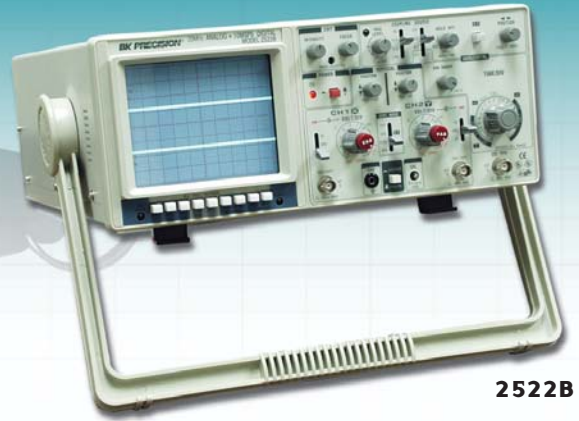


# 20 MHz Analog/Digital Storage Oscilloscope



2522B

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

## Digital Mode Specifications

|                                    | model<br>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 $\mu$ s/div and slower, equivalent time sampling at time base settings of 10 $\mu$ 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

|  |  |
|--|--|
| CH 1 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 $\Omega$ $\pm 2\%$  |
| 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 $\mu$ 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 $\Omega$ load)            |
| Output Impedance               | Approximately 50 $\Omega$                           |
| Frequency Response             | 20 Hz to 10MHz, -3 dB into 50 $\Omega$              |
| Cal/Probe Compensation Voltage | 0.5 Vp-p + 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 |