



UGC RECOGNIZED

PDEU PANDIT
DEENDAYAL
ENERGY
UNIVERSITY

Formerly Pandit Deendayal Petroleum University (PDPU)



SCHOOL OF ENERGY TECHNOLOGY

Department of Electrical Engineering
Name of Laboratory : Power Electronics and Drives Lab

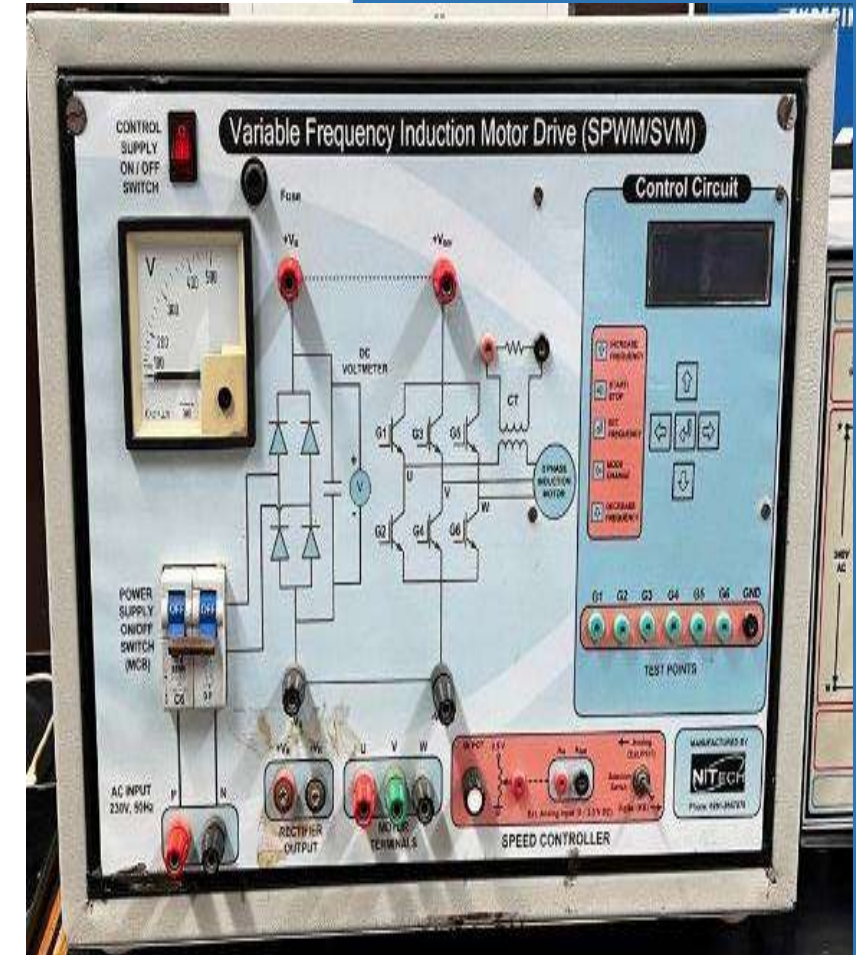
www.pdeu.ac.in

NAME OF EQUIPMENT :

AC Variable Frequency Drive (VFD) Induction Motor Control Panel

TECHNICAL SPECIFICATIONS :

- 230V 50Hz AC Input
- 3-Phase IGBT Inverter Output SPWM/SVM Speed Control
- Input: 230V AC, Single Phase, 50Hz
- Output: 3-Phase IGBT Inverter, 0–230V, 0–50Hz
- Modulation: SPWM / SVM (selectable)
- Speed Control Range: 5% – 100% of rated speed
- Motor: 0.5 HP, 3-Phase Induction Motor
- Control: Open-loop V/f control
- Display: Digital speed indicator (RPM & Hz)
- Protection: OCP, OVP, thermal protection
- Make: NiTech Instruments, Chennai

