</b>	Free- field	Free- field	Free- field	Pressure- field
<b>Sensitivity mV/Pa</b>	4.5	50	50	12
<b>Frequency Range Hz</b>	10-100k±3dB 20-50k±2dB	3.15-16k±2dB 12.5-10k±1dB	3.15-20k±2dB 12.5-10k±1dB	3.15-16k±2dB 12.5-10k±1dB
<b>Dynamic Range dB</b>	36 (A) - 162	17 (A) - 146	17 (A) - 146	33 (A) - 155
<b>Inherent Noise dB (A)</b>	< 36	< 17	< 17	< 33
<b>Polarization V</b>	0 (pre polarized)	0 (pre polarized)	0 (pre polarized)	0 (pre polarized)

Measurement microphone				
<b>Model</b>	M 673	M 676	M 677	M 681
<b>Dimensions</b>	1/2 Inch	1/2 Inch	1/2 Inch	1 Inch
<b>Sound Field</b>	Pressure- field	Pressure- field	Pressure- field	Free- field
<b>Sensitivity mV/Pa</b>	12	50	50	100
<b>Frequency Range Hz</b>	3.15-20k±2dB 12.5-10k±1dB	20-16k±2dB 20-10k±1dB	20-16k±3dB 20-10k±2dB 20-7.5k±1dB	6.3-16k±2dB 12.5-10k±1dB
<b>Dynamic Range dB</b>	33 (A) - 155	25 (A) - 135	17 (A) - 135	12 (A) - 137
<b>Inherent Noise dB (A)</b>	< 33	< 25	< 17	< 12
<b>Polarization V</b>	0 (pre polarized)	0 (pre polarized)	0 (pre polarized)	0 (pre polarized)

CARTRIDGES

CARTRIDGES



# Preamplifier

Due to the extremely high output impedance of the microphone, it requires the use of a preamplifier for proper data acquisition. MegaSig microphone preamplifier features high input impedance, low output impedance, high output current, and a wide frequency range.

Preamplifier						
<b>Model</b>	A 811	A 810	A 813	A 802	A 803	A 804
<b>Dimensions</b>	1/4 Inch	1/2 Inch	1/2 Inch	1/2 Inch	1/2 Inch	Disc type
<b>THD%</b>	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
<b>Connector Type</b>	Microdot	Microdot	G12 2 poles	BNC	BNC	BNC
<b>Frequency Range Hz</b>	20 - 100k ±0.2dB	20 - 60k ±0.2dB	20 - 60k ±0.2dB	20 - 60k ±0.2dB	20 - 60k ±0.2dB	20 - 60k ±0.2dB
<b>Temperature Range, operation °C</b>	-20 - 60	-20 - 60	-20 - 60	-20 - 60	-20 - 60	-20 - 60
<b>Mounting Thread For Microphone</b>	-	-	-	11.7mm-60UNS	11.7mm-60UNS	M23*0.5 mm
<b>Features</b>	For use with 1/4" microphones	For use with Sound Level Meter	For use with Outdoor monitoring	72mm	53mm	For use with CM311

Preamplifier (TEDS)	
<b>Model</b>	A 832
<b>Dimensions</b>	1/2 Inch
<b>THD%</b>	< 0.1
<b>Connector Type</b>	BNC
<b>Frequency Range Hz</b>	20 - 60k ±0.2dB
<b>Temperature Range, operation °C</b>	-20 - 60
<b>Mounting Thread For Microphone</b>	11.7mm- 60UNS
<b>Features</b>	TEDS
<b>Model</b>	A 835
<b>Dimensions</b>	1/4 Inch
<b>THD%</b>	< 0.1
<b>Connector Type</b>	BNC
<b>Frequency Range Hz</b>	20 - 60k ±0.2dB
<b>Temperature Range, operation °C</b>	-20 - 60
<b>Mounting Thread For Microphone</b>	11.7mm- 60UNS
<b>Features</b>	TEDS

# Microphone sets

The conventional microphone kit series and the SS kit series from MegaSig are combinations of microphones and preamplifiers, boasting excellent performance and stability. They streamline workflow for users and minimize typical processing errors. These products are assembled in a dust-free workshop environment and sealed with labels.

Measurement microphone sets					
<b>Model</b>	M 643+A 811	M 645+A 811	M 661+A 802	M 663+A 802	M 671+A 802
<b>Dimensions</b>	1/4 Inch	1/4 Inch	1/2 Inch	1/2 Inch	1/2 Inch
<b>Sound Field</b>	Free- field	Free- field	Free- field	Free- field	Pressure- field
<b>Sensitivity mV/Pa</b>	4.5	4.5	50	50	12
<b>Frequency Range Hz</b>	20 - 20k ±2dB	10 - 100k ±3dB 20 - 50k ±2dB	3.15 - 16k ±2dB 12.5 - 10k ±1dB	3.15 - 20k ±2dB 12.5 - 10k ±1dB	3.15 - 16k ±2dB 12.5 - 10k ±1dB
<b>Dynamic Range dB</b>	36 (A) - 155	36 (A) - 155	17 (A) - 135	17 (A) - 135	33 (A) - 155
<b>Inherent Noise dB (A)</b>	< 36	< 36	< 17	< 17	< 33
<b>Features</b>	For use with audio test	For use with high bandwidth acoustic test	For use with audio test	For use with audio test	Cavity sound pressure test

Measurement microphone sets					
<b>Model</b>	M 673+A 802	M 676+A 802	M 677+A 802	M 681+A 802	MPA 668- 812
<b>Dimensions</b>	1/2 Inch	1/2 Inch	1/2 Inch	1 Inch	1/2 Inch
<b>Sound Field</b>	Pressure- field	Pressure- field	Pressure- field	Free- field	Free- field
<b>Sensitivity mV/Pa</b>	12	50	50	100	44.5
<b>Frequency Range Hz</b>	3.15 - 20k ±2dB 12.5 - 10k ±1dB	20 - 16k ±2dB 20 - 10k ±1dB	10 - 16k ±3dB 20 - 10k ±2dB	6.3 - 16k ±2dB 12.5 - 10k ±1dB	6.3 - 20k ±2dB 12.5 - 10k ±1dB
<b>Dynamic Range dB</b>	33 (A) - 155	25 (A) - 135	17 (A) - 135	12 (A) - 137	17 (A) - 146
<b>Inherent Noise dB (A)</b>	< 33	< 25	< 17	< 12	< 17
<b>Features</b>	Cavity sound pressure test	Low noise floor	Ultra-low noise floor	For use with audio test	Explosion proof marks: Exic IIB T4 Gc

