

Manual Supplement

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This supplement contains information necessary to ensure the accuracy of the above manual. Enter the corrections in the manual if either one of the following conditions exist:

1. The revision letter stamped on the indicated PCA is equal to or higher than that given with each change.
2. No revision letter is indicated at the beginning of the change.

Change #1

Replace page 10, **DC Current Specifications**, with the following:

DC Current Specifications

Range	Absolute Uncertainty, tcal ± 5 °C \pm (ppm of output + μ A)		Resolution	Max Compliance Voltage V	Max Inductive Load mH
	90 days	1 year			
0 to 329.999 mA	120 + 0.02	150 + 0.02	1 nA	10	400
0 to 3.29999 mA	80 + 0.05	100 + 0.05	0.01 mA	10	
0 to 32.9999 mA	80 + 0.25	100 + 0.25	0.1 mA	7	
0 to 329.999 mA	80 + 2.5	100 + 2.5	1 mA	7	
0 to 1.09999 A	160 + 40	200 + 40	10 mA	6	
1.1 to 2.99999 A	300 + 40	380 + 40	10 mA	6	
0 to 10.9999 A (20 A Range)	380 + 500	500 + 500	100 mA	4	
11 to 20.5 A [1]	800 + 750 [2]	1000 + 750 [2]	100 mA	4	

[1] Duty Cycle: Currents < 11 A may be provided continuously. For currents > 11 A, see Figure 4. The current may be provided 60-T-I minutes any 60 minute period where T is the temperature in °C (room temperature is about 23°C) and I is the output current in Amps. For example, 17 A, at 23°C could be provided for 60-17-23 = 20 minutes each hour. When the 5520A is outputting currents between 5 and 11 amps for long periods, the internal self-heating reduces the duty cycle. Under those conditions, the allowable "on" time indicated by the formula and Figure 4 is achieved only after the 5520A is outputting currents < 5A for the "off" period first.

[2] Specifications apply within two minutes of selecting operate.

Range	Noise	
	Bandwidth 0.1 Hz to 10 Hz p-p	Bandwidth 10 Hz to 10 kHz rms
0 to 329.999 μ A	2 nA	20 nA
0 to 3.29999 mA	20 nA	200 nA
0 to 32.9999 mA	200 nA	2.0 μ A
0 to 329.999 mA	2000 nA	20 μ A
0 to 2.99999 A	20 μ A	1 mA
0 to 20.5 A	200 μ A	10 mA

Replace page 15, **AC Current (Sine Wave) Specifications**, with the following:

AC Current (Sine Wave) Specifications

LCOMP off						
Range	Frequency	Absolute Uncertainty, $t_{cal} \pm 5^\circ\text{C}$ \pm (% of output + μA)		Compliance adder \pm ($\mu\text{A/V}$)	Max Distortion & Noise 10 Hz to 100 kHz BW \pm (% output + floor)	Max Inductive Load μH
		90 days	1 year			
29.00 μA to 329.99 μA	10 Hz to 20 Hz	0.16 + 0.1	0.2 + 0.1	0.05	0.15 + 0.5 μA	200
	20 Hz to 45 Hz	0.12 + 0.1	0.15 + 0.1	0.05	0.1 + 0.5 μA	
	45 Hz to 1 kHz	0.1 + 0.1	0.125 + 0.1	0.05	0.05 + 0.5 μA	
	1 kHz to 5 kHz	0.25 + 0.15	0.3 + 0.15	1.5	0.5 + 0.5 μA	
	5 kHz to 10 kHz	0.6 + 0.2	0.8 + 0.2	1.5	1.0 + 0.5 μA	
	10 kHz to 30 kHz	1.2 + 0.4	1.6 + 0.4	10	1.2 + 0.5 μA	
0.33 mA to 3.2999 mA	10 Hz to 20 Hz	0.16 + 0.15	0.2 + 0.15	0.05	0.15 + 1.5 μA	200
	20 Hz to 45 Hz	0.1 + 0.15	0.125 + 0.15	0.05	0.06 + 1.5 μA	
	45 Hz to 1 kHz	0.08 + 0.15	0.1 + 0.15	0.05	0.02 + 1.5 μA	
	1 kHz to 5 kHz	0.16 + 0.2	0.2 + 0.2	1.5	0.5 + 1.5 μA	
	5 kHz to 10 kHz	0.4 + 0.3	0.5 + 0.3	1.5	1.0 + 1.5 μA	
	10 kHz to 30 kHz	0.8 + 0.6	1.0 + 0.6	10	1.2 + 0.5 μA	
3.3 mA to 32.999 mA	10 Hz to 20 Hz	0.15 + 2	0.18 + 2	0.05	0.15 + 5 μA	50
	20 Hz to 45 Hz	0.075 + 2	0.09 + 2	0.05	0.05 + 5 μA	
	45 Hz to 1 kHz	0.035 + 2	0.04 + 2	0.05	0.07 + 5 μA	
	1 kHz to 5 kHz	0.065 + 2	0.08 + 2	1.5	0.3 + 5 μA	
	5 kHz to 10 kHz	0.16 + 3	0.2 + 3	1.5	0.7 + 5 μA	
	10 kHz to 30 kHz	0.32 + 4	0.4 + 4	10	1.0 + 0.5 μA	
33 mA to 329.99 mA	10 Hz to 20 Hz	0.15 + 20	0.18 + 20	0.05	0.15 + 50 μA	50
	20 Hz to 45 Hz	0.075 + 20	0.09 + 20	0.05	0.05 + 50 μA	
	45 Hz to 1 kHz	0.035 + 20	0.04 + 20	0.05	0.02 + 50 μA	
	1 kHz to 5 kHz	0.08 + 50	0.10 + 50	1.5	0.03 + 50 μA	
	5 kHz to 10 kHz	0.16 + 100	0.2 + 100	1.5	0.1 + 50 μA	
	10 kHz to 30 kHz	0.32 + 200	0.4 + 200	10	0.6 + 50 μA	
0.33 A to 1.09999 A	10 Hz to 45 Hz	0.15 + 100	0.18 + 100		0.2 + 500 μA	2.5
	45 Hz to 1 kHz	0.036 + 100	0.05 + 100		0.07 + 500 μA	
	1 kHz to 5 kHz	0.5 + 1000	0.6 + 1000	[2]	1 + 500 μA	
	5 kHz to 10 kHz	2.0 + 5000	2.5 + 5000	[3]	2 + 500 μA	
1.1 A to 2.99999 A	10 Hz to 45 Hz	0.15 + 100	0.18 + 100		0.2 + 500 μA	2.5
	45 Hz to 1 kHz	0.05 + 100	0.06 + 100		0.07 + 500 μA	
	1 kHz to 5 kHz	0.5 + 1000	0.6 + 1000	[2]	1 + 500 μA	
	5 kHz to 10 kHz	2.0 + 5000	2.5 + 5000	[3]	2 + 500 μA	
3 A to 10.9999 A	45 Hz to 100 Hz	0.05 + 2000	0.06 + 2000		0.2 + 3 mA	1
	100 kHz to 1 kHz	0.08 + 2000	0.10 + 2000		0.1 + 3 mA	
	1 kHz to 5 kHz	2.5 + 2000	3.0 + 2000		0.8 + 3 mA	
11A to 20.5 A [1]	45 Hz to 100 Hz	0.1 + 5000	0.12 + 5000		0.2 + 3 mA	1
	100 Hz to 1 kHz	0.13 + 5000	0.15 + 5000		0.1 + 3 mA	
	1 kHz to 5 kHz	2.5 + 5000	3.0 + 5000		0.8 + 3 mA	

[1] Duty Cycle: Currents < 11 A may be provided continuously. For currents > 11 A, see Figure 4. The current may be provided 60-T-I minutes any 60 minute period where T is the temperature in $^\circ\text{C}$ (room temperature is about 23°C) and I is the output current in Amps. For example, 17 A, at 23°C could be provided for $60-17-23 = 20$ minutes each hour. When the 5520A is outputting currents between 5 and 11 amps for long periods, the internal self-heating reduces the duty cycle. Under those conditions, the allowable "on" time indicated by the formula and Figure 4 is achieved only after the 5520A is outputting currents < 5A for the "off" period first.

