

KCL - 01**P, PI, PID CONTROLLER SIMULATOR TRAINER**

Proportional-Integral-Derivative (PID) control has been especially popular in industrial processes like chemical, petroleum, power, food and manufacturing industries. These systems are usually slow, complex and are characterized by relatively incomplete or uncertain mathematical description. The PID controller, parameters of which may be adjusted experimentally, is therefore particularly attractive in such situations.

The experimental unit consists of simulated building blocks like error detector, dead time, integrator and time constants, which may be configured into a variety of systems. PID section with adjustable proportional gain, derivative and integral time constants provide the control action. Built-in set value, square and triangular sources enable the students to study the response on a CRO. The accompanying literature includes system description, theory, experimental procedure and typical results. An important feature of the system is that the simulated blocks are designed to operate at frequencies suitable for CRO viewing. The effect of controller parameter adjustments are therefore seen immediately.

Features

- **Simulated blocks**
 - Dead time (transportation lag),
 - Integrator,
 - Time constant
 - Error detector and gain
- **PID Controller (Configuration as P, PI, PD or PID)**
 - Prop. Band : 5% to 50% (Gain 2-20).
 - Integral time : 10msec-100msec.
 - Derivative time : 2-200msec.
- **Built-in signal sources.**
 - Set Value of -1V to +1V.
 - Square wave of 1V p-p (min) at 40Hz.
 - Triangular of 1V p-p (min) at 40Hz.
 - Built-in 3 ½ digit DVM for DC 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 of +5V/1.5A, ±12V/250mA with Power ON indication
 - Attractive ABS Plastic enclosures.
 - Set of 2mm Patch cords for interconnections
 - User's Manual.

List of Experiment

- Open loop response of various process configurations like Combination of time constants, delays etc.
- Study of closed loop response for above.
- P, PI, PD and PID design and performance evolution in each case.

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