

HWS3000G/I

A291-01-01/I

SPECIFICATIONS (1/3)

ITEMS		MODEL	HWS3000G-24	HWS3000G-48
Part No		-	HWS3000G-24/I	HWS3000G-48/I
INPUT RATING				
Input Voltage Range	(*13)(*23)	-	85- 265VAC (47-63Hz)	
Efficiency (Typ.)	100/115VAC	%	89	90
	(*2) 200/230VAC	%	91	92
Input Current (Typ.)	100/115VAC	A	17.4	17.3
	(*2) 200/230VAC	A	17.4	17.2
Power Factor (Typ.)	100VAC	-	0.97	
	(*2) 200VAC	-	0.95	
Inrush Current (Typ.)	100VAC	A	30 at 1st Inrush, 80 at 2nd Inrush	
	(*2)(*3) 200VAC	A	60 at 1st Inrush, 80 at 2nd Inrush	
Leakage Current	(*4)	-	LESS THAN 0.85 mA (240VAC , 60Hz)	
OUTPUT RATING				
Nominal Output Voltage		V	24	48
Maximum Output Voltage	(*1)	V	28.8	52.8
Maximum Output Current (85VAC≤Vin≤132VAC)	(*24)	A	62.5	31.3
Maximum Output Current (170VAC≤Vin≤265VAC)	(*24)	A	125	62.6
Maximum Output Power (85VAC≤Vin≤132VAC)		W	1500	1502.4
Maximum Output Power (170VAC≤Vin≤265VAC)		W	3000	3004.8
CONSTANT VOLTAGE MODE				
Output Voltage Range by adjustment trimmer	(*1)	V	19.2 - 28.8	38.4 - 52.8
Output Voltage Range by Programming	(*1)(*5)	V	0 - 28.8	0 - 52.8
Maximum Line Regulation	(*6)	mV	96	192
Maximum Load Regulation	(*7)	mV	192	384
Temperature Coefficient		-	0.02%/°C	
Maximum Ripple & Noise	0 ≤ Ta ≤ 70°C	mVp-p	300	400
	(*8) -20 ≤ Ta < 0°C	mVp-p	360	480
Hold-up Time (Typ.)		-	20ms at 1500W, 10ms at 3000W	
Remote Sensing		-	Possible	
Output Voltage External Control Using CV Terminal		-	Apply external voltage or current : 1 - 5V or 4 - 20mA Output Voltage : 0% - Nominal output voltage	
Output Voltage External Control Using Modbus RTU	(*17)	-	0-4,000 (Output Voltage : 0% - Nominal output voltage)	
CONSTANT CURRENT MODE				
Output Current External Control Range	(*1)(*11) (85VAC≤Vin≤132VAC)	A	0 - 62.5	0 - 31.3
Output Current External Control Range	(*1)(*11) (170VAC≤Vin≤265VAC)	A	0 - 125.0	0 - 62.6
Maximum Line Regulation (85VAC≤Vin≤132VAC)	(*6)	mA	250	125.2
Maximum Line Regulation (170VAC≤Vin≤265VAC)	(*6)	mA	500	250.4
Maximum Load Regulation (85VAC≤Vin≤132VAC)	(*12)	mA	500	250.4
Maximum Load Regulation (170VAC≤Vin≤265VAC)	(*12)	mA	1000	500.8
Temperature Coefficient		-	0.02%/°C	
Output Current External Control Using CC Terminal	(85VAC≤Vin≤132VAC)	-	Apply external voltage or current : 1 - 3V or 4 - 12mA Output Current : 0% - Maximum output Current	
Output Current External Control Using Modbus RTU	(*17) (85VAC≤Vin≤132VAC)	-	0-2,000 Output Current : 0% - Maximum output Current	
Output Current External Control Using CC Terminal	(170VAC≤Vin≤265VAC)	-	Apply external voltage or current : 1 - 5V or 4 - 20mA Output Current : 0% - Maximum output Current	
Output Current External Control Using Modbus RTU	(*17) (170VAC≤Vin≤265VAC)	-	0-4,000 Output Current : 0% - Maximum output Current	

