

# Genesys™

**Programmable DC Power Supplies**

**750W /1500W in 1U**

**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**

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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 750/1500W in 1U
- Wide Range Input (85 - 265Vac Continuous, single phase, 47/63Hz)
- Active Power Factor Correction (0.99 typical)
- Output Voltage up to 600V, Current up to 200A
- Built-in RS-232/RS-485 Interface
- 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
- Parallel Operation with Active Current Sharing
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring
- Reliable Modular and SMT Design
- 19" Rack Mounted ATE and OEM applications
- Optional Interfaces
  - Isolated Analog Programming and Monitoring
  - IEEE Multi-Drop - SCPI
  - LXI** Compliant LAN Interface
  - USB Interface
- Five Year Warranty
- Optional Isolated Analog Programming and Monitoring
- Optional IEEE 488.2 SCPI (GPIB) Interface

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



## 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 outputs allows testing of many different devices.

### Semiconductor Processing

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 and 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.

## 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
  - 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

## 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. Output Connections: Rugged busbars for up to 60V Output; Terminal block for Outputs >60V.
7. Exit air assures reliable operation when zero stacked.
8. Wide-Range Input 85-265VAC continuous, 47/63Hz with Active Power Factor Correction (0.99 typical)  
AC Input Connector: 750W (IEC320), 1500W (screw terminal-shown).
9. Optional Interface Position for IEEE488.2 SCPI (shown), Isolated Analog Interface, LAN Interface or USB Interface.

LAN Interface complies with **LXI** Class C Specification



# General Specifications Genesys™ 750W/1500W

## 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	<b>750W</b> :10.5A / 5A, <b>1500W</b> :21A / 11A
5. Inrush current 100/200Vac	<b>750W</b> :Less than 25A, <b>1500W</b> :Less than 50A
6. Hold-up time	More than 20mS , 100Vac , at 100% load.

## 2.2 POWER SUPPLY CONFIGURATION

1. 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

1. Operating temp	0~50 °C, 100% load.
2. Storage temp	-20~70 °C
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) , Non operating: 40000ft (12000m).

## 2.4 EMC

1. Applicable Standards:	
2. ESD	IEC1000-4-2. Air-disch.-8KV, contact disch.-4KV
3. Fast transients	IEC1000-4-4. 2KV
4. Surge immunity	IEC1000-4-5. 1KV line to line, 2KV line to ground
5. Conducted immunity	IEC1000-4-6, 3V
6. Radiated immunity	IEC1000-4-3, 3V/m
7. Conducted emission	EN55022B, FCC part 15J-B, VCCI-2
8. Radiated emission	EN55022A, FCC part 15-A, VCCI-1
9. Voltage dips	EN61000-4-11
10. Conducted emission	EN55022B, FCC part 15-B, VCCI-2.
11. Radiated emission	EN55022A, FCC part 15-A, VCCI-1.

## 2.5 SAFETY

1. Applicable standards:	<b>CE Mark, UL60950, EN60950 listed.</b> Vout<60V: Output is SELV , IEEE/Isolated analog are SELV. 60<Vout<400V: Output is hazardous, IEEE/Isolated analog are SELV. 400<Vout<600V: Output is hazardous, IEEE/Isolated analog are not SELV.
2. Withstand voltage	Vout<60V models :Input-Outputs (SELV): 3.0KVrms 1min, Input-Ground: 2.0KVrms 1min. 60<Vout<600V models: Input-Haz. Output: 2.5KVrms 1min, Input-SELV: 3KVrms 1min. Hazardous Output.-SELV: 1.9KVrms 1min, Hazardous Output-Ground:1.9KVrms 1min. Input-Ground: 2KVrms 1min.
3. Insulation resistance	More than 100Mohm at 25 C , 70% RH, 500Vdc

## 2.6 MECHANICAL CONSTRUCTION

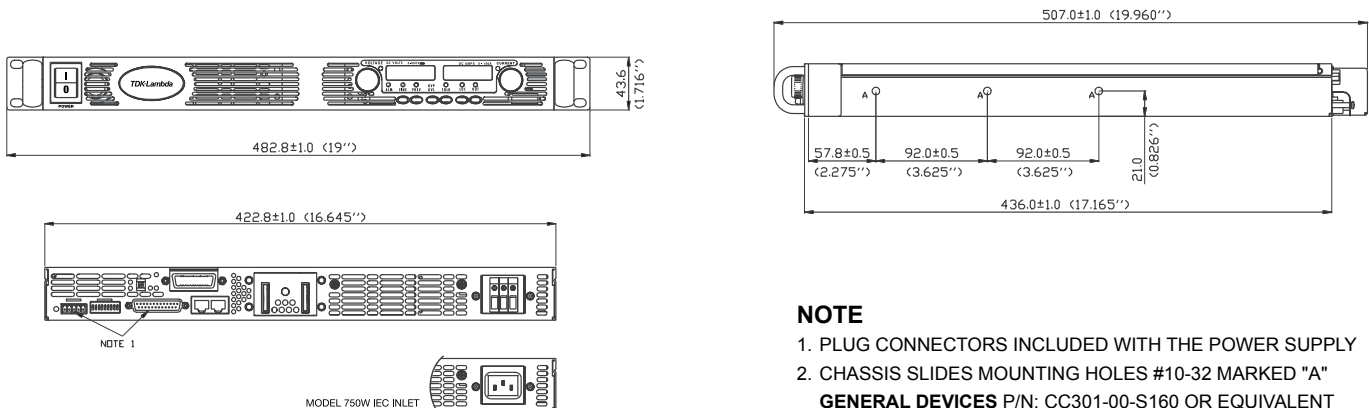
1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.
2. Dimensions (WxHxD)	W: 16.64in, H: 1.72in, D: 17.04in (excluding connectors, encoders, handles, etc.)
3. Weight	<b>750W</b> : 7Kg (15 Lbs) <b>1500W</b> : 8.5Kg (18 Lbs)
4. AC Input connector	750W: IEC320 AC Inlet. 1500W: Screw terminal block, Phoenix P/N: FRONT-4-H-7.62 , with strain relief
5. Output connectors	6V to 60V models: Bus-bars (hole Ø 8.5mm). 80V to 600V models: Terminal block, Phoenix P/N: FRONT-4-H-7.62