PREAMPLIFIER







MIC SET

# Microphone sets

MIC SET

Ear simulator kits						
						
<b>Model</b>	CM 311+A 803	CM 311+A 804	C 318+M 671 +A 804	C 312+M 677 +A 815	C 313+ M 677 +A 815	
<b>Sound Field</b>	Pressure- field	Pressure- field	Pressure- field	Pressure- field	Pressure- field	
<b>Sensitivity mV/Pa</b>	12.5	12.5	12	50	50	
<b>Frequency Range Hz</b>	10-16k ±1dB 20-10k ±0.5dB	10-16k ±1dB 20-10k ±0.5dB	20-16k ±1dB	125- 8k ±1dB	125- 8k ±1dB	
<b>Dynamic Range dB</b>	33 (A) - 130	33 (A) - 130	33 (A) - 130	17 (A) - 135	17 (A) - 135	
<b>Inherent Noise dB (A)</b>	< 33	< 33	< 33	< 17	< 17	
<b>Features</b>	For use with in-ear headphones	For use with in-ear headphones	For use with headphones	For use with hearing aid	For use with hearing aid	

Sensor sets ( Measurement microphone sets & Earsimulator kits)						
						
<b>Model</b>	SS 603	SS 720	SS 770-11	SS 770-18	SS 771-11	SS 772-11
<b>Sound Field</b>	Free- field	Free- field	Pressure- field	Pressure- field	Pressure- field	Pressure- field
<b>Sensitivity mV/Pa</b>	50	50	50	45	300	800
<b>Frequency Range Hz</b>	6.3- 20k ±2dB 12.5- 10k ±1dB	20- 20k ±2dB	8k- 16k ±1dB 20- 8k ±0.5dB	20- 16k ±1dB	20- 16k ±2dB	4k- 6k ±1dB 20- 4k ±0.5dB
<b>Dynamic Range dB</b>	17 (A) - 135	17 (A) - 137	16 (A) -135	21 (A) -146	12 (A) -113	9 (A) - 120
<b>Inherent Noise dB (A)</b>	< 17	< 17	< 16	< 21	< 12	< 9
<b>Features</b>	For use with outdoor noise measurement	Contact measurement microphone	For use with In ear headphones	For use with in-ear headphones	Low noise floor	Ultra- low noise floor

Sensor sets ( Measurement microphone sets & Ear simulator kits)						
		<b>12dBA</b> 	<b>40kHz</b> 	<b>80kHz</b> 	<b>12dBA</b> 	
<b>Model</b>	SS 771-11-L2	SS 761	SS 775-11	SS 776	SS 781	SS 740
<b>Sound Field</b>	Free- field	Free- field	Pressure- field	Pressure- field	Free- field	Free- field
<b>Sensitivity mV/Pa</b>	L1: 250 L2: 50	250	4.5	1.6	100	50
<b>Frequency Range Hz</b>	20- 10k ±0.5dB 10- 20k ±2dB	20- 10k ±1dB 10- 16k ±2dB 10- 20k ±3dB	20- 10k ±1dB 10k- 20k ±1.5dB 20k- 40k ±2dB	100- 10k ±1dB 10k- 20k ±2.2dB 20k- 50k ±3.2dB 50k- 80k ±4dB	6.3- 16k ±2dB 12.5- 10k ±1dB	20- 20k ±2dB
<b>Dynamic Range dB</b>	12 (A) - 125	12 (A) - 113	34 (A) - 162	50 (A) - 162	12 (A) - 137	34 (A) - 125
<b>Inherent Noise dB (A)</b>	< 12	< 12	< 34	< 50	< 12	< 34
<b>Features</b>	L1:Low noise floor L2:High SPL	12 dBA low noise floor	40kHz High frequency	80kHz High frequency	1"Low noise	1/4"

Intelligent sensor sets					
					
<b>Model</b>	M 645+A 835	M 663+A832	M 673+A 832	SS 742 R1	SS 742 R2
<b>Sound Field</b>	Free- field	Free- field	Pressure- field	Free- field	Free- field
<b>Sensitivity mV/Pa</b>	4.5	50	12.5	50	30
<b>Frequency Range Hz</b>	10- 100k ±2dB 20- 60k ±1.5dB	3.15- 20k ±2dB 12.5- 10k ±1dB	3.15- 20k ±2dB 12.5- 10k ±1dB	20- 20k ±3dB 50- 10k ±2dB	20- 20k ±3dB 50- 10k ±2dB
<b>Dynamic Range dB</b>	37 (A) - 155	17 (A) - 134	30 (A) - 146	30 (A) - 125	35 (A) - 130
<b>Inherent Noise dB (A)</b>	< 37	< 17	< 30	< 30	< 35
<b>Features</b>	TEDS	TEDS	TEDS	1/4" TEDS	1/4" TEDS

