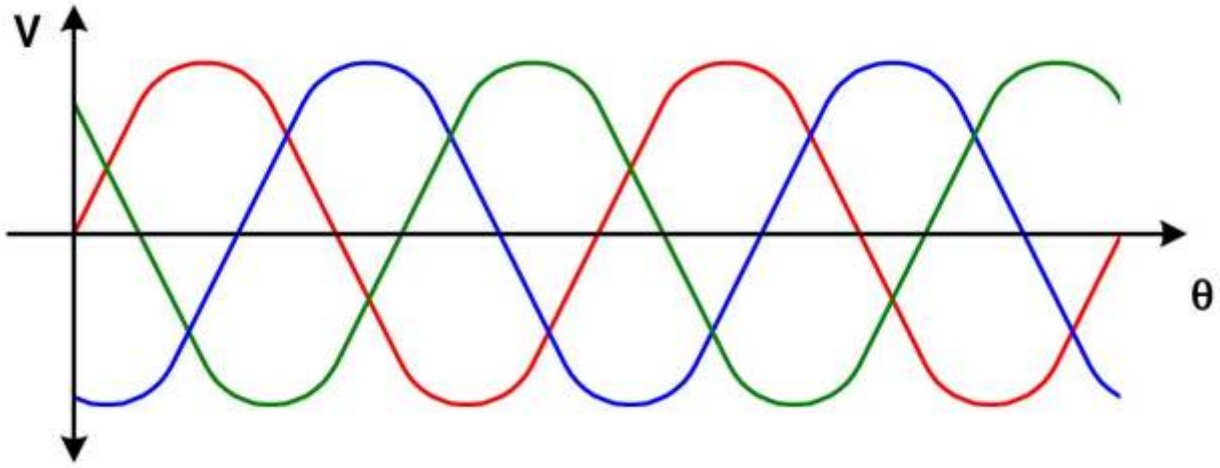
- **Synchro transmitter-receiver pair with calibrated dials**
- **Locking system for receiver rotor**
- **Receiver use as control transformer**
- **Built-in balanced demodulator circuit**
- **Panel meter for ac/dc voltages**
- **All internal power from the 220 V/50 Hz mains**
- **Only an external CRO required**

Experiments

- Basic characteristics study - stator voltages as a function of the rotor angle using the built-in ac voltmeter. This shows the space variation of the three voltages, VS1S2, VS2S3, and VS3S1, causing rotation of the resultant magnetization in the stator which is fundamental to the error detection process.
- Operation and error study of the transmitter-receiver pair as a simple open loop position control at a very low torque. This is a rarely used application but is used to demonstrate the direction of the resultant magnetic field in the receiver.
- Plotting the error voltage output as a function of the transmitter rotor angle with the receiver rotor locked. Observing the 180° phase reversal around the zero error is significant as this the basic method through which the direction of the error is detected in an ac system
- Use of balanced demodulator to develop dc error signal with appropriate polarity and compare it with the ac error. This block would be needed if a mixed system were to be designed using both dc and ac components.

TYPICAL RESULTS

a) The plot of the three stator voltages, VS1S2, VS2S3, and VS3S1 as a function of rotor angle are usually shown as



Note: Specifications are subject to change.

