



Programmable DC Power Supplies 2.4kW in 1U Built in RS-232 & RS-485 Interface Advanced Parallel Standard New: Auxiliary Outputs 5V & 15V New: RoHS Compliant

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



Genesys[™] Family GEN H 750W Half Rack GEN 1U 750/1500W/2400W Full Rack GEN 2U 3.3/5kW GEN 3U 10/15kW

New From TDK-Lambda 2400W in 1U

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:

- New: Auxiliary Outputs, 5V, 0.2A; 15V, 0.2A For Increased System Control Functionality
- New: RoHS Compliant
- High Power Density 2.4kW in 1U
- Wide Range of popular worldwide AC inputs, 1Ø (230VAC) & 3Ø (208VAC)
- Active Power Factor Correction (Single-Phase & Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 300A
- Built-in RS-232/RS-485 Interface Standard
- Global Commands for Serial RS-232/RS-485 Interface
- Auto-Re-Start / Safe-Start: user selectable
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Low Ripple & Noise
- Front Panel Lock selectable from Front Panel or Software
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Parallel Operation with Active Current Sharing; up to four identical units.
- Advanced Parallel Master / Slave. Total Current is Programmed and Measured via the Master.
- 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 Mount capability for 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

- USB Interface
- LabView and LabWindows[™] drivers
- Five Year Warranty



Applications

Genesys™ power supplies have been designed to meet the demands of a wide variety of applications. System Designers will appreciate new, standard, remote programming features such as Global commands. Also, new high-speed status monitoring is available for the RS-485 bus.

Test Systems using the IEEE-488 bus may achieve significant cost savings by incorporating the Optional IEEE Multi-Drop Interface for a Master and up to 30 RS-485 Multi-Drop Slaves. Then up to 30 Slaves may be equipped with the less expensive Optional RS-485 Multi-Drop (MD) interface.

Higher power systems can be configured with up to four 2.4kW modules. Each module is 1U with zero space between them (zero stack).

Flexible configuration is provided by the complete GenesysTM Family: 1U 750W Half-Rack,

1U 750W/1500W/2400W 2U 3.3kW/5kW, 3U 10/15kW Full-Rack. All are identical in Front Panel, Rear Panel Analog, and all Digital Interface Commands.

OEM Designers have a wide variety of Inputs and Outputs from which to select depending on application and location.

Front Panel Description



- 1. ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable encoder controls Output Voltage, Address, OVP and UVL settings.

Fine Control

- Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
- 5. Reliable encoder controls Output Current, sets Baud rate and Advanced Parallel mode.
- 6. Current Display shows Output Current and displays Baud rate. Displays total current in Parallel Master/Slave Mode
- 7. Function/Status LEDs:
 - Alarm
 - Foldback Mode

- Preview Settings
- 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 Lock
 - Parallel Master/Slave
 - Set OVP and UVL Limits
 - Set Current Foldback Protection
 - Go to Local Mode and select Address and Baud rate
 - Output ON/OFF and Auto/Safe Re-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 (shown) for up to 100V Output; wire clamp connector for Outputs >100V.
- 7. Exit air assures reliable operation when zero stacked.
- 8. Input: 230VAC Single Phase, 208 VAC Three Phase, 50/60 Hz AC Input Connector: Phoenix P/N: FRONT-4-H-7.62.
- 9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog, LAN or USB Interface.
- 10. Auxiliary Output Voltage Connector. Phoenix P/N IMC1.5/7-ST-3.81