MIC SET



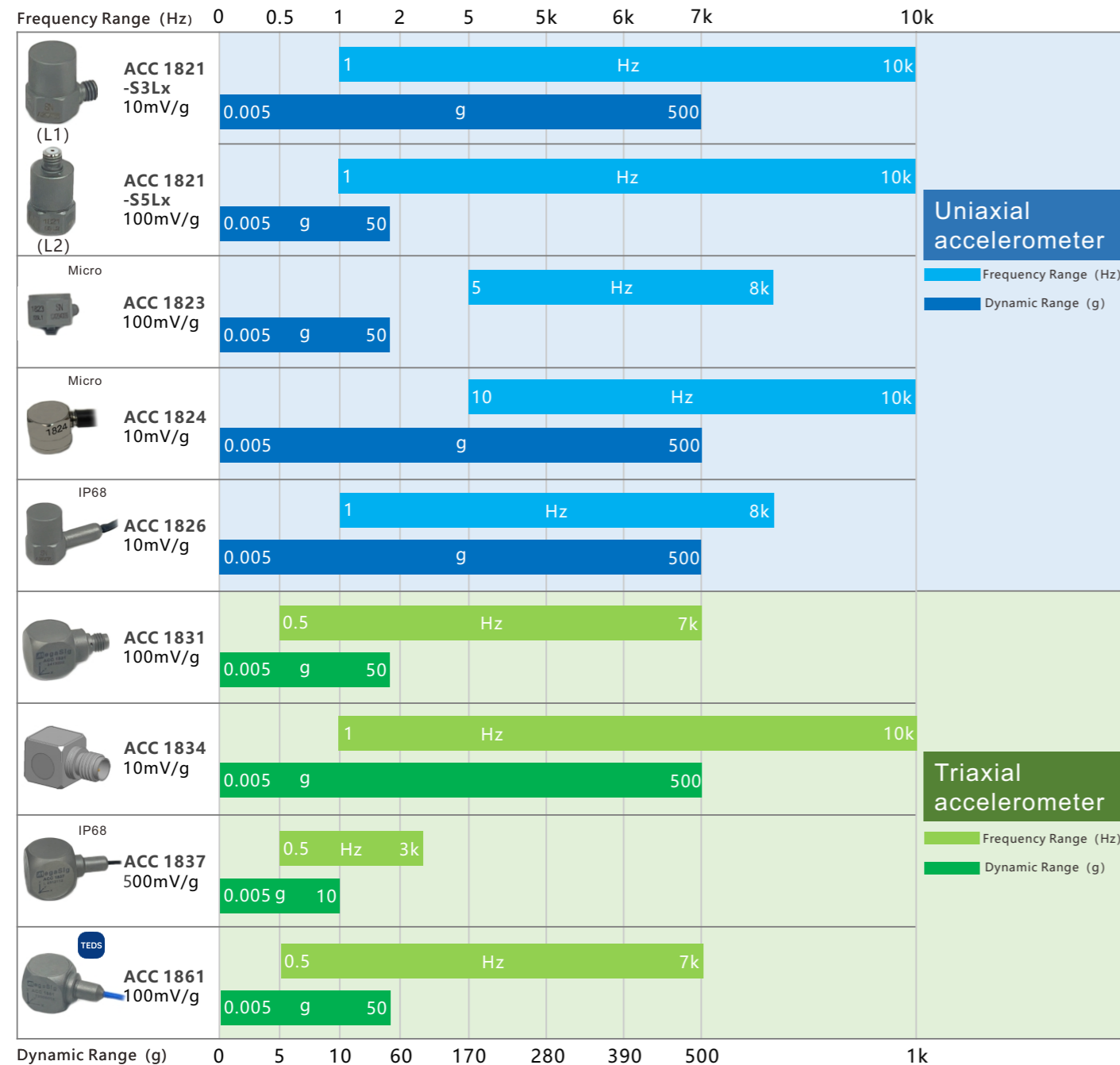
# Accelerometers

MegaSig piezoelectric accelerometer comes with an internally integrated charge amplifier. Its sensitive components, made from piezoelectric ceramic materials, demonstrate excellent performance, enabling stable operation within even more extreme temperature ranges and wider amplitude ranges. This accelerometer can provide test signals for controlling vibration inputs and analyzing product vibration responses.

## Application

- Bone conduction testing
- Conventional vibration testing
- Product motor testing
- Structural performance testing
- Packaging drop testing
- Automobile motor NVH testing

# Accelerometers comparison




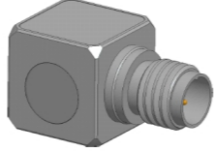

# Uniaxial accelerometer

Uniaxial accelerometer					
	ACC 1821- SxLx		Micro	Micro	IP68
<b>Model</b>	ACC 1821- SxLx		ACC 1823	ACC 1824	ACC 1826
<b>Sensitivity Class</b>	S3	S5	S5	-	-
<b>Sensitivity mV/g(10%)</b>	10	100	100	10	10
<b>Range g</b>	±500	±50	±50	±500	±500
<b>Frequency Range Hz</b>	1 - 10k ±10%	1 - 8k ±5% 1 - 10k ±10%	20 - 6k ±5% 5 - 8k ±30%	10 - 8k ±5% 8k - 10k ±10%	1 - 8k ±5%
<b>Weight g</b>	5.5	5.5	3.5	0.8	5.5
<b>Resonant Frequency Hz</b>	> 40k	> 40k	> 40k	> 50k	> 40k
<b>Impact Resistance kg</b>	3	2	2	5	3
<b>Maximum Lateral Sensitivity</b>	≤5%	≤5%	≤5%	≤5%	≤5%
<b>Working Voltage V</b>	+12- +28	+12- +28	+12- +28	+18- +28	+12- +28
<b>Working Current mA</b>	+2~ +10 mA (Typical 4 mA)	+2~ +10 mA (Typical 4 mA)	+2~ +10 mA (Typical 4 mA)	+2~ +10 mA (Typical 4mA )	+2~ +10 mA (Typical 4 mA)
<b>Operation Temperature °C</b>	-40 - +120	-40 - +120	-40 - +120	-40 - +120	-40 - +120
<b>Maximum Output Voltage</b>	≤6V	≤6V	≤6V	≤6V	≤6V
<b>Noise</b>	< 0.5mg	< 0.5mg	< 0.5mg	< 0.5mg	< 0.5mg
<b>Base Strain</b>	0.2mg/με	0.2mg/με	0.2mg/με	0.1mg/με	0.2mg/με
<b>Magnetic Sensitivity</b>	1.5g/T	1.5g/T	1.5g/T	1.5g/T	1.5g/T
<b>Main Material</b>	Titanium alloys	Titanium alloys	Titanium alloys	Titanium alloys	Titanium alloys