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SPECIFICATIONS (2/3)

ITEMS	MODEL		HWS3000G-24	HWS3000G-48
PROTECTION				
Over Current Protection (85VAC≤Vin≤132VAC)	(*9)	A	65.6 <	32.8 <
Over Current Protection (170VAC≤Vin≤265VAC)	(*9)	A	131.2 <	65.7 <
Over Voltage Protection	(*10)	V	30.4 - 31.5	56.1 - 58.1
ANALOG PROGRAMMING AND MONITORING				
Remote ON/OFF Control		-	Possible	
Parallel Operation	(*14)	-	Possible, Current balancing function is provided	
Series Operation	(*15)	-	Possible, Voltage balancing function is provided	
Output Voltage Monitor using VB terminal	(*16)	-	Output Voltage : 0% - Nominal output voltage VB terminal voltage : 1 - 5V	
Output Current Monitor using CB terminal (85VAC≤Vin≤132VAC)	(*16)	-	Output Current : 0% - Maximum output Current CB terminal voltage : 1 - 3V	
Output Current Monitor using CB terminal (170VAC≤Vin≤265VAC)	(*16)	-	Output Current : 0% - Maximum output Current CB terminal voltage : 1 - 5V	
Monitoring Signal		-	Power Fail(VPF, CPF), AC Fail(ACF) (Open Collector Output)	
COMMUNICATION				
Digital Communication	(*17)	-	Modbus RTU (RS-485)	
AUXILIARY OUTPUT				
Output Voltage (Typ.)		V	5	
Maximum Output Current		A	2	
ENVIRONMENT				
Operating Temperature	(*18)	-	-20 to +70°C, Guarantee Start up : -40 to -20°C	
Storage Temperature		-	-40°C to +85°C	
Operating Humidity		-	20 to 90%RH (Non Condensing)	
Storage Humidity		-	10 to 95%RH (Non Condensing)	
Vibration	(*19)(*20)	-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.	
Shock	(*19)(*20)	-	Less than 196m/s ²	
Cooling	(*21)	-	Forced air cooling (Internal FAN)	
ISOLATION				
Withstand Voltage		-	Input-FG : 2.0kVAC (20mA) for 1min. Input-Output : 3.0kVAC (20mA) for 1min. Input-Signal, AUX : 3.0kVAC (20mA) for 1min. Output-Signal, AUX : 2.0kVAC (20mA) for 1min. Output-FG : 1.5kVAC (20mA) for 1min.	
Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH, Output - FG 500VDC	
STANDARD AND COMPLIANCE				
Safety	(*13)	-	Approved by IEC/EN/UL/CSA 62368-1 (Altitude ≤ 5,000m) Approved by IEC/EN62477-1 (OVC III) (Altitude ≤ 2,000m) Approved by IS13252 (Part 1) Designed to meet Den-an Appendix 12 (J62368-1)	
Conducted Emission	(*19)	-	Designed to meet EN55011/EN55032-A, FCC-ClassA, VCCI-A	
Radiated Emission	(*19)	-	Designed to meet EN55011/EN55032-A, FCC-ClassA, VCCI-A	
Harmonic Current	(*19)	-	Designed to meet IEC61000-3-2	
Immunity	(*19)(*22)	-	Designed to meet IEC61000-6-2 (IEC61000-4-2, -3, -4, -5, -6, -8, -11)	
Line DIP	(*19)	-	Designed to meet SEMI-F47 (at 200VAC)	

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SPECIFICATIONS (3/3)