TDK·Lambda 12

Genesys[™] 2.4kW Specifications

I.0 MODEL I.Rated Output voltage(*1)	GEN V	8-300 8	10-240 10	16-150 16	20-120 20	30-80 30	40-60 40	60-40 60	80-30 80	100-24 100	150-16 150	300-8 300	600-4
.Rated Output Current(*2)	A	300	240	150	120	80	60	40	30	24	150	8	4
Rated Output Power	Ŵ	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
•													
1 CONSTANT VOLTAGE MODE Max.line regulation (0.01% of rated Vo+2mV)(*6)	mV	2.8	3	3.6	4	5	6	8	10	12	17	32	62
Max load regulation (0.01% of rated V0+211V)(6)	mV	6.2	6.5	7.4	8	9.5	11	14	10	20	27.5	50	95
Ripple and noise p-p 20MHz (*8)	mV	60	60	60	60	60	60	60	80	80	100	200	300
Ripple r.m.s 5Hz~1MHz	mV	8	8	8	8	8	8	8	8	8	25	50	75
Remote sense compensation/wire	V	2	2	2	2	5	5	5	5	5	5	5	5
Temperature coefficient		100PPM/°				-	-	5		5	5	5	5
Temperature stability	FFW/ C		ated Vout ov					Constant	line load &	tomn			
Warm-up drift	├ ───		0.05% of rat							temp.			
Up-prog. response time, 0~Vo Rated (*9)	mS	30	0.03 /0 01 14		50	00001		70		30	100	150	200
0.Down-prog response time Full-load (*9)	mS	20		50			80	70		20	200	250	300
No-load (*10)	mS	500		600		900	1000	1100	1200	1500	2500	3500	400
1.Transient response time	mS		utput voltage		within 0.5%								
			ocal sense.									. Output oo	r point.
	L	10 100 /0, 1	0001 001100.	Looo than		nouclo up		ang 1004.					
2 CONSTANT CURRENT MODE													
Max.line regulation (0.01% of Io rated+2mA)(*6)	mA	32	26	17	14	10	8	6	5	4.4	3.6	2.8	2.4
Max.load regulation (0.02% of lo rated+5mA)(*11)	mA	65	53	35	29	21	17	13	11	9.8	8.2	6.6	5.8
Ripple r.m.s 5Hz~1MHz. (*12)	mA	1200	960	600	480	220	120	70	50	40	30	15	7
Temperature coefficient	PPM/°C	100PPM/º	C from rated	l output cur	rent, followir	ng 30 minu	tes warm-up).					
Temperature stability	1		ated lout ov						ne, load &	temperature	Э.		
Warm-up drift	1	8V~20V m	odels: Less	than ±0.5%	6 of rated ou	itput currer	nt over 30 m	inutes follov	wing power	On.			
		30V~600V	models: Le	ss than ±0.	25% of rate	d output cu	rrent over 3	0 minutes f	ollowing po	wer On.			
3 PROTECTIVE FUNCTIONS													
OCP		lo., 105% C	onstant Cur	ront									
OCP Foldback			t down whe		nnly change	es from CV	to CC User	selectable					
OVP type			ut-down, ma							on port com	mand		
. OVP trip point		÷	0.5~12V		1~24V	2~36V	2~44V	5~66V	5~88V	5~110V	5~165V	5~330V	5~66
Output Under Voltage Limit			ront panel o							J~110V	J~103V	J~330V	3~00
Over Temperature Protection		<u> </u>	table , latch			Fievenits in	Jin aujusting		w mmt.				
		Tosel selec			atoneu.								
4 ANALOG PROGRAMMING AND MONITORING													
Vout Voltage Programming		0~100%, 0	~5V or 0~10	0V, user sel	ect. Accurac	cy and linea	arity:±0.5%	of rated Vou	ut.				
.lout Voltage Programming (*13)		0~100%, 0	0~100%, 0~5V or 0~10V, user select. Accuracy and linearity:±1% of rated lout.										
Vout Resistor Programming	0~100%, 0	0~100%, 0~5/10kohm full scale,user select.,Accuracy and linearity: ±1% of rated Vout.											
.lout Resistor Programming (*13)		0~100%, 0	~5/10kohm	full scale,u	ser select. A	ccuracy ar	d linearity:±	1.5% of rat	ed lout.				
