

# Data sheet

## 60 MHz Analog Oscilloscope Model 2160A



- 5 mV/div sensitivity
- 23 calibrated ranges-main time base
- 23 calibrated ranges-delayed time base
- Signal delay time
- Component tester
- Z axis input
- Single sweep

Specifications		model
		2160A
<b>VERTICAL AMPLIFIERS (CH 1 and 2)</b>		
Sensitivity	5 mV/ 5 V/div, 1 mV/div to 1 V/div (X5 MAG)	
Attenuator	1-2-5 sequence, plus x 5 gain step, Vernier control provide fully adjustable sensitivity between steps range 1/1 to at least 1/2.5	
Accuracy	±3%, 5 mV to 5 V/div; ±5%, 1 mV, 2 mV/div	
Input impedance	1 MΩ ±2%	
Input Capacitance	25 pF±10%	
Frequency Response	DC to 60 MHz (5 mV/div to 5 V/div), DC to 15 MHz (X5 MAG)	
Rise Time	5.8 ns (Overshoot ≤5%)	
Operating Modes	CH1, CH2, Dual, Alternate Chop	
Polarity Reversal	CH 2 invert	
Maximum Input Voltage	400V (DC + AC peak)	
<b>SWEEP SYSTEM</b>		
Sweep Display Modes	Main, Mix, Delay, XY	
Hold Off Time	5:1 continuously variable	
<b>Main Sweep</b>		
Sweep Speed	0.1 μs/div. to 2.0s/div. in 1-2-5 sequence, 23 steps	
Accuracy	±3%	
Variable Time Control	5:1, uncalibrated, continuously variable between steps	
Sweep Magnification	10 x , ±10%, extended sweep speed up to 10 ns/div	
<b>Delay Sweep</b>		
Sweep Speed	0.1 μs/div. to 2.0 s/div. in 1-2-5 sequence, 23 steps	
Accuracy	±3%	
Sweep Magnification	10 x , ±10%, extended sweep speed up to 10 ns/div	
Delay Time Position	Variable control to locate desirable waveform for extending	
<b>Triggering</b>		
Trigger Coupling	AUTO, NORM, TV-V, TV-H	
Trigger Source	CH1, CH2, ALT, EXT. LINE	
Slope	+/-	
<b>HORIZONTAL AMPLIFIER</b>		
(Input through channel 2 input)		
X-Y Mode	CH 1: X axis, CH 2: Y axis	
Sensitivity	Same as vertical channel 2	
Input Impedance	Same as vertical channel 2	
Frequency Response	DC: DC to 1MHz (-3 dB). AC: 5 Hz or 2 MHz (-3 dB)	
X-Y Phase Difference	3° or less at 50 kHz	
Maximum Input Voltage	Same as vertical channel 2	

CH 2 Output (on rear panel)	
Output Voltage	50 mV/div (nominal into 50 Ω load)
Output Impedance	Approximately 50 Ω
Frequency Response	20 Hz to 60 MHz, -3 dB into 50 V

CRT	
Type	6-inch rectangular with internal graticule
Display Area	8 x 10 div (1 div = 1 cm)
Accelerating Voltage	12 kV
Phosphor	P31
Scale Illumination	Continuously variable
Trace Rotation	Electrical, front panel adjustable

COMPONENT TESTER	
Components Tested	Resistors, capacitors, inductors, and semiconductors
Test Voltage	6 V rms maximum (open)
Test Current	11 mA maximum (shorted)
Test Frequency	Line frequency (60 Hz in USA)

Other Specifications	
Cal/Probe	
Compensation Voltage	2.0 V p-p ±3% square wave, 1 kHz nominal
Sweep Output	TTL level allows synchronization of external equipment with scope sweep

Intensity Modulation	
Input Signal	TTL level, intensity increasing with more positive levels
Input Impedance	50 kΩ
Usable Freq. Range	DC to 5 MHz
Maximum Input Voltage	30 V (DC + AC peak)

Environment	
Within Specified Accuracy	50° to 95°F (10° to 35°C), 10-80% RH
Full Operation	32° to 122°F (0° to +50°C), 10 - 80% RH
Storage	-22° to 158°F (-30° to +70°C), 10 - 90% RH
Power Requirements	110/120/220/240 V ±10%, 50/60 Hz
Dimensions (H x W x D)	12.76 x 15.68 x 5.2" (324 x 398 x 132mm)
Weight	16.75 lbs. (7.6kg)

### Three Year Warranty

<b>Accessories</b>	
Supplied: Instruction Manual, Two PR 33A x1/x10 Probes or equivalent, AC Power Cord, Spare Fuse	
Optional: PR 32A Demodulator Probe, PR 37AG x1/x10/REF Probe, PR 100A x100 Probe, PR-55 High Voltage x1000 Probe, LC 210A Carrying Case	