Power Electronics Lab Training Modules

ME 793 SCR Commutation Techniques

Objective : To study various commutation techniques (A,B,C,D,E and F) & observe outputs on LED

Technical Specification :

Output voltages : 12V DC/ 300mA & 6V AC/ 300mA

Housed in PVC cabinet, circuit diagram printed, connections of various components & test points brought out at Glass Epoxy (PCB) front panel.

Also provided with patch chords & instruction manual.

Power Requirement : 220VAC ±10%, 50Hz

Optional Accessories: CRO 20MHz

ME 795 Switching Action of a BJT

Objective : To study the switching action of a BJT & observe the output on LED. Provided with patch chords & instruction manual.

ME 796 Thyristor firing circuit kit (UJT controlled SCR time delay)

Objective : To study of time delay using UJT & observe output on LED. Provided with patch chords & instruction manual.

ME 798 Step Up Chopper

Objective : To study stepping up of DC voltage by change in duty cycle of the pulse at the gate of MOSFET.

Technical Specification :

Output voltage : 20V DC/ 5A, ±12V DC/ 300mA & 5V DC/ 300mA

Instrument provided with on board Lamp holder, frequency and duty cycle control of triggering pulse.

Housed in wooden cabinet, circuit diagram printed, connections of driver circuits (Op-amp and Power Transistor), MOSFET & test points brought out at Bakelite front panel.

Also provided with 40W Bulb, patch chords & instruction manual.

Power Requirement : 220VAC ±10%, 50Hz

ME 799 Single Phase Half wave, Full wave & Fully Controlled Bridge Rectifier/ Convertor using SCR's

Objective : To study single phase half wave, full wave & fully controlled bridge rectifier/ converter using SCR's & observe wave form on CRO.

Technical Specification :

Output voltage : 10-0-10V AC

Meters (Analog) : 0 - 6V AC, 0 - 10V DC, 0 - 200mA DC

Instrument provided with on board load resistance 50 ohms - 1 kohm (selectable using Band Switch) & phase angle control Potentiometer. Housed in PVC cabinet, circuit diagram printed, connections of SCR's 2P4M (4No's) & test points brought out at front panel.

Also provided with patch chords & instruction manual.

Power Requirement : 220VAC ±10%, 50Hz

ME 800 DC Motor Speed Control using SCR

Objective : To study and control speed of a DC Motor in SCR based circuit using RC triggering.

Technical Specification :

Meters (digital) : 0 - 200V DC, 0 - 500mA DC

Instrument provided with 1/12 HP DC Motor, on board phase angle control Potentiometer.

Housed in Metal cabinet, circuit diagram printed, provided with on board phase angle control Potentiometer. connections of various components & test points brought out at Bakelite front Panel. Also provided with 1/12 HP DC Motor unit, Tachometer, patch chords & instruction manual.

Power Requirement : 220VAC ±10%, 50Hz

Optional Accessories : CRO 20MHz & DMM

Power Electronics Lab Training Modules

ME 801 Three Phase Half Controlled Bridge Converter with R & RL Load

Objective : To observe and study line commutation principle in a three phase half controlled Bridge convertor using R & RL Load.

The setup comprises of firing unit & power unit.

Technical Specification (Power unit) :

Operating voltage : 3 Phase, 415V AC
Output voltage : 0 - 150V DC (usually offload output goes up to 180V DC depending on line voltage)
Meters (Digital) : 0 - 5A DC & 0 - 300V DC

Power unit housed in metal cabinet, circuit diagram printed, connections of various components (SCR - 3 No's, Diode - 3 No's, freewheeling Diode, Resistive Lamp load 100W & Inductive Load) & Test points brought out at Bakelite front panel.

Firing unit : Firing unit housed in Metal cabinet circuit diagram printed, connections of various components & test points brought out at Bakelite front panel. Also provided with patch chords, unique line connector & instruction manual.

Power Requirement : 415VAC ±10%, 50Hz

Optional Accessories : CRO 20MHz

ME 801M Speed Control of DC Motor using 3 Phase Half Controlled Converter

The setup comprises of firing unit & power unit.

Technical Specification (Power unit) :

Operating voltage : 3 Phase, 415V AC
Output voltage : 0 - 150V DC (usually offload output goes up to 180V DC depending on line voltage)
Meters (Digital) : 0 - 300V DC, 0 - 9999 RPM Meter

Power unit housed in metal cabinet, circuit diagram printed, connections of various components (SCR -3 No's, Diode -3 No's & freewheeling Diode) & test points brought out at Bakelite front panel.

Firing unit : Firing unit same as of ME 801

Also provided with DC Series Motor 1HP (fitted with proximity sensor), patch chords, unique line connector & instruction manual.

Power Requirement : 415VAC ±10%, 50Hz

Optional Accessories : CRO 20MHz

ME 802 Three Phase Fully Controlled Bridge converter with R & RL Load

Objective : To observe and study line commutation principle in a three phase fully controlled Bridge convertor using R & RL Load.

