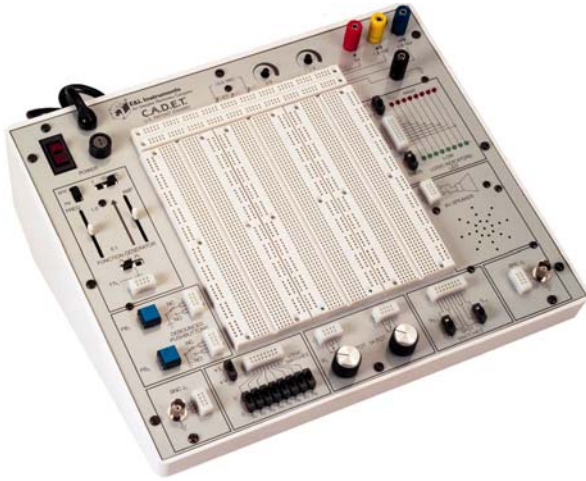


C.A.D.E.T. SERIES ELECTRONIC CIRCUIT TRAINERS

COMBINED ANALOG / DIGITAL ELECTRONICS TRAINERS

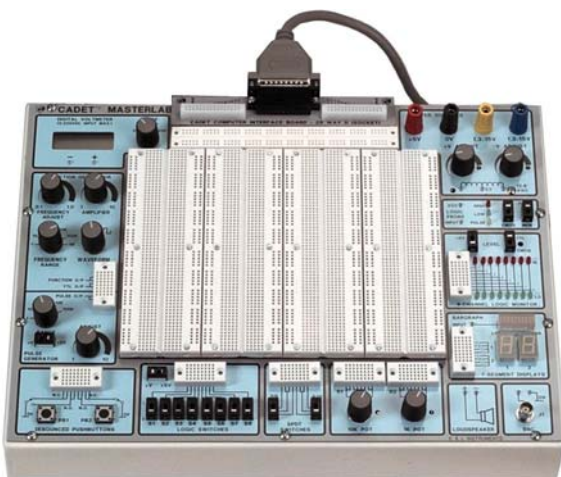
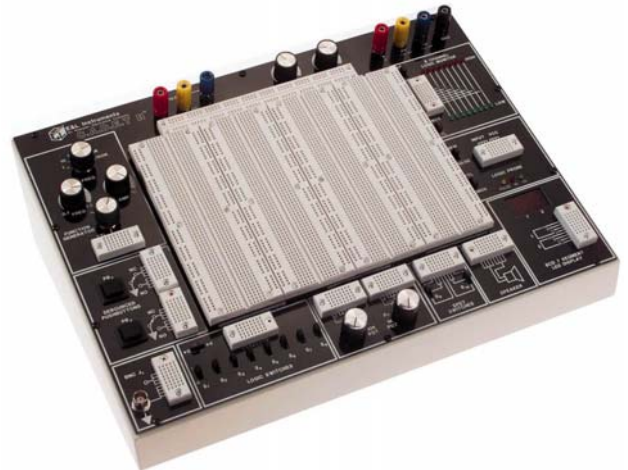


C.A.D.E.T.

- Stationary or removable breadboard area
- Multi-waveform function generator
- Variable output AC/DC power supply
- 8 selectable logic switches
- 8 High and Low buffered logic indicators
- 2 SPDT logic switches
- 1K and 10K potentiometers
- 2 debounced push-button operated pulsers
- 2 BNC's and 8Ω speaker

C.A.D.E.T II

- Expanded removable breadboard area
- Built-in logic probe with pulse capture
- Two open collector output pulsers
- Built-in multi-waveform function generator
- Quad voltage power supply: Three DC & one low voltage AC
- Two potentiometers and two SPDT switches
- 8 selectable logic switches
- BCD to 7 segment decoder / display
- 8 channel logic indicators
- Option of using Experiments Trainer Boards



C.A.D.E.T. MASTERLAB

- Removable breadboard area
- 1MHz multi-waveform function generator
- Quad voltage power supply
- Logic probe with pulse capture
- Square wave pulse generator
- BCD to 7 segment decoder / display
- 8 channel logic indicators
- DC digital voltmeter with four ranges
- Two open collector output pulsers
- 8 selectable logic switches
- Detachable 25-way computer interface
- Option of using Experiments Trainer Boards

E & L Instruments

"TOTAL SOLUTIONS FOR ELECTRONICS EDUCATION"

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C.A.D.E.T. SERIES - SPECIFICATIONS

C.A.D.E.T.

