

Digital Gauss/Tesla Meter

CYHT203

User's Manual



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The Model CYHT203 is a hand-held Gaussmeter designed for accurate magnetic field measurements from 0.1mGs to 1.9999Gs. It can be used for measurements of very weak magnetic fields, for instance, earth magnetic field, environment and space magnetic fields, magnetic fields around shielded permanent materials and parts.

1. Features:

- High accuracy and high resolution
- A low-cost measuring device, which is easy to operate, portable and convenient to handle and store.
- Ideal for quick quality checks and comparative measurements, with built-in polarity display.

2. Technical Data:

Measuring range:	0.0001~1.9999Gs (i.e., 0.1 ~ 1999.9mGs)
Measuring Accuracy:	±2.0%
Resolution:	0.0001Gs (i.e., 0.1mGs)
Magnetic field:	DC magnetic field
Display:	4 ½ LCD
Display unit:	Gs
Functions:	Peak hold, Max hold, N/S pole display Automatic probe zero adjustment
Ambient temperature:	+5°C ~ +50°C
Storage temperature:	-20°C ~ +70°C
Relative humidity:	20% ~ 80%
Power supply:	+9V alkaline, block battery
Dimensions:	160mm x 88mm x 36mm
Weight:	300g

3. Applications:

- Measurement of local earth magnetic field
- Measurements of environment and space magnetic fields
- Measurements of magnetic fields around shielded permanent materials and parts etc.

4. Accessories:

- | | |
|--|-----|
| 1) +9V DC power supply, | 1pc |
| 2) Probe CYHP203, | 1pc |
| 3) Probe support CYPS203, | 1pc |
| 4) Zero point calibrator (shielding part), | 1pc |

Probe CYHP203



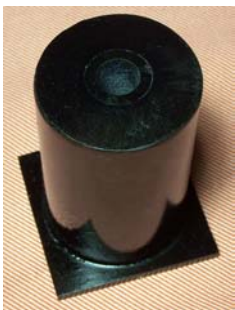
Note: Magnetic field should be smaller than 20Gs! Otherwise this probe is magnetized by a relatively strong magnetic field. The probe can be damaged by a magnetization!!!

Probe Support CYPS203



Note:
For all measurements only this probe support is used. The probe support must be fastened on a table during the measurement. One may not hold the probe and/or the probe support with hands during the measurements.

Zero point calibrator (shielding part) CYCS203

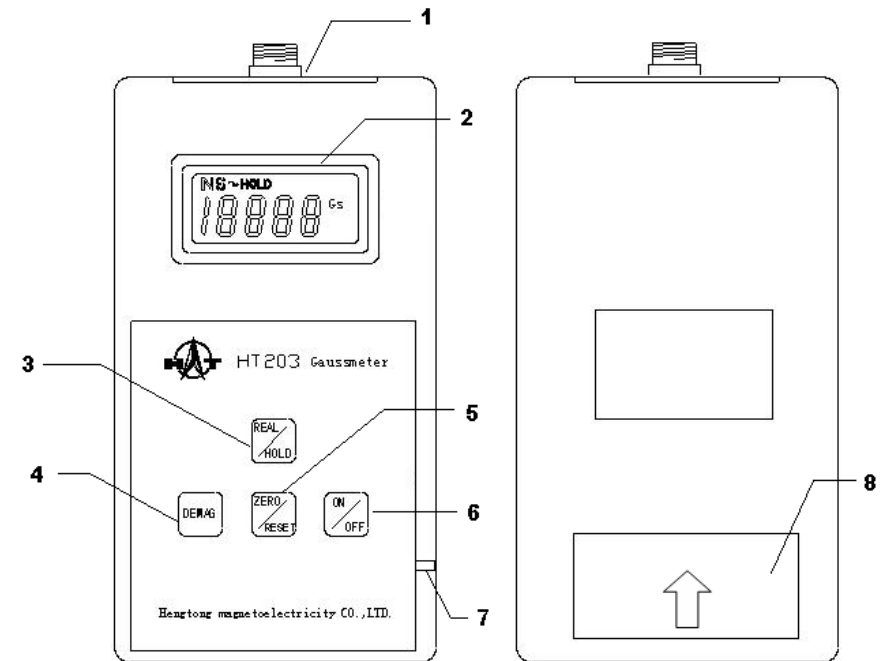


Zero point calibration sample CYCS203 serves the calibration of the probe before the measurement. The magnetic field in the hole is nearly zero by the magnetic shielding.

During the zero point calibration the probe is put into the hole. Then the display is reset to zero by pressing the key "Zero/Reset".

