PE-005

AUDIO IMPEDANCE TESTER

SAFETY NOTES

Read the user's manual before using the equipment, mainly " SAFETY RULES " paragraph.

The symbol  ***on the equipment means "SEE USER'S MANUAL". In this manual may also appear as a Caution or Warning symbol.***

Warning and Caution statements may appear in this manual to avoid injury hazard or damage to this product or other property.

TABLE OF CONTENTS

English

AUDIO IMPEDANCE TESTER
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1. GENERAL

1.1 Features

- True measurement of speaker systems actual impedance at 1 kHz.
- Three test ranges (20 Ω / 200 Ω / 2000 Ω) allow testing of home theater and speaker systems.
- Convenient portable battery operation.
- Data hold function.
- The timer function allows free hands continuous operation. It is activated automatically after 3 to 5 minutes since the user presses the TEST ON/OFF button stopping the measurement until a new TEST ON/OFF pulsation.

English

1.2 Specifications

Measurement range	20 Ω / 200 Ω / 2000 Ω
Test frequency	1 kHz
Accuracy	20 Ω: ±2% rdg ± 2 dgt or ± 0,1 Ω, which is greater. 200 Ω / 2000 Ω: ±2% rdg ± 2 dgt.
Power supply	9 V DC (6 x 1.5 V type R6).
Low battery indication	- + symbol appears on the display.
Data hold indication	HOLD symbol appears on the display.
Display	LCD 3 ½ digit (2000 counts)

NOTE: Equipment specifications are set in the following environmental operating conditions. Operation outside these specifications are also possible. Please check with us if you have specific requirements.

Operating environmental conditions

Altitude	Up to 2000 m
Temperature range	From 0 to 40 °C
Max. relative humidity	85%
Storage temperature	From 20 to -60 °C

Dimensions	90 W x 205 H x 55 D (mm.)
Weight	Approx. 550 g (battery included)
Included accessories	**PP010** Test leads with safety clamps User's manual Transport suitcase

RECOMMENDATIONS ABOUT THE PACKING

It is recommended to keep all the packing material in order to return the equipment, if necessary, to the Technical Service.

2. SAFETY RULES

* Connect only to system or speakers **isolated from the amplification**.

* Remember that voltages higher than **60 V DC** or **30 V AC rms** are dangerous.

* Use this instrument under the **specified environmental conditions**.

* **The user is only authorised to** carry out the following maintenance operations:

  Battery replacement.

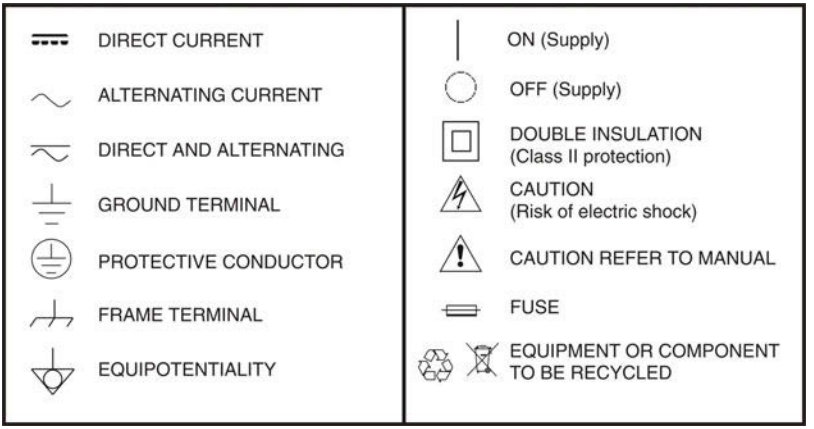
  On the Maintenance paragraph the proper instructions are given.

  Any other change on the equipment should be carried out by qualified personnel.

* Follow the **cleaning instructions** described in the Maintenance paragraph.

English

* Symbols related with safety:



* **Descriptive Examples of Over-Voltage Categories**

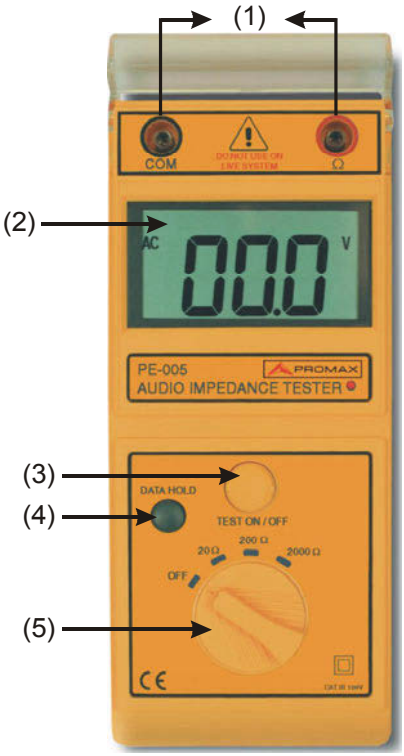
Cat I Low voltage installations isolated from the mains.