ACCELEROMETER

ACCELEROMETER

# Triaxial accelerometer

Triaxial accelerometer			
			 IP68
<b>Model</b>	ACC 1831	ACC 1834	ACC 1837
<b>Sensitivity Class</b>	-	-	-
<b>Sensitivity mV/g(10%)</b>	100	10	500
<b>Range g</b>	±50	±500	±10
<b>Frequency Range Hz</b>	1 - 4k ± 5% 4 - 7k ± 10%	Z: 1 - 10k ± 5% X&Y: 1 - 8k ± 10%	1 - 1k ± 5% 0.5 - 3k ± 10%
<b>Weight g</b>	13	3	60
<b>Resonant Frequency Hz</b>	> 25k	> 50k	> 10k
<b>Impact Resistance kg</b>	10	2	2
<b>Maximum Lateral Sensitivity</b>	≤5%	≤5%	≤5%
<b>Working Voltage V</b>	+18 - +28	+18 - +28	+18 - +28
<b>Working Current mA</b>	+2 ~ +10 mA (Typical 4 mA)	+2 ~ +10 mA (Typical 4 mA)	+2 ~ +10 mA (Typical 4 mA)
<b>Operation Temperature °C</b>	-40 - +120	-40 - +120	-40 - +100
<b>Maximum Output Voltage</b>	≤5V	≤6V	≤5V
<b>Noise</b>	< 0.5mg	< 0.5mg	< 0.5mg
<b>Base Strain</b>	1mg/με	1mg/με	1mg/με
<b>Magnetic Sensitivity</b>	1.5g/T	1.5g/T	1.5g/T
<b>Main Material</b>	Titanium alloys	Titanium alloys	Titanium alloys

# Intelligent accelerometer

TEDS Intelligent accelerometer	
	 TEDS
<b>Model</b>	ACC 1861
<b>Sensitivity Class</b>	-
<b>Sensitivity mV/g(10%)</b>	100
<b>Range g</b>	±50
<b>Frequency Range Hz</b>	1 - 4k ± 5% 0.5 - 7k ± 10%
<b>Weight g</b>	50
<b>Resonant Frequency Hz</b>	> 25kHz
<b>Impact Resistance kg</b>	10
<b>Maximum Lateral Sensitivity</b>	< 5%
<b>Working Voltage V</b>	+18 - +28
<b>Working Current mA</b>	+2 ~ +10 mA (Typical 4 mA)
<b>Operation Temperature °C</b>	-40 - +160
<b>Maximum Output Voltage</b>	< 5V
<b>Noise</b>	< 0.5mg
<b>Base Strain</b>	1mg/με
<b>Magnetic Sensitivity</b>	1.5g/T
<b>Main Material</b>	Titanium alloys

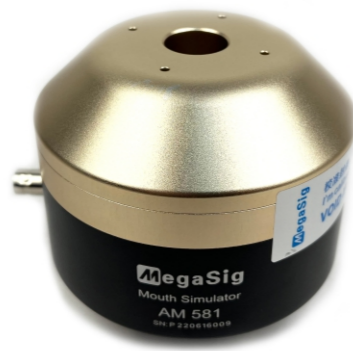


# Sound source

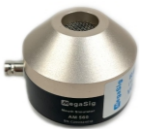
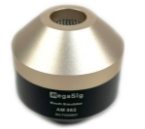
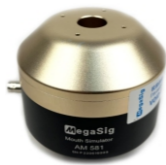
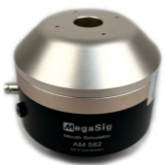


We offer a range of artificial mouths in different sizes to cater to near-field and point sound sources, ensuring they meet various conditions. For far-field and surface sound sources, our SB series sound source is available for selection.




## AM 581 Ultra-low distortion artificial mouth

The AM 581 artificial mouth is specifically designed to replicate the sound source in the vicinity of the human mouth with utmost precision. It is an ideal tool for evaluating the frequency response, distortion, and various acoustic parameters of telephone transmitters and microphones.



SB series sound source				
				
Model	SB 02	SB 04	SB 05	SB 07
THD (Hz, 94dB SPL, 400mm MRP)	200 - 10k THD < 2%	200 - 10k THD < 2%	200 - 10k THD < 2%	100 - 25k THD < 1%
Frequency Response Hz	94dB ± 0.5dB (100 - 10k)	94dB ± 0.5dB (100 - 10k)	94dB ± 0.5dB (100 - 10k)	94dB ± 0.3dB (100 - 25k)
Size mm	320*90*280	324*105*330	220*320*150	320*220*150
Power W	15	15	15	15
Features	low frequency enhancement	low frequency enhancement	low frequency enhancement	Ultrasonic audio testing

Artificial mouths						
						
Model	AM 560	AM 562	AM 581	AM 582	AM 585	AM 591
THD (Hz, 94dB SPL, 25mm MRP)	300 - 500 THD < 1.2% 500 - 20k THD < 0.5%	300 - 500 THD < 1.2% 500 - 20k THD < 0.5%	200 - 10k THD < 1%	200 - 10k THD < 1%	200 - 10k THD < 1% 20 - 20k THD < 1%	700 - 60k THD < 1%
Frequency Response Hz	94dB ± 0.1dB (100 - 20k)	94dB ± 0.1dB (100 - 20k)	94dB ± 0.1dB (100 - 10k)	94dB ± 0.1dB (100 - 10k)	94dB ± 0.1dB (20 - 20k)	94dB ± 0.2dB (100 - 60k)
Power W	6	6	10	10	10	10
Interface	BNC	BNC	BNC	BNC	BNC	BNC
Features	Small volume	Small volume Built in power amplifier	Low distortion, high stability	Built in power amplifier	High bandwidth	Ultra high bandwidth

Vibration table			
			
Model	SK 502	SK 505	SK 506
Rated output (peak) N	20	50	50
Maximum amplitude mm	±3	±7.5	±7.5
Frequency Response Hz	DC - 15k	DC - 5k	DC - 5k
Maximum acceleration g	20	20	20
Maximum input current Arms	< 2	< 6	< 6
Features	Fatigue test for small and medium parts	Fatigue test for small and medium parts	Fatigue test for small and medium parts

SOUND SOURCE

SOUND SOURCE

# Acoustic attachments

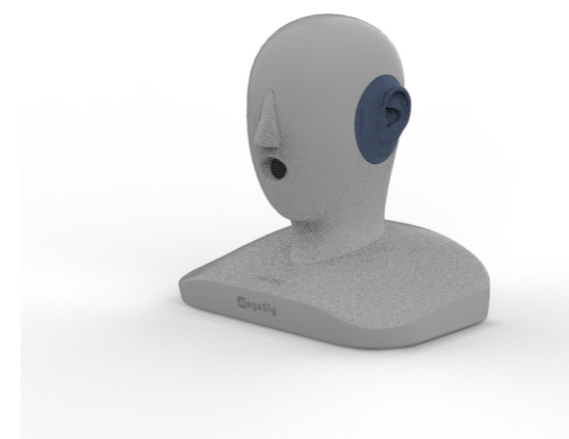
# Acoustic devices

## SM 102 Sound level meter



- \* Convenient operation, easy to use right out of the box
- \* Seamlessly integrates with AudioExpert, professional acoustic testing software
- \* Compliant with GB/T 3785.1-2010, IEC 61672-1:2013 standards
- \* Able to measure real-time values, maximum values, C-weighted peak values, time-averaged sound levels

