DL-3030

DIGITAL LAB TRAINER (DIGITAL ELECTRONICS TRAINER)

SALIENT FEATURES

- Hi Quality Bread board.
- Ready to use circuit boards (optional).
- On Board DC power supply.
- On Board 1 MHz Pulse Generator.
- Pulser switches, 8 bit data switches.
- Bicolor LED display & Logic probes.
- BCD to seven segment display.
- More than 25 designed experiments for breadboard.
- Fictional blocks indicated on board mimic.

TECHNICAL SPECIFICATIONS

- **Breadboard** : 172.5 mm × 128.5 mm
  Tie Points : 1685
- **DC Power Supply** : + 5V/ 1A, ±12V/ 500mA,
  0V TO +15V /500 mA (variable),
  0V TO -15V/ 500mA (variable)
- **AC Power Supply** : 9V - 0V - 9V
- **Pulse/Function Generator**
  Frequency Range : 1 Hz to 1 MHz in 6 steps. Variable in between
  Amplitude : 3V – 15V (CMOS), 5V (TTL)
- **Duty cycle** : 50%
- **Pulser switches** : 2 Nos. (Push to On)
- **Data Switches** : 8 Nos. (Toggle Switches)
- **LED Display** : 8 Nos.
- **7 Segment Display** : 2 Nos.
- **Logic probe** : Logic Level Indicator
- **Continuity Tester** : Provided onboard.
- **Power** : 220V ± 10%, 50/60 Hz
- **Power Consumption** : 3VA (approx)
- **Accessories Included** : Mains cord, Operating and experimental Manual (with more than 25 designed experiments), patch cords.

READY TO USE EXPERIMENTAL BOARDS

- Logic Gates,
- Universal Gates,
- Ex-OR Gate application / implementation,
- Ex-OR Gate implementation,
- Modulo N Counter
- De-Morgan Theorem,
- Code Conversion,
- Binary Adder / Subtractor,
- Encoder-Decoder,
- Flip Flops (JK, RS, T, D)
- 4 bit sychrous binary counter,
- 4:1 Multiplexer & 1:8 Demultiplexer
- 3 Bit Bi-directional Shift Register
- Asynchronous / Ripple Counter
- Synchronous Decade Counter
- Sequence Detector
- Bit Binary Ripple Counter
- BCD to Seven Segment Converter,

... and many more

PRODUCT SELECTION GUIDE

Specifications are subject to change without notice due to our constant efforts for improvement.

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PRODUCT SELECTION GUIDE

AL-3030

ANALOG LAB TRAINER

SALIENT FEATURES

- Hi Quality Bread board.
- Ready to use circuit boards (optional).
- On Board DC power supply.
- On Board Function Generator
- On Board Modulation / Audio Generator
- On Board Continuity Tester/Buzzer
- On Board Toggle Switches.
- More than 20 designed experiments for breadboard.
- Fictional blocks indicated on board mimic.

TECHNICAL SPECIFICATIONS

Regulated DC Power Supplies	:	±5V/1A (Fixed), ±12V, 500mA (Fixed) ±15V 200mA (variable)
AC Power Supplies	:	9V-0V-9V/500mA
Bread Board	:	Breadboard for making various circuits and testing them. External component / ICs can be fitted conveniently.
Function Generator	:	Sine, Square, Triangular & TTL
Frequency Range	:	1Hz to 100KHz
Modulation/Audio Generator	:	Sine, Square, Triangular
Frequency Range	:	1Hz to 10KHz
Continuity Tester	:	For testing continuity with Beeper sound.
Interconnection	:	2mm patch cords provided
Power	:	220V ±10%, 50Hz
Housing	:	ABS material used to mould into cabinet.
Accessories	:	Main cord, operating manual with ready to user modular panel would provide to cover the experiments (optional)

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READY TO USE EXPERIMENTAL BOARDS

- Common Emitter Characteristics
- Common Base Characteristics
- Common Collector Characteristics
- JFET Characteristics
- Colplit's Oscillator
- Wein Bridge Oscillator
- Hartley Oscillator
- Phase Shift Oscillator
- Transistor Characteristics (CB NPN)
- Transistor Characteristics (CB PNP)
- Transistor Characteristics (CE NPN)
- Transistor Characteristics (CE PNP)
- Transistor Characteristics (CC NPN)
- Transistor Characteristics (CC PNP)
- Zener Voltage Regulator
- Transistor Shunt Voltage Regulator
- Transistor Series Voltage Regulator
- Schmitt Trigger & Comparator
- Active Filters (Low Pass, High Pass, Band Pass & Band Stop)
- Passive 'T' Filters (High Pass, Low Pas & Band Pass)
- Passive 'π' Filters (High Pass, Low Pass & Band Pass)
- m-Derived Filters (Low Pass, High Pass, Band Pass & Band Stop)
- RC Coupled Amplifier
- Differential Amplifier
- Darligton Amplifier
- Feed Back Amplifier
- Instrumentation Amplifier
- Astable Multivibrator using 555
- Monostable Multivibrator using 555
- Bistable Multivibrator using 555

