A

Specifications

Specifications

Table A-1 lists the specifications of the dc source. Specifications are warranted over the ambient temperature range of 0 to 55 °C. Unless otherwise noted, specifications apply when measured at the rear terminals after a 30-minute warm-up period.

Table A-1. Performance Specifications

Parameter		Agilent 6611C	Agilent 6612C Agilent 66312A	Agilent 6613C	Agilent 6614C
Output Ratings	Voltage: Current:	0 – 8 V 0-5 A	0 – 20 V 0 – 2 A	0 – 50 V 0 –1 A	0 – 100 V 0 – 0.5 A
Programming Accuracy (@ 25°C ±5°C)	Voltage: 0.05% + +Current: 0.05% +	5 mV 2 mA[1]	10 mV 1 mA[1]	20 mV 0.75 mA[1]	50 mV 0.5 mA[1]
DC Measurement Accuracy (via GPIB or front panel meters with respect to actual output @ 25°C ±5°C)	Voltage: 0.03% + Low Current range –20 mA to +20 mA: 0.1% + High Current range +20 mA to +rated I: 0.2% + –20 mA to – rated I: 0.2% +	2 mV[2] 2.5 µA[3] 0.5mA[4] 1.1mA	3 mV[2] 2.5 µA[3] 0.25 mA[4] 0.85 mA	6 mV[2] 2.5 uA[3] 0.2 mA[4] 0.8 mA	12 mV[2] 2.5 µA[3] 0.1 mA[4] 0.7 mA
Ripple and Noise (in the range of 20 Hz to 20 MHz with outputs ungrounded or with either terminal grounded)	Voltage (rms/p-p): Current (rms):	0.5 mV/3 mV 2 mA	0.5 mV/3 mV[5] 1 mA	0.5 mV/4 mV 1 mA	0.5 mV/5 mV 1 mA
Load Regulation[6] (change in output voltage or current for any load change within ratings)	Voltage: Current:	2 mV 1 mA	2 mV 0.5 mA	4 mV 0.5 mA	5 mV 0.5 mA
Line Regulation (change in output voltage or current for any line change within ratings)	Voltage: Current:	0.5 mV 0.5 mA	0.5 mV 0.5 mA	1 mV 0.25 mA	1 mV 0.25 mA
Transient Response Time[6] (for the output voltage to recover to its previous level within 0.1% of the voltage rating of the unit or 20 millivolts following a change in load current of up to 50% of the output current rating)		< 100 µs			

[1]0.05% + 3.32mA (Agilent 6611C), 1.53mA (Agilent 66312A/12C), 1.01mA (Agilent 6613C), 0.063mA (Agilent 6614C) when programming between zero and 0.03% of full scale current.
[2]Applies for output voltages greater than 10mV (Agilent 6611C/12C), 25mV (Agilent 6613C), and 50mV (Agilent 6614C).
[3]This specification may degrade slightly when the unit is subjected to an RF field ≥3 V/meter.
[4]For Agilent 66312A: applies in SCPI mode, with current detector set to DC. With current detector set to ACDC, accuracy is 0.2% + four times the fixed error value. In COMPatibility mode, accuracy is 0.2% + six times the fixed error value.
[5]For Agilent 66312A (from 1 MHz to 20 MHz) = 0.5mV/15mV.
[6]Applies at rear terminals with unit set to remote sensing and with sense terminals externally jumpered to their respective output terminals.

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		Agilent 6611C	Agilent6612C Agilent 66312A	Agilent 6613C	Agilent 6614C
Input Rating 47 – 63 Hz (at full load)	100 Vac mains: (87-106 Vac)	2.2 A, 120 W	1.6 A, 100 W	1.6 A, 100 W	1.6 A, 100 W
	115 Vac mains: (104-127 Vac)	2 A, 120 W	1.4 A, 100 W	1.4 A, 100 W	1.4 A, 100 W
	220 Vac mains: (191-233 Vac)	1.1 A, 120 W	0.8A, 100 W	0.8A, 100 W	0.8A, 100 W
	230 Vac mains: (207-253 Vac)	1 A, 120 W	0.75 A, 100 W	0.75 A, 100 W	0.75 A, 100 W
Output Programming Range	Voltage: Currrent: OVP:	0 – 8.190 V 0 – 5.118 A 12 V	0 – 20.475 V 0 – 2.0475 A 0 – 22 V	0 – 51.188 V 0 – 1.0238 A 0-55 V	0 - 102.38 V 0 – 0.5118 A 0 – 110 V
Average Programming Resolution	Voltage: Current: OVP:	2 mV 1.25 mA 60 mV	5 mV 0.5 mA 100 mV	12.5 mV 0.25 mA 250 mV	25 mV 0.125 mA 500 mV
OVP Accuracy	2.4 % +	200 mV[1]	240 mV	600 mV	1.2 V
Maximum Current Measurement		7 A	2.43 A	1.28 A	0.7 A
Average Current Measurement Resolution	High Range: Low Range:	213 uA 0.6 uA	74 uA 0.6 uA	39 uA 0.6 uA	21 uA 0.6 uA
Sink Current[2]		- 3 A	- 1.2 A	- 0.6 A	- 0.3 A
Programming Accuracy **Temperature Coefficient** (change/ C^O)	Voltage: 0.01% + Current: 0.01% + OVP: 0.015% +	0.15 mV 30 uA 2 mV	0.25 mV 12 uA 4 mV	0.5 mV 6 uA 10 mV	1 mV 3 uA 20 mV
Readback Accuracy **Temperature Coefficient** (change/C^O)	Voltage: 0.01% + Current (DC): 0.02% + Current (ACDC): 0.05% + Current (Low Range): 0.01% +	60 uV 25 uA 160 uA 0.3 uA	150 uV 10 uA 80 uA 0.3 uA	500 uV 5 uA 40 uA 0.3 uA	700 uV 3 uA 20 uA 0.3 uA
Drift[3]	Voltage: 0.01% + Current: 0.01% +	0.25 mV 50 uA	0.5 mV 20 uA	1 mV 10 uA	1 mV 10 uA
Output Voltage Rise/Fall Time (for a change from 10% to 90% or 90% to 10% of the total excursion)		2 ms			
Output Voltage Settling Time (to settle within 1 LSB or 0.025% times the rated voltage of the final value)		6 ms			

