A

Specifications

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Table A-1 lists the specifications of the ac source. Performance specifications are warranted over the ambient temperature range of 0 to 40 °C. Unless otherwise noted, specifications are for a sinewave with a resistive load at an output frequency range of 45 Hz to 1 kHz, in ac-coupled mode after a 30-minute warmup. **Refer to table A-3 for ac source operation with output frequencies from dc to 45 Hz.**

Table A-1. Performance Specifications[1]

Parameter		HP 6811A	HP 6812A/6841A	HP 6813A/6842A
Phases:		1	1	1
Maximum Output Ratings	**Power (VA):**	375 VA	750 VA	1750 VA
	dc Power (Watts):	285 W	575 W	1350 W
	rms Voltage:	300 V	300 V	300 V
	dc Voltage:	± 425 V	± 425 V	± 425 V
	rms Current (in real-time mode):	3.25 A	6.5 A	13 A
	dc Current:	2.5 A	5 A	10 A
	Repetitive peak Current[2]:	40 A	40 A	80 A
	Non-repetitive peak Current[2] (inrush):	40 A	40 A	80 A
	Crest Factor[2] (current):	12	6	6
Output Frequency Range[3]:		dc; 45 Hz–1 kHz		
Constant Voltage Ripple and Noise (20 kHz–10 MHz):	**rms relative to full scale:**	–60 dB		
	rms:	300 mV		
Regulation:	**Load** (rms detection mode):	0.5% of full scale		
	Line:	0.1% of full scale		
Maximum Total Harmonic Distortion:		0.25% at 50 Hz/60 Hz 1% worst-case 45 Hz–1 kHz		
Load Power Factor Capability:		0–1		
Maximum Fixed dc Offset Voltage (ac coupled):		100 mV		
Isolation to Ground:		300 Vrms/425 Vdc		
Programming Accuracy (rms detection mode @ 25°C ±5°C), ±(% of output + offset)	**rms Voltage** (45–100 Hz):	0.15% + 0.3 V		
	(>100–500 Hz):	0.5% + 0.3 V		
	(>500 Hz–1 kHz):	1% + 0.3 V)		
	Frequency:	0.01% + 10 µHz		
	dc Voltage:	0.1% + 0.5 V	0.1% + 0.5 V	0.5% + 0.3 V
Measurement Accuracy (@25°C ±5°C), ± (% of output + offset)	**rms Voltage** (45–100 Hz):	0.03% + 100 mV		
	(>100–500 Hz):	0.1% + 100 mV		
	(>500 Hz–1 kHz):	0.2% + 100 mV		
	Frequency:	0.01% + 0.01 Hz		
	dc Voltage:	0.03% + 150 mV		

Table A-1. Performance Specifications (continued)

Parameter		HP 6811A	HP 6812A/6841A	HP 6813A/6842A
Measurement Accuracy (continued)	**rms Current High Range**			
	(45–100 Hz):	0.05% + 8 mA	0.05% + 15 mA	0.05% + 15 mA
	(>100–500 Hz):	0.05% + 12 mA	0.05% + 25 mA	0.05% + 25 mA
	(>500 Hz–1 kHz):	0.05% + 25 mA	0.05% + 50 mA	0.05% + 50 mA
	rms Current Low Range			
	(45–100 Hz):	0.03% + 3 mA	0.03% + 3 mA	0.03% + 3 mA
	(>100–500 Hz):	0.03% + 10 mA	0.03% + 20 mA	0.03% + 20 mA
	(>500 Hz–1 kHz):	0.03% + 20 mA	0.03% + 40 mA	0.03% + 40 mA
	repetitive pk current High Range			
	(45 Hz–1 kHz):	0.05% + 100 mA	0.05% + 150 mA	0.05% + 150 mA
	repetitive pk current Low Range			
	(45 Hz–1 kHz):		0.03% + 150 mA	
	Power (VA) Low Range			
	(45–100 Hz):		0.1% + 1.5 VA	
	(>100–500 Hz):		0.1% – 7.5 VA	
	(>500 Hz-1 kHz):		0.1% + 15 VA	
	Power (VA) High Range			
	(45–100 Hz):		0.1% + 3.5 VA	
	(>100–500 Hz):		0.1% + 10 VA	
	(>500 Hz–1 kHz):		0.1% + 15 VA	
	Power (Watts) Low Range			
	(45–100 Hz):		0.1% + 0.3 W	
	(>100–500 Hz):		0.1% + 1.2 W	
	(>500 Hz–1 kHz):		0.1% + 2.5 W	
	Power (Watts) High Range			
	(45–100 Hz):		0.1% + 0.3 W	
	(>100–500 Hz):		0.1% + 1.2 W	
	(>500 Hz–1 kHz):		0.1% + 2.5 W	
	Power Factor:		0.01	
Harmonic Measurement Accuracy (50/60 Hz, @25°C ±5°C), ± (% of output + offset)	**Voltage Magnitude:**		0.03% + 100 mV + 0.2%/kHz	
	Current Magnitude (Low Range)			
	Fundamental:		0.03% + 1.5 mA	
	Harmonics 2–49:		0.03% + 1 mA + 0.2%/kHz	
	Current Magnitude (High Range)			
	Fundamental:		0.05% + 5 mA	
	Harmonics 2–49:		0.03% + 3 mA + 0.2%/kHz	