POWER:

3-wire AC line input (115V/230V 50-60Hz or 230V 50Hz, specify when ordering). Illuminated power switch.

POWER SUPPLIES:

Fixed 5VDC @ 1.0A, ripple <5mV
Variable $\pm 1.3V$ -15V 0.5A, ripple <5mV
Fixed AC O/P: 12.6VAC Centre tapped @ 100mA

FUNCTION GENERATOR:

Frequency Range: 0.1 Hz to 100KHz in six ranges
Output Voltage: 0 to $\pm 10V$ (20Vp-p)
Output impedance: 600 ohms (except TTL)
Output current: 10mA max., short circuit protected.
Output Waveforms: Sine, Square, Triangle, TTL
Sine wave: Distortion <3% (10Hz to 100kHz)
TTL Pulse: Rise and fall time <25ns
Drive 10 TTL loads
Square Wave: Rise and fall time <1.5 μ s

LOGIC INDICATORS:

16 LED's 8 red to indicate logic high, 8 green to indicate a logic low.

DEBOUNCED PUSHBUTTONS (PULSER):

Two push-button operated, open-collector output pulsers, each with one normally-open and one normally closed output. Each output can sink up to 250mA.

POTENTIOMETERS:

One 1k Ω , one 10k Ω , all leads available and uncommitted.

SPDT SWITCHES:

Two SPDT slide switches, all leads available and uncommitted.

BNC CONNECTOR:

Two BNC connectors, pin available and uncommitted, shell connected to ground.

LOGIC SWITCHES:

8 individual SPDT logic switches, one side of all eight switches connected to 0V, the other side of all eight switches is switchable between +5V and +V. Wipers are uncommitted and are taken to tie points

SPEAKER: 0.25W, 8 Ω

BREADBOARDING AREA:

A total of 2520 uncommitted tie-points. Two bus strips internally connected to power and ground. Fifty tie points for each +5V, +V, -V and ground.

ENCLOSURE: High impact plastic moulded case

DIMENSIONS: 16.5 (H) x 41 (W) x 29cm (D) (6.5" x 16" x 11.5")

WEIGHT: 3.2kg (7lbs)

C.A.D.E.T. II

POWER:

3-wire AC line input (115V/230V 50-60Hz or 230V 50Hz, specify when ordering) with power indicator.

POWER SUPPLIES:

Fixed DC output: +5VDC @ 1.0A, ripple <5mV
Variable DC O/P: +1.3V to +15V @ 0.5A, ripple <5mV
Variable DC O/P: -1.3V to -15V @ 0.5A, ripple <5mV
Fixed AC O/P: 12.6VAC Centre tapped @ 100mA

FUNCTION GENERATOR: See C.A.D.E.T.

LOGIC INDICATORS: See C.A.D.E.T.

LOGIC PROBE:

Built-in TTL/CMOS compatible logic probe. Captures fast single shot events and pulse trains. Input impedance 300K Ω , overload protection +50VDC, min. detectable pulse width 100nsec. TTL Threshold low - 0.8V high +2.25V, CMOS Threshold low +30 %Vcc high +70 %Vcc. Memory Mode.
Tie Points: Vcc: 1 x 0.6mm socket
Probe Input: 1 x 0.6mm socket

DEBOUNCED PUSHBUTTONS (PULSER): See C.A.D.E.T.

POTENTIOMETERS: See C.A.D.E.T.
Tie points: 20 per wiper; 10 per remaining contact

SPDT SWITCHES: See C.A.D.E.T. Masterlab

LOGIC SWITCHES: See C.A.D.E.T.

BNC CONNECTOR: See C.A.D.E.T.

SPEAKER: 0.25W, 8 Ω

BCD TO 7 SEGMENT DISPLAY:

2 BCD to 7 Segment Display circuits are provided including decoder/driver circuitry.
Tie Points: 5 per BCD input signal.

BREADBOARDING AREA: A total of 3360 uncommitted tie-points, available on Velcro breadboard plate.
Two QT-59B bus strips. Fifty tie-points for each +5V, variable $\pm 15V$, and ground if desired.