[2] For compliance voltages greater than 1 V, add 1 mA/V to the floor specification from 1 kHz to 5 kHz.

[3] For compliance voltages greater than 1 V, add 5 mA/V to the floor specification from 5 kHz to 10 kHz.

Replace page 16, **AC Current (Sine Wave) Specifications(cont)**, with the following:

AC Current (Sine Wave) Specifications (cont)

LCOMP on						
Range	Frequency	Absolute Uncertainty, $t_{cal} \pm 5$ $^{\circ}C$ \pm (% of output + μA)		Max Distortion & Noise, 10 Hz to 100 kHz BW \pm (% output + μA)	Max Inductive Load μH	
		90 days	1 year			
29.00 μA to 329.99 μA	10 Hz to 100 Hz 100 Hz to 1 kHz	0.2 + 0.2 0.5 + 0.5	0.25 + 0.2 0.6 + 0.5	0.1 + 1.0 0.05 + 1.0	400	
0.33 mA to 3.2999 mA	10 Hz to 100 Hz 100 Hz to 1 kHz	0.2 + 0.3 0.5 + 0.8	0.25 + 0.3 0.6 + 0.8	0.15 + 1.5 0.06 + 1.5		
3.3 mA to 32.999 mA	10 Hz to 100 Hz 100 Hz to 1 kHz	0.07 + 4 0.18 + 10	0.08 + 4 0.2 + 10	0.15 + 5 0.05 + 5		
33 mA to 329.99 mA	10 Hz to 100 Hz 100 Hz to 1 kHz	0.07 + 40 0.18 + 100	0.08 + 40 0.2 + 100	0.15 + 50 0.05 + 50		
0.33 A to 2.99999 A	10 Hz to 100 Hz 100 to 440 Hz	0.1 + 200 0.25 + 1000	0.12 + 200 0.3 + 1000	0.2 + 500 0.25 + 500		
3 A to 20.5 A [1]	10 Hz to 100 Hz	0.1 + 2000 [2]	0.12 + 2000 [2]	0.1 + 0		400 [4]
	100 Hz to 1 kHz	0.8 + 5000 [3]	1.0 + 5000 [3]	0.5 + 0		

[1] Duty Cycle: Currents < 11 A may be provided continuously. For currents > 11 A, see Figure 4. The current may be provided 60-T-I minutes any 60 minute period where T is the temperature in $^{\circ}C$ (room temperature is about $23^{\circ}C$) and I is the output current in Amps. For example, 17 A, at $23^{\circ}C$ could be provided for 60-17-23 = 20 minutes each hour. When the 5520A is outputting currents between 5 and 11 amps for long periods, the internal self-heating reduces the duty cycle. Under those conditions, the allowable "on" time indicated by the formula and Figure 4 is achieved only after the 5520A is outputting currents < 5A for the "off" period first.

[2] For currents >11 A, Floor specification is 4000 μA within 30 seconds of selecting operate. For operating times >30 seconds, the floor specification is 2000 μA .

[3] For currents >11 A, Floor specification is 1000 μA within 30 seconds of selecting operate. For operating times >30 seconds, the floor specification is 5000 μA .

[4] Subject to compliance voltages limits.

Range	Resolution μA	Max Compliance Voltage V rms [1]
0.029 mA to 0.32999 mA	0.01	7
0.33 mA to 3.29999 mA	0.01	7
3.3 mA to 32.9999 mA	0.1	5
33 mA to 329.999 mA	1	5
0.33 A to 2.99999 A	10	4
3 A to 20.5 A	100	3

[1] Subject to specification adder for compliance voltages greater than 1 V rms.