[1] Agilent 6611C Option 760 = 2.4% + 500mV.

[2] The sink current does not track the programmed current.

[3] Following a 30 minute warm-up, the change in output over 8 hours, under constant ambient, load and line operating conditions.

Table A-2. Supplemental Characteristics (continued)

Parameter		Agilent 66312A	Agilent 6611C - 6614C
Dynamic Measurement Accuracy	Instantaneous Voltage: Instantaneous Current:	0.03% + 5 mV 0.6% + 1 mA[1]	not applicable
Dynamic Measurement System	Buffer Length: Sampling Rate Range:	4096 points 15.6µs–31,200s	not applicable
Measurement Time (voltage or current)		50 ms average (includes the default time of 30 ms[2] for acquiring data, and a 20 ms data processing overhead)	
Command Processing Time		4 ms average (for output to begin to change following receipt of digital data)	
Remote Sense Capability		Up to 2 V can be dropped across each load lead. (add 2 mV to the voltage load regulation specification for each 1 V change in the positive output lead due to load current change.)	
Savable Instrument States (applies only in SCPI mode)		4 (in locations 0 to 3)	
RS-232 Interface Capabilities	Baud rates: Data formats: Language:	300 600 1200 2400 4800 9600 7 bits even or odd parity; 8 bits without parity SCPI or COMPatibility[3]	
GPIB Interface Capabilities	Language: Interface:	SCPI or COMPatibility[3] AH1, C0, DC1, DT1, E1, L4, PP0, RL1, SH1, SR1, T6	
INH/FLT Characteristics	Maximum ratings: FLT Terminals: INH Terminals:	16.5 Vdc between terminals 1 and 2; 3 and 4; and from terminals 1 or 2 to chassis ground Low-level output current = 1.25 mA max. Low-level output voltage = 0.5 V max. Low-level input voltage = 0.8 V max. High-level input voltage = 2 V min. Low-level input current = 1 mA Pulse width = 100 µs min. Time delay = 4 ms typical	
Digital I/O Characteristics	Maximum ratings: Digital OUT Port 0,1,2 (open collector)	same as INH/FLT Characteristics Output leakage @ 16V = 0.1 mA (ports 0,1) = 12.5 mA (port 2) Output leakage @ 5V = 0.1 mA (ports 0,1) = 0.25 mA (port 2) Low-level output sink current @ 0.5 V = 4 mA Low-level output sink current @ 1 V = 50 mA	

[1]For full scale current changes with a risetime of 20 µs, an additional 0.5% error exists in the first data point in the buffer after the change. The error percentage increases proportionally with the decrease in risetime.
[2]This time may be reduced by changing the default conditions of 2048 data points, however, measurement accuracy will be reduced.
[3]COMPatibility language is used to program the Agilent 663xA Series power supplies.

Table A-2. Supplemental Characteristics (continued)

Parameter		Agilent 66312A	Agilent 6611C - 6614C
Digital I/O Characteristics (continued)	Digital IN Port 2: (internal pull-up)	Low-level input current @ 0.4 V = 1.25 mA High-level input current @ 5 V = 0.25 mA Low-level input voltage = 0.8 V max. High level input voltage = 2.0 V min.	
Isolation to Ground (Maximum from either output terminal to chassis)		50 Vdc	240 Vdc
Recommended Calibration Interval		1 year (from the date the unit is put into service)	
Regulatory Compliance	Listing pending: Certified to: Conforms to: Complies with:	UL 3111-1 CSA 22.2 No. 1010.1 IEC 1010-1 EMC directive 89/336/EEC (ISM Group1 Class B)	
Dimensions (see figure 3-1)	Height: Width: Depth:	88.1 mm (3.5in.) 212.8 mm (8.4in.) 444.4 mm (17.5 in.)	88.1 mm (3.5in.) 212.8 mm (8.4in.) 368.3 mm (14.5 in.)
Net weight		8.8 kg (19.5 lbs.)	8.2 kg (18.16 lbs.)
Shipping weight		11.1 kg (24.5 lbs.)	10.6 kg (23.5 lbs.)