**Specifications:**

**Built In Power Supply**

- DC Supply : 5V/ 1A. & ± 12V, 1A. 0 To 15V DC (Variable), 100 mA (Isolated), 0 To 30V DC (Variable), 100 mA (Isolated), High Volt Dc 15V To 110V, 100mA
- AC Supply : 12-0-12V AC,150 mA. Short Circuit Protected.

**Built In Function Generator**

- O/P Waveform : Sine, Triangle & TTL O/Ps Output Frequency : 1 Hz To 1Mhz In 6 Ranges, With Amplitude & Frequency Control Pots. O/P Voltage 20vp-P Max. (sin/trg) Modulation I/P : AM : - I/P Voltage + 5V (100% Modulation) O/P - For 0V (min), + 5v (MAX.) - 5V (Phase Reversal Of O/P) FM : I/P Voltage ± 400mv ( + 50% Modulation)
- Clock Generator : 10 Mhz Ttl Clock.
- Data Switches (10 No.) & Bi-Colour Led Status Indicators 10x2 Nos, For High/Low Indication.
- Pulser Switches (2 Nos.) With Four Debounced Outputs - 2no.
- BNC To 2 Channel Banana Adapter - 2no
- Logic Probe To Detect High/Low Level Pulses Upto 1Mhz, With Bi-Colour Leds To Indicate Status.
- 2 / 4 Digit 7 Segment Display With BCD To 7 Segment Decoder.

**Onboard Dpms Provided With Mode/Range Selection.**

- DC Volt : 2V/200V - 1no.
- DC Current : 2mA/200mA - 1no.
- DC Volts/Current : 20V/200mA - 1no

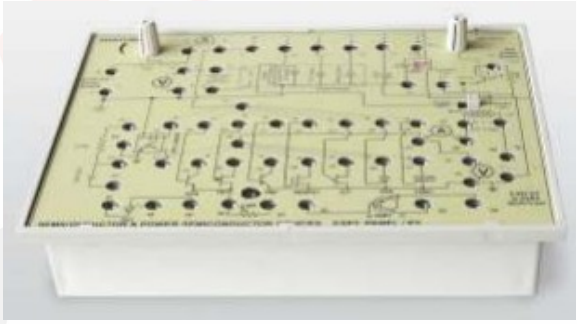
*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*

**Onboard Moving Iron Meters Provided For**

- Accurrent : 1 Amp - 1no.
- AC Voltage : 15V - 1no.
- Onboard Speaker : 8 Ohms, 0.5 Watt (1no.)
- Onboard Pots : 1k - 1no. ,1m - 1no.

**Mechanical Dimensions**

- Master Unit : 460mm(W), 160mm(H), 350mm(D) Approx
- Panel : 215mm(W), 165mm(H), 40mm(D) Net Weight : 700 Gm Approx.
- Operating Voltage: 220/240VAC Switch Settable ±10%, 50hz/60VA.
- Salient Features : Aesthetically Designed Injection Molded Electronic Desk (Master Unit) Carrying Useful Experiment Resources Variable Power Supplies / Status / Pulsar / Function Generator, Dpms Etc. While The Central Slot Will Carry Replaceable Experiment Panel Secured In An Abs Molded Plastic Sturdy Enclosure, And Has Colorful Screw Less Overlay Showing Circuit & Its Connection Tag Numbers For Easy Connectivity. Connection Through Sturdy 4mm Banana Sockets & Patch Cords. Hands On Learning By Constructing Circuits Using Built In Power Board Panel As Well As Optionally Using Discrete Component Panel. Set Of Users Guide Provided With Each Unit. Order 10 Master Units & Multiples Of 10 Or More Panels Set.



**Semiconductor & Power Semiconductor Devices Experiment Panel (Provided With 41 Banana Tags)**

- Characteristics Of Following Devices : Silicon Diode, Semiconductor Testing Using Multimeter, Germanium Diode, Zener Diode, LED, Diac, Bipolar Transistor (NPN, PNP), Field Effect Transistor (FET), Mosfet, Igbt, Ujt, Silicon Controlled Rectifier (SCR), Triac,



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Optocoupler, Thermistor, V-I Character Istics On Cro Of SCR, Triac, Transistor As A Switch & MOSFET As A Switch. Optionally Band Gap Energy Calculations.

**Sensors & Transducers Experiment Panel (Provided With 17 Banana Tags)**

- Temperature Sensors: AD 590 (IC Sensor), RTD (PT100), Thermistor, (NTC).
- Light Sensor: Photo Transistor & Photo Diode,LDR, Photovoltaic Cell.

