

Order Code : 20213547.3.2

Name : Helmholtz coil magnetic field apparatus



### Specifications:

Helmholtz coil magnetic field measurement is one of the important experiments in general physics teaching, as it teaches students how to measure weak magnetic fields, verify magnetic field superposition principle, and plot magnetic field distribution. Traditionally, Helmholtz coil magnetic field measurement yields relatively large errors with the use of an indicator-type AC voltmeter.

This apparatus adopts an integrated Hall sensor as the detector to detect Helmholtz coil magnetic field. Hall sensors are compact, sensitive, accurate, and flexible to deploy. The output voltage is measured with a DC voltmeter with higher measurement accuracy.

## Experimental Contents

1. Measure magnetic field intensities at the points along the axis of a single current-carrying coil
2. Measure magnetic field distribution along the axis of Helmholtz coils with different coil spacings
3. Verify the magnetic field superposition principle
4. Plot magnetic field distributions of a single current-carrying coil & the Helmholtz coils, respectively

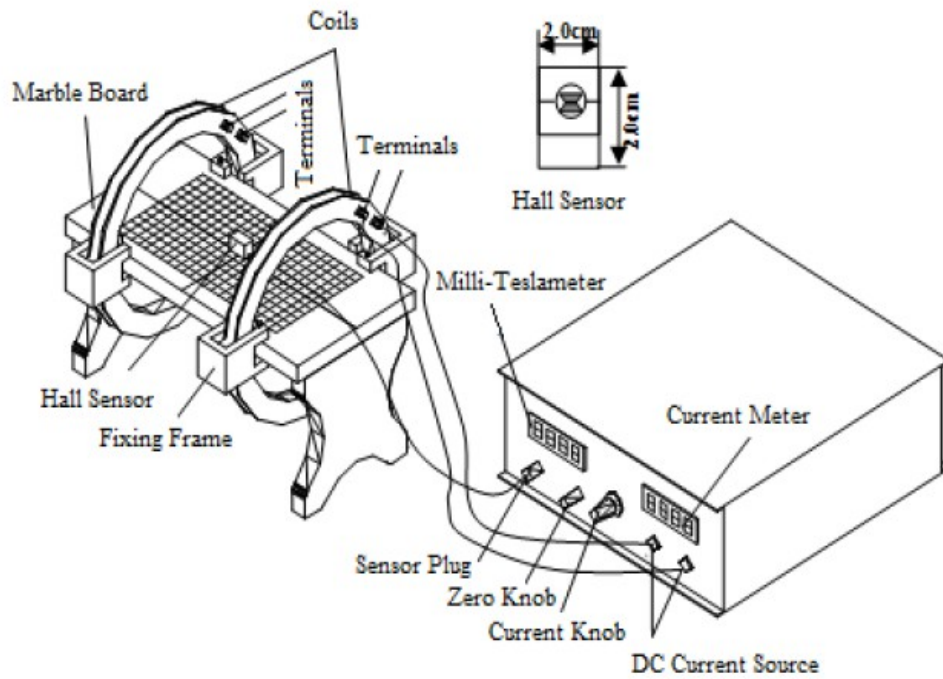
## Specifications

Milli-Teslameter	range: 0 - 2 mT, resolution: 0.001 mT
DC current-stabilized power	range: 50 - 400 mA, stability: 1%
Helmholtz coil	500 turns, outer diameter: 21 cm, inner diameter: 19 cm
Measurement error	< 5%

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*

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Schematic of experimental configuration

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