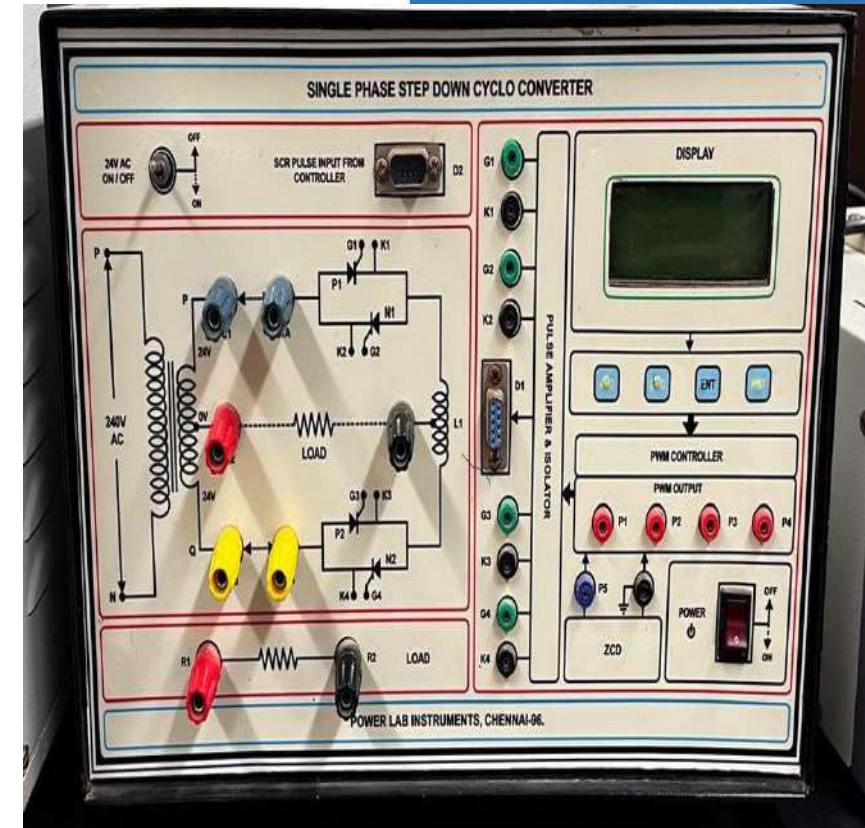


NAME OF EQUIPMENT :

Single Phase Step-Down Cycloconverter

TECHNICAL SPECIFICATIONS :

- 240V AC
- PWM Controller
- ZCD
- Display
- Power Lab Instruments, Chennai
- Input: 240V AC, 50Hz, Single Phase
- Output: Variable frequency AC (0–25Hz)
- Controller: PWM controller with ZCD (Zero Crossing Detector)
- Output Voltage: 0–230V (step-down mode)
- Thyristor Configuration: Anti-parallel SCR pairs
- Load: Resistive / inductive (R-L load bank)
- Display: Digital voltmeter & frequency meter
- Make: Power Lab Instruments, Chennai

