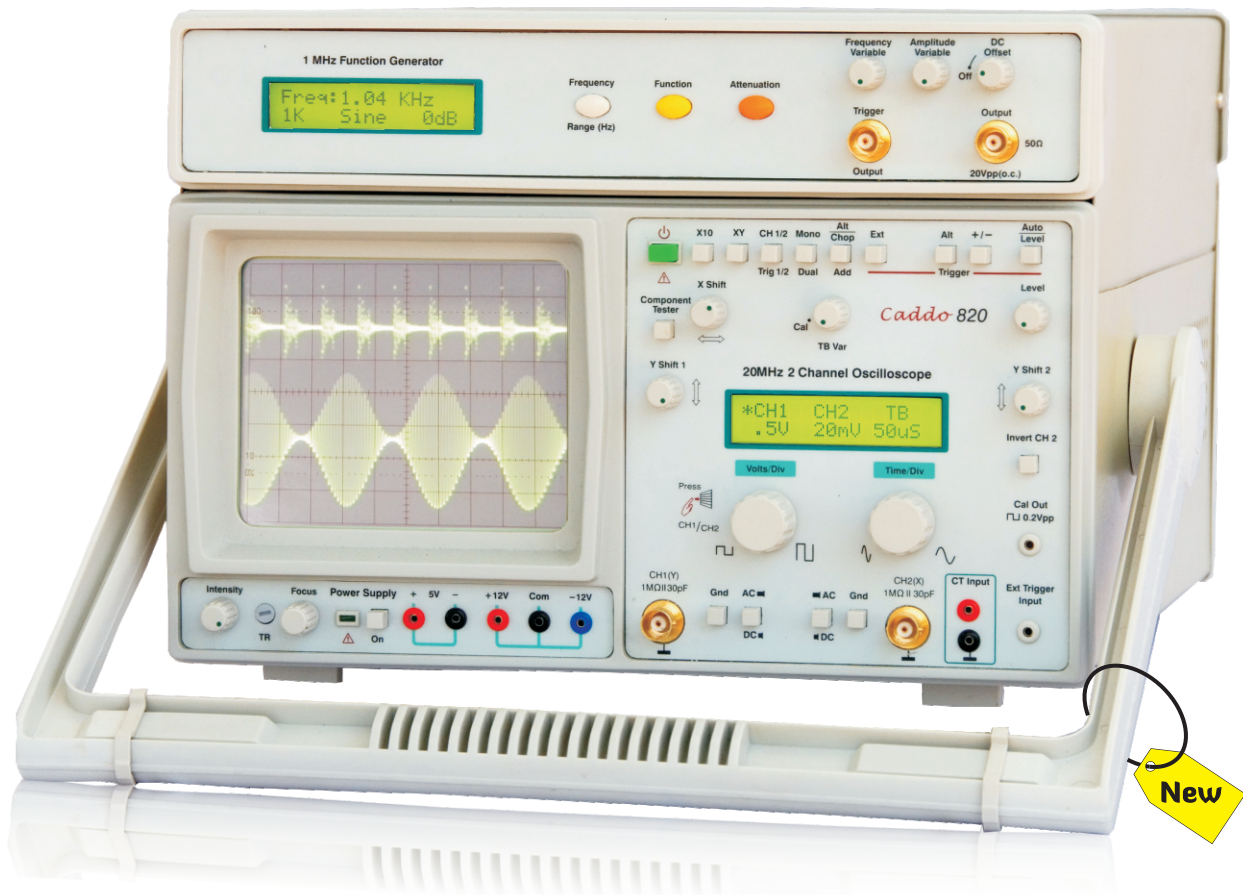


Caddo 820

20MHz Oscilloscope, Function Generator, Power Supply



Caddo 820 is a Universal Instrument for all Electronics, Electrical & Instrumentation Laboratories. It has instruments like Oscilloscope, Function Generator and DC Power Supply in a single space saving housing. The Caddo 820 forms an independent **Test Lab** for many applications.

MiniLab™

Features

- ▶ 2 Channel Oscilloscope - 40 MHz Trigger Bandwidth
- ▶ 1 MHz Function Generator - Sine, Square, Triangle, DC outputs
- ▶ DC Power Supply ± 12 V & 5 V
- ▶ Component & Continuity Tester
- ▶ Microcontroller based design
- ▶ 16x2 Alpha numeric LCD with backlit
- ▶ Alternate Triggering
- ▶ Gold Plated BNC Connectors
- ▶ Economical & Space Saving

Technical Specifications

Oscilloscope

Operating Modes

Channel I, Channel II, Channel I & II alternate or chopped (approx. 350 KHz), X-Y operation (Ratio 1:1 Input via CH II), Add/ Sub CH I \pm CH II, Invert CH II

