

Mechanical Engineering



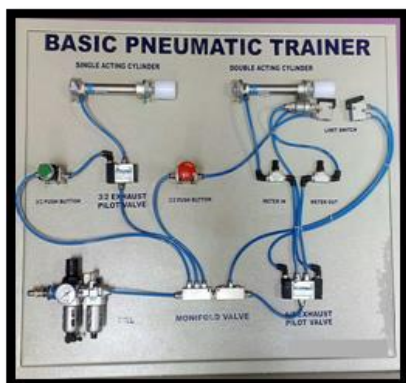
Stepper Motor Drive

- Full step controlling of stepper Motor
- Single step, low and high speed, Forward and Reverse
- Small stepper Motor with driver and Power Circuit
- Necessary Power Supplies



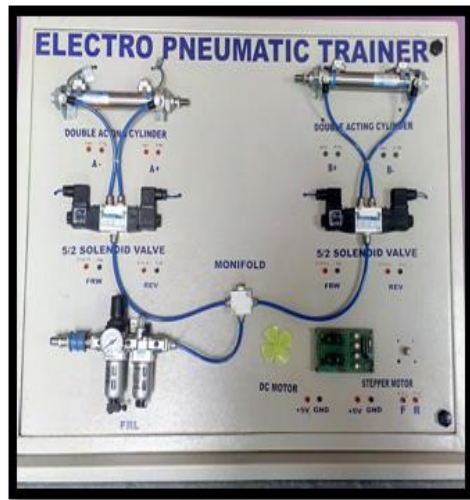
Servo Motor

- 24V DC Motor
- Load arrangement
- Measuring the speed and feedback
- Proportional and Integral control
- PWM / Phase angle operation method
- Set input
- Necessary test points to measure the signals
- Necessary Power Supplies



Basic Pneumatic

- FRL with pressure gauge
- Hand Slide Valve
- Manifold - 4 way - 1/4"
- 3/2 way Push Button Valve - 1/4"
- 3/2 way Hand Lever Valve - 1/4"
- 3/2 way Single acting Pilot Valve - 1/4"
- Single acting cylinder - 25 x 100 mm
- Double acting cylinder 25 x 100 mm
- 5/2 way Double acting Pilot Valve
- Flow control valve - 1/4"
- Quick Exhaust Valve
- 3x2 power coated board with stand






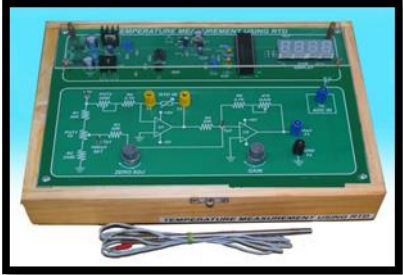
Electro Pneumatic

- Allen Bradley PLC Trainer Kit
- DC Motor Module
- Stepper Motor Module with Controller card
- Hand Slide Valve
- Manifold – 4 way – 1 no.
- Electrical Limit switch – 1 pairs
- 5/2 Solenoid control valve – 1 nos.
- Double acting cylinder – 1nos.
- FRL
- Connecting tubes
- Necessary Pneumatic Connectors
- Necessary Patch cords
- Powder coated MS Stand with Board 2x2
- Detailed Manual



Basic Hydraulic

- Hydraulic kit frame
- Hydraulic Reservoir
- Double acting cylinder
- Hydro-Motor
- Hand lever valve
- Flow control valve
- Pressure Relief Valve
- Pump & Tank Manifold
- Pressure Gauge
- Electric Motor
- Level Gauge
- Fittings ,Pipes & Fasteners
- Connectors & Washers
- Hydraulic Hoses
- Double solenoid valve
- 3x2 power coated board with stand

