

Genesys™

**Programmable DC Power Supplies
750W/1500W in 1U
Built in RS-232 & RS-485 Interface
Advanced Parallel Standard**

**Optional Interfaces:
LXI Compliant LAN
IEEE488.2 SCPI (GPIB)
Isolated Analog Programming**



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TDK-Lambda

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: 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 Standard
 - Last-Setting Memory
 - Front Panel Lock selectable from Front Panel or Software
 - 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 (user selectable 0-5V & 0-10V)
 - Reliable Modular and SMT Design
 - 19" Rack Mounted ATE and OEM applications
 - Optional Interfaces
 - Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA)
 - IEEE 488.2 SCPI (GPIB) Multi-Drop
 - LXI** Compliant LAN
 - LabView® and LabWindows® drivers
 - Five Year Warranty
- Worldwide Safety Agency Approvals; CE Mark for LVD and EMC Regulation



Applications

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

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 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.

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
 - 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

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; wire clamp connector 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 IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.

Genesys™ 750W/1500W Specifications

1.0 MODEL	GEN	6-200	8-180	12.5-120	20-76	30-50	40-38	50-30	60-25	80-19	100-15	150-10	300-5	600-2.6	750W	1500W
1. Rated output voltage(*1)	V	6	8	12.5	20	30	40	50	60	80	100	150	300	600		X
2. Rated Output Current(*2)	A	200	180	120	76	50	38	30	25	19	15	10	5	2.6		X
3. Rated Output Power	W	1200	1440	1500	1520	1500	1520	1500	1500	1520	1500	1500	1500	1560		X
4. Efficiency at 100/200Vac (*3)	%	77/79	78/81	81/84	83/86	83/86	84/88	84/88	84/88	84/88	84/88	84/88	83/87	83/87	X	X

1.0 MODEL	GEN	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	X	
1. Rated output voltage (*1)	V	6	8	12.5	20	30	40	---	60	80	100	150	300	600	X	
2. Rated Output Current (*2)	A	100	90	60	38	25	19	---	12.5	9.5	7.5	5	2.5	1.3	X	
3. Rated Output Power	W	600	720	750	760	750	760	---	750	760	750	750	750	780	X	

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	7	8	10	12	17	32	62	X	X
2. Max load regulation (0.01% of Vo+2mV)(*5)	mV	2.6	2.8	3.3	4	5	6	7	8	10	12	17	32	62	X	X
3. Ripple and noise p-p 20MHz (*9)	mV	60	60	60	60	60	60	60	60	80	80	100	150	300	X	X
4. Ripple r.m.s 5Hz-1MHz (*9)	mV	8	8	8	8	8	8	8	8	8	8	10	25	60	X	X
5. Remote sense compensation/line	V	1	1	1	1	1.5	2	2	3	4	5	5	5	5	X	X
6. Temp. coefficient	PPM/°C	100PPM/°C of rated output voltage, following 30 minutes warm up													X	X
7. Up-prog. response time, 0-Vo Rated	mS	80mS , N.L./F.L , resistive load										150mS , N.L./F.L , resistive load		250	X	X
8. Down-prog response time full-load	mS	10	50					80			150			250	X	X
9. Down-prog response time no-load	mS	500	600	700	800	900	1000	1100	1100	1200	1500	2000	2500	4000	X	X
10. Transient response time (*8)		Less than 1mSec for models up to and including 100V. 2msec for models above 100V													X	X

1.2 CONSTANT CURRENT MODE

1. Max. line regulation (0.01% of Io+ 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	X	
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	X	
3. Ripple r.m.s 5Hz-1MHz .(*7)	mA	200	180	120	76	63	48	---	38	29	23	18	13	8	X	
4. Max. line regulation (0.01% of Io+ 2mA)(*4)	mA	22	20	14	9.6	7.0	5.8	5	4.5	3.9	3.5	3.0	2.5	2.26		X
5. Max. load regulation (0.02% of Io+5mA)(*6)	mA	45	41	29	20.2	15	12.6	11	10	8.8	8.0	7.0	6.0	5.52		X
6. Ripple r.m.s 5Hz-1MHz .(*7)	mA	400	360	240	152	125	95	85	75	57	45	35	25	12		X
7. Temp. coefficient	PPM/°C	100PPM/°C from rated output voltage, following 30 minutes warm up													X	X