5. Parts and Functions

5.1 Parts



1. Socket-outlet with 5 pins
2. LED Display
3. REAL/HOLD
4. DEMAG (demagnetization)
5. ZERO/RESET
6. ON/OFF (Power ON/OFF)
7. Power socket for +9V DC voltage source
8. Battery Compartment

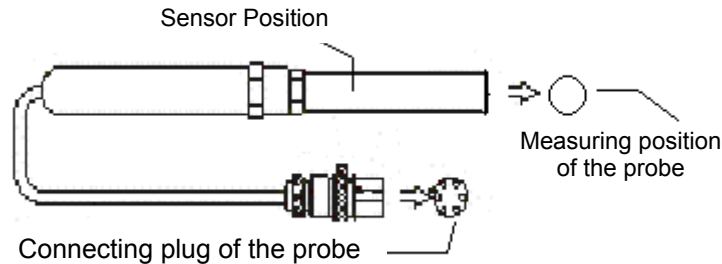
5.2. Functions

- 1) **Socket-outlet:** to connect the probe to the measuring instrument
- 2) **LCD Display:** to display the field strength and pole direction ("N" Earth north pole, "S" Earth south pole)

- 3) **REAL/HOLD**: to display and hold the peak/max value
- 4) **DEMAG Demagnetization**: demagnetize the probe by pressing this button after the probe has been magnetized by a strong magnetic field.
- 5) **ZERO/RESET**: to reset the measuring value and peak mode
- 6) **Power switch ON/OFF**: to switch ON/OFF the measuring instrument.

5.3 Probe CYHP203

This sensitive probe is suitable only for measurement of weak magnetic fields. The measuring range of the probe is 0.0001-1.9999Gs. Magnetic field more largely than 2Gs cannot be measured with this probe. One may not use this probe for the measurement of permanent magnets. The magnetic field which can be measured should be smaller than 20Gs! Otherwise this probe can be magnetized and damaged by a relatively strong magnetic field.

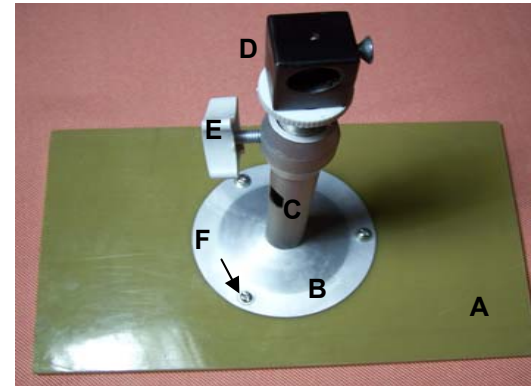


With a slight magnetization the probe can be demagnetised by pressing the key DEMAG. The probe cannot be demagnetised if it was magnetized by a strong magnetic field (>100mT). In this case the probe is damaged.

Note: The probe body may not be turned. Otherwise the probe is damaged by turning.

5.4 Probe Support CYP203

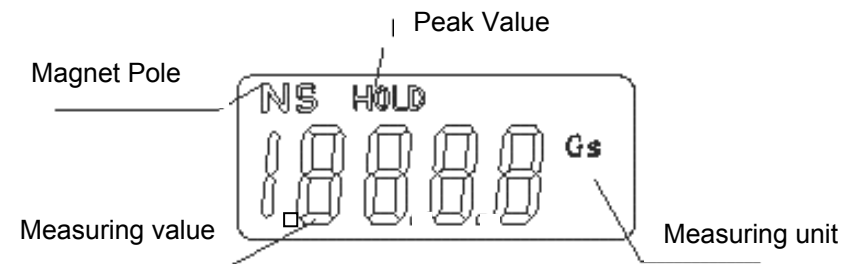
The probe support is used for fixing the probe. For all measurements only this probe support is used. The probe support must be fastened during the measurement on a table. Change of the probe position causes the measuring error.



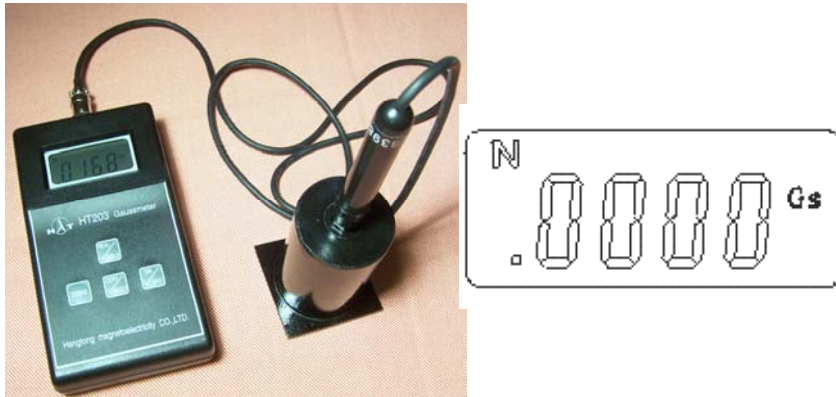
- A: Support basis;
- B: Support fixing part;
- C: Support staff;
- D: Sensor mounting part;
- E: Fixing bolt;
- F: Screw

6. Measuring Procedure

- 1) Install the +9V battery to the battery compartment (8) or connect the +9V power supply (7) to the measuring instrument
- 2) Connect the probe to the measuring instrument (1)
- 3) Assemble the probe support for the first measurement. Set up then the probe on the probe support and then fasten it.
- 4) Switch on the measuring instrument by pressing the key (6). After switching on the Gaussmeter the following parameters will be displayed on LCD (2).



