



GENESYS[™] GH1.5 kW Series

Programmable DC Power Supplies
Half-Rack 1.5kW in 1U Height

! Advanced Features Built-In!

- Arbitrary Waveform Generator with Auto-Trigger Capability
 - Programmable Slew Rate Control (Vout/lout)
- Constant Power Limit Operation Internal Resistance Programming
 - Built-In LAN (LXI 1.5), USB, and RS-232/RS-485 Interfaces
 - Built-In Remote Isolated Analog Interface
 - Blank Front Panel Option Available



TDK·Lambda

Innovating Reliable Power www.emea.tdk-lambda.com

The GENESYS™ family of programmable power supplies sets a new standard for flexible, reliable, AC/DC power systems in OEM, Industrial and Laboratory applications.

Features include:

The GENESYS™ family of programmable power supplies sets a new standard for flexible, reliable, AC/DC power systems in OEM, Industrial and Laboratory applications Features include:

- Leading DC Programmable power density (1.5kW in 1U height) in 19" Half-Rack-mount
- Light-weight <3.5 kg
- Wide Range of popular worldwide AC inputs: GH1.5kW: 1ø (85~265VAC)
- Active three-phase PFC (0.99 typical)
- Output Voltage up to 600V, Current up to 150A
- Built-in LAN (LXI 1.5), USB, RS-232/RS-485 Interface
- Multi-Drop capability (RS-485)
- Multi-functional front panel display
- **Last-Setting Memory**
- Auto-Start / Safe-Start: user selectable
- High Resolution 16 bit ADCs & DACs
- Arbitrary Waveform Generator with Auto-Trigger Capability
- Store up to 100 steps into four internal memory cells
- High-speed Programming
- Constant Voltage/Constant Current operation modes
- Constant Power (CP) Limit
- Slew-Rate Control (V/I)
- Internal Resistance Programming Simulation
- Local / Remote Sensing software controlled
- Built-In Remote Isolated Analog Program/Monitor and Control Interface
- Protection functions (OVP, UVP, UVL, FOLD (CV/CC), OCL, OTP, AC FAIL)
- Fan speed profile controlled by ambient temperature and load
- Certified LabWindows™/CVI, LabVIEW™, and IVI Drivers
- **Optional IEEE Interface**
- 19" Rack Mount capability for ATE and OEM application
- Scalable Power Systems
- Parallel Systems with Auto-Configure
- Worldwide Safety Agency approvals
- CE Mark for Low Voltage, EMC and RoHS2 Directives









Five year warranty

Applications

GENESYS™ power supplies have been designed to meet the demands of a wide variety of applications.

Test & Measurement systems, Component Device Testing, Manufacturing and process control.

Semiconductor Processing & Burn-In, Aerospace & Satellite Testing, Medical Imaging, Green Technology.

Higher power systems can be configured with up to four 1.5kW units. Each unit is 1U with zero space between them (zero stack).

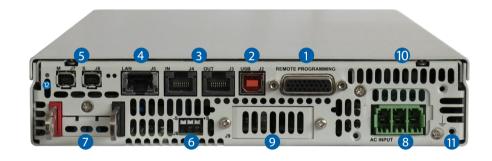
OEM Designers have a wide variety of Inputs and Outputs from which to select depending on application and location.

GH1.5kW Front Panel Description



- 1. Input Power ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable Detent Encoders for settings and Menu navigation.
- 4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
- 5. Function/Status LEDs: Active modes and function indicators
- 6. Pushbuttons allow flexible user configuration

GH1.5kW Rear Panel Description



- 1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
- 2. USB Interface connector (Type B).
- 3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
- 4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
- 5. Auto paralleling Bus connectors (mini I/O type) for connecting Master unit-to-Slave and slave unit-to-slave unit.
- 6. Remote/Local Output Voltage Sense Connections (spring cage).
- 7. Output Connections: Rugged busbars (shown) for models up to and including 100V Output; Plug connector: PHOENIX CONTACT GIC 2.5/4-G-7,62 for models with Outputs >100V.
- 8. GH1.5kW Input: 85~265VAC, Single Phase, 50/60 Hz. AC Input Plug Connector: PHOENIX CONTACT Power Combicon PC 3/4-G-7,62 Series with strain relief.
- 9. Optional Interface Position for IEEE 488.2 SCPI or AnyBus Interface.
- 10. Exhaust air assures reliable operation when units are zero stacked.
- 11. Functional Ground connection (M3x8mm screw).
- 12. Reset button. Set default Power Supply settings.