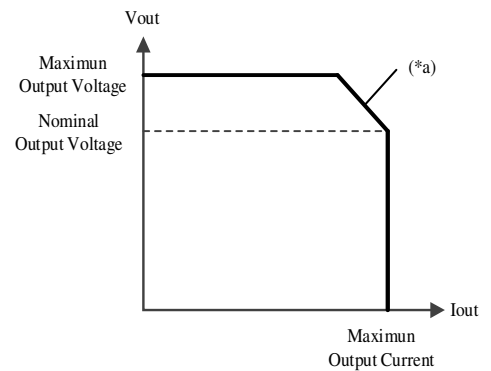
ITEMS		MODEL	HWS3000G-24	HWS3000G-48
MECHANICAL				
Weight (Typ.)		kg	2.3	
Size (W x H x D)		mm	150x 61 x 270 (Refer to Outline Drawing)	

*Read Instruction Manual (A291-04-01_) carefully, before using the power supply unit.

=NOTES=

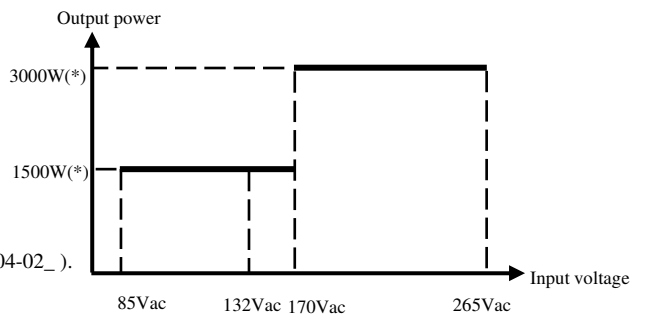
- *1. When using the product above the nominal output voltage, derate the output current so that the maximum output power is not exceeded. Please refer to Fig. A.
(*a) Limited by maximum output power value
- *2. Ta=25°C, nominal output voltage and maximum output power.
- *3. Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *4. Measured by the each measuring method of UL, CSA, EN and Den-an (at 60Hz), Ta=25°C.
- *5. Output voltage external control range using CV terminal and communication function.
- *6. 85-132VAC/170-265VAC, constant load.
- *7. No load - Full load, constant input voltage.
- *8. Please refer to Instruction Manual (A291-04-01_) for measurement of ripple noise voltage.
- *9. Constant current limit with automatic recovery.
If the overcurrent condition continues for more than 30 seconds, the output will shut down.
A dynamic overload, such as an output short circuit, will cause the output to shut down.
- *10. OVP circuit will shut the output down, manual reset.
- *11. Output voltage external control range using CC terminal and communication function.
- *12. Minimum output voltage - Nominal output voltage, constant input voltage.
- *13. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 100 - 120VAC/200 - 240VAC(50-60Hz).

Fig.A



- *14. Up to 10 units.
- *15. Up to 3 units.
- *16. Use a measuring instrument whose input impedance is 500kΩ or more.
- *17. <Communication function example>
 - Control of output voltage and output current. - Remote ON/OFF control.
 - Product status including product life can be monitored.
 - Operation history can be obtained.(OCP,OVP,AC Fail, etc.) etc.
 Refer to instruction manual (A291-04-01_) and communication manual (A291-04-02_).

Fig.B



(*) Maximum output power depends on output voltage. Refer to output ratings for values.

- *18. Output Derating
 - Refer to OUTPUT CURRENT vs. AMBIENT TEMPERATURE (A291-01-02_).
 At -40 to -20°C, the electrical characteristics are not guaranteed.
- *19. The specifications are based on TDK-Lambda standard measurement conditions.
The power supply is considered a component which will be installed into a final equipment.
The final equipment should be re-evaluated that it meets EMC, vibration and shock requirement.
- *20. Mounting A only.
- *21. Variable speed fan. Fan noise is 45dB (typ) at 25°C and 70% load.
- *22. Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
- *23. When changing the input voltage from 100Vac line to 200Vac line, or from 200Vac line to 100Vac line, first cut off the input and wait 60 seconds before changing.
- *24. Please refer to Fig.B for maximum output power of each input voltage.