
PLACID
PLACID INSTRUMENTS
2022 – 2023
PRODUCT
BROCHURES
PLACID INSTRUMENTS BV
www.placidinstruments.com
ASK US!
HERE

NEW CALIBRATED INSTRUMENTS FOR REGISTERING NOISE AND VIBRATION

www.placidinstruments.com

BASIC COMPETENCE

Professional R&D Team
Product Customization Services
Efficient Response
Innovation

www.placidinstruments.com

COMPANY PROFILE

About PLACID Instruments

PLACID Instruments BV is a research-oriented high-tech enterprise mainly engaged in the research and development of acoustic measuring equipment, acoustic engineering design, and acoustic vibration technology consulting. The company's core business is the R & D and manufacture of measurement sensors, test systems, professional recording microphones, professional audio equipment, and acoustic vibration test systems.

SERVICES

1. R & D and customization of various precision sensors

2. Development and customization of acoustic vibration measurement system

3. Internet of things and intelligent monitoring equipment
.

4. Noise source detection and array system customization

5. Development and application of active and passive noise reduction technology

6. Consultation on acoustic vibration technology

7. Industrial equipment testing and technical services

8. R & D and manufacturing of special audio equipment

9. Acoustic design for various types of acoustic laboratories, studios, conference venues, etc.

CUSTOMER INDUSTRY CLASSIFICATION

Rail Transportation Industry

University Research Institute

Automotive Industry

Electronic Appliances

Ship Industry

Machine Made

HEAD RECORD

Sensor

Noise sensor
Sensor introduction
Sensor Selection Guide
PLACID noise sensor

Free field microphones
Pressure field microphones
Preamplifiers for sound registration
Conventional microphones
Special microphones
USB microphones

Acoustic-vibration integrated sensor
Introduction
Accelerometers

Acoustic and Vibration Equipment

Multi-channel acoustic test system
Testing software
Test hardware

Impedance tube material test system
Microphone hemispherical
Artificial head microphone
Hearing protectors measurements
Sound level meter
Sound calibrator

Acoustics and vibration accessories

Acoustic and vibration accessories

SENSOR

Noise sensor
Sensor introduction
Sensor Selection Guide
PLACID noise sensor

Vibration sensor
principle
Selection vibration sensor

Acoustic-Vibration Integrated Sensor
Introduction

www.placidinstruments.com

NOISE SENSOR

Introduction to Noise Sensors

A microphone is an energy conversion device that converts sound signals into electrical signals. It is transliterated from the English word "Microphone". Also called microphone, microphone. In the twentieth century, microphones evolved from resistive conversion of acoustic electricity to inductive and capacitive conversion. A large number of new microphone technologies have gradually developed. These include microphones such as aluminum ribbons and moving coils, as well as currently widely used condenser microphones and electrets. Body microphone. The history of microphones can be traced back to the end of the 19th century, and scientists such as Alexander Graham Bell worked to find a better way to pick up sounds to improve the latest invention of the time-the telephone. During this period they invented liquid sensors and carbon particle sensors. These sensors did not work well, but they were barely used.

In 1949, Winnipeg Laboratories (the predecessor of Sennheiser) developed the MD4 microphone, which can effectively suppress sound feedback and reduce background noise in noisy environments. This is the world's first noise-cancelling sensor that suppresses feedback.

In 1961, at the Industry Fair in Hanover, Germany, Sennheiser introduced the MK102 and MK103 sensors. These two sensors explain a new sensor manufacturing concept-RF radio frequency capacitive type, which uses a small and thin diaphragm, which has the characteristics of small size and light weight, while ensuring excellent sound quality; In addition, this kind of The sensor is very sensitive to electromagnetic interference. They have a strong anti-interference effect on the climate, which is very suitable for some new fields. For example, it is used by expeditions and operates outdoors day and night. In the face of extreme outdoor conditions with extreme temperature differences, the microphone still performs well.

The sensor transmits the vibration of the sound to the diaphragm of the microphone and pushes the magnet inside to change the current, so that the changed current is sent to the sound processing circuit at the back for amplification processing.

NOISE SENSOR SELECTION GUIDE

There are various types of noise sensors. Different test scenarios need to select sensors with different parameters. The selection steps and keywords for each step are explained in detail below.

STEP 1

Judge whether it is an external polarization sensor or a pre-polarization sensor

STEP 2

Judge whether the application scenario is free field test, pressure field test or random field test

STEP 3

Determine the dynamic range (sensitivity) of the test sound

STEP 4

Determine the frequency range of the test sound

Frost map after microphone low temperature experiment Industry

Microphone temperature and humidity cycle experiment

SENSOR SELECTION GUIDE

To choose a suitable sensor, consider the frequency range, dynamic range, and test application of the sound source. Several reference factors are listed below:

1 Should you choose an external polarization sensor or a pre-polarized sensor?

There are two kinds of power supply methods for capacitive sensors: one is the external voltage supply, and the other is the microphone itself. This kind of PTFE layer has been injected with a permanent charge in advance.
Distinguish between externally polarized voltage-powered sensors and pre-polarized sensors.
For externally polarized voltage-powered sensors: This sensor needs to be used with a standard preamplifier, like PLACID's NV21, with a 7-pin lemo connector. The preamplifier needs an external polarized voltage of 200V, and the voltage value is added to the sensor. The external polarization sensor is the most accurate and stable sensor. It is best to choose this type when the test requirements are high.
About pre-polarized sensors: This type of sensor needs to be connected with a CCP (Constant Current Power DC power supply) preamp, and then connected to a power source that can supply DC power.

2 Is the application scenario a free field test, a pressure field test, or a random field test?

According to different application scenarios, measurement sensors can be divided into three groups: free field, pressure field and random field. The fundamental difference between these three groups of sensors is that at high frequencies, the test wavelength is similar to the sensor size, and the presence of the sensor will affect the sound field.

A. FREE FIELD SENSOR

The free field sensor actually measures the sound pressure value when the sensor is not in the sound field. At high frequencies, the sensor itself can affect the sound pressure test. This type of sensor has been designed with compensation for its effect on the sound field.
For most sound pressure tests, we choose free-field microphones, which are used in sound level meters, sound power, and radiation studies.

