

Table 6-2 HP 44701A Specifications

DC VOLTAGE

Accuracy: ±(% of reading + volts) rear terminal, one hour warmup, specified over time since last calibration, and operating temperature.

90 Days, 18°C to 28°C, Autozero On

Range	Integration Time in Number of Power Line Cycles (NPLC)			
	1	0.1	0.005	0.0005
30 mV	0.02%+6μV	0.02%+8μV	0.02%+20μV	0.02%+60μV
300 mV	0.008%+6μV	0.008%+10μV	0.008%+40μV	0.008%+400μV
3 V	0.008%+8μV	0.008%+40μV	0.008%+400μV	0.008%+4mV
30 V	0.008%+300μV	0.008%+700μV	0.008%+4mV	0.008%+40mV
300 V	0.008%+700μV	0.008%+4mV	0.008%+40mV	0.008%+400mV

1 Year: Add 0.01% of reading to the 90 Days Specifications

Temperature Coefficient:

Add as an additional accuracy error using ±(% of reading + volts) per °C change outside 18° to 28°C, as long as the operating temperature is maintained between 0 to 18° or 28° to 55°C.

For 30 mV Range add 0.001% + 30 nV

For 300 mV and 3 V Ranges add 0.0006% + 300 nV

For 30 V and 300 V Ranges add 0.0006% + 30 μV

Auto-zero Off:

Add as an additional accuracy error if autozero is turned off. Assumes stable environment, ±1°C, for 24 hours.

For 30 mV, 300 mV, and 3 V Ranges add 10 μV

For 30 V Range add 100 μV

For 300 V Range add 1 mV

Resolution:

Range	Integration Time in Number of Power Line Cycles (NPLC)			
	1	0.1	0.005	0.0005
30 mV	10nV	100nV	1μV	10μV
300 mV	100nV	1μV	10μV	100μV
3 V	1μV	10μV	100μV	1mV
30 V	10μV	100μV	1mV	10mV
300 V	100μV	1mV	10mV	100mV

Over-ranging: 1% of full scale

Table 6-2 HP 44701A Specifications (Cont.)

Reading Rate/Noise Rejection:

	Integration Time in Number of Power Line Cycles (NPLC)			
	1	0.1	0.005	0.0005
Integration Time: 60 Hz 50 Hz	16.7mS 20.0mS	1.67mS 2.0mS	100MS 100MS	10MS 10MS
Number of Converted Digits	6 1/2	5 1/2	4 1/2	3 1/2
Reading Rate (reading/sec) with autozero and auto- range off:				
60 Hz	57	415	1350	1600
50 Hz	48	360	1350	1600
Min. Noise Rejection (dB) Normal Mode Rejection at 50 or 60 Hz $\pm 0.09\%$	60	0	0	0
DC Common Mode Rejection with 1 k Ω in low lead	120	120	120	120
Effective Common Mode Rejection, DC to 60 Hz with 1 k Ω in low lead	150	90	90	90

RESISTANCE

Accuracy: \pm (% of reading + ohms), 4-wire or 2-wire ohms, offset compensation on or off, rear terminal inputs, one hour warmup, specified over time since last calibration, and operating temperature. (Current source compliance voltage is at least 6 V).

90 Days, 18°C to 28°C, Autozero On

Range	Integration Time in Number of Power Line Cycles (NPLC)			
	1	0.1	0.005	0.0005
30 Ω	0.02%+6m Ω	0.02%+20m Ω	0.02%+40m Ω	0.02%+75m Ω
300 Ω	0.015%+6m Ω	0.015%+20m Ω	0.015%+60m Ω	0.015%+400m Ω
3 k Ω	0.015%+60m Ω	0.015%+200m Ω	0.015%+650m Ω	0.015%+4 Ω
30 k Ω	0.015%+80m Ω	0.015%+400m Ω	0.015%+5 Ω	0.015%+80 Ω
300 k Ω	0.015%+1 Ω	0.015%+4 Ω	0.015%+50 Ω	0.015%+800 Ω
3 M Ω	0.1%+17 Ω	0.1%+70 Ω	0.1%+500 Ω	0.1%+6k Ω

1 Year: Add 0.01% of reading to the 90 Days Specifications

Table 6-2 HP 44701A Specifications (Cont.)

Ohms Current Source Output:

30 Ω and 300 Ω Ranges: 1 mA
 3 kΩ and 30 kΩ Ranges: 100 μA
 300 kΩ Range: 10 μA
 3 MΩ Range: 1 μA

Temperature Coefficient:

Add as an additional accuracy error using ±(% of reading + ohms) per °C change outside 18° to 28°C, as long as the operating temperature is maintained between 0 to 18°C or 28° to 55°C.

For 30 Ω, 300 Ω, and 3 kΩ Ranges add 0.0006% + 500 μΩ
 For 30 kΩ Range add 0.0006% + 5 mΩ
 For 300 kΩ Range add 0.001% + 50 mΩ
 For 3 MΩ Range add 0.001% + 500 mΩ

Reading Rate:

	Integration Time in Number of Power Line Cycles (NPLC)			
	1	0.1	0.005	0.0005
Reading Rate (reading/sec) with autozero and auto- range off:				
60 Hz	25	100	155	160
50 Hz	20	95	155	160

AC VOLTAGE

Accuracy: ±(% of reading + volts), 1 NPLC integration time, one hour warmup, specified over time since last calibration, and operating temperature. AC measurements are made with an average detector calibrated in RMS, and are intended to measure sine waves between 45 Hz to 500 Hz (AC coupled). The voltmeter accuracy is **specified only when the input voltage is greater than 10% of full scale.**

Range	90 Days, 18°C to 28°C	1 Year, 18°C to 28°C
200 mV	0.5% + 600 μV	0.75% + 900 μV
2 V	0.5% + 6 mV	0.75% + 9 mV
20 V	0.5% + 60 mV	0.75% + 90 mV
200 V	0.5% + 600 mV	0.75% + 900 mV

Table 6-2 HP 44701A Specifications (Cont.)

Temperature Coefficient:

Add as an additional accuracy error using \pm (% of reading + volts per °C change outside 18° to 28°C, as long as the operating temperature is maintained between 0 to 18°C or 28° to 55°C.

- For 200 mV Range add 0.01% + 7 μ V
- For 2 V Range add 0.01% + 70 μ V
- For 20 V Range add 0.01% + 700 μ V
- For 200 V Range add 0.01% + 7 mV

Reading Rate: 1.5 seconds/reading; changing to the AC Volts function requires approximately 4 seconds.

INPUT CHARACTERISTICS

Maximum Input Voltage: 350 V peak or 250 V DC between any two points (terminals or chassis).
Warning: This voltage is higher than the ratings for multiplexers or high-speed voltmeters that can share the analog backplane.

Input Impedance:

Ranges	Terminals		
	High to Low	Low to Guard	Guard to Chassis
Resistance (Ω): 30 mV to 3 V Ranges 30 V, 300 V Ranges	$>10^9$ $10^7 \pm 5\%$	$>10^8$ $>10^8$	$>10^8$ $>10^8$
Max. Capacitance (pF) at 1 MHz, all Ranges	120	2700	2500

Maximum Bias Current: Current sourced by high to low into rear input terminals or backplane.
 ± 1 nA DC