

**HWS3000GT**

A292-01-01A

**SPECIFICATIONS (1/3)**

ITEMS		MODEL	HWS3000GT -24	HWS3000GT -48	HWS3000GT -60	HWS3000GT -130	
<b>INPUT RATING</b>							
Input Voltage Range	(*13)	-	3 phase 170- 265VAC (47-63Hz)				
Efficiency (Typ.)	(*2)	200/230VAC	%	91	92	92	93
Input Current (Typ.)	(*2)	200/230VAC	A	10.0	9.9	9.9	9.9
Power Factor (Typ.)	(*2)	200VAC	-	0.95			
Inrush Current (Typ.)	(*2),(*)3	200VAC	A	60 at 1st Inrush, 80 at 2nd Inrush			
Leakage Current	(*4)	-	LESS THAN 3.0 mA (240VAC , 60Hz)				
<b>OUTPUT RATING</b>							
Nominal Output Voltage		V	24	48	60	130	
Maximum Output Voltage	(*1)	V	28.8	52.8	66.0	156.0	
Maximum Output Current		A	125	62.6	50	23.2	
Maximum Output Power		W	3000	3004.8	3000	3016	
<b>CONSTANT VOLTAGE MODE</b>							
Output Voltage Range by adjustment trimmer	(*1)	V	19.2 - 28.8	38.4 - 52.8	48.0 - 66.0	104.0 - 156.0	
Output Voltage Range by Programming	(*1)(*)5	V	0 - 28.8	0 - 52.8	0 - 66.0	0 - 156.0	
Maximum Line Regulation	(*6)	mV	96	192	240	520	
Maximum Load Regulation	(*7)	mV	192	384	480	1040	
Temperature Coefficient		-	0.02%/°C				
Maximum Ripple & Noise	(*)8	0 ≤ Ta ≤ 70°C	mVp-p	300	400	500	866
		-20 ≤ Ta < 0°C	mVp-p	360	480	600	1083
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)				
<b>CONSTANT CURRENT MODE</b>							
Output Current External Control Range	(*)1)(*)11	A	0 - 125.0	0 - 62.6	0 - 50.0	0 - 23.2	
Maximum Line Regulation	(*6)	mA	500	250.4	200	92.8	
Maximum Load Regulation	(*)12	mA	1000	500.8	400	185.6	
Temperature Coefficient		-	0.02%/°C				
Output Current External Control Using CC Terminal		-	Apply external voltage or current : 1 - 5V or 4 - 20mA Output Current : 0% - Maximum output Current				
Output Current External Control Using Modbus RTU	(*)17	-	0-4,000 Output Current : 0% - Maximum output Current				
<b>PROTECTION</b>							
Over Current Protection	(*)9	A	131.2 <	65.7 <	52.5 <	24.3 <	
Over Voltage Protection	(*)10	V	30.4 - 31.5	56.1 - 58.1	70.2 - 72.6	165.1 - 170.3	
<b>ANALOG PROGRAMMING AND MONITORING</b>							
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	(*)16	-	Output Current : 0% - Maximum output Current CB terminal voltage : 1 - 5V				
Monitoring Signal		-	Power Fail(VPF, CPF), AC Fail(ACF) (Open Collector Output)				

**HWS3000GT**

SPECIFICATIONS (2/3)

ITEMS	MODEL	HWS3000GT -24	HWS3000GT -48	HWS3000GT -60	HWS3000GT -130
<b>COMMUNICATION</b>					
Digital Communication	(*17)	-	Modbus RTU (RS-485)		
<b>AUXILIARY OUTPUT</b>					
Output Voltage (Typ.)		V	5		
Maximum Output Current		A	2		
<b>ENVIRONMENT</b>					
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 <sup>2</sup> Constant, X,Y,Z 1hour each.		
Shock	(*19)(*20)	-	Less than 196m/s <sup>2</sup>		
Cooling	(*21)	-	Forced air cooling (Internal FAN)		
<b>ISOLATION</b>					
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		
<b>STANDARD AND COMPLIANCE</b>					
Safety	(*13)	-	Approved by IEC/EN/UL/CSA 62368-1 (Altitude ≤ 5,000m) Approved by IEC/EN62477-1 (OVC III) (Altitude ≤ 2,000m) 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		
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)		
<b>MECHANICAL</b>					
Weight (Typ.)		kg	2.3		
Size (W x H x D)		mm	150x 61 x 270 (Refer to Outline Drawing)		