GENESYS™ GHB 1.5kW Series Blank Front Panel (ATE version)



A Blank Front Panel is available for applications where the front panel display and controls are not required and only remote interface (Digital/Analog) is needed.

The Blank Front Panel option has all the standard product functions and features except the display. The power supply can be controlled via the rear panel Remote digital interface (LAN, USB, RS-232/RS-485) or via the remote Isolated Analog interface.

GENESYS™ Parallel and Series Configurations

Parallel operation - Master/Slave:

Auto paralleling Scalable Master-Slave Operation.
Active current sharing allows up to four identical units to be connected

Total real current is programmed measured and reported by the Master. Up to four supplies operate as one. Standard Unit - zero stacked up to 4 units



Series operation

Two units may be connected in series to increase the output voltage or to provide bipolar output. (Max 600V to Chassis Ground).

Multi-Drop Remote Programming via Communication Interface

Standard Built-in LAN, USB, RS-232 & RS-485 allows "Multi-Drop" daisy-chain control of up to 31 Power supplies on the same communication bus. Can be Daisy chained via built-in RS-485 Interface.

- First unit is LAN, USB, RS-232, RS-485, etc.
- All other units use RS-485 daisy chain with linking cable.



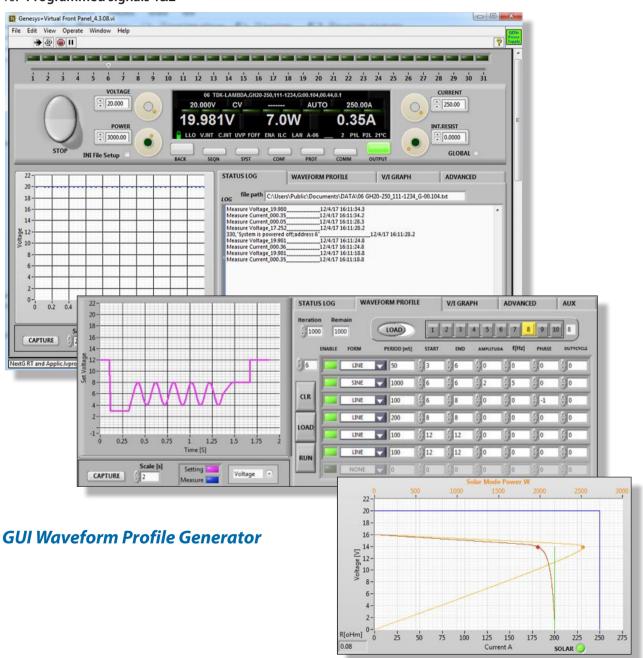




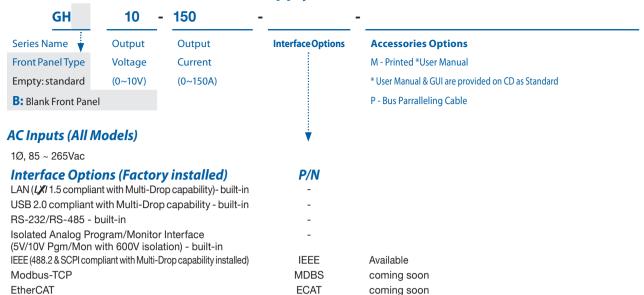
Graphical User Interface

Advanced "Virtual Front Panel" allows programming and monitoring unit(s) with or without front panel display.