B. PRESSURE FIELD SENSOR

The pressure field microphone measures the sound pressure on the sensor diaphragm. Practical applications are in closed coupling cavities, or in walls and solid boundaries. In this case, the sensor forms part of the wall and the measured sound pressure is also the value of the sound pressure on the wall.

C. RANDOM FIELD SENSOR

Random field sensors are used to test sound fields with sound from different sources, like reverberation chambers or other highly reflective fields. The effect of sound from different directions on the sensor depends on how these sound waves are distributed. For a test sensor, its distribution standard has been defined statistically. According to ANSI standards, random field sensors are often used in sound pressure level testing.

3 Test the dynamic range and sensitivity of the sound.

The dynamic range of a sensor refers to the entire range from the lowest sound pressure to the highest sound pressure that the sensor can measure. This is not only a unique characteristic of the sensor, the preamplifier used with the sensor also has its own dynamic range. The dynamic range of a sensor depends largely on its sensitivity.

Sensitivity refers to the ratio of the change in the output amount Δ y to the change in the input amount Δ x under the steady-state operation of the sensor. It is the slope of the output-input characteristic curve. If there is a linear relationship between the sensor's output and input, then the sensitivity S is a constant. Otherwise, it will change with the amount of input. The dimension of sensitivity is the ratio of the dimensions of output and input. For example, if a sound pressure sensor changes its output voltage by 50mV when the displacement changes by 1Pa, its sensitivity should be expressed as 50 mV / Pa. When the dimensions of the sensor's output and input are the same, the sensitivity can be understood as the magnification.

Under normal circumstances, the dynamic range of a sensor with high sensitivity is closer to the lower limit--more biased toward measuring sound source signals with low sound pressure levels; correspondingly, the dynamic range of a sensor with low sensitivity is closer to the upper limit--more favorable to measure high Low-level sound source signal.

This is because the sensitivity of the sensor is mainly determined by the size of the sensor and the strength of its diaphragm. We most commonly use 1/2 ", 1/4", 1/8 ". The larger the sensor size, the more signals with longer wavelengths can be picked up. , According to the formula: speed = wavelength * frequency). Generally speaking, the larger the sensor size, the looser the diaphragm, the larger the elastic coefficient, the higher the sensitivity. In contrast, the smaller the sensor, the tighter the diaphragm, the smaller the elastic coefficient, and the lower the sensitivity.

UPPER LIMIT OF DYNAMIC RANGE:

With the increase of the sound pressure, the vibration intensity of the diaphragm becomes larger and larger. Until a certain point is reached, the diaphragm is about to hit the bottom plate. This signal is the maximum sound pressure value that the sensor can measure. This sound pressure is the upper limit of the dynamic response of the sensor.

LOWER LIMIT OF DYNAMIC RANGE:

In the absence of a sound source signal, the thermal motion of air molecules is enough to excite the sensor to output a very small signal. The noise signal generated by the "molecular thermal motion" is about 5uV, which means that no matter what acoustic test, this 5uV will be added to the test result. Therefore, the sensor cannot measure the noise signal generated by the thermal movement of the metal below it.

UPPER LIMIT OF SENSOR SENSITIVITY:

The upper limit of the sensor's sensitivity depends on its size, more precisely, its size and the wavelength tested. We all know that sound travels in the air at a constant speed. The shorter the wavelength, the higher the frequency. This requires a small sensor size for high frequency testing. But the smaller the size, the more its dynamic range will be affected.

SENSOR SENSITIVITY LOWER LIMIT:

The lower limit of the sensor's sensitivity depends on its static balance system, that is, at very low frequencies, the sensor actually measures the difference between its internal pressure and static pressure. If the inside of the sensor is absolutely closed, changes in atmospheric pressure and altitude will cause static reflection on the diaphragm, and the frequency response and sensitivity will change accordingly.

In order to avoid this static reflection effect, each sensor must open a small opening to balance out this static pressure. But this small opening must be small enough so as not to affect the test dynamic signal. It is not difficult to understand that in our daily life, when we breathe normally, there will be no loud noises and breath balance between breaths and breaths. But if you open your mouth too much, you will make a sound. The small mouth on the sensor is its "small mouth". Without this small mouth, it cannot complete the "breathing balance" and it cannot collect signals.

4 What is the test frequency range from Hz to Hz?.

Definition of frequency range: the range between the upper and lower limits of the sensor frequency. The lowest frequency of PLACID sensor is about 5Hz, and the highest can reach 100KHz.

EXPAND SHARING:

The frequency of sound that human ears can hear is between 20Hz and 20KHz. This means that children, people's hearing becomes narrower with age, and adults' hearing treble is only 12KHz. There are also individual differences related to hearing training..

The frequency of music also belongs to this range, and music producers can also exceed it, but it is basically not done (what's the use of the inaudible?) Formats such as mp3, wav, ape, etc. are not related to the frequency range.
A low-frequency test requires a sensor that can better balance the static pressure. This sensor has a very small hole. When the sound pressure is applied to the diaphragm, the small hole will more smoothly balance the vibration airflow. Infrasound waves are the source of sound below 20Hz, so you can use them to detect infrasound waves.
Conversely, high-frequency testing is mainly related to the strength, elasticity, mass, and degree of scattering of the sensor diaphragm

PLACID NOISE SENSOR

From the start, the manufacturing of reliable noise sensors has continuously been expanding. Our ultra-modern and constant high quality manufacturing process and double-checked QC handles the growth very well. Our worldwide customers include major universities, research institutes, laboratories, acoustic consultants and noise registration equipment and sound level meters manufacturers.

