

## 3,000W Programmable CVCC AC-DC Power Supplies

<https://product.tdk.com/en/power/hws-g>  
[www.emea.lambda.tdk.com/hws-g](http://www.emea.lambda.tdk.com/hws-g)



Industrial



Test



LED



Broadcast



COMM



Semi-Fab

The compact HWS3000G AC-DC power supplies can deliver 1,500W with a low-line input voltage of 85 to 132Vac and 3,000W at high-line 170 to 265Vac. The nominal output voltages (24V, 48V, 60V or 130V) and output current are fully programmable (CV/CC) from zero up to their maximum rating. This can be achieved using a serial RS485 interface (MODBus protocol) or analog 1-5V or 4-20mA signal. Up to three units can be connected in series and / or ten units in parallel. The HWS3000G is packaged in a compact 270 x 150 x 61mm (10.6 x 5.9 x 2.4") footprint and has conservatively rated electrolytic capacitor temperatures for long field life. The warranty period is five years.

| Features                                                 | Benefits                           |
|----------------------------------------------------------|------------------------------------|
| • Serial or Analog Programming (CV/CC)                   | • Choice of Programming Interfaces |
| • Series and/or Parallel Operation                       | • Scalable Voltage and Current     |
| • Compact 270 x 150 x 61mm (10.6 x 5.9 x 2.4") Footprint | • Space Saving in End Equipment    |
| • Single and Three Phase Models (See Related Products)   | • Global Use                       |

| Model Selector |                            |                                       |                                    |                                                      |                                                       |                             |                              |                               |
|----------------|----------------------------|---------------------------------------|------------------------------------|------------------------------------------------------|-------------------------------------------------------|-----------------------------|------------------------------|-------------------------------|
| Model          | Nominal Output Voltage (V) | Output Adjustment (Potentiometer) (V) | Output Adjustent (Programming) (V) | Output Current (A) (85 - 132Vac Input) (Programming) | Output Current (A) (170 - 265Vac Input) (Programming) | Max Power (85 - 132Vac) (W) | Max Power (170 - 265Vac) (W) | Efficiency (115 / 230Vac) (%) |
| HWS3000G-24    | 24                         | 19.2 - 28.8                           | 0 - 28.8                           | 0 - 62.5                                             | 0 - 125                                               | 1500                        | 3000                         | 89 / 91                       |
| HWS3000G-48    | 48                         | 38.4 - 52.8                           | 0 - 52.8                           | 0 - 31.3                                             | 0 - 62.6                                              | 1502.4                      | 3004.8                       | 90 / 92                       |
| HWS3000G-60    | 60                         | 48.0 - 66.0                           | 0 - 66.0                           | 0 - 25                                               | 0 - 50                                                | 1500                        | 3000                         | 90 / 92                       |
| HWS3000G-130   | 130                        | 104.0 - 156.0                         | 0 - 156.0                          | 0 - 11.6                                             | 0 - 23.2                                              | 1508                        | 3016                         | 91 / 93                       |

|                 |   |                                   |
|-----------------|---|-----------------------------------|
| <b>HWS3000G</b> | - | <b>24</b>                         |
| Series          |   | Output voltage<br>24, 48, 60, 130 |

| Related Products                     |                                 |                                             |
|--------------------------------------|---------------------------------|---------------------------------------------|
| Type                                 | Part Number(s)                  | Description                                 |
| 3kW Programmable Power Supplies      | <a href="#">HWS3000GT</a>       | 3 phase 170- 265Vac input                   |
| 100-800W Programmable Power Supplies | <a href="#">Z+ Low Voltage</a>  | Z+ 10V to 100V Programmable Power Supplies  |
| 100-800W Programmable Power Supplies | <a href="#">Z+ High Voltage</a> | Z+ 160V to 650V Programmable Power Supplies |