- 1. Control and monitor up-to 31 units with "Address" bar
- 2. Front panel set-up menu control (PROGram, SYSTem, CONFiguration, PROTection and COMMnication)
- 3. Informative "Parameters" status bar
- 4. Individual unit and Global command control
- 5. Data logging including errors, events and recovery
- 6. Realtime Graph and Waveform creator, store/load sequence.
- 7. Solar array mode calculate MPP (Max Peak Power) for solar array.
- 8. Registers View: Operation Status, Fault, Event Status, ENABLE and INTERLOCK signals.
- 9. Remote communication state LOC, REM, LLO.
- 10. Programmed signals 1&2



How to order GH1.5kW - Power Supply Identification / Accessories



Models 1.5kW

Model	Output Voltage VDC	Output Current (A)	Output Power (W)	Model
GH10-150	0~10V	0~150	1500	GH80-19
GH20-75	0~20V	0~75	1500	GH100-1
GH30-50	0~30V	0~50	1500	GH150-1
GH40-38	0~40V	0~38	1520	GH300-5
GH60-25	0~60V	0~25	1500	GH600-2

Model	Output Voltage VDC	Output Current (A)	Output Power (W)		
GH80-19	0~80V	0~19	1520		
GH100-15	0~100V	0~15	1500		
GH150-10	0~150V	0~10	1500		
GH300-5	0~300V	0~5	1500		
GH600-2.6	0~600V	0~2.6	1560		

Accessories

Rack Mounting applications P/N:GH/RM

The Rack Mounted kit allows the units to be zero stacking for maximum system flexibility and power density without increasing the 1U height of the units To install one GH1500W unit or two units side-by-side in a standard 19" rack in 1U(1.75") height, use option kit P/N:GH/RM

Single unit installation

Single GH1500W power supply in a standard 19" rack in 1U(1.75") height,





Dual unit installation

Two GH1500W power supplies side-by-side in a standard 19" rack in 1U (1.75") height,





Benchtop applications P/N:GH/MO

The benchtop stacking kit allows the units to be Zero stacked for maximum system flexibility and power density without increasing the 1U height of the units. To install a GH1500W two units one on top of the other use option kit P/N:GH/MO-2U



