

Genesys

Programmable DC Power Supplies 750W in a 1U half-rack size Built in RS-232 & RS-485 Interface Parallel Current Summing Optional Interfaces: USB LXI Compliant LAN IEEE488.2 SCPI Multi-Drop Isolated Analog Interface



Genesys™ Family

GEN H 750W Half Rack

GEN 1U 750/1500W Full Rack

GEN 2U 3.3/5kW

GEN 3U 10/15kW

TDK·Lambda

www.us.tdk-lambda.com/hp

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

Features include:

- High Power Density 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 Standard
- Last Setting Memory; Front Panel Lockout
- Advanced Parallel reports total current up to four identical units
- Global Commands for Serial RS-232/RS-485 Interface
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover

- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring
- Reliable Modular and SMT Design
- Side-by-side mounting of two units in a 19" rack
- Optional Interfaces

Isolated Analog Program / Monitor IEEE Multi-Drop - SCPI

LAN Interface **USB** Interface

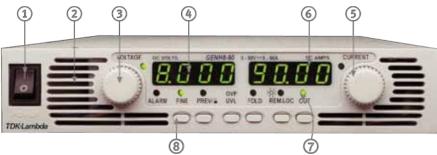
- LabView[®] and LabWindows[®] drivers
- Five Year Warranty

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 Foldback Mode
 - Fine Control Remote Mode
 - Preview Settings Output On
- 8. Pushbuttons allow flexible user configuration
 - Coarse and fine Adjustment of Output Voltage/Current and Advanced Parallel Master or Slave select.
 - 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 & 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 outputs allows testing of many different devices.

Semiconductor Processing & Burn-in

Equipment designers appreciate the wide range Input (85-265Vac) and numerous Outputs from which to select depending on application.

Selectable Safe and Auto Re-start protects loads and process integrity. Typical applications include Magnets, Filaments and Heaters.

Aerospace & Satellite Testing

Complex systems use the complete Genesys™ Family: 1U 750W Half Rack, 1U 750W or 1500W Full-Rack, 2U 3.3kW and 3U 10/15kW.

All are identical in Front Panel, Rear Panel Analog and Digital Interface Commands. A wide variety of outputs allows testing of many different devices.

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 with selectable Fine and Coarse adjustment enhance Front Panel Control. Remote Analog Programming is user selectable 0-5V or 0-10V and optional Isolated Programming/Monitoring Interfaces are also available.

RF Amplifiers and Magnets

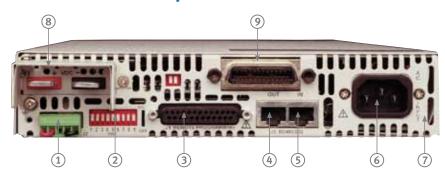
Robust design assures stable operation under a wide variety of loads.

High linearity in voltage and current mode.

Medical Imaging & Treatment Systems

Users require reliable power. Modular construction, SMT and thoroughly proven designs assure continuous performance at full rated power.

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), Isolated Analog Interface, LAN Interface or USB Interface.