| Specifications                              |     |                                                                                       |             |             |             |              |
|---------------------------------------------|-----|---------------------------------------------------------------------------------------|-------------|-------------|-------------|--------------|
| Model                                       |     | HWS3000G-24                                                                           |             | HWS3000G-48 | HWS3000G-60 | HWS3000G-130 |
| Input                                       |     |                                                                                       |             |             |             |              |
| Input Voltage Range (Operating)             | Vac | 85 - 265                                                                              |             |             |             |              |
| Nominal Input Voltage Range                 | Vac | 100 - 120 / 200 - 240 (Note: Safety certified for 90 - 132 / 180 - 264Vac only)       |             |             |             |              |
| Input Frequency                             | Hz  | 47 - 63 (Note: Safety certified for 50-60Hz)                                          |             |             |             |              |
| Input Current at 115 / 230Vac               | A   | 17.4 / 17.4                                                                           | 17.3 / 17.2 | 17.2 / 17.2 | 17.1 / 17.1 |              |
| Inrush Current at 115 / 230Vac (Cold Start) | A   | 1st inrush: 30 / 60, 2nd Inrush: 80 / 80                                              |             |             |             |              |
| Leakage Current                             | mA  | ≤ 0.85 at 240Vac 60Hz                                                                 |             |             |             |              |
| Power Factor (100 / 200Vac)                 | -   | 0.97 / 0.95                                                                           |             |             |             |              |
| Harmonic Compliance                         | -   | Meets IEC61000-3-2                                                                    |             |             |             |              |
| No Load Power Consumption                   | W   | See evaluation data on website                                                        |             |             |             |              |
| Hold Up Time (typ)                          | ms  | 20 at 1500W, 10 at 3000W                                                              |             |             |             |              |
| Efficiency                                  | -   | See model selector                                                                    |             |             |             |              |
| Conducted & Radiated EMI                    | -   | EN55032A, EN55011-A, FCC-A                                                            |             |             |             |              |
| Immunity                                    | -   | IEC61000-6-2, IEC61000-4.2, -3, -4, -5, -6, -8, -11                                   |             |             |             |              |
| Insulation Class                            | -   | Class I                                                                               |             |             |             |              |
| Safety Certifications and Markings          | -   | IEC/EN/UL/CSA62368-1, IEC/EN62477-1 (OVC III, 2,000m altitude). CE Mark and UKCA Mark |             |             |             |              |

| Immunity                             |              |                                                   |                        |                              |
|--------------------------------------|--------------|---------------------------------------------------|------------------------|------------------------------|
| Test                                 | Standard     | Test Level                                        | Criteria               | Notes                        |
| ESD                                  | IEC61000-4-2 | Contact Discharge: 1, 2<br>Air Discharge: 1, 2, 3 | B<br>B                 | -<br>-                       |
| Radiated Susceptibility              | EN61000-4-3  | 2<br>3                                            | A<br>A                 | 1.4 - 6.0GHz<br>80 - 1000MHz |
| Electrical Fast Transient Burst      | EN61000-4-4  | 1, 2, 3                                           | B                      | -                            |
| Surge                                | EN61000-4-5  | 1, 2, 3<br>2, 3                                   | B<br>B                 | Common mode<br>Normal mode   |
| Conducted Susceptibility             | EN61000-4-6  | 1, 2, 3                                           | A                      | -                            |
| Magnetic fields                      | EN61000-4-8  | 1, 2, 3, 4                                        | A                      | -                            |
| Voltage Dips and Input Interruptions | EN61000-4-11 | 30% 500ms                                         | 100Vac: B<br>230Vac: A | -<br>-                       |
|                                      |              | 60% 200ms                                         | 100Vac: B<br>230Vac: A | -<br>-                       |
|                                      |              | 100% 20ms                                         | 100Vac: A<br>230Vac: B | -<br>-                       |
|                                      |              | 100% 5000ms                                       | 100Vac: B<br>230Vac: B | -<br>-                       |
| SEMI F47 Line Dip                    | SEMI F47     | -                                                 | -                      | At input voltages > 200Vac   |

