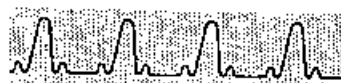


# Appendix B: Specifications



The electrical characteristics apply to the following conditions:

- The oscilloscope has had a 20-minute warm-up period.
- The oscilloscope is operating in an environment that meets the limits described in Environmental Specifications in this section.

### *Vertical System Specifications*

Characteristic	Specifications
Input sources	3 plug-in amplifiers, up to 12 channels
Bandwidth	Dependent on plug-in amplifier
Rise time	Dependent on plug-in amplifier
Vertical resolution	10 bits. Signal averaging of N acquisitions increases bit resolution by $\log_2(N)$ up to a limit of 14 bits
Input sensitivity	Dependent on plug-in amplifier
Vertical acquisition resolution	
Single graticule	100 points/div
Dual graticule	100 points/div
Vertical display resolution	
Single graticule	50 pixels/div
Dual graticule	25 pixels/div

## Specifications



### Time Base Specifications

Characteristic	Specification
Internal reference clock	Crystal-controlled reference oscillator.
Time Interval accuracy with acquired waveforms	0.002% $\pm$ 100 ps
Sample rate	
Single channel	Any single channel from the Left, Center, or Right plug-in compartment may be acquired at up to 20 Msample/s
Two channel	Any combination of two channels from different plug-in compartments may be acquired at up to 5 Msample/s
Three channel	Any combination of three channels from different plug-in compartments may be acquired at up to 2.5 Msample/s
Record Length	User selectable, 512, 1024, 2048, 4096, 5120, 8192, or 10240 points
Sweep rate resolution	1-2-5 steps from 0.5 ns to 100 s
Record duration	5.11 ns to 1023 s

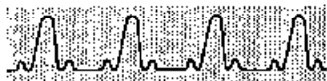
## Specifications



### Input and Output Specifications

Characteristic	Specification
Touch panel	Infrared beam touchable array, 22 rows of 11 columns
Knobs	2 general-purpose knobs, set by user to desired function
Callibrator	Active only during Probe Calibra- tion
Output Voltage	Suitable for calibration DC gain of 10X probes at $\leq 5$ V/div at the probe tip

## Specifications



### Trigger Specifications

Characteristic	Specification
Trigger source	Two independent trigger circuits (Main and Window) can derive triggers from the Left, Center, and Right plug-in compartments. Main time base may also be triggered from the AC line.
Trigger mode	
Auto	Free runs after 60 ms timeout with no trigger detected (Main trigger only)
Auto Level	Automatically establishes a level for the trigger source; seeks new level after 60 ms timeout. Main free runs in absence of signal
Normal	Triggering occurs only after valid triggering event
Trigger level	Can be set independently for Main and Window trigger circuits.
Trigger level resolution	0.1% of full scale
Minimum holdoff	
Main	500 ns or less
Window	20 ns or less
Maximum holdoff	
Main	10 s
Window	1024 s

## Specifications



### Trigger Specifications (Cont.)

Characteristic	Specification
Main Trigger sensitivity DC Coupled	0.5 divisions from DC to 50 MHz; 1.5 divisions from 50 MHz to 1 GHz with minimum holdoff
DC Noise-Reject Coupled	1.2 divisions from DC to 50 MHz; 3 divisions from 50 MHz to 1 GHz with minimum holdoff
DC High-Freq. Reject Coupled	0.65 divisions from DC to 30 kHz
AC coupled	0.5 divisions from 60 Hz to 50 MHz; 1.5 divisions from 50 MHz to 1 GHz with minimum holdoff. Attenuates signals below 60 Hz
AC Noise-Reject Coupled	1.2 divisions from 60 Hz to 50 MHz; 3 divisions from 50 MHz to 1 GHz with minimum holdoff
AC High-Freq. Reject Coupled	0.65 divisions from 60 Hz to 30 kHz
AC Low-Freq. Reject Coupled	0.65 divisions from 80 kHz to 50 MHz; 1.5 divisions from 50 MHz to 1 GHz with minimum holdoff.

