

LEAI-70 Apparatus of Determining Curie Temperature of Ferromagnetic Materials

- Easy to use, simple structure, and stable performance
- Ample experimental examples
- Complete and affordable





Magnetization curve and $\mu^{\sim}H$ curve



Magnetic materials have wide applications in electricity, communication, electronics, automobile, computer and information storage. Curie temperature is a physical quantity representing the fundamental characteristic of magnetic materials. It reflects the phase transition temperature between ferromagnetic state and paramagnetic state of magnetic materials. This apparatus is designed to study the basic properties of magnetic materials for college physics teaching.

It is based on the characteristic change in magnetic moment of a ferromagnetic material with temperature by measuring the temperature at which a ferromagnetic sample becomes paramagnetic. By using an electrical bridge circuit in which a platinum resistance is used as the temperature sensor and a digital voltmeter is used to measure the temperature, electrical bridge output voltage (V) and corresponding temperature (T) can be plotted and hence the Curie temperature Tc can be determined. The apparatus is compact, stable, and reliable. It is suitable for modern physical experiment in colleges and universities.

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Experimental Objectives

- 1. Understand the micro-mechanism of the transition between ferromagnetism and para-magnetism of ferrite materials.
- 2. Determine Curie temperature of ferrite materials using AC electrical bridge method.
- 3. Analyze the effects of heating rate and input signal frequency on measurement results of Curie temperature.

Specifications

Signal generator	frequency range: 500 Hz ~1500 Hz; amplitude: 2 V ~ 10 V (P-P)	
Digital frequency meter	range: 0 ~ 9999 Hz; resolution: 1 Hz	
AC voltmeter	range: 0 ~ 1.999 V; resolution: 0.001 V	
Digital thermometer	range: 0 °C ~ 150 °C; resolution: 0.1 °C	
Ferromagnetic samples	2 pcs (60 °C \pm 2 °C and 80 °C \pm 2 °C, respectively)	

Part List

Electric suitcase	1	
Electric unit	1	
Wires and cable	1 set	
Ferrite sample	6	at 60°C and 80°C (3 each)
Tweezers clamp	1	
Manual	1	Electronic



Note: above product information is subject to change without notice.

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