| Specifications                                       |        |                                                                                                                                                                 |             |             |              |
|------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|--------------|
| Model                                                |        | HWS3000G-24                                                                                                                                                     | HWS3000G-48 | HWS3000G-60 | HWS3000G-130 |
| Output                                               |        |                                                                                                                                                                 |             |             |              |
| Switching Frequency                                  | kHz    | Primary: 120, secondary: 240                                                                                                                                    |             |             |              |
| Line Regulation                                      | mV     | 24V: 96, 48V: 192, 60V: 240, 130V: 520                                                                                                                          |             |             |              |
| Load Regulation                                      | mV     | 24V: 192, 48V: 384, 60V: 480, 130V: 1040                                                                                                                        |             |             |              |
| Ripple & Noise                                       | mV     | 24V: 300, 48V: 400, 60V: 500, 130V: 866                                                                                                                         |             |             |              |
| Standby Voltage                                      | -      | 5V 2A                                                                                                                                                           |             |             |              |
| Series Operation                                     | -      | See Instruction Manual                                                                                                                                          |             |             |              |
| Parallel Operation                                   | -      | Up to ten units, see the Instruction Manual                                                                                                                     |             |             |              |
| External Load Capacitance                            | uF     | Not applicable                                                                                                                                                  |             |             |              |
| Temperature Coefficient                              | %/°C   | ±0.02                                                                                                                                                           |             |             |              |
| Minimum Load                                         | -      | No minimum load required                                                                                                                                        |             |             |              |
| Overcurrent Protection (85 - 132Vac) <sup>(1)</sup>  | A      | 24V: 65.6<, 48V: 32.8<, 60V: 26.2<, 130V: 12.1<                                                                                                                 |             |             |              |
| Overcurrent Protection (170 - 265Vac) <sup>(1)</sup> | A      | 24V: 131.2<, 48V: 65.7<, 60V: 52.5<, 130V: 24.3<                                                                                                                |             |             |              |
| Overvoltage Protection                               | V      | 24V: 30.4 - 31.5, 48V: 56.1 - 58.1, 60V: 70.2 - 72.6, 130V: 165.1 - 170.3                                                                                       |             |             |              |
| Remote Sense                                         | -      | 0.3V compensation                                                                                                                                               |             |             |              |
| Remote On/Off                                        | -      | Yes, see Instruction Manual                                                                                                                                     |             |             |              |
| Signals                                              | -      | AC Fail, Voltage and Current Good, Fan Fail (Open collector)                                                                                                    |             |             |              |
| Output (Constant Current Mode)                       |        |                                                                                                                                                                 |             |             |              |
| Line Regulation (85 - 132Vac)                        | mA     | 24V: 250, 48V: 125.2, 60V: 100, 130V: 46.4                                                                                                                      |             |             |              |
| Line Regulation (170 - 265Vac)                       | mA     | 24V: 500, 48V: 250.4, 60V: 200, 130V: 92.8                                                                                                                      |             |             |              |
| Load Regulation (85 - 132Vac)                        | mA     | 24V: 500, 48V: 250.4, 60V: 200, 130V: 92.8                                                                                                                      |             |             |              |
| Load Regulation (170 - 265Vac)                       | mA     | 24V: 1000, 48V: 500.8, 60V: 400, 130V: 185.6                                                                                                                    |             |             |              |
