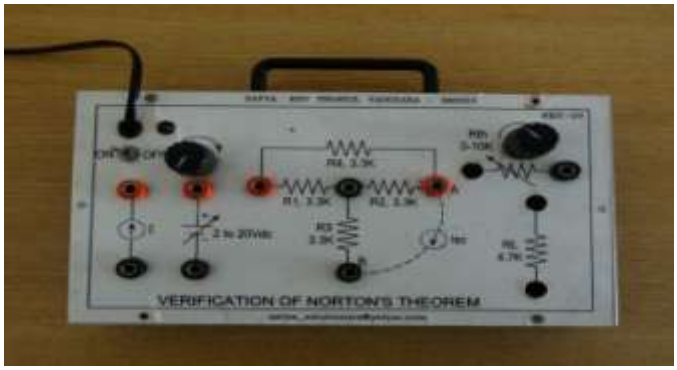
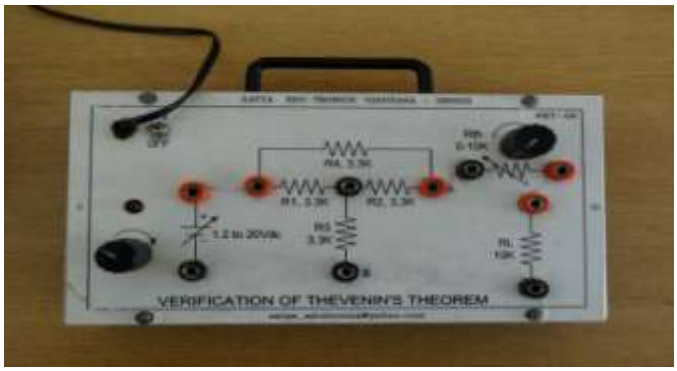
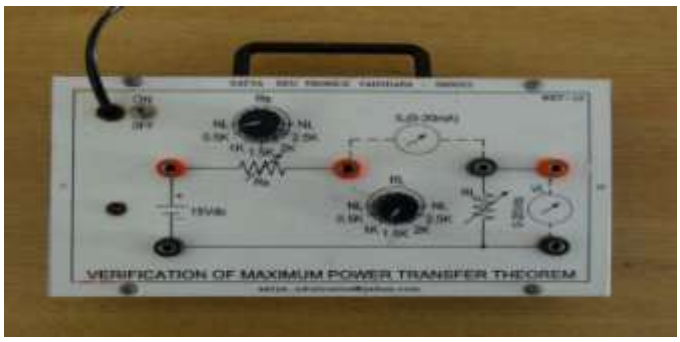
Network Laboratory



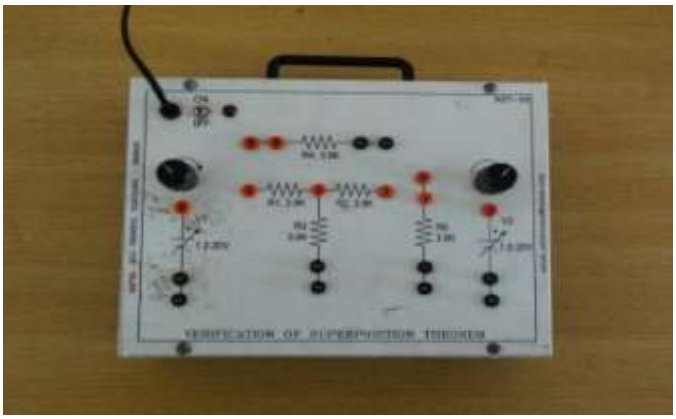
Norton's theorem states that a linear two-terminal circuit can be replaced by an equivalent circuit consisting of a current source I_N in parallel with a resistor R_N where I_N is the short-circuit current through the terminals and R_N is the input or equivalent resistance at the terminals when the independent sources are turned off.



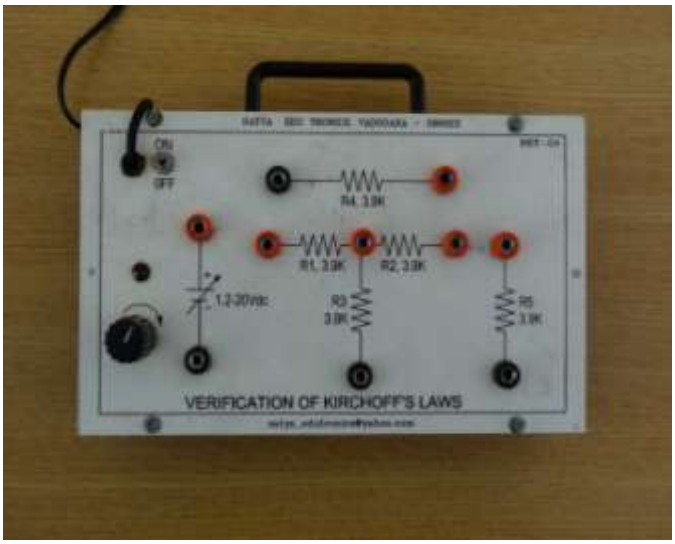
Thevenin's theorem states that a linear two-terminal circuit can be replaced by an equivalent circuit consisting of a voltage source V_{TH} in series with a resistor R_{TH} where V_{TH} is the or the open circuit voltage at the terminals and R_{TH} is the input or equivalent resistance at the terminals when the independent sources are turned off.