**Power Semiconductor Application Expt. Panel (Provided With 29 Banana Tags)**

- Triac Lamp Dimmer,Ac Fan Regulator, SCR/Diac Operated Light Sensitive Switch Using LDR, SCR/Diac Operated Temperature Sensitive Switch Using Thermistor, UJT Relaxation Oscillator, Half And Full Wave (Phase Shift Controlled ) Rectifier Using SCR, Timer Using Scr & UJT.
- Power Semiconductor Application Expt. Panel (Provided With 17 Banana Tags & 11 TPS)
- SCR Phase Shift Controlled Converter Using IC 555 Through Opto Isolator (Potentiometric), Triac Ac Power Control Using Ic 555 ( Potentiometric) (optoisolated), SCR AC Power Control Using UJT/Put (Potentiometric) Triac AC Power Control Using UJT/Put (Potentiometric), SCR/Triac Temperature Control Using Thermister, SCR/Triac Intensity Control Using LDR, Opto Isolated Dc Switch & Photo Relay & Thermal Relay

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*

(street Light Control). Power Control Using Ujt/Put (Potentiometric) Triac Ac Power Control Using UJT/Put (Potentiometric), SCR/Triac Temperature Control Using Thermister, SCR/Triac Intensity Control Using LDR, Opto Isolated DC Switch & Photo Relay & Thermal Relay (street Light Control).

- Power Electronics Trainer

**Salient Features**

- Aesthetically Designed Injection Molded Electronic Desk.
- Master Unit Carrying Useful Experiment Resources Like Line Synchronized Firing Circuits, Power Supplies, Lamp Load, Rlc Loads, Battery Charging Supply Etc. While The Central Slot Will Hold Replaceable Experiment Panels. Each Multi Experiment Panel Is Secured In An Abs Molded Plastic Sturdy Enclosure, And Has Colorful Screw Less Overlay Showing Circuit & Connection Through Sturdy 4mm Banana Sockets & Patch Chords. Set Of User Guide Provided With Each Unit. Order 6 Master Units And Set Of 6 Panels (Pe 1 X 2 , Pe2, Pe3, Pe6x2nos)+ Power Scope, Buy More Of Pe1 And Pe6 Being Major Panels.

**Built In Power Supply**

- DC Supply : + 12V, 500mA,
- Unregulated Power Supply 17V / 750mA,
- Regulated 7 V DC To 14VDC /3A O/P Is Provided As 12V Battery Charging Supply. In Absence Of Battery, Same May Be Used As Simulated Battery Source To Run Experiments On Inverters Etc.
- Isolated DC Supply +12V/ 300 Ama with Isolated Common.
- On Board Inverter Transformer Of Primary & Secondaries: 12-11-0-11-12/3A.
- On Board O/P To Isolated Drive Circuit

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*

**AC Supply**

- 230v AC Line Voltage Is Made Available On Two Banana 4mm Sockets As Well As 1.5afuse Extender For Variac If Used.

**Aux DC Power Supply :**

- (Useful As Field / Armature Supply For DC Motor)
- Variable Upto 200VDC/0.5 Amp (Phase Controlled Thyristor Half Bridge)
- Field On/Off Control With Field Failure Relay & Over Current Protection Circuit.

**LSPT Panel Consisting Of**

- Two Pulse Transformers Of 1:1:1 Are Provided For Isolation & Supplying Firing Pulses Along With Required Dc Power Supply To Experiment Panel Under Test Through 15 Pin Female 'D' Connector.
- Selector Switch Of 2 Pole 6 Way For Selecting Different Types Of Firing Pulses Like Out Of Phase Inverter Firing Using LM3525 With Dead Time, Freq. Control In Freq Variation From 170 Hz To 250hz, 12.5/25/6..25 Hz Frequency Gated With High Frequency (3KHz) For Cycloconverter, Line Synchronized UJT Firing For Converter And Pulsewidth.

**R-L-C Load Panel**

- Load Resistor Of 10 Ohm/ 40 W And 100 Ohm / 10W - 1no.Each
- Centre Tapped 3achoke 4mh/ 16mh Each -2Nos.
- DC Choke 0-100-200 Mh/750ma- 1no.
- Commutation Capacitors Of 10uF/100v - 4nos.
- AC Paper Capacitor Of 4uF/440V - 1no.
- DC Cap 220uF / 63V- 1no.
- Diode BYT71 (5407)- 1 No.
- On Board Lamp Load Of 15W/ 230VAC Provided
- For Demonstration Various Experiments In Power Electronics Need Power Scope Attachment For Your Lab Dual Trace Cro To High Voltage Off Ground Wave Forms Cro Dual Channel

**Con / Inv Panel (Provided With 48 Banana Tags)**

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*

- SCR Converters - Provided With Sturdy 800V/12A Scrs (4nos) With Uncommitted Snubbers, 6A Diodes (2nos) Commutation Switch, 47µF/450v Cap, Ramp / Cosine Firing Circuit. However Actual Working Currents Are Limited To 3a (max) For Safety.

**IGBT / MOSFE Inverter Panel (Provided With 46 Banana Tags)**

- Provided With Uncommitted MOSFE (800V/7.8A, 2no.) IGBT (600V/6.5A, 2 No.) Brought Out On Banana Sockets, LM3525 Based Pwm Converter To Generate 200-2000 hz Inverter Frequency As Well As Duty Cycle Control, 1 No. Optoisolated Driver & 1 No. Additional Opto Drive Provided On Topboard For Chopper Etc.
- Switching Characteristics Of MOSFET/ IGBT
- MOSFE / IGBT Based 4 Types Of Chopper - Buck, Boost, Buckboost, Cuck.
- MOSFE / IGBT Push Pull And Half Bridge Inverter 200/2000hz.
- Optional : Open And Close Loop DC Motor (200V/200W) Pwm Speed Control, P/Pi Closed Loop Control Pm DC.

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*