

**The 5700A/5720A
High Performance
Multifunction Calibrators
Extended Specifications
July 1997**



DC Voltage Specifications

5720A Calibrator							
Range	Resolution	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
		24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
\pm (ppm output + μV)							
95% Confidence Level							
220 mV	10 nV	4 + 0.4	6 + 0.4	6.5 + .04	7.5 + 0.4	1.6 + 0.4	2 + 0.4
2.2V	100 nV	3 + 0.7	3.5 + 0.7	4 + 0.7	5 + 0.7	1.6 + 0.7	2 + 0.7
11V	1 μV	2 + 2.5	2.5 + 2.5	3 + 2.5	3.5 + 2.5	0.8 + 2.5	1.2 + 2.5
22V	1 μV	2 + 4	2.5 + 4	3 + 4	3.5 + 4	0.8 + 4	1.2 + 4
220V	10 μV	3 + 40	3.5 + 40	4 + 40	5 + 40	1.6 + 40	2 + 40
1100V	100 μV	4 + 400	4.5 + 400	6 + 400	6.5 + 400	2 + 400	2.4 + 400
99% Confidence Level							
220 mV	10 nV	5 + 0.5	7 + 0.5	8 + 0.5	9 + 0.5	2 + 0.4	2.5 + 0.4
2.2V	100 nV	3.5 + 0.8	4 + 0.8	6 + 0.8	6 + 0.8	2 + 0.8	2.5 + 0.8
11V	1 μV	2.5 + 3	3 + 3	4 + 3	4 + 3	1 + 3	1.5 + 3
22V	1 μV	2.5 + 5	3 + 5	4 + 5	4 + 5	1 + 5	1.5 + 5
220V	10 μV	3.5 + 50	4 + 50	6 + 50	6 + 50	2 + 50	2.5 + 50
1100V	100 μV	5 + 500	6 + 500	7 + 500	8 + 500	2.5 + 400	3 + 400

5700A Series II Calibrator							
Range	Resolution	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
		24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
\pm (ppm output + μV)							
95% Confidence Level							
220 mV	10 nV	5.5 + 0.6	6 + 0.6	7 + 0.6	8 + 0.6	2 + 0.4	3.5 + 0.4
2.2V	100 nV	3.5 + 1	5 + 1	6 + 1	7 + 1	2 + 1	3.5 + 1
11V	1 μV	3 + 3	4 + 3.5	6 + 3.5	7 + 3.5	1.2 + 3	3 + 3.5
22V	1 μV	3 + 5.5	4 + 6.5	6 + 6.5	7 + 6.5	1.2 + 6	3 + 7
220V	10 μV	4 + 80	5 + 80	7 + 80	8 + 80	2 + 80	3.5 + 80
1100V	100 μV	6 + 500	7 + 500	8 + 500	9 + 500	2.4 + 500	4 + 500
99% Confidence Level							
220 mV	10 nV	6.5 + 0.75	7 + 0.75	8 + 0.75	9 + 0.8	2.5 + 0.5	4 + 0.5
2.2V	100 nV	3.5 + 1.2	6 + 1.2	7 + 1.2	8 + 1.2	2.5 + 1.2	4 + 1.2
11V	1 μV	3.5 + 3	5 + 4	7 + 4	8 + 4	1.5 + 3	3.5 + 4
22V	1 μV	3.5 + 6	5 + 8	7 + 8	8 + 8	1.5 + 6	3.5 + 8
220V	10 μV	5 + 100	6 + 100	8 + 100	9 + 100	2.5 + 100	4 + 100
1100V	100 μV	7 + 600	8 + 600	10 + 600	11 + 600	3 + 600	4.5 + 600

For field strengths $>1\text{V/m}$ but $\leq 3\text{V/m}$, add 0.01% of range.

5720A/5700A Series II secondary performance specifications and operating characteristics						
Range	Stability ¹ ±1°C 24 Hours	Temperature coefficient ²		Linearity ± 1°C	Noise bandwidth	
		10°C-40°C	0°C-10°C 40°C-50°C		0.1-10 Hz pk-pk	10-10 kHz rms
	± (ppm output + μV)	± (ppm output + μV)/°C		± (ppm output + μV)	μV	
220 mV	0.3 + 0.3	0.4 + 0.1	1.5 + 0.5	1 + 0.2	0.15 + .1	5
2.2V	0.3 + 1	0.3 + 0.1	1.5 + 2	1 + 0.6	0.15 + .4	15
11V	0.3 + 2.5	0.15 + 0.2	1 + 1.5	0.3 + 2	0.15 + 2	50
22V	0.4 + 5	0.2 + 0.4	1.5 + 3	0.3 + 4	0.15 + 4	50
220V	0.5 + 40	0.3 + 5	1.5 + 40	1 + 40	0.15 + 60	150
1100V	0.5 + 200	0.5 + 10	3 + 200	1 + 200	0.15 + 300	500

¹ Stability specifications are included in the absolute uncertainty values in the primary specification tables.

² Temperature coefficient is an adder to uncertainty specifications that does not apply unless operating more than ±5°C from calibration temperature.

Minimum output: 0V for all ranges, except 100V for 1100V range

Maximum load: 50 mA for 2.2V through 220V ranges; 20 mA for 1100V range; 50Ω output impedance on 220 mV range; all ranges <1000 pF, >25Ω

Load regulation: <0.2 ppm + 0.2 mV change, full load to no load

Line regulation: <0.1 ppm change, ±10% of selected nominal line

Settling time: 3 seconds to full accuracy; + 1 second for range or polarity change; + 1 second for 1100V range

Overshoot: <5%

Common mode rejection: 140 dB, DC to 400 Hz

Remote sensing: Available 0V to ±1100V, on 2.2V through 1100V ranges

AC Voltage Specifications

5720A Calibrator								
95% Confidence Level								
Range	Resolution	Frequency (Hz)	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
			\pm (ppm output + μV)					
2.2 mV	1 nV	10 - 20	200 + 4	220 + 4	230 + 4	240 + 4	200 + 4	220 + 4
		20 - 40	80 + 4	85 + 4	87 + 4	90 + 4	80 + 4	85 + 4
		40 - 20k	70 + 4	75 + 4	77 + 4	80 + 4	50 + 5	55 + 4
		20k - 50k	170 + 4	180 + 4	190 + 4	200 + 4	70 + 5	80 + 4
		50k - 100k	400 + 5	460 + 5	480 + 5	500 + 5	160 + 5	180 + 5
		100k - 300k	300 + 10	900 + 10	1000 + 10	1050 + 10	280 + 10	320 + 10
		300k - 500k	1100 + 20	1200 + 20	1300 + 20	1400 + 20	650 + 20	800 + 20
500k - 1M	2400 + 20	2500 + 20	2600 + 20	2700 + 20	2100 + 20	2400 + 20		
22 mV	10 nV	10 - 20	200 + 4	220 + 4	230 + 4	240 + 4	200 + 4	220 + 4
		20 - 40	80 + 4	85 + 4	87 + 4	90 + 4	80 + 4	85 + 4
		40 - 20k	70 + 4	75 + 4	77 + 4	80 + 4	50 + 5	55 + 4
		20k - 50k	170 + 4	180 + 4	190 + 4	200 + 4	70 + 5	80 + 4
		50k - 100k	400 + 5	460 + 5	480 + 5	500 + 5	160 + 5	180 + 5
		100k - 300k	300 + 10	900 + 10	1000 + 10	1050 + 10	280 + 10	320 + 10
		300k - 500k	1100 + 20	1200 + 20	1300 + 20	1400 + 20	650 + 20	800 + 20
500k - 1M	2400 + 20	2500 + 20	2600 + 20	2700 + 20	2100 + 20	2400 + 20		
220 mV	100 nV	10 - 20	200 + 12	220 + 12	230 + 12	240 + 12	200 + 12	220 + 12
		20 - 40	80 + 7	85 + 7	87 + 7	90 + 7	80 + 7	85 + 7
		40 - 20k	70 + 7	75 + 7	77 + 7	80 + 7	50 + 7	55 + 7
		20k - 50k	170 + 7	180 + 7	190 + 7	200 + 7	70 + 7	80 + 7
		50k - 100k	400 + 17	420 + 17	440 + 17	460 + 17	160 + 17	180 + 17
		100k - 300k	700 + 20	750 + 20	800 + 20	900 + 20	280 + 20	320 + 20
		300k - 500k	1100 + 25	1200 + 25	1300 + 25	1400 + 25	650 + 25	800 + 25
500k - 1M	2400 + 45	2500 + 45	2600 + 45	2700 + 45	2100 + 45	2400 + 45		
2.2V	1 μV	10 - 20	200 + 40	220 + 40	230 + 40	240 + 40	200 + 40	220 + 40
		20 - 40	75 + 15	80 + 15	85 + 15	90 + 15	75 + 15	80 + 15
		40 - 20k	37 + 8	40 + 8	42 + 8	45 + 8	25 + 8	35 + 8
		20k - 50k	65 + 10	70 + 10	73 + 10	75 + 10	55 + 10	60 + 10
		50k - 100k	100 + 30	105 + 30	107 + 30	110 + 300	80 + 30	85 + 30
		100k - 300k	300 + 80	340 + 80	380 + 80	420 + 80	230 + 80	250 + 80
		300k - 500k	800 + 200	900 + 200	950 + 200	1000 + 200	700 + 200	800 + 200
500k - 1M	1300 + 300	1500 + 300	1600 + 300	1700 + 300	1000 + 300	1100 + 300		
22V	10 μV	10 - 20	200 + 400	220 + 400	230 + 400	240 + 400	200 + 400	220 + 400
		20 - 40	75 + 150	80 + 150	85 + 150	90 + 150	75 + 150	80 + 150
		40 - 20k	37 + 50	40 + 50	42 + 50	45 + 50	25 + 50	35 + 50
		20k - 50k	65 + 100	70 + 100	73 + 100	75 + 100	55 + 100	60 + 100
		50k - 100k	90 + 200	95 + 200	97 + 200	100 + 200	80 + 200	85 + 200
		100k - 300k	250 + 600	260 + 600	270 + 600	275 + 600	250 + 600	270 + 600
		300k - 500k	800 + 2000	900 + 2000	900 + 2000	1000 + 2000	700 + 2000	800 + 2000
500k - 1M	1200 + 3200	1300 + 3200	1400 + 3200	1500 + 3200	1100 + 3200	1200 + 3200		
			\pm (ppm output + mV)					
220V	100 μV	10 - 20	200 + 4	220 + 4	230 + 4	240 + 4	200 + 4	220 + 4
		20 - 40	75 + 1.5	80 + 1.5	85 + 1.5	90 + 1.5	75 + 1.5	80 + 1.5
		40 - 20k	45 + 0.6	47 + 0.6	50 + 0.6	52 + 0.6	35 + 0.6	40 + 0.6
		20k - 50k	70 + 1	75 + 1	77 + 1	80 + 1	60 + 1	65 + 1
		50k - 100k	120 + 2.5	130 + 2.5	140 + 2.5	150 + 2.5	110 + 2.5	120 + 2.5
		100k - 300k	700 + 16	800 + 16	850 + 16	900 + 16	500 + 16	600 + 16
		300k - 500k	4000 + 40	4200 + 40	4300 + 40	4400 + 40	3600 + 40	3800 + 40
500k - 1M	6000 + 80	7000 + 80	7500 + 80	8000 + 80	6500 + 80	7000 + 80		
1100V	1 mV	15 - 50 ¹	240 + 16	260 + 16	280 + 16	300 + 16	240 + 16	260 + 16
		50 - 1k	55 + 3.5	60 + 3.5	65 + 3.5	70 + 3.5	40 + 3.5	45 + 3.5
5725A Amplifier								
1100V	1 mV	40 - 1k	75 + 4	80 + 4	85 + 4	90 + 4	50 + 4	55 + 4
		1k - 20k	105 + 6	125 + 6	135 + 6	165 + 6	85 + 6	105 + 6
		20k - 30k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11
750V	1 mV	30k - 50k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11
		50k - 100k	600 + 45	1300 + 45	1600 + 45	2300 + 45	380 + 45	1200 + 45