In electrical engineering, the maximum power transfer theorem states that, to obtain maximum external power from a source with a finite internal resistance, the resistance of the load must equal the resistance of the source as viewed from its output terminals.

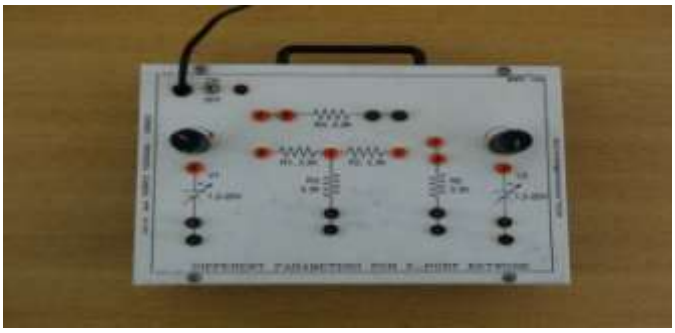


Superposition Theorem Stated as: In a network of linear resistances containing more than one generator (or source of e.m.f), the current which flows at any point is the sum of all the currents which would flow at that point if each generator where considered separately and all the other generators replaced for the time being by resistances equal to their internal resistances.



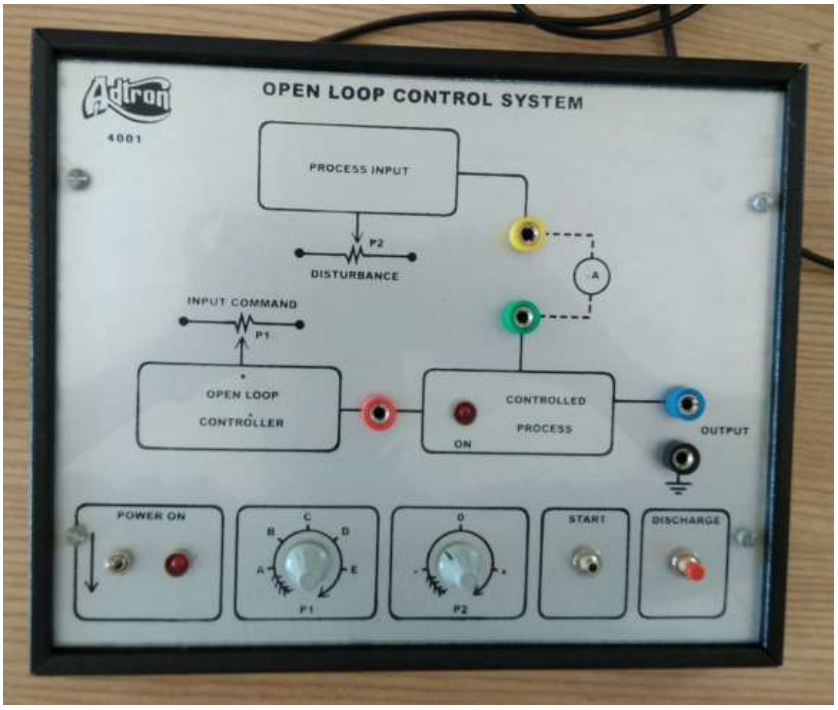
KCL:“At any node (junction) in an electrical circuit, the sum of currents flowing into that node is equal to the sum of currents flowing out of that node, or: The algebraic sum of currents in a network of conductors meeting at a point is zero”. The sum of currents entering the junction is thus equal to the sum of currents leaving. This implies that the current is conserved (no loss of current).

KVL: The principles of conservation of energy imply that the directed sum of the electrical potential differences (voltage) around any closed circuit is zero.

