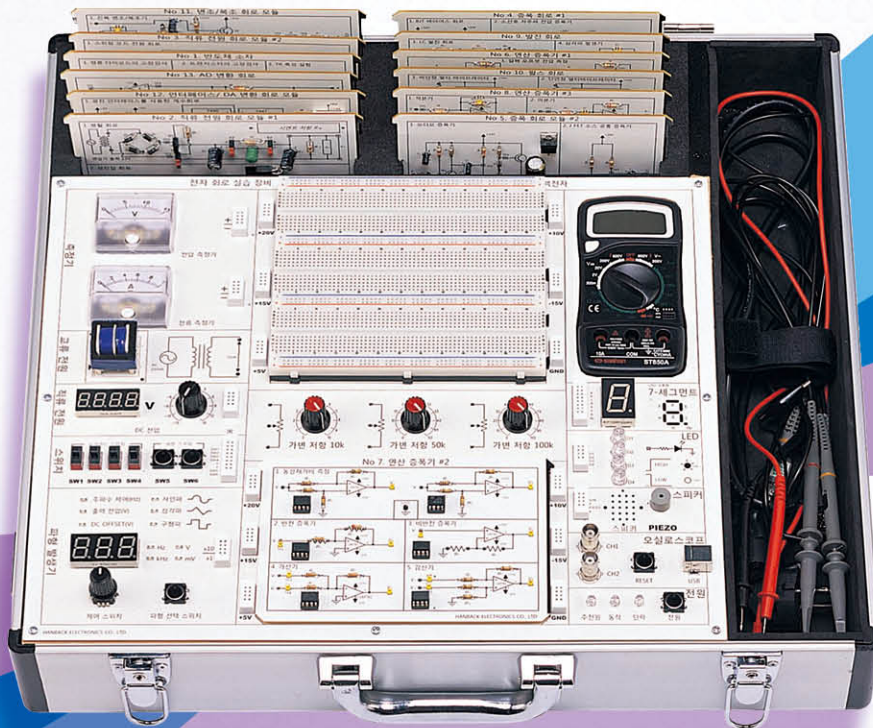
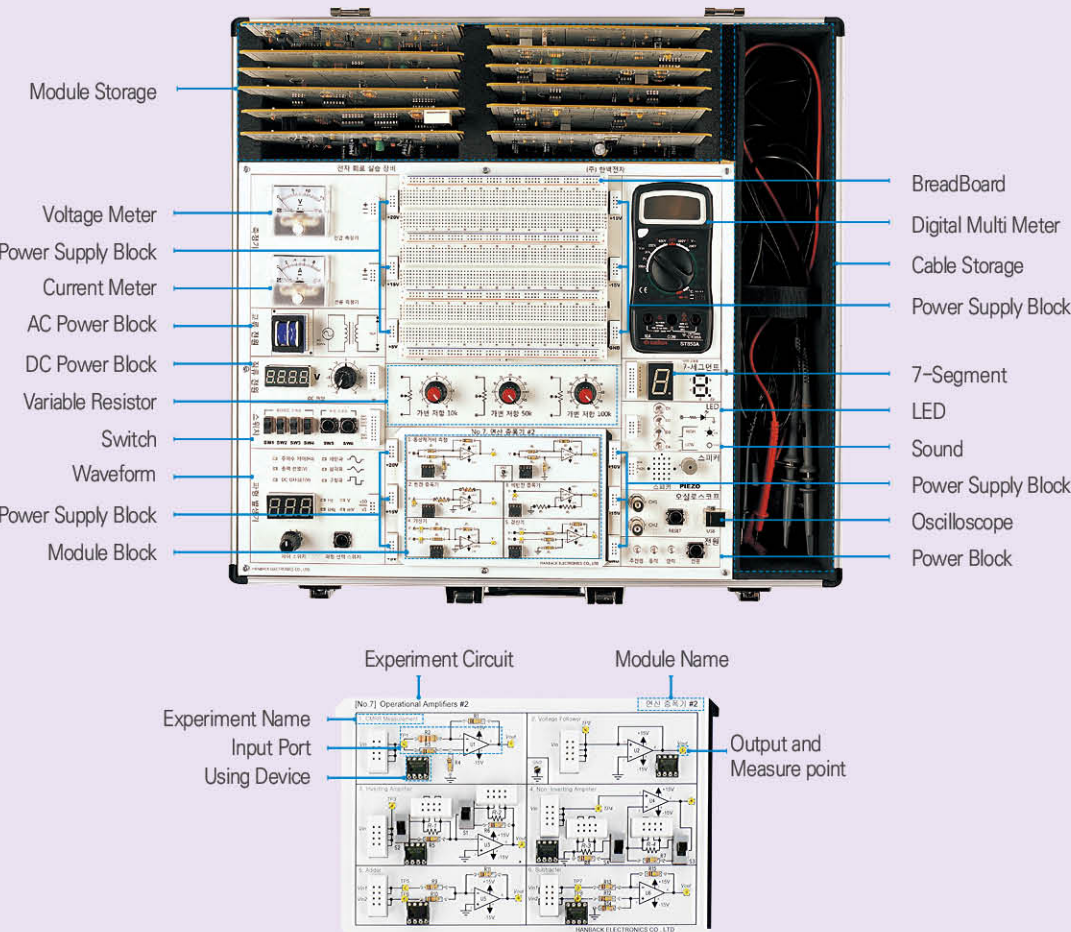


