

20 MHz Analog/Digital Storage Oscilloscope

- 20MHz analog bandwidth
- 10MS/s sampling rate each channel
- 2k memory per channel
- 1GHz equivalent time sampling (at 0.1 μ s/div)
- Pre-trigger capture



2522B

Digital Mode Specifications

model
2522B

Storage Word Size	2048 x 8 bits/channel; (2 k/channel with direct sampling, 1 k/channel with equivalent time sampling).
Vertical Resolution	1 in 256, approximately 25 steps/div.
Horizontal Resolution	1 in 2048, approximately 200 samples/div.
Sampling Rate	10 M samples/sec to 4 samples/sec, reduced in proportion to time base. Direct sampling at time base settings of 20 μ s/div and slower, equivalent time sampling at time base settings of 10 μ s/div and faster.
Time Base Expander	For storage of slow time events, time base steps 10 ms/div and slower have selectable 1/1 or 1/100 rate. 1/100 rate expands time base from 1 sec/div to 50 sec/div in 1-2-5 sequence.
Equivalent time Sampling Bandwidth	20MHz for repetitive waveforms.
Dot Joining	Linear interpolation between samples.

DIGITAL DISPLAY MODES

Roll	Stored data and display updated continually.
Refresh	Stored data and display updated by triggered sweep.
Hold	Freezes channel 1 and channel 2 data immediately.
Save CH 2	Freezes channel 2 data immediately.
Pretrigger Storage	Available in single shot mode, switchable to 0% or 50%.
LED Indicators	Trigger (green), Arm (red), Pen Down (red).

PLOT OUTPUT

CH1 and CH 2 Outputs OUTPUT and CH 2 OUTPUT	Selected by PLOT switch on rear panel. Output via CH 1 jacks on rear panel. Amplitude 0.1 V/div (1 V maximum).
Output Sweep Rate	Output sweep rate is 1/10 of TIME/DIV setting (and 1/100 switch when applicable).
Pen Lift Output	Available at Pen Down jack on rear panel. TTL high, Pen Up. TTL low, Pen Down.

Analog Mode Specifications

VERTICAL AMPLIFIERS (CH 1 and CH 2)

Sensitivity	5 mV/div to 5 V/div in 1-2-5 sequence, 10 steps. Vernier control provides fully adjustable gain between steps. Pull x5 increases maximum sensitivity to 1 mV/div (at reduced bandwidth).
Accuracy	$\pm 3\%$, $\pm 5\%$ at x5 MAG
Input Resistance	1M Ω $\pm 2\%$
Input Capacitance	25pF + 10pF
Frequency Response	5 mV to 5 V/div: DC to 20 MHz (-3 dB). x5: DC to 10MHz (-3dB)
Rise Time	Approximately 17.5 ns (overshoot $\leq 3\%$)
Polarity Reversal	CH 2 only
Maximum Input Voltage	400 V (DC + AC peak)

MAXIMUM UNDISTORTED AMPLITUDE

DC-to-20 MHz	4 divisions
DC-to-10 MHz	8 divisions

OPERATING MODES

CH 1: CH 1, single trace	CH 2: CH 2, single trace
ALT	Dual trace, alternating
CHOP	Dual trace, chopped
ADD	Algebraic sum of CH 1 + CH 2

SWEEP SYSTEM

Sweep Speed	0.1 μ s/div to 2 s/div in 1-2-5 sequence, 23 steps. Vernier control provides fully adjustable sweep time between steps.
Accuracy: $\pm 3\%$	Sweep Magnification: 10X, $\pm 6\%$
Hold off	variable.

TRIGGERING

Modes: AUTO (free run) or NORM.	Source: CH1, CH2, ALT, EXT, LINE.
Maximum External Trigger Voltage: 200V (DC + AC peak).	
Sensitivity	Internal - 0.5 division, External - 500 mV.

TRIGGER COUPLING

AC	30 Hz to 30 MHz.
TV H/HF:	Used for triggering from horizontal sync pulses. Low frequencies are attenuated.
TV V DC/LF:	Used for triggering from vertical sync pulses. High frequencies are attenuated. Direct coupled.

HORIZONTAL AMPLIFIER (Input thru CH 1 Input)

X-Y Mode	Switch selectable using X-Y switch
CH 1: X axis CH 2: Y axis	
Sensitivity	Same as vertical channel 1
Accuracy	Y-Axis: $\pm 3\%$. X-Axis: $\pm 6\%$
Input Impedance	Same as vertical channel 1
Frequency Response	DC to 2 MHz typical (-3 dB) (to 6 divisions horizontal deflection)
X-Y Phase Difference	Approximately 3° at 50 kHz
Maximum Input Voltage	Same as vertical channel 1

Other Specifications

CRT	
Type	Rectangular with internal graticule
Display Area	8 x 10 div (1 div = 1 cm).
Accelerating Voltage	2 kV
Phosphor	P31
Trace Rotation	Electrical, front panel adjustable

ENVIRONMENT

Within Specified Accuracy	50° to 95°F (10° to + 35°C), 85% maximum RH
Full Operation	32° to 104°F (0° to + 40°C), 85% maximum RH
Storage	-4° to 158°F (-20° to + 70°C)

OTHER

CH 1 Output	(on rear panel)
Output Voltage	25mV/div (nominal into 50 Ω load)
Output Impedance	Approximately 50 Ω
Frequency Response	20 Hz to 10MHz, -3 dB into 50 Ω
Cal/Probe Compensation Voltage	0.5 Vp-p $\pm 3\%$ square wave, 1kHz nominal
Power Requirements	110 V/125/220/240 VAC, 50/60 Hz, approximately 60 W
Dimensions (HxWxD)	5.2 x 12.8 x 15.6" (132 x 324 x 397 mm)
Weight	Approx. 19 lb (8.6 kg.)

Accessories

Three Year Warranty

SUPPLIED: Instruction Manual, Two PR-33A x1/x10 Probes or equivalent, AC Power Cord, Spare Fuse

OPTIONAL: PR-32A Demodulator Probe, PR-37A x1/x10/REF Probe, PR-100A x100 Probe, PR-55 High Voltage x1000 Probe, LC-210A Carrying Case