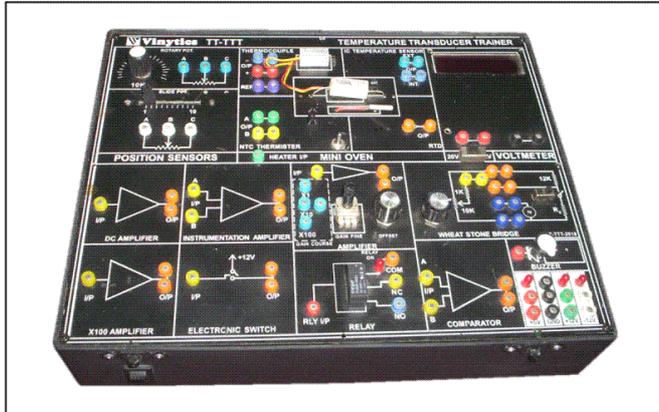




TT-TTT

TEMPERATURE TRANSDUCER TRAINER



FEATURES

- Self contained trainer
- Functional Block printed on pcb
- Onboard 4 different types temperature sensor
- Onboard Digital Panel Meter
- Inbuilt Power Supply
- Onboard Signal Conditioning Circuit
- Strongly support by systematic operating instructions

TECHNICAL SPECIFICATIONS

- **Transducers : 04 nos. :**
 - a) NTC Thermistor
 - b) Platinum RTD
 - c) Thermocouple (K type)
 - d) IC Temperature Sensor
- **Signal Conditioning Circuitry :**
 - a) Instrumentation Amplifier
 - b) X100 Amplifier
 - c) DC Amplifier
 - d) Comparator
 - e) Electronic Switch
- **Heating Source :** Wirewound Resistance
- **Input Circuits :** Rotary & Slide Potentiometers
- **Output Circuits :** Relay & Buzzer
- **Onboard Digital Volt Meter :** 2V and 20V (switch selectable)
- **Interconnection :** 2/4mm banana sockets
- **DC Supply :** Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- **Standard Accessories :** User's Manual with patch cords

EXPERIMENTS

- Characteristics of NTC Thermistor
- Characteristics of Platinum RTD
- Characteristics of K-type Thermocouple
- Characteristics of Temperature Sensor

TT-OTT

OPTICAL TRANSDUCER TRAINER



FEATURES

- Self contained trainer
- Functional Block printed on pcb
- Onboard 4 different types optical sensor
- Onboard Digital Panel Meter
- Inbuilt Power Supply
- Onboard Signal Conditioning Circuit
- Strongly support by systematic operating instructions

TECHNICAL SPECIFICATIONS

- **Transducers : 04 nos. :**
 - a) Photo Conductive Cell
 - b) Photo Transistor
 - c) Photo Voltaic Cell
 - d) Pin Photo Diode
- **Signal Conditioning Circuitry :**
 - a) DC Amplifier
 - b) Power Amplifier
 - c) Buffer
 - d) Comparator
 - e) Electronic Switch
 - f) Current Amplifier
- **Light Source :** Filament Lamp
- **Input Circuits :** Rotary & Slide Potentiometers
- **Output Circuits :** Relay & LED
- **Onboard Digital Volt Meter**
- **Interconnection :** 2/4mm banana sockets
- **DC Supply :** Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- **Standard Accessories :** User's Manual with patch cords

EXPERIMENTS

- Characteristics of Filament Lamp
- Characteristics of Photo Conductive Cell
- Characteristics of Photo Transistor
- Characteristics of Photo Voltaic Cell
- Characteristics of Photo Diode
- Light Controlled Switch System

Specifications are subject to change without notice due to our constant efforts for improvement.

PRODUCT SELECTION GUIDE



TT-SGT

STRAIN GAUGE TRAINER WITH CANTILEVER



FEATURES

- Self-contained and easy to operate
- Sensitive, Linear, stable & accurate
- Test-points to observe input output of each block
- Onboard gain adjustment & offset null adjustment
- Built in DC power supplies
- 3-1/2 digits LED display
- Onboard cantilever arrangement
- High repeatability and reliability

