



GENH Series Programmable DC Power Supplies 750W in 1U Half-Rack Size Built in RS-232 & RS-485 Interface Advanced Parallel Operation

> Optional Interface: LXI Compliant LAN IEEE488.2 SCPI (GPIB) Multi-drop Isolated Analog Programming



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TDK·Lambda

Genesys[™] GENH750W-1U

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:

- High Power Density available: 750W in 1U half-rack size.
- Wide Range Input (85 265Vac Continuous)
- Active Power Factor Correction (0.99 typical)
- Output Voltage up to 600V, Current up to 100A
- Built-in RS-232/RS-485 Interface
- Front Panel Lockout
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Advanced Parallel reports total current up to four identical units

- Global Commands for Serial RS-232/RS-485 Interface
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring
- Reliable Modular and SMT Design
- 19" Rack Mounted ATE benchtop and OEM applications
- Side-by-side mounting of two units in a 19" rack
- Optional Interfaces
 Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA)

 IEEE 488.2 SCPI (GPIB) Multi-Drop

 Compliant LAN
- LabView[®] and LabWindows[®] drivers
- Five Year Warranty

Worldwide Safety Agency Approvals; CE Mark for LVD and EMC Regulation

Front Panel Description



- 1. AC ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable encoder controls Output Voltage and sets Address.
- 4. Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
- 5. Reliable encoder controls Output Current, sets baudrate and Advanced Parallel mode.
- 6. Current Display shows Output Current and displays baudrate.
- 7. Function/Status LEDs:
- Alarm
- Fine Control

- Preview Settings Foldback Mode
- Remote Mode
- Output On

- 8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave
 - Preview settings and set Voltage/Current with Output OFF, Front Panel Lockout
 - Set OVP and UVL Limits
 - Set Current Foldback
 - Local/Remote Mode and select Address and Baudrate
 - Output ON/OFF and Auto-Start/Safe-Start Mode



Applications

Genesys[™] power supplies are designed for demanding applications.

Common controls are shared across all platforms

Test and Measurement

Last-Setting memory simplifies test design and requires no battery backup.

Built-in RS-232/RS-485 gives maximum system flexibility along with 0-5V and 0-10V, selectable analog programming.

Wide range of available inputs allows testing of many different devices.

Semiconductor Processing and Burn-in

Safe-Start may be ENABLED to re-start at Output OFF to protect load.

Wide range input (85-265Vac) with Active Power Factor correction rides through input transients easily.

Component Test

High power density, zero stacking and single wire parallel operation give maximum system flexibility.

Laser Diode

OVP is directly set on Voltage Display, assuring accurate protection settings.

Current Limit Fold Back assures load is protected from current surges.

Heater Supplies

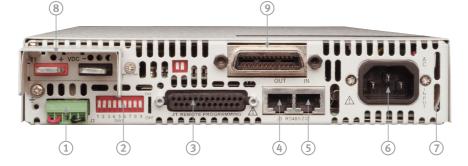
Smooth, reliable encoders enhance front panel control. Remote analog programming is user selectable 0-5V or 0-10V.

RF Amplifiers and Magnets

Robust design assures stable operation under a wide variety of loads.

High linearity in voltage and current mode.

Rear Panel Description



- 1. Remote/Local Output Voltage Sense Connections.
- 2. DIP Switches select 0-5V or 0-10V Programming and other functions.
- 3. DB25 (Female) connector allows (Non-isolated) Analog Program and Monitor and other functions.
- 4. RS-485 OUT to other Genesys[™] Power Supplies.
- 5. RS-232/RS-485 IN Remote Serial Programming.
- 6. Wide-Range Input 85-265VAC continuous, 47/63Hz with Active Power Factor Correction (0.99 typical) AC Input Connector: IEC320.
- 7. Exit air assures reliable operation when zero stacked.
- 8. Output Connections: Rugged busbars for 6V up to 60V Output; Connector for Outputs >60V.
- 9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.

