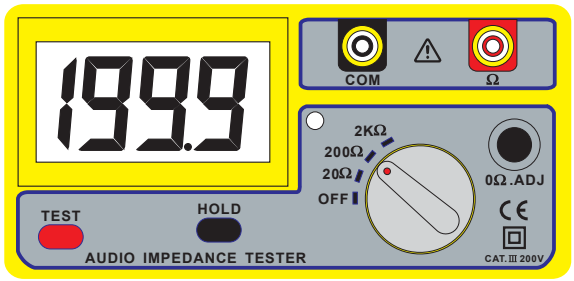
Model 1106 IM

Audio Impedance Tester

CE

Features

- Large LCD : 68 × 34mm (2.677" × 1.338").
- True measurement of speaker systems actural impedance at 1kHz.
- Three test ranges allow testing of home theater and commercial sound systems.
- Measures transformer impedances.
- Battery operation.
- Low battery indication.
- Data hold function.
- 0Ω adjustment.



Specifications

Measuring ranges	0-20Ω / 0-200Ω / 0-2kΩ
Test frequency	1kHz
Accuracy	20Ω:±2%rdg±2dgt or ±0.1Ω, which is greater 200Ω/2kΩ : ±2%rdg±2dgt
Low battery indication	Symbol appears on the display
Data hold indication	HOLD Symbol appears on the display
Dimensions	175(L) × 85(W) × 75(D)mm
Weight (battery included)	Approx. 600g
Power source	1.5V (AA) × 8
Safety standard	EN 61010-1 CAT III 200V EN 61326-1

Method of use

- It is recommended a drawing be first made of the speaker system to verify proper installation.
- Take care to ensure that the system is not connected to the amplifier.
- Ensure the system under test is not live.
- Check battery, if symbol appears on the display, replace with new batteries.
- Short the tips of the leads, adjust the "0Ω.ADJ", control to set the reading of zero.
- Connect test leads to speaker or speaker leads.
  Note : Speakers may be connected together either in series or parallel to achieve desired final impedance.
- Rotary the function switch to suitable range then press the push button to test and take the reading.

Accessories

Instruction manual
Test leads
Soft pouch
Batteries

AL-24-5

AL-21C2-4

CAC-1132

BET-1800

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Example: **Measure system power-an 10W up (1106 IM)**

$P=ZI^2$ $P=V^2 / Z$

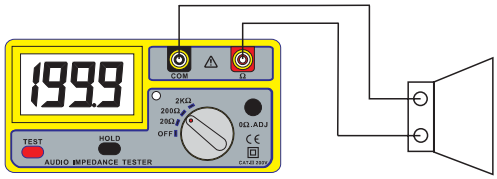
For example on a 100V system : If P = 50W $Z = V^2 / P = 100^2 / 50 = 200\Omega$

(1)The tester can measure load down to 2kΩ. (5W at 100V line).

(2)The tester can't measure 100V system with power lower than 5W.

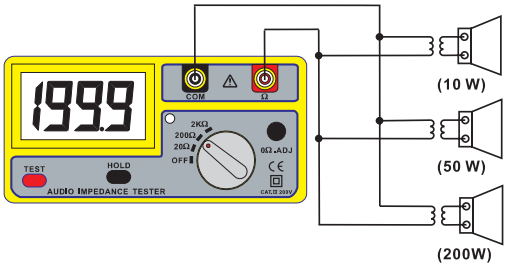
● Checking a speaker:

Speakers are general from 2 to 16Ω, use 20Ω range or for higher impedance speaker, use 200Ω or 2kΩ range.



● Checking a PA system:

PA system example, using a 100V configuration:



$Z=V^2 / P = 100^2 / P=10000/(10+50+200)=38.46\Omega$

(1) If Z measured is lower, check for short circuited wires or faulty speakers or transformers.

(2) If Z measured is higher, check for wiring or components (speakers, transformers or connections.)

Most amplifiers are designed for use with total loads between 4Ω and 8Ω. Total loads in excess of 8 will not cause damage to the amplifier but may cause a reduction in volume output. However, loads that are less than 4Ω will cause the amplifier to generate excessive heat, and will ultimately cause permanent damage.

Speaker systems with 70.7V or 25V transformers large building commercial sound and PA systems typically utilize a 70.7 volt or 25 volt transformers at each speaker and must be connected to PA amplifiers with such outputs. The benefit of this system is that it greatly eases the connection of large numbers of speakers to a single amplifier, and it allows the use of smaller gauge speaker wire over greater distances without signal loss.

Speakers equipped with such transformers will typically have multiple inputs at varying wattages. If all speakers in a given system use the same input wattage tap, the volume at each speaker will be equal. If more sound volume is desired at particular speakers, a higher wattage tap may be used at those speakers. The total wattage of all speakers added together must not exceed the wattage output of the amplifier channel in which they are connected.

To measure speaker systems of this type, impedance reading must be converted to Watts for your specific system.

To ease the calculation of this type of system, the following charts are provided.

Voltage System	Impedance Reading(Ω)								
25V	63	48	39	33	28	25	22	20	18
70.7V	500	384	312	263	227	200	179	161	147
100V	* 1000	769	625	526	455	400	357	323	294
Wattage(W)	10	13	16	19	22	25	28	31	34

Voltage System	Impedance Reading(Ω)												
25V	2500	1250	625	63	31	21	16	13	10	9	8	7	6
70.7V	20k	10k	** 5k	500	250	167	125	100	83	71	62	56	50
100V		20k	10k	1000	500	333	250	200	167	143	125	111	100
Wattage(W)	0.25	0.5	1	10	20	30	40	50	60	70	80	90	100

* : P=V2/Z = 1002/1000 = 10000/1000 = 10W

** : P=V2/Z = 70.72/5000 = 5000/5000 = 1W

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