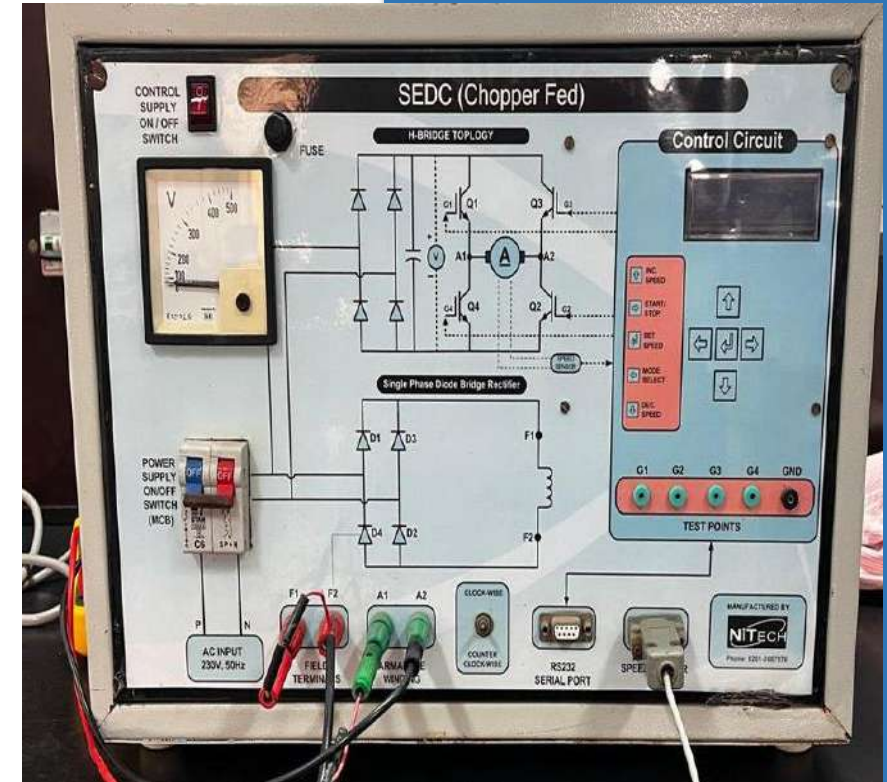


NAME OF EQUIPMENT :

DC Chopper (SEDC Chopper Fed)

TECHNICAL SPECIFICATIONS :

- 230V 50Hz AC Input
- H-Bridge IGBT Topology
- Single Phase Diode Bridge Rectifier
- RS232 Serial Port
- Speed Sensor
- Make: NiTech
- Input: 230V AC, 50Hz → rectified DC
- Rectifier: Single Phase Diode Bridge
- Chopper Topology: H-Bridge IGBT
- Duty Cycle Control: 10% – 90%
- Switching Frequency: 5 kHz – 20 kHz
- Motor: SEDC (Series Excited DC), 0.25 HP
- Speed Sensing: Tachogenerator / encoder
- Communication: RS232 serial port for PC control
- Make: NiTech Instruments, Chennai

