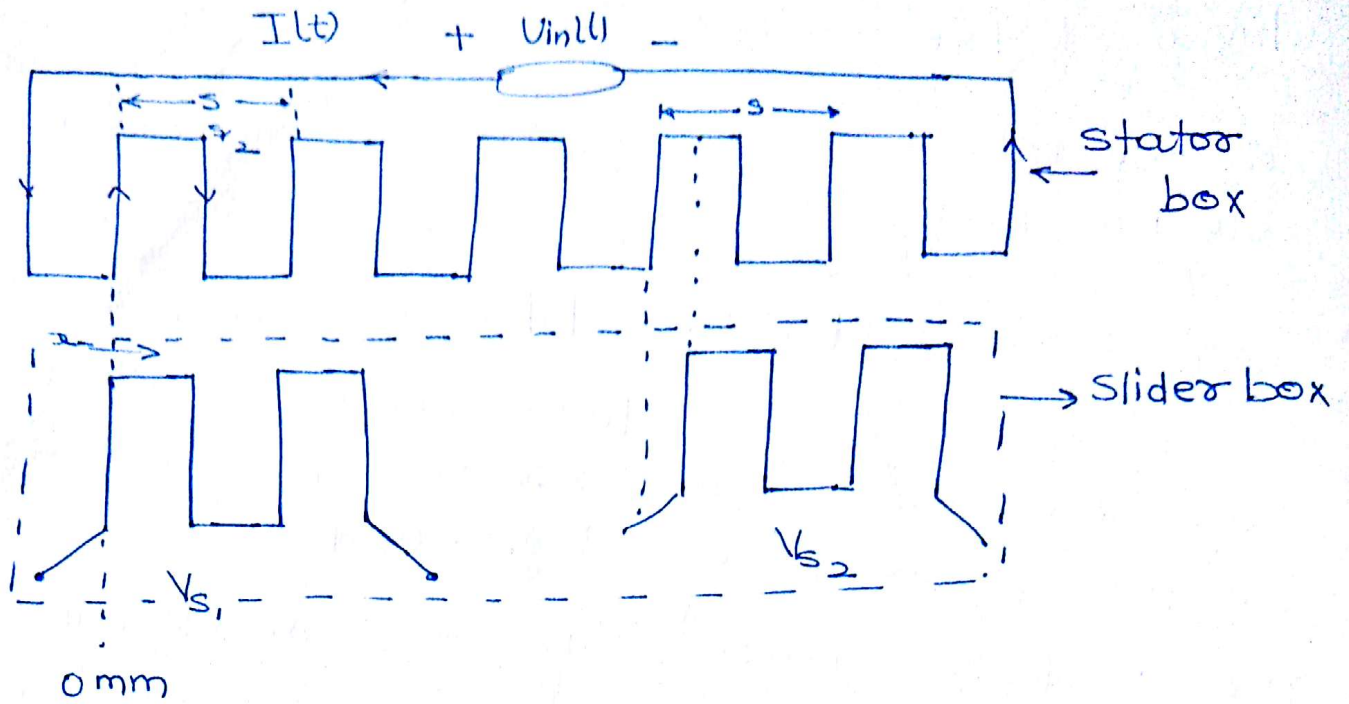


Inductosym!— It is a device which is used to measure linear displacement  $x$ , as well as linear Velocity.

Inductosym operates on the principle electro-magnetic induction.

The operation of Resolver and Inductosym both are same but the only difference is resolver is used to measure angular displacement data and Inductosym useful to measure linear displacement  $x$ .



$$x \quad V_s$$

$$0 \text{ mm} \quad V_{\max}$$

$$(180^\circ) \quad s/2 \text{ mm} \quad -V_{\max}$$

$$s \rightarrow 360^\circ$$

$$s/2 \rightarrow 180^\circ$$

$$s/4 \rightarrow 90^\circ$$

$$T \rightarrow s \rightarrow 360^\circ$$

$$t \rightarrow x \rightarrow \theta$$

$$\frac{t}{T} = \frac{x}{s} = \frac{\theta}{360^\circ}$$

$$V_{s1} = k V_{in}(t) \cos \theta$$

$$= k V_{in}(t) \cos(\omega t)$$

$$= k V_{in}(t) \cos(2\pi f \cdot t)$$

$$= k V_{in}(t) \cos\left(2\pi \times \frac{1}{T} \cdot t\right)$$

$$= k V_{in}(t) \cos\left(2\pi \frac{t}{T}\right)$$

$$\boxed{V_{s1} = k V_{in}(t) \cos\left(2\pi \frac{x}{s}\right)}$$

$$\boxed{V_{s2} = k V_{in}(t) \sin\left(2\pi \frac{x}{s}\right)}$$