

## ERT1 Electrical Resistivity Tester



# ASTM A712 IEC60404-13 Resistivity Tester

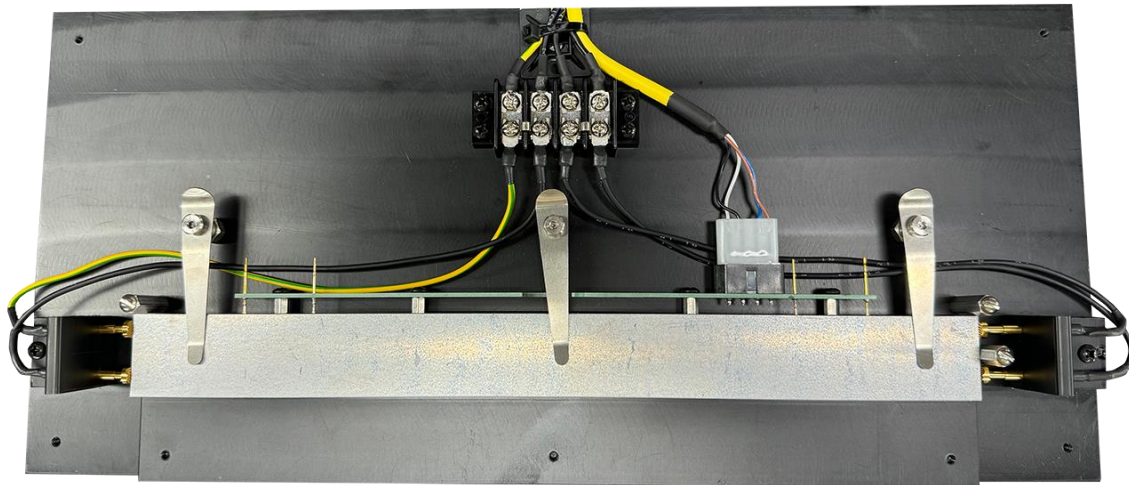
Welcome to the ultimate solution for measuring the electrical resistivity of soft magnetic alloys. Our Electrical Resistivity Tester is specifically designed to work with Epstein strip samples, ensuring precision and reliability in compliance with ASTM A712-14 and IEC 60404-13:2018 standards. This state-of-the-art instrument is perfect for design, specification acceptance, service evaluation, quality assurance, and research and development.

## Key Features

- **Compliance:** Adheres to ASTM A712-14 and IEC 60404-13:2018 specifications.
- **High Precision Measurement Probes:** Equipped with gold-plated measurement probes aligned to conform with IEC and ASTM specifications, ensuring accurate voltage and current measurements.
- **Versatile Measurements:** Suitable for non-oriented and grain-oriented electrical steels.
- **Quick Measurement:** Measurement time is less than 10 seconds.
- **User-friendly Interface:** Intuitive software for easy operation and data management.

## Specifications

- **Measurable Materials:** Non-Oriented and Grain Oriented Electrical Steels.
- **Test Data Reported:**  $\mu\Omega\cdot\text{cm}$  or  $\text{m}\Omega\cdot\text{cm}$ .
- **Repeatability:**  $\pm 0.01 \mu\Omega\cdot\text{cm}$ .
- **Measurement Range:** 0 – 10  $\Omega$  (total measurement resistance).
- **Sample Size:** 3 cm x 30 cm Epstein Strip.
- **Measurement Time:** < 10 seconds.
- **Operating Voltage:** 120/220 VAC.
- **Fuses:** Cartridge Fuses 250 V 3A 5x20mm Fast Acting.
- **Operating Temperature:** 70°F  $\pm$  10°F.
- **Dimensions:**
  - **Control Box:** 10.0" x 9.0" x 18.0" (HxWxD).
  - **Test Frame:** 1.5" x 10.0" x 7.0".



## Testing Methodology

- Preparation:
  - Ensure the Epstein strip sample is clean and free from oil, grease, and significant surface defects.
  - Place the sample into the test frame, ensuring proper alignment with the current and voltage probes.
- Current Application:
  - The tester applies a DC current ranging from 1A to 5A through the sample.
  - Voltage measurements (V1 and V2) are taken at two different probe spacings (225mm for IEC and 175mm for ASTM).
- Reverse Current:
  - The current is reversed and the measurements are repeated.
  - This helps to eliminate errors due to contact potentials and ensures accurate readings.
- Data Collection:
  - The average resistance (R1 for IEC and R2 for ASTM) is calculated from the voltage and current measurements.
  - The software automatically computes the resistivity ( $\rho$ ) using the formula:  
 $\rho_1 = R_1 \cdot b \cdot d / L(\text{IEC})$   $\rho_2 = R_2 \cdot b \cdot d / L(\text{ASTM})$
  - Where b is the width, d is the thickness of the sample, and L(IEC) and L(ASTM) are the probe spacings.
- Result Reporting:
  - The resistivity values are reported in  $\mu\Omega \cdot \text{cm}$  or  $\text{m}\Omega \cdot \text{cm}$ .
  - All data is saved locally and can be exported over a network for further analysis.