Genesys™ GENH750W Specifications

Genesys III GENH750W	Spe	CITICO	ation	IS									
1.0 MODEL	GENH	6-100	8-90	12.5-60	20-38	30-25	40-19	60-12.5	80-9.5	Specifica 100-7.5	ations in E 150-5		600-1.3
1. Rated output voltage (*1)	V	6	8	12.5	20 30	30	40	60	80	100 7.5	150	300	600
2. Rated Output Current (*2)	A	100	90	60	38	25	19	12.5	9.5	7.5	5	2.5	1.3
3. Rated Output Power	W	600	720	750	760	750	760	750	760	750	750	750	780
4. Efficiency at 100/200Vac (*3)	%	76/78	77/80	81/84	82/85	82/85	83/87	83/87	83/87	83/87	83/87	83/87	83/87
1.1 CONSTANT VOLTAGE MODE		2.6	2.0	2.2		5		0	10	10	17	22	(2)
1. Max.line regulation (0.01% of Vo+ 2mV)(*4) 2. Max load regulation (0.01% of Vo+2mV)(*5)	mV mV	2.6	2.8 2.8	3.3 3.3	4	5	6 6	8	10	12	17 17	32 32	62 62
3. Ripple and noise p-p 20MHz (*9)	mV	60	50	60	60	50	60	60	75	75	75	130	300
4. Ripple r.m.s 5Hz~1MHz (*9)	mV	8	6	7	7.5	6	7	7	7	8	8	20	60
5. Remote sense compensation/line	V	1	1	1	1	1.5	2	3	4	5	5	5	5
6. Temp. coefficient 7.Temp. stability	PPM/°C %	50PPM/°C	of rated	output vo	tage, follo	owing 30 i	minutes w	arm up	un Const	ant line, lo	ad 0 tom		
8. Up-prog. response time, 0~Vo Rated	mS		L/F.L, resis		irs interva	TOTOWIN	<u>g so minu</u>	les warm-		I.L/F.L, resi			250
9. Down-prog response time full-load	mS	10		50			80		1501115,11		50		250
10. Down-prog response time No-load	mS	500	600	700	800	900	1000	1100	1200	1500	2000	2500	4000
11. Transient response time (*8)	mS			r models u							10.		
12. Temp. drift	%	0.01% of I	rated Voul	over 8hrs	interval f	ollowing .	30 minutes	s warm up	. Constan	<u>t line, loac</u>	<u>a & temp.</u>		
1.2 CONSTANT CURRENT MODE		10						2.05	0.05	0.75		0.05	
1. Max.line regulation (0.01% of lo+ 2mA)(*4) 2. Max.load regulation (0.02% of lo+5mA)(*6)	mA	12 25	11 23	8.0 17	5.8	4.5	3.9	3.25 7.5	2.95 6.9	2.75	2.5 6.0	2.25 5.5	2.13
3. Ripple r.m.s 5Hz~1MHz . (*7)	mA mA	190	160	110	12.6 50	45	8.8	15	10	10	8	5.5	5.26 4
4. Temp. coefficient		70PPM/°C									. <u> </u>	. <u> </u>	
5. Temp. stability	%	0.01% of I	rated lout	<u>over 8hrs</u>	interval fo	llowing 3	0 minutes	warm up.	Constant	line, load			
6. Warm up drift	%	Less than	0.1% rate	d output c	urrent ove	er 30 min f	ollowing	power on o	or output	voltage / o	current cha	ange	
1.3 PROTECTIVE FUNCTIONS			-										
1. OCP			Constant C				CVI.	<u>cc</u> 11	de state				
2. OCP Foldback 3. OVP type				when pow						communic	ation por	+	
4. OVP trip point		0.5~7.5V	0.5~10V	1~15V	1~24V	2~36V	2~44V	5~66V	5~88V	5~110V	5~165V	5~330V	5~660V
5. Over Temp Protection				ched or no						1 0 1101	0 1001	0 0001	5 0001
1.4 ANALOG PROGRAMMING AND MONITORING	G												
1. Vout Voltage Programming	-	0~100%,	0~5V or 0-	~10V, user	select. Ac	curacy an	d linearity	/: +/-0.5%	of rated V	out.			