PLACID's measurement microphones range in size from 1 inch to 1/4 inch and can meet the requirements of various occasions. For most application scenarios, the sound field type at the time of application should be considered first. Microphones can be roughly divided into free field and pressure field according to the type of sound field. Free-field measurement microphones are the best choice for indoor environments that are far away from the reflective surface or have good sound absorption performance, such as when using a sound level meter for outdoor testing or when there are a large number of sound damping materials indoor. For testing in a closed coupling cavity or near a rigid reflective surface, a pressure field-type measurement microphone is more suitable. For the measurement of a closed area with reverberation characteristics, a pressure field microphone suitable for random incidence measurement is better.

PLACID Noise sensors have the following advantages:

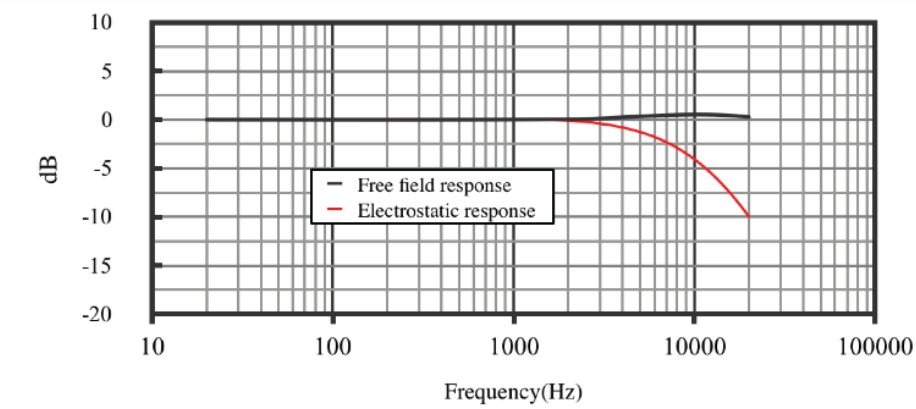
1. Good stability and wide dynamic range.
2. The frequency response curve is flat over a wide frequency range.
3. Low distortion and low noise floor.
4. Variety of performances, can meet different occasions testing.

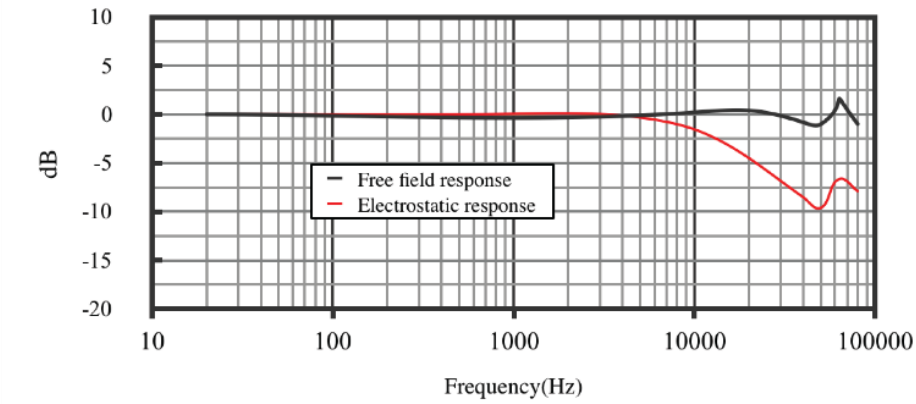
Diaphragm processing technology

There are two types of diaphragms for PLACID microphone series, solder film and coating film. Compared with the traditional coating process, the sensor produced by welding film has the following advantages:

1. Better long-term stability
2. The sensor consistency is greatly improved during mass production

FREE FIELD MICROPHONES

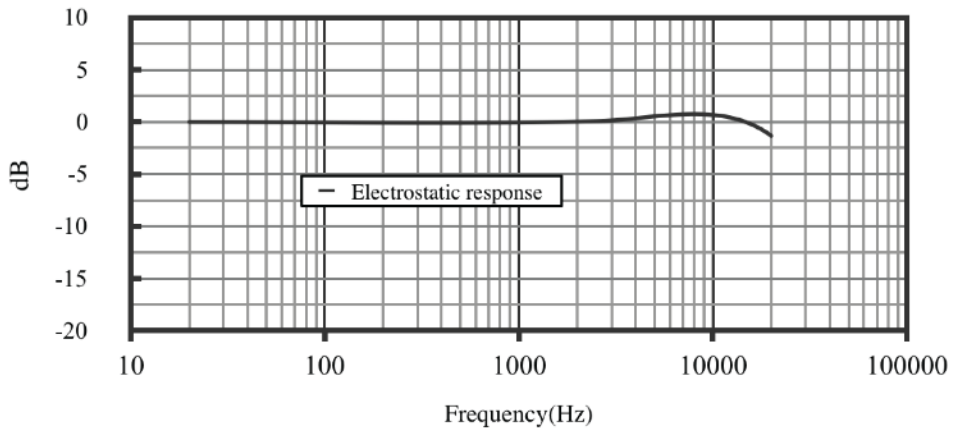


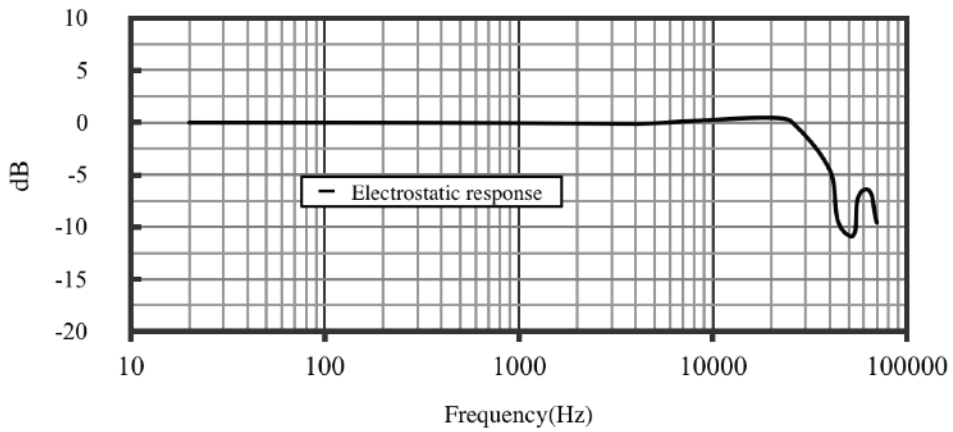


Free Field Microphones

Type	Diameter	Sound Field	Frequency (Hz ~ kHz)	Sensi tivity (mV/Pa)	Dynamic Range (dBA)	Polarization Voltage (V)	Height (mm)	IEC 61094 designation
PMV21	½"	Free-field	20 Hz~ 20 kHz	40	16 – 150	200	17.6	WS2F Class I
PMP20	½ "	Free-field	20 Hz ~ 40 kHz	12	25 – 155	0	12.3	WS2F Class I
PMP21	½ "	Free-field	20 Hz ~ 20 kHz	50	16 – 146	0	17.6	WS2F Class I
PMP22	½ "	Free-field	20 Hz ~ 16 kHz	40	17 – 148	0	17.6	WS2F Class II
PMP40	7 mm	Free-field	20 Hz ~ 20 kHz	50	30 – 126	0	6.5	Type II
PMP41	¼ "	Free-field	20 Hz ~ 16 kHz	4	34 – 164	0	10.5	WS3F Class I
PMP42	7 mm	Free-field	20 Hz ~ 16 kHz	8	36 – 142	0	8.0	WS3F Class II

PRESSURE FIELD MICROPHONES





Pressure Field Microphones

Type	Diameter	Sound Field	Frequency (Hz ~ kHz)	Sensitivity (mV/Pa)	Dynamic Range (dBA)	Polarization Voltage (V)	Height (mm)	IEC 61094 designation
PMV27	½ "	Pressure field	20 Hz ~ 20 kHz	12	25 – 155	200	12.3	WS2P Class I
PMP27	½ "	Pressure field	20 Hz ~ 20 kHz	12	25 – 155	0	12.3	WS2P Class I
PMP47	¼ "	Pressure field	20 Hz – 20 kHz	4	35 – 162	0	10.5	WS3P Class I

PREAMPLIFIER FOR SOUND REGISTRATION

Specification

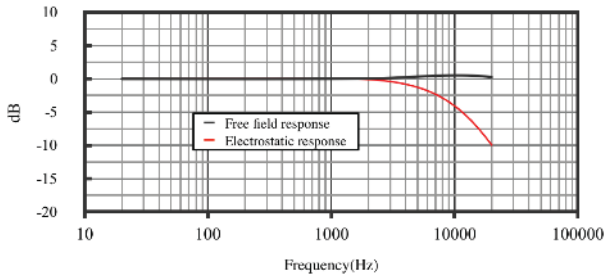
Type	PNP21	PNP22	PNP41	PMP40 (mic + preamp)
Diameter	1/2 inch	1/2 inch	1/4 inch	7 mm
Frequency Response (Ref: 250 Hz, ±0.2 dB)	5 Hz ~ 100 kHz	5 Hz ~ 100 kHz	5 Hz ~ 100 kHz	5 Hz ~ 100 kHz
Attenuation (10 Hz ~ 100 kHz)	< 0.5 dB	< 0.5 dB	< 0.5 dB	< 0.5 dB
Input Impedance	> 5 GΩ	> 5 GΩ	> 1.5 GΩ	> 1.5 GΩ
Output Impedance	< 110 W	< 110 W	< 110 W	< 110 W
Electrical Noise (self noise)	A-weighting < 2.0 µV20 Hz ~ 20 kHz < 6.0 µV	A-weighting < 2.0 µV20 Hz ~ 20 kHz < 6.0 µV	A-weighting < 2.5 µV20 Hz ~ 20 kHz < 6.0 µV	A-weighting < 2.5 µV20 Hz ~ 20 kHz < 6.0 µV
Maximum Output Voltage	8.0 Vrms	8.0 Vrms	8.0 Vrms	6.0 Vrms
Power Requirement	ICP (2 ~ 20 mA)	ICP (2 ~ 20 mA)	ICP (2 ~ 20 mA)	ICP (2 ~ 20 mA)
Operating Temperature	-40°C ~ 100°C	-40°C ~100°C	-40°C ~ 100°C	-30°C ~ 80°C
Operating Humidity	0 ~ 98% RH	0 ~ 98% RH	0 ~ 98% RH	0 ~ 98% RH
Output Connector	BNC	SMB	SMB	SMB
Length (mm)	68	35	58	64
Weight (g)	25.5	14.5	6.5	7.5

CONVENTIONAL MICROPHONE

PMP21

PMP21 microphones have high sensitivity, and the frequency band range is 20Hz to 20kHz. No polarization voltage is required. Generally applicable to type 1 sound level meters and other noise measuring devices. The frequency response of PMP21 complies with IEC Type I standards.

All microphone series are tested in solid-state environments, including long-term high and low temperature aging tests and high humidity aging tests.



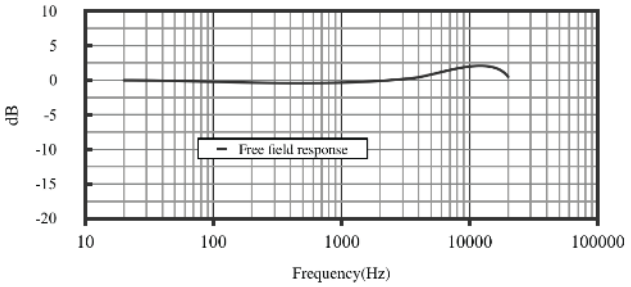
Specification

Head Size (Inches)	½
Sensitivity (mV/PA)	50
Frequency (Hz)	20 Hz — 20 kHz
Application	Free Field
Polarization Voltage	0 V
Dynamic Range (dB)	16 - 146
Output Impedance (ohm)	<110
Electrical Noise	A Weighting <2.0 µV
Output Voltage	20 Hz – 20 kHz <6.0 µV
Power Supply	IEPE (2 – 20 mA)
Operating Temperature	-40°C ~80°C
Working Humidity	0 – 98% RH
Output Interface	BNC

PMP40

PMP40 is 1/4" prepolarized free field measurement microphone set with preamplifier. It is intended to be used for noise measurements, acoustic arrays, impedance tubes etc.