1.3 PROTECTIVE FUNCTIONS

1. OCP	0-105% Constant Current	X	X
2. OCP Foldback	Output shut down when power supply change from CV to CC. User selectable.	X	X
3. OVP type	Inverter shut-down, manual reset by AC input recycle or by OUI button or by communication port.	X	X
4. OVP trip point	0.5-7.5V 0.5-10V 1-15V 1-24V 2-36V 2-44V 5-57V 5-66V 5-88V 5-110V 5-165V 5-330V 5-660V	X	X
5. Over Temp. Protection	User selectable , latched or non latched	X	X

1.4 ANALOG PROGRAMMING AND MONITORING

1. Vout Voltage Programming	0-100%, 0-5V or 0-10V, user select. Accuracy and linearity: +/-0.5% of rated Vout.	X	X
2. Iout Voltage Programming	0-100%, 0-5V or 0-10V, user select. Accuracy and linearity: +/-1% of rated Iout.	X	X
3. Vout Resistor Programming	0-100%, 0-5/10Kohm full scale, user select. Accuracy and linearity: +/-1% of rated Vout.	X	X
4. Iout Resistor Programming	0-100%, 0-5/10Kohm full scale, user select. Accuracy and linearity: +/-1.5% of rated Iout.	X	X
5. On/Off control (rear panel)	By electrical. Voltage: 0-0.6V/2-15V, or dry contact ,user selectable logic	X	X
6. Output Current monitor	0-5V or 0-10V , accuracy: 1% , user selectable	X	X
7. Output Voltage monitor	0-5V or 0-10V , accuracy: 1% ,user selectable	X	X
8. Power Supply OK signal	TTL high (4-5V) -OK, 0V-Fail 500ohm series resistance	X	X
9. CV/CC indicator	Open collector, CC mode: On, CV mode: Off, Maximum voltage: 30V, maximum sink current: 10mA	X	X
10. Enable/Disable	Dry contact. Open/off , Short: on. Max. voltage at Enable/Disable in: 6V	X	X
11. Local/Remote analog control	By electrical signal or Open/Short: 0-0.6V or short: Remote, 4-5V or open: Local	X	X
12. Local/Remote analog control indicator	Open collector, Local: Open, Remote: On. Maximum voltage: 30V, maximum sink current: 5mA.	X	X

1.5 FRONT PANEL

1. Control functions	Vout/ Iout 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 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	X	X
2. Display	Voltage 4 digits, accuracy: 0.5% +/- 1 count Current 4 digits, accuracy: 0.5% +/- 1 count	X	X
3. Indications	Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock	X	X

1.6 Interface RS-232&RS-485 or Optional GPIB / LAN Interface

Model	V	6	8	12.5	20	30	40	50	60	80	100	150	300	600	750W	1500W
1. Remote Voltage Programming (16 bit)																
Resolution (0.012% of Vo Rated)	mV	0.72	0.96	1.50	2.40	3.60	4.80	6	7.2	9.6	12	18	36	72	X	X
Accuracy (0.05%Vo Rated+0.05% of Vo Actual Output)	mV	6.0	8.0	12.5	20	30	40	50	60	80	100	150	300	600	X	X

2. Remote Current Programming (16 bit)																
Resolution (0.012% of Io Rated)	mA	12	10.8	7.2	4.56	3.0	2.28	---	1.50	1.14	0.90	0.60	0.30	0.16	X	
Accuracy (0.1% of Io Rated+0.1% of Io Actual Output)	mA	200	180	120	76	50	38	---	25	19	15	10	5.0	2.6	X	
Resolution (0.012% of Io Rated)	mA	24	21.6	14.4	9.12	6.0	4.56	3.60	3.0	2.28	1.80	1.20	0.60	0.32		X
Accuracy (0.1% of Io Rated+0.1% of Io Actual Output)	mA	400	360	240	152	100	76	60	50	38	30	20	10	5.2		X

3. Readback Voltage																
Resolution (0.012% of Vo Rated)	mV	0.72	0.96	1.50	2.40	3.60	4.80	6.0	7.2	9.6	12	18	36	72	X	X
Accuracy (0.1%Vo Rated+0.1% of Vo Actual Output)	mV	12	16	25	40	60	80	100	120	160	200	300	600	1200	X	X

