TM9200 Alternating Magnetometer Calibration Device

1. Summary

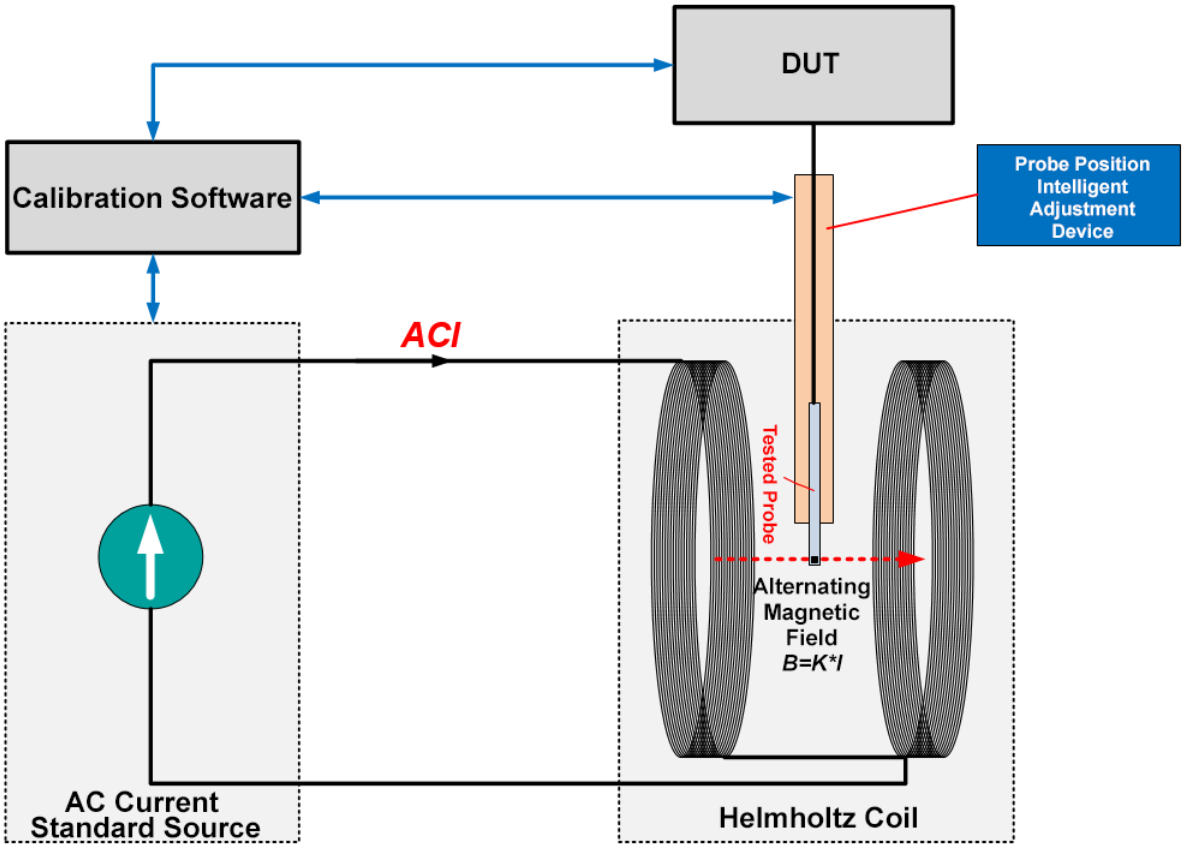
TM9200 is a high-precision alternating magnetometer calibration device. It consists of a high-precision AC current standard source, a magnetic field coil (Helmholtz coil), an intelligent probe position adjustment device, a magnetic field probe position controller, and calibration software. TM9200 is suitable for testing or calibrating equipment such as electromagnetic induction magnetometers, alternating Hall magnetometers, alternating magnetic field measurement coils or probes. Reference standard: JJG 1049-2009 "*Verification Regulations for Weak Field Alternating Magnetometer*".

2. Features

- The stability of the current source reaches 0.01%/min.
- The accuracy of the current source reaches class 0.05.
- Annual error variation is better than 100 ppm.
- The coil can generate alternating magnetic field of 1 μT ~ 2 mT.
- The current source can drive the coil to work for a long time under full load.
- Good linearity between magnetic field and excitation current
- The coil is equipped with an intelligent probe position adjustment device.
- The system adopts modular integrated design.
- Equipped with specialized calibration software.

3. Application

☆Calibrate The Alternating Magnetometer



- **DUT:** electromagnetic induction magnetometer, alternating Hall magnetometer.
- **Reference standard:** JJG 1049-2009 "*Verification Regulations for Weak Field Alternating Magnetometer*".
- **Alternating magnetic field testing or calibration:** Use a Helmholtz coil as the magnetic field generator, and generate a standard alternating magnetic field of 1 μT ~ 2 mT at the frequency of 45 Hz ~ 1 kHz through the excitation of a high-precision current standard source to complete the testing or calibration of alternating magnetometer.

4. Specifications

4.1 AC Current Standard Source

Output Range	*1 mA～3.3 A*
Frequency Range	*45 Hz～1 kHz*
Adjust Fineness	*0.001%*RG*
Short Term Stability	*0.01%/min*
Optimal Accuracy	*± (0.03%*RD① + 0.02%*RG②)*
Full Scale Linearity	*< 50 ppm*
Annual Error Change	*< 100 ppm*
Load Capacity	*500 VA*
Protective Function	Open circuit protection, overload protection functions
Power Supply	*AC (220 ± 22) V，(50 ± 2) Hz*
Note	① RD is the reading value, ② RG is the range value.

4.2 Helmholtz Coil

Excitation Current	1 mA～3.3 A
Magnetic Field Range	1 μT～2 mT
Magnetic Field Uniformity	Uniform field within 20 mm is better than 300 ppm
Magnetic Field Linearity	The magnetic field is proportional to the excitation current and has good linearity
Temperature Effect	The coil constant K changes little with temperature, minimizing the influence of temperature.
Coil Average Radius	100mm
Remark	Calibration of alternating magnetometers whose lower limit of the measurement range is less than 3μT should be performed in a shielded cylinder

5. General Specifications

Power Supply	*AC (220 ± 22) V，(50 ± 2) Hz*
Temperature Performance	Working temperature: 0°C～50°C; Storage temperature: *-20*°C～*70*°C
Humidity Performance	Working humidity: *40%～80% R·H;* non-condensing Storage humidity: < *80% R·H*; non-condensing

6. Configuration List

S/N	Name	Quantity	Configuration	Note
1	AC Current Standard Source	1	Standard	
2	Helmholtz Coil	1	Standard	
3	Probe Position Intelligent Adjustment Device	1	Standard	
4	Automatic Calibration Software	1	Standard	
5	Complete Set of Test Leads and Power Cords	1	Standard	
6	Workbench	1	Optional Accessory	Third party product
7	Computer	1	Optional Accessory	Third party product
8	Printer	1	Optional Accessory	Third party product

Note: The above is for reference only, the specific configuration list is subject to the technical agreement.