[1]Specifications subject to change without notice.
[2]These specifications are subject to the restrictions of Table 1-3.
[3]Product may be operated between dc and 45 Hz subject to operating conditions described in Table A-3.

Supplemental Characteristics

Table A-2 lists the supplemental characteristics, which are not warranted but are descriptions of typical performance determined either by design or type testing.

Table A-2. Supplemental Characteristics

Parameter	HP 6811A	HP 6812A/6841A	HP 6813A/6842A
ac Input Voltage Range (Vac):	87–106 Vac (100 Vac nom.) 104–127 Vac (120 Vac nom.) 174–220 Vac (200/208 Vac nom.) 191–254 Vac (230 Vac nom.)		174–220 Vac (200/208 Vac nom.) 191–254 Vac (230 Vac nom.)
Maximum Input Current (rms):	12 A (100 Vac), 10 A (120 Vac), 7.5 A (200/208 Vac), 6.5 A (230 Vac)	28 A (100 Vac), 24 A (120 Vac), 15 A (200/208 Vac), 13A (230 Vac)	20 A (230 Vac) 22 A (200/208 Vac)
Maximum Input Power:	1000 VA/700 W	2500 VA/1400 W	3800 VA/2600 W
ac Input Frequency:	47–63 Hz		
Output Voltage Risetime: (output change from 10 to 90% or 90 to 10% of its total excursion with full resistive load)	50 µs		
Remote Inhibit Response Time:	15 ms		
Remote Sense Capability:	Up to 1 Vrms can be dropped across each load lead.		
Programmable Output Impedance Ranges			
Resistance:	0–1 Ω		
Inductance:	20 µH–1 mH		
Average Programming Accuracy			
rms Current:	1.2% of output + 50 mA		
OVP:	2% of output + 5 Vpeak		
ac Voltage Slew Rate (rms):	0.1 V/s		
Frequency Slew Rate:	± 0.01%		
Average Programming Resolution			
rms Voltage:	125 mV		
dc Voltage:	250 mV		
ac Voltage Slew Rate (rms):	6 mV/s		
dc Voltage Slew Rate:	20 mV/s		
Frequency Slew Rate:	0.05 Hz/s		
Overvoltage Programming (OVP):	2 Vpeak		
rms Current:	2 mA	4 mA	4 mA
peak Current:	12.5 mA	25 mA	25 mA
Output Frequency:	10 µHz		
Output Impedance			
Resistive Component:	0.01 Ω		
Inductive Component:	10 µH		
Average Measurement Resolution			
rms Voltage:	10 mV		
rms Current:	2 mA		
THD (for a fundamental amplitude ≥ 5% of full scale):	5% of reading + 0.1%		
Measurement System			
Measurement Buffer Length:	4096 points		
Measurement/Generation Synchronization:	≤ 50 µs		
Measurement Acquisition Sampling Rate Range:	25–250 µs		
Voltage/Current Digitization Accuracy:	12 bits		
Voltage/Current Digitization Resolution:	16 bts		
Harmonic Measurement Time (amplitude):			
Meas:Curr:Harm? <n>	400 ms		
Meas:Array:Curr:Harm?	10 s		

