OMEGA®
A SIGN OF QUALITY PRODUCT

TO MEASURE OF MAGNETIC FIELD USING SPOT / BALLISTIC GALVANOMETER AND SEARCH COIL OF AN ELCTROMAGNET WITH CURRENT

OMEGA TYPE ES-454

OMEGA TYPE ES-454: Experimental Set-Up has been designed specifically to study and measurement of magnetic field of an electro-magnet using a Spot / ballistic galvanometer and search coil and standard inductor. Study the variation of magnetic field of an electromagnet with the current. The set-up is complete in all respect and requires no other apparatus.

Practical experience on this set-up carries great educative value for Science and Engineering Students.

The complete Experimental Set-up consists of the followings: -

OBJECT:- To object measurement of magnetic field of an electro-magnet using a Spot / ballistic galvanometer, search coil and standard inductor. Study the variation of magnetic field of an electromagnet with the current.

FEATURES:-

The complete Experimental Set-up consists of the followings:

POWER SUPPLY

01. CONSTANT CURRENT SOURCE

1.1 Constant Current : 0 - 4 Amp with current control output 30V

1.2 Constant Current : 0 - 3 Amp with current control output 5V

1.3 Load regulation : Better than 0.5% of the highest (No Load to Full Load)

1.4 Line regulation Variation : Better than ± 2% of the highest specified output (For ±10% Mains)

1.5 Metering : Two Independent current meter 3 ½ digit 7 segment LED DPM to show current.

1.6 Ripple : Less than 1mV rms.

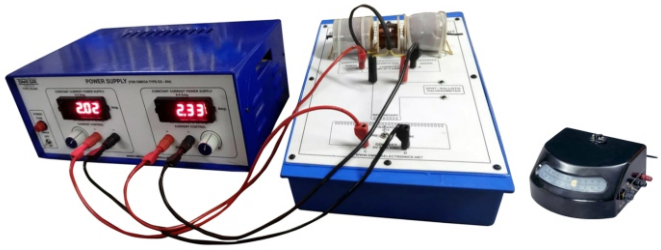
1.7 Temperature coefficient : 0.05% plus 7mV/1°C (After initial warm up of 30 minutes).

1.8 Stability : 0.2% plus 50mV (After initial warm up of 30 minutes under constant line load and tem. conditions).

1.9 Transient recovery time : 100 nano second (Recovery within regulation band for load changed from 10% to 90%)

1.10 Protection : Automatic over load & short circuit protection.

1.11 Power requirement : 230V ± 10% at 50 Hz.



02 Electromagnet:
For electromagnet we have made by to coils opposite direction Name north & south with soft iron (Ferret core) .

03 Standard Solenoid: Mounted in side board square bobbin size 1x1 inch heaving primary 300 turns and secondary 60 turns with Forward and reverse switch having center off

04 Search coil: A search coil is a small appliance which is used to measure the uniform magnetic field. Its construction is as follows. A large number of turns of a thin, electrically insulated, copper wire are wound on a non-metallic frame. The area and thickness of the coil are kept very small, since this coil need to be inserted and removed quickly in a uniform magnetic field. For convenience of quick insertion and removal between the pole pieces of an electromagnet

05 Spot Reflecting Galvanometer: The Spot Reflecting Galvanometer is a laboratory instrument used to measure small currents with high precision. It consists of a coil suspended in a magnetic field and a small mirror attached to the coil. When a current flows through the coil, it produces a magnetic field that interacts with the external magnetic field, causing the coil to rotate.

06 Adequate no. of connecting wires, 50cm long.

07 Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.

Note: You can make use with ballistic galvanometer and lamp & scale.

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