5.On/Off control (rear panel)			al. Voltage: (0~0.6V/2~1	5V, or dry c	ontact, use	r selectable	logic.					
6.Output Current monitor (*13)		0~5V or 0-	-10V, Accura	acy:±1%, us	ser selectab	le.							
Output Voltage monitor		0~5V or 0-	10V, Accura	acy:±1%, us	ser selectab	le.							
Power Supply OK signal		TTL high (4~5V) -OK,	0V-Fail 50	Oohm series	resistance).						
0. CV/CC Indicator								0V. Maximu	m sink cur	rent: 10mA.			
0. Enable/Disable		Open Collector. CC Mode: ON, CV Mode: OFF. Maximum Voltage: 30V, Maximum sink current: 10mA. Dry contact. Open:off, Short: on. Max. voltage at Enable/Disable in: 6V.											
1. Local/Remote analog control		By electrical signal or Open/Short: 0~0.6V or short: Remote, 4~5V or open: Local.											
2. Local/Remote analog control Indicator		<u></u>	ctor, Local:	<u>.</u>						nA.			
•		Topon cone	otor, Loodin	011, 11011101		nam vonag	0.001, 110						
5 FRONT PANEL		1											
Control functions			manual adju				and fine adju	istment sel	ectable).				
			manual adju										
			tput ON/OF							ocal control.			
			election by V				. Number of	addresses	:31.				
			odes (auton										
		Baud rate	selection: 12	200,2400,4	800,9600 ar	nd 19,200.							
Display			digits , Accu	•									
			digits, Accu										
Indications		Voltage, C	urrent, Alarr	n, Fine, Pre	view, Foldba	ack, Local,	Output On,	Front Pane	I Lock, CV/	CC.			
6 Interface RS-232&RS-485 or Optional GPIB / LAN I	nterface												
lodel	V	8	10	16	20	30	40	60	80	100	150	300	600
Remote Voltage Programming (16 bit)		-	-										
esolution (0.012% of Vo Rated)	mV	0.96	1.2	1.92	2.4	3.6	4.8	7.2	9.6	12	18	36	72
ccuracy (0.05%Vo Rated+0.05% of Vo Actual Output)	mV	8	10	16	20	30	40	60	80	100	150	300	600
•••													
Remote Current Programming (16 bit)													
lesolution (0.012% of lo Rated)	mA	36	28.8	18	14.4	9.6	7.2	4.8	3.6	2.88	1.92	0.96	0.48
ccuracy (0.2%lo Rated+0.1% of lo Actual Output) (*13)	mA	900	720	450	360	240	180	120	90	72	48	24	12
Readback Voltage													
esolution (0.012% of Vo Rated)	mV	0.96	1.2	1.92	2.4	3.6	4.8	7.2	9.6	12	18	36	72
	mV	16	20	32	40	60	80	120	160	200	300	600	120
ccuracy (0.1%Vo Rated+0.1% of Vo Actual Output)						~~							0
Readback Current		36	28.8	18	14.4	9.6	7.2	4.8	3.6	2.88	1.92	0.96	0.4
Readback Current esolution (0.012% of Io Rated)	mA				400	320	240	160	120	96	64	32	16
ccuracy (0.1%Vo Rated+0.1% of Vo Actual Output) . Readback Current lesolution (0.012% of Io Rated) ccuracy (0.3% Io Rated+0.1% of Io Actual Output) (*13)	mA mA	1200	960	600	480	320							
Readback Current lesolution (0.012% of Io Rated)		1200	960	600	480	320							
Readback Current esolution (0.012% of lo Rated) ccuracy (0.3% lo Rated+0.1% of lo Actual Output) (*13) OVP/UVL Programming		1200 8	960	16	20	30	40	60	80	100	150	300	600
Readback Current esolution (0.012% of Io Rated) ccuracy (0.3% Io Rated+0.1% of Io Actual Output) (*13)	mA							60 600		<u>100</u> 1000	150 1500	300 3000	<u>600</u>