2. lout Voltage Programming		0~100%,	0~5V or 0	~10V, user	select. Ac	curacy an	d linearity	r: +/-1% of	rated lou	t.			
3. Vout Resistor Programming				hm full sca									
4. lout Resistor Programming 5. On/Off control (rear panel)				hm full sca ge: 0~0.6V						rated lout.			
6. Output Current monitor				uracy: 1%,			ici, user se		ogic				
7. Output Voltage monitor		0~5V or 0	~10V, acc	uracy: 1%,	user seled	table							
8. Power Supply OK signal				K, OV-Fail 5				201/			10.4		
9. CV/CC indicator 10. Enable/Disable				off, Short:						n sink curre	ent: IUMA		
11. Local/Remote analog control		By electri	cal signal	or Open/S	hort 0~0	6V or sho	rt. Remote	2~15V o	ropen·lc	cal			
12. Local/Remote analog control indicator										nk current	t: 5mA.		
1.5 FRONT PANEL													
		Vout/lout	t manual a	djust by s	eparate ei	ncoders (c	oarse and	fine adjus	stment se	lectable)			
				djust by Vo					1.001.0				
1. Control functions										CC), Go to	iocal conti	rol	
		RS232/48	5 and IFFF	<u>y Voltage</u> 488.2 sele	ction by I	<u>FFF enabl</u>	e switch a	nd DIP sw	<u>auuresse</u> itch	5. 21			
		Baudrate	selection	1200, 240	0,4800,9	600 and 1	9,200		item				
2. Display		Voltage	4 digits, a	accuracy: ().05%+/-1	count							
				accuracy: (tout 0 - 5	ront D	llock			
3. Indications			current, A	larm, Fine,	rieview,	гојараск,	Local, Ou	ιραι On, F	ront Pane	LOCK			
1.6 Interface RS-232&RS-485 or Optional GPIB /			0	12.5	20	20	40	60	00	100	150	200	600
Model _1. Remote Voltage Programming (16 bit)	V	6	8	12.5	20	30	40	60	80	100	150	300	600
Resolution (0.02% of Vo Rated)	mV	0.12	0.16	0.25	0.4	0.6	0.8	1.2	1.6	2.0	3.0	6.0	12.0
Accuracy (0.05% Vo Rated Output voltage) (*11)	mV	3.0	4.0	6.3	10	15	20	30	40	50	75	150	300
2. Remote Current Programming (16 bit)													_
Resolution (0.002% of Io Rated)	mA	2.00	1.80	1.20	0.76	0.50	0.38	0.25	0.19	0.15	0.10	0.05	0.03
Accuracy (0.1% of lo Rated+0.1% of lo Actual Output)(*10)	mA	200	180	120	76	50	38	25	19	15	10	5.0	2.6
3. Readback Voltage													
Resolution of Vo Rated	mV	0.12	0.16	1.125	1.20	1.20	1.2	1.2	1.60	11.0	10.50	12	12
Accuracy 0.05% Vo Rated	mV	3	4	6.3	10	15	20	30	40	50	75	150	300
4. Readback Current													
Resolution of Io Rated	mA	11	1.80	1.20	1.14	1.25	1.14	1.13	0.19	0.15	0.15	0.13	0.12
Accuracy 0.3% of Io Rated(*10)	mA	300	270	180	114	75	57	37.50	28.50	22.50	15	7.50	3.90
5. OVP/UVL Programming			-				1			1			
Resolution (0.1% of Vo Rated)	mV	6	8	12	20	30	40	60	80	100	150	300	600
Accuracy (1% of Vo Rated)	mV	60	80	125	200	300	400	600	800	1000	1500	3000	6000
** ** * * * * * * * * * * * *	() (D (0 T' (1. 0.50/	C		10.0	aac 6

*1: Minimum voltage is guaranteed to maximum 0.2% of Vo Rated.

