

The Positional Sensor study modules introduce students to input and output transducer, signal conditioning circuits and display devices through a wide range of practical activities. The study module includes a transducer and instrumentation trainer and a curriculum manual.

The curriculum manual is divided into a series of chapters. Each covers a specific topic area and provides background theory, practical activities and student assessment question.

A student workbook is also provided, allowing student to record basic theory and practical results as they work through the curriculum manual. Finally, the study module includes an instructor's guide. This provides solutions to all of the questions and practical activities contained in the curriculum

SIGNAL CONDITIONING:

- Signal conditioning amplifiers
- Comparators oscillators and filters
- Mathematical operations

OUTPUT DEVICES:

- DC Motor
- Solenoid Air Valve
- Counter/timer unit with LED display
- Analog 10V center-zero meter

TYPICAL TOPIC AREAS INCLUDE:

- Positional Resistance Transducers
- Wheatstone Bridge Measurements
- Rotational speed or position Measurement
- Linear or Rotational Motion
- Display Devices
- Control Systems Characteristics
- Practical Control Systems.

EXTERNAL POWER SUPPLIES:

- -5V, +5V 1A precision supply
- -12V, +12V 1A regulated supply On board power supply terminals

Note: Specifications are subject to change.

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INPUT TRANSDUCERS:

- Air-flow sensor
- Air pressure sensor
- Slotted opto-sensor
- Reflective opto-sensor
- Inductive Proximity sensor
- Hall Effect sensor
- Precision servo-potentiometer
- Tachogenerator

POSITIONAL RESISTANCE TRANSDUCERS:

- Carbon Potentiometer
- Wire Wound Potentiometer
- Slide Potentiometer
- Wheatstone Bridge

ITEM SUPPLIED WITH THE INSTRUMENTATION STUDY MODULE INCLUDE:

- Instrumentation Technical Manual
- Curriculum manual
- Instructor's Guide and student workbook

TYPICAL ACTIVITIES INCLUDE:

- Compare the application of a carbon track variable resistor with those of a wire-wound type.
- Select a suitable display device for a particular voltage measurement.
- Investigate the construction and characteristics of an air flow transducer.
- Determine the characteristics of an ON/OFF control system.
- Investigate the characteristic of a speed control system.