¹ Maximum output 250V from 15-50 Hz

5720A Calibrator								
99% Confidence Level								
Range	Resolution	Frequency (Hz)	Absolute uncertainty ± 5 °C from calibration temperature				Relative uncertainty ± 1 °C	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
			± (ppm output + μV)					
2.2 mV	1 nV	10 - 20	250 + 5	270 + 5	290 + 5	300 + 5	250 + 5	270 + 5
		20 - 40	100 + 5	105 + 5	110 + 5	115 + 5	100 + 5	105 + 5
		40 - 20k	85 + 5	90 + 5	95 + 5	100 + 5	60 + 5	65 + 5
		20k - 50k	220 + 5	230 + 5	240 + 5	250 + 5	85 + 5	95 + 5
		50k - 100k	500 + 6	540 + 6	570 + 6	600 + 6	200 + 6	220 + 6
		100k - 300k	1000 + 12	1200 + 12	1250 + 12	1300 + 12	350 + 12	400 + 12
		300k - 500k	1400 + 25	1500 + 25	1600 + 25	1700 + 25	800 + 25	1000 + 25
		500k - 1M	2900 + 25	3100 + 25	3250 + 25	3400 + 25	2700 + 25	3000 + 25
22 mV	10 nV	10 - 20	250 + 5	270 + 5	290 + 5	300 + 5	250 + 5	270 + 5
		20 - 40	100 + 5	105 + 5	110 + 5	115 + 5	100 + 5	105 + 5
		40 - 20k	85 + 5	90 + 5	95 + 5	100 + 5	60 + 5	65 + 5
		20k - 50k	220 + 5	230 + 5	240 + 5	250 + 5	85 + 5	95 + 5
		50k - 100k	500 + 6	540 + 6	570 + 6	600 + 6	200 + 6	220 + 6
		100k - 300k	1000 + 12	1200 + 12	1250 + 12	1300 + 12	350 + 12	400 + 12
		300k - 500k	1400 + 25	1500 + 25	1600 + 25	1700 + 25	800 + 25	1000 + 25
		500k - 1M	2900 + 25	3100 + 25	3250 + 25	3400 + 25	2700 + 25	3000 + 25
220 mV	100 nV	10 - 20	250 + 15	270 + 15	290 + 15	300 + 15	250 + 15	270 + 15
		20 - 40	100 + 8	105 + 8	110 + 8	115 + 8	100 + 8	105 + 8
		40 - 20k	85 + 8	90 + 8	95 + 8	100 + 8	60 + 8	65 + 8
		20k - 50k	220 + 8	230 + 8	240 + 8	250 + 8	85 + 8	95 + 8
		50k - 100k	500 + 20	540 + 20	570 + 20	600 + 20	200 + 20	220 + 20
		100k - 300k	850 + 25	900 + 25	1000 + 25	1100 + 25	350 + 25	400 + 25
		300k - 500k	1400 + 30	1500 + 30	1600 + 30	1700 + 30	800 + 30	1000 + 30
		500k - 1M	2700 + 60	2900 + 60	3100 + 60	3300 + 60	2600 + 60	2800 + 60
2.2V	1 μV	10 - 20	250 + 50	270 + 50	290 + 50	300 + 50	250 + 50	270 + 50
		20 - 40	95 + 20	100 + 20	105 + 20	110 + 20	95 + 20	100 + 20
		40 - 20k	45 + 10	47 + 10	50 + 10	52 + 10	30 + 10	40 + 10
		20k - 50k	80 + 12	85 + 12	87 + 12	90 + 12	70 + 12	75 + 12
		50k - 100k	120 + 40	125 + 40	127 + 40	130 + 40	100 + 40	105 + 40
		100k - 300k	380 + 100	420 + 100	460 + 100	500 + 100	270 + 100	290 + 100
		300k - 500k	1000 + 250	1100 + 250	1150 + 250	1200 + 250	900 + 250	1000 + 250
		500k - 1M	1600 + 400	1800 + 400	1900 + 400	2000 + 400	1200 + 400	1300 + 400
22V	10 μV	10 - 20	250 + 500	270 + 500	290 + 500	300 + 500	250 + 500	270 + 500
		20 - 40	95 + 200	100 + 200	105 + 200	110 + 200	95 + 200	100 + 200
		40 - 20k	45 + 70	47 + 70	50 + 70	52 + 70	30 + 70	40 + 70
		20k - 50k	80 + 120	85 + 120	87 + 120	90 + 120	70 + 120	75 + 120
		50k - 100k	110 + 250	115 + 250	117 + 250	120 + 250	100 + 250	105 + 250
		100k - 300k	300 + 800	310 + 800	320 + 800	325 + 800	270 + 800	290 + 800
		300k - 500k	1000 + 2500	1100 + 2500	1150 + 2500	1200 + 2500	900 + 2500	1000 + 2500
		500k - 1M	1500 + 4000	1600 + 4000	1700 + 4000	1800 + 4000	1300 + 4000	1400 + 4000
220V	100 μV	10 - 20	250 + 5	270 + 5	290 + 5	300 + 5	250 + 5	270 + 5
		20 - 40	95 + 2	100 + 2	105 + 2	110 + 2	95 + 2	100 + 2
		40 - 20k	57 + 0.7	60 + 0.7	62 + 0.7	65 + 0.7	45 + 0.7	50 + 0.7
		20k - 50k	90 + 1.2	95 + 1.2	97 + 1.2	100 + 1.2	75 + 1.2	80 + 1.2
		50k - 100k	160 + 3	170 + 3	175 + 3	180 + 3	140 + 3	150 + 3
		100k - 300k	900 + 20	1000 + 20	1050 + 20	1100 + 20	600 + 20	700 + 20
		300k - 500k	5000 + 50	5200 + 50	5300 + 50	5400 + 50	4500 + 50	4700 + 50
		500k - 1M	8000 + 100	9000 + 100	9500 + 100	10000 + 100	8000 + 100	8500 + 100
1100V	1 mV	15 - 50 ¹	300 + 20	320 + 20	340 + 20	360 + 20	300 + 20	320 + 20
		50 - 1k	70 + 4	75 + 4	80 + 4	85 + 4	50 + 4	55 + 4
5725A Amplifier								
1100V	1 mV	40 - 1k	75 + 4	80 + 4	85 + 4	90 + 4	50 + 4	55 + 4
		1k - 20k	105 + 6	125 + 6	135 + 6	165 + 6	85 + 6	105 + 6
		20k - 30k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11
750V	1 mV	30k - 50k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11
		50k - 100k	600 + 45	1300 + 45	1600 + 45	2300 + 45	380 + 45	1200 + 45