GENESYS™ GH1.5kW SERIES SPECIFICATIONS

OUTPUT RATING	GH	10-150	20-75	30-50	40-38	60-25	80-19	100-15	150-10	300-5	600-2.6	
1.Rated output voltage(*1)	٧	10	20	30	40	60	80	100	150	300	600	
2.Rated output current (*2)	Α	150	75	50	38	25	19	15	10	5	2.6	
3.Rated output power	W	1500	1500	1500	1520	1500	1520	1500	1500	1500	1560	
INPUT CHARACTERISTICS	V	10	20	30	40	60	80	100	150	300	600	
1.Input voltage/freq. (*3)		85~265Vac, continuous, 47~63Hz, Single Phase										
2. Maximum Input current at 100% load (100/200)	Α	18.5/9										
3.Power Factor (Typ)			0.98 @ 200Vac,			07/00	07/00	00/00	00/00	00/00	00/00	
4.Efficiency at 100 Vac/200Vac, rated output (*19) 5.Inrush current (*5)	% A	86/88 Less than 50A	87/89	87/89	87/89	87/89	87/89	88/90	88/90	88/90	88/90	
			T						1			
CONSTANT VOLTAGE MODE	V	10	20	30	40	60	80	100	150	300	600	
1.Max. Line regulation (*6)		0.01% of rated										
2.Max. Load regulation (*7)			output voltage +									
3.Ripple and noise (p-p, 20MHz) (*8)	mV	50	50	50	60	60	75	130	75	180	500	
4.Ripple r.m.s. 5Hz~1MHz (*8) 5.Temperature coefficient	mV PPM/°C	6 500004/8C for sec	rated output vo	6	7	7	8	30	20	45	100	
6.Temperature stability				-		rm-up. Constant	line lead 0 tem					
7. Warm-up drift						following power		ρ.				
8.Remote sense compensation/wire (*10)	V	2	2	5	5	5	5	5	5	5	5	
9.Up-prog. Response time (*11)	mS	20	20	20	20	20	20	20	30	30	40	
Full load (*12)	mS	20	20	20	30	30	50	50	60	70	80	
10.Down-prog.response time: No load (*12)	mS	300	500	600	900	1200	1300	1700	2200	2700	3000	
											1	
11.Transient response time	mS	Less than 1mS,	for models up to	and including 1	100V. 2mS, for m	out for a load cha odels above 100	V	ca oatput tu		- points 10 100	, 2000. 301130.	
12.Hold-up time	mS					20ms typical, rat						
CONSTANT CURRENT MODE	V	10	20	30	40	60	80	100	150	300	600	
1.Max. Line regulation (*6)			output current.		10		- 00	100	130	300	500	
2.Max. Load regulation (*9)			output current									
3.Ripple r.m.s. @ rated voltage. B.W 5Hz~1MHz. (*13)	mA	≤400	≤160	≤100	≤60	≤50	≤30	≤30	≤10	≤8	≤5	
						30 minutes warm			210			
5.Temperature coefficient	PPM/°C) minutes warm-	•					
6.Temperature stability						m-up. Constant	•	perature.				
						er 30 minutes fo						
7. Warm-up drift						minutes following					-	
							51.				-	
ANALOG PROGRAMMING AND MONITORING (ISOLATED	FROM		0.101/		10. 5	. / 0.150/ . 6	11/					
1.Vout voltage programming						: +/-0.15% of rate						
2.lout voltage programming (*14)			~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-0.4% of rated lout.									
3.Vout resistor programming			~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated Vout.									
4.lout resistor programming (*14)			~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated lout. ~5V or 0~10V, user selectable. Accuracy: +/-0.5%.									
5.Output voltage monitor												
6.Output current monitor (*14)		10~5V OF U~10V,	user selectable.	Accuracy: +/-0.:	5%.							
SIGNALS AND CONTROLS (ISOLATED FROM THE OUTPU	T)											
1. Power supply OK #1 signal				•		Output Off: Off. N				10mA.		
2. CV/CC signal						ximum Voltage:						
