

POWER ELECTRONIC TRAINING SYSTEM (TEST BENCH) (AL-E957B)



The Basic Power Electronics Workbench Trainer consists of a practical set-up and the associated eLearning. The practical set-up consists of all necessary components that can be connected to each other with the help of the associated wiring. The components are used to give the student a better understanding of the various Power Electronics circuits that can occur in Electrical engineering. Step by step the student builds the various circuits. Then the student performs measurements in order to gain insight into Power Electronics Semiconductor Devices with V-I, Temperature, Performance Characteristics. Through the preliminary theory and practical assignments, the student learns: To connect various power electronic circuits. To identify components of a power electronic circuit. To explain the operation of various power electronic circuits. To recognize various power electronic symbols. To perform measurements on various power electronic circuits. 05 sets of Automotive Power Electronics Workstation with following specifications

TECHNICAL SPECIFICATION

- Digital Oscilloscope with Power Scope: 50MHz Oscilloscope 4 channel 14 bit 100MS/s with 1000V Isolated measurement
- Variable power supply 2 channel +/-15V @500mA

- MCB (Power Switch) : Single Phase 16A
- MCB (Power Switch) : Three Phase 32A
- Interconnections: 2mm & 4mm Safety Socket
- Diode Assembly : Diode 1200A25 1200V/25A
- SCR Assembly : TYN 1225 1200V/25A
- IGBT Assembly : IGBT G4BC20S 600V/20A
- MOSFET Assembly 6 nos
- Single Phase Firing Circuit : Ramp & pedestal Firing Circuit 0 (Firing Angle Control 30-180 deg)
- Three Phase Firing Circuit : Three Phase Firing Circuit (Firing Angle Control 30-150 deg)
- PWM Circuit : Triangular Comparator Method Frequency Range 270Hz to 5KHz (approximately)
- PWM Variation 0-90% & 0-50%
- Digital AC Voltmeter : 0-500V AC Voltage Measurement
- Digital AC Ammeter : 0-30A AC Current Measurement
- Digital DC Voltmeter : 0-500V DC Voltage Measurement
- Digital DC Ammeter : 0-30A DC Current Measurement
- Load Assembly : Four Load Assembly
- Resistive lamp load

POWER SUPPLIES:

- Single Phase AC Power Supply : 110-220V, 50/60Hz
- Center Tapped Transformer : 220V - 0 - 220V \pm 10%, 2A Supply
- Low Voltage DC Power Supply : \pm 30V, \pm 12V, \pm 5V at 250mA
- Low voltage DC variable power supply \pm 24V, 10A
- Three Phase AC Power Supply : 230V Phase voltage, 415 Line voltage \pm 10% 50 Hz
- Three Phase Low Voltage Power Supply : 220V/5A Each Phase \pm 10%, 50Hz
- Operated on Mains power 415V, 50Hz \pm 10%

FEATURES -

- On Board Single Phase (Mains) Power Supply
- On Board Single Phase Low Voltage Power Supply
- On Board Three Phase (Mains) Power Supply
- On Board Three Phase Voltage Power Supply

- MCB is provided for Three Phase Input AC Supply for safety purpose
- MCB is provided at front panel for Single Phase Supply, Three Phase Supply and Three Phase Low Voltage Power Supply
- Red, Yellow and Blue indicator at front panel for indication of Three Phase Input Supply
- Three Phase Socket provided at back panel for Three Phase Input Supply
- One Extension board on bench
- On Board Digital Oscilloscope with Power Scope
- On Board DC Voltmeter & Ammeter for DC Voltage Measurement
- On Board AC Voltmeter & Ammeter for AC Voltage Measurement
- On Board Load Assembly
- On Board Single Phase Firing Circuit
- On Board Three Phase Firing Circuit
- On Board chopper firing control circuit
- Test point provided for check output at different blocks in Firing Circuit
- Single Phase Firing Angle Control 30-180
- Three Phase Firing Angle Control 30-150
- Cyclo converter Firing Angle Control 30-180
- On Board inverter firing control circuit
- On Board Diode Assembly On Board SCR Assembly
- On Board IGBT Assembly
- Internal RC snubber circuit in Power Circuit Module
- 2 mm and 4 mm Socket provided to make different connections
- Easily replaceable Firing Circuit and Power Circuit Module
- Four 200 W Bulb as Lamp Load
- Universal Motor 1/2 HP as Motor Load
- PMDC motor 24V/8A
- DC Shunt motor 1/2hp as motor load
- 3 phase induction motor as 1hp with loading arrangement
- 1 single phase induction motor
- Short Circuit Protection
- Easy to operate and understand Wheel (with locking mechanism) is provided at legs of workstation so that it can be easily moved
- Exhaust fan at back panel for cooling

SALIENT FEATURES -

- Light Indicator for Mains.
- Front panel built with high class insulated Printed Bakelite/Aluminum Board sheet with well printed circuits and symbols.
- 4 Pole MCB and 2 Pole MCB for Short Circuit protection
- Instruction manual.
- Connections are brought out through 4mm Coloured Safety Sockets.
- Patch Cords 4mm.
- The trainer is housed in Metal cabinet.