

**DIGITAL LAB STATION** is designed for the logic beginners to enhance the comprehension of basic logical theory. The digital lab covers regular digital circuits by solder-less interconnections on breadboard and as well as compatible with all optional modules through use of 2mm brass terminals and patch cords. The design of the equipment is easy to operate and understand. It is equipped with various kinds of basic logic gates, debounced logical switches, LED indicators, DC power supply with short circuit protection, pulse generator and solderless breadboard. The unit housed in attractive enclosure is supplied with mains cord, patch cords, Instruction manual.

Learners in high schools, Polytechnic Colleges and Universities, can use the trainer as independent activity tool.

**Experimental Coverage:**

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| 001. Logic gates operation  | 013. Multiplexer and Demultiplexer        |
| 002. To prove De-morgan's theorem<br>With boolean logic equations | 014. 4 Bit Binary up and down counter     |
| 003. Binary to Gray code conversion                               | 015. Study of 8 to 3 Line Encoder         |
| 004. Gray code to Binary conversion                               | 016. Study of 3 to 8 Line Decoder         |
| 005. Binary to Excess-3 code conversion                           | 017. Study of Shift Register (SIPO)       |
| 006. Binary Adder and Subtractor                                  | 018. CMOS-TTL Interfacing                 |
| 007. Binary Multiplier  | 019. Study of Crystal oscillator          |
| 008. EX-OR gate implementation                                    | 020. Study of pulse stretcher circuit     |
| 009. Application of EX-OR gate                                    | 021. 4 Bit Ring Counter                   |
| 010. Johnson Counter  | 022. Modulo 12 Counter By Direct Clearing |
| 011. To verify the dual nature of Logic Gates                     | 023. Decade counter                       |
| 012. Study of Flip-Flops RS, JK, D&T                              | 024. Shift Register SISO and PIPO         |



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| 1. SOLDER LESS BREADBOARD                                       | : Interconnected nickel plated with a total of 2120 tie points in total, fitting all DIP sizes and components with lead and solid wire in diameter of AWG #22-30 (0.3 - 0.8mm)  |
| 2. DC POWER SUPPLY  | : Variable DC power :<br>Positive output voltage: 0 to +15V<br>Negative output voltage: 0 to -15V<br>Maximum output current: 300 mA<br>Line regulation: <0.05%/V (Ta=25°C)<br>Load regulation: < 30 mV (Ta=25°C)<br>Fixed power supply:<br>Positive output voltage: 5V ± 0.25V<br>Maximum output current: 1 Amp<br>Line regulation: < 50 mV<br>Load regulation: < 100 mV<br>Negative output voltage: -5V ± 0.25V<br>Maximum output current: 100 mA<br>Line regulation: < 25 mV<br>Load regulation: < 30 mV<br>All DC Power Supplies are equipped with short circuit protection. |
| 3. FUNCTION GENERATOR   | : Frequency ranges:<br>1Hz - 11Hz<br>10Hz - 110Hz<br>100Hz - 1K1KHz<br>1KHz - 11KHz<br>10KHz - 110KHz<br>Sine wave output: 0 to 8 Vp-p variable<br>Triangle wave output: 0 to 6 Vp-p variable<br>Square wave output: 0 to 8 Vp-p variable   |
| 4. DIGITAL VOLTMETER  | : 3 1/2 digits LED display<br>4 ranges:<br>0 - 199.9V full scale<br>0 - 19.99V full scale<br>0 - 1.999V full scale<br>0 - 199.9mV full scale<br>Input impedance: 10 Meg. Ohm for any range  |
| 5. TWO DIGIT SEVEN SEGMENT LED DISPLAY COMMON CATHODE           |   |
| 6. FOUR POINT TIP/ BANANA SOCKET / BNC SOCKET EXCHANGE ADAPTERS |   |
| 7. EIGHT BUFFERED LED DISPLAY                                   |   |
| 8. EIGHT DATA SWITCH  |   |
| 9. TWO FUNCTION SWITCHES  |   |
| 10. TWO PULSE SWITCH  |   |

Note: Specifications are subject to change.

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