



Tesca 33503B Digital – Analog Training System is a versatile equipment designed for elementary as well as advance training of Digital and Analog electronics. The trainer covers regular digital & analog circuits by solder-less interconnections on breadboard through use of 2mm brass terminals and patch cords. Various function generators, logic level output indicators, multimeters and AC & DC regulated power supplies etc. are in-built. The unit housed in attractive enclosure is supplied with mains cord, patch cords and comprehensive Instruction manual.

Features

Regulated DC Power Supply	:	± 5 V at 0.2 Amp, +12 V/ 0 to 20V at 0.2A, and -12 V/ 0 to -20 V at 0.2 A
AC Supply	:	5-0-5V, 10-0-10V at 100mA. Can be used as 5V, 10V and also as center tap
Multimeter	:	2 Nos of on-board multimeters to measure AC & DC Voltage, Current, Resistance, diode and Continuity, etc.
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
Variable Resistors	:	2 Potentiometers (1K, 100K)
Speaker	:	8 ohms miniature speaker
Seven Segment Display	:	2 Nos. BCD to Seven Segment Decoder/ Driver IC with terminals
Data Switch	:	8 independent logic level inputs to select High / Low TTL levels
Pulser Switch	:	2 independent buffered bounce free manual pulser (useful for freezing the action of each stage of the counter after every clock pulse)
Logic Indicators	:	8 independent LEDs indicators for High / Low status indication of digital outputs
Universal Socket	:	3 Nos. BNC to 2 channel banana adapter
Fuses	:	3 Nos. of Fuses with terminals
Bread Board	:	Unique solder-less large size, spring loaded breadboard consisting of two Terminal Strips with 1280 tie points and 4 Distribution Strip switch 100 tie points each, totaling to 1680 tie points. (Size:112mmx170mm)
Power	:	230 V \pm 10%, 50 Hz
Accessories	:	Mains cord, Operating and Experimental manual
Instruction manual	:	Strongly supported by detailed operating instructions
Weight	:	6 Kg. (Approx)
Dimension	:	W 400 x H 150 x D 300

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tescaglobal.com

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

OPTIONAL MODULES:

Apart from above given experimental coverage of 16 + 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-Analog Lab.

ANALOG

SN. Name	Order Code
01 Study of Diode in DC circuits	36001
02 Study of Light Emitting Diodes in DC Circuits	36002
03 Study of Half wave rectifier	36003
04 Study of Full wave rectifier	36004
05 Study of Zener Diode as a voltage regulator	36005
06 Study of transistor series voltage regulator	36006
07 Study of transistor shunt voltage regulator	36007
08 Study of Low pass filter	36008
09 Study of High pass filter	36009
10 Study of band pass filter	36010
11 Study of CE configuration of NPN transistor	36011
12 Study of CB configuration of NPN transistor	36012
13 Study of CE amplifier	36013
14 Study of Monostable multivibrator using transistor	36014
15 Study of Bistable multivibrator using transistor	36015
16 Study of Astable multivibrator using transistor	36016
17 Study CB amplifier (PNP)	36017
18 Study CC amplifier (PNP)	36018
19 Study of FET amplifier	36019
20 Study power supply having two zener diodes in series	36020
21 Study dual polarity voltage regulated power supply	36021
22 To study the characteristics of photo transistor	36022
23 To practically understood the operation of a 7-segment LED display	36023
24 To Study CC configuration of NPN transistor	36024
25 To study CE configuration of PNP transistor	36025
26 To study CB configuration of PNP transistor	36026

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27	To study CC configuration of PNP transistor	36027
28	Study full wave dual polarity supplies	36028
29	Study of FET characteristics	36029
30	Verify superposition theorem	36030
31	Verify thevenin's theorem	36031
32	Verify reciprocity theorem	36032
33	Study of Phase shift audio oscillator	36033
34	Verify kirchoff 's law (V& I)	36034
35	Verify ohm's law	36035
36	Ideal resistance characteristics	36036
37	Verification of series law of resistance.....	36037
38	Verification of parallel law of resistance.....	36038
39	Verification of maximum power transfer theorem	36039

DIGITA

SN.	Name	Order Code
01	Logic gates operation	38501
02	To verify De-morgan's theorem with boolean logic equations	38502
03	Binary to Gray code conversion.....	38503
04	Gray code to Binary conversion.....	38504
05	Binary to Excess-3 code conversion.....	38505
06	Binary Adder and Subtractor	38506
07	Binary Multiplier	38507
08	EX-OR gate implementation	38508
09	Application of EX-OR gate	38509
10	Johnson Counter.....	38510
11	To verify the dual nature of Logic Gates	38511
12	Study of Flip-Flops RS, JK, D&T	38512
13	Multiplexer and Demultiplexer	38513
14	4 Bit Binary up and down counter	38514
15	Study of 8 to 3 Line Encoder	38515
16	Study of 3 to 8 Line Decoder	38516
17	Study of Shift Register (SIPO)	38517
18	CMOS-TTL Interfacing.....	38518
19	Study of Crystal oscillator	38519
20	Study of pulse stretcher circuit	38520
21	4 Bit Ring Counter	38521
22	Modulo 12 Counter By Direct Clearing.....	38522
23	Decade counter	38523
24	Shift Register SISO and PIPO	38524
25	Decimal to BCD Converter.....	38525
26	Astable Multivibrator using Digital IC	38526
27	Bistable Multivibrator using Digital IC	38527
28	Monostable Multivibrator using Digital IC	38528
29	Octal to binary Encoder	38529
30	4 Bit Magnitude Comparator.....	38530
31	Interface of TTL-IC to CMOS-IC & CMOS IC to TTL-IC.....	38531

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