VERITAS Engineering

Catalog
Of

Linear Circuit Lab - 1

Brand: VERITAS

Model: VLCL-001

Features

- Ideal for electric circuit experiments and design exercises
- Integrated trainer with complete curriculum
- Complete with power supplies and test systems for easy and efficient experimentation
- Universal breadboard (1680 tie points) for circuit design and prototyping
- All modules equipped with an 8-bit DIP switch for circuits fault simulations

Linear Circuit Lab (1)

Technical Specification

Main Unit

1. DC Power Supply

(1) Fixed DC power supply

a. Voltage range : ±5V, ±12V

b. With output overload protection

(2) Dual DC power supply

a. Voltage range : ±3V ~ ±18V, continuously adjustable

b. With output overload protection

2. AC Power Supply

(1) Voltage range : 9V ~ 0~ 9V

(2) With output overload protection

3. Function Generator

(1) Output waveform : sine, square and triangle

(2) Output frequency : 10Hz ~ 100KHz, 4 settings, continuously adjustable

(3) Accuracy : ±5% of full scale value

(4) Output impedance : 50 ohms

(5) Output voltage : ≥ 18Vpp (open loop), ≥ 9Vpp (with 50 ohms load)

4. 3 1/2 digit Digital Voltmeter/Ammeter

(1) DC voltage range : 2V, 200V

(2) DC voltage accuracy : ±0.3% of reading + 1-digit

(3) DC current range : 200µA, 2000mA

(4) DC current accuracy : ±0.5% of reading + 1-digit

5. Analog Meters

(1) AC current : 0 ~ 100mA ~ 1A

(2) AC voltage : 0 ~ 15V

(3) DC current : 0 ~ 100mA ~ 1A

(4) DC voltage : 0 ~ 20V

6. Speaker: 8 ohms, 0.25W speaker with driver circuit

7. Variable Resistors

(1) 1K ohms, 0.25W variable resistor with 3 terminals (A, B, C)

(2) 10K ohms, 0.25W variable resistor with 3 terminals (A, B, C)

(3) 100K ohms, 0.25W variable resistor with 3 terminals (A, B, C)

(4) 1M ohms, 0.25W variable resistor with 3 terminals (A, B, C)

8. Breadboard:1680 tie-point breadboard on top panel can be easily put into and taken off.

Experiment Modules

1. 11 modules, each module is equipped with an 8-bit DIP switch for circuits fault simulations. Students can practice trouble shooting by setting the DIP switch to different positions.
2. Detailed solution for fault simulation is included in the instructor's manual.
3. All sockets on the modules accept 2mm plugs.
4. Comprehensive experiment manual and instructor's manual
5. Module dimension : (255 x 165 x 30)mm.

List of Modules

1. Basic Electricity Experiments Module
2. Magnetism Element Introduction Module
3. Magnetic Field Module
4. Ampere's Rule Module
5. Fleming's Rule Module
6. Electromagnetic Induction
7. Electronic Circuit Fundamental Experiments Module
8. Basic Electronic Circuit Experiments (1)
9. Basic Electronic Circuit Experiments (2)
10. Special Electronic Components Experiments Module
11. Oscillator Experiments and Applications Module

List of Experiments:

1. Experiments for Basic Electricity
   - (1) DC voltage measurement
   - (2) Using an ohmmeter
   - (3) Resistor characterisitics
   - (4) DC current measurement
   - (5) Ohm's law
   - (6) Power in DC circuit
   - (7) Series-parallel network and Kirchoff's law
   - (8) Superposition, Thevenin's and Norton's theorems
   - (9) Maximum power transfer theorem
   - (10) DC RC circuit and transient phenomena
   - (11) AC voltage measurement
   - (12) AC current measurement
   - (13) AC RC circuit
   - (14) AC RL circuit
   - (15) AC RLC circuit
   - (16) Power in AC circuit
   - (17) Transformer characteristics
   - (18) Series-resonant circuit
   - (19) Parallel-resonant circuit
   - (20) LC filter

2. Experiments for Magnetism
   (1) Magnetic devices
   (2) Magnetic field
   (3) Drawing magnetic curves
   (4) Magnetic field strength
   (5) Lenz's and Faraday's laws
   (6) Ampere's rule
   (7) Fleming's rule
   (8) Self Induction
   (9) Mutual Induction
   (10) Magnetic flux detection
3. Experiments for Basic Electronic Circuits
   (1) Diode characteristics
   (2) Rectifier circuit
   (3) Filter circuit
   (4) Zener diode characteristics
   (5) LED characteristics
   (6) Transistor characteristics
   (7) Multimeter functions
   (8) FET characteristics
   (9) SCR characteristics
   (10) UJT characteristics
4. Experiments for Simple Electronic Circuits
   (1) Simple amplifier
   (2) Complementary amplifier
   (3) Voltage regulator
   (4) Push-pull amplifier
   (5) Wheatstone bridge
   (6) Dimmer circuit
   (7) Multistage cascading amplifier
   (8) Relay characteristics
   (9) Touch-controlled switch
5. Experiments for Industrial Control Applications
   (1) CDS characteristics
   (2) Light-controlled circuit
   (3) Thermistor characteristics
   (4) Temperature-controlled circuit
   (5) Sound controlled circuit
6. Experiments for Oscillator Characteristics and Applications
   (1) Blocking oscillator
   (2) Electronic birdcall circuit
   (3) Astablemultivibrator
   (4) LED flasher circuit
   (5) LC resonant circuit

Software:

1. Built-in circuit simulation of experiment modules.
2. Fault simulation is allowed.
3. Users can flexibly compare the simulation analysis result with hardware signal output.
4. Support virtual instrument.

Accessories:

1. Experiment Manual and Instructor's Manual
2. Connection Leads and Plugs
3. Inductors: 0.1H, 0.5H
4. Magnet
5. Key
6. Storage Cabinet