



Power electronics lab Sciencetech 2712 is an universal learning platform which is very useful to understand various concepts of power electronics like VI characteristics of the power electronic devices, single phase controlled rectifiers, DC to DC choppers etc. This Lab is provided with a bread board for testing their own circuits, built in AC & DC power supplies and exhaustive learning material.

Features

- Self contained & easy to operate
- Functional blocks indicated on board mimic
- Breadboard provided for own circuit development
- In built DC Power Supplies
- In built AC Power Supplies
- Onboard pulse generator with frequency and duty cycle control.
- On board single phase controlled rectifier firing circuit
- On board thyristor devices
- On board pulse amplifier and isolation transformer
- On board variable load and circuit components

Scope of Learning

- VI characteristics of power devices
- Study of Single Phase Thyristor Firing Scheme
- Single Phase Controlled Rectifiers
- DC to DC Chopper
- Single Phase Inverter
- Own circuit Development
- Optional circuit components for breadboard related experiments

Optional modules

Study of:

- V-I characteristics of SCR
- V-I characteristics of UJT
- V-I characteristics of MOSFET
- V-I characteristics of IGBT
- V-I characteristics of DIAC
- V-I characteristics of TRIAC
- V-I characteristics of PUT
- SCR triggered by 74121C
- SCR triggered by Op-Amp 741C
- UJT relaxation oscillator
- R, RC (half wave & full wave) triggering circuit
- SCR triggered by UJT
- SCR triggered by 555C
- SCR triggered by PUT
- SCR triggered by 74121C
- SCR triggered by Op-Amp 741C
- Lamp flasher using SCR
- SCR alarm circuit

Technical Specifications

Size of Breadboard	:	172.5 mm × 128.5 mm
DC Power Supply	:	+5 V, -5 V 500 mA, +12V, -12 V 500 mA +15 V, 250 mA +35V, -35V, 250 mA
AC Power Supply	:	18V-0V-18V 0V-15V On board Firing Circuits
Frequency range	:	30Hz to 900Hz variable
Amplitude	:	12V
PWM control of G1, G2, G3 and G4		
Duty cycle control of "Gate"		
Signal is 0 to 100%		
SCR Assembly	:	4 SCRs 2P4M, 400V/2A
Power Devices	:	IGBT-G4BC20S, MOSFET- IRFZ44N, UJT-2N2646, DIAC- DB3, TRIAC-BT136, PUT- 2N6027
Pulse transformer on board	:	2 nos. PT4502 1:1 and one is PT4503 1:1:1
Circuit Components on board:		Electrolytic Capacitor 1uF, 63V Metalized Capacitor 0.1uF, 63V Metalized Capacitor 0.33uF, 63V Diode 1N4007, Inductor 68mH, Inductor 68mH, Inductor 10mH
Load selector	:	6 load resistances- 47E/7W, 120E/5W, 270E/5W, 2K2/2W, 1K/1W, 1K/10W
Test points	:	10 nos
Power Supply (Mains)	:	220V/110V, 50Hz/60Hz
Included Accessories :		
Bread boards	:	2 nos.
Connecting wires	:	20 nos.
2mm to 1mm Patch cords	:	15 nos.
2mm Patch cords (Red) 16"	:	4 nos.
2mm Patch cords (Black)16"	:	4 nos.
2mm Patch cords (Blue) 16"	:	12 nos.
Mains cord	:	1 no.
Optional :		
Simtel Power Electronics Software		
Digital Multimeter Sciencetech 4011		