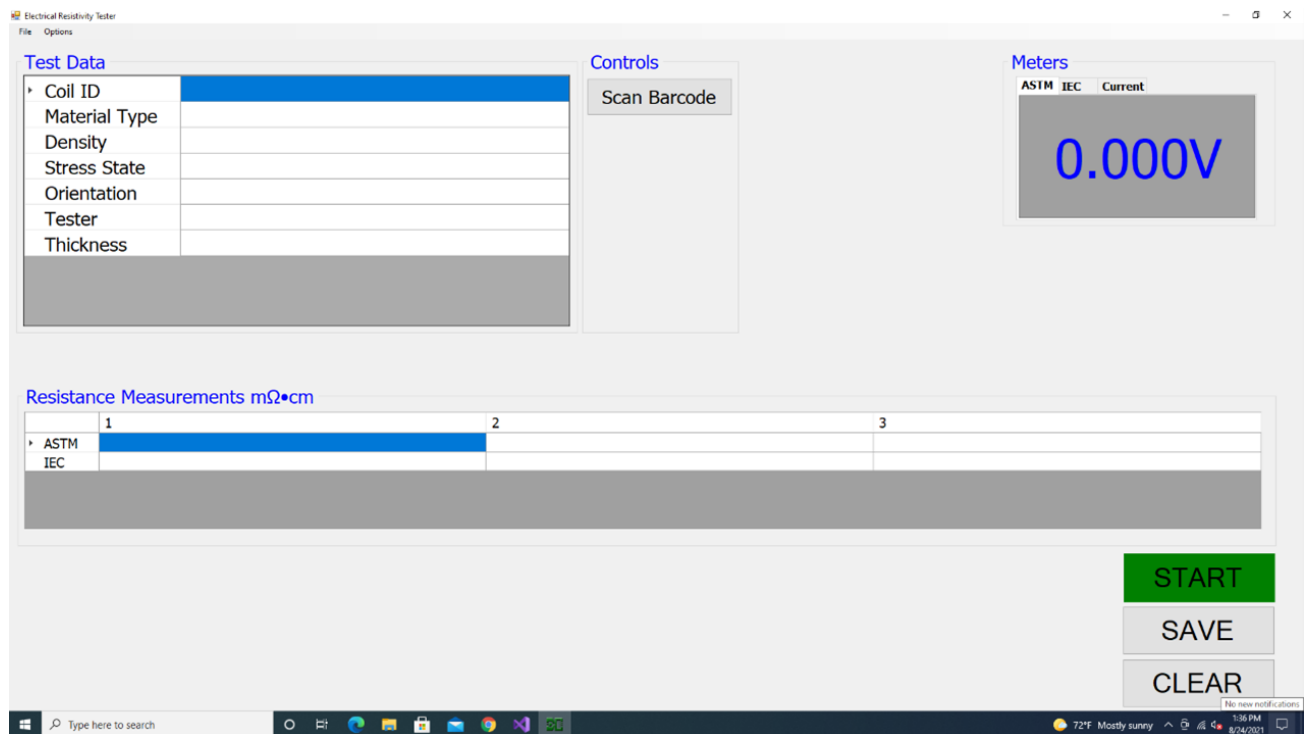
## Testing Methodology

1. **Setup:** Connect the computer system, testing frame, and power to the tester. Plug in the necessary cables as per the installation guide.
2. **Turn On:** Flip the power switch on the back of the tester and press the power button on the front of the computer. Launch the Donart ERT program from the desktop.
3. **Sample Insertion:** Insert the Epstein strip into the test frame, ensuring proper contact with the current and voltage probes.
4. **Measurement:** The tester sweeps a DC current between 1-5A while measuring voltages and currents. It then reverses the current and repeats the measurements.
5. **Calculation:** The software calculates the mean resistances (R1 and R2) using the measured voltages and currents, then computes the resistivity ( $\rho$ ) using the provided equations.
6. **Data Management:** Save the test data and measurements locally or over a network. The software allows for easy data entry, storage, and retrieval.

## PC Connectivity

Our Electrical Resistivity Tester features advanced PC connectivity options, allowing for seamless integration with your digital workflow:

- **Local Storage:** Save test results directly to a connected PC for easy access and archiving.
- **Network Integration:** Send results over a network to central databases or other connected devices, enabling efficient data sharing and analysis across teams and locations.
- **Export Options:** Export test data in multiple formats (e.g., CSV, PDF) for detailed analysis and reporting.



## Significance

- This tester is ideal for a wide range of applications, including:
- **Material Characterization:** Determine the electrical properties of various soft magnetic materials.
- **Quality Control:** Ensure materials meet industry standards and specifications.
- **Research and Development:** Conduct advanced studies on the electrical resistivity of new materials and alloys.

## Contact Us

For more information or to place an order, please contact our sales team:

- Phone: 724-769-3011
- Email: [support@donartelectronics.com](mailto:support@donartelectronics.com)
- Address: 1005 Robinson Hwy, McDonald, PA 15057

Experience precision, reliability, and compliance with our Electrical Resistivity Tester, designed to meet your most stringent testing needs. Order yours today and ensure your materials meet the highest standards of quality and performance.