

KL-100

LINEAR CIRCUITS LAB (1) - ELECTRIC CIRCUITS LAB

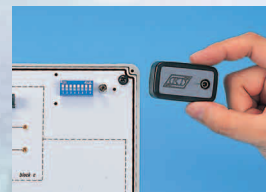


The KL-100 LINEAR CIRCUITS LAB (1) —ELECTRIC CIRCUITS LAB is a comprehensive and self-contained system suitable for tuition and experimentation with electric circuits.

All necessary equipments for electric circuit experiments such as power supply, function generator, analog and digital meters are installed on the main unit.

The 11 modules cover a wide variety of essential topics in the field of electric circuit. It is indeed a time and cost saving system for both students and engineers interested in training, developing and testing circuit prototypes.

- 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 failure simulation



Storage cabinet for easily storing all modules.

SPECIFICATIONS

MAIN UNIT(KL-21001)

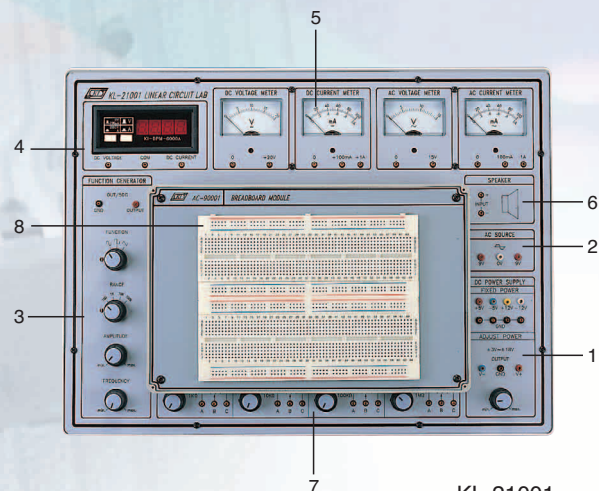
1. DC POWER SUPPLY

(1) Fixed DC Power Supply

- a. Voltage Range : $\pm 5V, \pm 12V$
- b. Maximum Current Output : $0.3A$
- c. With output overload protection.

(2) Dual DC Power Supply

- a. Voltage Range : $\pm 3V \sim \pm 18V$,
continuously adjustable
- b. Maximum Current Output : $1A$
- c. With output overload protection



KL-21001

2. AC POWER SUPPLY

- Voltage Range : 9V~0V~9V
- Maximum Current Output : 500mA
- With output overload protection

3. FUNCTION GENERATOR

- Output Waveform : Sine, Square and Triangle
- Output Frequency : 10 Hz~100 KHz, 4 settings, continuously adjustable
- Accuracy : $\pm 5\%$ of full scale value
- Output Impedance : 50 Ω
- Output Voltage : $\geq 18\text{Vp-p}$ (open loop)
 $\geq 9\text{Vp-p}$ (with 50 Ω load)

4. 3 1/2-DIGIT DIGITAL VOLTMETER/AMMETER

- DC Voltage Range : 2V, 200V
- DC Voltage Accuracy : $\pm 0.3\%$ of reading + 1 digit
- DC Current Range : 200 μA , 2000mA
- DC Current Accuracy : $\pm 0.5\%$ of reading + 1 digit

5. ANALOG METERS

- AC Current : 0 ~ 100mA ~ 1A
- AC Voltage : 0 ~ 15V
- DC Current : 0 ~ 100mA ~ 1A
- DC Voltage : 0 ~ 20V

6. SPEAKER

one 8 Ω , 0.25W speaker with driver circuit

7. VARIABLE RESISTORS

- 1K Ω , 0.25W variable resistor with 3 terminals (A,B,C)
- 10K Ω , 0.25W variable resistor with 3 terminals (A,B,C)
- 100K Ω , 0.25W variable resistor with 3 terminals (A,B,C)
- 1M Ω , 0.25W variable resistor with 3 terminals (A,B,C)

8. BREADBOARD (AC-90001)

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

9. ACCESSORIES

- Connector Lead : 1 set
- User's Manual
- AC Cord
- Anti-Dust Cover

EXPERIMENT MODULES

- 11 modules, each module is equipped with an 8-bit DIP switch for circuits failure simulations. Students can practice trouble shooting by setting the DIP switch to different positions
- Detailed solution for simulated failure is included in the Instructor's manual
- All sockets on the modules accept 2mm plugs.
- Comprehensive experiment manual and instructor's manual
- Module dimension: 255x165x30mm

LIST OF MODULES

KL-13001: Basic Electricity Experiments Module

KL-13002: Magnetism Element Introduction Module

KL-13003: Magnetic Field Module

KL-13004: Ampere's Rule Module

KL-13005: Fleming's Rule Module

KL-13006: Electromagnetic Induction

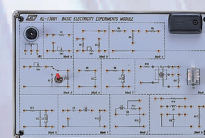
KL-13007: Electronic Circuit Fundamental Experiments Module