All the microphones are going through solid environmental testing, which includes high temperature ageing and high humidity ageing.



Specification

Head Size (Inches)	7 mm
Sensitivity (mV/PA)	50
Frequency (Hz)	20 Hz — 20 kHz
Application	Free Field
Polarization Voltage	0 V
Dynamic Range (dB)	30 – 126
Supply Current (mA)	2 – 20 (typical 4mA)
Output Interface	SMB

SPECIAL MICROPHONE

SURFACE MICROPHONE PARAMETERS

Specification

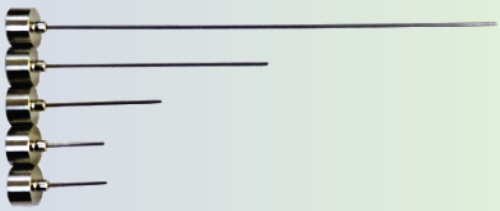
Sensitivity (mV/PA)	4 mV / Pa, -48 dB
Frequency (Hz)	10 Hz — 20 kHz
Dynamic Range (dB)	36 dB – 160 dB
Max. sound pressure level	160 dB
Power Supply	IEPE (2 – 20 mA)
Operating Temperature	-10°C ~65°C

- Typical applications and uses
- Confined space installation
- Clay model inlay
- Ground array measurement
- General noise measurement

Specification

Sensitivity (mV/PA)	3 mV / Pa
Frequency (Hz)	10 Hz — 8 kHz
Dynamic Range (dB)	40 dB – 166 dB
Upper Temperature Limit	400°C

- Typical applications and uses
- Acoustic impedance measurement
- Exhaust system measurement
- Near Field Measurement
- Pressure distribution measurement in small sealed rooms.



PROBE SENSOR

CLASS 1 USB MEASUREMENT MICROPHONE

PLACID PMNU21

Specification

PLACID PMNU21, Class 1 USB measurement microphone integrates a test microphone, microphone preamplifier, a 24 bit A/D converter and USB interface, It transmits measurement data seamless to a PC or a mobile terminal through a USB cable. The Class 1 microphone carries out high performance noise measurements with test software.

Direct power supply from a PC or mobile terminal without the need of additional external power supply. Compatible with Windows as well as Android operating system. It's fully plug-and-play, no need to install any additional driver.

The PMNU21 Class 1 USB microphone includes 2 channels, one for low sensitivity and one for high sensitivity. Depending on the application the appropriate channel can be selected.

ACOUSTIC-VIBRATION INTEGRATED SENSORS

Introduction

PLACID has launched a new type of sensor. The sensor can simultaneously meet customer requirements for simultaneous testing of vibration and noise. At present, all vibration and noise sensors are tested separately on the market, which causes errors in data collection under the same working conditions. Many customers have a strong demand for simultaneous acquisition of noise and vibration test points, for which we have developed and produced this integrated acoustic-vibration test sensor.

The sensor consists of a three-term accelerometer and a free-field noise sensor. The housing is cut integrally to ensure the stability of each sensor. The accelerometer and noise sensor are our own products. Accelerometer measurement range ± 50g, noise sensor test range: 20-20KHz. All can meet the requirements of conventional vibration and noise testing. The product is fixed in a similar way to a conventional accelerometer, with either a magnetic mount or a direct paste. The output interface is a 5-pin aviation plug, and the connecting cable is a 5-pin aviation plug to 4 BNC cables.

Specification

Type	PYSSV2013
Axial sensitivity	40 mV/g
Measuring Range	50 g
Lateral sensitivity	< 5%
Frequency response	0.1 ~ 11 kHz
Installation resonance frequency	30 kHz
Range of working temperature	- 40 ~ + 120 C
Impact Limit	1000 g
Operating voltage	24 V (DC)
Working Current	4~20 mA
Noise	<5V
Output Impedance	<100 ohm
DC Bias voltage	9+1 V
Transient Temperature	20 mg / o.3 Hz) C
Weight	26.2 g
Housing Material	
Output Method	4 - pin

Acoustic sensor parameter

Dimension (Inches)	¼
Sensitivity (mV / Pa)	4
Frequency range (Hz)	20 – 70 k
Application	Free Field
Polarization voltage (V)	0
Dynamic range (dB)	40 – 160
Power Supply	IEPE Powered
Supply Current	4.0 mA
Thread size	WS3F

ACOUSTIC & VIBRATION EQUIPMENT

Multi-channel acoustic test system
Testing Software
Test Hardware
Impedance tube material test system
Microphone hemispherical
Artificial Head Microphone
Sound Level Meter

www.placidinstruments.com

MULTI-CHANNEL ACOUSTIC TEST SYSTEM

ARTIFICIAL HEAD MICROPHONES

The multi-channel acoustic acquisition and analysis software independently developed by PLACID can be applied to PLACID 8-channel data acquisition cards, 16-channel data acquisition cards, and various types of NI data acquisition cards. The analysis function is very rich. Can be customized according to user requirements.

SoundExpress acoustic test software is a software developed by PLACID for testing acoustic indicators. It is mainly composed of sound level meter function, sound intensity function and sound power function. Among them, the sound intensity function and sound power function are developed in accordance with the relevant standards of JJG992-2004 "Sound Intensity Meter Verification Regulations" and GB6882-6 "Acoustic Noise Source Sound Power Level Measurement Anechoic Chamber and Semi-anechoic Chamber Precision Method" Yes, the test results meet the relevant national test standards.