Vertical deflection (Y)

(Identical channels)

Bandwidth : DC-20 MHz (-3 dB)
Risetime : 17.5 ns approx.
Deflection coefficients : Micro-controller based 12 calibrated steps 5 mV / Div -20 V / Div 1-2-5 sequence. Electronic Control, Display on 32 character backlit Alphanumeric LCD.
Accuracy : $\pm 3\%$
Input Impedance : 1 M Ω || 30 pF approx.
Input : Gold plated BNC
Input coupling : DC-AC-GND
Maximum Input voltage : 400 V (DC + Peak AC)

Timebase :

Time coefficients : Micro-controller based 18 calibrated steps, 0.5 μ s / Div-0.2 s / Div 1-2-5 sequence with magnifier x10 to 50 ns/Div, with variable control to 20 ns/Div. Electronic Control, Display on 32 character backlit Alphanumeric LCD.
Accuracy : $\pm 3\%$ in Cal position

Trigger System :

Modes : Auto / Level
Source : CH I, CH II, Alt-CH I / CH II, Ext.
Slope : Positive or Negative
Sensitivity : Internal 5 mm, Ext 0.8 V approx.
Trigger Bandwidth : 40 MHz

Horizontal Deflection (x) :

Bandwidth : DC-2.5 MHz (-3 dB)
X-Y mode : Phase Shift $< 3^\circ$ at 60 KHz
Deflection coefficients : Micro-controller based 12 calibrated steps 5mV/Div-20 V/Div 1-2-5 sequence. Electronic Control, Display on 32 character backlit Alphanumeric LCD.

Input Impedance : 1 M Ω || 30 pF approx.

Input : Gold plated BNC

Built-in Single Touch Component Tester

Test Voltage : Max 8.6 V_{rms} Open
Test Current : Max 8 mA_{rms} Shorted
Test Frequency : 50 Hz, Test circuit grounded to chassis
Continuity Tester : Beeper sounds $< 75 \Omega$ approx.
Function Generator
Operating Modes : Sine, Square, Triangle & DC Outputs
Frequency Range : 0.1 Hz - 1 MHz in 7 decade steps, variable control between steps

Frequency Accuracy : $\pm 0.5\%$
Frequency Range and Mode Selection : Microcontroller based
Frequency Stability : $< 0.1\%$ / h or 0.3% / 24 h at constant ambient temp. (medium position of frequency control)

Waveform Characteristics

Sine Wave Distortion :
0.1 Hz to 100 KHz : max. 0.5%
100 KHz to 500 KHz : max. 1.5%
500 KHz to 1 MHz : max. 3%
Square Wave Risetime : max. 70 ns. (10 to 90 %)
Overshoot : $\leq 5\%$ (when output is terminated with 50 Ω)
Triangle Non-Linearity : $\leq 1\%$ (upto 100 KHz) approx.
Frequency Display : 16x2 Alpha numeric LCD with backlit

Outputs

Signal Output : (short-circuit proof)
Impedance : 50 Ω
Output Voltage : Max. 10 V_{pp} into 50 Ω , 20 V_{pp} open circuit
Attenuation : 2 steps : -20 dB \pm 0.2 dB each
Variable attenuation : 0 to -20 dB total of -60 dB

Amplitude Flatness : (Sine/Triangle) with 50 Ω termination

0.1 Hz to 100 KHz - max. 0.2 dB
100 KHz to 1 MHz - max. 0.5 dB

DC Offset : Continuously variable

Offset Range : ± 5 V DC

Trigger Output : TTL more than 4 V

DC Power Supply

Fixed Output Voltage : 5 V / 500 mA
+ 12 V / 250 mA
- 12 V / 250 mA

Ripple : ≤ 8 mV_{rms}

Tolerance : ± 0.2 V

Line Regulation : 2 %
5 V is floating & ± 12 V has common ground but floating from scope chassis.

General Information

Cathode Ray Tube : 140 mm Rectangular tube with internal graticule. P31 Phosphor

Accelerating potential : 2 KV approx.

Display : 8 \times 10 cm

Trace rotation : Adjustable on front panel

Calibrator : Square Wave Generator 1 KHz approx.
0.2 V \pm 1 % for probe compensation

Stabilized Power Supply : All operating voltages including the EHT

Mains Supply : 230 V \pm 15%, 50 Hz . 60 Hz on request

Power Consumption : 65 VA approx.

Weight : 9 Kg approx.

Dimensions (mm) : W 325 \times D 385 \times H 215

Operating Temp. : 0-40 $^\circ$, 90 % RH

Included Accessories :

1. Learning material CD	1 No.
2. BNC-Test prod Cable	1 No.
3. BNC - Crocodile Cable	1 No.
4. Test Prod	1 Set

Subject to Change

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