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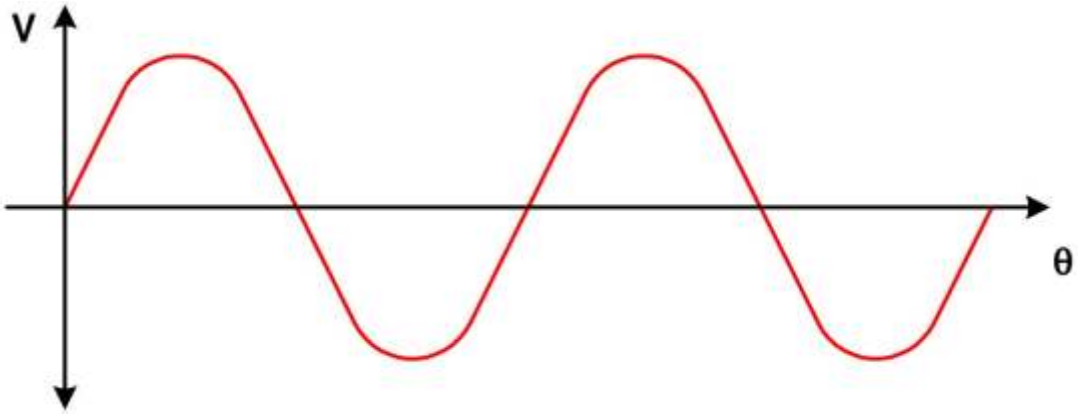
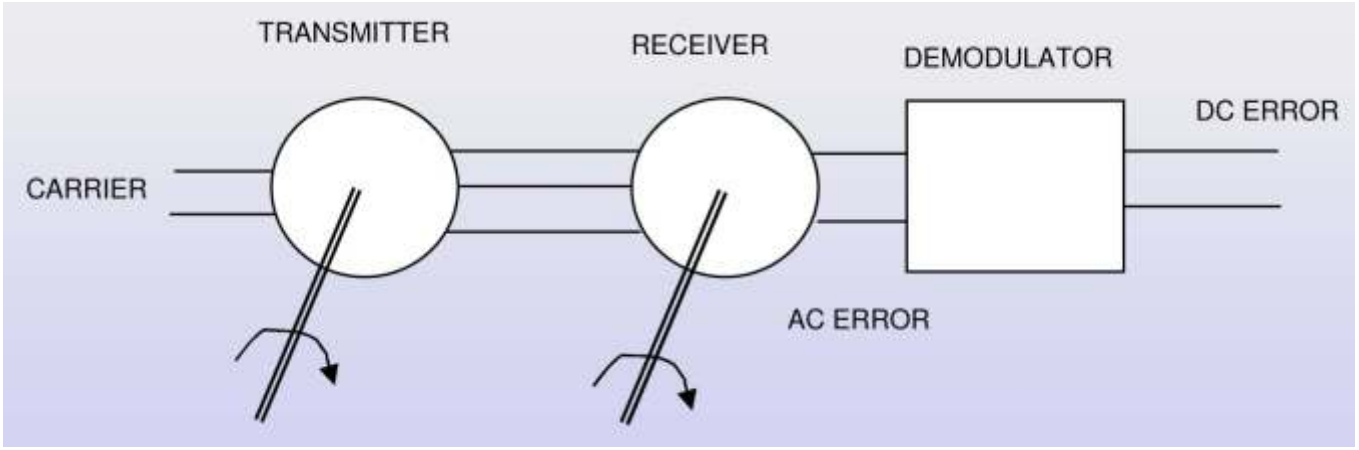
It should be of interest to visualize why the ac voltages are also plotted as negative values!
b) The error voltage plot is of the form as under

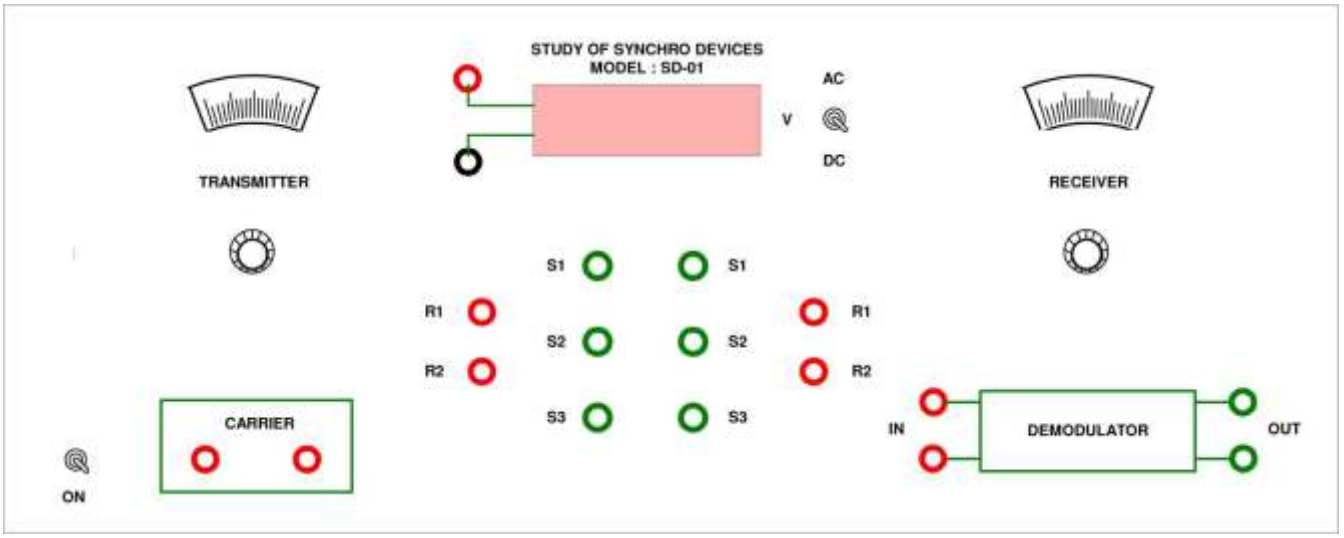


Observe that the input-output characteristics of the synchre error detector is dintinctly non-linear.
How is it used in a linear system should be of interest.

Schematic Diagram



Panel Diagram



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