TECHNICAL SPECIFICATIONS

- Parameter Measured : Strain in terms of grams on a cantilever beam
- Measurement System : a] Weights
b] Transducer with electronic instrumentation
- Transducer : Temperature compensated strain gauge
- Type : Cu-Ni foil with polyamide carrier base
- Gauge Resistance : 350 Ohms (Nominal)
- Gauge Length : 6mm
- Gauge Width : 2.4 mm
- Gauge Base : 12.5 mm x 4.3 mm
- Gauge Factor : 2:1 (approx.)
- Transducer : Strain gauges mounted on a stainless steel Measurement cantilever beam
- Configuration : Bridge with two arms as strain gauges (Wheatstone Bridge principle)
- Range : Upto 1 Kilogram
- Actual Strain : By various weights to be placed in a pan fixed with the beam
- Excitation Source : DC Regulated source
- Tare Adjustment : Zero adjustment by a potentiometer
- Readout : 3.5 digit digital display to indicate strain in kilograms
- Test Points : Test points are provided at various stages in the circuit to observe waveforms and voltages
- Power Requirements : 230V, ± 10% AC, 50Hz.
- Standard Accessories : Detailed Instruction Manual.

Specifications are subject to change without notice due to our constant efforts for improvement.

TT-FRMT

FLOW RATE MEASUREMENT TRAINER

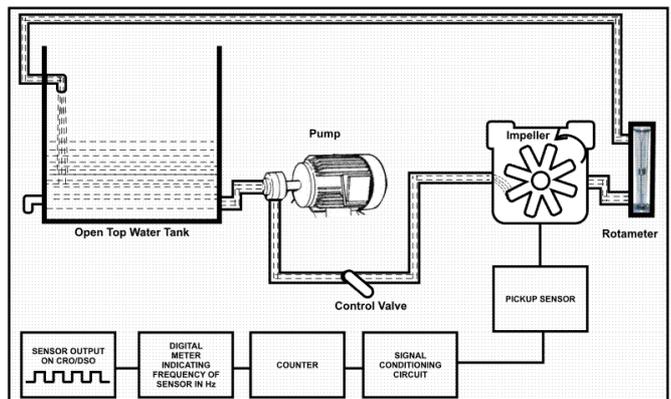


FEATURES

- Block diagram printed on front panel
- Transformer based power supply
- On board Digital Meter
- Turbine enclosed inside a plastic case to ensure leak proof safety measure
- Strongly support by systematic operating instructions

TECHNICAL SPECIFICATIONS

- Study of Flow Rate measurement
- 1/2 HP, 230V AC Pump
- Digital panel meter for flow rate measurement
- Potentiometer for controlling the speed of fluid through pump
- Rotameter in Acrylic Glass tube type placed vertically for flow rate measurement
Range : 0 to 660LPH
- Signal conditioning circuit
- Open top water tank
- Test points are provided to observe the signals and waveforms
- Push button provided on front panel to reset the counter
- Separate ON/OFF switches for Pump and trainer
- Manual Valve for controlling the amount of fluid flowing through the pipe
- Inbuilt power supply
- 230V/50Hz mains operated.





TT-LVDT

LINEAR VARIABLE DISPLACEMENT TRANSFORMER TRAINER

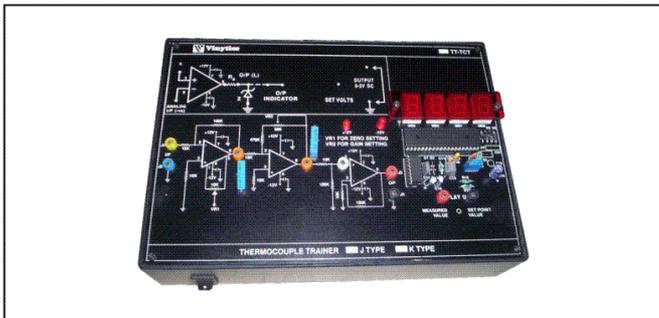


TECHNICAL SPECIFICATIONS

- To study of LVDT as displacement transducer
- Built in AC excitation source 2.5 kHz typical
- Linear variable differential transformer in non metallic structure
- Micrometer attachment with mechanical displacement system
- Displacement range 0-10 mm
- Balanced demodulator IC based
- Onboard potentiometers for Span & Zero Adjustment
- 3.5 digit DPM as displacement indicator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-TCT

THERMOCOUPLE TRANSDUCER TRAINER



TECHNICAL SPECIFICATIONS

- Thermocouple with digital panel meter
- Output for monitoring & control
- Test pins for monitoring at all stages
- Mercury thermometer & heater 10 watts (Optional)
- RS-232C interface to be connected to computer (Optional)
- 3.5 digit DPM as temperature indicator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-PMT