¹ Maximum output 250V from 15-50 Hz

AC Voltage Specifications

5700A Series II Calibrator									
95% Confidence Level									
Range	Resolution	Frequency (Hz)	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$		
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days	
			\pm (ppm output + μV)						
2.2 mV	1 nV	10 - 20	400 + 4.5	500 + 4.5	530 + 4.5	550 + 4.5	400 + 4.5	500 + 4.5	
		20 - 40	170 + 4.5	190 + 4.5	200 + 4.5	210 + 4.5	170 + 4.5	190 + 4.5	
		40 - 20k	85 + 4.5	95 + 4.5	100 + 4.5	105 + 4.5	55 + 4.5	60 + 4.5	
		20k - 50k	300 + 4.5	330 + 4.5	350 + 4.5	370 + 4.5	90 + 4.5	100 + 4.5	
		50k - 100k	700 + 7	750 + 7	800 + 7	850 + 7	210 + 7	230 + 7	
		100k - 300k	900 + 13	1000 + 13	1050 + 13	1100 + 13	380 + 13	420 + 13	
		300k - 500k	1300 + 25	1500 + 25	1600 + 25	1700 + 25	900 + 25	1000 + 25	
500k - 1M	2800 + 25	3100 + 25	3300 + 25	3400 + 25	2900 + 25	3200 + 25			
22 mV	10 nV	10 - 20	400 + 5	500 + 5	530 + 5	550 + 5	400 + 5	500 + 5	
		20 - 40	170 + 5	190 + 5	200 + 5	210 + 5	170 + 5	190 + 5	
		40 - 20k	85 + 5	95 + 5	100 + 5	105 + 5	55 + 5	60 + 5	
		20k - 50k	300 + 5	330 + 5	350 + 5	370 + 5	90 + 5	100 + 5	
		50k - 100k	700 + 7	750 + 7	800 + 7	850 + 7	210 + 7	230 + 7	
		100k - 300k	900 + 12	1000 + 12	1050 + 12	1100 + 12	380 + 12	420 + 12	
		300k - 500k	1300 + 25	1500 + 25	1600 + 25	1700 + 25	900 + 25	1000 + 25	
500k - 1M	2800 + 25	3100 + 25	3300 + 25	3400 + 25	2900 + 25	3200 + 25			
220 mV	100 nV	10 - 20	400 + 13	500 + 13	530 + 13	550 + 13	400 + 13	500 + 13	
		20 - 40	170 + 8	190 + 8	200 + 8	210 + 8	170 + 8	190 + 8	
		40 - 20k	85 + 8	95 + 8	100 + 8	105 + 8	55 + 8	60 + 8	
		20k - 50k	250 + 8	280 + 8	300 + 8	320 + 8	90 + 8	100 + 8	
		50k - 100k	700 + 25	750 + 25	800 + 25	850 + 25	210 + 25	230 + 25	
		100k - 300k	900 + 25	1000 + 25	1050 + 25	1100 + 25	380 + 25	420 + 25	
		300k - 500k	1300 + 35	1500 + 35	1600 + 35	1700 + 35	900 + 35	1000 + 35	
500k - 1M	2800 + 80	3100 + 80	3300 + 80	3400 + 80	2900 + 80	3200 + 80			
2.2V	1 μV	10 - 20	400 + 80	450 + 80	480 + 80	500 + 80	400 + 80	450 + 80	
		20 - 40	130 + 25	140 + 25	150 + 25	160 + 25	130 + 25	140 + 25	
		40 - 20k	60 + 6	65 + 6	70 + 6	75 + 6	35 + 6	40 + 6	
		20k - 50k	105 + 16	110 + 16	115 + 16	120 + 16	85 + 16	95 + 16	
		50k - 100k	190 + 70	210 + 70	230 + 70	250 + 70	170 + 70	190 + 70	
		100k - 300k	350 + 130	390 + 130	420 + 130	430 + 130	340 + 130	380 + 130	
		300k - 500k	850 + 350	950 + 350	1000 + 350	1050 + 350	850 + 350	950 + 350	
500k - 1M	1700 + 850	1900 + 850	2100 + 850	2200 + 850	1700 + 850	1900 + 850			
22V	10 μV	10 - 20	400 + 800	450 + 800	480 + 800	500 + 800	400 + 800	450 + 800	
		20 - 40	130 + 250	140 + 250	150 + 250	160 + 250	130 + 250	140 + 250	
		40 - 20k	60 + 60	65 + 60	70 + 60	75 + 60	35 + 60	40 + 60	
		20k - 50k	105 + 160	110 + 160	115 + 160	120 + 160	85 + 160	95 + 160	
		50k - 100k	190 + 350	210 + 350	230 + 350	250 + 350	170 + 350	190 + 350	
		100k - 300k	400 + 1500	450 + 1500	470 + 1500	500 + 1500	400 + 1500	450 + 1500	
		300k - 500k	1050 + 4300	1150 + 4300	1200 + 4300	1250 + 4300	1000 + 4300	1100 + 4300	
500k - 1M	2300 + 8500	2500 + 8500	2600 + 8500	2700 + 8500	2200 + 8500	2400 + 8500			
			\pm (ppm output + mV)						
220V	100 μV	10 - 20	400 + 8	450 + 8	480 + 8	500 + 8	400 + 8	450 + 8	
		20 - 40	130 + 2.5	140 + 2.5	150 + 2.5	160 + 2.5	130 + 2.5	140 + 2.5	
		40 - 20k	65 + 0.8	70 + 0.8	75 + 0.8	80 + 0.8	40 + 0.8	45 + 0.8	
		20k - 50k	170 + 3.5	190 + 3.5	210 + 3.5	220 + 3.5	85 + 3.5	95 + 3.5	
		50k - 100k	400 + 8	450 + 8	480 + 8	500 + 8	270 + 8	300 + 8	
		100k - 300k	1300 + 90	1400 + 90	1450 + 90	1500 + 90	1200 + 90	1300 + 90	
		300k - 500k	4300 + 90	4500 + 90	4600 + 90	4700 + 90	4200 + 90	4500 + 90	
500k - 1M	10500 + 190	11000 + 190	11300 + 190	11500 + 190	10500 + 190	11000 + 190			
1100V	1 mV	15 - 50 ¹	340 + 16	360 + 16	380 + 16	400 + 16	340 + 16	360 + 16	
		50 - 1k	65 + 3.5	70 + 3.5	75 + 3.5	80 + 3.5	45 + 3.5	50 + 3.5	
5725A Amplifier									
1100V	1 mV	40 - 1k	75 + 4	80 + 4	85 + 4	90 + 4	50 + 4	55 + 4	
		1k - 20k	105 + 6	125 + 6	135 + 6	165 + 6	85 + 6	105 + 6	
		20k - 30k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11	
750V	1 mV	30k - 50k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11	
		50k - 100k	600 + 45	1300 + 45	1600 + 45	2300 + 45	380 + 45	1200 + 45	

¹ Maximum output 250V from 15-50 Hz

5700A Series II Calibrator								
99% Confidence Level								
Range	Resolution	Frequency (Hz)	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
			\pm (ppm output + μV)					
2.2 mV	1 nV	10 - 20	500 + 5	550 + 5	600 + 5	600 + 5	500 + 5	550 + 5
		20 - 40	200 + 5	220 + 5	230 + 5	240 + 5	200 + 5	220 + 5
		40 - 20k	100 + 5	110 + 5	120 + 5	120 + 5	60 + 5	65 + 5
		20k - 50k	340 + 5	370 + 5	390 + 5	410 + 5	100 + 5	110 + 5
		50k - 100k	800 + 8	900 + 8	950 + 8	950 + 8	220 + 8	240 + 8
		100k - 300k	1100 + 15	1200 + 15	1300 + 15	1300 + 15	400 + 15	440 + 15
		300k - 500k	1500 + 30	1700 + 30	1700 + 30	1800 + 30	1000 + 30	1100 + 30
		500k - 1M	4000 + 40	4400 + 40	4700 + 40	4800 + 40	4000 + 30	4400 + 30
22 mV	10 nV	10 - 20	500 + 6	550 + 6	600 + 6	600 + 6	500 + 6	550 + 6
		20 - 40	200 + 6	220 + 6	230 + 6	240 + 6	200 + 6	220 + 6
		40 - 20k	100 + 6	110 + 6	120 + 6	120 + 6	60 + 6	65 + 6
		20k - 50k	340 + 6	370 + 6	390 + 6	410 + 6	100 + 6	110 + 6
		50k - 100k	800 + 8	900 + 8	950 + 8	950 + 8	220 + 8	240 + 8
		100k - 300k	1100 + 15	1200 + 15	1300 + 15	1300 + 15	400 + 15	440 + 15
		300k - 500k	1500 + 30	1700 + 30	1700 + 30	1800 + 30	1000 + 30	1100 + 30
		500k - 1M	4000 + 40	4400 + 40	4700 + 40	4800 + 40	4000 + 30	4400 + 30
220 mV	100 nV	10 - 20	500 + 16	550 + 16	600 + 16	600 + 16	500 + 16	550 + 16
		20 - 40	200 + 10	220 + 10	230 + 10	240 + 10	200 + 10	220 + 10
		40 - 20k	95 + 10	100 + 10	110 + 10	110 + 10	60 + 10	65 + 10
		20k - 50k	300 + 10	330 + 10	350 + 10	360 + 10	100 + 10	110 + 10
		50k - 100k	750 + 30	800 + 30	850 + 30	900 + 30	220 + 30	240 + 30
		100k - 300k	940 + 30	1000 + 30	1100 + 30	1100 + 30	400 + 30	440 + 30
		300k - 500k	1500 + 40	1700 + 40	1700 + 40	1800 + 40	1000 + 40	1100 + 40
		500k - 1M	3000 + 100	3300 + 100	3500 + 100	3600 + 100	3000 + 100	3300 + 100
2.2V	1 μV	10 - 20	500 + 100	550 + 100	600 + 100	600 + 100	500 + 100	550 + 100
		20 - 40	150 + 30	170 + 30	170 + 30	180 + 30	150 + 30	170 + 30
		40 - 20k	70 + 7	75 + 7	80 + 7	85 + 7	40 + 7	45 + 7
		20k - 50k	120 + 20	130 + 20	140 + 20	140 + 20	100 + 20	110 + 20
		50k - 100k	230 + 80	250 + 80	270 + 80	280 + 80	200 + 80	220 + 80
		100k - 300k	400 + 150	440 + 150	470 + 150	480 + 150	400 + 150	440 + 150
		300k - 500k	1000 + 400	1100 + 400	1200 + 400	1200 + 400	1000 + 400	1100 + 400
		500k - 1M	2000 + 1000	2200 + 1000	2300 + 1000	2400 + 1000	2000 + 1000	2200 + 1000
22V	10 μV	10 - 20	500 + 1000	550 + 1000	600 + 1000	600 + 1000	500 + 1000	550 + 1000
		20 - 40	150 + 300	170 + 300	170 + 300	180 + 300	150 + 300	170 + 300
		40 - 20k	70 + 70	75 + 70	80 + 70	85 + 70	40 + 70	45 + 70
		20k - 50k	120 + 200	130 + 200	140 + 200	140 + 200	100 + 200	110 + 200
		50k - 100k	230 + 400	250 + 400	270 + 400	280 + 400	200 + 400	220 + 400
		100k - 300k	500 + 1700	550 + 1700	550 + 1700	600 + 1700	500 + 1700	550 + 1700
		300k - 500k	1200 + 5000	1300 + 5000	1300 + 5000	1400 + 5000	1200 + 5000	1300 + 5000
		500k - 1M	2600 + 9000	2800 + 9000	2900 + 9000	3000 + 9000	2600 + 9000	2800 + 9000
220V	100 μV	10 - 20	500 + 10	550 + 10	600 + 10	600 + 10	500 + 10	550 + 10
		20 - 40	150 + 3	170 + 3	170 + 3	180 + 3	150 + 3	170 + 3
		40 - 20k	75 + 1	80 + 1	85 + 1	90 + 1	45 + 1	50 + 1
		20k - 50k	200 + 4	220 + 4	240 + 4	250 + 4	100 + 1	110 + 1
		50k - 100k	500 + 10	550 + 10	600 + 10	600 + 10	300 + 10	330 + 10
		100k - 300k	1500 + 110	1500 + 110	1600 + 110	1600 + 110	1500 + 110	1500 + 110
		300k - 500k	5000 + 110	5200 + 110	5300 + 110	5400 + 110	5000 + 110	5200 + 110
		500k - 1M	12000 + 220	12500 + 220	12500 + 220	13000 + 220	12000 + 220	12000 + 220
1100V	1 mV	15 - 50 ¹	400 + 20	420 + 20	440 + 20	460 + 20	400 + 20	420 + 20
		50 - 1k	75 + 4	80 + 4	85 + 4	90 + 4	50 + 4	55 + 4
5725A Amplifier								
1100V	1 mV	40 - 1k	75 + 4	80 + 4	85 + 4	90 + 4	50 + 4	55 + 4
		1k - 20k	105 + 6	125 + 6	135 + 6	165 + 6	85 + 6	105 + 6
		20k - 30k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11
750V	1 mV	30k - 50k	230 + 11	360 + 11	440 + 11	600 + 11	160 + 11	320 + 11
		50k - 100k	600 + 45	1300 + 45	1600 + 45	2300 + 45	380 + 45	1200 + 45