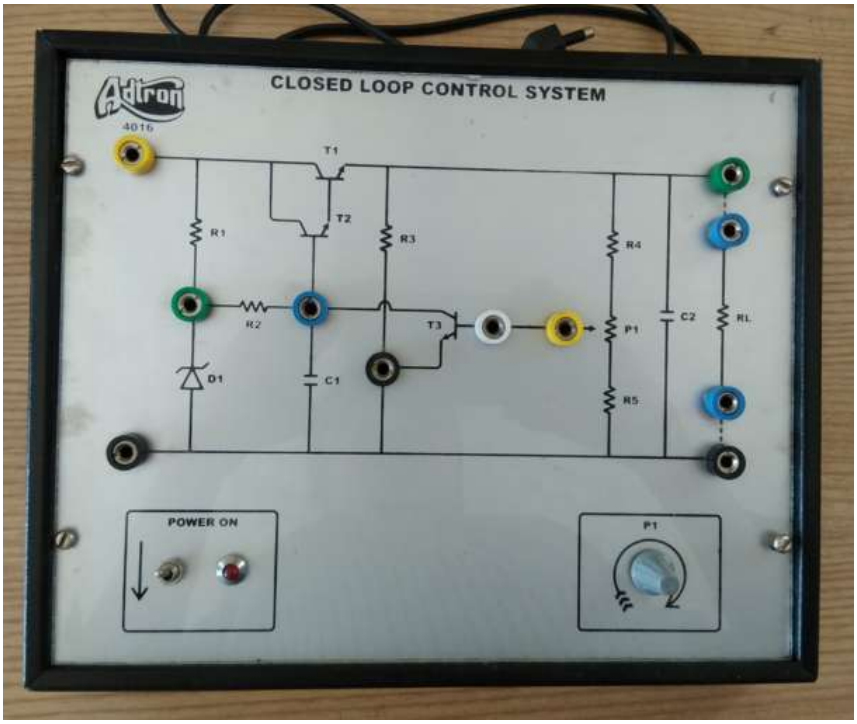


It can determine equivalent parameters like Z-parameter, Y-parameter, hybrid-parameter, ABCD-parameter of parallel connection of two-port network