PRESSURE MEASUREMENT TRAINER

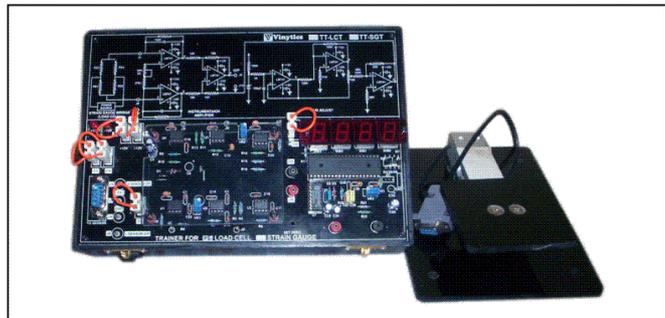


TECHNICAL SPECIFICATIONS

- To study of Pressure
- Range :- 0 -10 KG/300mm.
- Pressure Cell
- Pressure generator with dial display
- Sockets at different places for observing / measuring the signals
- 3.5 digit DPM as pressure indicator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover for safety of components.
- Standard Accessories : User's Manual with patch cords

TT-LCT

LOAD CELL TRAINER



TECHNICAL SPECIFICATIONS

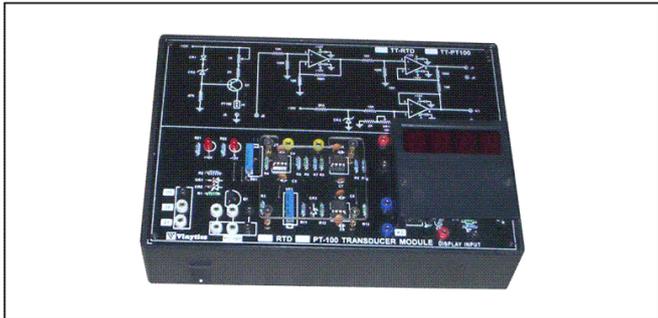
- Study the principle/working of load cell & its applications to measuring load
- Bridge made up of 4 strain gauges mounted on a specially alloy materials type load cell
- Built in excitation voltage for the bridge
- Built in 3.5 digit seven segment display for direct reading stain in Kg.
- Built in highly sensitive signal amplifier
- Built in multi turn potentiometer for zero adjustment
- Different loads provided for building up of load
- Test pins for monitoring at all stages
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

Specifications are subject to change without notice due to our constant efforts for improvement.



TT-RTDT

RTD (PT-100) TRAINER

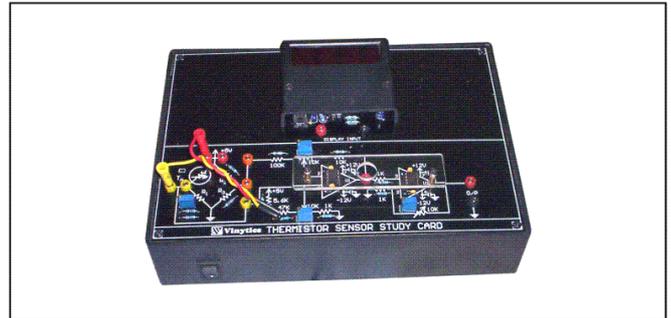


TECHNICAL SPECIFICATIONS

- Study of RTD as temperature measuring transducer
- Mercury thermometer and heater 10W (optional)
- RTD (PT - 100) probe with protection cover
- Bridge circuit for transducer
- Differential amplifier with feedback
- Lead compensation system
- Sockets provided to study the process to find out the error rate
- 3.5 digit DPM as temperature indicator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-THT

THERMISTOR TRAINER

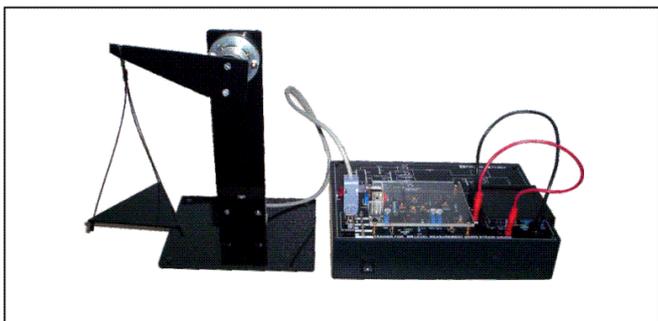


TECHNICAL SPECIFICATIONS

- Study of thermistor as temperature measuring transducer
- Mercury thermometer and heater 10W (optional)
- Thermistor (NTC) mounted in metallic tubing and protected from corrosion
- Study of non - linear (exponential) characteristics
- Unbalance Bridge circuit with 1st degree linearization
- Differential gain amplifier
- 3.5 digit DPM as temperature scale
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-TMT