¹ Maximum output 250V from 15-50 Hz

AC Voltage Specifications

5720A/5700A Series II Calibrator secondary performance specifications and operating characteristics						
Range	Frequency (Hz)	Stability ¹ ±1°C 24 Hours	Temperature coefficient		Output impedance	Max distortion bandwidth 10 Hz-10 MHz
			10°C-40°C	0°C-10°C 40°C-50°C		
		± μV	± μV/°C		Ω	±(% output+μV)
2.2 mV	10 - 20	5	0.05	0.05	50	0.05 + 10
	20 - 40	5	0.05	0.05		0.035 + 10
	40 - 20k	2	0.05	0.05		0.035 + 10
	20k - 50k	2	0.1	0.1		0.035 + 10
	50k - 100k	3	0.2	0.2		0.035 + 10
	100k - 300k	3	0.3	0.3		0.3 + 30
	300k - 500k	5	0.4	0.4		0.3 + 30
500k - 1M	5	0.5	0.5	1 + 30		
22 mV	10 - 20	5	0.2	0.3	50	0.05 + 11
	20 - 40	5	0.2	0.3		0.035 + 11
	40 - 20k	2	0.2	0.3		0.035 + 11
	20k - 50k	2	0.4	0.5		0.035 + 11
	50k - 100k	3	0.5	0.5		0.035 + 11
	100k - 300k	5	0.6	0.6		0.3 + 30
	300k - 500k	10	1	1		0.3 + 30
500k - 1M	15	1	1	1 + 30		
		± (ppm output + μV)	± (ppm output + μV/°C)			
220 mV	10 - 20	150 + 20	2 + 1	2 + 1	50	0.05 + 16
	20 - 40	80 + 15	2 + 1	2 + 1		0.035 + 16
	40 - 20k	12 + 2	2 + 1	2 + 1		0.035 + 16
	20k - 50k	10 + 2	15 + 2	15 + 2		0.035 + 16
	50k - 100k	10 + 2	15 + 4	15 + 4		0.035 + 16
	100k - 300k	20 + 4	80 + 5	80 + 5		0.3 + 30
	300k - 500k	100 + 10	80 + 5	80 + 5		0.3 + 30
500k - 1M	200 + 20	80 + 5	80 + 5	1 + 30		
					Load regulation ± (ppm output + μV)	
2.2V	10 - 20	150 + 20	50 + 10	50 + 10	10 + 2	0.05 + 80
	20 - 40	80 + 15	15 + 5	15 + 5	10 + 2	0.035 + 80
	40 - 20k	12 + 4	2 + 1	5 + 2	10 + 4	0.035 + 80
	20k - 50k	15 + 5	10 + 2	15 + 4	30 + 10	0.035 + 80
	50k - 100k	15 + 5	10 + 4	20 + 4	120 + 16	0.035 + 80
	100k - 300k	30 + 10	80 + 15	80 + 15	300 ppm	0.3 + 110
	300k - 500k	70 + 20	80 + 40	80 + 40	600 ppm	0.3 + 110
500k - 1M	150 + 50	80 + 100	80 + 100	1200 ppm	1 + 110	
22V	10 - 20	150 + 20	50 + 100	50 + 100	10 + 20	0.05 + 700
	20 - 40	80 + 15	15 + 30	15 + 40	10 + 20	0.035 + 700
	40 - 20k	12 + 8	2 + 10	4 + 15	10 + 30	0.035 + 700
	20k - 50k	15 + 10	10 + 20	20 + 20	30 + 50	0.035 + 700
	50k - 100k	15 + 10	10 + 40	20 + 40	80 + 80	0.035 + 700
	100k - 300k	30 + 15	80 + 150	80 + 150	100 + 700	0.3 + 800
	300k - 500k	70 + 100	80 + 300	80 + 300	200 + 1100	0.3 + 800
500k - 1M	150 + 100	80 + 500	80 + 500	600 + 3000	2 + 800	
220V	10 - 20	150 + 200	50 + 1000	50 + 1000	10 + 200	0.05 + 10000
	20 - 40	80 + 150	15 + 300	15 + 300	10 + 200	0.05 + 10000
	40 - 20k	12 + 80	2 + 80	4 + 80	10 + 300	0.05 + 10000
	20k - 50k	15 + 100	10 + 100	20 + 100	30 + 600	0.05 + 10000
	50k - 100k	15 + 10	10 + 500	20 + 500	80 + 3000	0.1 + 13000
	100k - 300k	30 + 400	80 + 600	80 + 600	250 + 25000	1.5 + 50000
	300k - 500k	100 + 10000	80 + 800	80 + 800	500 + 50000	1.5 + 50000
500k - 1M	200 + 20000	80 + 1000	80 + 1000	1000 + 110000	3.5 + 100000	
		± (ppm output + mV)	± (ppm output)/°C			± (% output)
1100V	15 - 50	150 + 0.5	50	50	10 + 2	0.15
	50 - 1k	20 + 0.5	2	5	10 + 1	0.07

¹ Stability specifications are included in absolute uncertainty values for the primary specifications.

5725A Amplifier							
Range	Frequency (Hz)	Stability $\pm 1^\circ\text{C}^1$ 24 Hours	Temperature coefficient		Load regulation ²	Distortion bandwidth 10 Hz-10 MHz	
			10°C-40°C	0°C-10°C 40°C-50°C			
			\pm (ppm output)/°C			\pm (ppm output + mV)	\pm (% output)
						150 pF	1000 pF
1100V	40 - 1k	10 + 0.5	5	5	10 + 1	0.10	0.10
	1k - 20k	15 + 2	5	5	90 + 6	0.10	0.15
	20k - 50k	40 + 2	10	10	275 + 11	0.30	0.30
	50k - 100k	130 + 2	30	30	500 + 30	0.40	0.40

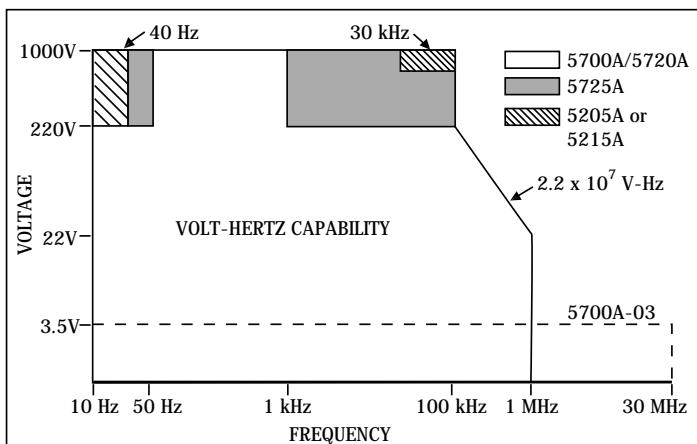
Voltage range	Maximum current limits	Load limits
2.2V ³ 22V 220V	50 mA, 0°C-40°C 20 mA, 40°C-50°C	>50Ω 1000 pF
1100V	6 mA	600 pF
5725A Amplifier		1000 pF ²
1100V	40 Hz-5 kHz	50 mA
	5 kHz-30 kHz	70 mA
	30 kHz-100 kHz	70 mA ⁴
		300 pF
		150 pF

¹ Stability specifications are included in the absolute uncertainty values for the primary specifications.

² The 5725A will drive up to 1000 pF of load capacitance. Uncertainty specifications include loads to 300 pF and 150 pF as shown under load limits. For capacitances up to the maximum of 1000 pF, add load regulation.

³ 2.2V range, 100 kHz-1.2 MHz only; uncertainty specifications cover loads to 10 mA or 1000 pF. For higher loads, load regulation is added

⁴ Applies from 0°C to 40°C.



Output display formats: Voltage or dBm, dBm reference 600Ω

Minimum output: 10% on each range

External sense: Selectable for 2.2V, 22V, 220V and 1100V ranges; 5700A/5720A <100 kHz, 5725A <30 kHz

Settling time to full accuracy

Frequency (Hz)	Settling time (seconds)
<20	7
120-120k	5
>120k	2

+ 1 second for amplitude or frequency range change; + 2 seconds for 5700A/5720A 1100V range; + 4 seconds for 5725A 1100V range

Overshoot: <10%

Common mode rejection: 140 dB, dc to 400 Hz

Frequency:

Ranges (Hz):

10.000-11.999, 12.00-119.99

120.0-1199.9, 1.200k-11.999k

12.00k-119.99k, 120.0k-1.1999M

Uncertainty: $\pm 0.01\%$

Resolution: 11.999 counts

Phase lock: Selectable rear panel BNC input

Phase uncertainty (except 1100V range):

>30 Hz: $\pm 1^\circ + 0.05^\circ/\text{kHz}$, <30 Hz: $\pm 3^\circ$

Input voltage: 1V to 10V rms sine wave (do not exceed 1V for mV ranges)

Frequency range: 10 Hz to 1.1999 MHz

Lock range: $\pm 2\%$ of frequency

Lock-in time: Larger of 10/frequency or 10 msec

Phase reference: Selectable, rear panel BNC output

Range: $\pm 180^\circ$

Phase uncertainty (except 1100V range):

$\pm 1^\circ$ at quadrature points ($0^\circ, \pm 90^\circ, \pm 180^\circ$)

elsewhere $\pm 2^\circ$

Stability: $\pm 0.1^\circ$

Resolution: 1°

Output level: 2.5V rms $\pm 0.2V$

Frequency range: 50 Hz to 1 kHz, usable 10 Hz to 1.1999 MHz

Resistance Specifications

5720A Calibrator						
Nominal value	Absolute uncertainty of characterized value $\pm 5^{\circ}\text{C}$ from calibration temperature ¹				Relative uncertainty $\pm 1^{\circ}\text{C}$	
	24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
Ω	\pm ppm					
95% Confidence Level						
0	40 $\mu\Omega$	40 $\mu\Omega$	40 $\mu\Omega$	40 $\mu\Omega$	40 $\mu\Omega$	40 $\mu\Omega$
1	70	80	85	95	27	35
1.9	70	80	85	95	20	26
10	20	21	22	23	4	7
19	20	21	22	23	3.5	6
100	8	9	9.5	10	1.6	3.5
190	8	9	9.5	10	1.6	3.5
1k	6.5	7.5	8	8.5	1.6	2.5
1.9k	6.5	7.5	8	8.5	1.6	2.5
10k	6.5	7.5	8	8.5	1.6	2.5
19k	7.5	7.5	8	8.5	1.6	2.5
100k	7.5	9	10	11	1.6	2.5
190k	7.5	9	10	11	1.6	2.5
1M	13	15	17	20	2	4
1.9M	14	16	18	21	2.5	4
10M	27	31	34	40	8	12
19M	35	39	42	47	16	20
100M	85	95	100	100	40	50
99% Confidence Level						
0	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$
1	85	95	100	110	32	40
1.9	85	95	100	110	25	33
10	23	25	26	27	5	8
19	23	25	26	27	4	7
100	10	11	11.5	12	2	4
190	10	11	11.5	12	2	4
1k	8	9	9.5	10	2	3
1.9k	8	9	9.5	10	2	3
10k	8	9	9.5	10	2	3
19k	9	9	9.5	10	2	3
100k	9	11	12	13	2	3
190k	9	11	12	13	2	3
1M	16	18	20	23	2.5	5
1.9M	17	19	21	24	3	6
10M	33	37	40	46	10	14
19M	43	47	50	55	20	24
100M	100	110	115	120	50	60