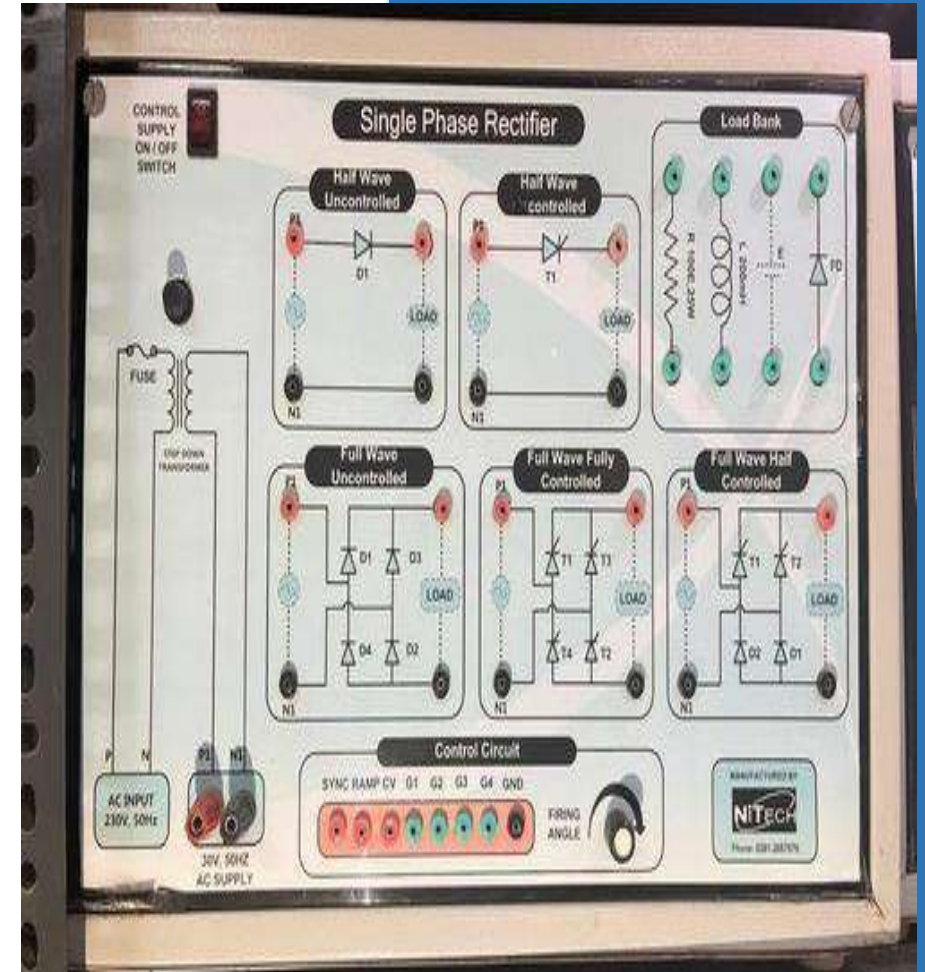


NAME OF EQUIPMENT :

Single Phase Rectifier Trainer

TECHNICAL SPECIFICATIONS :

- Half Wave / Full Wave Uncontrolled and Controlled Rectifier
- AC Input 230V 50Hz
- Make: NiTech
- Input: 230V AC, 50Hz
- Rectifier Modes: Half Wave, Full Wave (uncontrolled & controlled)
- SCR Firing: Manual / automatic firing angle control (0° – 180°)
- Output Voltage: 0–220V DC (full controlled)
- Filter: LC / C filter section (selectable)
- Measurement: Built-in voltmeter & ammeter
- Waveform Points: Test points for oscilloscope observation
- Make: NiTech Instruments, Chennai

