SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

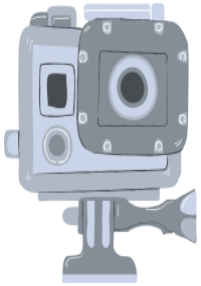
Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: 19EET205/ MEASUREMENTS AND INSTRUMENTATION

II YEAR / IV SEMESTER

Unit 2 –**MEASUREMENT OF POWER, ENERGY AND MAGNETIC MEASUREMENTS**



Topic: Electrodynamometer type Wattmeter

Electrodynamometer Wattmeter

- The basic action of this instrument depends upon the electromagnetic force exerted between fixed and moving coils carrying current.
- Fig.(1) shows fixed coil FF and moving coil M carried by spindle.
- Controlling torque is provided by two spiral springs mounted on the spindle which act as the leads of coil M.

Continued…

- The deflecting torque is proportional to the product of the current in the current coil and voltage across pressure coil. So Td is proportional to power.
- The scale of this instrument is uniform.
- It is used for power measurement in ac and dc circuits.

Continued…

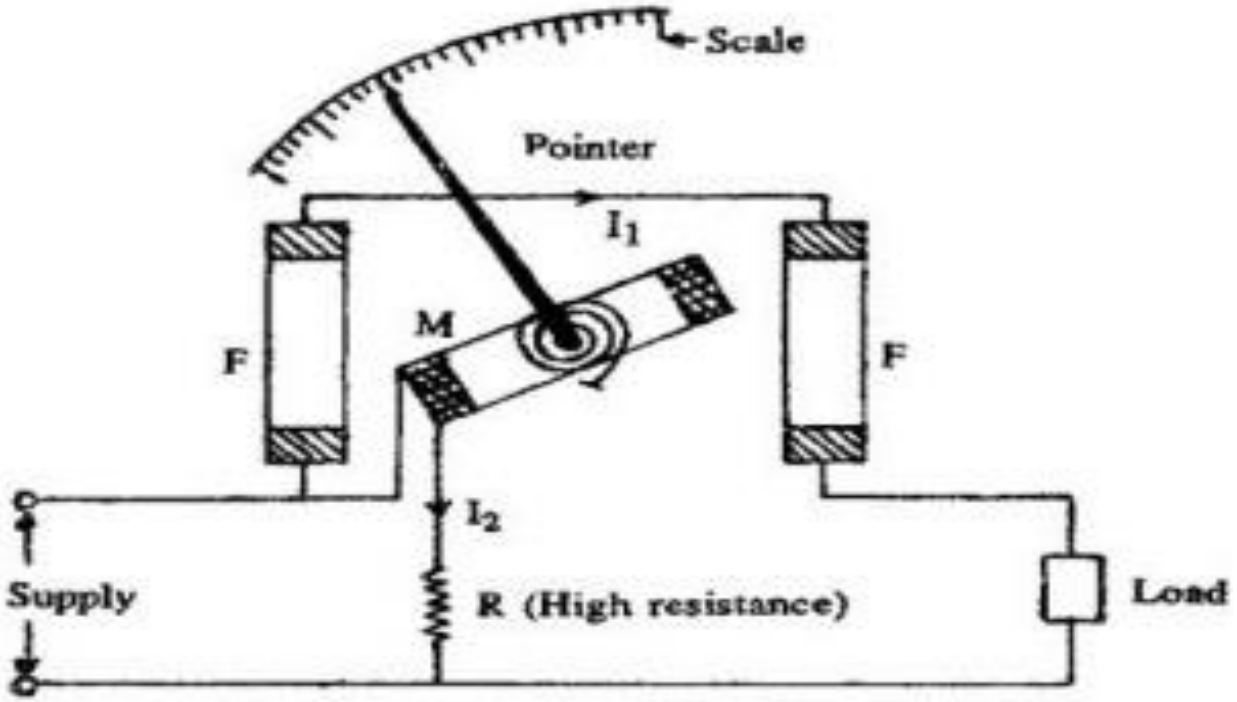


Fig.(1): electrodynamic wattmeter

Continued…

- **Advantages:**

1. It can be used for a.c. as well as d.c. measurement.
2. It is easy in construction.
3. The instrument is free from hysteresis errors.
4. Uniform scale.
5. Light weight.
6. Consume less power.

Continued…

- **Disadvantages:**

1. High cost.
2. Errors can occur due to friction, changes in temperature etc.
3. Large errors at low power factor.
4. It gets affected by the external stray magnetic fields. So shielding is essential.