Basic Electric and Electronic Circuit Training Equipment

Electronic Circuit



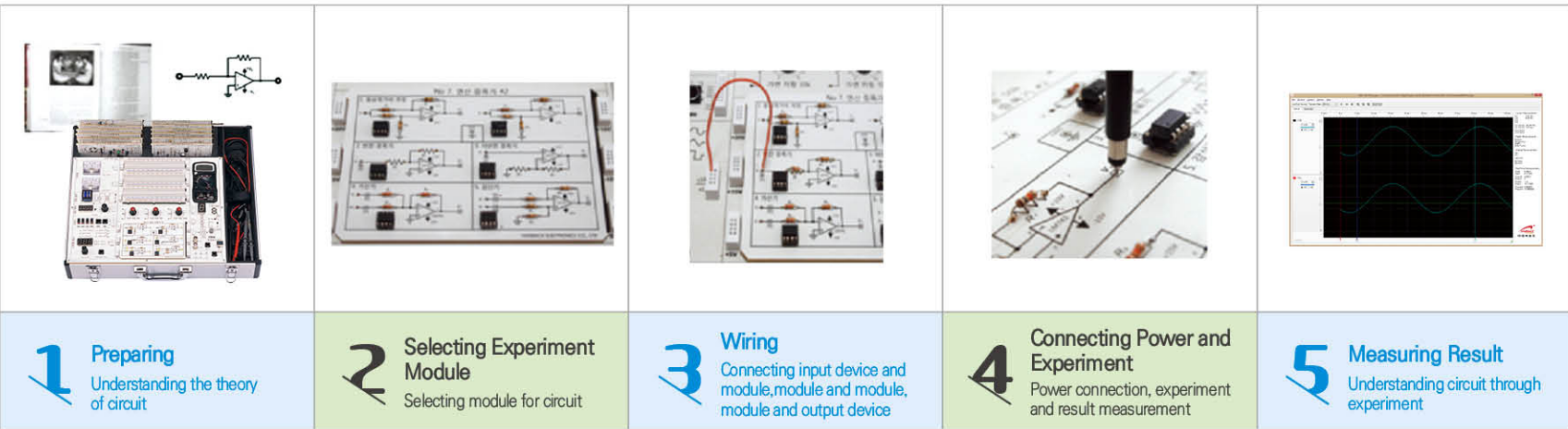
Layout



Hardware Specifications

Items	Description
Power Block	AC Power: 220VA input ~12VA output DC Power : variable power in the range from -12V ~ +12V (display to the 7-segment)
Waveform Generator	Frequency : 1Hz ~ 100kHz, Voltage : 100mV ~ 10V, DC OFFSET : +2.5V ~ -2.5V , Waveform : Sine, Triangle, Square
Measuring Part	Digital Multi Meter 1EA, Analog Voltage Meta 1EA, Analog Current Meta 1EA 2CH PC Based Oscilloscope(±16V, 500kHz Sampling Speed), USB Connected
Switch	Slide Switch 4EA(ON : +15V, OFF : GND), Button Switch 2EA(ON : +5V, OFF : GND)
Display	7-Segment (Cathode Common), LED 4EA
Sound	4Ω Speaker 1EA / PIEZO 1EA
Variable Resistor	10kΩ / 50kΩ / 100kΩ Variable Resistor each 1EA
Bread Board	Size : 167 x 146 mm, Terminal Strip 3EA, Bus Strip 4EA
Module Block	Size : 167 x 110mm, Power Connector (+20V, +15V, +10V, +5V, GND, -5V, -15V)
Power	AC 220VA
Board Size	400 x 325 mm (Except Case)

Training Contents and Experiments



Basic Electric Parts (Optional)