The setup comprises of firing unit & power unit

Technical Specification (Power unit) :

Operating voltage : 3 Phase, 415V AC
Output voltage : 0 - 220V DC (depending on line voltage)
Meters (Digital) : 0 - 5A DC & 0 - 300V DC

Power unit housed in metal cabinet, circuit diagram printed, connections of various components (SCR - 6 No's, freewheeling Diode, Resistive Lamp load 100W & Inductive Load) & test points brought out at Bakelite front panel

Firing unit : Firing unit housed in metal cabinet circuit diagram printed, connections of various components & test points brought out at Bakelite front panel. Also provided with patch chords, unique line connector & instruction manual.

Power Requirement : 415VAC ±10%, 50Hz

Optional Accessories : CRO 20MHz (ME 3020)

ME 802M Speed Control of DC Motor using 3 Phase Fully Controlled Converter

The setup comprises of firing unit & power unit

Technical Specification (Power unit) :

Operating voltage : 3 Phase, 415V AC
Output voltage : 0 - 220V DC (depending on line voltage)
Meters (Digital) : 0 - 300V DC, 0 - 9999 RPM Meter

Power unit housed in metal cabinet, circuit diagram printed, connections of various components (SCR - 6 No's & freewheeling Diode) & test points brought out at Bakelite front panel

Firing unit : Firing unit same as of ME 802

Also provided with DC Series Motor 1HP (fitted with proximity sensor), patch chords, unique line connector & instruction manual.

Power Requirement : 415VAC ±10%, 50Hz

Optional Accessories : CRO 20MHz

Power Electronics Lab Training Modules

ME 790 Power Electronics Trainer with 6 Applications

Objectives :

To study DC fan speed control using PWM & MOSFET.
To study light intensity control using PWM & IGBT.
To study AC fan speed control using TRIAC & DIAC.
To study temperature control using comparator & BJT.
To study light intensity control using SCR & R triggering.
To study light activated solid state switch.

Technical Specification :

Output voltage : 12V DC (internally connected)
: 220V AC (with ' ON/OFF ' switch to drive the circuit)
: 220V DC (with' ON/OFF' switch to drive the IGBT circuit)

Instrument provided with on board Oven and Housed in Metal cabinet, circuit diagram printed, connections of various components & test points brought out at Bakelite front panel.
Also provided with 40W Bulb, patch chords & instruction manual.
Power Requirement : 220VAC ±10%, 50Hz

Optional Accessories: CRO 20MHz

ME 790A Advance Power Electronics Lab Trainer (Bread Board Model)

Objectives :

To study application of Thyristors (SCR , MOSFET, IGBT , UJT, PUT, DIAC & TRIAC).

Technical Specification :

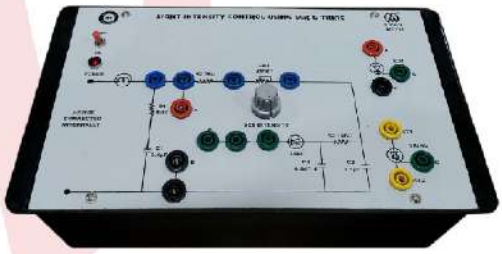
DC Power Supply : ±5V/500mA, ±12V/500mA, 15V/250mA
: ±35V/250mA
AC Power Supply : 18-0-18V AC, 15V AC
On board triggering circuit with frequency, PWM & duty cycle control.
On board single phase rectifier firing circuit with firing angle control.
On board Thyristor devices, Pulse Amplifier, Isolation Transformer, assorted circuit components and variable load.

On Board Firing Circuits :

Frequency range : 30Hz to 900Hz Variable
PWM : Control of G1, G2, G3 and G4
Duty cycle : Control of Gate Signal - 0-100%

Instrument provided with on board Resistive load (Selectable using band switch). Housed in PVC cabinet, circuit diagram printed, connections of various components (SCR's - 4 No's, MOSFET, IGBT, UJT, PUT, DIAC, TRIAC, Capacitors, Pulse Transformer, Diodes, Inductors and variable Registers) & test points brought out at Glass Epoxy (PCB) front panel.
Also provided with bread board, patch chords & instruction manual
Power Requirement : 220VAC ±10%, 50Hz

ME 791 Light Intensity/ Phase Control using SCR/ TRIAC



Instruments provided with 220V AC power supply, Lamp holder, intensity control Potentiometer.
Housed in PVC cabinet, circuit diagram printed, connections of various components (SCR 2P4M & TRIAC BT 136) & test points brought out at Bakelite front panel.
Also provided with 40W Bulb, patch chords & instruction manual.
Power Requirement : 220VAC ±10%, 50Hz

ME 792 SCR Firing Circuits

Objective : To study various type of firing circuit (R Type, RC Type, UJT Type & DC bias Type) & observe waveforms on CRO.

Technical Specification :

Output voltage : 12V DC/150mA, 0 - 2V DC/150mA & 9V AC
Instrument provided with on board Lamp holder, housed in PVC cabinet, circuit diagram printed, connections of various components & test points brought out at Bakelite front panel.
Also provided with 12V Bulb, patch chords & instruction manual.
Power Requirement : 220VAC ±10%, 50Hz