

Universal Lab Trainer

ULT-3000

EDU-LABS



OVERVIEW

A full functional Analog and Digital lab training station that meets the needs of most R&D labs and Analog & Digital training programs which include of Basic Electronics, Analog Circuit Experiments, Digital Circuit Experiments, Basic Logical Circuit Tracing and Circuit Trouble Shooting.

SPECIFICATIONS

1. DC Power Supplies Module

Fixed Output: +5V/0.5A, -5V/0.5A, +12V/0.5A, -12V/0.5A

Variable Output: +0V ~ +25V/0.5A, -0V ~ -25V/0.5A

2. AC Power Supplies Module

Consists of 19V-15V-0V-15V-19V

3. Function Generator (2 Channels) & Clock Generator (2 Channels) Modules

Sine, Triangle and Square waveform output

Frequency range: 1Hz to 1MHz in 6 decades

With fine adjust, Amplitude and DC offset control

Clock output 1Hz to 1MHz in 6 decades

Six frequency ranges:

1Hz to 10Hz

10Hz to 100Hz

100Hz to 1KHz

1KHz to 10KHz

10KHz to 100KHz

100KHz to 500KHz

Sine wave output: 0 to 12V peak to peak variable

Triangle wave output: 0 to 8V peak to peak variable

Square wave output: 0 to 22V peak to peak variable

4. Solderless Breadboard Module

Interconnected nickel plated with a total of 1860 tie points nickel plated contact, fitted all DIP sizes and all components with lead and solid wire in diameter of AWG #22-30 (0.3-0.8mm)

5. Two Pulse Switches Module

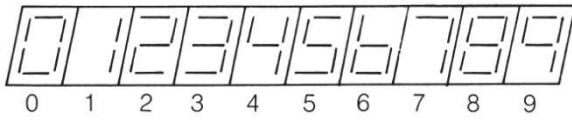
80uS Single Shot Pulse (Positive & Negative)

2 units push button switch contain switches debouncer for eliminating the bounce caused by switch from "open" to "close" or from "close" to "open" position.

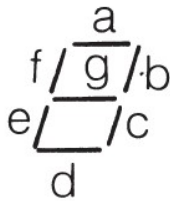
6. Two digits 7-segment LED Display Module

Numerical designs and resultant display

Truth Table



Segment Identification



Decimal Or Function	Inputs				Outputs						
	D	C	B	A	a	b	c	d	e	f	g
0	L	L	L	L	H	H	H	H	H	H	L
1	L	L	L	H	L	H	H	L	L	L	L
2	L	L	H	L	H	H	L	H	H	L	H
3	L	L	H	H	H	H	H	H	L	L	H
4	L	H	L	L	L	H	H	L	L	H	H
5	L	H	L	H	H	L	H	H	L	H	H
6	L	H	H	L	L	L	H	H	H	H	H
7	L	H	H	H	H	H	H	L	L	L	L
8	H	L	L	L	H	H	H	H	H	H	H
9	H	L	L	H	H	H	H	L	L	H	H
10	H	L	H	L	L	L	L	L	L	L	L
11	H	L	H	H	L	L	L	L	L	L	L
12	H	H	L	L	L	L	L	L	L	L	L
13	H	H	L	H	L	L	L	L	L	L	L
14	H	H	H	L	L	L	L	L	L	L	L
15	H	H	H	H	L	L	L	L	L	L	L

7. 16 Bits LED Indicators with buffer Module

16 units LED's separate input terminals in three colors. (RED, Yellow & Green). The LED will be lighted up when input is at "HI Level", and it will be turned off when it is at no input or at "LO Level". Capable for Traffic Light Experiments.

8. 16 Bits HI/LO Data Output Switches Module

16 units slide switches and corresponding output terminals. When switch is set at "down" position, the output is LO level; contrarily, it is to be HI level when setting at "up" position.

9. TTL/CMOS Selection Switch

Select TTL or CMOS Mode for data switches

10. 3-State Logic Probe Module

HI, LO, FLOAT 3 Logic Level Testing
CMOS / TTL Level Selection

11. Speaker Module

8Ω, 0.25W With Buffer

12. Digital DC Volt Meter Module

4 Digits LED display

Four voltage ranges:

0V to 199.9VDC

0V to 19.99VDC

0V to 1.999VDC

0V to 199.9mVDC

Input Impedance: 10Mohm for any range

13. Adaptors Module

5 Channels Banana to 2mm Adaptor Interface Socket and turn pins sockets

The ULT-3000 is shipped with a comprehensive CD Format Experiments Manual, Instruction Manual with Self Maintenance Guide with circuit diagram and a power cord.

Power Supply: 240VAC, 50Hz (Fused Protected)

Dimensions: (W x D x H) 310 x 260 x 90mm

Weight: 3.5 kgs

EXPERIMENTS COVER

The ULT-3000 come with experiments manual (MANUAL ONLY NO COMPOENENTS) to cover the following experiments topics:

(A) Analog Electronics Experiments Lists Cover In the Lab Manual:

- Experiments 1: The Superposition Theorem
- Experiments 2: Capacitors in Voltage - Divider Networks
- Experiments 3: Operational Amplifier - The Inverting Amplifier
- Experiments 4: Operational Amplifier - The Non inverting Amplifier
- Experiments 5: Operational Amplifier - The Comparator
- Experiments 6: Operational Amplifier - The Summing Amplifier
- Experiments 7: The Common - Base Amplifier Structure
- Experiments 8: The Common - Emitter Amplifier Structure
- Experiments 9: The Common - Collector Amplifier Structure
- Experiments 10: The Op Amp Differentiator
- Experiments 11: The Op Amp Integrator
- Experiments 12: The RC Phase Shift Oscillator
- Experiments 13: The As table Multivibrator
- Experiments 14: The Schmitt Trigger
- Experiments 15: The As table Multivibrator
- Experiments 16: The D/A Converter
- Experiments 17: The A/D Converter

(B) Digital Electronics Experiments Lists Cover In the Lab Manual:

- Experiments 1: Fundamental Logic Gate - AND, OR, NOT
- Experiments 2: Fundamental Logic Gate - NAND, NOR, XOR
- Experiments 3: Applications of Boolean Algebra
- Experiments 4: De Morgan's Law (I)
- Experiments 5: De Morgan's Law (II)
- Experiments 6: Diode Resistor Logic - AND
- Experiments 7: Exclusive OR
- Experiments 8: Exclusive NOR
- Experiments 9: Demultiplexer
- Experiments 10: Synchronous Up - Counter
- Experiments 11: Synchronous Down - Counter
- Experiments 12: The Schmitt Trigger
- Experiments 13: Oscillator - Counter

Note: Due to products continuous development process, layout and specification may change without prior notices.