- 5) **Reset the Gaussmeter.** Keep the probe far from the magnetic field. Put the probe into the hole of the zero point calibration sample CYCS203. LCD display shows zero after pressing key (5).



Note: You must reset the Gaussmeter before each new measurement after you have switched the measuring instrument.

- 6) **Select Peak Value Hold.** You can select the peak value hold mode or normal measuring mode by pressing the key (3).
- 7) **Reset Peak Value Hold Mode.** Under the peak value hold mode the display changes only if the actual measuring value is larger than the last peak value (indicated). Therefore you must reset the peak value hold mode by using key (5), if you measure smaller magnetic field. The measuring instrument still works in the peak value hold mode after it has been reset.

7. Measuring Methods

7.1 Measurement of Local Earth's Magnet Filed

The earth's magnetic field is between the north N and the south S. Therefore the direction N-S has a relatively strong magnetic field. In the direction of the east and west the magnetic field is almost zero.

In order to measure the local earth's magnetic field, the probe is normally aligned perpendicularly to the earth.

Measuring Method:

- 1) Reset the Gaussmeter and put the probe into the hole of the zero point calibration sample CYCS203. Press the key (5), in order to reset the LCD display to zero.
- 2) Take up the probe from the zero point calibration sample and place the probe on the probe support. Adjust the probe perpendicular to the earth, i.e., the probe is downward aligned.
- 3) Read the value on the display. The displayed value is the measured value of the local earth's magnetic field. Normally the measured value is from 0.40Gs to 0.50Gs.



Note: N means North Pole of the earth's magnetic field. S is South Pole of the earth's magnetic field. The pole definition of the Gaussmeter of CYHT203 is turned around opposite of Gaussmeters for magnetic field measurement of permanent magnets.

7.2 Measurement of Environment & Space Magnetic Fields

The environment and space magnetic field of a measuring point consist of the earth's magnetic field and the magnetic fields produced by object under test. The magnetic field is dependent on the measuring point and measuring direction. By using measurements one can get a magnetic field distribution.

Measuring Method

- 1) Reset the Gaussmeter and put the probe into the hole of the zero point calibration sample CYCS203. Press the key (5), in order to reset the LCD display to zero.
- 2) Take up the probe from the zero point calibration sample and place the probe on the probe support. Align the probe to the direction which is measured. The measuring end of the probe is to be on the measuring point.



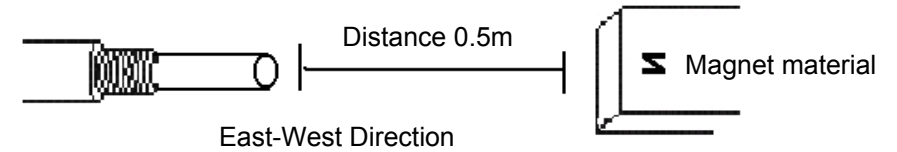
- 3) Read the measured value on the LCD display and write down the value and the pole indication
- 4) In this way you can measure the magnetic field on other measuring points.

7.3 Measurement of magnetic fields of shielded Permanent materials and Components

For measuring the magnetic fields of shielded permanent materials and components etc. one must firstly consider the influence of the earth's magnetic field. In order to minimize the influence, the adjustment of the probe in the east and west direction is to be optimized, since the magnetic field is minimal in this direction.

Measuring Method

- 1) Reset the Gaussmeter and put the probe into the hole of the zero point calibration sample CYCS203. Press the key (5), in order to reset the LCD display to zero.
- 2) Take up the probe from the zero point calibration sample and place the probe on the probe support. Align the probe in the east-west direction, in order to make the display to zero or to minimize the display value.
- 3) Fasten the probe and reset the Gaussmeter to zero once again if the display has reached its minimum.
- 4) Set the object under test also to the east-west direction, i.e. to the direction of the probe. The distance is e.g. with 0.5m.



- 5) Read the measured value on the LCD display and write down the value and the pole indication.
- 6) Change the measuring side of the object under test. Measure the magnetic field from other 5 sides of the object under test and write down the measured values, so that you can find the maximum value and the corresponding side

8. Warranty

Measuring instrument:	12 months
Probe:	no guarantee. However we offer you Replacement for reduced price (10% discount)

9. Service

Please contact us for technical questions, repairing and replacement etc:

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