1: Winimum Voitage is guaranteed to maximum 0.2% of Vo Rated.
2: Minimum current is guaranteed to maximum 0.4% of lo Rated.
3: At maximum output power.
4: 85~132Vac or 170~265Vac, constant load.
5: From No-load to Full-load, constant input voltage.
6: For load voltage change, equal to the unit voltage rating, constant input voltage.
7: To cold work and the is in maximum data.

7: For 6V models the ripple is measured at 2~6V output voltage and full output current. For other models, the ripple is measured at 10~100% output voltage and full output current.

*8: Time for the output voltage to recover within 0.5% of its rated for a load change 10~90% of rated *9: For 6V-300V models: measured with JEITA RC-9131A 1:1 probe. For 600V model: measured with 10:1 probe Accuracy -Values have been calculated at Vo Rated & Io Rated.

*10: The Constant Current programming readback and monitoring accuracy does not include the warm-up and Load regulation thermal drift.

*11: Measured at the sense point.

General Specifications Genesys™ GENH750W

2.1 INPUT CHARACTERISTICS	
1. Input voltage/freg. (*1)	85~265Vac continuous, 47~63Hz, single phase
2. Power Factor	0.99 @100/200Vac, rated output power.
3. EN61000-3-2,3 compliance	Complies with EN61000-3-2 class A and EN61000-3-3 at 20~100% output power.
4. Input current 100/200Vac	750W :10.5A / 5A.
5. Inrush current 100/200Vac	750W :Less than 25A.
6. Hold-up time	More than 20mS, 100Vac, at 100% load.
0. Hold-up time	
2.2 POWER SUPPLY CONFIGURATION	
1. Parallel Operation	Up to 4 units in master/slave mode with single wire current balance connection
2. Series Operation	Up to 2 units. with external diodes. 600V Max to Chassis ground
2.3 ENVIRONMENTAL CONDITIONS	
1. Operating temp	0~50°C.100% load.
2. Storage temp	
3. Operating humidity	30~90% RH (non-condensing).
4. Storage humidity	10~95% RH (non-condensing).
5. Vibration	MIL-810E, method 514.4, test cond. I-3.3.1. The EUT is fixed to the vibrating surface.
6. Shock	Less than 20G, half sine, 11mSec. Unit is unpacked.
7. Altitude	Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 40000ft (12000m).
2.4 EMC	
1. Applicable Standards:	
2. ESD	IEC1000-4-2. Air-disch8KV. contact disch4KV
3. Fast transients	IEC1000-4-4.2KV
4. Surge immunity	IEC1000-4-5. 1KV line to line, 2KV line to ground
5. Conducted immunity	lie toos - 5. av
6. Radiated immunity	IEC1000-4-3, 3V/m
7. Conducted emission	EN55022B, FCC part 15J-B, VCCI-B.
8. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.
9. Voltage dips	EN63022A, FCC part 13-A, VCCFA.
10. Conducted emission	EN51000-4-11 EN550228, FCC part 15-B, VCCI-B.
11. Radiated emission	EN55022A, FCC part 15-9, VCCPA.
2.5 SAFETY	lenssuzza, rcc part 15-a, vcct-a.
1.Applicable standards:	UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1
1.Applicable standards:	
	Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are SELV.
	Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE,
2.Interface classification	Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote
2.Interface classification	Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.
	Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS232/485, IEEE,
	Isolated Analog, LAN. Sense, Remote Programming and Monitoring) are Hazardous
	Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous. Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min,
	Input-Ground: 2828VDC 1min,
	60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/control (SELV):
2 Withstand valtage	4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414VDC 1min,
3.Withstand voltage	Input-Ground: 2828VDC 1min.
	300V Vout 600V models: Input-Output(Hazardous): 3490VDC 1min, Input-communication/control (SELV):
	4242VDC 1min, Hazardous. Output-communication/control(SELV): 4242VDC 1min,
	Output(Hazardous)-Ground: 2738VDC 1min, Input-Ground: 2828VDC 1min.
4.Insulation resistance	More than 100Mohm at 25°C , 70% RH.
2.6 MECHANICAL CONSTRUCTION	
1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.
2. Dimensions (WxHxD)	W.214.0mm, H: 43.6mm, (57.0mm Benchtop version), D: 437.5mm (excluding connectors, encoders, handles, etc.)
3. Weight	W: 214.0mm, H: 43.0mm, (57.0mm Benchtop Version), D: 437.5mm (excluding connectors, encoders, nandles, etc.) 7Kg (15 Lbs)
4. AC Input connector	IEC320 AC Inlet.
5. Output connectors	6V to 60V models: Bus-bars (hole Ø 6.5mm). 80V to 600V models: Meating plug, Phoenix P/N: GIC 2.5/4-ST-7.62.
2.7 RELIABILITY SPECS	
1. Warranty	5 years.

