

**GEN 3300W SERIES SPECIFICATIONS**

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93/012007  
N.L.I. R&D

OUTPUT RATING		V	8-400	10-330	15-220	20-165	30-110	40-85	60-55	80-42	100-33	150-22	300-11	600-5.5	REV.
1. Rated output voltage (*1)	V		8	10	15	20	30	40	60	80	100	150	300	600	C
2. Rated output current (*2)	A		400	330	220	165	110	85	55	42	33	22	11	5.5	C
3. Rated output power	W		3200	3300	3300	3300	3300	3400	3300	3360	3300	3300	3300	3300	C

INPUT CHARACTERISTICS		V	8	10	15	20	30	40	60	80	100	150	300	600	REV.
1. Input voltage/freq. (*3)	---		Single phase models: 170-265V, 47-63Hz 3-Phase, 200V models: 170-265Vac, 47-63Hz 3-Phase, 400V models: 342-460Vac, 47-63Hz												
2. Maximum Input current at 100% load	A		24.0	24.0	24.0	24.0	23.0	24.0	23.0	23.5	23.0	23.0	23.0	23.0	C
			14.5	14.5	14.5	14.5	14.0	14.5	13.6	14.0	13.7	13.7	13.8	13.9	C
			7.2	7.2	7.2	7.2	7.0	7.2	6.8	7.0	6.8	6.8	6.9	7.0	C
3. Power Factor (Typ)	---		Single Phase models: 0.99@200Vac, rated output power. 3-Phase models: 0.95@200/380Vac, rated output power.												
5. Efficiency (*4)	%		82	83	83	83	86	86	88	88	88	88	87	87	C
6. Inrush current (*5)	---		Single-Phase and 3-Phase 200V models: Less than 50A 3-Phase 400V models: Less than 20A												

CONSTANT VOLTAGE MODE		V	8	10	15	20	30	40	60	80	100	150	300	600	REV.
1. Max. Line regulation (*6)	---		0.01% of rated output voltage +2mV												C
2. Max. Load regulation (*7)	---		0.015% of rated output voltage +5mV												
3. Ripple and noise (p-p, 20MHz) (*8)	mV		60	60	60	60	60	60	60	80	100	100	300	500	C
4. Ripple r.m.s. 5Hz-1MHz	mV		8	8	8	8	8	8	8	8	25	25	100	120	C
5. Temperature coefficient	PPM/°C		100PPM/°C from rated output voltage, following 30 minutes warm-up.												
6. Temperature stability	---		0.05% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.												
7. Warm-up drift	---		Less than 0.05% of rated output voltage+2mV over 30 minutes following power on.												
8. Remote sense compensation/wire	V		2	2	2	2	5	5	5	5	5	5	5	5	C
9. Up-prog. Response time, 0-Vomax (*9)	mS		80												B
10. Down-prog. response time:	Full load (*9)	mS	20	100	160	150	300	250	500						B
	No load (*10)	mS	500	600	700	800	900	1000	1100	1200	1500	2000	3500	4000	C
11. Transient response time	mS		Time for output voltage to recover within 0.5% of its rated output for a load change 10-90% of rated output current. Output set-point: 10-100%, Local sense. Less than 1mS, for models up to and including 100V. 2mS, for models above 100V.												
12. Hold-up time (Typ)	mS		10mSec for Single-Phase and 3-phase 200V models, 6mSec for 3-Phase 400V models. Rated output power.												