TORQUE MEASUREMENT TRAINER



TECHNICAL SPECIFICATIONS

- Range : 0 to 1 Kg - m
- Resolution : 0.1 kg/m.
- Excitation : 5 Volts DC
- Analog Output : 2 Volts, FSD
- With 4 Nos. Weight of 250 gm
- 3.5 digit DPM as displacement indicator
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-LDRT

LDR/OPTO ISOLATOR TRAINER



TECHNICAL SPECIFICATIONS

- Study of Light Dependent Resistor as light intensity measuring transducer
- Sockets for LDR to measure resistance at different intensity levels to determine the non - linear nature
- 1st degree linearization circuit
- Unbalance Bridge for LDR interface
- 12 volt 21 watt tungsten lamp with intensity control (continuously variable)
- Calibration graph supplied with the tutor Luxmeter (optional)
- 3.5 digit DPM as light intensity indicator
- Sockets provided to study the process to find out the error rate
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

Specifications are subject to change without notice due to our constant efforts for improvement.





TT-ADSP/TT-LDLP

**ANGULAR DISPLACEMENT TRAINER /
LINEAR DISPLACEMENT TRAINER**



TECHNICAL SPECIFICATIONS

- Servo potentiometer as angular displacement measurement transducer (full 0-360°) using calibrated dial with 2° resolution (**TT-ADSP**)
- Linear potentiometer as linear displacement measurement transducer (0-100mm) using mechanical attachment with vernier (**TT-LDLP**)
- Op amp in signal conditioner circuit
- Offset adder for position modulation
- 3.5 digit DPM to read displacement
- Constant calibrated
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supply
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-CPT

CAPACITIVE PICKUP TRAINER



TECHNICAL SPECIFICATIONS

- Variable condenser (gang condenser) as transducer
- OP amp based signal conditioning circuit
- Built in ac excitation source
- Test Point for measuring Signals
- 3.5 digit DPM for indication of displacement
- Sockets provided to study the process to find out the error rate
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-MPT

MAGNETIC PICKUP TRAINER

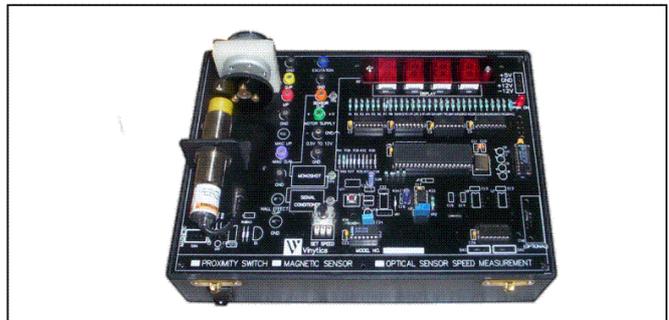


TECHNICAL SPECIFICATIONS

- Study of speed measurement by variable reluctance transducer
- 12 V, 2400 RPM permanent magnet DC motor
- Speed controller (0 - 2400 RPM)
- Electromagnetic pick up
- Signal conditioner circuitry based upon Op amps
- Excitation voltage for pick up
- 4 digit digital counter for speed display
- Test points at various places to study the process
- Electronic tachogeneration
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V ±10%, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-IPT

INDUCTIVE PICKUP TRAINER



TECHNICAL SPECIFICATIONS

- Study of measurement of inductive pickup transducer
 - On-board RPM meter for measurement of speed
 - On-board potentiometer for varying speed (0-2400 RPM)
 - On-board inductive sensor and DC motor with shaft
 - On-board signal conditioning circuit
 - Test points are provided at different stages
 - Interconnection : 2/4mm banana sockets
 - DC Supply : Built in IC regulated power supplies
 - 220V ±10%, 50Hz mains operated
 - Enclosed in an attractive ABS plastic cabinet with cover
 - Standard Accessories : User's Manual with patch cords
- DISTANCE MEASUREMENT**
- All the above specification remain same including :**
- Study of inductive pickup transducer for distance measurement
 - Onboard DPM meter for measurement of distance & count
 - On-board push button to reset the count

Specifications are subject to change without notice due to our constant efforts for improvement.