## Head simulator series



### AH 262 Head simulator

- \* With cone-shaped ear canal that fits real human
- \* Can be matched with low noise artificial ear
- \* Matched with TT 626 turntable seamlessly
- \* Meet the test requirements of multiple scenarios such as earphones, smart glasses and car smart cockpits

### AH 265 Head simulator

- \* Acoustic characteristics in accordance with ITU-T Rec.P.58
- \* High consistency of earphone picking and placing
- \* Meet the test requirements of multiple scenarios such as earphones, smart glasses and car smart cockpits

## Calibrator series



### AC 03 Calibrators

- \* Compliant with IEC 60942: 2003-1 and GB/T 15173: 2010-1 standards
- \* 1 inch, 1/2 inch and 1/4 inch microphones can be calibrated
- \* 94 dB SPL/114 dB SPL dual sound pressure levels
- \* Built-in feedback microphone



### VC 02 Hand-Held Vibration Calibrator

- \* Operating Frequency: 159.2Hz
- \* Maximum load: 210g
- \* Acceleration output: 9.81 m/s<sup>2</sup> rms
- \* Automatic switch time: 1.0-2.5 minutes

## WT 105 Wind noise simulator



- \* Wind speed, 3m/s~15m/s
- \* Variable wind speed mode
- \* Program control for automated test
- \* Ultra-quiet, the noise is less than 60dBA at the highest wind speed

## TT 626 Turn tables

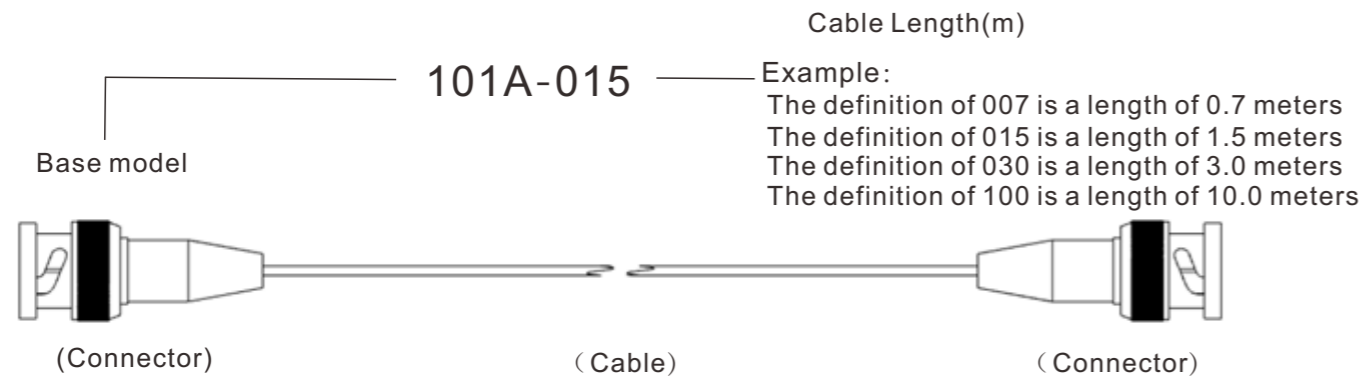


- \* High precision rotary table
- \* Low noise
- \* High load bearing
- \* Program control for automated test

ACCESSORIES

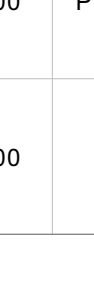


ACCESSORIES

# Coaxial cables



Example:  
 Model 101A015 is defined as a PFA material cable with BNC plug to BNC plug, having a length of 1.5meters.



Coaxial Cable Assemblies							
Model	Custom cable length					Material	Connector adapter model
	0.7m	1.5m	3.0m	5.0m	10.0m		
101A	/	015	030	050	100	PFA	 BNC Plug to BNC Plug
102A	/	015	030	050	100	PFA, Low Noise	 BNC Plug to BNC Plug
103A	007	015	030	050	100	PVC, High flexibility	 BNC Plug to BNC Plug
101B	/	015	030	050	100	PFA	 5-44 Plug to BNC Plug
102B	/	015	030	050	100	PFA, Low Noise	 5-44 Plug to BNC Plug
103B	007	015	030	050	100	PVC, High flexibility	 BNC Plug to (3) BNC Plugs
101C	/	015	030	050	100	PFA	 M5 Plug to BNC Plug

Coaxial Cable Assemblies							
Model	Custom cable length					Material	Connector adapter model
	0.7m	1.5m	3.0m	5.0m	10.0m		
102C	/	015	030	050	100	PFA, Low Noise	 M5 Plug to BNC Plug
101D	/	015	030	050	100	PFA	 SMB Jack to BNC Plug
102D	/	015	030	050	100	PFA, Low Noise	 SMB Jack to BNC Plug

Coaxial Cable Specifications					
Model	Cable Style	Temperature Range	Impedance	Cable Jacket Material	Cable Jacket Diameter
101	General Purpose	-60°C - 200°C	50 ohm	PFA	1.9mm
102	Low Noise	-60°C - 250°C	50 ohm	PFA	1.9mm
103	General Purpose	-15°C - 60°C	50 ohm	PVC	4.9mm





# Two-conductor cables

2-Conductor Cable Assemblies						
Model	Custom cable length				Material	Connector adapter model
	1.5m	3.0m	5.0m	10.0m		
201A	015	030	050	100	TPE, Flexible	 2-socket G12 Jack to BNC Plug
201B	015	030	050	100	TPE, Flexible	 2-socket SF12 Plug to BNC Plug

2-Conductor Cable Specifications					
Model	Cable Style	Temperature Range	Impedance	Cable Jacket Material	Cable Jacket Diameter
201	General Purpose	-15°C - 60°C	100 ohm	TPE	6.8mm