LAN Interface complies with LM Class C Specification



Genesys™ GENH750W Specifications

1.0 MODEL	GENH	6-100	8-90	12.5-60	20-38	30-25	40-19	60-12.5	80-9.5	100-7.5	150-5	300-2.5	600-1.3
1.Rated output voltage (*1)	V	6	8	12.5	20	30	40	60	80	100	150	300	600
2.Rated Output Current (*2)	Α	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	78/81	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													
1.Max.line regulation (0.01% of Vo+ 2mV)(*4)	mV	2.6	2.8	3.3	4	5	6	8	10	12	17	32	62
2.Max load regulation (0.01% of Vo+2mV)(*5)	mV	2.6	2.8	3.3	4	5	6	8	10	12	17	32	62
3.Ripple and noise p-p 20MHz (*9)	mV	60	60	60	60	60	60	60	80	80	100	150	300
4.Ripple r.m.s 5Hz~1MHz (*9)	mV	8	8	8	8	8	8	8	8	8	10	25	60
5.Remote sense compensation/line	V	1	1	1	1	1.5	2	3	4	5	5	5	5
6.Temp. coefficient	PPM/°C	100PP	M/°C of rat	ed output vo	ltage,follo	wing 30 mir	utes warm	up					
7.Up-prog. response time, 0~Vo Rated	mS	80mS	N.L/F.L, r	esistive load					150mS ,	N.L/F.L , res	istive load		250
8.Down-prog response time full-load	mS	10		50			80				150		250
9.Down-prog response time no-load	mS	500	600	700	800	900	1000	1100	1200	1500	2000	2500	4000
10.Transient response time (*8)		Less than	1mSec fo	r models up	to and incl	uding 100V	. 2msec fo	r models ab	ove 100V				
1.2 CONSTANT CURRENT MODE													
1.Max.line regulation (0.01% of lo+ 2mA)(*4)	mA	12	11	8.0	5.8	4.5	3.9	3.25	2.95	2.75	2.5	2.25	2.13
2.Max.load regulation (0.02% of Io+5mA)(*6)	mA	25	23	17	12.6	10	8.8	7.5	6.9	6.5	6.0	5.5	5.26
3.Ripple r.m.s 5Hz~1MHz . (*7)	mA	200	180	120	76	63	48	38	29	23	18	13	8
4.Temp. coefficient	PPM/°C	100PPM/	°C from rat	ed output cu	rrent, follo	wing 30 mir	nutes warm	ı up					
1.3 PROTECTIVE FUNCTIONS													
1. OCP													
2. OCP Foldback	Output shut down when power supply change from CV to CC. User selectable.												
	Inverter shut-down, manual reset by AC input recycle or by OUT button or by communication port							utton or by c	ommunicat	ion port			
OVP type													
3. OVP type 4. OVP trip point			0.5~10V	1~15V	1~24V	2~36V	2~44V	5~66V	5~88V	5~110V	5~165V	5~330V	5~660V
		0.5~7.5V	0.5~10V	1~15V ched or non		2~36V	2~44V	5~66V	5~88V	5~110V	5~165V	5~330V	5~660V
4. OVP trip point	NG	0.5~7.5V	0.5~10V			2~36V	2~44V	5~66V	5~88V	5~110V	5~165V	5~330V	5~660V

0~100%, 0~5V or 0~10V, user select. Accuracy and linearity:+/-1% of rated lout.

By electrical. Voltage: 0~0.6V/2~15V,or dry contact ,user selectable logic

TTL High=OK, 0V-Fail 500ohm impedance
CV: TTL high (4~5V) source: 10mA, CC: TTL low (0~0.6V) sink current:10mA

Dry contact. Open:off , Short: on. Max. voltage at Enable/Disable in: 6V

0~5V or 0~10V, accuracy:1%, user selectable

0~5V or 0~10V ,accuracy:1%, user selectable

0~100%, 0~5/10Kohm full scale,user select.,Accuracy and linearity:+/-1% of rated Vout.

0~100%, 0~5/10Kohm full scale,user select. Accuracy and linearity:+/-1.5% of rated lout.

By electrical signal or Open/Short: 0~0.6V or short: Remote analog, 4~5V or open: Local.

Open collector, Local: Open, Remote: On. Maximum voltage: 30V, maximum sink current: 5mA

12. Local/Remote analog control indicator
1.5 FRONT PANEL

9. CV/CC indicator

Enable/Disable

2.lout Voltage Programming

3.Vout Resistor Programming

4.lout Resistor Programming

5.On/Off control (rear panel)

6.Output Current monitor

7.Output Voltage monitor

8.Power Supply OK signal

11. Local/Remote analog control

Vout/ lout manual adjust by separate encoders (coarse and fine adjustment selectable)					
OVP/UVL manual adjust by Volt. Adjust encoder					
AC on/off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control					
Front Panel Lock					
Address selection by Voltage (or current) adjust encoder. Number of addresses:31					
RS232/485 and IEEE488.2 selection by IEEE enable switch and DIP switch					
Baudrate selection: 1200,2400,4800,9600 and 19,200					
Voltage 4 digits , accuracy: 0.5%+/-1 count					
Current 4 digits, accuracy: 0.5%+/-1 count					
Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock					