CONSTANT CURRENT MODE		V	8	10	15	20	30	40	60	80	100	150	300	600	REV.
1. Max. Line regulation (*6)	---		0.01% of rated output current +2mA												C
2. Max. Load regulation (*11)	---		0.02% of rated output current +5mA												
3. Load regulation thermal drift	---		Less than 0.1% of rated output current over 30 minutes following load change.												
4. Ripple r.m.s. 5Hz-1MHz (*12)	mA		1300	1200	880	660	300	200	100	80	70	60	20	10	C
5. Temperature coefficient	PPM/°C		200PPM/°C from rated output current, following 30 minutes warm-up.												
6. Temperature stability	---		0.05% of rated Iout over 8hrs. interval following 30minutes warm-up. Constant line, load & temperature.												
7. Warm-up drift	---		8-20V model: Less than +/-0.5% of rated output current over 30 minutes following power on. 30V-600V: Less than +/-0.25% of rated output current over 30 minutes following power on.												B

ANALOG PROGRAMMING AND MONITORING		REV.	
1. Vout voltage programming	---	0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-0.5% of rated Vout.	
2. Iout voltage programming (*13)	---	0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-1% of rated Iout.	A
3. Vout resistor programming	---	0-100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1% of rated Vout.	
4. Iout resistor programming (*13)	---	0-100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/-1.5% of rated Iout.	A
5. On/Off control	---	By electrical Voltage: 0-0.6V/2-15V or dry contact, user selectable logic.	
6. Output current monitor (*13)	---	0-5V or 0-10V, user selectable. Accuracy: +/-1%.	A
7. Output voltage monitor	---	0-5V or 0-10V, user selectable. Accuracy: +/-1%.	
8. Power supply OK signal	---	4-5V-OK, 0V-Fail. 500ohm series resistance.	
9. Parallel operation	---	Possible, up to 4 units in master/slave mode with two wires current balance connection.	
10. Series operation	---	Possible (with external diodes), up to 2 units.	
11. CV/CC indicator	---	CV: TTL high (4-5V), source current: 10mA, CC: TTL low (0-0.6V), sink current: 10mA.	
12. Enable/Disable	---	Dry contact. Open: Off, Short: On. Max. voltage at Enable/Disable in: 6V.	
13. Local/Remote analog Control	---	By electrical signal or Open/Short: 0-0.6V or short; Remote, 4-5V or open; Local	
14. Local/Remote analog Indicator	---	Open collector. Local: Open, Remote: On. Maximum voltage: 30V, maximum sink current: 10mA	A

PROGRAMMING AND READBACK (RS232/485, Optional IEEE Interface)		REV.	
1. Vout programming accuracy	---	0.05% of actual output voltage+0.05% of rated output voltage	
2. Iout programming accuracy (*13)	---	0.1% of actual output current+0.2% of rated output current	A
3. Vout programming resolution	---	0.012% of full scale	
4. Iout programming resolution	---	0.012% of full scale	
5. Vout readback accuracy	---	0.1% of actual output voltage+0.1% of rated output voltage	
6. Iout readback accuracy (*13)	---	0.1% of actual output current+0.3% of rated output current	A
7. Vout readback resolution	---	0.012% of full scale	
8. Iout readback resolution	---	0.012% of full scale	

DWG. NO.:	IA626-01-01C
DRAWN:	8/20/06 [Signature]
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REV

PROTECTIVE FUNCTIONS	V	8	10	15	20	30	40	60	80	100	150	300	600
1.Foldback protection	---	Output shut-down when power supply change from CV to CC. User presetable.											
2.Over-voltage protection	---	Inverter shut-down, manual reset by AC input recycle or by OUI button or by communication port command.											
3.Over-voltage trip point	V	0.5-10	0.5-12	1-18	1-24	2-36	2-44	5-66	5-88	5-110	5-165	5-330	5-660
4.Output under voltage limit	---	Preset by front panel or communication port. Prevents from adjusting Vout below limit.											
5.Over temperature protection	---	User selectable, latched or non latched.											