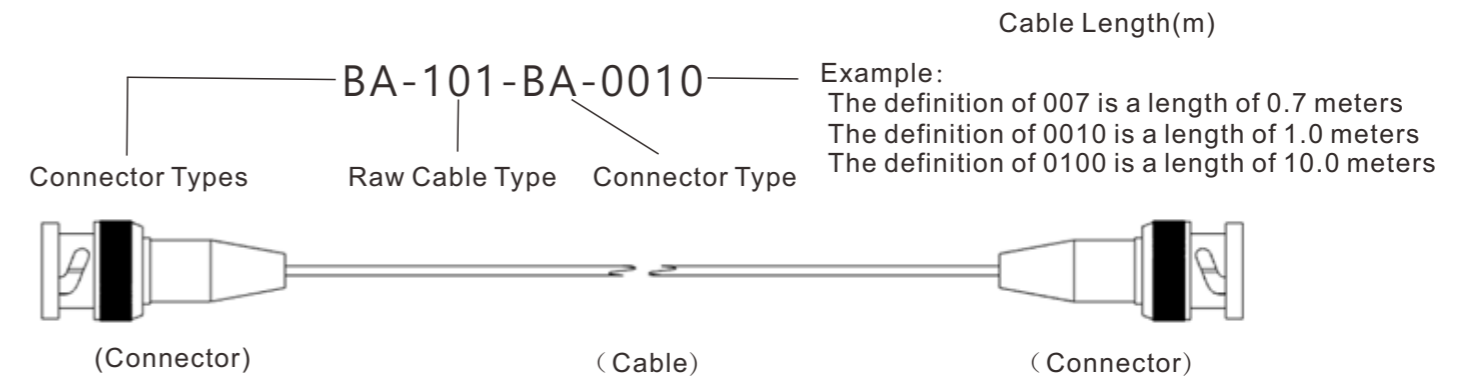
# Four-conductor cables

4-Conductor Cable Assemblies						
Model	Custom cable length				Material	Connector adapter model
	1.5m	3.0m	5.0m	10.0m		
402A	015	030	050	100	PVC	 M8 plug to M8 plug
403A	015	030	050	100	PFA, Low Noise; PVR	 1/4-28 Thread jack to (3)BNC plugs

4-Conductor Cable Specifications				
Model	Cable Style	Temperature Range	Cable Jacket Material	Cable Jacket Diameter
402	General Purpose	-20°C - 80°C	PVC	4.5mm
403	General Purpose	-40°C - 95°C	PVR	2.4mm

# Connector assembly model list

The following introduces cable types, connector types, and custom armored cables. If standard finished cables do not meet the requirements of the application, custom cable assemblies can be configured through these parameters.



Example:

Model BA101BA0010 is defined as a general-purpose cable with M5 plug to M5 Plug, made of white PFA material, and has a length of 1 meter.

Raw Cable Type			
Coaxial Cables		Diameter	Temperature Range
101	General Purpose, White PFA Jacket	1.9mm	-60°C - 200°C
102	Low Noise, Blue FEP Jacket	1.9mm	-60°C - 250°C
103	General Purpose, Black PVC Jacket High flexibility	4.9mm	-15°C - 60°C
106	RG-58/U, Black PVC Jacket	4.9mm	-25°C - 75°C
Shielded 2Conductor Cable		Diameter	Temperature Range
201	Black TPE Jacket Flexible	6.8mm	-15°C - 60°C
Shielded 4Conductor Cable		Diameter	Temperature Range
402	Black PVC Jacket Flexible	4.5mm	-20°C - 80°C
403	Blue PVR Jacket Flexible	2.4mm	-40°C - 95°C
404	AWM2464, 22AWG, PVC Jacket	5.7mm	-25°C - 75°C

Connector Types	
Coaxial Cable Connectors	
AA	BNC Plug
BA	M5 Plug
CA	5-44 Plug
DA	Double VE terminal
EA	Standard alligator clip
FA	Flat tip alligator clip
GA	SMA Plug
GB	SMA Jack
HA	SMB Plug
HB	SMB Jack
IA	SSMA Plug
IB	SSMA Jack
Multi-Lead Connectors	
WA	2-socket SF12 Plug
WB	2-socket G12 Jack
MA	4-Socket Jack 1/4-28 Thread
MB	4-Socket Plug, M8 Thread
ZA	(3) BNC Plugs
ZB	(2) 4-Socket Plugs, M8 Thread
ZC	(3) 4-Socket Plugs, M8 Thread
ZD	(3) M5 Plugs

CABLES

CABLES

# Cable connectors

# Custom armored cables

To meet customer needs and in cases where cables are longer, individual cables can be armored to increase tensile strength, resist corrosion, prevent rodent bites, and protect against damage.

Supports additional armored cable	
Model	support for additional
101	
102	
103	●
201	●
402	●
403	



AA (BNC Plug)



BA (M5 Plug)



CA (5-44 Plug)



WA (2-socket SF12 Plug)



WB (2-socket G12 Jack)



MB (4-Socket Plug, M8 Thread)



HA (SMB Plug)



HB (SMB Jack)



GA (SMA Plug)



GB (SMA Jack)



IA (SSMA Plug)



IB (SSMA Jack)



MA (4-Socket Jack, 1/4-28 Thread)



EA (Standard alligator clip)



FA (Flat tip alligator clip)



Metal corrugated conduit



Metal corrugated plastic-coated conduit



Metal corrugated flat plastic-coated conduit

# Custom cable assembly

The compatibility between cables and connectors is not universal due to size differences. The table below provides compatibility information for cable and connector sizes.

