

Specifications

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Table A-1 lists the specifications of the ac source. 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 1000 Hz. It is possible to program the output frequency of the HP 6812A and HP 6813A from dc to 45 Hz (see Chapter 1: Operation Below 45 Hz).

Table A-1. Performance Specifications¹

Parameter	HP 6812A	HP 6813A
Phases:	1	1
Output Ratings		
Power (VA):	750 VA	1750 VA
dc Power (Watts):	635 W	1275 W
rms Voltage Range:	0-300 V	0-300 V
dc Voltage Range:	+/- 425 V	+/- 425 V
Maximum rms Current:	6.5 A	13 A
Maximum dc Current:	5 A	10 A
Maximum Repetitive peak Current:	40 A	80 A
Maximum Non-repetitive peak Current (inrush capability):	40 A	80 A
Crest Factor (current):	6	6
Output Frequency Range²:	dc; 45 Hz -1 kHz	dc; 45 Hz -1 kHz
Constant Voltage Ripple and Noise (20 kHz-10 MHz)		
rms Relative to Full Scale:	-60 dB	-60 dB
rms:	300 mV	300 mV
Load Regulation (rms detection mode):	0.5% of full scale	0.5% of full scale
Line Regulation:	0.1% of full scale	0.1% of full scale
Maximum Total Harmonic Distortion:	1%	1%
Load Power Factor Capability:	0 - 1	0 - 1
Maximum Fixed dc Offset Voltage (AC Coupled):	100 mV	100 mV
Isolation to Ground:	300 Vrms 425 Vdc	300 Vrms 425 Vdc
Programming Accuracy (rms detection mode at 25 °C +/- 5 °C)		
Voltage (rms):	0.15% + 0.3 V (45-100 Hz) 0.5% + 0.3 V (>100-500 Hz) 1% + 0.3 V (>500 Hz-1 kHz)	0.15% + 0.3 V (45-100 Hz) 0.5% + 0.3 V (>100-500 Hz) 1% + 0.3 V (>500 Hz-1 kHz)
Frequency:	0.01% + 10 µHz	0.01% + 10 µHz
Measurement Accuracy (25 °C +/- 5 °C)		
rms Voltage:	0.03% + 100 mV (45-100 Hz) 0.1% + 100 mV (>100 Hz-500 kHz) 0.2% + 100 mV (>500 Hz-1 kHz)	0.03% + 100 mV (45-100 Hz) 0.1% + 100 mV (>100 Hz-500 kHz) 0.2% + 100 mV (>500 Hz-1 kHz)
dc Voltage:	0.03% + 150 mV	0.03% + 150 mV [*]
Low Range rms Current:	0.03% + 3 mA (45-100 Hz) 0.03% + 20 mA (>100 Hz-500 kHz) 0.03% + 40 mA (>500 Hz-1 kHz)	0.03% + 3 mA (45-100 Hz) 0.03% + 20 mA (>100 Hz-500 kHz) 0.03% + 40 mA (>500 Hz-1 kHz)

Parameter	HP 6812A	HP 6813A
Measurement Accuracy (25 °C +/- 5 °C)		
High Range rms Current:	0.05% + 15 mA (4.5-100 Hz) 0.05% + 25 mA (>100-500 Hz) 0.05% + 50 mA (>500-1 kHz)	0.05% + 15 mA (4.5-100 Hz) 0.05% + 25 mA (>100-500 Hz) 0.05% + 50 mA (>500-1 kHz)
Low Range Repetitive peak Current:	0.03% + 75 mA (4.5-100 Hz) 0.03% + 100 mA (>100-500 Hz) 0.03% + 150 mA (>500-1 kHz)	0.03% + 75 mA (4.5-100 Hz) 0.03% + 100 mA (>100-500 Hz) 0.03% + 150 mA (>500-1 kHz)
High Range Repetitive peak Current:	0.05% + 75 mA (4.5-100 Hz) 0.05% + 100 mA (>100-500 Hz) 0.05% + 150 mA (>500-1 kHz)	0.05% + 75 mA (4.5-100 Hz) 0.05% + 100 mA (>100-500 Hz) 0.05% + 150 mA (>500-1 kHz)
Frequency:	0.01%	0.01%
Low Range Power (VA):	0.1% + 1.5 VA (4.5-100 Hz) 0.1% + 7.5 VA (>100 Hz-500 kHz) 0.1% + 15 VA (>500 Hz-1 kHz)	0.1% + 1.5 VA (4.5-100 Hz) 0.1% + 7.5 VA (>100 Hz-500 kHz) 0.1% + 15 VA (>500 Hz-1 kHz)
High Range Power (VA):	0.1% + 3.5 VA (4.5-100 Hz) 0.1% + 10 VA (>100 Hz-500 kHz) 0.1% + 15 VA (>500 Hz-1 kHz)	0.1% + 3.5 VA (4.5-100 Hz) 0.1% + 10 VA (>100 Hz-500 kHz) 0.1% + 15 VA (>500 Hz-1 kHz)
Low Range Power (Watts):	0.1% + 0.3 W (4.5-100 Hz) 0.1% + 1.2 W (>100 Hz-500 kHz) 0.1% + 2.5 W (>500 Hz-1 kHz)	0.1% + 0.3 W (4.5-100 Hz) 0.1% + 1.2 W (>100 Hz-500 kHz) 0.1% + 2.5 W (>500 Hz-1 kHz)
High Range Power (Watts):	0.1% + 0.3 W (4.5-100 Hz) 0.1% + 1.2 W (>100 Hz-500 kHz) 0.1% + 2.5 W (>500 Hz-1 kHz)	0.1% + 0.3 W (4.5-100 Hz) 0.1% + 1.2 W (>100 Hz-500 kHz) 0.1% + 2.5 W (>500 Hz-1 kHz)
Harmonic Measurement Accuracy (50/60 Hz)		
Voltage Magnitude:	0.03% + 100 mV + 0.2%/kHz	0.03% + 100 mV + 0.2%/kHz
Current Magnitude (Low Range)		
Fundamental:	0.03% + 1.5 mA	0.03% + 1.5 mA
Harmonics 2-49:	0.03% + 1 mA + 0.2%/kHz	0.03% + 1 mA + 0.2%/kHz
Current Magnitude (High Range)		
Fundamental:	0.05% + 5 mA	0.05% + 5 mA
Harmonics 2-49:	0.05% + 3 mA + 0.2%/kHz	0.05% + 3 mA + 0.2%/kHz