KL-13008: Basic Electronic Circuit Experiments (1)

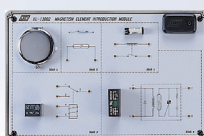
KL-13009: Basic Electronic Circuit Experiments (2)

KL-13010: Special Electronic Components Experiments Module

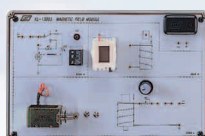
KL-13011: Oscillator Experiments and Applications Module



KL-13001



KL-13002



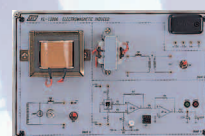
KL-13003



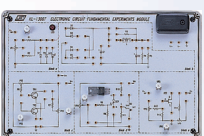
KL-13004



KL-13005



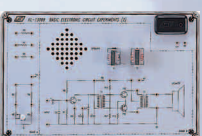
KL-13006



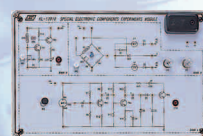
KL-13007



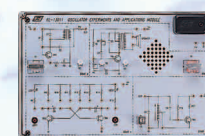
KL-13008



KL-13009



KL-13010



KL-13011

LIST OF EXPERIMENTS

1. Experiments for Basic Electricity

1-1 DC Voltage Measurement	KL-21001
1-2 Using an Ohmmeter	KL-13001
1-3 Resistor Characteristics	KL-13001
1-4 DC Current Measurement	KL-13001
1-5 Ohm's Law	KL-13001
1-6 Power in DC Circuit	KL-13001
1-7 Series-Parallel Network and Kirchoff's Law ..	KL-13001
1-8 Superposition, Thevenin's and Norton's Theorems	KL-13001
1-9 Maximum Power Transfer Theorem.....	KL-13001
1-10 DC RC Circuit and Transient Phenomena	KL-13001
1-11 AC Voltage Measurement	KL-13001
1-12 AC Current Measurement	KL-13001
1-13 AC RC Circuit	KL-13001
1-14 AC RL Circuit	KL-13001
1-15 AC RLC Circuit	KL-13001
1-16 Power in AC Circuit	KL-13001
1-17 Transformer Characteristics	KL-13001
1-18 Series-Resonant Circuit	KL-13001
1-19 Parallel-Resonant Circuit	KL-13001
1-20 LC Filter	KL-13001

2. Experiments for Magnetism

2-1 Magnetic Devices	KL-13002
2-2 Magnetic Field.....	KL-13003
2-3 Drawing Magnetic Curves.....	KL-13003
2-4 Magnetic Field Strength	KL-13003
2-5 Lenz's and Faraday's Laws.....	KL-13003
2-6 Ampere's Rule.....	KL-13004
2-7 Fleming's Rule.....	KL-13005
2-8 Self Induction	KL-13006
2-9 Mutual Induction	KL-13006
2-10 Magnetic Flux Detection	KL-13006

3. Experiments for Basic Electronic Circuits

3-1 Diode Characteristics	KL-13007
3-2 Rectifier Circuit	KL-13007
3-3 Filter Circuit.....	KL-13007
3-4 Zener Diode Characteristics	KL-13007
3-5 LED Characteristics	KL-13007
3-6 Transistor Characteristics	KL-13007
3-7 Multimeter Functions.....	KL-13007
3-8 FET Characteristics	KL-13007
3-9 SCR Characteristics	KL-13007
3-10 UJT Characteristics.....	KL-13007

4. Experiments for Simple Electronic Circuits

4-1 Simple Amplifier	KL-13008
4-2 Complementary Amplifier	KL-13008
4-3 Voltage Regulator	KL-13008
4-4 Push-Pull Amplifier	KL-13009
4-5 Wheatstone Bridge	KL-13009
4-6 Dimmer Circuit	KL-13008
4-7 Multistage Cascading Amplifier.....	KL-13008
4-8 Relay Characteristics	KL-13008
4-9 Touch-Controlled Switch	KL-13008

5. Experiments for Industrial Control Applications

5-1 CDS Characteristics	KL-13010
5-2 Light-Controlled Circuit	KL-13010
5-3 Thermistor Characteristics	KL-13010
5-4 Temperature-Controlled Circuit.....	KL-13010
5-5 Sound Controlled Circuit.....	KL-13010

6. Experiments for Oscillator Characteristics and Applications

6-1 Blocking Oscillator	KL-13011
6-2 Electronic Birdcall Circuit	KL-13011
6-3 Astable Multivibrator	KL-13011
6-4 LED Flasher Circuit.....	KL-13011
6-5 LC Resonant Circuit	KL-13011

ACCESSORIES (KL-18001)

1. Experiment Manual	
2. Connector Leads	: 2mm-2mm, 300mmL, 25pcs
3. Connect Plugs	: 2mm 10mm pitch 10pcs
4. Inductors	: 0.1H, 0.5H each 1pc.
5. Magnet: 1pc.	
6. Key: 1pc.	