Genesys™

Programmable DC Power Supplies
750W/1500W in 1U
Built in RS232 & RS485 Interface
GPIB (IEEE488/488.2 SCPI) optional.

invensys
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:

- **Highest Power Density available 1500W in 1U**
- **Wide Range Input 85 - 265Vac Continuous, single phase, 47/63Hz**
- **Active Power Factor Correction 0.99**
- **Output up to 600V, Current up to 200A**
- **Built in RS232/RS485 Interface**
- **Software Calibration**
- **Last Setting Memory**
- High Resolution 16 bits ADCs & DACs
- 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
- Five Year Warranty
- Optional Isolated Analog Programming and Monitoring
- Optional GPIB (SCPI) Interface
- LabView® drivers (LabView® is registered trademark of National Instruments Corporation)

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 RS232/RS485 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 restart at zero output 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 Meter, 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.
Excellent linearity in voltage and current mode.

Front Panel Description

1. AC On/Off
2. Air Intake allows zero stacking for maximum system flexibility and power density
3. Reliable encoder controls Output Voltage and sets Address.
4. Volt Meter shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Amp Meter also displays baud rate.
6. Reliable encoder controls Output Current and sets baud rate.
7. Function/Status LED's

- Alarm
- Fine Control
- Preview Settings
- Foldback Mode
- Remote Mode
- Output On

8. Pushbuttons allow flexible user configuration
   Coarse and Fine Voltage and Current Adjustment of Output
   Preview Settings and Set Voltage while in Current Mode or with Output OFF
   Set OVP and UVL Limits
   Set Current Foldback
   Local/Remote Mode and select Address and Baud Rate
   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 as well as other functions.
4. RS485 Out to other Genesys Power Supplies
5. RS232/RS485 IN Remote Serial Programming
6. Output Terminals are rugged bus bars for 6-60V Output, higher output voltage models have terminal block connector.
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)
   AC Input Connector 750W: IEC320, 1500W: Screw terminal Model Shown
9. Position for Optional Isolated Analog Programming or GPIB Digital Interface model shown

Genesys ™ 750W/1500W Specifications

1.0 MODEL	GEN	6-200	8-180	12.5-120	20-76	30-50	40-38	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**	**60**	**80**	**100**	**150**	**300**	**600**		X
2.Rated Output Current(*2)	A	200	180	120	76	50	38	25	19	15	10	5	2.6		X
3.Rated Output Power	W	1200	1440	1500	1520	1500	1520	1500	1520	1500	1500	1500	1560		X
4.Efficiency at 100/200Vac (*3)	%	77/80	78/81	81/84	83/86	83/86	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	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	8	10	12	17	32	62	X	X
3.Ripple and noise p-p 20MHz	mV	60	60	60	60	60	60	60	80	80	100	125	300	X	X
4.Ripple r.m.s 5Hz~1MHz	mV	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	3	4	5	5	5	5	X	X
6.Temp. coefficient	PPM/°C	100PPM/°C from rated output voltage,following 30 minutes warm up												X	X
7.Up-prog. response time, 0~Vomax	mS	80mS , N.L/F.L , resistive load							150mS , N.L/F.L , resistive load					X	X
8.Down-prog response time full-load	mS	10	50			80			150					X	X
9.Down-prog response time no-load	mS	500	600	700	800	900	1000	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	5.8	4.5	3.9	3.25	2.95	2.75	2.5	2.25	2.13	X	
2.Max.load regulation (0.01% of Io+5mA)(*6)	mA	15	14	11	8.8	7.5	6.9	6.25	5.95	5.75	5.5	5.25	5.13	X	
3.Ripple r.m.s 5Hz~1MHz . (*7)	mA	200	180	120	76	63	48	38	29	23	18	13	8	X	
1.Max.line regulation (0.01% of Io+ 2mA)(*4)	mA	2	2	2	2	2	2	2	2	2	2	2	2		X
2.Max.load regulation (0.01% of Io+5mA)(*6)	mA	5	5	5	5	5	5	5	5	5	5	5	5		X
3.Ripple r.m.s 5Hz~1MHz .(*7)	mA	400	360	240	152	125	95	75	57	45	35	25	12		X
4.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 OUT button												X	X
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	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	5V-OK, 0V-Fail 500ohm impedance	X	X
9. CV/CC indicator	CV: TTL high (4~5V) source: 10mA, CC: TTL low (0~0.4V):10mA	X	X
10. Enable/Disable	Dry contact. Open:off , Short: on. Max. voltage at Enable/Disable in: 6V	X	X

1.5 FRONT PANEL

1.Control functions	Vout/ Iout manual adjust by separate encoders (coarse and fine adjustment selectable)	X	X
	OVP/UVL manual adjust by Volt. Adjust encoder	X	X
	AC on/off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control	X	X
	Address selection by Voltage (or current) adjust encoder. No of addresses:31	X	X
	RS232/485 and IEEE488.2 selection by IEEE enable switch and DIP switch	X	X
	Baud rate selection: 1200,2400,4800,9600 and 19,200 bps	X	X
2.Display	Voltage 4 digits , accuracy: 0.5%+/-1 count	X	X
	Current 4 digits, accuracy: 0.5%+/-1 count	X	X
3.Indications	Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On	X	X

1.6 Interface RS232&RS485 or Optional GPIB Interface

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

Remote Current Programming (16 bit)															
Resolution (0.012% of Iomax)	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 (0.05% of Iomax+0.05% of Io Actual Output)	mA	10	9	6	3.8	2.5	1.9	1.25	0.95	0.75	0.5	0.25	0.13	X	
Resolution (0.012% of Iomax)	mA	24	21.6	14.4	9.12	6	4.56	3.0	2.28	1.80	1.20	0.60	0.32		X
Accuracy (0.05% of Iomax+0.05% of Io Actual Output)	mA	20	18	12	7.6	5	3.8	2.5	1.9	1.50	1	0.5	0.26		X

