OMEGA®

A SIGN OF QUALITY PRODUCT

DIGITAL- ANALOG LAB

OMEGA TYPE DAL-1043

The DIGITAL-ANALOG LAB is intended for elementary as well as advance training of Digital & Analog electronics. The trainer covers regular digital & analog 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:

Analog

01 Study of Diodes in DC circuits
02 Study of Light Emitting Diodes in DC Circuits
03 Study of Half wave rectifier
04 Study of Full wave rectifier
05 Study of Zener Diode as a voltage regulator
06 Study of transistor series voltage regulator
07 Study of transistor shunt voltage regulator
08 Study of Low pass filter
09 Study of High pass filter
10 Study of band pass filter
11 Study of CE configuration of NPN transistor
12 Study of CB configuration of NPN transistor
13 Study of CE amplifier
14 Study of Monostable multivibrator using transistor
15 Study of Bistable multivibrator using transistor
16 Study of Astable multivibrator using transistor

Digital

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 Addition 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:

Bread Board	:	Unique solder-less large size, spring loaded breadboard consisting of twoTerminal Strips with 1280 tie points and 4 Distribution Strip swith 100 tie points each, totaling to 1680 tie points. (Size:112mm x170mm)
Regulated DC Power Supply	:	+5 V at 1 Amp, -5 V at 1Amp, +12 V/ 0 to 20V at 500mA, and -12 V/ 0 to -20 V at 500 mA
AC Supply	:	5-0-5V, 10-0-10V at 100mA. Can be used as 5V, 10V, 15V, 20V, and also as center tap
Function Generator	:	Sine / Square / Traingular / Pulse waveform frequency 1 Hz to 110 Khz in 5 Steps. Variable in between steps. Sine / Square / Traingular waveform output 50mV ~ 10Vpp variable
Clock Generators	:	0.1Hz and 100 Hz, Independent fixed TTL 5V outputs
Variable Clock Generators	:	low frequency variable clock 1 Hz to 10 Hz Fixed TTL 5V output
Pulser Switch	:	2 independent buffered bounce free manual pulser (useful for freezing the action of each stage of the counter after every clock pulse)
Data Switch	:	16 independent logic level inputs to select High / Low TTL levels, each with a LED to indicate high / low status and termination
Logic Indicators	:	16 independent buffered logic level indicators for High / Low status indication of digital outputs
Speaker	:	8 ohms miniature speaker with terminations
Digital meter (3½Digit)	:	Dual range DC Voltmeter 0-20V / Ammeter 0-200mA
Continuity Tester	:	For testing the continuity. Provided with Beeper Sound
Potentiometers	:	6 Potentiometers (1K, 22K, 47k, 100K, 100K and 1Meg) with terminals
BNC to banana adapter	:	2 Nos. BNC to 2 channel banana adapter
Computer interface	:	Facilities connecting your trainer to either Rs232 communication port of PC ADAPTER using 25 pin (male) connector through 25 nos. of 2 mm banana sockets
On Board Switches	:	2 Switches singal pole double through
Connecting terminals	:	2 / 4 connecting terminals
Seven segment LED Display	:	2 Nos. BCD to Seven Segment Decoder/ Driver IC with terminals
LED Bar Graph	:	With 10 LED Indicators and 20 termination
Logic Probe	:	Logic level indicator for TTL/CMOS
Power	:	230 V ± 10%, 50 Hz
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 & **Component Set**
Instruction manual	:	Strongly supported by detailed operating instructions
Weight	:	6 Kg. (Approx)
Dimension	:	W 415 x H 165 x D 315

Continue....2

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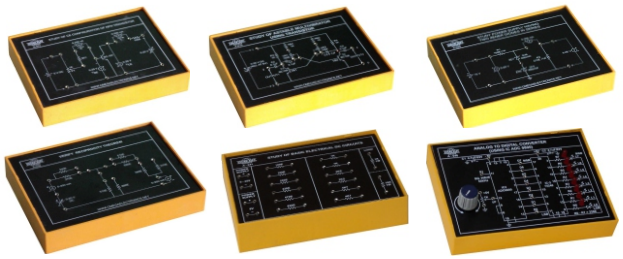
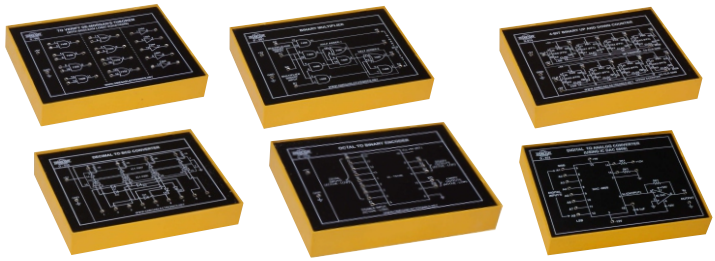
MODULES FOR DIGITAL- ANALOG LAB

