

HWS3000GT4/HD

A294-01-01/HD

SPECIFICATIONS (1/3)

MODEL				HWS3000GT4	HWS3000GT4	HWS3000GT4	HWS3000GT4	HWS3000GT4	HWS3000GT4			
ITEMS				-24/HD	-48/HD	-60/HD	-80/HD	-130/HD	-250/HD			
INPUT RATING												
Input Voltage Range				(*3)(*13)	-	3 phase 340- 528VAC (47-63Hz)						
Efficiency (Typ.)				(*2)	400/480VAC	%	91	92	92	92	93	93
Input Current (Typ.)				(*2)	400/480VAC	A	5.0	5.0	5.0	5.0	5.0	5.0
Power Factor (Typ.)				(*2)	400VAC	-	0.95					
Inrush Current (Typ.)				(*23)	400VAC	A	None					
Leakage Current				(*4)	-	LESS THAN 3.0 mA (480VAC , 60Hz, Star connection)						
OUTPUT RATING												
Nominal Output Voltage				V	24	48	60	80	130	250		
Maximum Output Voltage				(*1)	V	28.8	52.8	66.0	96.0	156.0	300.0	
Maximum Output Current				A	125	62.6	50	37.5	23.2	12		
Maximum Output Power				(*3)	W	3000	3004.8	3000	3000	3016	3000	
CONSTANT VOLTAGE MODE												
Output Voltage Range by adjustment trimmer				(*1)	V	19.2 - 28.8	38.4 - 52.8	48.0 - 66.0	64.0 - 96.0	104.0 - 156.0	200.0 - 300.0	
Output Voltage Range by Programming				(*1)(*5)	V	0 - 28.8	0 - 52.8	0 - 66.0	0 - 96.0	0 - 156.0	0 - 300.0	
Maximum Line Regulation				(*6)	mV	96	192	240	320	520	1000	
Maximum Load Regulation				(*7)	mV	192	384	480	640	1040	2000	
Temperature Coefficient				-	0.02% / °C							
Maximum Ripple & Noise				0 ≤ Ta ≤ 70°C	mVp-p	300	400	500	600	866	1250	
				(*8) -20 ≤ Ta < 0°C	mVp-p	360	480	600	740	1083	1600	
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)	A	0 - 125.0	0 - 62.6	0 - 50.0	0 - 37.5	0 - 23.2	0 - 12.0	
Maximum Line Regulation				(*6)	mA	500	250.4	200	150	92.8	48	
Maximum Load Regulation				(*12)	mA	1000	500.8	400	300	185.6	96	
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						
PROTECTION												
Over Current Protection				(*9)	A	131.2 <	65.7 <	52.5 <	39.3 <	24.3 <	12.6 <	
Over Voltage Protection				(*10)	V	30.4 - 31.5	56.1 - 58.1	70.2 - 72.6	101.6 - 104.8	165.1 - 170.3	317.5 - 327.5	
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				(*16)	-	Output Current : 0% - Maximum output Current CB terminal voltage : 1 - 5V						
Monitoring Signal				-	Power Fail(VPF, CPF), AC Fail(ACF) (Open Collector Output)							

SPECIFICATIONS (2/3)

ITEMS		MODEL	HWS3000GT4	HWS3000GT4	HWS3000GT4	HWS3000GT4	HWS3000GT4	HWS3000GT4
			-24/HD	-48/HD	-60/HD	-80/HD	-130/HD	-250/HD
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			-	At no operating, 10 - 55Hz (Sweep for 1min) 19.6m/s ² Constant, X,Y,Z 1hour each.				
		(*19)(*20)		Designed to meet MIL-STD-810G 514.7 Category4, 10				
Shock			-	Less than 196m/s ²				
		(*19)(*20)		Designed to meet MIL-STD-810G 516.7 Procedure I, VI				
Cooling		(*21)	-	Forced air cooling (Internal FAN)				
ISOLATION								
Withstand Voltage			-	Input-FG : 2.0kVAC (20mA) for 1min. Input-Output : 3.6kVAC (20mA) for 1min. Input-Signal, AUX : 3.6kVAC (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			-	Approved by IEC/EN/UL/CSA 62368-1 (Altitude ≤ 5,000m, Only Star connection)				
		(*13)		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 (Accept temporary output voltage drop)				
MECHANICAL								
Weight (Typ.)			kg	2.5				
Size (W x H x D)			mm	150x 61 x 270 (Refer to Outline Drawing)				
OTHERS								
Coating		(*24)	-	Coating on both sides of PCB				

SPECIFICATIONS (3/3)

*Read Instruction Manual (A294-04-01_) 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. $T_a=25^{\circ}\text{C}$, nominal output voltage and maximum output power.
- *3. Output derating needed when input voltage less than 360VAC. Please refer to Fig. B.
- *4. Measured by the each measuring method of UL, CSA, EN and Den-an (at 60Hz), $T_a=25^{\circ}\text{C}$.
- *5. Output voltage external control range using CV terminal and communication function.
- *6. 340-528VAC, constant load
- *7. No load - Full load, constant input voltage.
- *8. Please refer to Instruction Manual (A294-04-01_) 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 current external control range using CC terminal and communication function.
- *12. Minimum output voltage - Nominal output voltage, constant input voltage, maximum output current operation.
- *13. For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 380 - 480VAC(50-60Hz).
- *14. Up to 10 units
- *15. Up to 3 units (250V : Up to 2 units)
- *16. Use a measuring instrument whose input impedance is 500k Ω or more.
- *17. <Communication function example>
- Control of output voltage and output current. - Remote ON/OFF control.
- Product status can be monitored.
- Operation history can be obtained.(OCP,OVP,AC Fail, etc.) etc.
Refer to instruction manual (A294-04-01_) and communication manual (A291-04-02_).
- *18. Output Derating
- Refer to OUTPUT CURRENT vs. AMBIENT TEMPERATURE (A294-01-02_).
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. No inrush current occurs.
Not applicable for the inrush current to Noise Filter for less than 0.2ms.
- *24. Both sides of PCB are coated. However, some areas on the PCB are not coated.
However, complete effect is not guaranteed because some areas on the board are not coated.