... and many more

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DL-DTKP

DIGITAL TRAINER KIT WITH BREAD BOARD & INBUILT POWER SUPPLY

This Trainer has been designed with the idea of providing basic facilities essential for conducting simple experiments in the laboratory. Using these facilities one can get familiarized with the various digital ICs. The system is suitable for conducting experiments on TTL ICs. The system has onboard facility of four crystal generated clock output of 1MHz, 100Hz, 10Hz & 1Hz. It has a facility of Single Pulse Generation by push button switch. Four Seven Segment Display with BCD inputs having breadboard area facility of 1200 TIE points.

SALIENT FEATURES

- Hi Quality Bread board.
- On Board DC power supply.
- Pulser switches, 8 bit data switches.
- Bicolor LED display & Logic probes.
- Seven segment display.

TECHNICAL SPECIFICATIONS

- 8 TTL compatible logic level inputs.
- Logic HIGH and logic LOW are displayed by dual color LED.
- Four crystal generated clock output of 1MHz,100Hz, 10Hz, and 1Hz.
- Low to High & High to Low logic pulser.
- Logic probe to check logic LOW, logic HIGH and pulse.
- Four seven segment display with BCD inputs.
- Four output LED's.
- Facility of segment control on two displays.
- Bread board area having more than 1200 TIE points.
- Capable of accepting wire diameters from 0.3 to 0.8mm.
- Built in Power Supply.
- User's Manual, Cables & Connectors.

DL-ADTKP

ANALOG DIGITAL TRAINER KIT WITH BREAD BOARD & INBUILT POWER SUPPLY

TECHNICAL SPECIFICATIONS

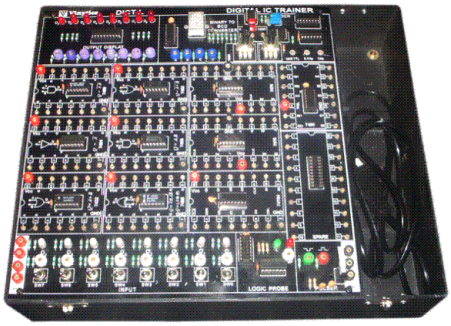
All specifications are same as **DL-DTKP** with additional features as given below :

- **Power Supply** : 15-0-15 AC/500mA, 0-15V DC / 300mA for Analog IC's.

Note : Additional Regulator Power supply can be added on request (Optional)

DL-DICT

DIGITAL IC TRAINER



TECHNICAL SPECIFICATIONS

DC Supplies	:	+5V/500mA
Clock Generators	:	Fixed : 0.1Hz, 1Hz (simultaneous 5Vindependent outputs)
	:	Variable : One low frequency variable clock generator
Manual Pulser	:	One independent buffered bounceless manual pulser (useful to freezing the action of each stage of the counter after every clock pulse).
Logic Level Inputs	:	Eight independent buffered logic level inputs to select high/low TTL levels, each with a LED to indicate high/low staturs and termination.
Logic Level Indicators	:	Eight independent buffered logic level indicators for High/low status indication of digital outputs.
Power ON	:	Power ON switch with indicator for mains on indication and fuse for protection.
Patch Cords	:	Set of 20 assorted coloured multi-stand wires with 2mm stackable plug termination at both ends.
Power Requirement	:	230 ±10%V AC, 50Hz, single phase.
Accessories	:	Instruction Manual.

EXPERIMENTS CAN BE PERFORM

- Study of basic gates and verification of their truth tables (NOT, OR, AND, NOR, NAND, EX-OR, EX-NOR).
- Study and verifications of the laws of Boolean Algebra and De-morgan's theorem.
- Study of important TTL terminologies, verification of important TTL circuit parameters.
- Construction and verifications of various types of flip-flops using gates & IC's (RS, JK, D, T, M/SJK).
- Construction and verification of various types of combinational circuits such as Half Adder, Full Adder, Half Subtractor, Full Subtractor, Even/Odd Parity Checker, Multiplexer, Demultiplexer, Binary to Gray & Gray to Binary converters.
- Construction and verification of various types of Up/Down, Synchronous Asynchronous, Ripple, Reverse, Ring, Binary, BCD & Decade Counters.
- Construction and varification of 4 bit universal shift register (SR/SL operation).
- Study of 7-segment display and decoder/driver.