5700A Series II Calibrator						
Nominal value	Absolute uncertainty of characterized value ±5°C from calibration temperature¹				Relative uncertainty ±1°C	
	24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
Ω	\pm ppm					
95% Confidence Level						
0	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$
1	70	80	85	95	32	40
1.9	70	80	85	95	25	33
10	21	23	27	28	5	8
19	20	22	24	27	4	7
100	13	14	15	17	2	4
190	13	14	15	17	2	4
1k	9	10	11	13	2	3.5
1.9k	9	10	11	13	2	3.5
10k	7.5	9.5	10.5	12	2	3.5
19k	7.5	9.5	10.5	12	2	3.5
100k	9	11	12	14	2	3.5
190k	9	11	12	14	2	3.5
1M	13	15	17	20	2.5	5
1.9M	14	16	18	21	3	6
10M	27	31	34	40	10	14
19M	35	39	42	47	20	24
100M	90	100	105	110	50	60
99% Confidence Level						
0	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$	50 $\mu\Omega$
1	85	95	100	110	32	40
1.9	85	95	100	110	25	33
10	26	28	30	33	5	8
19	24	26	28	31	4	7
100	15	17	18	20	2	4
190	15	17	18	20	2	4
1k	11	12	13	15	2	3.5
1.9k	11	12	13	15	2	3.5
10k	9	11	12	14	2	3.5
19k	9	11	12	14	2	3.5
100k	11	13	14	16	2	3.5
190k	11	13	14	16	2	3.5
1M	16	18	20	23	2.5	5
1.9M	17	19	21	24	3.5	6
10M	33	37	40	46	10	14
19M	43	47	50	55	20	24
100M	110	120	125	130	50	60

Resistance Specifications

5720A/5700A Series II Calibrator secondary performance specifications and operating characteristics								
Nominal value	Stability $\pm 1^\circ\text{C}^1$ 24 hours	Temperature coefficient ²		Full spec load range ³	Maximum peak current	Maximum difference of characterized to nominal value	Two-wire adder active compensation ⁴	
		10 $^\circ$ -40 $^\circ$ C	0 $^\circ$ C-10 $^\circ$ C 40 $^\circ$ C-50 $^\circ$ C				Lead resistance	
		\pm ppm/ $^\circ$ C					0.1 Ω	1 Ω
Ω	\pm ppm	\pm ppm/ $^\circ$ C		mA	mA	\pm ppm	\pm m Ω	
0	—	—	—	8-500	500	—	2	4
1	32	4	5	8-100	700	500	2	4
1.9	25	6	7	8-100	500	500	2	4
10	5	2	3	8-11	220	300	2	4
19	4	2	3	8-11	160	300	2	4
100	2	2	3	8-11	70	150	2	4
190	2	2	3	8-11	50	150	2	4
1k	2	2	3	1-2	22	150	10	15
1.9k	2	2	3	1-1.5	16	150	10	15
10k	2	2	3	100-500 μ A	7	150	50	60
19k	2	2	3	50-250 μ A	5	150	100	120
100k	2	2	3	10-100 μ A	1	150		
190k	2	2	3	5-50 μ A	500 μ A	150		
1M	2.5	2.5	6	5-20 μ A	100 μ A	200		
1.9M	3.5	3	10	2.5-10 μ A	50 μ A	200		
10M	10	5	20	0.5-2 μ A	10 μ A	300		
19M	20	8	40	0.25-1 μ A	5 μ A	300		
100M	50	12	100	50-200 nA	1 μ A	500		

¹ Stability specifications are included in the Absolute Uncertainty values in the primary specification tables.

² Temperature coefficient is an adder to uncertainty specifications that does not apply unless operated more than 5 $^\circ$ C from calibration temperature, or calibrated outside the range 19 $^\circ$ C to 24 $^\circ$ C.

Two examples:

- Calibrate at 20 $^\circ$ C: Temperature coefficient adder is not required unless operated below 15 $^\circ$ C or above 25 $^\circ$ C.
- Calibrate at 26 $^\circ$ C: Add 2 $^\circ$ C temperature coefficient adder. Additional temperature coefficient adder is not required unless operated below 21 $^\circ$ C or above 31 $^\circ$ C.

³ Refer to current derating factors table for loads outside of this range.

⁴ Active two-wire compensation may be selected for values less than 100 k Ω , with either the front panel or the meter input terminals as reference plane. Active compensation is limited to 11 mA load, and to 2V burden. Two wire compensation can be used only with Ω meters that source continuous (not pulsed) dc current.

5720A/5700A Series II Calibrator current derating factors			
Nominal value	Value of derating Factor K for over or under current		
	Two-Wire Comp ¹ I < I _L	Four-Wire ¹ I < I _L	Four-Wire ² I _U < I < I _{MAX}
Short	4.4	0.3	—
1	4.4	300	4 x 10 ⁻⁵
1.9	4.4	160	1.5 x 10 ⁻⁴
10	4.4	30	1.6 x 10 ⁻³
19	4.4	16	3 x 10 ⁻³
100	4.4	3.5	1 x 10 ⁻²
190	4.4	2.5	1.9 x 10 ⁻²
1k	4.4	0.4	0.1
1.9k	4.4	0.4	0.19
10k	5000	50	2.0
19k	5000	50	3.8
100k	—	7.5	2 x 10 ⁻⁵
190k	—	4.0	3.8 x 10 ⁻⁵
1M	—	1.0	1.5 x 10 ⁻⁴
1.9M	—	0.53	2.9 x 10 ⁻⁴
10M	—	0.2	1 x 10 ⁻³
19M	—	0.53	1.9 x 10 ⁻³
100M	—	0.1	—

¹ For I < I_L, errors occur due to thermally generated voltages within the calibrator. Use the following equation to determine the error, and add this error to the corresponding uncertainty or stability specification.

$$\text{Error} = K(I_L - I) / (I_L \times I)$$

Where: Error is in mΩ for all two-wire comp values and four-wire short, and in ppm for the remaining four-wire values.

K is the constant from the above table;
I and I_L are expressed in mA for short to 1.9 kΩ;
I and I_L are expressed in μA for 10 kΩ to 100 MΩ

² For I_U < I < I_{MAX} errors occur due to self-heating of the resistors in the calibrator. Use the following equation to determine the error in ppm and add this error to the corresponding uncertainty or stability specification.

$$\text{Error in ppm} = K(I^2 - I_U^2)$$

Where: K is the constant from the above table;
I and I_U are expressed in mA for short to 19 kΩ;
I and I_U are expressed in μA for 100 kΩ to 100 MΩ

DC Current Specifications

5720A Calibrator							
Range	Resolution	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
		24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
95% Confidence Level							
	nA	\pm (ppm output + nA)					
220 μA	0.1	32 + 6	35 + 6	37 + 6	40 + 6	20 + 6	22 + 6
2.2 mA	1	25 + 7	30 + 7	33 + 7	35 + 7	20 + 7	22 + 7
22 mA	10	25 + 40	30 + 40	33 + 40	35 + 40	20 + 40	22 + 40
	μA	\pm (ppm output + μA)					
220 mA ¹	0.1	35 + 0.7	40 + 0.7	42 + 0.7	45 + 0.7	20 + 0.7	25 + 0.7
2.2A ¹	1	50 + 12	60 + 12	70 + 12	80 + 12	32 + 12	40 + 12
5725A Amplifier							
11A	10	330 + 470	340 + 480	350 + 480	360 + 480	100 + 130	110 + 130
99% Confidence Level							
	nA	\pm (ppm output + nA)					
220 μA	0.1	40 + 7	42 + 7	45 + 7	50 + 7	24 + 7	26 + 7
2.2 mA	1	30 + 8	35 + 8	37 + 8	40 + 8	24 + 8	26 + 8
22 mA	10	30 + 50	35 + 50	37 + 50	40 + 50	24 + 50	26 + 50
	μA	\pm (ppm output + μA)					
220 mA ¹	0.1	40 + 0.8	45 + 0.8	47 + 0.8	50 + 0.8	26 + 0.5	30 + 0.5
2.2A ¹	1	60 + 15	70 + 15	80 + 15	90 + 15	40 + 12	45 + 12
5725A Amplifier							
11A	10	330 + 470	340 + 480	350 + 480	360 + 480	100 + 130	110 + 130

5700A Series II Calibrator							
Range	Resolution	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
		24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
95% Confidence Level							
	nA	\pm (ppm output + nA)					
220 μA	0.1	35 + 8	40 + 8	45 + 8	50 + 8	20 + 1.6	22 + 1.6
2.2 mA	1	35 + 8	40 + 8	45 + 8	50 + 8	20 + 4	22 + 4
22 mA	10	35 + 80	40 + 80	45 + 80	50 + 80	20 + 80	22 + 80
	μA	\pm (ppm output + μA)					
220 mA ¹	0.1	45 + 0.8	50 + 0.8	55 + 0.8	60 + 0.8	22 + 0.25	25 + 0.25
2.2A ¹	1	60 + 25	65 + 25	75 + 25	80 + 25	35 + 6	40 + 6
5725A Amplifier							
11A	10	330 + 470	340 + 480	350 + 480	360 + 480	100 + 130	110 + 130
99% Confidence Level							
	nA	\pm (ppm output + nA)					
220 μA	0.1	45 + 10	50 + 10	55 + 10	60 + 10	24 + 2	26 + 2
2.2 mA	1	45 + 10	50 + 10	55 + 10	60 + 10	24 + 5	26 + 5
22 mA	10	45 + 100	50 + 100	55 + 100	60 + 100	24 + 50	26 + 50
	μA	\pm (ppm output + μA)					
220 mA ¹	0.1	55 + 1	60 + 1	65 + 1	70 + 1	26 + 0.3	30 + 0.3
2.2A ¹	1	75 + 30	80 + 30	90 + 30	95 + 30	40 + 7	45 + 7
5725A Amplifier							
11A	10	330 + 470	340 + 480	350 + 480	360 + 480	100 + 130	110 + 130

Maximum output from the calibrator's terminals is 2.2A. Uncertainty specifications for 220 mA and 2.2 mA ranges are increased by 1.3 x when supplied through 5725A terminals.

Specifications are otherwise identical for all output locations.