Model	V	6	8	12.5	20	30	40	60	80	100	150	300	600
Remote Voltage Programming (16 bit)													
Resolution (0.012% of Vo Rated)	mV	0.72	0.96	1.50	2.40	3.60	4.80	7.2	9.6	12	18	36	72
Accuracy (0.05%Vo Rated+0.05% of Vo Actual Output)	mV	6.0	8.0	12.5	20	30	40	60	80	100	150	300	600
2. Remote Current Programming (16 bit)													
Resolution (0.012% of Io Rated)	mΑ	12	10.8	7.2	4.56	3.0	2.28	1.50	1.14	0.90	0.60	0.30	0.16
Accuracy (0.1% of lo Rated+0.1% of lo Actual Output)	mΑ	200	180	120	76	50	38	25	19	15	10	5.0	2.6
3. Readback Voltage													
Resolution (0.012% of Vo Rated)	mV	0.72	0.96	1.50	2.40	3.60	4.80	7.2	9.6	12	18	36	72
Accuracy (0.1%Vo Rated+0.1% of Vo Actual Output)	mV	12	16	25	40	60	80	120	160	200	300	600	1200
4. Readback Current													
Resolution (0.012% of lo Rated)	mΑ	12	10.8	7.2	4.56	3.0	2.28	1.50	1.14	0.90	0.60	0.30	0.16
Accuracy (0.3% of lo Rated+0.1% of lo Actual Output)	mA	400	360	240	152	100	76	50	38	30	20	10	5.2
5. OVP/UVL Programming													
Resolution (0.1% of Vo Rated)	mV	6	8	12	20	30	40	60	80	100	150	300	600
	mV			125	200	300		600	800	1000			

- *1: Minimum voltage 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: 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 output current, Output set-point:10~100%.
- *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



General Specifications Genesys™ GENH750W

2.1 INPUT CHARACTERISTICS

1. Input voltage/freq. (*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	10.5A / 5A,
5. Inrush current 100/200Vac	Less than 25A,
6. Hold-up time	More than 20mS , 100Vac , at 100% load.

2.2 POWER SUPPLY CONFIGURATION

Parallel Operation	Up to 4 identical units in master/slave mode with parallel current summing (Advanced Parallel)
2. Series Operation	Up to 2 units. with external diodes. 600V Max to Chassis ground

2.3 ENVIRONMENTAL CONDITIONS

Operating temp	0~50 C, 100% load.
2. Storage temp	-20~70 C
3. Operating humidity	30~90% RH (non-condensing).
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), Derate output current by 2%/100m above 2000m, Non operating: 40000ft (12000m).

2.4 EMC

IEC1000-4-2. Air-disch8KV, contact disch4KV
IEC1000-4-4. 2KV
IEC1000-4-5. 1KV line to line, 2KV line to ground
IEC1000-4-6, 3V
IEC1000-4-3, 3V/m
EN55022B,FCC part 15J-B,VCCI-B
EN55022A,FCC part 15-A,VCCI-A
EN61000-4-11
EN55022B, FCC part 15-B, VCCI-B.
EN55022A, FCC part 15-A, VCCI-A.

2.5 SAFETY

CE Mark, UL60950,EN60950 listed . Vout<60V:Output is SELV , IEEE/Isolated analog are SELV.
60 <vout<400v: analog="" are="" hazardous,="" ieee="" is="" isolated="" output="" selv.<="" td=""></vout<400v:>
400 <vout<600v:output analog="" are="" hazardous,="" ieee="" is="" isolated="" not="" selv.<="" td=""></vout<600v:output>
Vout<60V models :Input-Outputs (SELV): 3.0KVrms 1min, Input-Ground: 2.0KVrms 1min.
60 <vout<600v 1min,="" 1min.<="" 2.5kvrms="" 3kvrms="" input-haz.="" input-selv:="" models:="" output:="" td=""></vout<600v>
Hazardous OutputSELV: 1.9KVrms 1min, Hazardous Output-Ground:1.9KVrms 1min.
Input-Ground: 2KVrms 1min.
More than 100Mohm at 25 C , 70% RH, 500Vdc

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 (8.43"), H: 43.6mm (1.716"), (57.0mm (2.24") Benchtop version), D: 437.5mm (17.22") (excluding connectors, encoders, handles, etc.)
3. Weight	4.5Kg (9.9 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: Mating plug, Phoenix P/N: GIC 2.5/4-ST-7.62.

2.7 RELIABILITY SPECS

Z./ RELIABILITY SPECS								
1. Warranty	5 years.							
-								

^{*1:} For cases where conformance to various safety standards (UL, IEC etc.) is required, to be described as 100-240Vac (50/60Hz). All specifications subject to change without notice.