3. LOCAL/REMOTE Analog control					,	al or dry contact.						
4. LOCAL/REMOTE Analog signal		0.0				note: On. Local: (nt: 10mA.		
5. ENABLE/DISABLE signal						0.6V or short, 2~			gic.			
6. INTERLOCK (ILC) control						mote: 0~0.6V or						
7. Programmed signals						Maximum sink c				.,		
8. TRIGGER IN / TRIGGER OUT signals		tw=10us mini	v ievel input vo mum. TrTf=1::	ıtage = 0.8V,M Maximum Mi	ıınımum high l in delav hetwe	evel input volta en 2 pulses 1m	age = 2.5V, Ma .s.	xımum high le	vel input = 5V	positive edge	trigger:	
9. DAISY_IN/SO control signal			Itage: 0~0.6V/2~			paises illi						
10. DAISY_OUT/PS_OK #2 signal		-	0000hm impeda									
			- Impedu	,								
FUNCTIONS AND FEATURES		Described 11 :	Address to the	in March, (C)			1					
1. Parallel operation		-				instruction manu	lai.					
2. Series operation			dentical units. Re			thairt	d turn off					
3. Daisy chain						their turn-on an		au tha fua - t -				
4. Constant power control						ng via the commu						
5. Output resistance control						ramming via the				ho communic-+	ion ports or th-	
6. Slew rate control		front panel.	output rise and	output fall siew	v rate. Programr	ning range: 0.000	ש.56 עינבי~וי	L. UI A/IIISEC. Pro	ogramming við t	ne communicat	ion ports or the	
7. Arbitrary waveforms			100 steps can b	e stored in 4 me	emory cells. Acti	vation by comm	and via the com	munication port	ts or by the front	panel.		
		10	20	30	40	60	80	100	150	300	600	
PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*18) Interfaces)	V	10	20	30								
RS232/485, Optional IEEE (*18) Interfaces)	V		output voltage	30								
		0.05% of rated			tput current				I			
RS232/485, Optional IEEE (*18) Interfaces) 1.Vout programming accuracy (*15)		0.05% of rated of 0.1% of actual c	output voltage	.2% of rated out	tput current							
RS232/485, Optional IEEE (*18) Interfaces) 1.Vout programming accuracy (*15) 2.lout programming accuracy (*14)		0.05% of rated 0.1% of actual o 0.002% of rated	l output voltage output current+0	.2% of rated out	tput current							
RS232/485, Optional IEEE (*18) Interfaces) 1.Vout programming accuracy (*15) 2.lout programming accuracy (*14) 3.Vout programming resolution		0.05% of rated of 0.1% of actual of 0.002% of rated 0.0025% of rate	l output voltage output current+0 l output voltage	.2% of rated out	tput current							
RS232/485, Optional IEEE (*18) Interfaces) 1.Vout programming accuracy (*15) 2.lout programming accuracy (*14) 3.Vout programming resolution 4.lout programming resolution		0.05% of rated of 0.1% of actual of 0.002% of rated 0.0025% of rate	output voltage output current+0 d output voltage ed output curren output voltage	.2% of rated out	tput current							
RS232/485, Optional IEEE (*18) Interfaces) 1.Vout programming accuracy (*15) 2.lout programming accuracy (*14) 3.Vout programming resolution 4.lout programming resolution 5.Vout readback accuracy		0.05% of rated 0.1% of actual c 0.002% of rated 0.0025% of rated 0.005% of rated 0.05% of rated	output voltage output current+0 d output voltage ed output curren output voltage	.2% of rated out	tput current	0.002%	0.002%	0.011%	0.007%	0.004%	0.002%	

