



SNS COLLEGE OF TECHNOLOGY

AN AUTONOMOUS INSTITUTION

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UGC

DEPARTMENT OF FOOD TECHNOLOGY

COURSE CODE & NAME: 19FTT303 & Application of computers in
instrumentation and process control of food ndustry

III YEAR / V SEMESTER

UNIT : I SENSORS AND TRANSDUCERS

TOPIC 7: INDUCTION POTENTIOMETER



INTRODUCTION

- A potentiometer is a type of position sensor.
- They are **used to measure displacement in any direction.**
- In Linear Potentiometers the track is straight and in Rotary potentiometers the track is circular.
- The wiper moves along the track to measure the displacement through proportionally dividing the input voltage.



INTRODUCTION

- Potentiometers have a tendency for nonlinearity, and care must be taken when a high degree of accuracy is required.
- Trimmer potentiometers are often built into the circuit to adjust the maximum and minimum output voltage to correspond to the maximum and minimum displacements of the measurement potentiometer.



PRINCIPLE



- It works on the principle that vary the length of the wire over the fixed distance corresponding resistance changes provided that the wire has constant current flowing through it.



APPLICATIONS

- Potentiometric transducers are widely used for sensing displacement and velocity (both linear and angular).
- They also have various applications in automotive industry, environmental monitoring, control, and measurements.



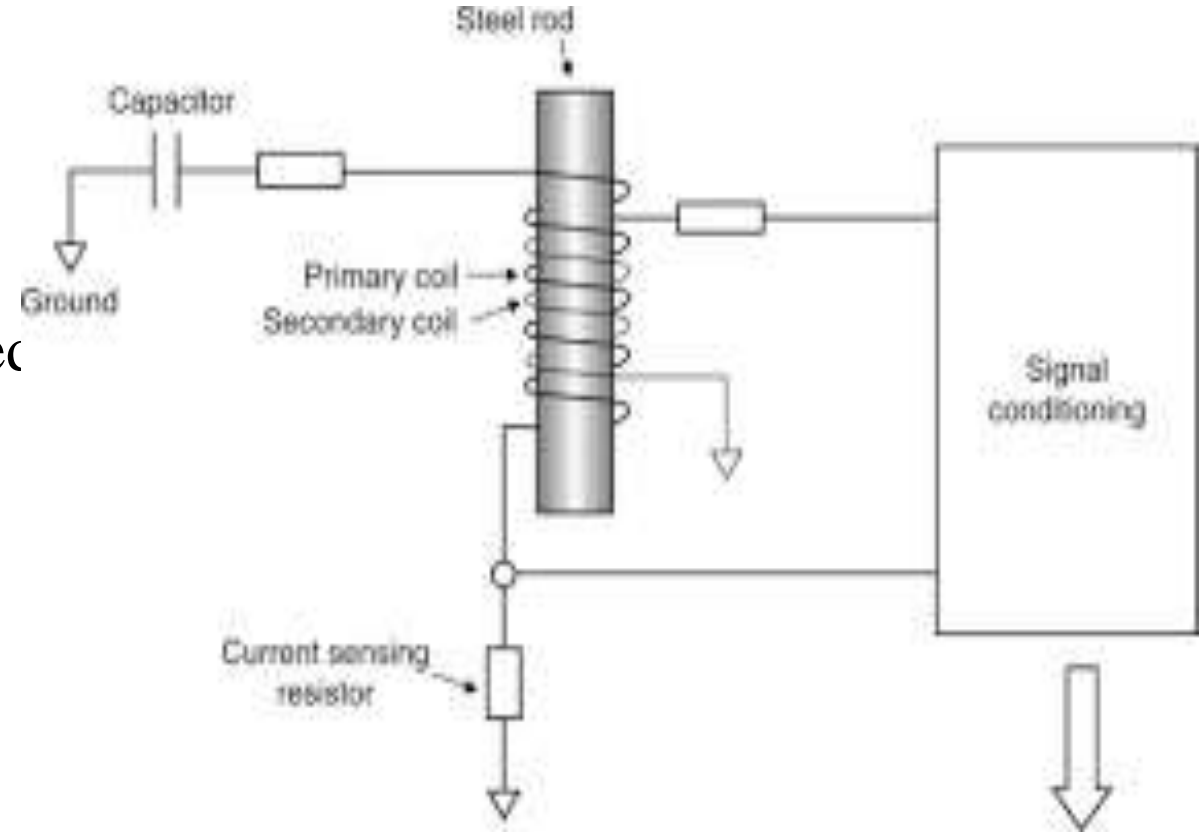
ELECTROMAGNETIC SENSORS



INTRODUCTION



- **A moving magnetic field causes an electric current to flow through conductive material.**
- An electromagnetic sensor can be used to measure this induced electrical current.





USES

Electromagnetic sensors are non-destructive evaluation technologies and they are widely used in **health monitoring and damage detection for infrastructures.**



ADVANTAGES & DISADVANTAGES

- Advantages are **their accuracy, low cost, and high performance etc.**
- Disadvantages are that they can be affected by environmental changes and contamination, e.g., a gas that they are measuring can affect the performance of the sensor



ASSESSMENT



In order to achieve high accuracy, the slide wire of a potentiometer should be

- A. As long as possible
- B. As short as possible
- C. Neither too small not too large
- D. Very thick

Basically a potentiometer is a device for

- A. Comparing two voltages
- B. Measuring a current
- C. Comparing two currents
- D. Measuring a voltage



To measure an A.C. voltage by using an A.C. potentiometer, it is desirable that the supply for the potentiometer is taken

- A. From a source which is not the same as the unknown voltage
- B. From a battery
- C. From the same source as the unknown voltage
- D. Any of the above

In an A.C. co-ordinate potentiometer, the currents in the phase and quadrature potentiometer are adjusted to be

- A. Out of phase by 90°
- B. Out of phase by 60°
- C. Out of phase by 30°
- D. Out of phase by 0°
- E. Out of phase by 180°



THANK YOU..."