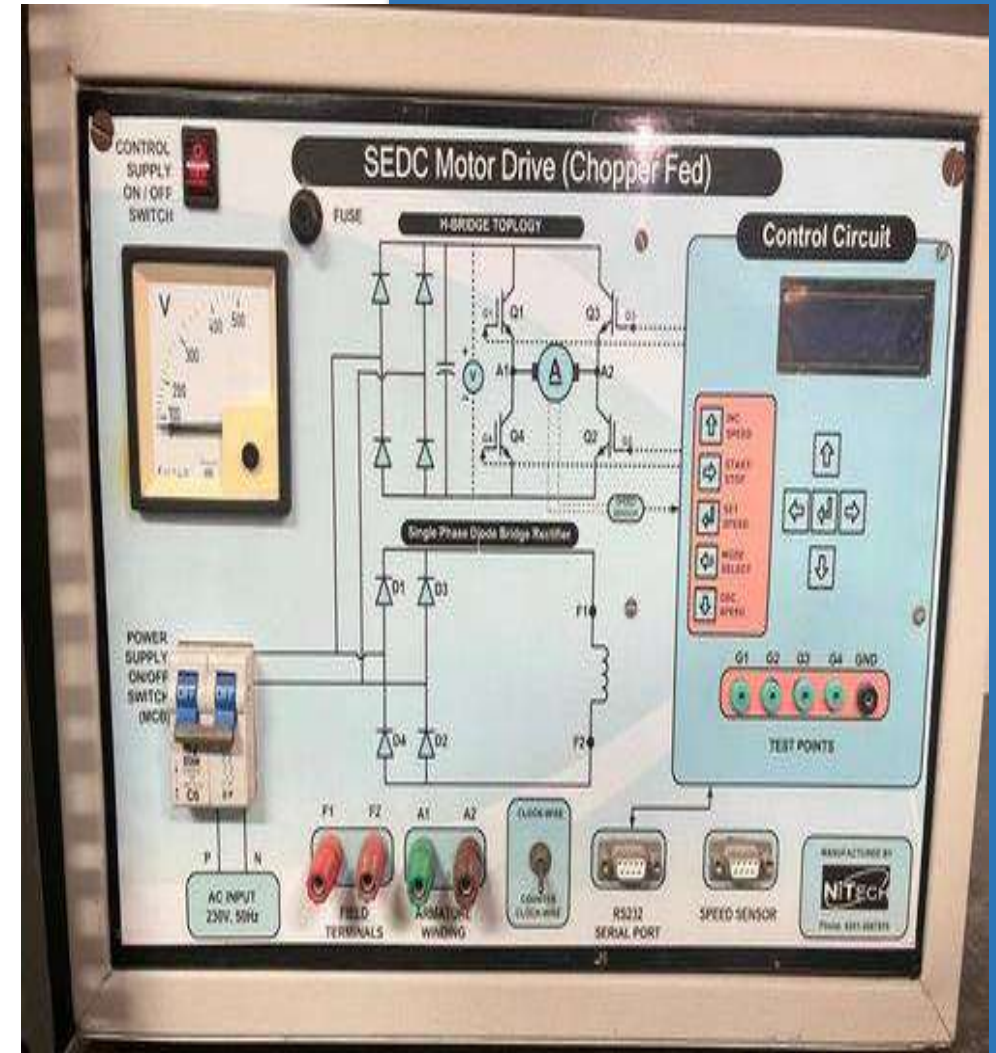


NAME OF EQUIPMENT :

SEDC Motor Drive (Chopper Fed)

TECHNICAL SPECIFICATIONS :

- H-Bridge Topology
- Single Phase Diode Bridge Rectifier
- AC Input 230V 50Hz
- RS232 Serial Port
- Speed Sensor
- Make: NiTech
- Topology: H-Bridge IGBT chopper
- Rectifier: Single Phase Diode Bridge, 230V input
- Motor: SEDC, 220V DC, 0.25 HP
- Speed Control: Closed-loop with tachofeedback
- Speed Range: 200 – 1500 RPM
- Current Limit: Adjustable armature current limit
- Communication: RS232 serial port
- Make: NiTech Instruments, Chennai