## Specifications



### Trigger Specifications (Cont.)

Characteristic	Specification
Window Trigger sensitivity DC Coupled	0.5 divisions from DC to 50 MHz; 1.5 divisions from 50 MHz to 500 MHz with minimum holdoff
DC Noise-Reject Coupled	1.2 divisions from DC to 50 MHz; 3 divisions from 50 MHz to 500 MHz with minimum holdoff
DC High-Freq. Reject Coupled	0.65 divisions from DC to 30 kHz
AC coupled	0.5 divisions from 60 Hz to 50 MHz; 1.5 divisions from 50 MHz to 500 MHz with minimum holdoff. Attenuates signals below 60 Hz
AC Noise-Reject Coupled	1.2 divisions from 60 Hz to 50 MHz; 3 divisions from 50 MHz to 500 MHz with minimum holdoff
AC High-Freq. Reject Coupled	0.65 divisions from 60 Hz to 30 kHz
AC Low-Freq. Reject Coupled	0.65 divisions from 80 kHz to 50 MHz; 1.5 divisions from 50 MHz to 500 MHz with minimum holdoff.

## Specifications



### Display Specifications

Characteristic	Specification
CRT	
11403	8 1/2 inch diagonal, color, magnetic deflection. Vertical raster orientation. Nominal screen size 6.087 inches vertical by 4.496 inches horizontal
11402A	9 inch diagonal, monochrome, magnetic deflection. Vertical raster orientation. Nominal screen size 6.16 inches vertical by 4.80 inches horizontal
Character display	44 lines of 55 characters
Character height	Minimum 0.10 in (upper case)

### AC Line Power Specifications

Characteristic	Specification
Voltage Ranges	90 to 132 V rms or 180 to 250 V rms Selected by rear panel Line Voltage Selector. Voltage ranges apply for waveform distortion, which reduces peak line voltage 5% or less
Frequency	48 Hz to 440 Hz
Power consumption	320 W maximum
Maximum Line Current	4.6 A rms at 50 Hz, 90 V line, with 5% clipping.
Fuse Rating	6 A, 250 V, normal blow

Specifications



*Environmental Specifications*

<b>Characteristic</b>	<b>Specification</b>
Temperature	Meets MIL-T-28800C, Type III, Class 5, tested per paragraphs 4.5.5.1.3 and 4.5.5.1.4
Operating	0°C to 50°C
Non-operating	-40°C to +75°C (Possible loss of nonvolatile memory and clock information below -40°C)
Humidity	Exceeds MIL-T-28800C, Type III, Class 5, tested per paragraph 4.5.5.1.2.2 Up to 95% relative humidity, at up to 50°C
Altitude	Meets MIL-T-28800C, Type III, Class 5
Operating	Up to 4.5km (15,000 ft)
Non-operating	Up to 15km (50,000 ft)
Vibration	Operating, plug-in units not installed: meets MIL-T-28800C, Section 4.5.5.3.1, Type III, Class 5
Shock	Non-operating, plug-in units not installed: meets MIL-T-28800C, Section 4.5.5.4.1, Type III, Class 5, Equipment not operating
Bench handling	Operating: meets MIL-T-28800C, Type III, Section 4.5.5.4.3, Class 5



*Specifications*



*Environmental Specifications (Cont.)*

<b>Characteristic</b>	<b>Specification</b>
Packaged product vibration and bounce	Packaged product, plug-in units not installed: meets ASTM D995-75, Method A, Para 5 (NSTA Proj. 1A-B-1)
Drop of packaged product	Packaged product, plug-in units not installed: meets ASTM D775-61, Method 1, Para 5 (NSTA Proj. 1A-B-2)
Electrostatic immunity	No disruption or degradation of performance from electrostatic discharge common in the office/ laboratory environment
Electromagnetic compatibility	Plug-in units or blank panels must be installed in all plug-in compartments