| Programing and monitoring                            |        |                                                                                                                                                                 |             |             |              |
| Communication Interface                              | -      | Modbus RTU (RS-485): Controls output voltage and current, product status (including product life)<br>Operational history - OCP, OVP, AC Fail, etc.              |             |             |              |
| Output Voltage Monitor using VB terminal             | -      | Output Voltage : 0% - Nominal output voltage, VB terminal voltage : 1 - 5V                                                                                      |             |             |              |
| Output Current Monitor using CB terminal             | -      | 85Vac<Vin<132Vac: Output Current : 0% - Maximum, CB terminal voltage : 1 - 3V<br>170Vac<Vin<265Vac: Output Current : 0% - Maximum, CB terminal voltage : 1 - 5V |             |             |              |
| Output Current Ext. Control Using CC Terminal        | -      | 85Vac<Vin<132Vac: Apply external voltage or current (1 - 3V or 4 - 12mA). Output Current: 0% - Max.                                                             |             |             |              |
| Output Current Ext. Control Using Modbus RTU         | -      | 85Vac<Vin<132Vac: 0 - 2,000. Output Current: 0% - Max.                                                                                                          |             |             |              |
| Output Current Ext. Control Using CC Terminal        | -      | 170Vac<Vin<265Vac: Apply external voltage or current (1 - 5V or 4 - 20mA). Output Current: 0% - Max.                                                            |             |             |              |
| Output Current Ext. Control Using Modbus RTU         | -      | 170Vac<Vin<265Vac: 0 - 4,000. Output Current: 0% - Max.                                                                                                         |             |             |              |
| Environmental                                        |        |                                                                                                                                                                 |             |             |              |
| Operating Temperature (-40°C start-up)               | °C     | -20 to +70, derate output current linearly to 50% load from 50 to 70                                                                                            |             |             |              |
| Storage Temperature                                  | °C     | -40 to +85                                                                                                                                                      |             |             |              |
| Humidity (non condensing)                            | %RH    | Operating: 20 - 90, Storage: 10 - 95                                                                                                                            |             |             |              |
| Cooling                                              | -      | Variable speed fan, air exits across rear. Fan noise is 45dB (typ) at 25°C and 70% load                                                                         |             |             |              |
| Altitude                                             | m      | 5,000. Operating, transportation and storage. IEC/EN62477-1 (OVC III, 2,000m altitude)                                                                          |             |             |              |
| Withstand Voltage (For 1 minute)                     | Vac    | Input to Ground 2,000, Input to Output 3,000, Output to Ground 1,500                                                                                            |             |             |              |
| Isolation Resistance                                 | MΩ     | >100 at 25°C, 70%RH & 500Vdc                                                                                                                                    |             |             |              |
| Vibration (Non Operating)                            | -      | 10-55Hz (1 min sweep). Maximum 19.6m/s², 1 hour each                                                                                                            |             |             |              |
| Shock                                                | -      | <196m/s²                                                                                                                                                        |             |             |              |
| Other                                                |        |                                                                                                                                                                 |             |             |              |
| Weight (Typ)                                         | g      | 2,300                                                                                                                                                           |             |             |              |
| Size (LxWxH)                                         | mm     | 270 x 150 x 61                                                                                                                                                  |             |             |              |
| Size (LxWxH)                                         | Inches | 10.63 x 5.91 x 2.4                                                                                                                                              |             |             |              |
| Connectors                                           | -      | Input/Output: Screw terminals, Output connector is user configurable for vertical or horizontal orientation                                                     |             |             |              |
| MTBF - Telcordia SR-332(2)                           | Hours  | 25°C: 867,161, 40°C: 522,715                                                                                                                                    |             |             |              |
| Warranty                                             | yrs    | 5                                                                                                                                                               |             |             |              |

