

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 sine wave 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 Specifications¹

Parameter	HP 6811A	HP 6812A/6841A	HP 6813A/6842A
Phases:	I	I	I
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 Range³:	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 V _{rms} /425 V _{dc}	
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
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	

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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		

¹Specifications subject to change without notice.

²These specifications are subject to the restrictions of Table 1-3.

³Product 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 Risettime: (output change from 10 to 90% or 90 to 10% of its total excursion with full resistive load)	30 μ s		
Remote Inhibit Response Time:	15 ms		
Remote Sense Capability:	Dip to 1 Vrms can be dropped across each load lead.		
Programmable Output Impedance Ranges			
Resistance:	0–1 Ω		
Inductance:	20 μ H–1 mH		
Average Programming Accuracy			
rms Current:	1.2% of output + 50 mA		
OVP:	2% of output + 5 Vpeak		
ac Voltage Slow Rate (rms):	0.1 V/s		
Frequency Slow Rate:	\pm 0.01%		
Average Programming Resolution			
rms Voltage:	125 mV		
dc Voltage:	250 mV		
ac Voltage Slow Rate (rms):	6 mV/s		
dc Voltage Slow Rate:	20 mV/s		
Frequency Slow 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 μ Hz		
Output Impedance			
Resistive Component:	0.01 Ω		
Inductive Component:	10 μ H		
Average Measurement Resolution			
rms Voltage:	10 mV		
rms Current:	2 mA		
THD (for a fundamental amplitude \geq 5% of full scale):	5% of reading + 0.1%		
Measurement System			
Measurement Buffer Length:	4096 points		
Measurement/Generation Synchronization:	\leq 50 μ s		
Measurement Acquisition Sampling Rate	25–250 μ s		
Range:			
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		

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Table A-2. Supplemental Characteristics (continued)

Parameter	HP 6811A	HP 6812A/6841A	HP 6813A/6842A
Transient System			
Phase Synchronization:		$\pm 100 \mu\text{s}$	
Pulse Width Range:		200 μs to 4.3×10^5 seconds	
Pulse/Dwell Timing Accuracy:		$\pm 0.01\%$	
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):		$V_{ol} = 0.8 \text{ V max. @ } 1.25 \text{ mA}$ $V_{oh} = 5.3 \text{ V max. @ } 1.25 \text{ mA}$	
Trig In (10k pullup):		$V_{il} = 0.8 \text{ V max.}$ $V_{ih} = 2 \text{ V max.}$	
INH/FLT Characteristics			
Maximum Ratings:		16.5 Vdc between INH terminals; FLT terminals; and from INH terminals to chassis ground	
INH Terminals:		$I_{ol} = 1.25 \text{ mA max.}$ $V_{ol} = 0.5 \text{ V max.}$ $V_{il} = 0.8 \text{ V max.}$	
FLT Terminals:		$V_{ih} = 2 \text{ V min.}$ $t_w = 100 \mu\text{s min.}$ $t_d = 4 \text{ ms typical}$	
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

