

LEEI-47 Magnetoresistive Sensor & Measurement of Earth's Magnetic Field

- *Rotary base plate with adjustable level*
- *High sensitivity magnetoresistive sensor*
- *Can measure horizontal/vertical components and declination of the earth's magnetic field*



Earth's magnetic field as a natural magnetic source has important applications in military, aviation, marine, industrial, medical, and scientific research. This instrument uses a new type of Permalloy magnetoresistance (MR) sensor to measure the parameters of the geomagnetic field. Through the experiments, students can learn how to calibrate a magnetoresistive sensor and use it to measure the horizontal and vertical components of the earth's magnetic field and its declination angle.

This instrument is designed with the following features:

1. The base plate can be freely rotated and adjusted in horizontal and vertical directions
2. The magneto-resistance sensor has a high sensitivity (50 V/T) with a resolution up to 10^{-7} - 10^{-8} T
3. The instrument can measure the horizontal component of a magnetic field, as well as the strength and direction

Experimental Contents

1. Measure weak magnetic fields using a magnetoresistive sensor
2. Measure the sensitivity of a magneto-resistance sensor
3. Measure the horizontal and vertical components of the geomagnetic field and its declination
4. Calculate the geomagnetic field intensity

Parts & Specifications

Magnetoresistive sensor	working voltage: 5 V, sensitivity: 50 V/T
Helmholtz coil	500 turns each coil, radius: 100 mm
DC constant current source	output range: 0 ~ 199.9 mA, adjustable, LCD display
DC voltmeter	range: 0 ~ 19.99 mV, resolution: 0.01 mV, LCD display

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