PLACID

PLACID INSTRUMENTS

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ACCURATE, EASY TO USE

PLACID IMPEDANCE TUBE

Placid Instruments BV

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NEW CALIBRATED INSTRUMENTS FOR REGISTERING NOISE AND VIBRATION

PLACID INSTRUMENTS BV
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PLACID Impedance Tubes

Sound Absorption | Sound Transmission Loss

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

The Impedance tube(also known as Kundt Tube) measures, calculates and lets the user analyze Parameters like the Sound normal incidence absorption(Absorption Coefficient, Reflection Coefficient, Impedance, Admittance) and Sound Transmission/ sound insulation (Transmission Loss, Transmission Coefficient) of the material under test.

The results can be used to compare the basic absorption performance of the material and for acoustics simulations.
In practice, the absorbers can be quite large and their structure and configuration may be complex and part of acoustic designs. Furthermore, they will be exposed to real sound fields where the incident sound may come from many directions.

Acoustic Material Testing

- Sound Absorption Coefficient (alpha)
- Sound transmission Loss (TL)
- Standard lists :
  ISO10543-2, ASTM E1050-08,
  ASTM E2611-09, GB/T-18696
- Frequency Range:
  50-10000Hz

Features

- Transfer function method 2 microphones
- Wide range Testing
- Plug and Play DAQ System

PLC/IT01/22/UAV2

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Specification

Specification	Type PI8810	Type PI8803	Type P188016
Inner Diameter	100 mm	30 mm	16mm
Frequency Range	50 Hz to 1600 Hz	800 Hz to 6300 Hz	2.5 kHz to 10 kHz
Measurement	Sound Absorption, Sound transmission Loss		
Data acquisition	4 Channels ICCP input A/D converter 16/24 bit		
Microphones	¼" Class1 20 Hz to 20 kHz with BNC to SMB connector		
Power Amplifier	50 W. Class D		
Sound Source	4" loudspeaker 20W 4ohm		
Sound calibrator	94/114 dB at 1000 Hz		
Standards	ISO10543-2, ASTM E1050-08, ASTM E3611-09, GB/T-18696		
Ambient conditions	0 – 40 C (32 – 140 F), 10 – 90% RH, 650 – 1080 hpa		
Storage temperature & humidity	-10 – 50 C (14 – 122 F), 0 – 70% RH		

Application

- testing of material characteristics and verifying material compliance before implementing the materials in the assemblies
- design of acoustic comfort in aircraft, helicopters, ships, yachts and vehicle interiors by selecting the optimal acoustic treatments and noise barriers
- research and development of noise control products by benchmarking competitive products
- research jobs for students and universities
- validating and calibrating theoretical computational methods such as acoustic modelling

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For Absorption

Sound absorption measurement obtains Absorption Coefficient, Reflection Coefficient, Impedance and Admittance of testing materials

The results can be used to compare the basic absorption performance of the material and for acoustics simulations. In practice, the absorbers can be quite large and their structure and configuration may be complex and part of acoustic designs. Furthermore, they will be exposed to real sound fields where the incident sound may come from many directions.

The Impedance tube kit can determine the sound absorption coefficient as well as the transmission loss.

PI8810
100 mm Impedance tube, frequency range 50 Hz – 1600 Hz

PI8803
30 mm Impedance tube, frequency range 800 – 6300 Hz

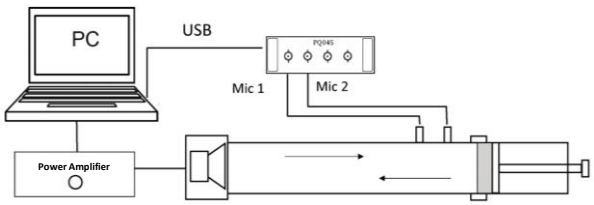
PI88016
16mm Impedance tube, frequency range 2500 – 10000 Hz

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.

Tube Diameter (mm)	Tube Length (mm)	Frequency Range (Hz)	Sample holder length (mm)	Tube Type
100	970	50-1600Hz	320	PI8810
30	585	800-6300Hz	300	PI8803
16	320	2.5kHz-10kHz	210	P18816

Sound absorption measurement setup



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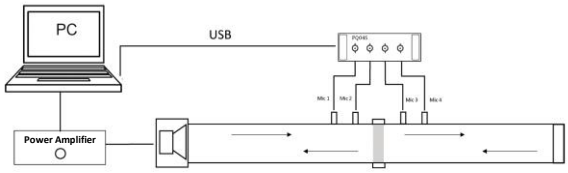
For Transmission Loss

Tube Diameter (mm)	Tube Length (mm)	Frequency Range (Hz)	Extension tube length (mm)	Tube Type
100	970	50-1600Hz	850	PI8810
30	585	800-6300Hz	520	PI8803
16	320	2.5kHz-10kHz	560	PI88016

Sound transmission loss measurement setup



Sound absorption / transmission loss description

Measurement	Sound Absorption	Sound Transmission Loss
Tubes	43 Hz to 1600 Hz 100 mm Diameter Tube 100 mm Sample holder 800 to 6300 Hz 30mm Diameter Tube 30mm Sample holder 10 khz 16 mm Diameter Tube 16 mm Sample holder	43 Hz to 1600 Hz 100 mm Diameter Tube 100 mm Extension holder 800 to 6300 Hz 30mm Diameter Tube 30mm Extension holder 10 khz 16 mm Diameter Tube 16 mm Extension tube
Data Acquisition	4 Channels ICCP input A/D converter 16/24 bit	4 Channels ICCP input A/D converter 16/24 bit
Microphones	X2 ¼" Class 20 Hz to 20 kHZ with BNC to SMB connector	X4 ¼" Class 20 Hz to 20 kHZ with BNC to SMB connector
Microphones cable	X2 4m BNC to SMB	X4 4m BNC to SMB
Power amplifier	50W ultralow distortion	50W ultralow distortion
Power amplifier cable	2m Banana cable	2m Banana cable
Sound Source	4" loudspeaker 20W 4ohm	4" loudspeaker 20W 4ohm
Sound Calibrator	94/114 dB at 1000 Hz	94/114 dB at 1000 Hz
Measurement Software	Sound Absorption testing	Sound Transmission Loss testing