Table A-2. Supplemental Characteristics (continued)

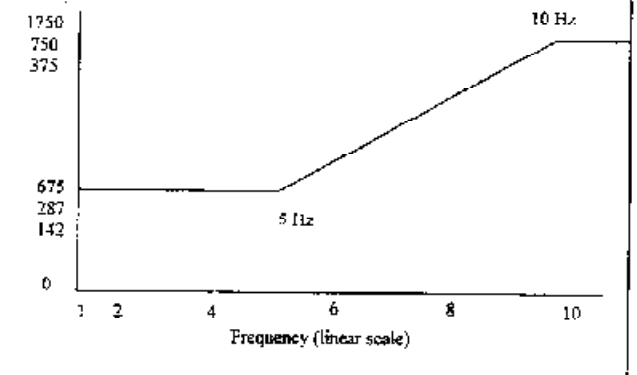
Parameter	HP 6811A	HP 6812A/6841A	HP 6813A/6842A
Transient System			
Phase Synchronization:	± 100 µs		
Pulse Width Range:	200 µs to 4.3 x 10^5 seconds		
Pulse/Dwell Timing Accuracy:	± 0.01%		
Pulse Duty Cycle Range:	0 to 100 %		
Pulse Count Range:	1 to Infinity Pulses		
LIST Length:	1 to 100 steps		
Minimum LIST Dwell Time:	200 µs		
LIST Count Range:	1 to Infinity LIST repeats		
External Trigger Response Time:	200 µs		
Maximum External Trigger Rate:	1 kHz		
Waveform Table Voltage Resolution:	1024 points		
RS-232 Interface Capabilities			
Baud Rates:	300, 600, 1200, 2400, 4800, 9600		
Data Format:	7 bits even or odd parity; 8 bits without parity		
Language:	SCPI (Standard Commands for Programmable Instruments), Elgar 9012 PIP		
Trig In/Trig Out Characteristics			
Trig Out (HC TTL output):	V_{ol} = 0.8 max. @ 1.25 mA V_{oh} = 3.3 V max. @ 1.25 mA		
Trig In (10k pullup):	V_{il} = 0.8 V max. V_{ih} = 2 V max.		
INH/FLT Characteristics			
Maximum Ratings:	16.5 Vdc between INH terminals; FLT terminals; and from INH terminals to chassis ground		
INH Terminals:	I_{ol} = 1.25 mA max. V_{ol} = 0.5 Vmax. V_{il} = 0.8 V max. V_{ih} = 2 V min. tw = 100 µs min. td = 4 ms typical		
FLT Terminals:			
Number of Saveable States (nonvolatile)	16 (0 to 15)		
HP-IB Interface Capabilities			
Language:	SCPI, Elgar 9012 PIP		
Interface:	AH1, C0, DC1, DT1, E2, LE1, PP0, RL1, SH1, SR1, TE6		
Programming Time:	10 ms		
Recommended Calibration Interval:	1 year		
Regulatory Compliance			
Listed to:	UL 1244		
Certified to:	CSA 22.2 No. 231		
Conforms to:	IEC 1010		
RFI Suppression Complies with:	CISPR-11, Group 1, Class A		
Dimensions			
Height (add 12.7 mm or 0.5 in for feet)	132.6 mm (5.25 in.)		
Width:	425.5 mm (16.75 in.)		
Depth:	574.7 mm (22.6 in.)		
Net Weight:	28.2 kg (62 lb)		32.7 kg (72 lb)
Shipping Weight:	31.8 kg (70 lb)		36.4 kg (80 lb)