	<p style="text-align: center;">LVDT</p> <ul style="list-style-type: none"> ➤ LVDT range ± 10 mm ➤ Screw Gauge to move the core in LVDT ➤ AC Signal Source, Phase Sensitive Detector ➤ Instrumentation amplifiers, 3 1/2 digit display to view displacement ➤ Test points to measure the signals, ➤ Built in Power Supplies and wooden closed cabinet
	<p style="text-align: center;">Strain Gauge</p> <ul style="list-style-type: none"> ➤ Strain gauge fitted with cantilever beam ➤ Applying strain using weights in terms of 100 gms. ➤ Measurement of strain using DC Bridge method and Signal Conditioner ➤ Instrumentation amplifiers, 3 1/2 digit display to view strain ➤ Built in Power Supplies and wooden closed
	<p style="text-align: center;">Thermocouple</p> <ul style="list-style-type: none"> ➤ J Type Thermo couple of length of 150 mm and diameter of 6 mm ➤ High input impedance amplifier ➤ Cold junction compensation using LM 35 ➤ Amplifier and 3 1/2 digit display to view the temperature ➤ Built in Power Supplies and wooden closed
	<p style="text-align: center;">RTD</p> <ul style="list-style-type: none"> ➤ 3 wire RTD of length of 150mm and diameter of 6 mm ➤ Constant Current Source connected to RTD PT 100 ➤ Zero degree voltage source ➤ Amplifier and 3 1/2 digit display to view the temperature ➤ Built in Power Supplies and wooden closed



Torque

- Torque Sensor based on strain gauge – 1 Kg-m
- 1 meter length rod, weights 1 Kg in terms of 100 gms
- Applying torque at different places in one meter length
- Signal Conditioner and instrumentation amplifiers
- 3 1/2 digit display to display the torque
- Test points to measure the signals
- Necessary Power Supply and casing to store safely



DC Motor

- Variable speed arrangement of 24V DC Motor
- **Photo electric pick up fitted in the shaft of the motor**
- **Inductive proximity pickup**
- **Hall sensor magnetic pickup**
- Frequency to voltage converter circuit
- Digital display to display the speed
- Test points to measure the signals,
- Built in Power Supplies and wooden closed cabinet



Load Cell

- Strain gauge based Load Cell to measure up to 5 Kg
- Measurement of strain using DC Bridge method and Signal Conditioner
- Instrumentation amplifiers, 3 1/2 digit display to view weight
- Test points to measure the signals
- 10 nos. of weight of 100 gms, Built in Power Supplies and wooden closed cabinet



Water Level Measurement

- Cylindrical water tank 12” height x 6 “ diameter water tank
- Sump tank
- Variable water discharge through a PVC pipe using ball valve
- Water level display
- Necessary power supplies
- Panel and MS Stand for fixing the above components



Stroboscope

- Microprocessor circuit design
- Stroboscope ideal for inspecting and measuring the speed of moving gears, fans, centrifuges, pumps, motor and other equipments
- Display: 0.3”LED 4 digits
- Flash rate: 100 to 5000 FPM/RPM
- Resolution: Less than 10,000 FPM/RPM – 1 FPM/RPM
- Range Selection: Automation



Water Bath

- Stainless steel bath 1 liters capacity



Refrigeration Test Rig (Sealed System)

- Capacity : 1 Ton
- Compressor : Hermetical sealed Compressor
- Condenser : Air cooled type with fan and motor
- Evaporator : 15 lit capacity
- Expansion device : Expansion valve and Capillary
- Pressure Gauge : 2 Nos with valve
- Gas : R 134 a
- Supply : 230 V A/C



Water Cooler Test Rig

AIM : To calculate COP

Compressor : Hermetical Sealed Compressor
 Gas : R 134 a
 Condenser : Coiled tube heat exchanger acts as a
 Expansion type Expansion valve and Capillary
 tube
 Pressure Gauge: 2 Nos with valve
 Capacity : 20 lit
 Electricals : Ammeter, Voltmeter, energy
 Main switch
 Supply : 230 V A/C



Window A/C Test Rig

AIM : To calculate COP

Capacity : 1 Ton
 Compressor : Hermetical Rotary Compressor
 Condenser : Air cooled Condenser Compatible
 Cooling fan: Compatible Capacity with permanent
 lubricated motor
 Evaporator : Made of copper towel and aluminum
 fins with cooling fan
 Expansion device : Capillary tube suitable
 Pressure Gauge : 2 No's with valve
 Supply : 230 V A/C



Split A/C Test Rig

AIM : To calculate COP

Capacity : 1 Ton
 Compressor : Hermetical Rotary Compressor
 Condenser : Air cooled Condenser made out
 of copper pipe, Aluminum fins with cooling fan
 Evaporator : Fin and copper tube cooling
 coil fitted in unit
 Electricals : Ammeter, Voltmeter, Energy
 meter, Temperature indicator, Main s
 Pressure Gauge: 2 Nos with valve
 Expansion device : Capillary tube suitable
 Supply : 230 V A/C