4. Readback Current																
Resolution (0.012% of Io Rated)	mA	12	10.8	7.2	4.56	3.0	2.28	---	1.50	1.14	0.90	0.60	0.30	0.16	X	
Accuracy (0.3% of Io Rated+0.1% of Io Actual Output)	mA	400	360	240	152	100	76	---	50	38	30	20	10	5.2	X	
Resolution (0.012% of Io Rated)	mA	24	21.6	14.4	9.12	6	4.56	3.60	3.0	2.28	1.80	1.20	0.60	0.32		X
Accuracy (0.3% of Io Rated+0.1% of Io Actual Output)	mA	800	720	480	304	200	152	120	100	76	60	40	20	10.4		X

5. OVP/UVL Programming																
Resolution (0.1% of Vo Rated)	mV	6	8	12	20	30	40	50	60	80	100	150	300	600	X	X
Accuracy (1% of Vo Rated)	mV	60	80	125	200	300	400	500	600	800	1000	1500	3000	6000	X	X

- *1: Minimum voltage is guaranteed to maximum 0.2% of Vo Rated. *3: At maximum output power. *5: From No-load to Full-load, constant input voltage.
 *2: Minimum current is guaranteed to maximum 0.4% of Io Rated. *4: 85-132Vac or 170-265Vac, constant load. *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 , 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™ 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	750W :10.5A / 5A, 1500W :21A / 11A
5. Inrush current 100/200Vac	750W :Less than 25A, 1500W :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 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	-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), Derat output current by 2%/100m above 2000m, 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-B.
8. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.
9. Voltage dips	EN61000-4-11
10. Conducted emission	EN55022B, FCC part 15-B, VCCI-B.
11. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.

2.5 SAFETY

1. Applicable standards:	CE Mark, UL60950, EN60950 listed. 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

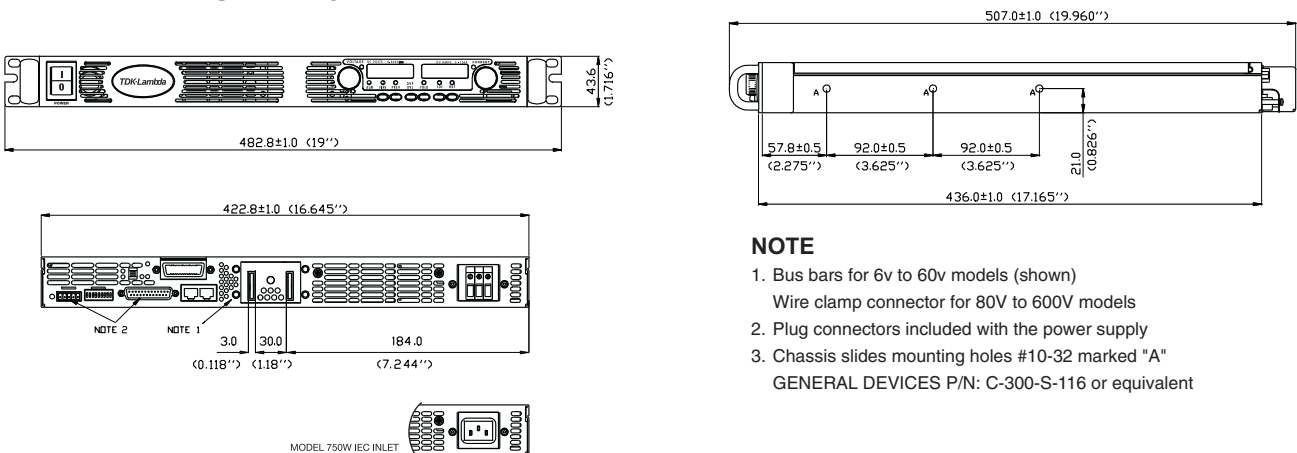
1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.
2. Dimensions (WxHxD)	W: 422.8mm, H: 43.6mm, D: 432.8mm (excluding connectors, encoders, handles, etc.)
3. Weight	750W: 7Kg (15 Lbs) 1500W: 8.5Kg (18 Lbs)
4. AC Input connector	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: wire clamp connector, 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).
All specifications subject to change without notice.

Outline Drawing Genesys™ 750W/1500W Units



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