MODEL CT3-A TASLA METER

1. SPECIFICATIONS

(1) Magnetic Field to be Measured: (mT)
0—1, 0—5, 0—25
0—250, 0—500, 0—1000
0—1500 and 0—2500
(Ref, ranges)

(2) Frequency: 0—600C/S

(3) Polarity of Magnetic field: N and S

(4) Ouput: Connected to an oscilloscope to observe the wave form of the magnetic field.

(5) Accuracy: 0—1, 0—5 } ±5%, 25—1000±2.5%

(6) Operating Temperature: 0—+40℃

(7) Power Source: AC 220V or DC 9V

(8) Dimension and Weight: 265mm×125mm×165mm
3kG

2.OPERATING INSTRUCTIONS

Probe Handling

Caution: The Hall element used in the probe is fragile. Care should be taken to protect the Hall element from excessive stress due to shock, pressure, bending and bump.

Turn the lower knob to "OFF" first, adjust the mechanical zero setter in the instrument's center with a screw driver to make the pointer set on "0" line. Then insert the probe into the probe connector and tighten the retaining ring.

(1) Coarse Cal:

Turn the lower knob to "coarse cal". After connected to the power source for four minutes, adjust the Cal. Knob. The pointer must be adjusted to the calibration line.

(2) Zeroing:

This is done with two knobs. One is to adjust the phase; the other is to modulate the amplitude. Turn the upper knob to indicate at "25mT" and the lower knob at "measuring" first. Adjust and or the zeroing knobs to make the pointer set at the min. value and then adjust the other one to set to an even lower value. Step by step and again and again, the upper knob is being adjusted to "5mT---1mT" and thus to make the pointer locate on the 1mT black zero line (0) center, the nearer to zero the better.

Caution:

a. When measuring the low range, zeroing should be carefully adjusted, otherwise error will gain.

b. When measuring low range or magnetic field existing outside, in order to get a punctual indication of the zero line, the probe should first be inserted into the “0 magnetic field” hole, then to zero. (Don’t touch the hole wall)

c. The instrument must be located at least 1M away from the magnetic field. When zeroing, the probe should not be located in a place where magnetic field exists.

(3) Calibration:

When zeroing is done, set the upper knob at “CAL.” And the lower knob at “measuring”, the probe is inserted through to the end of the “cal. Magnetic field” hole and softly rotated to make the pointer indicate Max value.

Then, when the probe is withdraw from the hole and rotated 180°, it is inserted into the end of the hole and rotated softly again to get the Max reading. Adjust the “CAL” knob to make the mean value of the tow reading on the cal. line.

(4)Measuring:

Set the upper knob to indicate a range ≥ the magnetic field to be measured and the lower knob at “measuring”. If the pointer is not in the zero range, repeat the steps in “zeroing”.

a. When measuring DC magnetic field, place the probe in the magnetic field to be measured and rotate it softly to make the pointer indicate the Max value and record the reading. Then the probe is taken out from the magnetic field the rotated 180° in a plane. The probe is then replaced in the magnetic field and rotates softly to get the Max reading. The mean value of the two Max reading is the measure of the DC magnetic field.
b. When measuring alternating magnetic field, it’s not necessary to take the second measure.
c. If the range of the magnetic field to be measured is unknown, you should set the range knob to the Max. Then turn the knob, while measuring, to get the required range.
d. Low magnetic field measuring: When measuring, magnetic fields of 1-25mT, besides the above mentioned steps, care should be taken that the probe doesn’t touch or close up to the magnet. If the magnet to be measured is not a permanent one, it’s better to adjust zero with the probe mounted in the magnet. Connect power for the magnetic field and rotate the probe softly to obtain the max reading.

Then, alter the direction of the excitation current to take the second reading. While measuring, care should be taken to keep the zeroing of the instrument when there exists a difference between the temperature of the magnet and the cabinet temperature.

(5) Waveform Observation:

There is an additive oscilloscope plug-in on the instrument panel. For an output about 15mV, only a testing cable connecting to the “Y input” of the oscilloscope in needed.

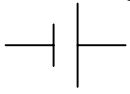
(6) Polarity Identification of magnetic field:

Turn the range knob and the setting knob to “polarity” position at the same time. If the index is not at the scale center, you can adjust the two “zeroing” knobs to make the

index close to the scale center. Then, take the probe to close up to the magnet to be measured gradually form a place afar. If the pointer deflects towards N pole and conversely it is S pole.

(7) Power Source:

a. When in use, turn the power knob at the rear of the instrument to “220V”, and then plug the power cable into the power plug-in.

b. When using dry battery, connect six No. one batteries in series for an output of 9V. The power knob at the rear of the instrument should be set to indicate “  ”.

(8) Cautions:

a. Before using, it is good to check the probe number to see if it meets the probe numbers on the scale.

b. It is important to expose the tip of the probe in the strong light and neither it should be used in environment where temperature exceeds +50℃ or corrosion exists.

c. In the process of low magnetic field measurement, it is good to repeat the steps of zeroing and calibration to avoid errors, which may occur.

d. If using dry battery, the total voltage of the six batteries should remain higher than 8.1V, otherwise is needs to check if the connecting between the batteries is still good or change new batteries. When changing batteries don’t misconnect the polarities.

e. When in “ measuring” step, if the pointer can’t be set to zero line with the upper knob indicating higher than 2500, it is sure that the probes is malfunctioning and needs to repair.

f. The reading of this instrument indicates the flux density at the point measured.