PRODUCT SELECTION GUIDE



TT-USDM

ULTRASONIC DISTANCE MEASUREMENT TRAINER

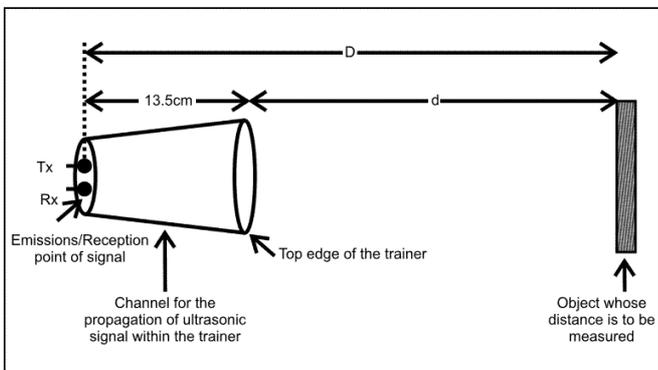


FEATURES

- Block diagram printed on front panel
- Transformer based power supply
- Onboard DC supply as per requirement of the trainer
- All components on back side to avoid any physical damage
- Strongly support by systematic operating instructions

TECHNICAL SPECIFICATIONS

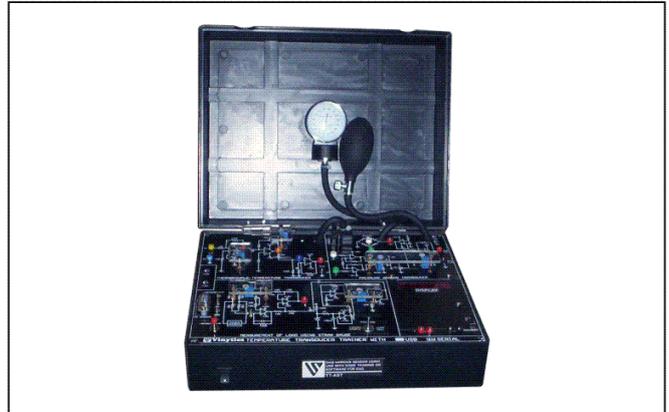
- Study of Ultrasonic Transducer for distance measurement
- Ultrasonic Transducer Range : 56cm to more than 5 meter
- Burst Signal : 40KHz
- Amplifier : 60db
- Display type : LCD
- Onboard AC supply of 16V
- Onboard DC supply of 9V
- Buzzer indicator
- Test Points : more than 12 nos.
- Automatic OFF in 60s (stand by mode)
- Accuracy : $\pm 0.5\%$ of the reading
- Signal conditioning, instrumentation circuitry
- Interconnection : 2/4mm banana sockets
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords



Specifications are subject to change without notice due to our constant efforts for improvement.

TT-DAQ

VARIOUS SENSORS USING DATA ACQUISITION

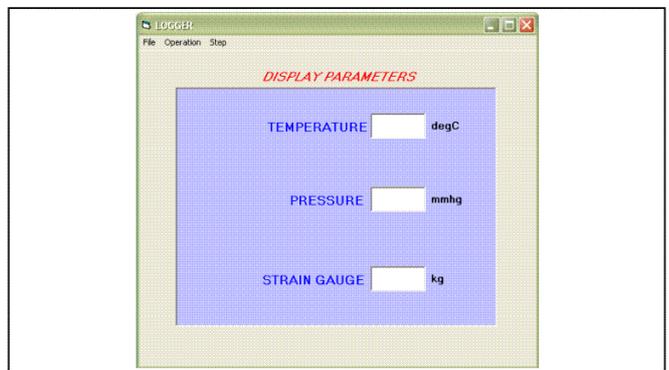


FEATURES

- Circuit diagram printed on pcb
- Transformer based power supply
- USB software controlled
- Onboard DC supply as per requirement of the trainer
- All components on back side to avoid any physical damage
- Onboard DPM meter
- Strongly support by systematic operating instructions