ENCLOSURE: Steel case

DIMENSIONS: 11.4 (H) x 38.1 (W) x 27.3cm (D) (4.5" x 15" x 10.75")

WEIGHT: 4.5kg (10lbs)

C.A.D.E.T. MASTERLAB

POWER:

3-wire AC line input (115V/230V 50-60Hz or 230V 50Hz, specify when ordering). Illuminated power switch.

POWER SUPPLIES:

Fixed DC output: +5VDC @ 1.0A, ripple <5mV
Variable DC O/P: +1.3V to +15V @ 0.5A, ripple <5mV
Variable DC O/P: -1.3V to -15V @ 0.5A, ripple <5mV
Fixed AC O/P: 12.6VAC Centre tapped @ 100mA

FUNCTION GENERATOR:

Frequency Range: 0.1 Hz to 1 MHz in seven ranges
Output Voltage: 0 to $\pm 10V$ (20Vp-p), short circuit protected.
Output Waveforms: Sine, Square, Triangle, TTL
Sine wave: Distortion <3 % (10Hz to 100kHz)
TTL Pulse: Rise and fall time <25ns
Drive 10 TTL loads
Square Wave: Rise and fall time <0.5 μ s
Tie Points: Sine, Square, Triangle, Wave: 10
TTL: 10

LOGIC INDICATORS: See C.A.D.E.T.

LOGIC PROBE: See C.A.D.E.T. II

Tie Points: VCC: 1 x 0.6mm socket
Probe Input: 1 x 0.6mm socket

DEBOUNCED PUSHBUTTONS (PULSER): See C.A.D.E.T.

POTENTIOMETERS: See C.A.D.E.T. II

PULSE GENERATOR:
A nominal square wave source with 6 ranges covering from 1Hz to 1MHz. Two switch selectable output ranges, one (TTL) of 5Vp-p and one (CMOS) linked to the variable supply voltage and capable of giving any voltage from 0V to 15Vp-p. Ten tie points are provided to connect to external circuits.

DIGITAL VOLTMETER:

A switch selectable LCD DC digital voltmeter with four ranges: ± 000.0 -199.9mV, ± 0.200 -1.999V, ± 2.00 -19.99V and ± 20.0 -199.9V. The input is protected against excess voltages to $\pm 300V$.

BNC CONNECTOR:

One BNC Connector, shell connected to ground.
Tie Points: 1 x 0.6mm socket per input
1 x 0.6mm socket for 0V

SPDT SWITCHES: 2 SPDT slide switches, all leads available and uncommitted.

Tie Points: 10 per wiper, 5 per remaining contact

LOGIC SWITCHES: see C.A.D.E.T.

SPEAKER: 0.25W, 8 Ω , uncommitted
Tie Points: 1 x 0.6mm socket for + Input
1 x 0.6mm socket for - Input

BCD TO 7 SEG DISPLAY: See C.A.D.E.T. II

BREADBOARDING AREA: See C.A.D.E.T. II

COMPUTER INTERFACE:

A detachable passive interface between a 25 way "D" connector and a breadboarding socket. Each pin on the "D" connector is linked to two tie points on one of two IF16 connectors. In addition there are two commoned groups of 6 and 8 tie points.

ENCLOSURE: Steel case

DIMENSIONS: 11.4 (H) x 38.1 (W) x 27.3cm (D) (4.5" x 15" x 10.75")

WEIGHT: 4.5kg (10lbs)

ORDERING INFORMATION	115V 50-60Hz	230V 50Hz
C.A.D.E.T.	325-1400	325-2400
C.A.D.E.T. with Velcro option	325-1401	325-2401
C.A.D.E.T. in carrying case	325-1404	325-2404
C.A.D.E.T. student socket plate (SSP3)	325-1402	-
C.A.D.E.T. II	325-1450	325-2450
C.A.D.E.T. II student socket plate (SSP4)	325-1448	-
C.A.D.E.T. Masterlab	325-1480	325-2480



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