KCL - 12
AC SERVOMOTOR STUDY TRAINER

Two phase AC servomotor is one of the very important electromechanical actuators having applications in the area of control systems. The study of its operating principle and features form a part of the first course on automatic control systems in electrical engineering curriculum. It's small size, low inertia and almost noise and frictionless operation makes the AC servomotor particularly attractive in aircraft and spacecraft applications.

The characteristics of an AC motor is usually non-linear. To simplify the analysis a linearized model is developed. The experimental work revolves around determination of the parameters of the motor and thus its transfer function. Important subsystems of the unit includes,

(a) an integrated speed sensor with 4-digit display in RPM.
(b) an electrical loading system to compute torque
(c) a time-constant measurement circuit with 3-digit display in milli-seconds.
(d) a three step AC source with built-in RMS voltmeter, and
(e) a digital voltmeter on the panel for load measurement.

The unit has been designed such that expensive equipment like storage CRO is not needed. Also the hassle of direct torque measurement using spring balance etc. is avoided by linearization of the motor characteristics analytically

Features

- 2-phase a.c. servomotor – 12V/50Hz per phase.
- Small generator for loading.
- 4-digit speed display.
- 3-digit time constant display.
- 3 ½ digit r.m.s. voltmeter.
- 3 ½ digit d.c. panel meter.
- **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 Experiments

- Inertia and function parameter.
- Time Constant.
- Transfer function.

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