¹Specifications subject to change without notice.

²Product may be operated between dc and 45 Hz subject to operating conditions described in **Chapter 1** (Operation Below 45 Hz) of this User's Guide

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 6812A	HP 6813A
ac Input Voltage Range (Vac):	87-106 Vac (100 Vac nom.) 104-127 Vac (120 Vac nom.) 174-220 Vac (200/208 Vac nom.) 207-253 Vac (230 Vac nom.)	174-220 Vac (200/208 Vac nom.) 207-253 Vac (230 Vac nom.)
ac Input Frequency:	47-63 Hz	47-63 Hz
Maximum Input Current (rms):	28 A (100 Vac), 24 A (120 Vac), 15 A (200/208 Vac), and 13 A (230 Vac)	20 A (220/230/240 Vac) 22 A (200/208 Vac)
Maximum Input Power:	2500 VA/1400 W	3800 VA/2600 W
Output Voltage Risettime: (output change from 10% to 90% or 90% to 10% of its total excursion with full resistive load)	50 μ s	50 μ s
Remote Inhibit Response Time:	15 ms	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 μ H - 1 mH	
Average Programming Accuracy		
rms Current Limit:	1.2% + 50 mA	1.2% + 50 mA
OVP:	2% + 5 Vpeak	2% + 5 Vpeak
ac Voltage Slew Rate (rms):	0.1 V/s	0.1 V/s
Frequency Slew Rate:	+/- 0.01%	+/- 0.01%
Average Programming Resolution		
rms Voltage:	125 mVrms	125 mVrms
dc Voltage:	250 mV	250 mV
ac Voltage Slew Rate (rms):	6 mV/s	6 mV/s
dc Voltage Slew Rate:	20 mV/s	20 mV/s
Frequency Slew Rate:	0.05 Hz/s	0.05 Hz/s
Overvoltage Programming (OVP):	2 Vpeak	2 Vpeak
rms Current:	4 mA	4 mA
peak Current:	12.5 mA	25 mA
Output Frequency:	10 μ Hz	10 μ Hz
Output Impedance		
Resistive Component:	0.01 Ω	0.01 Ω
Inductive Component:	10 μ H	10 μ H
THD (for a fundamental amplitude >= 5% of full scale):	5% of reading + 0.1%	5% of reading + 0.1%
Measurement System		
Measurement Buffer Length:	4096 points	
Measurement/Generation Synchronization:	<= 50 μ s	
Measurement Acquisition Sampling Rate Range:	25 - 250 μ s	
Voltage/Current Digitization Accuracy:	12 bits	
Voltage/Current Digitization Resolution:	16 bits	
Harmonic Measurement Time (Amplitude):		
Meas:Curr:Harm? <n>	400 ms	
Meas:Array:Curr:Harm?	10 s	

Parameter	HP 6812A	HP 6813A
Transient System		
Phase Synchronization:	+/- 100 μ s	
Pulse Width Range:	200 μ s to 4.3 x 10 ⁶ 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 μ s	
LIST Count Range:	1 to Infinity LIST repeats	
External Trigger Response Time:	200 μ s	
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 _{oh} = 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 _{is} = 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 _{oh} = 1.25 mA max. V _{oh} = 0.5 V max.	
FLT Terminals:	V _{il} = 0.8 V max. V _{is} = 2 V min. tw = 100 μ s min. td = 4 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, SRI, TE6	
Programming Time:	10 ms	
Recommended Calibration Interval:	1 year	
Regulatory Compliance		
Listing Pending:	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)	128 mm (5.04 in.)	
Width:	425.5 mm (16.75 in.)	
Depth:	602 mm (23.7 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)

A-4 Specifications