¹ Add to uncertainty specifications:

$\pm 200 \times 10^2$ ppm for >100 mA on 220 mA range

$\pm 10 \times 10^2$ ppm for >1A on 2.2A range

For field strengths >0.4V/m but $\leq 3\text{V/m}$, add 1% of range.

5720A/5700A Series II Calibrator secondary performance specifications and operating characteristics								
Range	Stability $\pm 1^\circ\text{C}^1$ 24 hours	Temperature coefficient ²		Compliance limits	Burden voltage adder ³	Max load for full accuracy ⁴	Noise bandwidth	
		10°C-40°C	0°C-10°C 40°C-50°C				0.1-10 Hz pk-pk	10-10 kHz rms
	\pm (ppm output + nA)	\pm (ppm output + nA)/°C			\pm nA/V	Ω	\pm ppm output + nA	nA
220 μA	5 + 1	1 + 0.40	3 + 1	10	0.2	20k	6 + 0.9	10
2.2 mA	5 + 5	1 + 2	3 + 10	10	0.2	2k	6 + 5	10
22 mA	5 + 50	1 + 20	3 + 100	10	10	200	6 + 50	50
220 mA	8 + 300	1 + 200	3 + 1 μA	10	100	20	9 + 300	500
2.2A	9 + 7 μA	1 + 2.5 μA	3 + 10 μA	3 ⁵	2 μA	2	12 + 1.5 μA	20 μA
5725A Amplifier								
	\pm (ppm output + μA)	\pm (ppm output + μA)/°C					\pm ppm output + μA	μA
11A	25 + 100	20 + 75	30 + 120	4	0	4	15 + 70	175

Maximum output from the calibrator's terminals is 2.2A. Uncertainty specifications for 220 mA and 2.2 mA ranges are increased by 1.3x when supplied through 5725A terminals.

¹ Stability specifications are included in the Absolute Uncertainty values for the primary specifications.

² Temperature coefficient is an adder to uncertainty specifications. It does not apply unless operating more than $\pm 5^\circ\text{C}$ from calibration temperature.

³ Burden voltage adder is an adder to uncertainty specifications that does not apply unless burden voltage is greater than 0.5V.

⁴ For higher loads, multiply uncertainty specification by: $1 + \frac{0.1 \times \text{actual load}}{\text{maximum load for full accuracy}}$

⁵ The calibrator's compliance limit is 2V for outputs from 1A to 2.2A. 5725A Amplifier may be used in range-lock mode down to 0A.

Minimum output: 0 for all ranges, including 5725A.

Settling time to full accuracy: 1 second for μA and mA ranges; 3 seconds for 2.2A range; 6 seconds for 11A range; + 1 second for range or polarity change

Overshoot: <5%

AC Current Specifications

5720A Calibrator								
95% Confidence Level								
Range	Resolution	Frequency (Hz)	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
			\pm (ppm output + nA)					
220 μA	1 nA	10 - 20	210 + 16	230 + 16	240 + 16	250 + 16	210 + 16	230 + 16
		20 - 40	130 + 10	140 + 10	150 + 10	160 + 10	110 + 10	130 + 10
		40 - 1k	100 + 8	110 + 8	115 + 8	120 + 8	80 + 8	90 + 8
		1k - 5k	240 + 12	250 + 12	270 + 12	280 + 12	200 + 12	230 + 12
		5k - 10k	800 + 65	900 + 65	1000 + 65	1100 + 65	700 + 65	800 + 65
2.2 mA	10 nA	10 - 20	210 + 40	230 + 40	240 + 40	250 + 40	210 + 40	230 + 40
		20 - 40	140 + 35	140 + 35	150 + 35	160 + 35	110 + 35	130 + 35
		40 - 1k	100 + 35	110 + 35	115 + 35	120 + 35	80 + 35	90 + 35
		1k - 5k	170 + 110	180 + 110	190 + 110	200 + 110	200 + 110	230 + 110
		5k - 10k	800 + 650	900 + 650	1000 + 650	1100 + 650	700 + 650	800 + 650
22 mA	100 nA	10 - 20	210 + 400	230 + 400	240 + 400	250 + 400	210 + 400	230 + 400
		20 - 40	130 + 350	140 + 350	150 + 350	160 + 350	110 + 350	130 + 350
		40 - 1k	100 + 350	110 + 350	115 + 350	120 + 350	80 + 350	90 + 350
		1k - 5k	170 + 550	180 + 550	190 + 550	200 + 550	200 + 550	230 + 550
		5k - 10k	800 + 5000	900 + 5000	1000 + 5000	1100 + 5000	700 + 5000	800 + 5000
\pm (ppm output + μA)								
220 mA	1 μA	10 - 20	210 + 4	230 + 4	240 + 4	250 + 4	210 + 4	230 + 4
		20 - 40	130 + 3.5	140 + 3.5	150 + 3.5	160 + 3.5	110 + 3.5	130 + 3.5
		40 - 1k	100 + 2.5	110 + 2.5	115 + 2.5	120 + 2.5	80 + 2.5	90 + 2.5
		1k - 5k	170 + 3.5	180 + 3.5	190 + 3.5	200 + 3.5	200 + 3.5	230 + 3.5
		5k - 10k	800 + 10	900 + 10	1000 + 10	1100 + 10	700 + 10	800 + 10
2.2A		20 - 1k	230 + 35	240 + 35	250 + 35	260 + 35	250 + 35	300 + 35
		1k - 5k	350 + 80	390 + 80	420 + 80	450 + 80	400 + 80	440 + 80
		5k - 10k	5000 + 160	6000 + 160	6500 + 160	7000 + 160	5000 + 160	6000 + 160
5725A Amplifier								
11A	100 μA	40 - 1k	370 + 170	400 + 170	440 + 170	460 + 170	300 + 170	330 + 170
		1k - 5k	800 + 380	850 + 380	900 + 380	950 + 380	700 + 380	800 + 380
		5k - 10k	3000 + 750	3300 + 750	3500 + 750	3600 + 750	2800 + 750	3200 + 750

Maximum output from the calibrator's terminals is 2.2A. Uncertainty specifications for 220 μA and 2.2 mA ranges are increased by 1.3x plus 2 μA when supplied through 5725A terminals. Specifications are otherwise identical for all output locations. For field strengths $> 0.4\text{V/m}$ but $\leq 3\text{V/m}$, add 1% of range.

5720A Calibrator								
99% Confidence Level								
Range	Resolution	Frequency (Hz)	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
			\pm (ppm output + nA)					
220 μA	1 nA	10 - 20	260 + 20	280 + 20	290 + 20	300 + 20	260 + 20	280 + 20
		20 - 40	170 + 12	180 + 12	190 + 12	200 + 12	130 + 12	150 + 12
		40 - 1k	120 + 10	130 + 10	135 + 10	140 + 10	100 + 10	110 + 10
		1k - 5k	300 + 15	320 + 15	340 + 15	350 + 15	250 + 15	280 + 15
		5k - 10k	1000 + 80	1100 + 80	1200 + 80	1300 + 80	900 + 80	1000 + 80
2.2 mA	10 nA	10 - 20	260 + 50	280 + 50	290 + 50	300 + 50	260 + 50	280 + 50
		20 - 40	170 + 40	180 + 40	190 + 40	200 + 40	130 + 40	150 + 40
		40 - 1k	120 + 40	130 + 40	135 + 40	140 + 40	100 + 40	110 + 40
		1k - 5k	210 + 130	220 + 130	230 + 130	240 + 130	250 + 130	280 + 130
		5k - 10k	1000 + 800	1100 + 800	1200 + 800	1300 + 800	900 + 800	1000 + 800
22 mA	100 nA	10 - 20	260 + 500	280 + 500	290 + 500	300 + 500	260 + 500	280 + 500
		20 - 40	170 + 400	180 + 400	190 + 400	200 + 400	130 + 400	150 + 400
		40 - 1k	120 + 400	130 + 400	135 + 400	140 + 400	100 + 400	110 + 400
		1k - 5k	210 + 700	220 + 700	230 + 700	240 + 700	250 + 700	280 + 700
		5k - 10k	1000 + 6000	1100 + 6000	1200 + 6000	1300 + 6000	900 + 6000	1000 + 6000
			\pm (ppm output + μA)					
220 mA	1 μA	10 - 20	260 + 5	280 + 5	290 + 5	300 + 5	260 + 5	280 + 5
		20 - 40	170 + 4	180 + 4	190 + 4	200 + 4	130 + 4	150 + 4
		40 - 1k	120 + 3	130 + 3	135 + 3	140 + 3	100 + 3	110 + 3
		1k - 5k	210 + 4	220 + 4	230 + 4	240 + 4	250 + 4	280 + 4
		5k - 10k	1000 + 12	1100 + 12	1200 + 12	1300 + 12	900 + 12	1000 + 12
2.2A	10 μA	20 - 1k	290 + 40	300 + 40	310 + 40	320 + 40	300 + 40	350 + 40
		1k - 5k	440 + 100	460 + 100	480 + 100	500 + 100	500 + 100	520 + 100
		5k - 10k	6000 + 200	7000 + 200	7500 + 200	8000 + 200	6000 + 200	7000 + 200
5725A Amplifier								
11A	100 μA	40 - 1k	370 + 170	400 + 170	440 + 170	460 + 170	300 + 170	330 + 170
		1k - 5k	800 + 380	850 + 380	900 + 380	950 + 380	700 + 380	800 + 380
		5k - 10k	3000 + 750	3300 + 750	3500 + 750	3600 + 750	2800 + 750	3200 + 750

Maximum output from the calibrator's terminals is 2.2A. Uncertainty specifications for 220 μA and 2.2 mA ranges are increased by 1.3x plus 2 μA when supplied through 5725A terminals. Specifications are otherwise identical for all output locations. For field strengths $> 0.4\text{V/m}$ but $\leq 3\text{V/m}$, add 1% of range.

