

Product Name :
Modular Servo System (D.C., A.C., D.C./A.C, complete system)

Product Code :
CE198



Description :

Modular Servo System (D.C., A.C., D.C./A.C, complete system)

Technical Specification :

Modular Servo System (d.c., a.c., d.c./a.c, complete system)

The modular servo system enables students to study the theory and practice of automatic control systems. It illustrates modern circuit and constructional techniques. The system is modular and, therefore, versatile. Each unit is fitted with a magnetic base which holds the unit to the plastic coated steel baseplate, irrespective of the angle at which the baseplate is positioned. Individual units may be so arranged to create operating block schematic systems and interconnections between the units are made by jumper leads terminated in 4 mm stackable plugs. The modular concept of the system permits the study of individual units and also, by combination, the investigation and performance testing of complete systems. A series of instructional manuals is supplied to provide comprehensive coverage of servo system theory and assignments.

Curriculum Coverage

Operational amplifiers

Motor speed characteristics

D.C. error channel

Simple position control

Closed-loop position control

Simple speed control

Dead band & step response

Velocity feedback

Analysis of simple speed control with speed response

Position response

Closed-loop frequency response
Identification of motor time constants
Identification of velocity error constant
Frequency and transient response
Motor characteristics
A.C. tachogenerator
Motor speed control
A.C. pre-amplifiers
Position control system
Importance of correct phasing on performance
Compensation using the adjustable notch filter
Notch filter design exercises
Frequency selective
Characteristics for the elimination of noise & harmonics
Detailed analysis of carrier system
Frequency transformation for compensator techniques
Principles & measurement of compensation unit characteristics
Measurement of system characteristics
Instability
Reduction in steady following error
Relay characteristics
Relay-operated control system
Following characteristics of relay system
Effect of backlash on system stability
Relay-operated speed-control system
Phase-plane analysis
Motor characteristics - trajectories
Trajectory for a sequence of switching
Phase-plane analysis of relay-operated systems
Rotation of switching lines by velocity feedback
Waveform sampling
Sampled data servo control system
Simulated sampled data control system
Sampled data process control system - transfer functions of hold circuits and the sampling theorem
Speed control of an servo
Position control
Following error

Features:

Modular & flexible
Self-contained units with mimic diagrams on function blocks
Units can be investigated individually before building systems
"Hands on" assembly of working systems
Magnetic unit bases creating a versatile & stable system
Robust product used & trusted for many years
Can be used for advanced work
Upgrade pack to enable MATLAB compatibility
Comprehensive theory & experiment manual.

Naugralabequipments

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