**TDK-Lambda**

# HWS3000GT/RF

A292-01-01/RF-B

SPECIFICATIONS (1/3)

| ITEMS \ MODEL | | | | HWS3000GT -24/RF | HWS3000GT -48/RF | HWS3000GT -60/RF | HWS3000GT -80/RF | HWS3000GT -130/RF | HWS3000GT -250/RF |
|---|---|---|---|---|---|---|---|---|---|
| INPUT RATING | | | | | | | | | |
| Input Voltage Range | (*13) | | - | 3 phase 170- 265VAC (47-63Hz) | | | | | |
| Efficiency (Typ.) | (*2) | 200/230VAC | % | 91 | 92 | 92 | 92 | 93 | 93 |
| Input Current (Typ.) | (*2) | 200/230VAC | A | 10.0 | 9.9 | 9.9 | 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) | | | | | |
| 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 | | | 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<br>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<br>Output Current : 0% - Maximum output Current | | | | | |
| Output Current External Control Using Modbus RTU | (*17) | | - | 0 - 4,000<br>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<br>VB terminal voltage : 1 - 5V | | | | | |
| Output Current Monitor using CB terminal | (*16) | | - | Output Current : 0% - Maximum output Current<br>CB terminal voltage : 1 - 5V | | | | | |
| Monitoring Signal | | | - | Power Fail(VPF, CPF), AC Fail(ACF) (Open Collector Output) | | | | | |

# HWS3000GT/RF

SPECIFICATIONS (2/3)

| ITEMS \ MODEL | | | HWS3000GT -24/RF | HWS3000GT -48/RF | HWS3000GT -60/RF | HWS3000GT -80/RF | HWS3000GT -130/RF | HWS3000GT -250/RF |
|---|---|---|---|---|---|---|---|---|
| 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)<br>19.6m/s$^2$ Constant, X,Y,Z 1hour each. | | | | | |
| Shock | (*19)(*20) | - | Less than 196m/s$^2$ | | | | | |
| Cooling | (*21) | - | Forced air cooling : Intake Air (Internal FAN) | | | | | |
| ISOLATION | | | | | | | | |
| Withstand Voltage | | - | Input-FG : 2.0kVAC (20mA) for 1min.<br>Input-Output : 3.0kVAC (20mA) for 1min.<br>Input-Signal, AUX : 3.0kVAC (20mA) for 1min.<br>Output-Signal, AUX : 2.0kVAC (20mA) for 1min.<br>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)<br>Approved by IEC/EN62477-1 (OVC III) (Altitude ≤ 2,000m)<br>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) | | | | | |
| MECHANICAL | | | | | | | | |
| Weight (Typ.) | | kg | 2.3 | | | | | |
| Size (W x H x D) | | mm | 150x 61 x 270 (Refer to Outline Drawing) | | | | | |

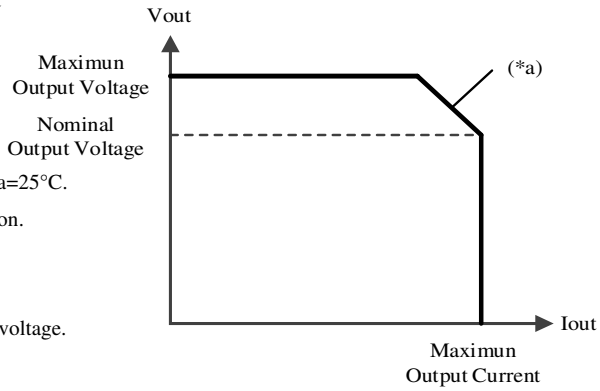
# HWS3000GT/RF

## SPECIFICATIONS (3/3)

*Read Instruction Manual (A292-04-01_ ) carefully, before using the power supply unit.

=NOTES=

Fig.A




*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, maximum output current operation.

*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 (250V : Up to 2units)

*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.