Cat II Portable domestic installations.

Cat III Fixed domestic installations.

Cat IV Industrial installations.

3. PRODUCT LAYOUT



1. **Jacks For Test Leads Connection**
2. **LCD**
3. **TEST ON/OFF switch**
4. **DATA HOLD button**
5. **Rotary switch for function selection and POWER ON/OFF**

English

4. MEASURING METHODS

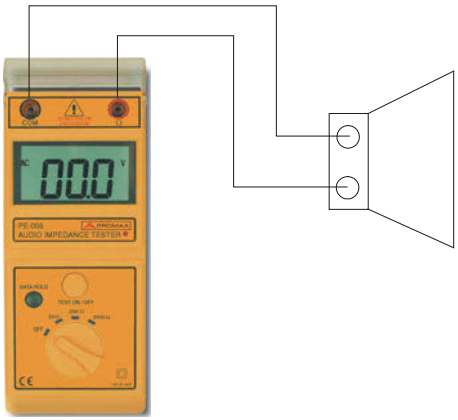
BEFORE PROCEEDING MEASUREMENT, READ SAFETY RULES ON PAGE 3.

4.1 Impedance measurement

1. Ensure the system under test is not live. Connecting the tester to a live line may cause it serious damages.
2. In proceeding with measurement, if  symbol appears on the display, replace with new batteries, otherwise measurements can be wrong.
3. Connect test leads to the impedance test points.
4. Rotary the function switch to suitable range then press the push button to test and take the reading. Try a suitable range to obtain the best resolution.

4.1.1 Checking a speaker

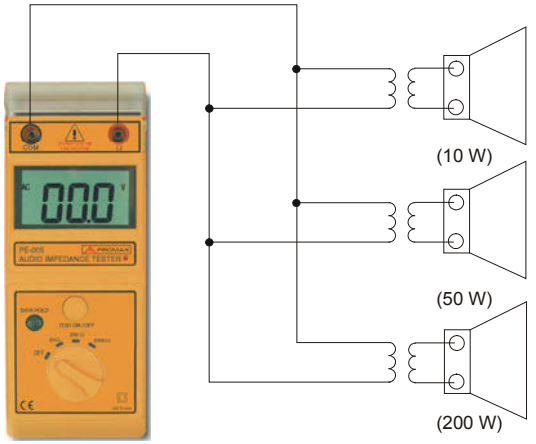
Speakers are general from 2 Ω to 16 Ω, use 20 Ω range or for higher impedance speakers, use 200 Ω or 2000 Ω range.



English

4.1.2 Checking speaker systems

1. A drawing of the system should be made before testing so the measurement can be attributed to network.
2. By example, the following setup shows a speaker system of 260 W using a 100 V voltage line.



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

3. Estimated impedance value should be:

$$\mathbf{Z = V^2 / P}$$

$$Z = 100^2 / P = 10000 / (10 + 50 + 200) = 38{,}46\ \Omega$$

4. If Z measured is lower, check for short circuited wires or faulty speakers or transformers.
5. If Z measured is higher, check for wiring or components (speakers, transformers or connections).

4.2 Power requirements estimation

1. At speaker systems, when the type of line is knows, generally 100 V, 70 V or 50 V, as well as the impedance, then it is possible to calculate the power requirements:
   Knowing that: $\mathbf{P = V^2 / Z}$

   For example on a 100V system, if Z measured is 200 Ω:

   $$P = 100^2 / 200 = 50 \text{ W}$$

   So, knowing the required power value allows to choice a suitable amplifier.

4.3 "DATA HOLD" function

1. Press the "DATA HOLD" button to save the measurement shill after disconnecting the test leads. Il appears the HOLD symbol on the screen.
2. Press again the "DATA HOLD" button to erase the last measurement.

English

5. MAINTENANCE

5.1 Battery Replacement

When the symbol  appears on the display, replace with new batteries, as follows:

1. Disconnect the test leads from the instrument and turn off the power.
2. Use a screwdriver to unscrew the screws on back cover then slide the cover, take out the 6 batteries and replace with new batteries type 1.5V R6.
3. Place back cover and secure by 2 screws.

5.2 Cleaning and storage

WARNING: To avoid electrical shock or damage to the meter, do not get water inside the case.

Periodically wipe the case with a damp cloth and detergent: do not use abrasives or solvents.

If the meter is not to be used for periods of longer than 60 days, remove the batteries and store them separately.

PROMAX ELECTRONICA, S. L.