AC Current Specifications

5700A Series II Calibrator								
95% Confidence Level								
Range	Resolution	Frequency	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
		(Hz)	\pm (ppm output + nA)					
220 μA	1 nA	10 - 20	550 + 25	600 + 25	650 + 25	700 + 25	375 + 25	400 + 25
		20 - 40	280 + 20	310 + 20	330 + 20	350 + 20	220 + 20	250 + 20
		40 - 1k	100 + 16	120 + 16	130 + 16	140 + 16	90 + 16	100 + 16
		1k - 5k	400 + 40	500 + 40	550 + 40	600 + 40	375 + 40	400 + 40
		5k - 10k	1300 + 80	1400 + 80	1500 + 80	1600 + 80	1200 + 80	1200 + 80
2.2 mA	10 nA	10 - 20	550 + 40	600 + 40	650 + 40	700 + 40	375 + 40	400 + 40
		20 - 40	280 + 35	310 + 35	330 + 35	350 + 35	220 + 35	250 + 35
		40 - 1k	100 + 35	120 + 35	130 + 35	140 + 35	90 + 35	100 + 35
		1k - 5k	400 + 400	500 + 400	550 + 400	600 + 400	375 + 400	400 + 400
		5k - 10k	1300 + 800	1400 + 800	1500 + 800	1600 + 800	1200 + 800	1200 + 800
22 mA	100 nA	10 - 20	550 + 400	600 + 400	650 + 400	700 + 400	375 + 400	400 + 400
		20 - 40	280 + 350	310 + 350	330 + 350	350 + 350	220 + 350	250 + 350
		40 - 1k	100 + 350	120 + 350	130 + 350	140 + 350	90 + 350	100 + 350
		1k - 5k	400 + 4000	500 + 4000	550 + 4000	600 + 4000	375 + 4000	400 + 4000
		5k - 10k	1300 + 8000	1400 + 8000	1500 + 8000	1600 + 8000	1200 + 8000	1200 + 8000
			\pm (ppm output + μA)					
220 mA	1 μA	10 - 20	550 + 4	600 + 4	650 + 4	700 + 4	375 + 4	400 + 4
		20 - 40	280 + 3.5	310 + 3.5	330 + 3.5	350 + 3.5	220 + 3.5	250 + 3.5
		40 - 1k	100 + 3.5	120 + 3.5	130 + 3.5	140 + 3.5	90 + 3.5	100 + 3.5
		1k - 5k	400 + 40	500 + 40	550 + 40	600 + 40	375 + 40	400 + 40
		5k - 10k	1300 + 80	1400 + 80	1500 + 80	1600 + 80	1200 + 80	1200 + 80
2.2A	10 μA	20 - 1k	500 + 35	550 + 35	600 + 35	650 + 35	500 + 35	550 + 35
		1k - 5k	600 + 80	650 + 80	700 + 80	750 + 80	550 + 80	650 + 80
		5k - 10k	6500 + 160	7500 + 160	8000 + 160	8500 + 160	6000 + 160	7000 + 160
5725A Amplifier								
11A	100 μA	40 - 1k	370 + 170	400 + 170	440 + 170	460 + 170	300 + 170	330 + 170
		1k - 5k	800 + 380	850 + 380	900 + 380	950 + 380	700 + 380	800 + 380
		5k - 10k	3000 + 750	3300 + 750	3500 + 750	3600 + 750	2800 + 750	3200 + 750

Maximum output from the calibrator's terminals is 2.2A. Uncertainty specifications for 220 μA and 2.2 mA ranges are increased by 1.3x plus 2 μA when supplied through 5725A terminals. Specifications are otherwise identical for all output locations. For field strengths $> 0.4\text{V/m}$ but $\leq 3\text{V/m}$, add 1% of range.

5700A Series II Calibrator								
99% Confidence Level								
Range	Resolution	Frequency	Absolute uncertainty $\pm 5^{\circ}\text{C}$ from calibration temperature				Relative uncertainty $\pm 1^{\circ}\text{C}$	
			24 Hours	90 Days	180 Days	1 Year	24 Hours	90 Days
		(Hz)	\pm (ppm output + nA)					
220 μA	1 nA	10 - 20	650 + 30	700 + 30	750 + 30	800 + 30	450 + 30	500 + 30
		20 - 40	350 + 25	380 + 25	410 + 25	420 + 25	270 + 25	300 + 25
		40 - 1k	120 + 20	140 + 20	150 + 20	160 + 20	110 + 20	120 + 20
		1k - 5k	500 + 50	600 + 50	650 + 50	700 + 50	450 + 50	500 + 50
		5k - 10k	1500 + 100	1600 + 100	1700 + 100	1800 + 100	1400 + 100	1500 + 100
2.2 mA	10 nA	10 - 20	650 + 50	700 + 50	750 + 50	800 + 50	450 + 50	500 + 50
		20 - 40	350 + 40	380 + 40	410 + 40	420 + 40	270 + 40	300 + 40
		40 - 1k	120 + 40	140 + 40	150 + 40	160 + 40	110 + 40	120 + 40
		1k - 5k	500 + 500	600 + 500	650 + 500	700 + 500	450 + 500	500 + 500
		5k - 10k	1500 + 1000	1600 + 1000	1700 + 1000	1800 + 1000	1400 + 1000	1500 + 1000
22 mA	100 nA	10 - 20	650 + 500	700 + 500	750 + 500	800 + 500	450 + 500	500 + 500
		20 - 40	350 + 400	380 + 400	410 + 400	420 + 400	270 + 400	300 + 400
		40 - 1k	120 + 400	140 + 400	150 + 400	160 + 400	110 + 400	120 + 400
		1k - 5k	500 + 5000	600 + 5000	650 + 5000	700 + 5000	450 + 5000	500 + 5000
		5k - 10k	1500 + 10000	1600 + 10000	1700 + 10000	1800 + 10000	1400 + 10000	1500 + 10000
			\pm (ppm output + μA)					
220 mA	1 μA	10 - 20	650 + 5	700 + 5	750 + 5	800 + 5	450 + 5	500 + 5
		20 - 40	350 + 4	380 + 4	410 + 4	420 + 4	280 + 4	300 + 4
		40 - 1k	120 + 4	150 + 4	170 + 4	180 + 4	110 + 4	130 + 4
		1k - 5k	500 + 50	600 + 50	650 + 50	700 + 50	450 + 50	500 + 50
		5k - 10k	1500 + 100	1600 + 100	1700 + 100	1800 + 100	1400 + 100	1500 + 100
2.2A	10 μA	20 - 1k	600 + 40	650 + 40	700 + 40	750 + 40	600 + 40	650 + 40
		1k - 5k	700 + 100	750 + 100	800 + 100	850 + 100	650 + 100	750 + 100
		5k - 10k	8000 + 200	9000 + 200	9500 + 200	10000 + 200	7500 + 200	8500 + 200
5725A Amplifier								
11A	100 μA	40 - 1k	370 + 170	400 + 170	440 + 170	460 + 170	300 + 170	330 + 170
		1k - 5k	800 + 380	850 + 380	900 + 380	950 + 380	700 + 380	800 + 380
		5k - 10k	3000 + 750	3300 + 750	3500 + 750	3600 + 750	2800 + 750	3200 + 750

Maximum output from the calibrator's terminals is 2.2A. Uncertainty specifications for 220 μA and 2.2 mA ranges are increased by 1.3x plus 2 μA when supplied through 5725A terminals. Specifications are otherwise identical for all output locations. For field strengths $> 0.4\text{V/m}$ but $\leq 3\text{V/m}$, add 1% of range.

AC Current Specifications

5720A/5700A Series II Calibrator secondary performance and operating characteristics							
Range	Frequency (Hz)	Stability $\pm 1^\circ\text{C}^1$ 24 Hours \pm (ppm output + nA)	Temperature coefficient ²		Compliance limits V rms	Maximum resistive load for full accuracy ³ Ω	Noise and distortion
			10 ^o -40 ^o C	0 ^o -10 ^o C and 40 ^o -50 ^o C			Bandwidth 10 Hz-50 kHz <0.5V burden
			\pm (ppm output + nA)/ ^o C				\pm (% output+ μ A)
220 μ A	10 - 20	150 + 5	50 + 5	50 + 5	7	2k	0.05 + 0.1
	20 - 40	80 + 5	20 + 5	20 + 5			0.05 + 0.1
	40 - 1k	30 + 3	4 + 0.5	10 + 0.5			0.05 + 0.1
	1k - 5k	50 + 20	10 + 1	20 + 1			0.25 + 0.5
	5k - 10k	400 + 100	20 + 100	20 + 100			0.5 + 1
2.2 mA	10 - 20	150 + 5	50 + 5	50 + 5	7	500	0.05 + 0.1
	20 - 40	80 + 5	20 + 4	20 + 4			0.05 + 0.1
	40 - 1k	30 + 3	4 + 1	10 + 2			0.05 + 0.1
	1k - 5k	50 + 20	10 + 100	20 + 10			0.25 + 0.5
	5k - 10k	400 + 100	50 + 400	50 + 400			0.5 + 1
22 mA	10 - 20	150 + 50	50 + 10	50 + 10	7	150	0.05 + 0.1
	20 - 40	80 + 50	20 + 10	20 + 10			0.05 + 0.1
	40 - 1k	30 + 30	4 + 10	10 + 20			0.05 + 0.1
	1k - 5k	50 + 500	10 + 500	20 + 400			0.25 + 0.5
	5k - 10k	400 + 1000	50 + 1000	50 + 1000			0.5 + 1
		\pm (ppm output + μ A)	\pm (ppm output + μ A)/ ^o C				
220 mA	10 - 20	150 + 0.5	50 + 0.05	50 + 0.05	7	15	0.05 + 10
	20 - 40	80 + 0.5	20 + 0.05	20 + 0.05			0.05 + 10
	40 - 1k	30 + 0.3	4 + 0.1	10 + 0.1			0.05 + 10
	1k - 5k	50 + 3	10 + 2	20 + 2			0.25 + 50
	5k - 10k	400 + 5	50 + 5	50 + 5			0.5 + 100
2.2A	20 - 1k	50 + 5	4 + 1	10 + 1	1.4 ⁴	0.5	0.5 + 100
	1k - 5k	80 + 20	10 + 5	20 + 5			0.3 + 500
	5k - 10k	800 + 50	50 + 10	50 + 10			1 + 1 mA
5725A Amplifier							
							\pm (% output)
11A	40 - 1k	75 + 100	20 + 75	30 + 75	3	3	Note 5
	1k - 5k	100 + 150	40 + 75	50 + 75			
	5k - 10k	200 + 300	100 + 75	100 + 75			

Maximum output from 5720A terminals is 2.2A. Uncertainty specifications for 220 μ A and 2.2 mA ranges are increased by 1.3x plus 2 mA when supplied through 5725A terminals. Specifications are otherwise identical for all output locations.

¹ Stability specifications are included in the Absolute Uncertainty values for the primary specifications.

² Temperature coefficient is an adder to uncertainty specifications that does not apply unless operating more than $\pm 5^\circ\text{C}$ from calibration temperature.

³ For larger resistive loads multiply uncertainty specifications by: $\left(\frac{\text{actual load}}{\text{maximum load for full accuracy}} \right)^2$

⁴ 1.5V compliance limit above 1A. 5725A Amplifier may be used in range-lock mode down to 1A.

⁵ For resistive loads within rated compliance voltage limits.

Minimum output: 9 μ A for 220 μ A range, 10% on all other ranges. 1A minimum for 5725A.

Inductive load limits: 400 μ H (5700A/5720A or 5725A). 20 μ H for 5700A/5720A output >1A.

Power factors: 5700A/5720A, 0.9 to 1; 5725A, 0.1 to 1. Subject to compliance voltage limits.