GENESYS™ GH1.5kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS		٧	10	20	30	40	60	80	100	150	300	600		
THO TECHNE FUNCTIONS		٧										000		
1.Foldback protection			Output shut-down when power supply changes mode from CV or Power Limit to CC mode or from CC or Power Limit to CV mode. User presetable. Reset by AC input recycle in autostart mode, by Power Switch, by OUTPUT button, by rear panel or by communication. Output shut-down. Reset by AC input recycle in autostart mode, by OUTPUT button, by rear panel or by communication.											
2.Over-voltage protection (OVP)														
3.Over -voltage programming rar		V	0.5~12	1~24	2~36	2~44.1	5~66.15	5~88.2	5~110.25	5~165.37	5~330.75	5~661.5		
4. Over-voltage programming acc				+/-1% of rated output voltage										
5.Output under voltage limit (UVI	L)		Prevents from adjusting Vout below limit. Does not apply in analog programming. Preset by front panel or communication port.											
6.Over temperature protection				Shuts down the output. Auto recovery by autostart mode.										
7. Output under voltage limit (UV	L)		Prevents adju	Prevents adjustment of Vout below limit.										
8. Output under voltage protection (UVP)			Prevents adjustment of Vout below limit. P.S output turns Off during under voltage condition. Reset by AC input recycle in autostart mode, by Power Switch, by OUTPUT button, by rear panel or by communication.											
FRONT PANEL														
1.Control functions			Multiple options with 2 Encoders											
			Vout/lout/Power Limit manual adjust											
			OVP/UVL/UVP manual adjust											
			Protection Functions - OVP, UVL, UVP, Foldback, OCL, ENA, ILC											
				Communication Functions - Selection of LAN, IEEE, RS232, RS485, USB or Optional communication interface.										
				Output ON/OFF. Front Panel Lock.										
				iommunication Functions - Selection of Baud Rate, Address, IP and communication language.										
				nalog Control Functions - Selection Voltage/resistive programming, 5V/10V, 5K/10K programming										
			Analog Monitor Functions - Selection Voltage/Current Monitoring 5V/10V.											
2.Display				Analog Monitor Functions - Selection of Voltage/Current Monitoring SV/10V. Vout: 4 digits, accuracy: 0.05% of rated output voltage +/-1 count.										
2.0.15p.ta)				out: 4 digits, accuracy: 0.2% of rated output current +/-1 count.										
3.Front Panel Buttons Indications	;			OUTPUT ON, ALARM, PREVIEW, FINE, COMMUNICATION, PROTECTION, CONFIGURATION, SYSTEM, SEQUENCER.										
				/oltage, Current, Power, CV, CC, CP, External Voltage, External Current, Address, LFP, Autostart, Safetstart, Foldback V/I, Remote (communication),										
4. Front Panel Display Indications	•		RS/USB/LAN/I	EEE communic	ation, Trigger, l	Load/Store Cell	l.	uress, Err, Auto	Start, Jaietsta	rt, roluback v/	i, Remote (comm	unication,		
ENVIRONMENTAL CONDITIONS														
1.Operating temperature			0~50°C, 100% load.											
2.Storage temperature			-30~85°C											
3.Operating humidity		%	20~90% RH (no condensation).											
4.Storage humidity		%	10~95% RH (no condensation).											
5.Altitude (*16)			Operating: 10000ft (3000m), output current derating 2%/100m or Ta derating 1°C/100m above 2000m. Non operating: 40000ft (12000m).											
			Operating, 10		output current	derating 270/ i	ooiii oi ia deiati	ilg i C/ looili a	DOVE 2000111. I	voir operating.	4000011 (1200011	<i>J</i> .		
MECHANICAL 1.Cooling			Forced air coo	ling by interna	Ifans Airflow	direction: from	Front nanel to	nower supply r	03r					
2.Weight		kg	Forced air cooling by internal fans. Air flow direction: from Front panel to power supply rear Less than 3.5kg.											
3.Dimensions (WxHxD)		mm	W: 214, H: 43.6, D: 493 (Including busbars and busbars cover) (Refer to Outline drawing).											
			MIL-810G, method 514.6, Procedure I, test condition Annex C - 2.1.3.1											
4.Vibration			MIL-810G, method 514.6, Procedure I, test condition Annex C - 2.1.3.1 Less than 20G, half sine, 11mSec. Unit is unpacked.											
5.Shock			Less than 20G	, half sine, 11m	Sec. Unit is unp	acked.								
SAFETY/EMC	la c		lui saana c =											
1.Applicable standards:	Safety		UL60950-1, CS	A22.2 No.6095	0-1, IEC60950-1	I, EN60950-1.								
1.1. Interface classification							nd ,J9 (communi s, J1,J2,J3,J4,J5,J			options) are SE	LV			
			Vout <40V Mo	dels: Innut - O	utnut (SFLV): 42	42VDC 1min I	nput - Ground: 2	835VDC 1min						
				Vout ≤40V Models: Input - Output (SELV): 4242VDC 1min, Input - Ground: 2835VDC 1min. 60V≤Vout≤100V Models: Input - Output: 4242VDC 1min, Input - SELV: 4242VDC 1min, Output - SELV: 850VDC 1min,										
1.2 Withstand voltage					min, Input - Gro			· DC mini, Out	put - JLLV, 030	TOC HIIII,				
1.2 Maistana voitage								VDC 1min, Out	put - SELV: 150	0VDC 1min,				
1.3 Insulation resistance			100 <vout≤600v -="" 100mohm="" 1500vdc="" 1min,="" 1min.="" 2500vdc="" 25°c,="" 2835vdc="" 4242vdc="" 70%rh.<="" at="" ground:="" input="" models:="" output="" output:="" selv:="" td=""></vout≤600v>											
			_				FCC D+ 15 A 1	ICCL A						
2.Conducted emmision							, FCC Part 15-A, \							
3. Radiated emission							and H4, FCC Par	rt 15-A, VCCI-A						
4. EMC compliance	EMC(*17)		According to I	EC/EN61204-3	Industrial envir	onment								