*3: For cases where conformance to various safety standards (UL, IEC, etc) is required, to be

described as 190-240Vac (50/60Hz) for 3-Phase 208V models.

3-Phase 208V models: At 208Vac input voltage, With rated output power. Not including EMI filter inrush current, less than 0.2mSec. 3-Phase 208V models: 170~265Vac, constant load.

*4: *5: *6:

*7: *8: From No-Load to Full-Load, constant input voltage. Maximum drop in Remote Sense. For 8V~300V models: Measured with JEITA RC-9131A (1:1) probe. For 600V model: Measured with 10:1 probe.

*11: For load voltage change, equal to the unit voltage rating, constant input voltage. *12: For 8V~16V models the ripple is measured from 2V to rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current. *13: The Constant Current programming readback and monitoring accuracy does not include the

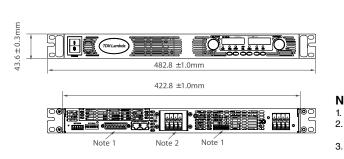
warm-up and Load regulation thermal drift.

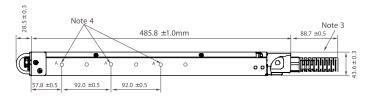
Genesys[™] 2.4kW Specifications

	-													
2.1 INPUT CHARACTERI	STICS	GEN	8-300	10-240	16-150	20-120	30-80	40-60	60-40	80-30	100-24	150-16	300-8	600-4
I. Input voltage/freq. (*3)		VAC			10dels: 170~2 dels: 170~26									
2. Maximum Input	1-Phase,230V models:		17	17	17	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
current at 100% load	3-Phase, 208V models:	Arms	10.5	10.5	10.5	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
B.Power Factor (Typ)	0111000, 2007 1100010.	1			: 0.99@230\									0.0
Efficiency (*4)		%	84	84	86	86	88	88	88	88	88	88	88	87
Inrush Current (5)		A	-	-	Phase 208V i				00	00		00		
6. Hold up time (CV Mode)		mS	<u> </u>		nase and 3-p				t nower					
		1115	TUINGECIU	I Single-Fi	lase and 5-p	11236 200 1	mouels, a	Taleu oulpu	t power.					
2.2 AUXILIARY OUTPUT														
. 15V output					& Noise 100						ntial.			
2.5V output		5V±5%, 0	.2A Max loa	d, Ripple 8	Noise 100m	1Vp-p. Refe	renced inte	ernally to IF_	com potent	ial.				
2.3 POWER SUPPLY COM	NFIGURATION													
 Parallel Operation 		Up to Fou	r (4) identica	I units may	y be connecte	ed in Maste	er/Slave Mo	de with two	wire conne	ction. In Ac	lvanced para	allel feature	, the	
					by number of								d on front	
					alog current r							•		
2. Series Operation		Possible (with externa	l diodes), ι	up to identica	l 2 units wi	th total out	out not to ex	ceed +/-600	V from cha	assis ground			
2.4 ENVIRONMENTAL CO	ONDITIONS													
I. Operating temperature		0~50°C, 1	00% load.											
2. Storage temperature		-20~85°C												
3. Operating humidity		20~90% F	RH (non-con	densing).										
1. Storage humidity		10~95% F	RH (non-con	densing).										
5. Vibration		MIL-810F,	method 514	.5 , The El	JT is fixed to	the vibrati	ng surface.							
3. Shock		Less than	20G , half s	ine , 11mS	ec. Unit is un	npacked.								
? Altitude		Operating: 10000ft (3000m), Derate output current by 2%/100m above 2000m, Alternatively, derate maximum ambient temp. by 1°C/100m above 2000m. Non operating: 40000ft (12000m).												
8. RoHS Compliance		Complies with the requirements of RoHS directive.												
2.5 EMC					· · ·		0							
I. Applicable Standards:		1												
2. ESD		IEC1000	1.2 Air-disch	-8kV con	tact disch4k	Ν								
3. Fast transients		IEC1000-4		1OKV, COIT	laci uiscii46	(V								
1. Surge immunity				to line 2k	V line to grou	ind								
5. Conducted immunity		IEC1000-4		10 1116, 21	v line to grou									
6. Radiated immunity		IEC1000-4												
7. Magnetic field immunity			4-8, 1A/m											
3. Voltage dips		EN61000-												
9. Conducted emission			A, FCC part	15-A. VCC	I-A.									
10. Radiated emission			A, FCC part											
2.6 SAFETY			/	. ,										
Applicable standards:		CE Mork	111 600E0 EI	ICODED lie	ted. Vout≤40			E/loolotod c	nolog oro (
					lous, IEEE/Is				lialog ale v	JLLV.				
					dous, IEEE/Is		0							
2.Withstand voltage					(SELV): 424				DC 1min					
					z. Output: 26									
										ut-Ground	2828VDC 1	min		
	Hazardous OutputSELV: 1900VDC 1min, Hazardous Output-Ground:1200VDC 1min. Input-Ground: 2828VDC 1min. 100 <vout≤600v 1min,="" 1min.<="" 4000vdc="" 4242vdc="" input-haz.="" input-selv:="" models:="" output:="" td=""></vout≤600v>													
					/DC 1min. Ha					ut-Ground:	2828VDC 1	min.		
3.Insulation resistance			100Mohm a											
2.7 MECHANICAL CONS	TRUCTION													
. Cooling		Forced air	flow: from f	ont to roor	. No ventilatio	on holes at	the top or	hottom of the	chaceles V	ariahla fan	speed			
0		_					· · ·				<u> </u>			
2. Dimensions (WxHxD)		_		43.0MM /	1.72", D: 432.	.011111/1/"	(exciuaing	connectors	encoders,	nanules, e	iu.)			
3. Weight	Protoctive Cover	10 kg. / 22												
 AC Input connector (with 					clamp conne np connector									
5.Output connectors					ole Ø 8.5mm/ /7-G-3.81, Pli					nnector, Ph	oenix P/N: F	RONT-4-H	-7.62	
2.7 Warranty														
I. Warranty		5 years.												
		-												