OMEGA TYPE DAL-1043

OPTIONAL MODULES :-

These are ready to use modules with wired components & circuit schematic drawn on top compatible to use out of bellow modules can be used with our Following Training Boards. Digital Lab **(DL-1041)**, Analog Lab **(AL-1042)**, Digital -Analog Lab **(DAL-1043)**, Digital Trainer **(DL-1044)**, Logic Lab **(DL-1047)**, Digital Lab Station **(DL-1049)** Bread Board Circuit Lab **(BBS-105)**, **LTB-841**, **LTB-842**, **LTB-845.**





ANALOG LAB MODULES

A001. Study of Diode in DC circuits
A002. Study of Light Emitting Diodes in DC Circuits
A003. Study of Half wave rectifier
A004. Study of Full wave rectifier
A005. Study of Zener Diode as a voltage regulator
A006. Study of transistor series voltage regulator
A007. Study of transistor shunt voltage regulator
A008. Study of Low pass filter
A009. Study of High pass filter
A010. Study of band pass filter
A011. Study of CE configuration of NPN transistor
A012. Study of CB configuration of NPN transistor
A013. Study of CE amplifier
A014. Study of Monostable multivibrator using transistor
A015. Study of Bistable multivibrator using transistor
A016. Study of Astable multivibrator using transistor
A017. Study CB amplifier (PNP)
A018. Study CC amplifier (PNP)
A019. Study of FET amplifier.
A020. Study power supply having two zener diodes in series
A021. Study dual polarity voltage regulated power supply
A022. Study the characteristics of photo transistor
A023. To practically understood the operation of a 7-segment LED display
A024. To Study CC configuration of NPN transistor
A025. Study CE configuration of PNP transistor
A026. Study CB configuration of PNP transistor
A027. Study CC configuration of PNP transistor
A028. Study full wave dual polarity supplies
A029. Study of FET characteristic
A030. Verify superposition theorem
A031. Verify thevonin's theorem
A032. Verify receprocity theorem
A033. Study of Phase shift audio oscillator (Solid State)
A034. Verify kirchoff's law (V& I)
A035. Verify ohm's law
A036. Ideal resistance characteristics
A037. Verification of series law of resistance
A038. Verification of parallel law of resistance
A039. Verify maximum power transfer theorem
A040. Study of series and parallel resistance, capacitors and inductance circuits
A041. Study of basic electrical DC circuits
A042. Study of AC circuits
A043. Study of series and parallel resonance and operational amplifier circuits
A044. Study of power supply circuit, 555 timer and solid state switch
A045. Study of difference Amplifier
A046. Analog to digital converter (using IC ADC 0800)

DIGITAL LAB MODULES

D001 Logic gates operation
D002 To verify De-morgan's theorem with boolean logic equations
D003 Binary to Gray code conversion
D004 Gray code to Binary conversion
D005 Binary to Excess-3 code conversion
D006 Binary Adder and Subtractor
D007 Binary Multiplier
D008 EX-OR gate implementation
D009 Application of EX-OR gate
D010 Johnson Counter
D011 To verify the dual nature of Logic Gates
D012 Study of Flip-Flops RS, JK, D&T
D013 Multiplexer and Demultiplexer
D014 4 Bit Binary up and down counter
D015 Study of 8 to 3 Line Encoder
D016 Study of 3 to 8 Line Decoder
D017 Study of Shift Register (SIPO)
D018 CMOS-TTL Interfacing
D019 Study of Crystal oscillator
D020 Study of pulse stretcher circuit
D021 4 Bit Ring Counter
D022 Modulo 12 Counter By Direct Clearing
D023 Decade counter
D024 Shift Register SISO and PIPO
D025 Decimal to BCD Converter
D026 Astable Multivibrator using Digital IC
D027 Bistable Multivibrator using Digital IC
D028 Monostable Multivibrator using Digital IC
D029 Octal to binary Encoder
D030 4 Bit Magnitude Comparator
D031 Interface of TTL-IC to CMOS-IC & CMOS IC to TTL-IC
D032 Digital to analog converter (using IC DAC 0808)

Weight : 0.7 Kg. (Approx)
Dimension : W 176 x H 131 x D 37

We are committed to the continuous development of our products, and therefore reserve the right to amend specifications without prior notice.

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