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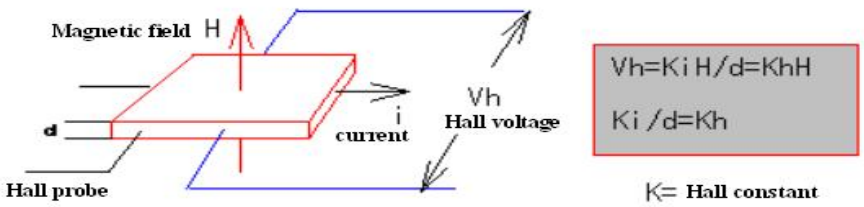
WT10A Teslameter

INSTRUCTION

Principle of Hall Effect



When placing the semiconductor carrying current in the magnetic field axial to the current direction, the semiconductor will generate transverse galvanomagnetic phenomenon, namely generate electromotive force in the direction axial to the magnetic field and current, which is Hall Effect. Hall Effect can be explained with classical galvanomagnetic theory. Generally, Hall voltage UH is expressed as:

$$UH=RHIB0/d= RHIIB0$$

Of which: d—the thickness of the Hall device

RH—Hall constant

RHI=RH/d—Constant of the Hall device

I—Current intensity passing through the Hall device

B0—The measured magnetic induction intensity

It can be seen from the formula: For a certain Hall device, the magnetic field B0 can be indirectly measured through measuring the Hall device if only the passing current I is constant. Since it can count continuously and linearly with simple method and long service life when measuring the magnetic field with Hall Effect and can measure the magnetic field of small space and small gap, Hall Effect Method has become one important method among magnetic field measurements

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Instruction

WT10A is the first hand-held type Gauss meter of WT series Gauss meters. This instrument is the magnetic field measuring instrument specially designed for field measurement. Its design concept of lightness, practicality and portability has been determined at the beginning of instrument design and its unique design of micro power consumption allows its battery life to be greatly improved.

I Main characteristics

- With small volume, light weight and convenient carry, this instrument can meet the measurement requirements of various sites;
- Adopt micro power consumption design. With long service life, the battery can be continuously used for more than 50 hours;
- Can select transverse probe or axial probe;
- Have judgment function of magnetic field polarity.

II Main technical index

- Supply voltage: One 6V laminated cell
- Display meter: 3 1/2 digital display
- Measurement scope:0 ~ 200mT,0 ~ 2000mT
- Accuracy: 1%
- Resolution: 0.1mT
- Temperature error: -0.06%/°C
- Operating environment: Temperature: -10°C ~ 40°C, humidity: 35 ~ 75%

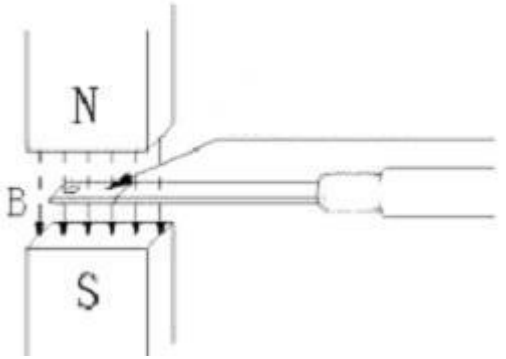
A. Place the Hall probe in the surface magnetic field of the measured sample, move the Hall probe and the magnetic field intensity can be directly read from the instrument, whose unit is mT and the magnetic field polarity also can be judged (When using transverse probe and the display value is "-", the end side of the Hall probe fac number side of the Hall probe faces N pole and when using axial probe and display value is "-", the end side of the Hall probe faces N pole);

B. The range button, the range is 2000mT when it is pressed and the range is 200.0mT when it bounces back;

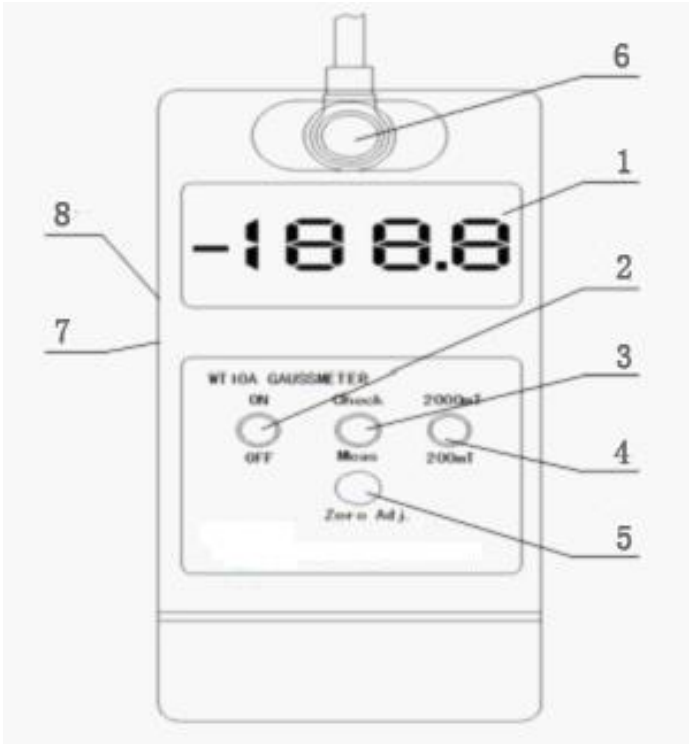
C. Contact the magnetic steel surface with Hall chip side in the practical measurement, the measurement result is closer to the actual value. When measuring with base plate side, the measurement result is little low, 1mT = 10 Gs.

IV Instrument calibration

Place the Hall probe in the standard magnetic field and adjust the "Calibration" ⑦potentiometer with small slotted screwdriver till the instrument reading is consistent with the numerical value of the standard magnetic field. Generally, it will be required to calibrate the instrument only after the Hall probe is replaced.



When you test, make sure the mark line face to yourself and the opposite press close to the permanence magnet.



III Instrument operating instruction

Step 1: Connection: connect the Hall probe with the instrument⑥;

Step 2: Power on: Press the "ON/OFF" switch ②on the panel of handhold Gauss meter and there shall be display ①on the panel meter, it represents the instrument power has been energized and measurement can be done;

Step 3: After the power is energized, firstly select a corresponding range ③according to the magnetic field size of the measured object.

Step 4: Zero point correction: Place the Hall probe in the area whose magnetic field is zero. When the meter reading is not zero, adjust "Zero" ⑤potentiometer till the reading is zero.

Step 5: Magnetic field measurement