Also available, Genesys™ 1U full Rack 750W/1500W/2400W 2U full Rack 3300W/5000W



Genesys[™] Power Benchtop Parallel and Series Configurations

Parallel operation - Master/Slave:

Active current sharing allows up to four identical units to be connected in an auto-parallel configuration for four times the output power.

In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four supplies act as one.

Series operation

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

Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows chain control of up to 31 power supplies on the same bus with built-in RS-232 & RS-485 Interface.

Programming Options (Factory installed)

Digital Programming via IEEE Multi-Drop Interface

Allows IEEE Master to control up to 30 slaves over RS-485 daisy-chain Only the Master needs be equipped with IEEE Interface • IEEE 488.2 SCPI Compliant Program Voltage Program Current Measure Voltage Measure Current Over Voltage setting and shutdown Current Foldback shutdown • Error and Status Messages **Isolated Analog Programming** Four Channels to Program and Monitor Voltage and Current. Isolation allows operation with floating references in harsh electrical environments. Choose between programming with Voltage or Current. Connection via removable terminal block: Phoenix MC1,5/8-ST-3.81. • Voltage Programming, user-selectable 0-5V or 0-10V signal. P/N: IS510 Power supply Voltage and Current Programming Accuracy ±1% Power supply Voltage and Current Monitoring Accuracy ±1.5% P/N: IS420 Current Programming with 4-20mA signal. Power supply Voltage and Current Programming Accuracy $\pm 1\%$ Power supply Voltage and Current Monitoring Accuracy ±1.5% LAN Interface **LXI** Compliant to Class C P/N: LAN • Meets all LXI-C Requirements VISA & SCPI Compatible Address Viewable on Front Panel LAN Fault Indicators Fixed and Dynamic Addressing Auto-detects LAN Cross-over Cable

- Compatible with most standard Networks
- Fast Startup







Accessories

Rack Mounting applications P/N:GENH/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 GENH750W unit or two units side-by-side in a standard 19" rack in 1U(1.75") height, use option kit **P/N:GENH/RM**

Single unit installation

Single GENH750W power supply in a standard 19" rack in 1U(1.75") height,

Dual unit installation

Two GENH750W power supplies side-by-side in a standard 19" rack in 1U (1.75") height,

Benchtop applications

P/N:GENH/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 GENH750W two units or three units one on top of the other use option kit **P/N:GENH/MO**

Communication cable

RS-232/RS-485 Cable is used to connect the power supply to the PC Controller.

Mode	RS-485	RS-232	RS-232
PC Connector Communication Cable Power Supply Connector	DB-9F Shield Ground L=2m EIA/TIA-568A (RJ-45)	DB-9F Shield Ground L=2m EIA/TIA-568A (RJ-45)	DB-25F FShield Ground L=2m EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

Serial link cable*

Daisy-chain up to 31 Genesys[™] power supplies.