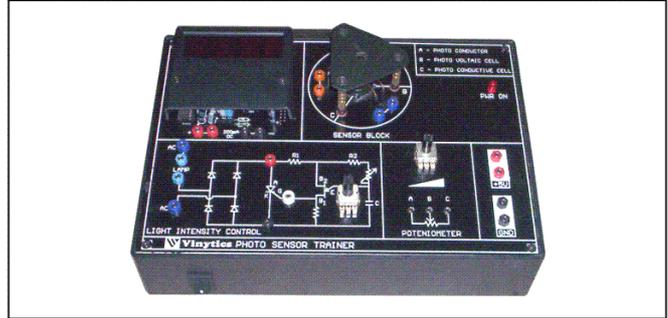
TECHNICAL SPECIFICATIONS

- Acquisition of various sensor O/P using USB DAQ
- To study of transducer like : (available independently or combined)
 - RTD / Thermocouple Transducer
 - Pressure Sensor Transducer
 - Strain Gauge Transducer
- Onboard 3.5 digit Digital panel meter
- USB software controlled
- Signal conditioning, instrumentation circuitry
- Test points provided on board at various stages to observe the signals & waveforms
- Interconnection : 2/4mm banana sockets
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

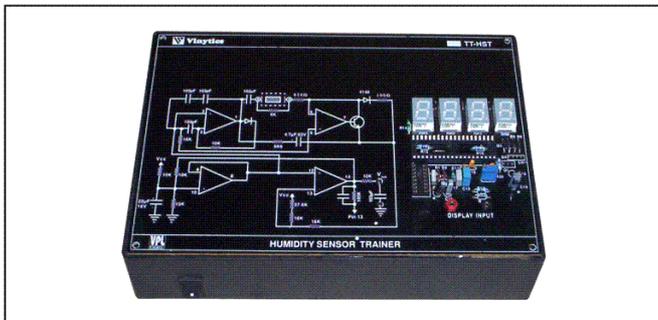


**TT-PTT****PIEZO ELECTRIC TRANSDUCER TRAINER****TECHNICAL SPECIFICATIONS**

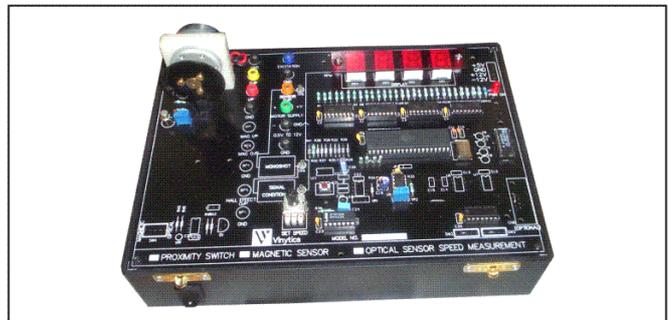
- Measurement of pressure using Piezo Electric Transducer
- Industry standard Piezo Electric transducer
- Instrumentation amplifier with variable gain
- On-board potentiometer for adjusting GAIN
- 3.5 digit DPM
- Sockets at different points for observations
- Built in IC regulated power supply
- Interconnection : 2/4mm banana sockets
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-PST**PHOTO SENSOR TRAINER****TECHNICAL SPECIFICATIONS**

- Study of Photo Sensor Transducers
- Photo Conductive Cell (LDR)
- Photo Junction Devices/Photo Conductor (Photo Diode/Photo Transistor)
- Photo Voltaic Cell (Solar Cell)
- Light Source : Lamp with variable intensity (controlled by using SCR)
- Onboard potentiometer for controlling input as a load etc.
- Onboard signal conditioning circuit
- Onboard 3.5 digit DPM meter
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-HST**HUMIDITY SENSOR TRAINER****TECHNICAL SPECIFICATIONS**

- To study of humidity sensor transducer
- Humidity transducer capacitive for 90% non condensed range 0 to 100%
- RH humidity chamber
- 3.5 digit display voltmeter thru 20 turn pot/preset.
- Sockets at different points for observations
- Built in IC regulated power supply
- Interconnection : 2/4mm banana sockets
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

TT-PEPT**PHOTO ELECTRIC PICKUP TRAINER****TECHNICAL SPECIFICATIONS**

- Study of measurement of photo electric pickup transducer
- On-board RPM meter for measurement of speed
- On-board potentiometer for varying speed
- On-board photo electric sensor and DC motor with shaft
- On-board push button to reset the count
- On-board signal conditioning circuit
- Test points are provided at different stages to observe the signals and waveforms
- Interconnection : 2/4mm banana sockets
- DC Supply : Built in IC regulated power supplies
- 220V $\pm 10\%$, 50Hz mains operated
- Enclosed in an attractive ABS plastic cabinet with cover
- Standard Accessories : User's Manual with patch cords

Specifications are subject to change without notice due to our constant efforts for improvement.