Frequency:

Range (Hz): 10.000-11.999, 12.00-119.99, 120.0-1199.9, 1.200k-10.000k

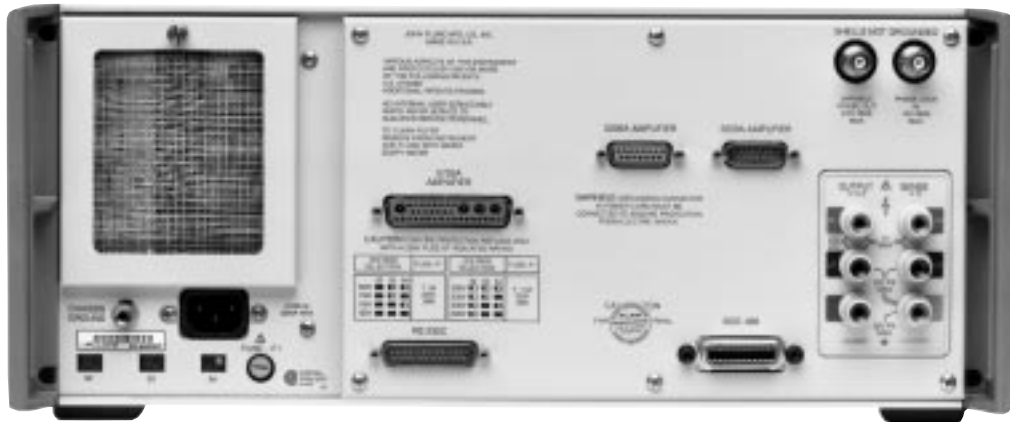
Uncertainty: $\pm 0.01\%$

Resolution: 11,999 counts

Settling time to full accuracy: 5 seconds for 5700A/5720A ranges; 6 seconds for 5725A 11A range; +1 second for amplitude or frequency range change.

Overshoot: <10%

5720A Calibrator



Wideband AC Voltage Specifications

5720A/5700A Series II Calibrator						
Option 5700A-03 – Specifications apply to the end of the cable and 50Ω termination used for calibration						
Range		Resolution	Absolute uncertainty ±5°C from calibration temperature 30 Hz-500 kHz			
			24 Hours	90 Days	180 Days	1 Year
Volts	dBm		± (% output + μV)			
1.1 mV	-46	10 nV	0.4 + 0.4	0.5 + 0.4	0.6 + 0.4	0.8 + 2
3 mV	-37	10 nV	0.4 + 1	0.45 + 1	0.5 + 1	0.7 + 3
11 mV	-26	100 nV	0.2 + 4	0.35 + 4	0.5 + 4	0.7 + 8
33 mV	-17	100 nV	0.2 + 10	0.3 + 10	0.45 + 10	0.6 + 16
110 mV	-6.2	1 μV	0.2 + 40	0.3 + 40	0.45 + 40	0.6 + 40
330 mV	+3.4	1 μV	0.2 + 100	0.25 + 100	0.35 + 100	0.5 + 100
1.1V	+14	10 μV	0.2 + 400	0.25 + 400	0.35 + 400	0.5 + 400
3.5V	+24	10 μV	0.15 + 500	0.2 + 500	0.3 + 500	0.4 + 500

Frequency	Frequency resolution	Amplitude flatness, 1 kHz reference Voltage range ±%			Temperature coefficient ± ppm/°C	Settling time to full accuracy Seconds	Harmonic distortion dB
		1.1 mV	3 mV	>3 mV			
Hz	Hz						
10 + 30	0.01	0.3	0.3	0.3	100	7	-40
30 - 120	0.01	0.1	0.1	0.1	100	7	-40
120 - 1.2k	0.1	0.1	0.1	0.1	100	5	-40
1.2k - 12k	1	0.1	0.1	0.1	100	5	-40
12k - 120k	10	0.1	0.1	0.1	100	5	-40
120k - 1.2M	100	0.2 + 3 μV	0.1 + 3 μV	0.1 + 3 μV	100	5	-40
1.2M - 2M	100k	0.2 + 3 μV	0.1 + 3 μV	0.1 + 3 μV	100	0.5	-40
2M - 10M	100k	0.4 + 3 μV	0.3 + 3 μV	0.2 + 3 μV	100	0.5	-40
10M - 20M	1M	0.6 + 3 μV	0.5 + 3 μV	0.4 + 3 μV	150	0.5	-34
20M - 30M	1M	1.5 + 15 μV	1.5 + 3 μV	1 + 3 μV	300	0.5	-34

Additional operating information:

dBm reference = 50Ω

Range boundaries are at voltage points, dBm levels are approximate

dBm = 10 log by: $\left(\frac{\text{Power}}{1 \text{ mW}}\right)$; 0.22361V across 50Ω = 1 mW or 0 dBm

Minimum output: 300 μV (-57 dBm)

Frequency uncertainty: ±0.01%

Frequency resolution: 11,999 counts to 1.1999 MHz, 119 counts to 30 MHz

Overload protection: A short circuit on the wideband output will not result in damage. After settling time, normal operation is restored upon removal.

General Specifications

Warm-up time: 2x the time since last warmed up, to a maximum of 30 minutes

System installation: Rear output configuration and rack-mount kit available

Standard interfaces: IEEE-488, RS-232, 5725A, 5205A or 5215A, 5220A, phase lock in (BNC), phase reference out (BNC)

Temperature performance:

Operating: 0°C to 50°C

Calibration: 15°C to 35°C

Storage: -40°C to 75°C

Relative humidity:

Operating: <80% to 30°C, <70% to 40°C, <40% to 50°C
Storage: <95%, non-condensing. A power-on stabilization period of four days may be required after extended storage at high temperature and humidity.

Safety: Designed to comply with UL311; IEC 348-1978; IEC 66E (CO) 4; CSA 556B

Guard isolation: 20 volts

EMI/RFI: Designed to comply with FCC Rules Part 15, Subpart J, Class B; VDE 0871, Class B

Line power: 47 to 63 Hz; ±10% allowed about selectable nominal line voltage: 100V, 110V, 115V, 120V, 200V, 220V, 230V, 240V

Maximum power: 5700A/5720A: 300VA; 5725A, 750VA

Size:
5700A/5720A: Height 17.8 cm, (7 in), standard rack increment, plus 1.5 cm (0.6 in) for feet; width 43.2 cm (17 in), standard rack width; depth 63.0 cm (24.8 in), overall; 57.8 cm (22.7 in), rack depth

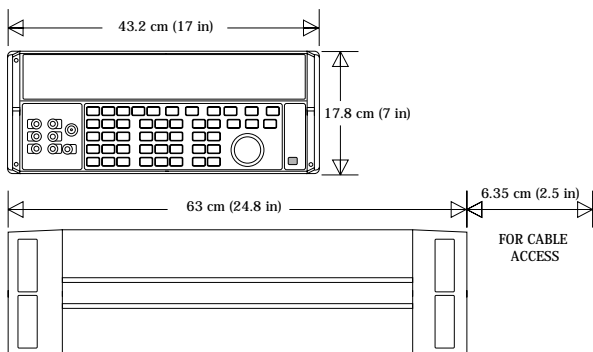
5725A: Height 13.3 cm, (5.25 in); width and depth same as 5700A/5720A

Both units project 5.1 cm, (2 in) from rack front

Weight:

5700A/5720A: 27kg (62 lbs)

5725A: 32 kg (70 lbs)



Auxiliary amplifier specifications

For complete specifications, see the 5205A and 5220A operator manuals.

5205A (220V-1100V ac, 0V-1100V dc)

Overshoot: < 10%

Distortion (bandwidth 10 Hz-1 MHz):

10 Hz-20 kHz 0.07%

20 kHz-50 kHz 0.2%

50 kHz-100 kHz 0.25%

Frequency	90 day accuracy at 23°C ± 5°C ± (% output + % range)	Temperature coefficient for 0°-18°C and 28°-50°C ± (ppm output + ppm range)/°C
DC	0.05 + 0.005	15 + 3
10 Hz - 40 Hz	0.15 + 0.005	45 + 3
40 Hz - 20 kHz	0.04 + 0.004	15 + 3
20 kHz - 50 kHz	0.08 + 0.006	50 + 10
50 kHz - 100 kHz	0.1 + 0.01	70 + 20

5220A (AC Current, 180-day specifications):

Accuracy:

20 Hz-1 kHz 0.07% + 1 mA

1 kHz-5 kHz (0.07% + 1mA) x frequency in kHz

Temperature Coefficient

(0°-18°C and 28°-50°C): (.003% + 100 mA)/°C

Distortion (bandwidth 300 kHz):

20 Hz-1 kHz 0.1% + 1 mA

1 kHz-5 kHz (0.1% + 1 mA) x frequency in kHz

Note: 5700A/5720A combined with 5220A is not specified for inductive loads.

Calibration requirements

Calibrating the 5700A Series II and 5720A to full specified absolute uncertainty requires only the following standards:

Fluke standard	Traceable quantity	Nominal value	Maximum uncertainty ¹	Specs susceptible to uncertainty limit
732B	Voltage	10V	±1.5 ppm	dc volts, ac volts, dc current, ac current
742A-1	Resistance	1Ω	±10 ppm	1Ω, 1.9Ω
742A-10k	Resistance	10 kΩ	±4 ppm	ac current, dc current
		10Ω to 100 MΩ		

¹ Relative to national standards.

A simple, built-in, self-prompting calibration procedure is designed to use the portable Fluke standards to completely calibrate all functions.

Calibration may be done at any temperature from 15°C to 35°C without change to any specification except for resistance. Resistance specifications are modified by a small temperature coefficient when calibrated below 19°C or above 24°C.

You may use standards with different uncertainties than given in the table above. Absolute uncertainty must then be modified by the algebraic difference between the uncertainty of the standard used and that in the table. For example, if the dc voltage standard has an uncertainty of ±2.5 ppm, dc voltage absolute uncertainty specifications will all be increased by ±1 ppm. Add the increased uncertainty to the functions listed for that standard in the right column of the table above.

Ordering Information

Model

5720A Calibrator
 5700A Series II Calibrator
 5500A Calibrator

Options

5700A-03 Wideband AC Voltage (compatible with both the 5700A and the 5720A)
 5500A-SC 300 MHz Oscilloscope Calibration option for the 5500A

Accessories

5725A	Amplifier
5220A	Transconductance Amplifier
5790A	AC Measurement Standard
734A	DC Reference Standard
732B	DC Standard
742A	Resistance Standards
792A	AC/DC Transfer Standard
MET/CAL - 4	Calibration Software
MET/CAL - K4	Calibration Software with IEEE
MET/TRACK - 4	Metrology Property Management Software
MET/TRACK - 4+	5-user version
MET/TRACK - ND4	Workstation Node

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