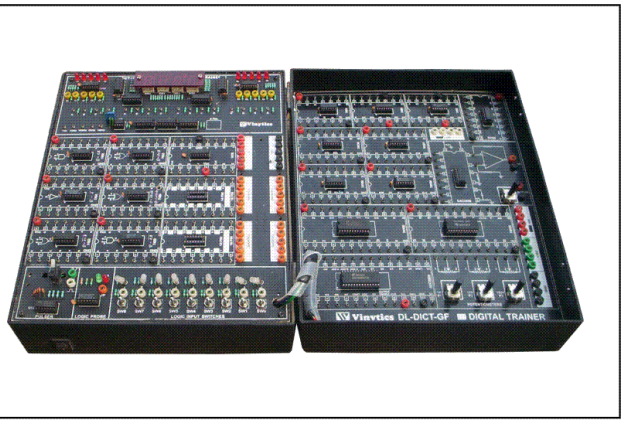
Specifications are subject to change without notice due to our constant efforts for improvement.

PRODUCT SELECTION GUIDE

PRODUCT SELECTION GUIDE

DL-DICT-GF

DIGITAL TRAINER (Gates, Flip-Flops, Counters etc.)



This Digital Trainer Kit (DL-DICT-GF) has been designed with the idea of providing basic facilities essential for conducting simple experiments in the laboratory. Using these facilities one can get familiarized with the various digital ICs. The system is suitable for conducting experiments on TTL ICs. Eight nos. of logic switches are provided onboard for giving digital inputs in to the circuit.

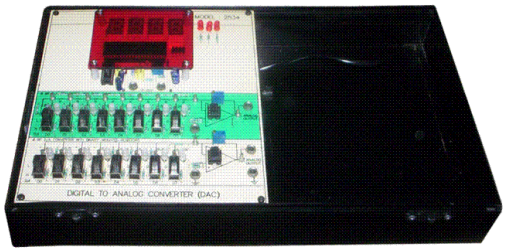
TECHNICAL SPECIFICATIONS

- Digital Trainer with onboard Ic's
  - Quad 2- Input NAND Gate.....(7400)
  - Quad 2- Input NOR Gate.....(7402)
  - Hex Inverters.....(7404)
  - Quad 2- Input AND Gate.....(7408)
  - Quad 2- Input OR Gate.....(7432)
  - D-Flip Flop.....(7474)
  - Dual JK Flip Flop (2 Nos.).....(7476)
  - Dual 2 - EX OR Gate.....(7486)
  - Decade Counter.....(7490)
  - Binary Up Counter.....(7493)
  - Binary Decoder.....(74138)
  - Multiplexer.....(74150)
  - Multiplexer.....(74151)
  - Synchronus Binary Counter.....(74163)
  - ALU.....(74181)
  - Decimal Up/Down Counter.....(74190)
  - Shift Register.....(74194)
  - A to D Converter.....(ADC-0809)
  - D to A Counter.....(DAC-0800)
- 7-Segment LED Display (4 Nos.)
- Logic Input Switches (10 Nos.)
- Logic Status Indicators (10 Nos.)
- Bounceless Pulsar
- 1 Hz & 1 KHz TTL Clocks
- Inbuilt Power Supply
- Assembled in plastic Box with Circuit Screen Printed on the Panel with 2mm Socket for test points.
- Set of patch Chords & Experimental Manual.

Specifications are subject to change without notice due to our constant efforts for improvement.

DL-ADC DL-DAC

ANALOG TO DIGITAL CONVERTER TRAINER
DIGITAL TO ANALOG CONVERTER TRAINER



DL-ADC

TECHNICAL SPECIFICATIONS

- 1) 4 bit discrete (ramp)
- 2) 8 bit monolithic converter
- Signal Source : Unipolar & Bi-polar DC voltages
- O/P Indications:- By LEDs separate for each type
- Interconnections:- 4mm Banana socket
- Dimensions(mm) :- W340xD240xH105 (aprox.)
- Power Supply :- 220V ±10%, 50Hz
- Power Consumption:- 3VA (approx).
- Accessories included: Line Cord, Manual & Set of Patch cords & **Multimedia interactive computer based training manual & software**.

EXPERIMENTS CAN BE PERFORM

- A discrete component realization of ramp A/D counter converter.
- 8 bits monolithic A/D converter

DL-DAC

TECHNICAL SPECIFICATIONS

- 1. 4 bit weighted resistor
- 2. 4 bit R-2R ladder network
- 3. 8 bit monolithic D/A converter
- Signal : DC Supply with toggle switches
- O/P Indications: On DMM or Oscilloscope
- Interconnection: 4mm Banana sockets
- Dimensions(mm):- W340xD240xH105 (approx.)
- Power Supply: 220V ±10%, 50Hz
- Power Consuption: 3VA (approx)
- Accessories included: Line Cord, Manual & Set of Patch cords & **Multimedia interactive computer based training manual & software.**

EXPERIMENTS CAN BE PERFORM

- 4 bit weighted resistor converter
- R-2R ladder network D/A conver
- 8 bit monolithic D/A converter