Also Available Genesys™ 1U 750W/1500W, 2U3.3/5kW and 3U 10/15kW



Genesys™ Power Benchtop Parallel and Series Configurations

Parallel operation - Master/ Slave:

Active current sharing allows up to 4 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 with or without Multi-Drop option.







P/N: IEMD

P/N: MD

P/N: IS510

P/N: IS420

P/N: LAN

Programming Options (Factory installed)

New IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 (Multi-Drop equipped) slaves over RS-485
- Only the Master needs be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages

- Program Current
- Measure Current
- · Current Foldback shutdown

New Multi-Drop Slave Option

• Slaves need to be equipped with the MD Slave (RS485) option

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.

Power supply Voltage and Current Programming Accuracy ±1% Power supply Voltage and Current Monitoring Accuracy ±1.5%

Current Programming with 4-20mA signal.

Power supply Voltage and Current Programming Accuracy ±1% Power supply Voltage and Current Monitoring Accuracy ±1.5%

LXI Compliant to Class C LAN Interface

- Meets all LXI-C Requirements
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Fast Startup

- Meets all LXI-C Requirements
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Compatible with most standard Networks

USB Interface P/N: USB

- Allows Serial Connection to USB Port on computer
- Serial commands same as (standard) RS-232/RS-485 Interface

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*

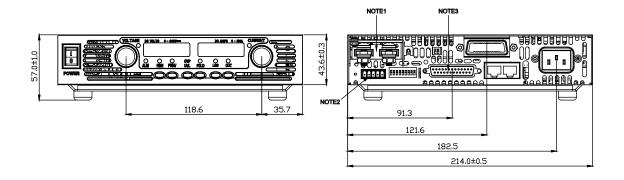
Daisy-chain up to 31 Genesys^a power supplies.

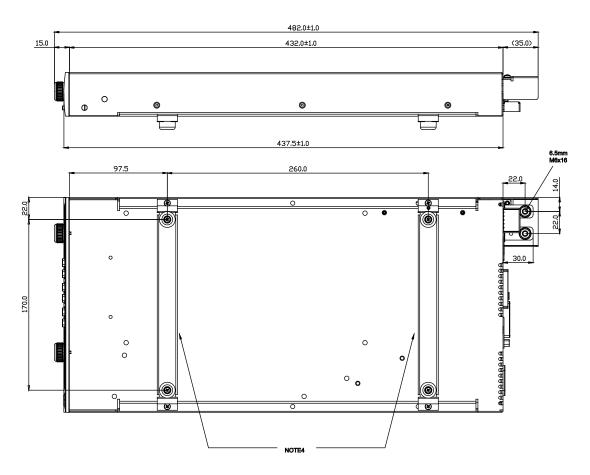
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

^{*} Included with power supply

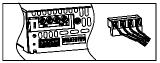


Outline Drawings Genesys™ GENH 750W





NOTE 1



GENH Models 80V to 600V.

NOTES:

- 1. Bus-bars 6V to 60V models Connector 80V to 600V model
 Header Phoenix P/N: GIC 2.5/4-G-7.62
 Mating plug Phoenix P/N: GIC 2.5/4-ST-7.62
 2. Mating plug Phoenix P/N: MC1.5/5-ST-3.81
 3. Mating plug AMP P/N: 745211-2
 Meting plug a purplied with person curpling.
- Mating plugs supplied with power supply.
- Benchtop assembly x 2 (removable)
 Screws: 4 x M3x8 marked "A".
 Supplied with the power supply.



Power Supply Identification / Accessories How to order

GENH	60	- 12.5 -		-
			Factory Options	AC Cable option
Series	Output	Output	Option: IEMD	Region: E - Europe
Name	Voltage (0~60V)	Current (0~12.5A)	MD IS510 IS420 LAN USB	GB - United Kingdom J - Japan I - Middle East U - North America

Models GENH750W

	Output	Output	Output
Model	Voltage	Current	Power
	VDC	(A)	(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	0~600V	0~1.3	780

Factory option	P/N
RS-232/RS-485 Interface built-in Standard	-
GPIB (Multi-Drop Master) Interface	IEMD
Multi-Drop Slave Interface	MD
Voltage Programming Isolated Analog Interface	IS510
Current Programming Isolated Analog Interface	IS420
LAN Interface (Complies with L) Class C)	LAN
USB Interface	USB

AC Cords sets

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

TDK·Lambda

GLOBAL NETWORK

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