Practice Module	Practice	Practice Module	Practice	Practice Module	Practice
No1. Ohm's Law	Series, Parallel, Series-Parallel Circuit of Resistor Ohm's Law	No6. Loop Analysis, Node Analysis	Understanding Loop and Node Equation When There Are Independent Voltage and Current Source	No10. Diode	Understanding Operating Principle of Diode Understanding Voltage-Current Characteristics of Diode
No2. Kirchhoff's Law	Kirchhoff's Voltage Law Kirchhoff's Current Law	No7. RC Series/Parallel Circuit	Understanding Current-Voltage Characteristics of RC Series Circuit Understanding Current-Voltage Characteristics of RC Parallel Circuit	No11. Clipper, Clamper	Understanding Operating Principle of Series, Parallel Clippers and Biased Clipper Understanding Clamper Circuit by Diode Direction
No3. Distributive Law	Law of Voltage Division Law of Current Division	No8. RL Series/Parallel Circuit	Understanding Current-Voltage Characteristics of RL Series Circuit Understanding Current-Voltage Characteristics of RL Parallel Circuit	No12. Rectifier Circuit	Understanding Circuit of Half-Wave, Full-Wave, Bridge Full-Wave Rectifier
No4. Maximum Power Transfer	Maximum Power Transfer Condition	No9. RLC Series/Parallel Circuit	Understanding RLC Series and Parallel Circuit in AC Understanding Resonance Characteristics of RLC Series and Parallel Circuit	No13. Filter	Understanding Circuit of Low Pass and High Pass Filter Understanding Circuit of Band Pass and Band Stop Filter
No5. Thevenin's Theorem, Norton's Theorem, Superposition Principle	Thevenin's Theorem Norton's Theorem Understanding Circuit When There Are Two or More Current and Voltage Source				

Basic Electronic Parts (Optional)

Practice Module	Practice	Practice Module	Practice	Practice Module	Practice
No1. Semiconductor Device	Diode (Rectifier Diode, Light Emitting Diode) Transistor (NPN, PNP) MOSFET (N-Channel, P-Channel) Thyristor(SCR) TRIAC Photocoupler Photoconductor Bridge Rectifier Circuit	No5. Amplification Circuit #2	Audio Amplifier J-FET Source Common-Mode Amplifier	No9. Oscillator Circuit	L-C Oscillator Circuit R-C Oscillator Circuit Sine Wave Generator Square Wave Generator Triangle Wave Generator
No2. DC Power Supply Circuit Module #1	Smoothing Circuit Constant Voltage IC Circuit Constant Voltage Zener Diode Circuit Zener Follower Circuit	No6. Operational Amplifier #1	Measuring Input Offset Voltage Measuring Input Bias Current Measuring Slew Rate	No10. Pulse Circuit	Astable Multivibrator Monostable Multivibrator Clipper, Clamper RLC Response Characteristic Waveform
No3. DC Power Supply Circuit Module #2	Switching Mode Power Supply Circuit(MC34063A) Switching Mode Power Supply Circuit(LM2576)	No7. Operational Amplifier #2	Measuring Common-Mode Rejection Ratio(CMRR) Voltage Follower Inverted Amplifier, Non-Inverted Amplifier Adder, Subtractor	No11. Modulation /Demodulation Circuit Module	Amplitude Modulator/Demodulator Frequency Modulator/Demodulator
No4. Amplification Circuit #1	BJT Bias Circuit Small Signal Low Frequency Voltage Amplification	No8. Operational Amplifier #3	Integrator, Differentiator Low-Pass Filter High-Pass Filter Band-Pass Filter Comparator	No12. Interface /DA Conversion Circuit	TTL/C-MOS Interface Counter Circuit Using Photoelectric Interface DA Conversion Circuit Experiment
				No13. AD Conversion Circuit	AD Conversion Circuit Experiment

Basic Electric and Electronic Circuit Training Equipment

Electronic Circuit

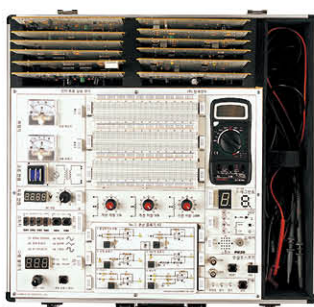
Electronic Circuit consists of circuit required for experiment in the structure of an actual circuit diagram. You can intuitively understand the circuit and practice applications using breadboard. Electronic Circuit is configured with a probe terminal for measuring experimental result for each module and a connection terminal for connecting each circuit.

In Electronic Circuit, DC voltage generator for input in the experiment, digital tester for checking the signal output device and results of the experiment, voltage meter, current meter and oscilloscope are configured in the board. PC is required when using an oscilloscope. Therefore, you can practice experiment only with Electronic Circuit equipment.



- Students can intuitively perform basic electric and electronic experiment.
- Experimental circuit required for electronic circuit practice has been modularized.
- Experimental circuit is configured in the same way as circuit diagram to make it easier to understand intuitively.
- You can check the input and output signals through the PC.
- You can do application experiments using breadboard.
- Power cutoff circuit has been configured to prevent students from making mistakes during the experiment.

Product Components



Electronic Circuit



USB cable
(A to B Type)



DMM Test Lead



Platform USB
(include Example) 1EA



AC Power cord



Oscilloscope Probe



User Guide book 1EA