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0° to 50°C

- Unless otherwise noted, specifications are warranted over the ambient temperature range of 0° to 50°C NOTES:

 *1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

 *2: Minimum current is guaranteed to maximum 0.2% of rated output current.

 *3: For cases where conformance to various safety standards (UL, IEC, etc.,...) is required, to be described as 100-240Vac (50/60Hz).

 *4: Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.

 *5: Not including EMI filter inrush current, less than 0.2mSec.

 *6: 8S-r132Vac or 170-265Vac. Constant load.

 *7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.

 *8: For 10V-300V models: Measured with JEITA RC-913TC (1:1) probe. For 400-600V model: Measured with 100:1 probe.

 *9: For load voltage change, equal to the unit voltage rating, constant input voltage.

 *10: The maximum voltage on the power supply terminals must not exceed the rated voltage.

 *11: From 10V to 90% of Rated Output Voltage, with rated, resistive load.

 *12: From 90% to 10% of Rated Output Voltage, with rated, resistive load.

 *13: For 10V model, the ripple is measured at 20-100% of rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current. BW 51½-1MHz.

 *14: The Gonstant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

 *15: Measured at the sensing point.

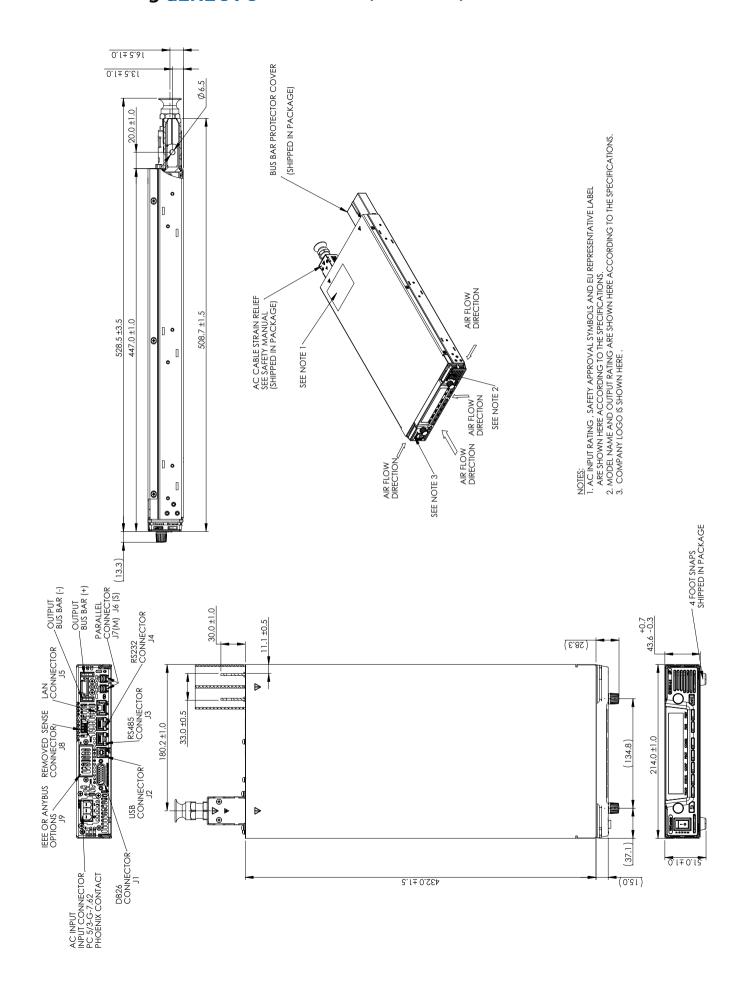
 *16: For 10V model Ta derating 2°C/100m.

 *17: Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.