" • " indicates that the connector and cable are compatible and can be mated

Coaxial Custom Cable Assemblies				
	101	102	103	106
AA (BNC Plug)	•	•	•	•
BA (M5 Plug)	•	•		
CA (5-44 Plug)	•	•		
DA (Double VE terminal)			•	
EA (Alligator clip)				•
FA (Flattip alligator clip)				•
GA (SMA Plug)	•	•		
GB (SMA Jack)	•	•		
HA (SMB Plug)	•	•		
HB (SMB Jack)	•	•		
IA (SSMA Plug)	•	•		
IB (SSMA Jack)	•	•		

Multi-conductor Custom Cable Assemblies				
	201	402	403	404
WA (2 - socket SF12 Plug)	•			
WB (2 - socket G12 Jack)	•			
MA (4 - Socket Jack, 1/4-28 Thread)			•	
MB (4 - Socket Plug, M8 Thread)		•		
ZA ([3] BNC Plugs)			•	
ZB ([2] 4 - Socket Plug, M8 Thread)				•
ZC ([3] 4 - Socket Plug, M8 Thread)				•
ZD ([3] M5 Plugs)			•	

CABLES

CABLES



## ANC earphone test



- \* Support Qfitting filter adjusting
- \* Support mainstream ANC chip
- \* Multiple control
- \* ANC deepest value
- \* ANC average value
- \* ANC depth shape
- \* ANC FR

**Q Fitting**

## ENC earphone test



- \* One-stop test for acoustics and ENC
- \* Two instruments, real parallel test, high efficiency
- \* Supports mainstream ENC algorithms
- \* Software supports mainstream chip test

independent tables and boxes, independent instruments, high flexibility

## Bluetooth earphone audio endurance test



- \* Each instrument supports 16 channels in parallel
- \* A computer supports 4 instruments linkage
- \* Support multiple Bluetooth connection methods
- \* Built-in sound card, support playing audio
- \* Support switching test mode for aging test
- \* Support switching A2DP encoding
- \* Automatically record test process, and generate report records
- \* Designed as Iso - AT antenna to minimize interference between headphones



Model	Description
PM 8908	Built-in PC & sound card, support 8 channel parallel test
PM 8916	Built-in PC & sound card, support 16 channel parallel test
PM 0916	Built-in sound card, support 16 channel parallel testing

## Test items

Profile	Unit	Item	illustrate
A2DP	Speaker	FR	
		THD+N	
		Sensitivity	
		Balance	L/R Double earphone
		Rub&Buzz	
HFP	Talk mic FF mic	Ultra - low noisetest	
		FR	
		Sensitivity	
HFP	ENC	Phasedifference	Need earphone firmware support
		ENC effect	SNR method/switch method



Single table with double box, sharing instrument, high cost performance

## PCBA current + audio test



- \* U 962 data acquisition card + PM 2032 battery simulator
- \* Support PCBA ultra-low noise audio test
- \* Support PCBA current test

independent tables and boxes, independent instruments, high flexibility



Single table with double box, sharing instrument, high cost performance

### Test items

Profile	Unit	Item	illustrate
A2DP	Speaker	FR	
		THD+N	
		SNR	
HFP	Talk mic FF mic	FR	
		Sensitivity	
Current	Currentloop	Charge current	
		A2DP working current	2C, 0.5Cetc
		HFP working current	
		Shutdowncurrent	
		Shipping current	

### PM 2032/2042 Battery simulator



- \* 2 channels battery simulator
- \* TFT touch screen
- \* I/O voltage can be set
- \* I/O current range can be set

## Multimedia test

Multimedia systems include speaker, amplifier, loud speakers, microphone etc. With its high flexibility, AudioExpert supports audio testing of almost all multimedia systems, which can also quickly support intelligent products, such as smart speaker (Alexa, Echo).



### Smart speaker test

3nod and Leedason all chose AudioExpert to test smart speaker, with its high flexibility, AudioExpert provides accurate and efficient test, servicing for the monomers, semi-finished products and finished products test.



### Speakers test

AudioExpert support the test of speakers: frequency response, distortion, T/S parameters, impedance curve, Rub& Buzz.



### Type C earphone audio test

LUXSHAREICT uses AudioExpert to realize the PCB electroacoustic test of Type C earphone  
 \*Downlink FSOV, FR, SNR, Noise floor, THD+N, Crosstalk...  
 \*Uplink SNR, FR, THD+N...  
 \*Idle Current, Working Current...



### PDM, I2S microphone test

The demodulation of digital microphone is a difficult problem in the industry. The traditional way is to buy a DAC board from ADI company. This way has a problem, when you test microphone after DAC, you can't get the real noise.

AAC uses PM0233 to solve this problem. The conditioner doesn't need DAC, ensure the lossless testing of digital signal and get most accurate noise value.



# Mobile phone audio test



## Speaker, Microphone test

HUAWEI uses PM0043 conditioner by MegaSig to realize incoming materials detection for telephone speakers and microphones.

“MegaSig quickly responded to customer needs, with a strong capabilities to customize and develop electroacoustic test system.”

--HUAWEI, 2012Lab, ZhenhuaChen



## Phone vibration test

OPPO uses vibration algorithm developed by Megasig, and NI 9230 DSA module to realize vibration analysis of telephone products.

“MegaSig has a strong algorithmic foundation in sound and vibration, timely response to field problems, cooperation with Megasig reduce the implementation risk of our project.”

--OPPO, Engineer, Changyi Yin



## Phone audio test

ITC uses core audio devices by Megasig to realize audio analysis of telephone products, serving in a series of domestic well-known phone manufacturers such as xiaomi.

# Product related cases



## Outdoor noise monitoring

SS 603 is a microphone set specially designed for outdoor monitoring customized by MegaSig. It is wind-proof, rain-proof, and can prevent birds from roosting. It is suitable for use outdoors in regular weather conditions. The bird anti-bird cone can be easily disassembled for routine maintenance and calibration. The outer casing is made of aluminum alloy and has undergone surface treatment to resist environmental corrosion and ensure the long-term stability of the microphone.



## Port noise monitoring

MegaSig customized port noise monitoring kit is composed of microphone M 661 and preamplifier A802-7, which are all-in-one and non-detachable; M661 is a 1/2-inch pre-polarized free-field measurement microphone used to monitor the acoustics of port noise. pressure. The output interface of the A802-7 preamplifier adopts aviation waterproof connector, and the main part is made of stainless steel to ensure good toughness and ensure use in outdoor environments.



## Contact Voiceprint Monitoring

The contact voice print sensor is a contact measurement acoustic sensor that collects sound through the diaphragm surface contacting the surface of the object being measured. SS 720 has a built-in measurement microphone, which changes the pressure in the coupling cavity through the vibration of the large diaphragm, making it easier to measure subtle vibration signals during equipment operation. SS 720 positioning is a cost-effective and low-noise sensor, specially designed for abnormal noise measurement, fault location, etc. during equipment operation.



