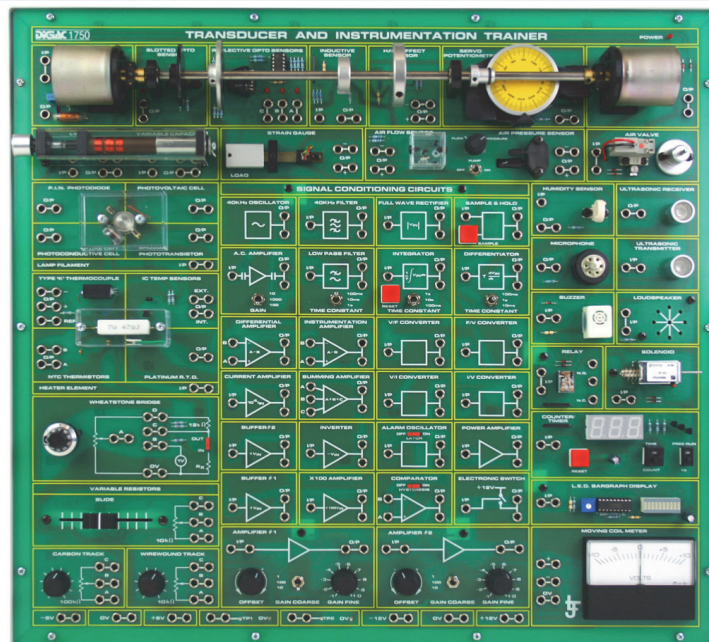


Product Information Sheet

Transducers, Instrumentation & Control Trainer



The Transducers, Instrumentation and Control Trainer introduces students to input sensors, output actuators, signal conditioning circuits, and display devices through a wide range of hands-on practical activities.

This self contained trainer has all the necessary power supplies, light sources and compressed air supplies to carry out the range of hands on experimental work. It is possible to build and test complete closed loop control systems for rotary speed and position, making the trainer ideal for use in control engineering teaching.

The trainer is supplied with a detailed curriculum manual that provides background theory, practical activities, and student assessment questions.

A student workbook is also provided, allowing students to create a personalized record of their work and record practical results as they work through the curriculum materials.

Finally, an instructor's guide is provided, offering solutions to all of the questions and practical activities contained in the curriculum manual and student workbook.

The bench-mounted trainer features the following devices and circuits:

Input Transducers:

- Carbon track
- Wirewound & precision rotary potentiometers
- Slide potentiometers
- NTC thermistors
- Type 'K' thermocouples
- I.C. temperature sensor
- Photoconductive cell
- Photovoltaic cell
- Phototransistor
- PIN diode
- Linear variable differential transformer
- Linear variable capacitor
- Strain gauge
- Air-flow sensor
- Air pressure sensor
- Slotted opto-sensor
- Reflective opto-sensor
- Inductive Proximity Sensor
- Hall Effect sensor
- Precision servo-potentiometer
- Tacho-generator
- Humidity sensor
- Dynamic microphone
- Ultrasonic receiver

Output Devices:

- Heater
- Filament Lamp
- DC Motor
- Solenoid Air Valve
- Ultrasonic transmitter
- Buzzer
- Loudspeaker

- Relay
- Solenoid
- Counter/timer unit with LED display
- Bargraph voltage indicator
- Analog 10V center-zero meter

Signal Conditioning Circuits:

- Buffers
- Inverters
- Comparator with switchable hysteresis
- Amplifiers with gain and offset control
- Current amplifier
- Summing amplifier
- Differential amplifier
- Instrumentation amplifiers
- AC amplifier
- Oscillator 40kHz
- Filter 40kHz
- Low-pass filter with switchable time constant
- Precision full-wave rectifier
- Sample and hold circuit
- Integrator with switchable time-constant
- Differentiator with switchable time constant
- V/F and F/V converters
- V/I and I/V converters
- Alarm oscillator with switchable latching
- Power amplifier
- Electronic switch

For more information visit www.ljcreate.com

LJ Create –Product Information Sheet (Continued)

Transducers, Instrumentation & Control Trainer



Internal Power Supplies:

- -5V, +5V 1A precision supply
- -12V, +12V 1A regulated supply

Pneumatic Supply:

- Internal Pneumatic pump

The system also features a shaft assembly that carries a D.C. motor, tachogenerator, slotted and reflective opto-sensors for incremental and absolute position, and a 360 degree precision potentiometer with indicator dial for closed-loop position control experiments.

Topics include:

- Electronic switch
- Basic Control Systems Equipment and Terms Used
- Positional Resistance Transducers
- Wheatstone Bridge Measurements
- Temperature Sensors
- Light Measurement
- Linear Position or Force Applications
- Environmental Measurement
- Rotational Speed or Position Measurement
- Sound Measurements
- Sound Output
- Linear or Rotational Motion
- Display Devices
- Signal Conditioning Amplifiers
- Signal Conversions
- Comparators, Oscillators and Filters
- Mathematical Operations
- Control Systems Characteristics
- Practical Control Systems

Items Included:

- Trainer
- Accessory and Lead Kit
- Mains Lead
- Curriculum Manual
- Student Manual
- Instructors Manual
- Technical Manual

All manuals are in PDF format

Other Items Required:

- 2 Digital Multimeters
- Dual Trace Oscilloscope
- Function Generator

General Information:

Dimensions: 500 x 450 x 150 mm (L, W, H)
Supply Voltage: 50-60Hz 110-120V AC or 220-240V AC
Packed Volume: 0.109 m³
Packed Weight: 14.9Kg

Order Code: 217-50

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