Operation Below 45 Hz

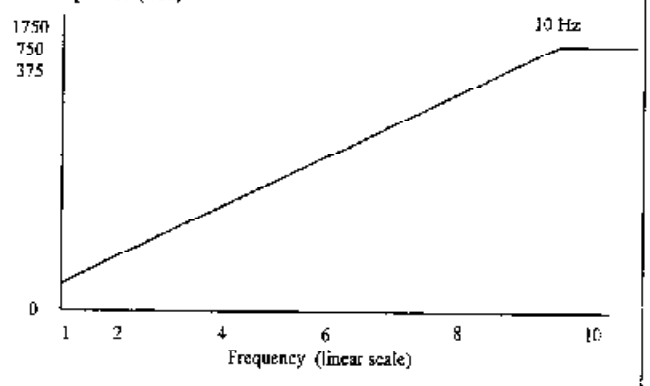
The following operating characteristics apply for output frequencies between 45Hz and 1Hz. Below 1 Hz, instantaneous values meet the dc specifications. The ac source output is set to: sinewave, dc coupled, real-time regulation, and is connected to a linear load.

Table A-3. Operation Below 45 Hz

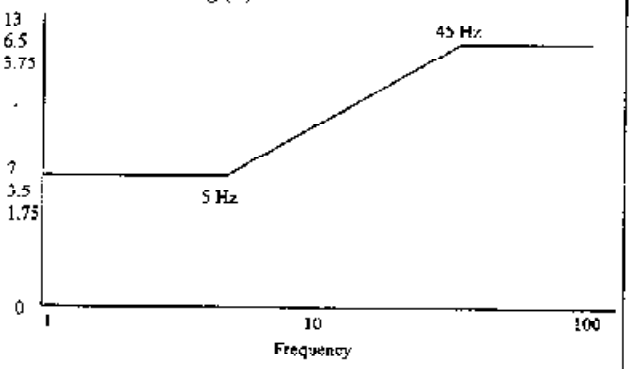
Real Power (watts)



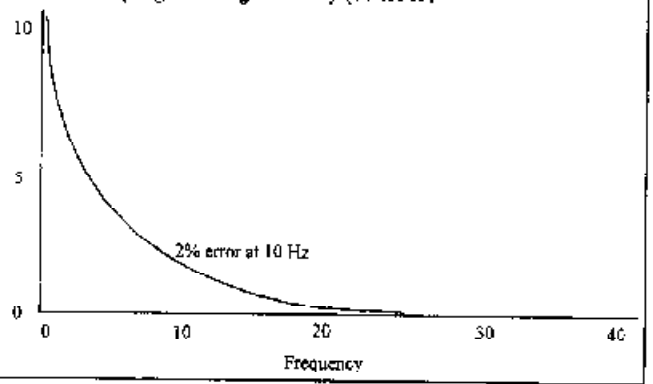
Reactive power (VA)



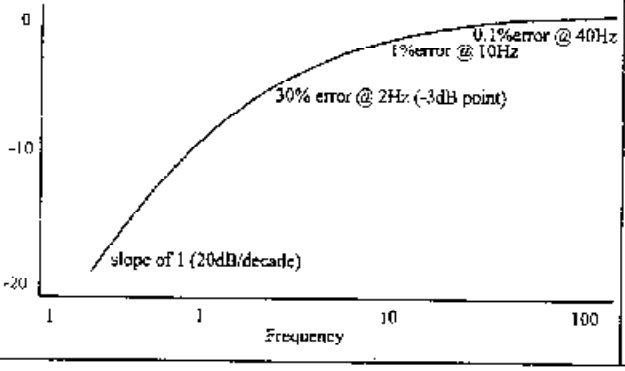
RMS current derating (A)



RMS current programming accuracy (% error)



AC coupled frequency response (dB)



Meets Measurement Accuracy specifications under the following conditions:

Sample rate	Minimum measured frequency	Maximum allowable frequency component to avoid aliasing
25 µs	45 Hz	20 kHz
50 µs	22.5 Hz	10 kHz
100 µs	11.25 Hz	50 kHz
200 µs	5.625 Hz	2.5 kHz
250 µs	4.5 Hz	2 kHz

(Anti aliasing filters have a corner frequency of 12.5 kHz.)