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**FRONT PANEL**

1.Control functions	---	Vout/Iout manual adjust by separate encoders (coarse and fine adjustment).
	---	OVP/UVL manual adjust by Vout. Adjust encoder.
	---	Address selection by Voltage Adjust encoder. No of addresses:31.
	---	Go to local control.
	---	Output on/off
	---	AC on/off
	---	Front panel lock
	---	Foldback control
	---	Baud rate selection: 1200, 2400, 4800, 9600 and 19200.
	---	Re-start modes (automatic restart, safe mode).
2.Display	---	Vout: 4 digits, accuracy: 0.5% of rated output voltage+/-1 count.
	---	Iout: 4 digits, accuracy: 0.5% of rated output current+/-1 count.
3.Indications	---	VOLTAGE, CURRENT, ALARM, FINE, PREVIEW, FOLDBACK, LOCAL, OUTPUT ON.

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**ENVIRONMENTAL CONDITIONS**

1.Operating temperature	---	0-50°C, 100% load.
2.Storage temperature	---	-20-85°C
3.Operating humidity	%	20-90% RH (no condensation).
4.Storage humidity	%	10-95% RH (no condensation).
5.Altitude	---	Maximum 3000m. Derate output current by 2%/100m above 2000m. Alternatively, derate maximum ambient temperature by 1°C/100m above 2000m.

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**MECHANICAL**

1.Cooling	---	Forced air cooling by internal fans.
2.Weight	Kg	Less than 13Kg.
3.Dimensions (WxHxD)	mm	W: 423, H: 88, D: 442.5 (Refer to Outline drawing).
4.Vibration	---	MIL-810F, method 514.5
5.Shock	---	Less than 20G, half sine, 11mS. Unit is unpacked.

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**SAFETY/EMC**

1.Applicable standards:	Safety	---	UL60950 listed, EN60950. Vout ≤ 40V: Output is SELV, IEEE/Isolated analog are SELV. 60 ≤ Vout ≤ 400V: Output is hazardous, IEEE/Isolated analog are SELV. 400 < Vout ≤ 600V: Output is hazardous, IEEE/Isolated analog are not SELV.
	EMC	---	EN55024
2.Withstand voltage	---	Vout ≤ 40V models: Input-Outputs (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min., 40V < Vout ≤ 100V models: Input-Haz. Output: 2600VDC 1min, Input-SELV: 4242VDC 1min, Hazard. Output-SELV: 1900VDC 1min, Hazard. Output-Ground: 1200VDC 1min, Input-Ground: 2828VDC 1min. 100V < Vout ≤ 600V models: Input-Haz. Output: 4000VDC 1min, Input-SELV: 4242VDC 1min, Hazard. Output-SELV: 3550VDC 1min, Hazard. Output-Ground: 2670VDC 1min, Input-Ground: 2828VDC 1min.	
	---	More than 100Mohm at 25°C, 70%RH.	
4.Conducted emission	---	EN55022A, FCC part 15-A, VCCI-A	
5.Radiated emission	---	EN55022A, FCC part 15-A, VCCI-A	

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**NOTES:**

- \*1: Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.
- \*2: Minimum current is guaranteed to maximum 0.4% of rated output current.
- \*3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 190-240Vac (50/60Hz) for single phase and 3-Phase 200V models, and 380-415Vac (50/60Hz) for 3-Phase 400V models.
- \*4: Single-Phase and 3-Phase 200V models: At 200Vac input voltage, 3-Phase 400V: At 380Vac input voltage. With rated output power.
- \*5: Not including EMI filter inrush current, less than 0.2mSec.
- \*6: Single-Phase and 3-Phase 200V models: 170-265Vac, constant load. 3-Phase 400V models: 342-460Vac, constant load.
- \*7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
- \*8: For 8V-300V models: Measured with JEITA RC-9131A (1:1) probe. For 600V model: Measured with 10:1 probe.
- \*9: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load.
- \*10: From 90% to 10% of Rated Output Voltage.
- \*11: For load voltage change, equal to the unit voltage rating, constant input voltage.
- \*12: For 8V-15V models the ripple is measured at 2V to rated output voltage and rated output current. For other models, the ripple is measured at 10-100% of rated output voltage and rated output current.
- \*13: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

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