TESTING SOFTWARE

Sound Express acquisition and analysis software interface

PLACID Multi-Channel data acquisition instrument

TESTING HARDWARE

PLACID multi-channel data acquisition instrument, with IEPE constant current source, voltage and other power supply methods, connected to a computer via USB or network cable, real-time synchronous acquisition of signal data. The fields of use are as follows:

1. Motor, machine tool and other power equipment
2. Aircraft, vehicles, ships and other transportation equipment
3. Large structures such as bridges, buildings, dams, etc.
4. Military fields such as aviation and aerospace

Number of Channels	¼
IEPE Power	4 mA
Sampling Rate	44.1, 48,88. 2,96,176.4,192
Magnification	X1, x10, x100 files
Dynamic Range	112 dB, A-weighted
Frequency Range	20 Hz – 100 Hz
Output Method	BNC output USB output

IMPEDANCE TUBE SYSTEM

ISO 10534-2, ASTM E1050-08, ASTM E2611-09

REF: PL/20/PB/005

PLACID's PI series impedance tube is used to determine the sound absorption and sound insulation coefficient of sound absorbing materials under normal incidence conditions. The entire system consists of an impedance tube, a high-precision phase-matched microphone, a data collector, and test software.

PI series impedance tube system is based on national standard GB / T18696.2-2002 "Measurement of sound absorption coefficient and acoustic impedance acoustics in impedance tube Part 2: Transfer function method" and ISO10534-2: 1998.

Name	Pipe Diameter (mm)	Measuring Range (Hz – Hz)	Number of Microphones
Low-frequency sound absorption tube	100	63– 1800	2 Sticks
Low-frequency sound insulation tube	100	63 – 1800	4 Sticks
High-frequency sound absorption tube	30	1600 – 6300	2 Sticks
High-frequency sound insulation tube	30	1600– 6300	4 Sticks
Very high-frequency sound absorption tube	16	2500 – 10000	2 Sticks
Very high-frequency sound insulation tube	16	2500 – 10000	4 Sticks

PI8810

100 mm Impedance tube, frequency range 50 Hz – 1600 Hz

PI8803

30 mm Impedance tube, frequency range 800 – 6300 Hz

PI88016

16mm Impedance tube, frequency range 2500 – 10000 Hz

Microphones

1/4" Class 1, 20 Hz to 20 kHz (BNC to SMB connector)

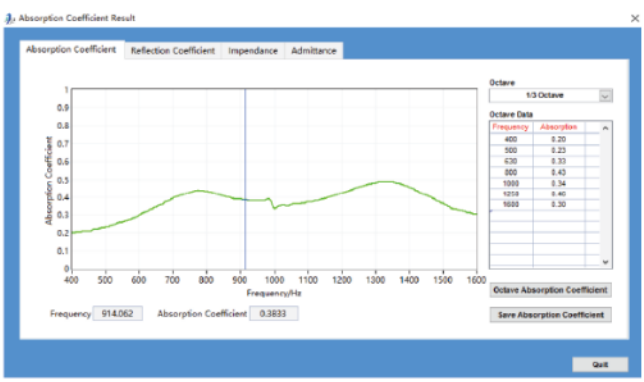
Impedance tube can measure sound absorption coefficient as well as transmission loss, ISO10543-2, ASTM E1050-08.

IMPEDANCE TUBE SYSTEM

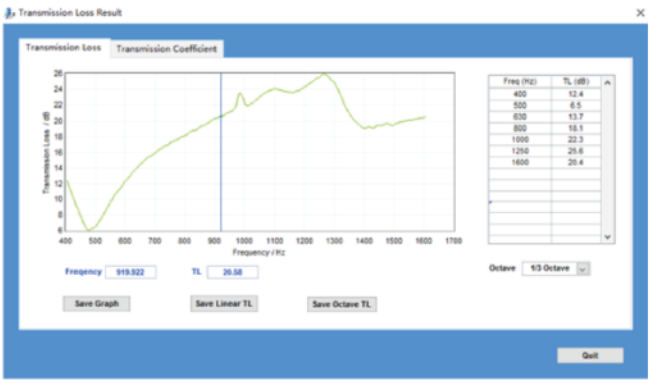
ISO 10534-2, ASTM E1050-08, ASTM E2611-09

REF: PL/20/PB/005

The test tube is made of high-strength hard aluminum alloy as a whole, which can ensure the diameter of the tube and the stability of the cavity to the maximum. The impedance tube test software automatically calculates the sound absorption coefficient based on the measured peak sound level and valley sound level values and can generate a coordinate curve of the sound absorption coefficient and frequency. The frequency and amplitude of the output signal of the data acquisition instrument can be freely set within the specified range. Test the sound absorption coefficients of various materials such as building sound absorption materials, automotive interior materials, and industrial sound absorption materials. Compared with the standing wave tube, the standing wave ratio method has the characteristics of short test time, continuous spectrum, and good repeatability. Especially when conducting material research, the efficiency of comparison experiments can be greatly improved.