**HWS3000GT**

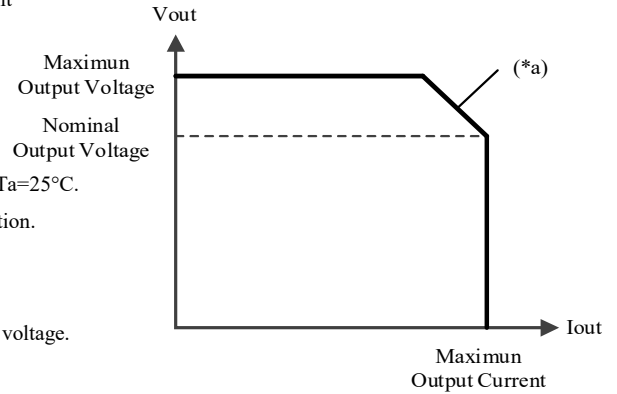
SPECIFICATIONS (3/3)

\*Read Instruction Manual (A292-04-01\_) 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. 170-265VAC, constant load
- \*7. No load - Full load, constant input voltage.
- \*8. Please refer to Instruction Manual (A292-04-01\_) 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 200 - 240VAC(50-60Hz).
- \*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 (A292-04-01\_) and communication manual (A291-04-02\_).
- \*18. Output Derating  
- Refer to OUTPUT CURRENT vs. AMBIENT TEMPERATURE (A292-01-02\_).  
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.

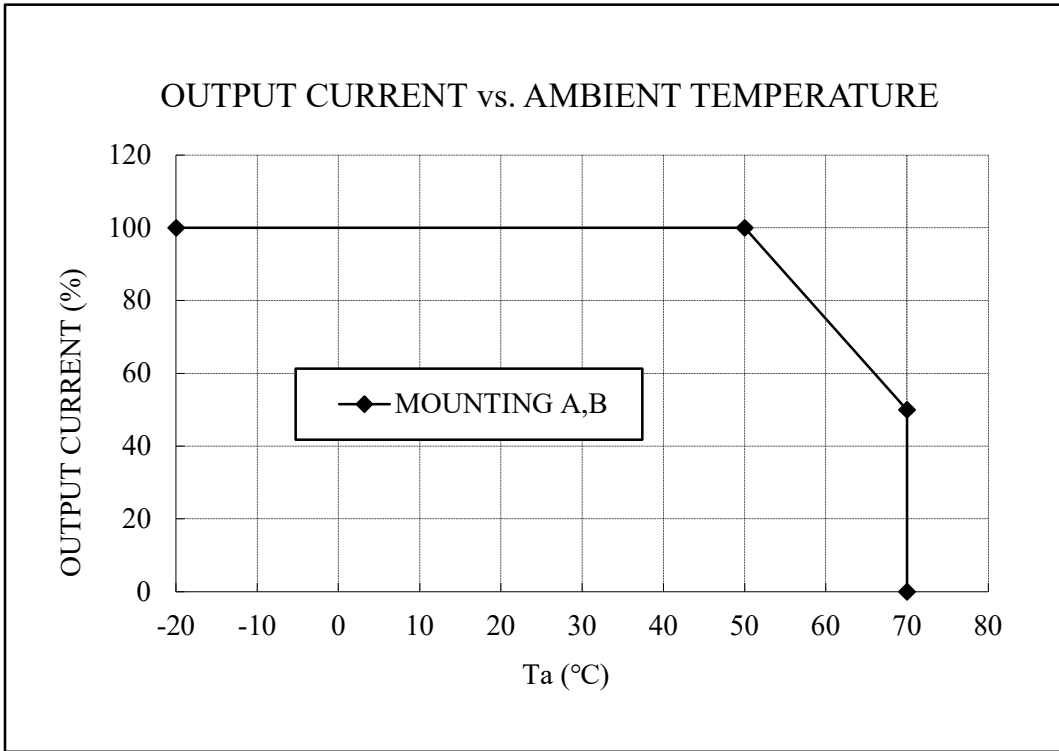
Fig.A



OUTPUT DERATING

A292-01-02

Ta (°C)	OUTPUT CURRENT (%)
	MOUNTING A,B
-20 to +50	100
70	50



MOUNTING A  
(STANDARD MOUNTING)

MOUNTING B

