

Instrumentation Lab

ME 1050 - Instrumentation Trainer Using Transducers (Complete with following Experimental study)

Objective:

- 'Mars' made Instrumentation Trainer is used to Study of LVDT, RTD, Thermocouple, Thermistor, Opto Devices (Photo Diode, Photo Transistor, LDR, Zener, Diode), Wheatstone Bridge & Instrumentation Amplifier
- Instrumentation Trainer is used to learn how to sense temperature, position & optical using passive sensory devices and circuits.
- This trainer gives learning about the fascinating world of sensors.
- To become efficient and productive, a computer based control system must be capable of sensing its surroundings and employ enough intelligence to respond to changing environment.
- This is specially true in robotics.
- In fact, sensors are the key ingredients for present and future intelligent robots.



Technical Specifications:

- Output voltage : $\pm 12V/150mA$, $5V/150mA$
: $5V/1A$ (Variable), $\pm 15V/500mA$ (Variable)
- Digital Multimeter : To measure output DC Voltages, AC Voltages, Current & Resistance.
- Instrumentation Amplifier
Voltage Gain (G) : 1-100
Output Voltage : $\pm 10V$
Output Current : $\pm 10mA$
DC Output Impedance : 0.15
Off Set Voltage : $\pm (6+600G)$ mV
Dynamic Response : 10 KHz

LVDT

- Highly accurate metal LVDT Highly Precise Micrometer (0-10) attached Provision to connect it through 5pin female connector
- Oven : 0-100 Degree C
- Wheatstone's Bridge
- RTD : Resistance Temperature Detector (PT - 100)
- Thermocouple : K type
- Thermistors : 1K Ohm
- LDR, Photo Transistor & Photo Diode is provided to study as optical sensors
- Semiconductor Junction Diode : Oa79
- Application of thermistor (Op-amp as a comparator: Temp. Controller)
- Resistors and Potentiometers of different values
- Circuit Diagram : Screen printed on front panel
- Housed in metal Cabinet & Connection of all important output, control switches & test point brought out at front panel.
- Dimensions : 530mm x 520mm x 280mm
- Weight : 15.5 Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz
- Standard Accessories:
• Power Cords, Patch Cords, Instruction Manual.

ME 1051A - Bourdon Tube Pressure Gauge Trainer Kit

Objective:

- To study the constructional and operational behavior of a Bourdon Tube type pressure gauge.

Technical Specifications:

- Bourdon Tube type pressure gauge : 0 – 10 Kg/cm²
- Pressure Regulator : 0 – 10 Kg/cm²
- Diagram : Screen printed on front panel
- Front Panel 450mm x 210mm mounted on MS fabricated cabinet.
- Bourdon Tube type pressure gauge housed in Acrylic box for better view
- Air Compressor
• Suitable for pressure: 8 bar
• Delivery : 50 lpm (or more)
• Reservoir capacity : 24 Litres (or more), 230V, 50 Hz, with pressure regulator and water separator
- Dimensions : 250mm x 200mm x 270mm
- Weight : 2.5 Kgs Approx.
- Power Requirement : 220VAC $\pm 10\%$, 50Hz
- Standard Accessories:
• Power Cords, Patch Cords & Instruction Manual.