**Notes:**

See website for detailed specifications, test methods and Instruction Manual

Specification parameters apply at 25°C ambient temperature unless otherwise stated.

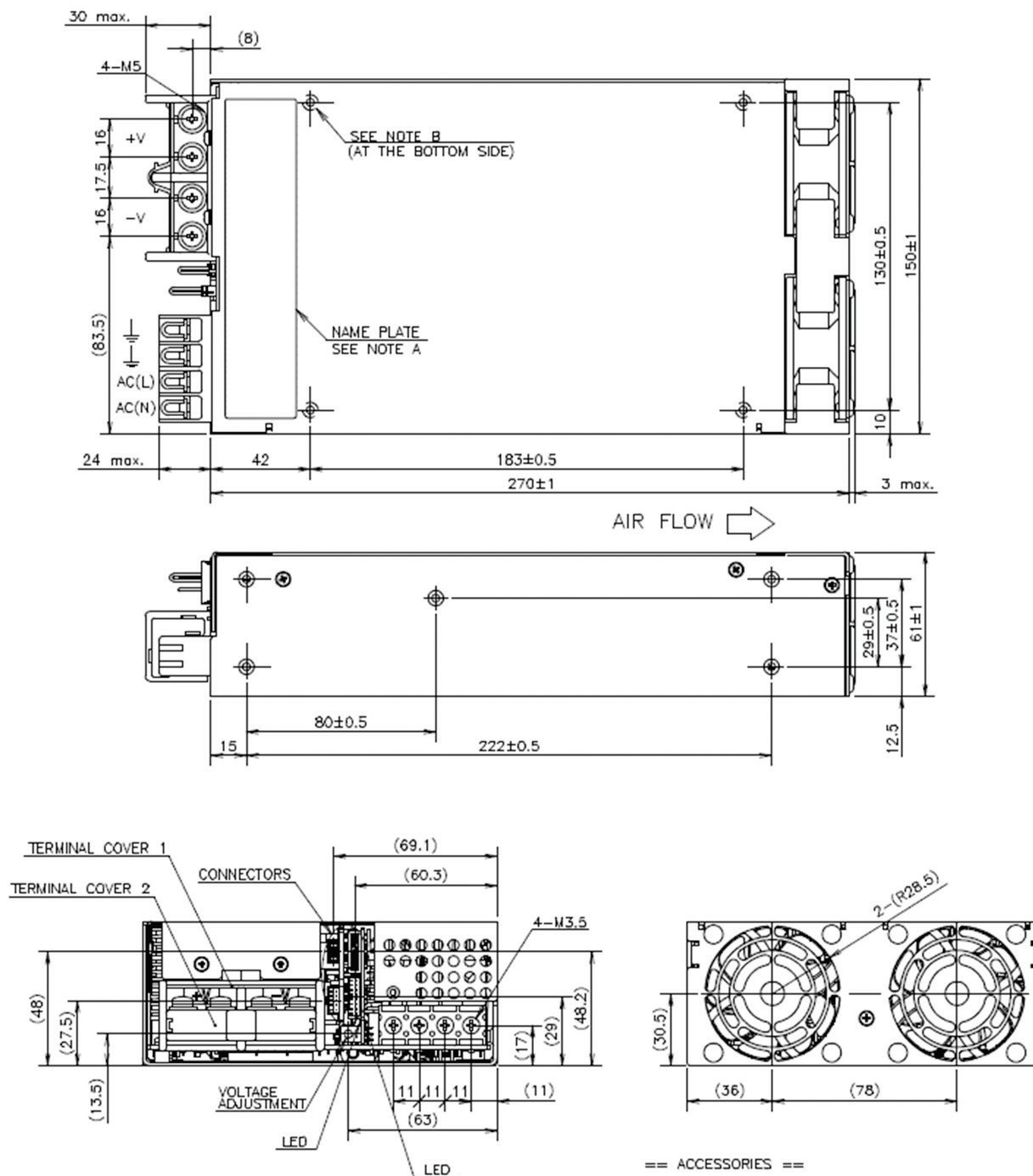
(1) Constant current with automatic recovery. If the overload lasts more than 30s, the output will shutdown

(2) 24V 125A, 230Vac input

[Link to GUI](#)

[Link to Communication manual](#)

## Outline Drawing



## == NOTES ==

A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

B : 9-M4 BR & COUNTERSINK ARE FOR CUSTOMER'S CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 6mm MAX.)

## == ACCESSORIES ==

- \* TERMINAL COVER 1 -----1  
(ATTACHED ON TERMINAL AT SHIPMENT)
- \* TERMINAL COVER 2 -----1  
(ATTACHED ON TERMINAL AT SHIPMENT)
- \* SHORT PIECE 1 -----1  
SHORTING -R- AG  
(ATTACHED ON CN41 AT SHIPMENT)
- \* SHORT PIECE 2 -----1  
SHORTING +L- +S, -L- -S  
(ATTACHED ON CN61 AT SHIPMENT)



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