

Table 1-1. Specifications.

Ranges:
 .01 V (ac only)
 .1 V
 1 V
 10 V
 100 V
 1000 V

DC + AC: Responds to true RMS value of dc and ac signal;
 Reading is:

$$\sqrt{(dc)^2 + (ac\ RMS)^2}$$

Functions:
 AC: Responds to true RMS value of ac coupled input signal.
 DC: Responds to dc component of input signal.

Effective Common-Mode Rejection (1 kΩ unbalance in either lead):
 AC Function: > 60 dB at 60 Hz.
 DC Function: > 120 dB at 60 Hz.

Normal-Mode Rejection:
 DC Function: > 60 dB at 60 Hz.

Voltage Measurement Accuracy: (25° C ± 5° C; < 95 % relative humidity).
 AC or DC + AC voltage measurement accuracy is not specified below the point on any range where the RNG ↓ indicators light.
 DC function accuracy is specified over the entire range.

Voltage Reading Accuracy	= ± (% of Range)			+ % of Reading)**								
	Function			Frequency in Hz								
	Range	DC	DC + AC	DC	2	25	100 k	1 M	10 M	20 M	50 M	100 M
1000 V	0.3	0.3	0.3	0.2	0.4*	0.2						
100 V	0.2	0.2	0.2	0.2	0.4*	0.2	1.0					
10 V	0.2	0.2	0.2	0.2	0.4*	0.2	0.5	1.0				
1 V	0.2	0.2	0.2	0.2	0.4*	0.2	0.5	1.0	2.0	5.0	10.0	
.1 V	0.6	0.6	.04 V $\frac{0.2}{0.4}$	0.2	0.4*	0.2	0.5	2.0	2.0	5.0	10.0	
.01 V			.004 V $\frac{0.2}{0.4}$	0.2	0.4*	0.2	0.3	1.2	3.0 ² M			

* DC + AC Function and Slow Response Time only.
 ** % of Reading Specification is representative of typical flatness.
 Frequencies and Ranges in shaded areas may result in invalid readings without ranging information.

dB Measurement Accuracy (Option 006): (25° C ± 5° C; < 95 % relative humidity).
 dB measurement accuracy is not specified below the point on any range where the RNG ↓ indicators light.

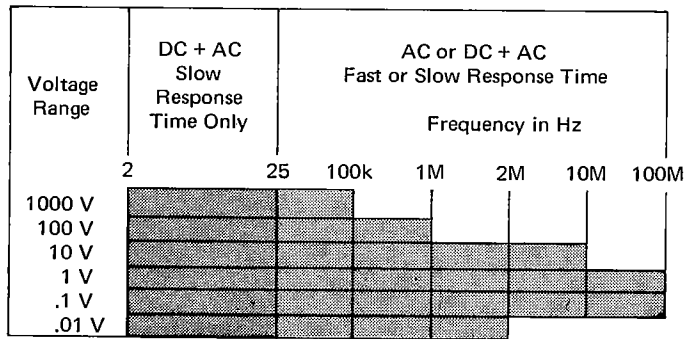
dB Reading Accuracy	= ± dB		+ dB**									
	Function		Frequency in Hz									
	Range	AC	DC + AC	DC	2	25	100 k	1 M	10 M	20 M	50 M	100 M
1000 V	0.15	0.15	0.02	0.04*	0.02							
100 V	0.15	0.15	0.02	0.04*	0.02	0.1						
10 V	0.15	0.15	0.02	0.04*	0.02	0.05	0.1					
1 V	0.15	0.15	0.02	0.04*	0.02	0.05	0.1	0.2	0.5	1.0		
.1 V	0.15	0.15	0.02	0.04*	0.02	0.05	0.2	0.2	0.5	1.0		
.01 V	0.15			0.04*	0.02	0.1	0.3 ² M					

*DC + AC Function and Slow Response Time only.
 **Specification is representative of typical flatness.
 Frequencies and Ranges in shaded areas may result in invalid readings without ranging information.

Temperature Coefficient (0° C to 20° C and 30° C to 50° C): TC = 0.1 x Reading accuracy (from charts) / ° C.

Table 1-2. Typical Operating Characteristics.

Frequency Range.



Response Time:

Fast: 1 second
 Slow: 10 seconds.

Instrument reads final reading $\pm 0.1\%$ of input voltage change in stated response time.

.01 V and .1 V ranges: $20\text{ M}\Omega \pm 10\%$ in parallel with $16\text{ pF} \pm 10\%$.

1 MHz to 100 MHz: The following table gives maximum loading error due to input shunt impedance across a terminated source.

System Impedance (Source and Load)	Frequency	
	10 MHz	100 MHz
50 Ω	1 %	10 %
75 Ω	2 %	20 %

Reading Rate:

Fast response time: 4 per second
 Slow response time: 2 per second

Maximum Input Voltage:

High to Low:
 1000 V rms, 1500 V peak or 10^8 V Hz on any range.
 Maximum dc in ac function: ± 500 V dc.

Autoranging (Options 001 and 003):

Up-ranging occurs at approximately 190 % of range, down-ranging at approximately 17 % of range.

Low to Chassis:

± 500 V peak, when floated with special banana jack-to-BNC adapter.

Autorange operating frequency range: Input signals above the frequencies indicated by the Frequency Range chart in this table may result in erroneous readings and improper autorange operation.

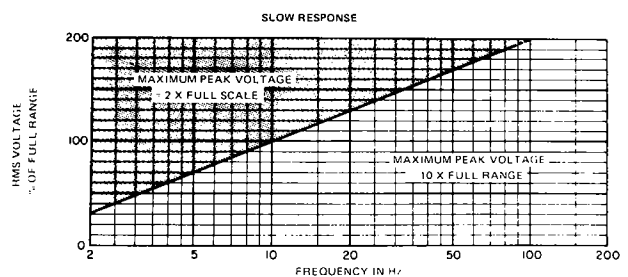
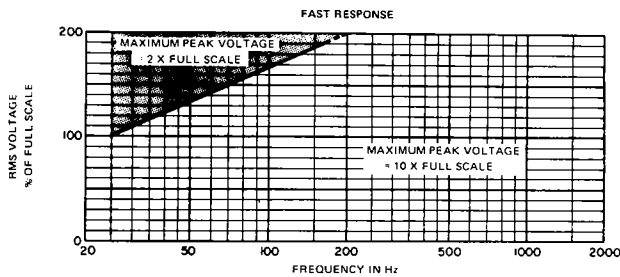
Input Impedance:

Below 10 MHz
 1 V to 1000 V ranges: $10\text{ M}\Omega \pm 10\%$ in parallel with $19\text{ pF} \pm 10\%$.

Autorange time per range change:

Fast response time: 1 second
 Slow response time: 10 seconds

Crest Factor: Peak Voltage Limits:



The Crest Factor capabilities of the Model 3403C are limited by two things: the dynamic range of the Input Amplifier and the Overload Protection circuitry which protects the thermopile. The dynamic range of the Input Amplifier is sufficient to handle peaks of at least 10 times full range. The Overload Protection circuit, which limits the peak temperature of the thermopile, is dependent on both the voltage level and frequency. The following figures show the ranges of frequency and level at which the RMS Converter will accept signals with peaks of 10 times full range without being limited by the Overload Protection circuit. As the frequency is reduced (or the RMS value is increased) beyond the limits shown, the maximum peak voltage allowable makes a fairly abrupt transition from 10 times to 2 times full range.