

- Feedback control of light intensity
- Study of inherent non-linearities sensor, lamps
- PI control
- Dynamic response display



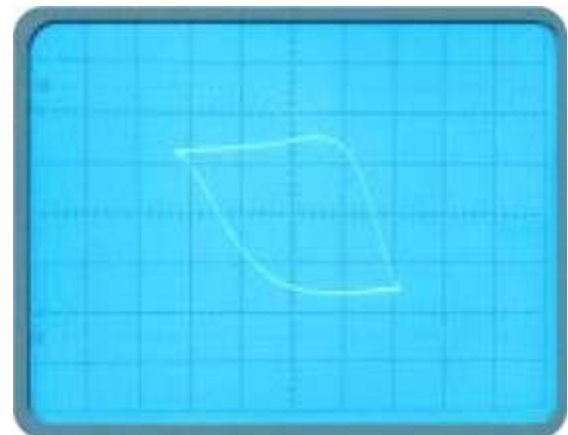
### Introduction

Feedback is applied in a variety of systems to control different physical variables. In contrast with systems without feedback (open loop systems), the feedback systems (closed loop systems) have lower parameters sensitivity, higher disturbance rejection and greater accuracy. The light intensity control system is designed to bring out these features in the form of a laboratory experiment. The light panel comprises of a number of filament lamps which get power from amplifier. Average intensity of the panel is sensed by a light sensor and a suitable voltage level is produced. Error detector,

reference input and error amplifier are of standard configurations found in any linear control system. In addition to the above, the light panel also contains a few uncontrolled lamps which may be used as disturbance source. Further a square wave signal is available for dynamic response studies. Measurement points are provided for monitoring the performance of the system. A detailed user's manual comprising of the system description, experiments to be conducted and typical results is supplied with the set-up.

### Experiments

- Characterization of light panel and light sensor blocks
- Study of a practical single loop feedback control system which includes:
  - Disturbance study
  - Error monitoring
- Performance improvement through P-I control
- Evaluation of dynamic behaviour
- Seven lamps 6V/300mA
- 5Hz square wave and triangular wave for dynamic response study
- Switch selectable PI-Controller
- Built-in 3½ digit DVM
- Built-in IC regulated power supplies
- 220V±10%, 50Hz Mains operation
- Detailed literature and patch cords included



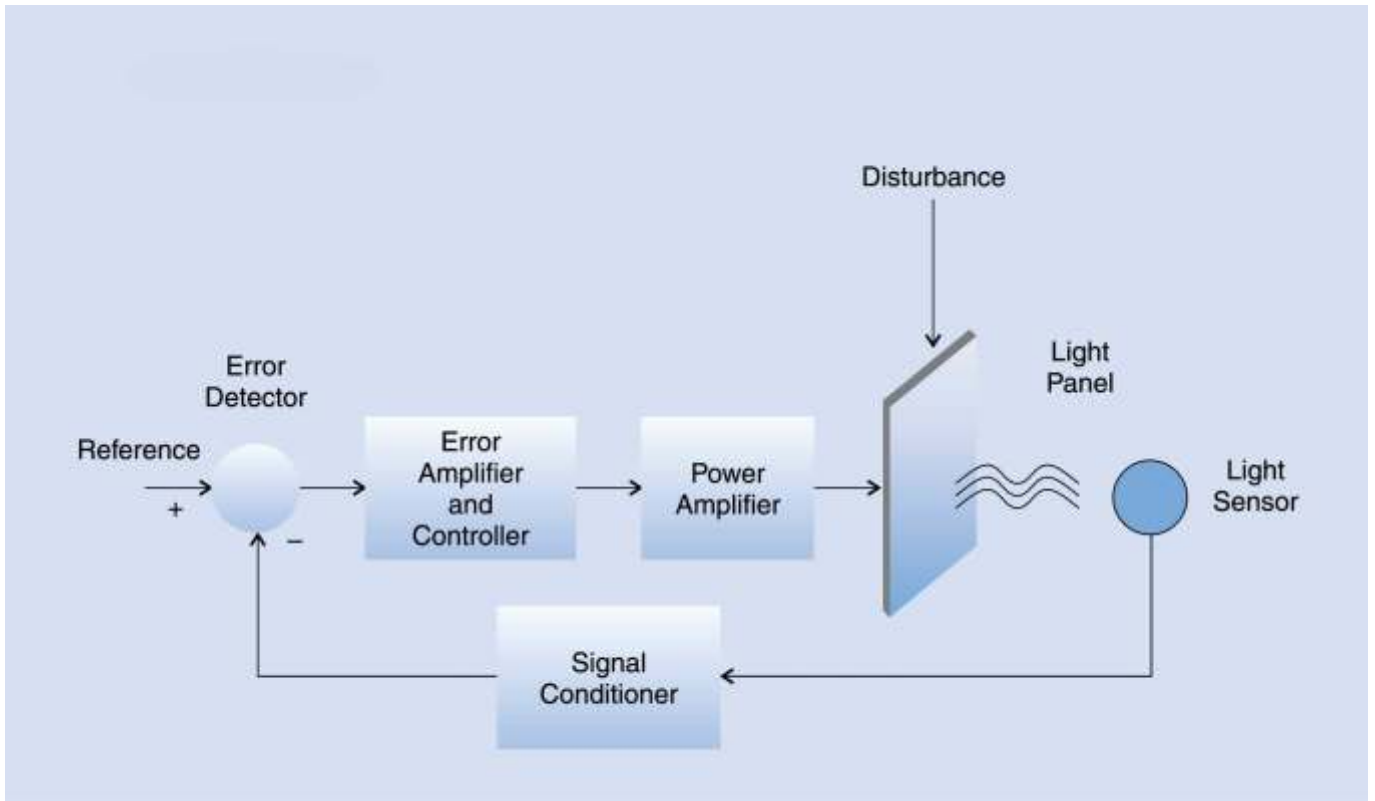
Dynamic response of lamps

Note: Specifications are subject to change.

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### Schematic Diagram



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