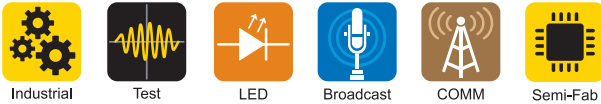


3,000W Programmable CVCC AC-DC Power Supplies

<https://product.tdk.com/en/power/hws-g>
www.emea.lambda.tdk.com/hws-g



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, 80V, 130V or 250V) and output currents 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 signals. 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 /HD option code includes dual sided board coating and designed to meet shock and vibration for MIL-STD-810G. The warranty period is seven years⁽¹⁾.

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
• Seven Year Warranty ⁽¹⁾	• Low Cost of Ownership
• Optional Board Coating & Ruggedization	• Designed to meet MIL-STD-810G (Shock and Vibration) (HD Option Code)

Model Selector								
Model	Nominal Output Voltage (V)	Output Adjustment (Potentiometer) (V)	Output Adjustment (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-80	80	64.0 - 96.0	0 - 96.0	0 - 18.75	0 - 37.5	1500	3000	90 / 92
HWS3000G-130	130	104.0 - 156.0	0 - 156.0	0 - 11.6	0 - 23.2	1508	3016	91 / 93
HWS3000G-250	250	200.0 - 300.0	0 - 300.0	0 - 6.0	0 - 12.0	1500	3000	91 / 93

HWS3000G	-	24	/	HD
Series		Output voltage 24, 48, 60, 80, 130, 250		Option Code* Blank HD RF
				No Options Board coating + MIL-STD-810 Reverse Fan (Intake Airflow)

*HWS3000G-80 and HWS3000G-250, contact factory for option code availability

Related Products		
Type	Part Number(s)	Description
EMC filter	RSMN-2030	High attenuation 30A 250Vac two stage filter
3kW Programmable Power Supplies	HWS3000GT	3 phase 170- 265Vac input
100-800W Programmable Power Supplies	Z+ Low Voltage	Z+ 10V to 100V Programmable Power Supplies
100-800W Programmable Power Supplies	Z+ High Voltage	Z+ 160V to 650V Programmable Power Supplies
Wiring harness	HA-15-C	See instruction manual for details
Wiring harness	HA-16-C	See instruction manual for details
Wiring harness	HA-17-C	See instruction manual for details
Wiring harness	HA-18-C	See instruction manual for details

Specifications

Model	HWS3000G-24		HWS3000G-48	HWS3000G-60	HWS3000G-80	HWS3000G-130	HWS3000G-250
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	17.2 / 17.2	17.1 / 17.1	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 Air Discharge: 1, 2, 3	B B	- -
Radiated Susceptibility	EN61000-4-3	2 3	A A	1.4 - 6.0GHz 80 - 1000MHz
Electrical Fast Transient Burst	EN61000-4-4	1, 2, 3	B	-
Surge	EN61000-4-5	1, 2, 3 2, 3	B B	Common mode 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 230Vac: A	- -
		60% 200ms	100Vac: B 230Vac: A	- -
		100% 20ms	100Vac: A 230Vac: B	- -
		100% 5000ms	100Vac: B 230Vac: B	- -
SEMI F47 Line Dip	SEMI F47	-	-	At input voltages > 200Vac

Specifications							
Model		HWS3000G-24	HWS3000G-48	HWS3000G-60	HWS3000G-80	HWS3000G-130	HWS3000G-250
Output							
Switching Frequency	kHz	Primary: 120, secondary: 240					
Line Regulation	mV	24V: 96, 48V: 192, 60V: 80V, 320, 130V: 520, 250V: 1000					
Load Regulation	mV	24V: 192, 48V: 384, 60V: 480, 80V: 640, 130V: 1040, 250V: 2000					
Ripple & Noise	mV	24V: 300, 48V: 400, 60V: 500, 80V: 600, 130V: 866, 80V: 250V: 1250					
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) ⁽²⁾	A	24V: 65.6<, 48V: 32.8<, 60V: 26.2<, 80V:19.7 <, 130V: 12.1<, 250V: 6.3 <					
Overcurrent Protection (170 - 265Vac) ⁽²⁾	A	24V: 131.2<, 48V: 65.7<, 60V: 52.5<, 80V: 19.7 <, 130V: 24.3<, 250V: 12.6 <					
Overvoltage Protection	V	24V: 30.4 - 31.5, 48V: 56.1 - 58.1, 60V: 70.2 - 72.6, 80V: 101.6 - 104.8, 130V: 165.1 - 170.3, 250V: 317.5 - 327.5					
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, 80V: 75 130V: 46.4, 250V: 24					
Line Regulation (170 - 265Vac)	mA	24V: 500, 48V: 250.4, 60V: 200, 80V: 150, 130V: 92.8, 250V: 48					
Load Regulation (85 - 132Vac)	mA	24V: 500, 48V: 250.4, 60V: 200, 80V: 150, 130V: 92.8, 250V: 48					
Load Regulation (170 - 265Vac)	mA	24V: 1000, 48V: 500.8, 60V: 400, 80V: 300, 130V: 185.6, 250V: 96					
Programing and monitoring							
Communication Interface	-	Modbus RTU (RS-485): Controls output voltage and current, product status (including product life) 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 170Vac<Vin<265Vac: Output Current : 0% - Maximum, CB terminal voltage : 1 - 5V					
Output Voltage Ext. Control Using CV Terminal	-	Apply external voltage or current : 1 - 5V or 4 - 20mA, Output Voltage: 0% - Nominal output voltage					
Output Voltage Ext. Control Using Modbus RTU	-	0 - 4,000. Output Voltage: 0% - Nominal output voltage					
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 With the /HD option code the HWS3000 is designed to meet MIL-STD-810G 514.7 Category 4,10					
Shock	-	<196m/s², With the /HD option code the HWS3000 is designed to meet MIL-STD-810G 516.7 Procedure I, VI					
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*	Hours	25°C: 867,161, 40°C: 522,715					
Warranty	yrs	7 ⁽¹⁾					