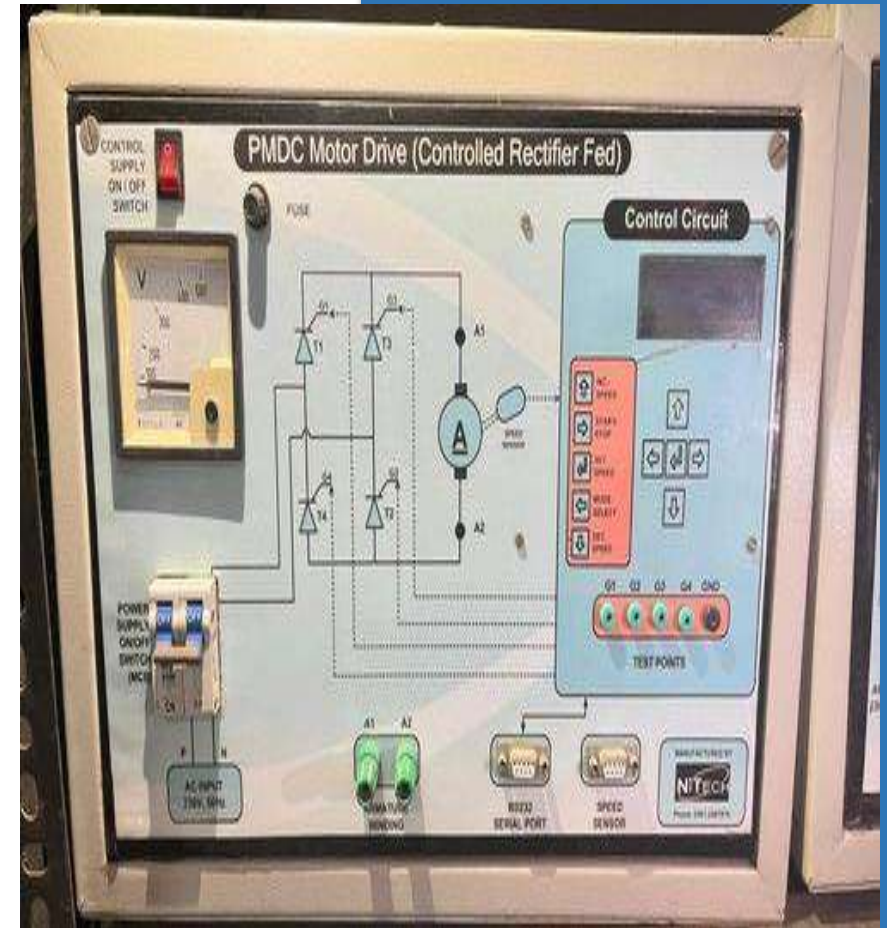


NAME OF EQUIPMENT :

PMDC Motor Drive (Controlled Rectifier Fed) - Unit 1

TECHNICAL SPECIFICATIONS :

- Full Controlled Bridge Rectifier
- AC Input 230V 50Hz
- Armature Winding Terminals
- RS232 Serial Port
- Speed Sensor
- Make: NiTech
- Rectifier: Full Controlled Bridge (4 SCRs)
- Input: 230V AC, 50Hz
- Motor: PMDC, 180V DC, 0.25 HP
- Firing Angle: $0^\circ - 150^\circ$ (adjustable)
- Armature Terminal: Accessible for external measurements
- Speed Feedback: Tachogenerator
- Speed Range: 0 – 1500 RPM
- Communication: RS232 for PC-based monitoring
- Make: NiTech Instruments, Chennai