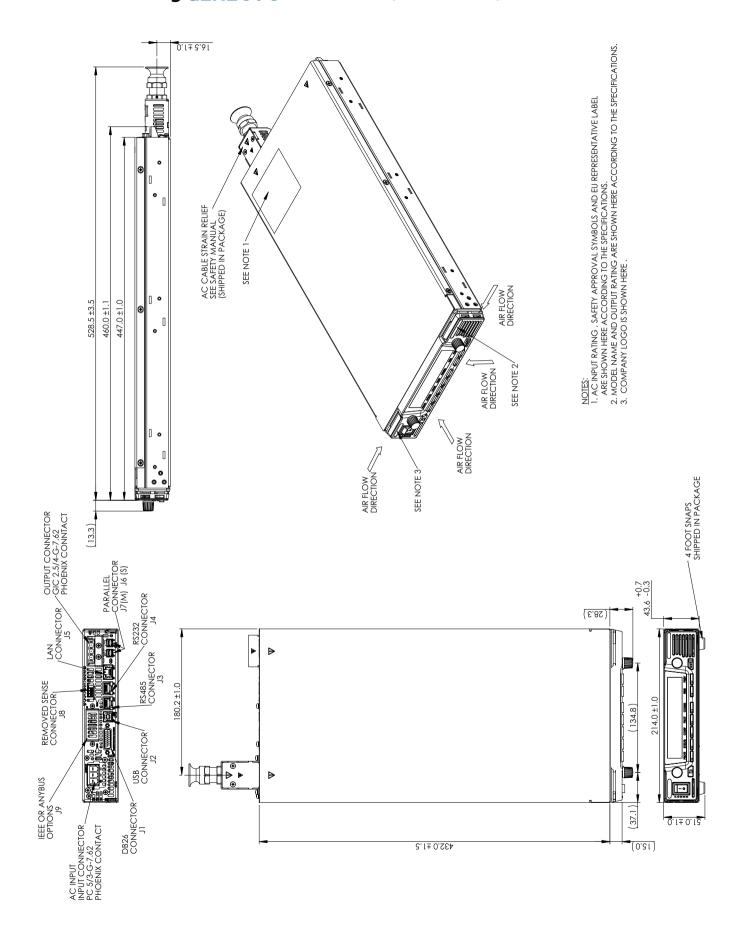
 *18 Max. ambient temperature for using IEEE is 40°C.

 *19: Ta=25°C, rated output power.

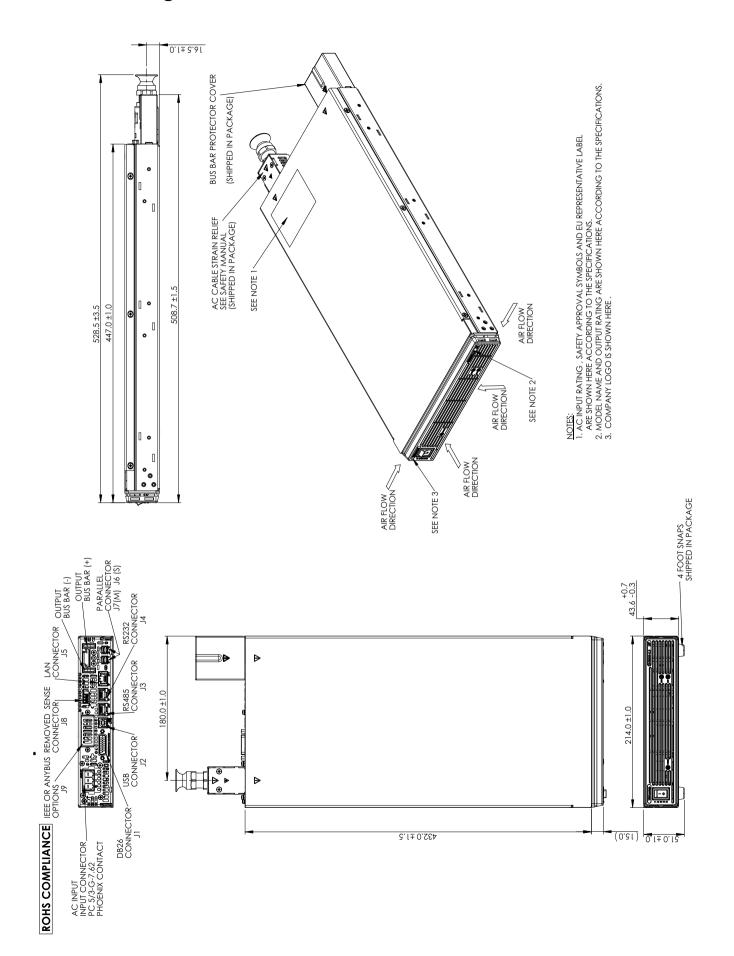
Outline Drawing GENESYS™ GH1.5kW (10V-100V)



Outline Drawing GENESYS™ GH1.5kW (150V-600V)



Outline Drawing GENESYS™ GHB1.5kW



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