

The **DIGITAL LAB** is intended for elementary as well as advance training of digital electronics. 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. Various clock generators, logic level input/output indicators and DC regulated power supplies etc. are in-built. The unit housed in attractive enclosure is supplied with mains cord, patch cords, Instruction manual and **Component Set**.

Experimental Coverage:

01. Logic gates operation
02. To verify De-morgan's theorem with boolean logic equations
03. Binary to Gray code conversion
04. Gray code to Binary conversion
05. Binary to Excess-3 code conversion
06. Binary Adder and Subtractor
07. Binary Multiplier
08. EX-OR gate implementation
09. Application of EX-OR gate
10. Johnson Counter
11. To verify the dual nature of Logic Gates
12. Study of Flip-Flops RS, JK, D&T
13. Multiplexer and Demultiplexer
14. 4 Bit Binary up and down counter
15. Study of 8 to 3 Line Encoder
16. Study of 3 to 8 Line Decoder
17. Study of Shift Register (SIPO)
18. CMOS-TTL Interfacing
19. Study of Crystal oscillator
20. Study of pulse stretcher circuit



Features:

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|---------------------------|---|--|
| Bread Board | : | Unique solder-less large size, spring loaded breadboard consisting of two Terminal Strips with 1280 tie points and 4 Distribution Strips with 100 tie points each, totaling to 1680 tie points. (Size : 112mm x 170mm approx) |
| Regulated DC Power Supply | : | +5V at 1 Amp, -5V at 500 mA, 3 to +15V at 500mA, and -3 to -15V at 500 mA. |
| Pulse Generator | : | 1 Hz to 1 MHz in 6 Steps. Variable in between steps |
| - Amplitude | : | 3-15V (CMOS), 5V (TTL) |
| - Duty Cycle | : | 50% TTL/CMOS Output |
| Pulsar Switches | : | 2 independent buffered bounce free manual pulser (useful for freezing the action of each stage of the counter after every clock pulse) |
| Data Switches | : | 12 Nos. independent buffered logic level inputs to select High / Low TTL levels, each with a bi-color LED to indicate high / low status and termination. |
| Logic Indicators | : | 12 Nos. independent buffered logic level indicators for High / Low status indication with bi-color LED for digital outputs |
| Seven Segment Display | : | 2 Nos. BCD to Seven Segment Decoder / Driver IC with terminals |
| Logic Probe | : | Logic level indicator for TTL / CMOS |
| CMOS/TTL | : | Provided |
| Power | : | 230 V ± 10%, 50 Hz |
| Components Provided | : | ICs-4001/1, 4049/1, 4069/1, 7400/1, 7402/1, 7404/1, 7406/1, 7408/2, 7410/2, 7411/3, 7420/2, 7432/3, 7474/2, 7476/2, 7486/1. Resistors-330E/1, 1K/2, 1K8/1, 15K/1, 47K/1. 1M/2, Capacitors- 0.01mF/1, 0.1mF/1, 0.22 mF/1, Crystal-32.768MHz/1. |
| Accessories | : | Mains cord, Operating and Experimental manual, Red & Black patch cords (2mm with Pin) 10 each, Red & Black patch cord (Pin to Pin) 10 each. Wire 24/25 SWG. 1Meter each 5 Colour Instruction manual : Strongly supported by detailed operating instructions. |

Note: Specifications are subject to change.

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OPTIONAL MODULES:

Apart from above given experimental coverage of 20 experiments on breadboard, customers can purchase these optional modules. These are ready to use modules with wired components & circuit schematic drawn on top compatible to use with Digital Lab.

- 38501 Logic gates operation
- 38502 To verify De-morgan's theorem with boolean logic equations
- 38503 Binary to Gray code conversion
- 38504 Gray code to Binary conversion
- 38505 Binary to Excess-3 code conversion
- 38506 Binary Adder and Subtractor
- 38507 Binary Multiplier
- 38508 EX-OR gate implementation
- 38509 Application of EX-OR gate
- 38510 Johnson Counter
- 38511 To verify the dual nature of Logic Gates
- 38512 Study of Flip-Flops RS, JK, D&T
- 38513 Multiplexer and Demultiplexer
- 38514 4 Bit Binary up and down counter
- 38515 Study of 8 to 3 Line Encoder
- 38516 Study of 3 to 8 Line Decoder
- 38517 Study of Shift Register (SIPO)
- 38518 CMOS-TTL Interfacing
- 38519 Study of Crystal oscillator
- 38520 Study of pulse stretcher circuit
- 38521 4 Bit Ring Counter
- 38522 Modulo 12 Counter By Direct Clearing
- 38523 Decade counter
- 38524 Shift Register SISO and PIPO
- 38525 Decimal to BCD Converter
- 38526 Astable Multivibrator using Digital IC
- 38527 Bistable Multivibrator using Digital IC
- 38528 Monostable Multivibrator using Digital IC
- 38529 Octal to binary Encoder
- 38530 4 Bit Magnitude Comparator
- 38531 Interface of TTL-IC to CMOS-IC & CMOS IC to TTL-IC



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