# DIGITAL LOGIC CIRCUITS
Model: DLC-101200A

SPECIFICATION
I. FEATURES
1. THIS DEVICE INCLUDES SOME BASIC EXPERIMENT UNITS AND CAN BE EXPANDED TO THE ADVANCED SYSTEM. MODULAR DESIGN MAKES IT EASY TO USE AND MAINTAIN.
2. EACH EXPERIMENT UNIT CONSISTS OF SEVERAL MODULE BOARDS. ALL INPUT AND OUTPUT SIGNALS, CONTROL FLOWS AND WIRINGS ARE SHOWN ON THE MODULE BOARDS.
3. CIRCUIT DIAGRAMS AND/OR BLOCK DIAGRAMS, ARE SILKSCREENPRINTED ON THE MODULE BOARD.
4. ALL THE TEST POINTS AND CONNECTION TERMINALS ARE BROUGHT OUT ON THE FRONT FOR EASY ACCESS AND MEASUREMENT,
5. CONNECTION TERMINALS ARE STANDARD .16"/4MM DIAMETER JACKS.
6. MAIN PANEL FRAME (STAND) IS MOLDED, SPECIALLY TREATED AND PAINTED FOR LONG-LASTING.
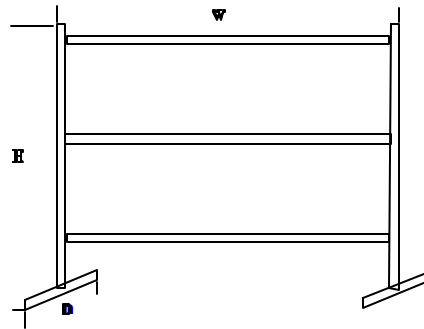
II.   EXPERIMENTS INCLUDED:
1. TTL Characteristic
2. CMOS Characteristic
3. Inverter Gate
4. Buffer Gate
5. AND Gate
6. NAND Gate
7. OR Gate
8. NOR Gate
9. Exclusive-OR Gate
10. And-Or-Inverter
11. Open-Collector Integrated Circuits
12. Three-State Gates
13. TTL To Cmos Interface Circuits
14. CMOS To TTL Interface Circuits
15. Pulse Conditioning Circuit
16. Transistor Oscillation Circuit
17. Non-Continue Mono-Stable Oscillation Circuit
18. Continuable Mono-Stable Oscillation Circuit
19. R-S Flip-Flop
20. J-K Flip-Flop
21. T Flip-Flop
22. D Flip-Flop
23. Sequential Logic
24. Left/Right Shift Register
25. Binary Counter
26. BCD Counter
27. Decoder
28. Multiplexer
29. Demultiplexer
30. Half Adder
31. Full Adder
32. Half Subtracter
33. Full Subtracter

III.   SPECIFICATION

A. MAIN PANEL FRAME
SIZE: 31"(W) x 16"(D) x 35"(H).
MATERIAL: STEEL FRAME AND ALUMINUM RACK.

B. POWER SUPPLY
(1) VOLTAGE: +5V, +12V, & -12V.
(2) CURRENT: 1A.
(3) LOAD REGULATION: 3%+2mV.
(4) POWER REGULATION: 3%+2mV, AC 110V+/-10%, 50/60Hz.
(5) RIPPLE VOLTAGE: <20mVrms.
(6) Output overload protection.

C. SIGNAL GENERATOR
THE SIGNAL GENERATOR OUTPUT TTL AND CMOS SIGNALS SIMULTANEOUSLY ON THE SEPARATE TERMINALS.
1. FREQUENCY
    (1) ACCURACY: +/-0.01% at 1MHz.
    (2) FAN OUT: 10 TTL loads.
2. VARIABLE FREQUENCY; 0.1~100KHz.
3. SWITCHES
    (1) Debounced.
    (2) FAN OUT: 10 TTL loads.
4. PULSE SIGNAL SWITCH
    (1) 2 sets, independently controlled.
    (2) Q and inverse Q (~Q) outputs, pulse width > 5mS
    (3) Debounced.
    (4) FAN OUT: 10 TTL loads.
5. DIGITAL MULTIMETER: 3 1/2 digits.

D. DISPLAY
1. LOGIC INDICATORS
    (1) 10 LEDs.
    (2) INPUT IMPEDANCE: >100KÙ.
2. DISPLAY
    (1) 7-segment LEDs.
    (2) Latch, BCD 7-segment decoder/driver, DP, RBI, RBO, and 4 independent Vcc inputs.
    (3) Binary input.

E. TESTING
1. LOGIC LEVEL TESTER
    (1) For TTL and CMOS.
     (2) Result is displayed on 7-segment LED.
        a. Input Open: "
        b. Logic Low: "L". c. Logic High: "H".

        d. Logic False: "F".

        e. Logic Pulse: "P".

2. SEQUENTIAL COMPARATOR

   (1) Four-trace generator; using dual-trace oscilloscope can compare 8 different sequential signals.

   (2) For both TTL and CMOS.
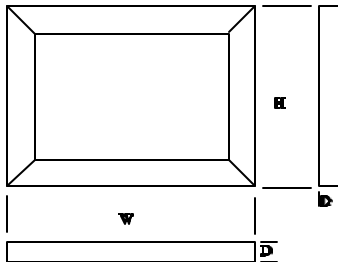
   (3) "ALT" and "CHOP" selectable.

F. LOAD

(1) 16 LEDs display.

(2) Red and green LEDs show the output status.

(3) SSR and Relay: SSR; DC 3~24V input, AC 120V/3A output. Relay; DC 12V/3A.

(4) Stepper Motor: 1.8^0/step, 12VDC/0.44A.

(5) Power Resistor: 16Ù/20W, 2 pieces. Speaker: 16Ù/20W

(6) Lamp: two 110VAC/60W.

(7) Sensor: photoconductive cell (cds) and phototransistor.

(8) Keyboard: 12 keys; all keys are labeled and accessible.

G. MODULE BOARD

1. USING COMBINATION OF SMALL COMPONENT AND MODULE BOARDS FOR EXPERIMENTS.

2. BOARD SIZE: Type-A: .80Mx1.50M, Type-B: 1.6Mx1.6M, WHITE
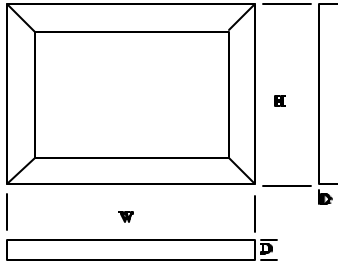
COLOR. Type-M: 13.4"/.34m (W) X 9.45"/.24m(H) X 1.9"/.048m (D).,

PLASTIC EXTRUSION, BLACK COLOR, 3mm THICK.

IV. ACCESSORIES

A. CONNECTION WIRES

1. EXTRUDED HERMAPHRODITIC BANANA PLUGS, STANDARD 1.6"/4mm DIAMETER.

2. TOTAL 30 WIRES OF LENGTH 7.9"/.2M, 31.5"/.8M AND 59"/1.5M.

B. EXPERIMENT MANUAL

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