

## EXPERIMENT No.10

**Objective:** To measure the phase difference between primary & secondary.

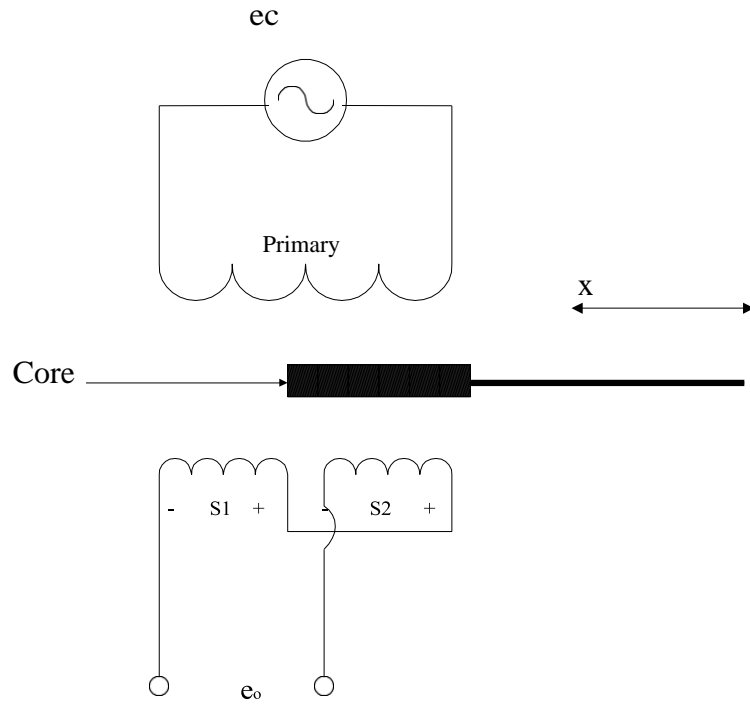
### **Procedure:-**

1. Connect the mains lead to instrument and switch ON the power
2. Rotate the lead screw to get 0.00 in DVM and set the dial of dial gauge to zero position
3. Turn the lead screw clockwise or anticlockwise direction by one full turn and note the reading of DVM.
4. Again turn the lead screw in same direction as earlier by one full turn and note the reading of DVM. The reading of DVM should be twice the earlier reading of DVM as in step 3.
5. Set to zero and the dial gauge and the DVM
6. Put the object between whose thickness is to be measured in between lead screw and dialgauge shaft
7. The reading of the DVM directly gives the thickness of the object in mm.
8. For studying phase shift of LVDT set DVM to zero, connect the CRO to the terminals marked Phase Shift/ CRO Output.
9. Observe the waveshape for null position and then rotate the lead screw first in clockwise direction and observe the waveshape ,then rotate in anticlockwise direction and observe the waveshape.

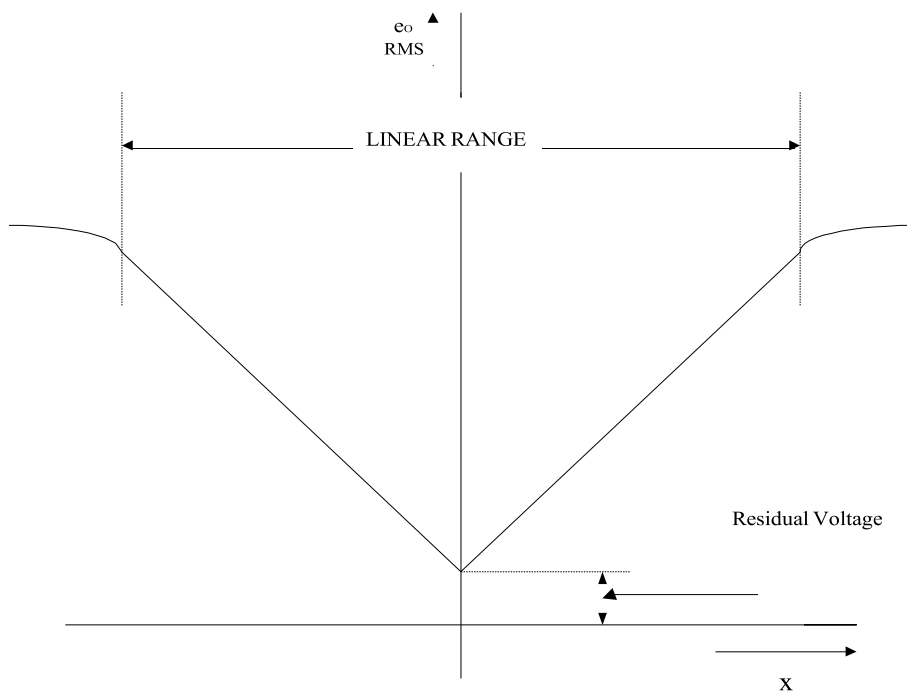
### **Observations:-**

In the case of studying the phase shift the output waveshape on a CRO is a straight line when the reading of DVM shows zero reading indicating NULL position. The waveshape appears as shown in fig. 3 for clockwise motion of lead screw being negative (below the null position) and appears to be positive (above the null position) when the lead screw motion is anticlockwise.

### **Circuit Diagram: -**

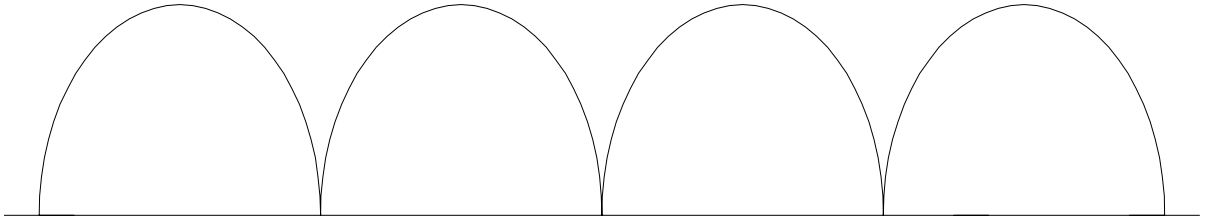


### BASIC DIAGRAM OF LVDT

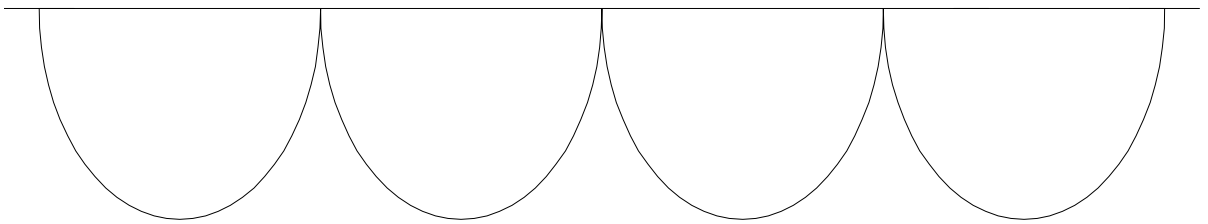


### INPUT - OUTPUT CHARACTERISTICS

Observation: - The following waveforms are observed on the CRO



**+ VE (ANTI - CLOCKWISE)**



**- VE (CLOCKWISE)**