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

Readback Current															
Resolution (0.012% of Iomax)	mA	12	10.8	7.2	4.56	3.0	2.28	1.50	1.14	0.9	0.60	0.30	0.16	X	
Accuracy (0.1% of Iomax+0.3% of Io Actual Output)	mA	400	360	240	152	100	76	50	38	30	20	10	5.2	X	
Resolution (0.012% of Iomax)	mA	24	21.6	14.4	9.12	6	4.56	3.0	2.28	1.80	1.20	0.60	0.32		X
Accuracy (0.1% of Iomax+0.3% of Io Actual Output)	mA	800	720	480	304	200	152	100	76	60	40	20	10.4		X

OVP Programming															
Resolution (0.1% of Vomax)	mV	6	8	12	20	29	39	59	78	98	146	293	586	X	X
Accuracy (1% of Vomax)	mV	60	80	125	200	300	400	600	800	1000	1500	3000	6000	X	X

*1: Minimum voltage is guaranteed to maximum 0.2% of Vomax.
*2: Minimum current is guaranteed to maximum 0.4% of Iomax.
*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 , Output set-point:10~100%.
Accuracy -Values have been calculated at Vomax & Io max

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 (no condensation).
4. Storage humidity	10~95% RH (no condensation).
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:	EN55024
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:	**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.

2.6 MECHANICAL CONSTRUCTION

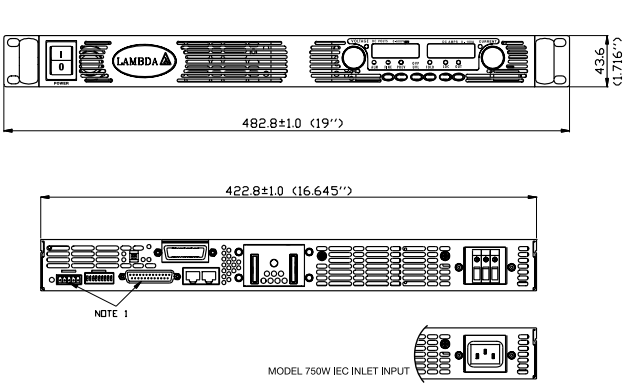
1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis Variable fan speed.
2. Dimensions (WxHxD)	W: 422.8mm, H: 43.6mm, D: 432.8mm (excluding connectors, encoders, handles etc..)
3. Weight	**750W**: 7Kg (15.4 Lbs) **1500W**: 8.5Kg (18.7 Lbs)
4. AC Input connector	750W: AC Inlet IEC320.
	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

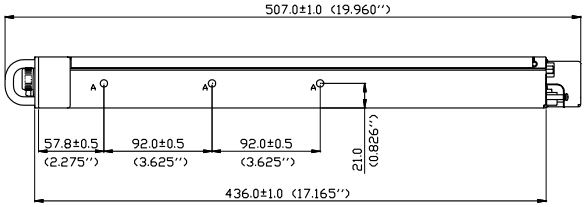
2.7 RELIABILITY SPECS

1. Warranty	5 years.

*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:

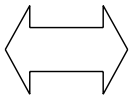
Active current sharing allows up to 4 units to be connected in an auto parallel configuration for four times the output power.

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 RS232&RS485 Interface

Standard Serial Interface allows chain control of up to 31 power supplies on the same bus with built in RS232&485 Interface



Programming Options (Factory installed)

Digital Programming via IEEE Interface

- IEEE 488.2 Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages

P/N: IEEE

- SCPI Compliant
- Program Current
- Measure Current
- Current Foldback shutdown

Isolated Analog Programming

Four Channels to Program and Monitor Voltage and Current
Isolation allows operation with floating references and difficult electrical environments.
Choose between programming with Voltage or Current.
Connection via Removable terminal block P/N: Phoenix MC1,5/8-ST-3.81

P/N: IS510 - 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%
P/N: IS420 - Current Programming with 4-20mA signal
Power supply Voltage and Current Programming accuracy +/-1%
Power supply Voltage and Current Monitoring accuracy +/-1.5%

Power Supply Identification / Accessories

How to order

GEN	600	-	2.6	-		-	
					Factory Options		AC Cable option is 750W only
Series Name	Output Voltage (0~600V)		Output Current (0~2.6A)		Option: IEEE IS510 IS420		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	0~8V	0~90	720
GEN8-180		0~180	1440
GEN12.5-60	0~12.5V	0~60	750
GEN12.5-120		0~120	1500
GEN20-38	0~20V	0~38	760
GEN20-76		0~76	1520
GEN30-25	0~30V	0~25	750
GEN30-50		0~50	1500
GEN40-19	0~40V	0~19	760
GEN40-38		0~38	1520

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
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	P/N
RS232/485 Interface built in Standard	-
GPIB Interface	IEEE
Voltage Programming Isolated analog interface	IS510
Current Programming Isolated analog interface	IS420

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		SI-32	NEMA 5-15P
Power Supply Connector	IEC320-C13 	IEC320-C13 	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

RS232/RS485 Cable is used to connect the power supply to the PC Controller

Mode	RS485	RS232	RS232
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*

Chaining Power Supply to Power Supply up to 31 GEN units

Mode	Power Supply Connector	Communication Cable	P/N
RS485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

* Included with the power supply

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.