# Intelligent Wearable products test



## Bluetooth earphone test

3nod uses AudioExpert electroacoustic test platform to realize automatic test of bluetooth earphones, which realizes the high-quality production to obtain more orders and achieve a win-win situation.

“We chose AudioExpert system of MegaSig, because of its stability, openness and team involvement.”

– 3nod, Manager, HuiPang



## ANC earphone test

With powerful analysis function, AudioExpert is very suitable for ANC R&D, IQC and mass production automatic calibration. MegaSig has rich experience in ANC earphone test, which accelerates your R&D speed, improves your mass production efficiency.

Continuous R&D investment, updating the list of supported chips helped a series of well-known domestic and foreign earphone brands to realize successfully mass production.



## Hearing aid test

AudioExpert has a powerful analysis function, which can easily realize the acoustic test related to hearing aids through the customization of the sequence. (Comply with GB/T25102.7—2017/IEC60118-7:2005 standard)

- The test includes
- \* OSPL90 curve, HFA-OSPL90, Max-OSPL90;
  - \* FOG50 FR curve, FOG50 gain curve, HFA-FOG50;
  - \* Calculation and confirmation of the FR curve and gain curve under RTS, RTG, and RTS;
  - \* Equivalent input noise level, FR curve range, THD, etc.



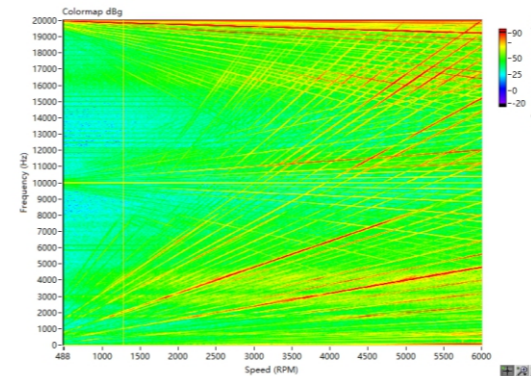
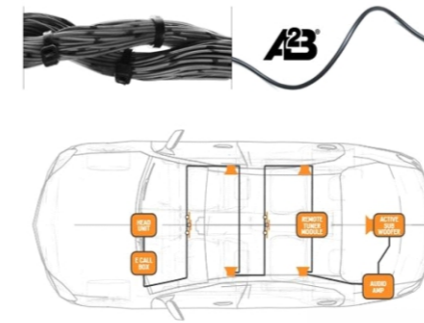
## Intelligent glasses audio test

Flex uses electroacoustic test device and AudioExpert by Megasis to realize audio test of intelligent glasses.

“Megasig audio devices have stability and consistency. Help us better for mass production.”

--Flex International Ltd, Audio Engineer, JinWang

# Automobile test



## Automotive Audio Bus (A2B) test

A2B bus is used to connect audio equipment in the vehicle, such as mic, power amplifier, multimedia head unit and T-box. Through a low-cost unshielded twisted pair UTP, audio data including I2S or TDM and control signal like I2C, clock and power supply can be transmitted across distances.

Now we use MegaSig U 923 and PM 668x series to test A2B car audio bus.

## Automotive Multimedia Test

MegaSig complete vehicle-machine multimedia comprehensive test system can realize Bluetooth audio, comprehensive testing of A2B audio, FM audio, power consumption of the whole machine, GPS signal, etc.

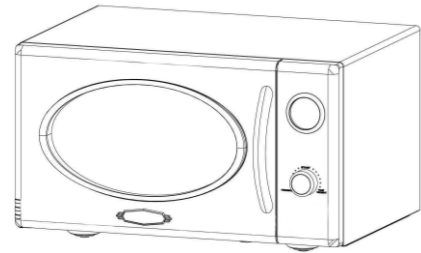
## Automotive parts NVH EOL test

As for car seat motor, window motor, HUD motor, AudioExpert audio test platform realizes a series of sound quality analysis tests such as fluctuation, pulseloudness, specific loudness, time varying loudness.

## Automobile motor NVH EOL test

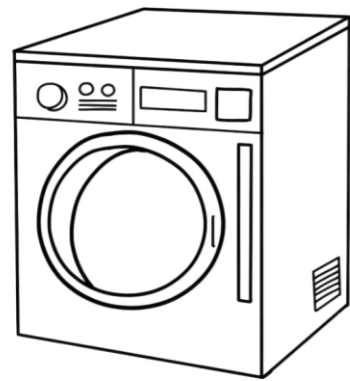
A well-known electric Automobile brand uses the MegaSig AudioExpert audio test platform to realize the order analysis and noise analysis of the sound and vibration of the motor, achieving quality control for motor mass production.

# White appliance industry test



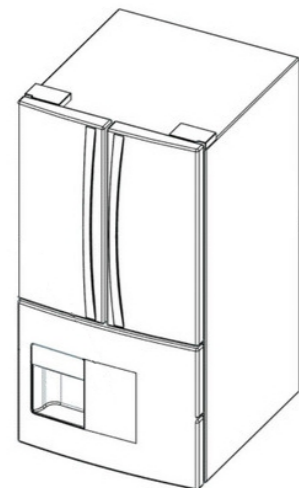
## Microwave noise test

Well-known first-line smart home brands adopts the MegaSig AudioExpert audio test platform to conduct acoustic analysis of the noise generated during the operation of microwave ovens and the noise caused by mechanical components (such as motors), so as to evaluate the sound characteristics and performance of the product to meet user expectation and to ensure regulatory compliance.



## Washing machine vibration test

The vibration and stability performance of the washing machine can be tested through the MegaSig AudioExpert audio test platform. The vibration amplitude of the washing machine at different vibration frequencies in acceleration, deceleration and centrifugal process can be evaluated to ensure stable performance and lower vibration in various condition, which provide users with a better experience and prolong product life.



## Refrigerator motor NVH testing

The NVH test of refrigerator motors is aimed to evaluate the noise, vibration, and sound quality(Harshness) of refrigerator motors. AudioExpert's powerful analysis function can easily implement NVH-related tests on refrigerator motors through customized sequence writing.

The test includes

- \* Time varying loudness test;
- \* Specific loudness test;
- \* Pulse loudness test
- \* Fluctuation test;

# Some of our end user



SOLUTIONS

We are looking for regional agents and system integrators



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