

**KCL - 03****POTENTIOMETRIC ERROR DETECTOR**

All feedback control systems operate from the error signal which is generated by a comparison of the reference and the output. Error detectors perform the crucial task of comparing the reference and output signals. In a purely electrical system where the reference and output are voltages, the error detector is a simple comparator. In some other systems with non-electrical outputs, the output signal is converted into electrical form through a measurement or transducer block, and then error detection is performed on the electrical signals. A position control system, with both input and output variables as mechanical positions (linear or angular), may however consist of two potentiometers - reference and output, which function as an error detector. Other devices which could be used in similar applications include synchro sets (for AC systems), sine-cosine potentiometers, hall effect-potentiometers etc, which unfortunately are not readily available.

The present set-up is designed to study the important characteristics of a 2-potentiometer angular position error detector. These include (i) linearity, (ii) sensitivity and (iii) maximum angle of rotation. Good quality wire wound servo potentiometers with full 360° rotation have been used for this purpose. Accurately marked dials with least count of 1° are fixed on the shafts for position indication. The error voltage is read on a built-in 3½ digit DVM. An I.C. regulated internal reference voltage is available for DC studies. When used with an AC reference, the unit also demonstrates the phase reversal of the error signal which is important in applications involving a 2-phase servomotor as actuator.

**Features**

- High quality servo-potentiometers of 360° shaft rotation.
- Built-in signal and power sources.
- 3½ digits DVM for measurements.
- **Interconnections**
  - All interconnections are made using 2mm banana Patch cords.
- Test points are provided to analyze signals at various points.
- All ICS are mounted on IC Sockets.
- Bare board Tested Glass Epoxy SMOBC PCB is used.
- In-Built Power Supply with Power ON Indication
- Attractive ABS Plastic enclosures.
- Set of 2mm Patch cords for interconnections
- User's Manual.

**List of Experiment**

- Linearity study of the error detector.
- Determination of error detector gain.
- Use of A.C. supply for the error detector-

*Note : Specifications can be altered without notice in our constant efforts for improvement.*