

Power & Industrial Electronics Trainer

PET-1300



Features

- Ideal for teaching power and industrial electronics.
- Integrated training system, with complete curriculum.
- Includes power supply, meter, and motor units.
- 13 experiment modules form basis for nearly 60 fully documented experiments.
- Main units and experiment modules available separately for economical construction of class sets.
- Option rack frame and oscilloscope (illustrated)

The training of qualified technicians able to install, operate, and maintain industrial and power electronics equipment is more and more required nowadays. The EDU-LABS PET-1300 Power Electronics Trainer is a comprehensive and self-contained training system that has been designed to satisfy these requirements.

The wide range of detailed experiments covers subjects such as UJT, PUT, and SCR experiments, DIAC and TRIAC experiments, DC motor control, and over and under Voltage breaker experiments.

PET-1300-MU Main Unit System

The PET-1300-PS Power Supply Unit provides 18V-0V-18V and 12V-0V-12V AC outputs, as well as +12V and +5V DC outputs, each at 0.5A.

The PET-1300-MM Meter and Motor Unit contains four separate analogue meters and also a 110V/220V motor. The meters are all dual-scale class 2.5 and read 0-110V-220V AC Voltage, 0-100mA-1A AC current, 0-10V-20V DC Voltage, and 0-100mA-1A DC current.

PET-1300-EM Experiment Modules

Thirteen modules form the basis for over 60 experiments detailed in the comprehensive experiment manual. Each module contains the experiment circuit which is clearly illustrated by a circuit diagram on its front panel. 2mm plugs and sockets are used throughout making for easy experiment connection by way of 2mm test leads.

The full list of modules and experiments detailed in the experiment manual are:

1. Power Supply Experiments
 1. AC Voltage measurement
 2. DC Voltage measurement
2. UJT Experiments (Module PET-1300-EM01)

1. UJT introduction
 2. UJT characteristics
 3. UJT equivalent circuit
 4. CDS trigger
 5. RTH trigger
 6. UJT relaxation oscillator
 7. UJT timer switch
3. **PUT Experiments (Module PET-1300-EM02)**
 1. PUT introduction
 2. PUT characteristics
 3. PUT equivalent circuit
 4. CDS trigger
 5. RTH trigger
 6. PUT circuit oscillator
 7. PUT timer switch
 4. **PUT & SCR Experiments (Module PET-1300-EM03)**
 1. PUT staircase generator circuit
 2. PUT Voltage control ramp circuit
 3. SCR principle
 4. SCR characteristic curve
 5. SCR construction
 6. SCR trigger mode
 7. SCR RC shift control circuit
 5. **SCS Experiments (Module PET-1300-EM04)**
 1. SCS construction and operation mode
 2. Using VOM meter for SCS measurement
 3. SCS Schmitt circuit
 4. SCS simulating PUT circuit
 5. CDS trigger
 6. RTH trigger
 6. **UJT & PUT Trigger SCR Experiments (Module PET-1300-EM05)**
 1. Shift control basic circuit
 2. Shift control analysis
 3. AC shift control circuit analysis
 4. UJT trigger SCR shift control circuit
 5. PUT trigger SCR shift control circuit
 7. **SCR Control DC Motor, DIAC and TRIAC Characteristic Experiments (Module PET-1300-EM06)**
 1. SCR cut-off principle
 2. SCR control DC motor forward/reverse control experiment
 3. DIAC construction and characteristics
 4. DIAC operation mode and measurement
 5. TRIAC construction and characteristics
 6. TRIAC trigger mode
 7. TRIAC static measurement
 8. **Automatic Control Lamp and TRIAC Control Speed Experiments (Module PET-1300-EM07)**
 1. TRIAC shift control
 2. TRIAC automatic control lamp experiment
 3. TRIAC controlled motor introduction
 4. TRIAC controlled motor speed experiment
 9. **Temperature Ratio, Photo-Couple and Touch Control Experiments (Module PET-1300-EM08)**
 1. Electronic thermal converter
 2. SCR bridge temperature ratio control experiment
 3. Photo-couple control circuit
 4. FET construction and characteristics
 5. Touch alarm circuit
 10. **Over/Under Voltage Breaker and Flasher Control Experiments (Module PET-1300-EM09)**
 1. OPA characteristics and reverse and non-reverse circuit
 2. Voltage comparison circuit
 3. TRIAC power control application

4. AC circuit control
5. Multivibrator
11. TRIAC Overflow and IC Timer Switch Experiments (Module PET-1300-EM10)
 1. Digital circuit introduction
 2. TRIAC overflow control experiment
 3. 555 IC circuit introduction
 4. IC timer switch experiment
12. Digital Signal Driver and Zero-Voltage Switch Experiments (Module PET-1300-EM11)
 1. Digital signal driver control experiment
 2. Ideal half-wave zero-Voltage switch experiments
13. Zero-Voltage Switch Experiments (Module PET-1300-EM12)
 1. TRIAC zero-Voltage switch experiments
 2. IC mode zero-Voltage switch experiments
14. SCR Converter Experiments (Module PET-1300-EM13)
 1. Parallel converter introduction
 2. Series converter introduction
 3. Converter trigger source
 4. Converter Voltage adjust
 5. Converter output-waveform improvement

PET-1300-MU Main Unit System

Specifications

PET-1300-PS Power Unit	
AC Output	18V-0V-18V at 0.5A 12V-0V-12V at 0.5A
DC Output	+12V at 0.5A +5V at 0.5A
PET-1300-MM Meter & Motor Unit	
Analogue Meters	Dual-scale ACV: 0-110V-220V, class 2.5 Dual-scale ACA: 0-100mA-1A, class 2.5 Dual-scale DCV: 0-10V-20V, class 2.5 Dual-scale DCA: 0-100mA-1A, class 2.5
Computer Interface	Serial Interface Parallel Interface USB Interface
Motor	240V AC
Accessories	Power lead, 2mm connecting leads, storage cabinet, and user manual
Optional Accessories	Rack frame with oscilloscope tray, oscilloscope
Power Supply	240V AC \pm 10% 50/60Hz