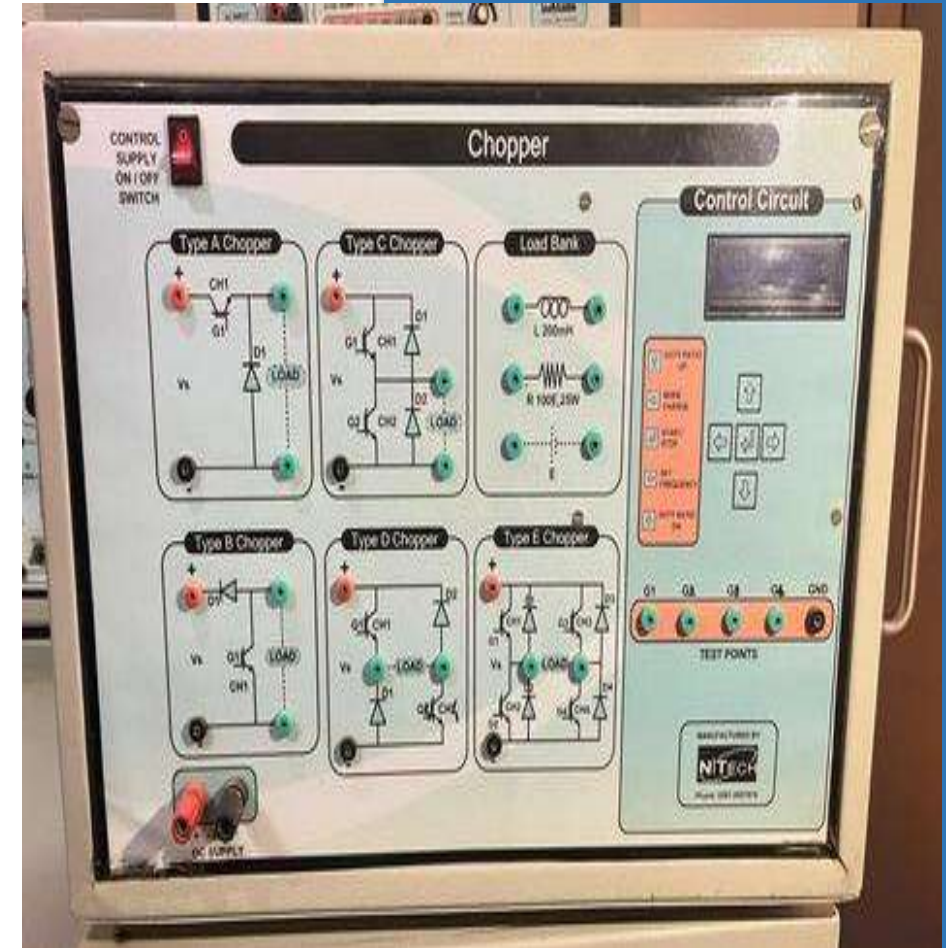


NAME OF EQUIPMENT :

Chopper Trainer (Type A/B/C/D/E)

TECHNICAL SPECIFICATIONS :

- DC Chopper Types A B C D E
- DC Supply Input
- Load Bank L 200mH R 100E 25W
- Make: NiTech
- Types: Class A, B, C, D, E choppers
- DC Supply Input: 0–30V DC (adjustable)
- IGBT Switch: IRG4PC50U, 600V 70A
- Load Bank: L = 200 mH, R = 100Ω / 25W
- Freewheeling Diode: Ultra-fast recovery type
- Duty Cycle: 10% – 90% (PWM adjustment)
- Switching Frequency: 1 kHz – 10 kHz
- Test Points: All nodes accessible for measurement

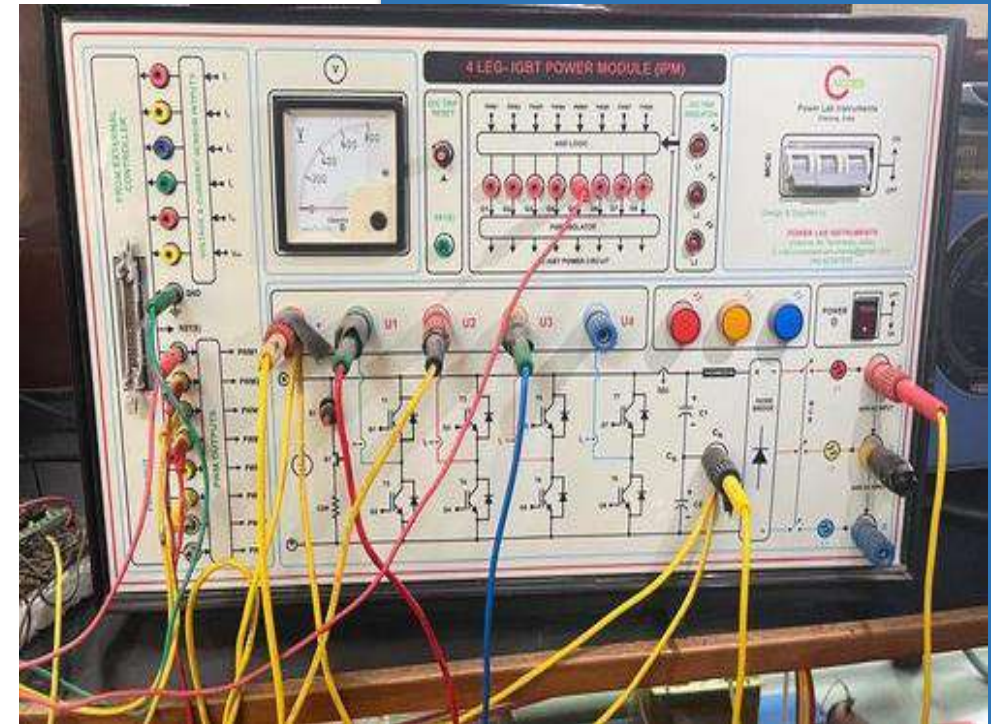


NAME OF EQUIPMENT :

4-Leg IGBT Power Module (IPM)

TECHNICAL SPECIFICATIONS :

- 4-Leg IGBT Power Module
- 440V AC Input
- PWM Isolator
- 8-Channel PWM Output
- Make: Power Lab Instruments Chennai