Notes:

See website for detailed specifications, test methods and Instruction Manual

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

(1) The Americas and EMEA regions: 7 years. Other regions: 5 years. See applicable regional terms of sale.

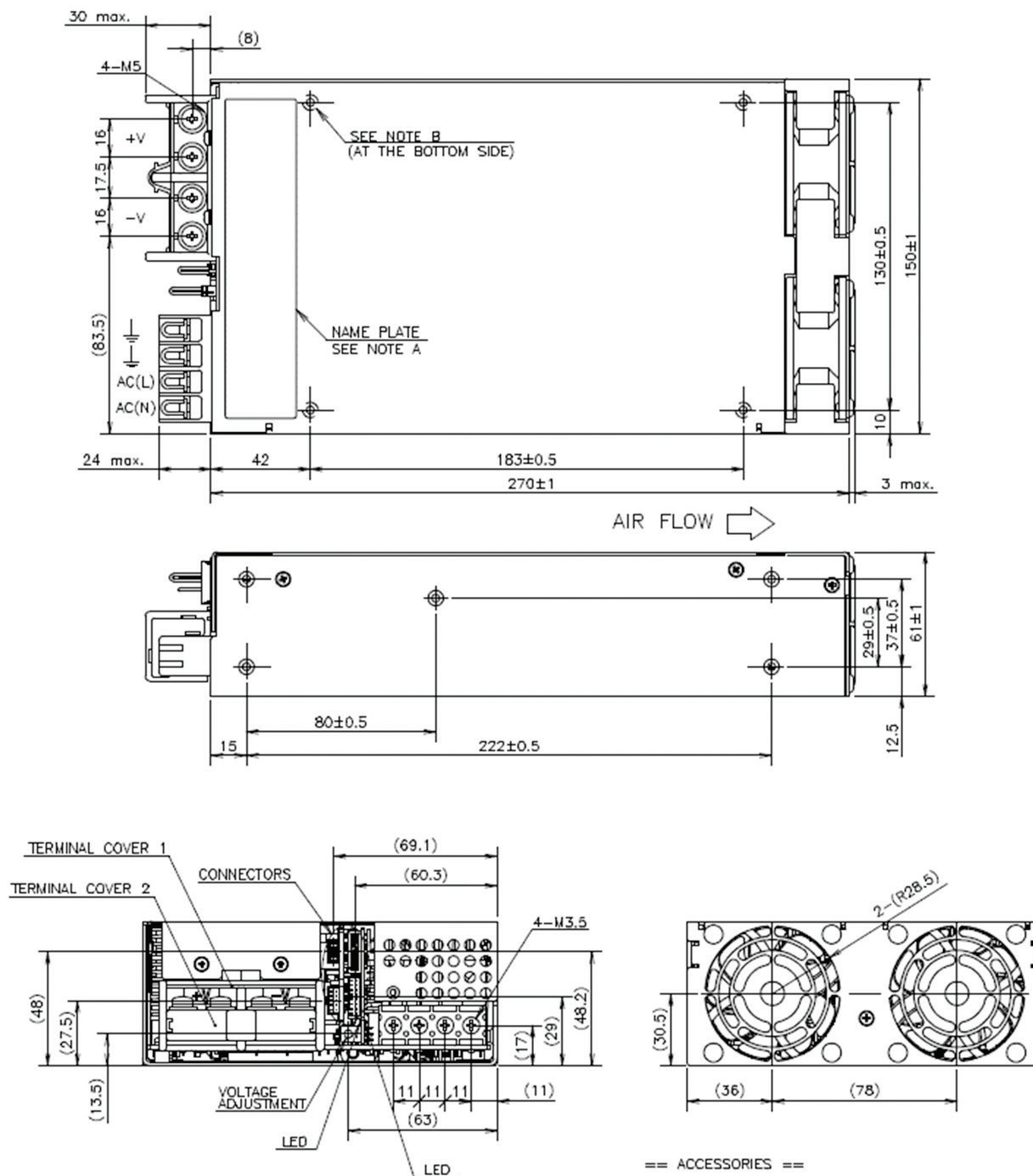
(2) Constant current with automatic recovery. If the overload lasts more than 30s, the output will shutdown

* 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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