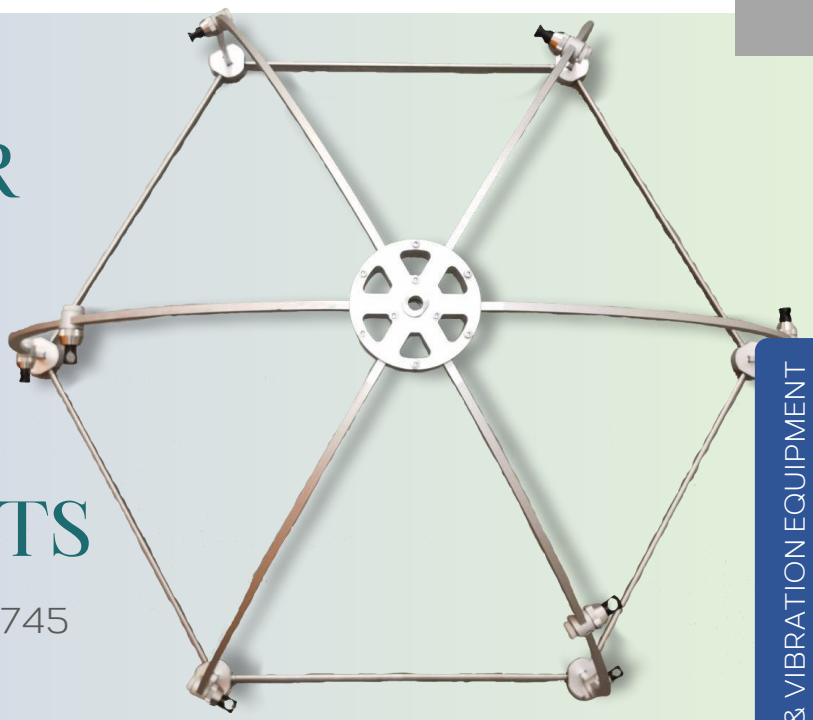


Sound absorption curve



Sound insulation curve

SOUNDPOWER HEMISPHERE MICROPHONE ARRAY FOR MEASUREMENTS

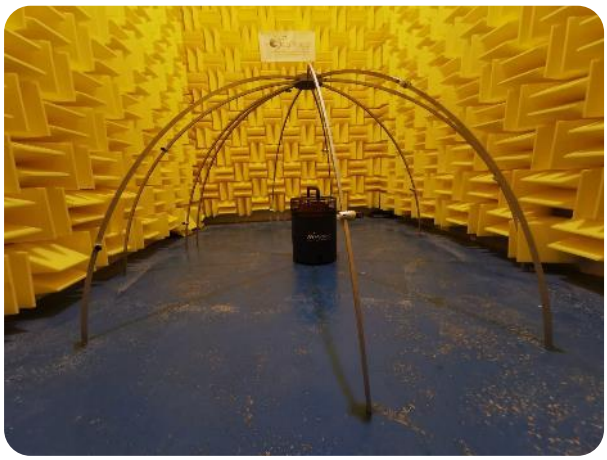


HM01 / HM02, ISO3744, ISO3745

Ref: PIH/20/DS/005

PLACID HM01 / HM02, the hemisphere will hold either 10 or 20 microphones according to the relevant used standards. Easy assembly and packing, strong, durable, stable, accurate. Designed to be assembled and reassembled.

A typical application for a hemisphere microphone array is the measurement of noise sources, specifically sound power in a (semi)-anechoic room.



Specification

Frequency Range	3.15 Hz to 20 kHz
Dynamic Range	17 dB to 139 dB
Sensitivity	50 mV/Pa
Dimensions	Diameter 1 or 2 meter, complying with ISO3744 or ISO3745
# of Microphones:	10 or 20 (1/4"or 1/2" microphones)

ARTIFICIAL HEAD BINAURAL RECORDING AND ACOUSTICAL MEASUREMENTS

PLACID PAH - 01

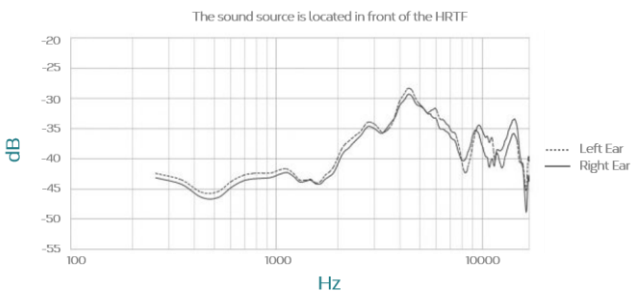
A soft artificial ear is easy to assemble so calibration can be done easily. The electroacoustic signal output from the 2 matched microphones is very stable. Microphones comply with IEC61072-1 standard.

Specification

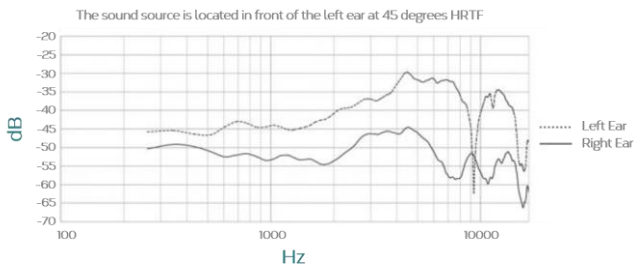
Built-in microphone model	PMP27
Microphone directivity	Omnidirectional
Sensitivity	-36 dB re 1 V at 1 Pa
Frequency Range	20 Hz — 20000 Hz
Impedance	2.2 KΩ
Maximum input sound pressure level (3% THD @ 1KHz)	155 dB (0 dB SPL = 2 × 10-5 Pa)
Signal to noise ratio (rel. 94 dB SPL)	72 dB
Noise floor	22 dBA
Power supply	48 V phantom power
Connector	3 pin XLR

Artificial Head microphone sensitivity HRTF (Head-related transfer function)

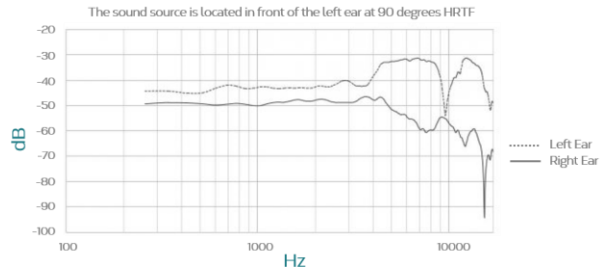
Values are shown below



HRTF Graph Artificial head front



HRTF Graph Artificial head left 45 degrees



HRTF Graph Artificial head left 90 degrees

HEARING PROTECTORS MEASUREMENTS

PLACID PLH-88

Whether it's for research and development, or to be sure of your hearing protector's performance,

Placid PLH 88 provides a fully integrated measurement system between hardware and software to guarantee accuracy and ease-of-use in conducting measurement, data storage and report generation.
Supported with a user-friendly interface which gives you a seamless and efficient process in measuring all types of hearing protection device.

Specification

19inch rack enclosure

4 Channel amplifier and RME Fireface UC sound cards are mounted in 19inc rack enclosure. Rack enclosure is connected to dedicated PC with PLH88 software with USB connector and on the other side to each of the 4 loudspeakers.