NAME OF EQUIPMENT :

dSPACE MicroLabBox

TECHNICAL SPECIFICATIONS :

- dSPACE MicroLabBox
- Multi-Channel Analog I/O
- Digital I/O
- RS232/CAN Interface
- Real-Time Control Platform

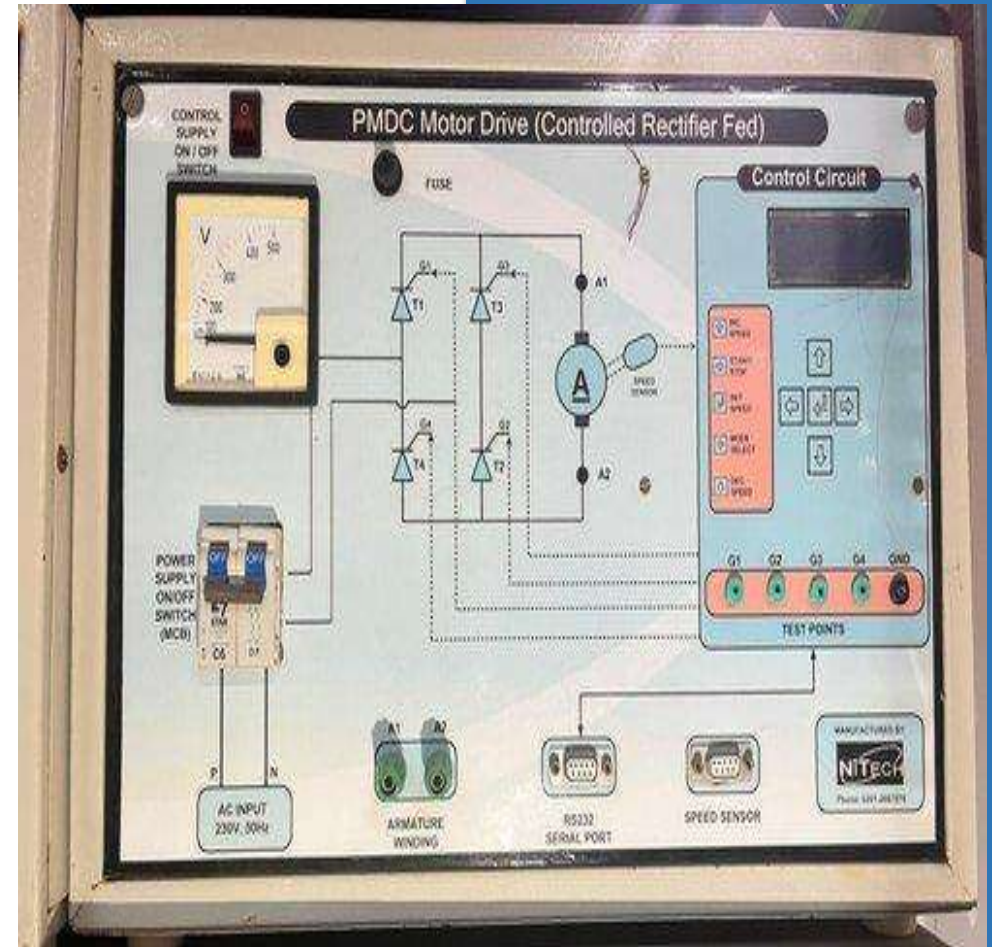


NAME OF EQUIPMENT :

PMDC Motor Drive (Controlled Rectifier Fed) - Unit 2

TECHNICAL SPECIFICATIONS :

- Full Controlled Bridge Rectifier
- AC Input 230V 50Hz
- Armature Winding Terminals
- RS232 Serial Port
- Speed Sensor
- Make: NiTech



NAME OF EQUIPMENT :

Single Phase Step Down Cyclo Converter

TECHNICAL SPECIFICATIONS :

- 240V AC
- PWM Controller
- ZCD
- Display
- Power Lab Instruments, Chennai