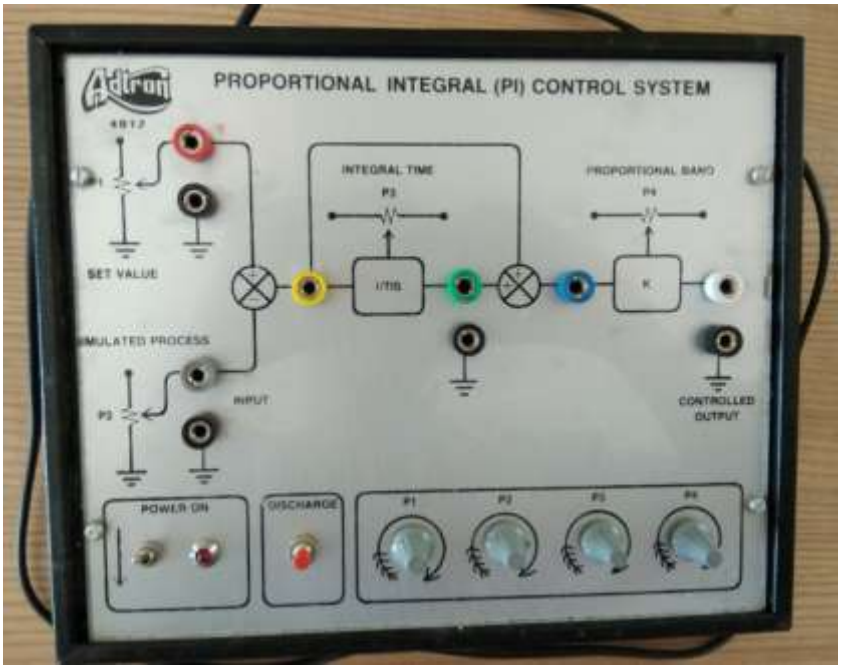
Control System Laboratory



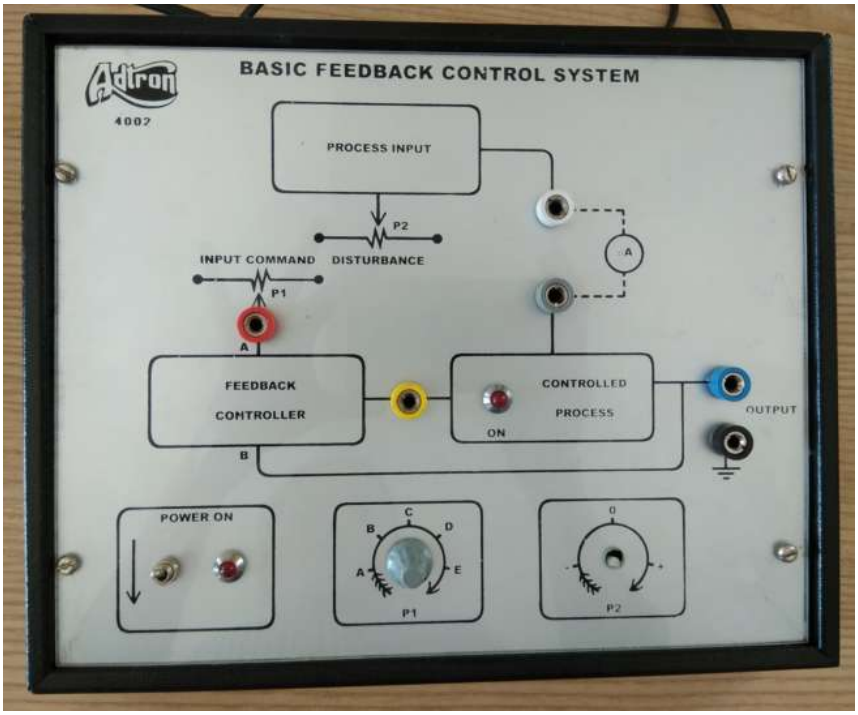
This Kit demonstrates the principle and working of a basic open loop control system and it requires 230V, 50Hz AC supply. It consist of IC based DC regulated power supply with short circuit protection and LED indication for supply "ON". It has in-built variable input command, variable disturbing / error signal and timer with relay.Multi – coloured test points are provided at various stages in the circuit to observe the voltage and waveform.



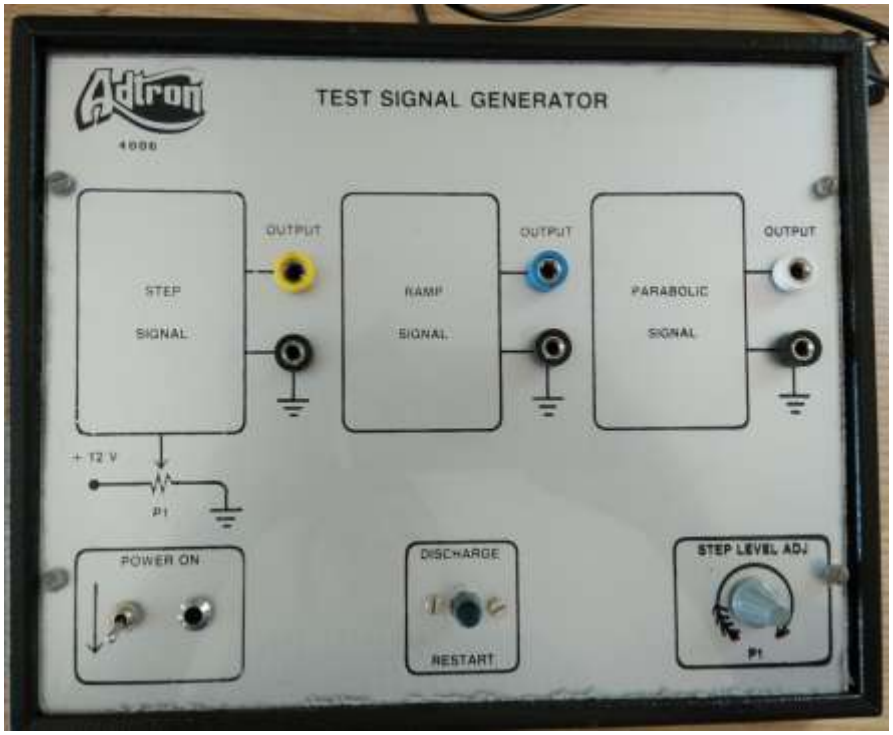
This kit demonstrates the principle & working of Closed Loop Control System and also has provision to connect/disconnect the load & feedback loop and vary the output voltage. The input supply to the kit is 230V, 50Hz AC.Multi – coloured test points are provided at various stages in the circuit to observe the waveforms & voltages.



This kit with input supply voltage 230V, 50Hz AC demonstrates the principle and working of a Proportional Integral Control System (PI).Study of effects of integral and proportional action on different actuated error signals generated externally for closed loop behaviour of system. The control of Integral time, Proportional rate and study of its effects on the controlled signal can be done. It provides the facility for Proportional (P) and Proportional Integral (PI) control system experiments. Multi-coloured test points are provided at various stages in the circuit to observe the waveforms and voltages.



This kit demonstrates the principle and working of a Basic Feed control system with input supply of 230V, 50Hz AC.



It is a complete instrument, required in the experiments of control engineering. It provides test signals of different waveforms and frequencies for feeding in as error signals. The input supply required is 230V, 50Hz AC. It gives very low frequencies (variable) step and Ramp waveform signals, which are essential for finding the response of various control circuits.