HEARING PROTECTORS MEASUREMENTS

PLACID PLH-88

Specification

LOUDSPEAKER

Loudspeaker box with dimensions: H 828 mm / W 280 mm / D 320 mm, is designed specifically for measurement of hearing protection to meet the required standards.
Loudspeaker's signal is divided by using specially designed signal filter (crossover filter) to maximize coupled performance of such configuration. Due, to this configuration, loudspeakers can have smooth linear SPL characteristic over the entire dynamic rage at given frequency. Loudspeaker's frequency nonlinearities are compensated by special calibration procedure that can be performed by PLH88 software.
Frequency response of one speaker is presented. Measurements were performed in front of loudspeaker on 1 m distance. Speaker has a flat response in desired frequency range. All the measurements were performed with a single loudspeaker. Represents max sound pressure level (SPL) of a single loudspeaker.

Loudspeaker box

Front Face

Rear Face

SOUND CARD RME FIREFACE UC

- Sample rates up to 192 kHz on all I/Os (including 2 ADAT channels with SMUX4)
- Output DA: 6 x 1/4" TRS, servo-balanced, DC-coupled signal path. 1 x 1/4" TRS unbalanced
- Dynamic range DA: 110 dB RMS unweighted, 113 dBA (unmuted)
- THD DA: -100 dB (0.001 %)
- THD+N DA: -96 dB (0.0015 %)
- Crosstalk DA: > 110 dB
- POWER: 9-18 V DC

ENGINEERING RECORDING TEST MICROPHONE

PCR series microphones are phantom powered measurement-level studio microphones which have 3-pin XLR. According to the diameter of capsules, PCR series include 1“ 1/2" and 1/4" studio microphones. Each type microphone has special characteristic, such as different Max Sound Level, Sensitivity, Frequency, and Inherent Noise, etc.

Features

- Nickle diaphragm coated with quartz
- Omnidirectional and high sensitivity
- Excellent suitable for concert halls & spot miking for acoustical instruments
- Precise detailed and natural reproduction

SOUND LEVEL METER

PLACID SL-02, Class 2 IEC 61672-1:2002

Placid has manufactured high tech, feature rich and accurate sound level meters. We have a large collection of sound level meters that can be used for many applications where the noise levels should be measured.

The Placid SL-02 sound level meter is an integrating (Leq) sound level meter that measures the sound pressure level (SPL) in Decibel (dB).

Applications:

- Occupational Noise
- Environmental Noise
- Vehicle Noise
- Noise Mapping

Specification

Measurement level range	30 – 130 dB
Accuracy	±1.4 dB (ref. 94 dB @ 1 kHz)
Sensitivity	50 mV/Pa
Time Weighting	Fast, Slow
Frequency Range	20 Hz – 8 kHz
Microphones:	½ inch electret condenser microphone
Measuring Time	10 seconds, 1 minute, 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour, 8 hours, 24 hours
Auxiliary Outputs	AC/DC Output
Battery	4 x 1.5V AA size battery
Dimensions	270 x 85 x 40 mm
Weight	Approximately 400 gram

Features

- Compliance with IEC 61672-1:2002 Class 2
- able to measure Leq, Lmax, Lmin, SPL
- datalogger for 64000 records
- pc interface with software
- AC/DC signal output (recording, post processing)
- Back-lit display

SOUND CALIBRATOR

PLACID CA-02

REF: PL/CA/20/02

Calibrator for sound level meters, 1 kHz, levels 94 dB and 104 dB. Can be used for any sound level meter with a 1/2" microphone.

PLACID Sound level calibrator is used to calibrate sound level meters and other sound measurement equipment. You can calibrate 1" diameter microphones directly and 1/2" microphones using 1/2" adaptor supplied with the calibrator. With available adaptors, you can calibrate other microphones and instruments.

Specification

Output Sound Pressure Levels	114 dB and 94 dB re 20 uPa under reference Conditions
Output Frequency	1000 Hz ±2%
Total Harmonic Distortion	< 4%
Accuracy of sound pressure level	Understated reference environment conditions ±0.5 dB
Battery	Operate: Green LED indicator Low battery: Red LED indicator 9 Volt battery
Dimensions	115 x 65 x 45 mm
Weight	Approximately 170 gram

Reference Conditions:

Temperature	23℃ (73℉)
Static press	103 hPa
Relative humidity	50%

Features

- sound calibrator with 2 levels, 94 dB and 104 dB at 1 kHz
- Accurate and very easy to use
- can be used for calibration of 1/2" and 1/1" microphones
- low battery indicator
- complies with IEC60942: 2003, Class 2
- complies with ANSI S1.40

ACOUSTIC & VIBRATION ACCESORIES

Windscreen
Outdoor Microphones

www.placidinstruments.com

WINDSCREEN

Specially designed foam windshield to be used with 1/2" microphones for sound level meters in free field conditions.

In situations where the wind can come from multiple, unpredictable directions.
The windscreens are only intended to filter out any wind noise influence on the microphone, the windscreens are not designed as rain protection as the frequency dependent attenuation will change when a windscreen is wet.

For conditions in high wind environments such as a wind tunnel, we would suggest PLACID Nose Cone PL/NC/002

Specification

	PL/WS/005	PL/WS/006	PL/WS/009
Diameter (mm)	50	60	90

OUTDOOR MICROPHONES

PLACID PMK 55 Outdoor Kit

- Outdoor microphone housing
- Protection class IP 55 (dust and water)
- Easy to calibrate with a normal 1/2" sound calibrator
- Directly powered and supported with ICP preamplifier

Order Information

- Bird spike
- Outdoor wind screen
- Mic & protection connector
- Tripod connector and cable protection
- Rain cover for 1/2" mic

Environmental enclosure case

2022 - 2023

PLACID INSTRUMENTS PRODUCT BROCHURES

Placid Instruments BV

Newtonlaan 115, Office No. 2.21

3584 BH UTRECHT

THE NETHERLANDS

Phone landline : +31 302106021

Email : info@placidinstruments.com

www.placidinstruments.com

CONTACT INFO:

Devon Dutz

WORLDWIDE (EXCEPT EUROPE)

Mobile | WhatsApp

+31 6 13915102

E-mail

devon@placidinstruments.com

Michael Noach

EUROPE

Mobile | WhatsApp

+31 622813335

E-mail

michael@placidinstruments.com

ASK US! HERE