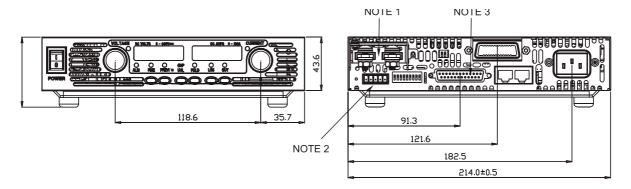
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

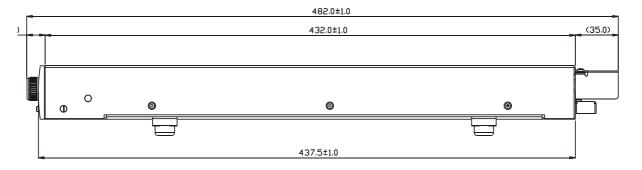
* Included with power supply

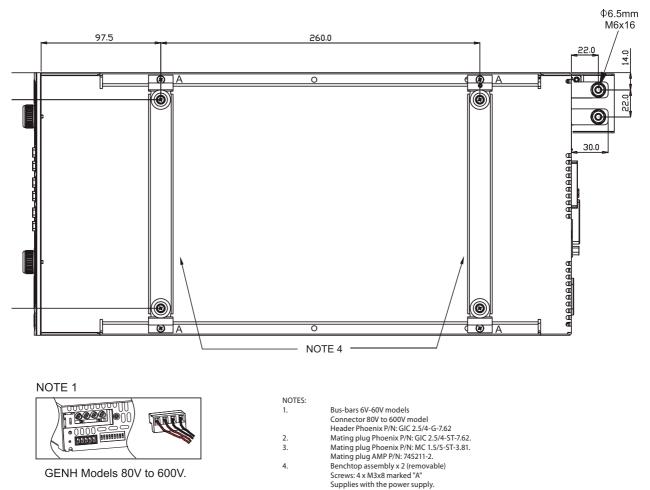




Outline Drawings Genesys[™] GENH 750W









Power Supply Identification / Accessories How to order

GENH	60	- 12.5	-		-	
Series	Output	Output	Factory O	otions	AC Cabl	e option
Name	Voltage (0~60V)	Current (0~12.5A)	Option:	IEEE IS510 IS420 LAN	Region	E - Europe GB - United Kingdom J - Japan I - Middle East U - North America

Models GENH750W

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GENH6-100	0~6V	0~100	600
GENH8-90	0~8V	0~90	720
GENH12.5-60	0~12.5V	0~60	750
GENH20-38	0~20V	0~38	760
GENH30-25	0~30V	0~25	750
GENH40-19	0~40V	0~19	760
GENH60-12.5	0~60V	0~12.5	750
GENH80-9.5	0~80V	0~9.5	760
GENH100-7.5	0~100V	0~7.5	750
GENH150-5	0~150V	0~5	750
GENH300-2.5	0~300V	0~2.5	750
GENH600-1.3	0~600	0~1.3	780

Factory option

RS-232/RS-485 Interface built-in Standard GPIB Interface Voltage Programming Isolated Analog Interface Current Programming Isolated Analog Interface LAN Interface (Complies with LX) Class C) P/N

IEEE

IS510

IS420

LAN

	• ///				
Region	Europe	United Kingdom	Japan	Middle East	North America
Output Power AC Cords Wall Plug Power Supply Connector	750W 10A/250Vac L=2m INT'L 7/VII IEC320-C13	750W 10A/250Vac L=2m BS1363 IEC320-C13	750W 13A/125Vac L=2m IEC320-C13	750W 10A/250Vac L=2m SI-32 IEC320-C13	750W 13A/125Vac L=2m NEMA 5-15P IEC320-C13
Part Number	P/N: GEN/E	P/N: GEN/GB	P/N: GEN/J	P/N: GEN/I	P/N : GEN/U

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