## 2.7 RELIABILITY SPECS

1. Warranty	5 years.
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\*1: For cases where conformance to various safety standards (UL, IEC etc.) is required, to be described as 100-240Vac (50/60Hz).

## Outline Drawing Genesys™ 750W/1500W Units



### NOTE

1. PLUG CONNECTORS INCLUDED WITH THE POWER SUPPLY
2. CHASSIS SLIDES MOUNTING HOLES #10-32 MARKED "A" GENERAL DEVICES P/N: CC301-00-S160 OR EQUIVALENT

# Genesys™ Power 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.

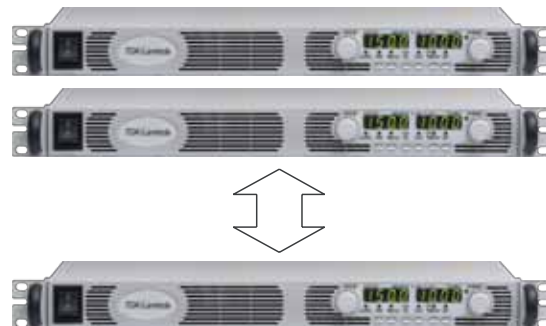
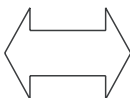
## Series operation

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 daisy-chain control of up to 31 power supplies on the same communication bus with built-in RS-232 & RS-485 Interface with or without Multi-Drop option.



## Programming Options (Factory installed)

### New IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 (Multi-Drop equipped) slaves over RS-485 daisy-chain
- 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

P/N: IEMD

### New Multi-Drop Slave Option

- Slaves need to be equipped with the MD Slave (RS-485) option

P/N: MD

### 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  $\pm 1\%$
  - Power supply Voltage and Current Monitoring Accuracy  $\pm 1.5\%$
- Current Programming with 4-20mA signal.
  - Power supply Voltage and Current Programming Accuracy  $\pm 1\%$
  - Power supply Voltage and Current Monitoring Accuracy  $\pm 1.5\%$

P/N: IS510

P/N: IS420

### LAN Interface

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

### LXI Compliant to Class C

- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Compatible with most standard Networks

P/N: LAN

### USB Interface

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

P/N: USB

# Power Supply Identification / Accessories

## How to order

<b>GEN</b>	<b>600</b>	-	<b>2.6</b>	-	-
Series Name	Output Voltage (0~600V)	Output Current (0~2.6A)	Factory Options Option: IEMD MD IS510 IS420 LAN USB	AC Cable option is 750W only Region: E - Europe J - Japan I - Middle East U - North America	

## Models 750/1500W

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GEN6-100	0~6V	0~100	600
GEN6-200		0~200	1200
GEN8-90		0~90	720
GEN8-180	0~8V	0~180	1440
GEN12.5-60		0~60	750
GEN12.5-120	0~12.5V	0~120	1500
GEN20-38		0~38	760
GEN20-76	0~20V	0~76	1520
GEN30-25		0~25	750
GEN30-50	0~30V	0~50	1500
GEN40-19		0~19	760
GEN40-38	0~40V	0~38	1520

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GEN50-30	0~50V	0~30	1500
GEN60-12.5	0~60V	0~12.5	750
GEN60-25		0~25	1500
GEN80-9.5	0~80V	0~9.5	760
GEN80-19		0~19	1520
GEN100~7.5	0~100V	0~7.5	750
GEN100~15		0~15	1500
GEN150~5	0~150V	0~5	750
GEN150~10		0~10	1500
GEN300~2.5	0~300V	0~2.5	750
GEN300~5		0~5	1500
GEN600~1.3	0~600V	0~1.3	780
GEN600~2.6		0~2.6	1560



### Factory option

RS-232/RS-485 Interface built-in Standard  
 GPIB (Multi-Drop Master) Interface  
 Multi-Drop Slave Interface  
 Voltage Programming Isolated Analog Interface  
 Current Programming Isolated Analog Interface  
 LAN Interface (Complies with **LXI** Class C)  
 USB Interface

### P/N

-  
 IEMD  
 MD  
 IS510  
 IS420  
 LAN  
 USB

## AC Cords sets (750W only)

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

## Accessories

### 1. Communication cable

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

Mode	RS485	RS232	RS232
PC Connector	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	FShield Ground L=2m
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

### 2. 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

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