

KCL - 02**LINEAR SYSTEM SIMULATOR TRAINER**

The most important performance aspect of a practical system is its response to known input. A large part of the analysis of such systems is therefore devoted to time domain studies. The set-up offered is a variable configuration simulated system designed for time domain studies of both open loop and closed loop systems. Selection at block diagram level eliminates the need to bother about the details of electronic circuitry and its assembly. Thus time and efforts could be directed towards understanding and experimenting with the basic aspects of linear control systems.

Schematic diagram of the simulator shown includes transfer functions of the form $1/s$ and $1/(sT+1)$, a calibrated variable gain K and an error detector. These could be combined to form a variety of system configurations. The unity gain uncommitted amplifier can be used to ensure negative feedback. The time constants have been selected such that the system response may be observed conveniently on a CRO.

Built-in square wave and triangular wave generators provide test inputs to study both transient and steady state responses. Provision is also there to observe the effect of disturbances. Additionally, frequency response studies can be made using an external sine wave generator.

An exhaustive manual is supplied with the unit to enable the students to understand and appreciate the intricacies and importance of time response studies of linear systems. It includes steps of mathematical analysis, procedure for experiments, typical results and suggestions for additional experimentation.

Features

- Simulated first, second and third order system of type-0 and type-1.
- Calibrated variable gain amplifier (Resolution 1:1000).
- Built-in signal sources
 - Square wave and Triangular
 - Frequency: 45-90Hz.
 - Amplitude: 0-2.5V approximately.
- Trigger output for perfectly steady display on CRO.
- Uncommitted amplifier for phase adjustment.
- Provision for disturbance inputs.
- Complete in all respect, except a measuring CRO.

List of Experiment

- Open and closed loop step response of First Order type-) system for various value of gain.
- Open and closed loop step response of Second Order type-0 and type-1 systems.
- Response of third order system.
- Steady-State errors for closed loop configuration through triangular wave input.

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