All specifications subject to change without notice.

Outline Drawing Genesys[™] 2.4kW Units





NOTE

- 1. Mating plug supplied with power supply
- 2. Bus bars for 8V to 100V models (shown)
- Wire clamp connector for 150V to 600V models
- Chassis slides mounting holes #10-32 marked 'A' GENERAL DEVICES P/N: CC3001-00-S160 or equivalent
 - TDK·Lambda 14

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.



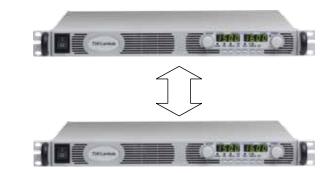
Series operation

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 P/N: IEMD 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** Program Current Measure Voltage Measure Current Over Voltage setting and shutdown Current Foldback shutdown Error and Status Messages New Multi-Drop Slave Option P/N: MD Slaves need to be equipped with the MD Slave (RS-485) 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. 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% P/N: LAN LAN Interface **LXI** Compliant to Class C Meets all LXI-C Requirements VISA & SCPI Compatible Address Viewable on Front Panel ٠ LAN Fault Indicators Fixed and Dynamic Addressing • Auto-detects LAN Cross-over Cable Fast Startup Compatible with most standard Networks

USB Interface

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

P/N: USB

5 | Genesys[™] 2.4kW 1U

Power Supply Identification / Accessories

How to order

GEN					•
Name V	Output /oltage D~8V)	Output Current (0~300A)	Factory Option Option:	IEMD MD IS510 IS420 LAN USB	AC Input Options 1P230 (Single Phase 170~265VAC) 3P208 (Three Phase 170~265VAC)

Models 2.4kW

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GEN 8-300	0~8V	0~300	2400
GEN 10-240	0~10V	0~240	2400
GEN 16-150	0~16V	0~150	2400
GEN 20-120	0~20V	0~120	2400
GEN 30-80	0~30V	0~80	2400
GEN 40-60	0~40V	0~60	2400

Factory options

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 LC Class C)* USB Interface*

* Limit of one interface option per supply

Accessories

1. Serial Communication cable

RS-232/RS-485 cable is used to connect the power supply to the Host PC.

Mode	RS-485	RS-232	RS-232		
PC Connector	DB-9F	DB-9F	DB-25F		
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	Shield Ground L=2m		
Power Supply Connector	Power Supply Connector 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



Also available, Genesys™ 1U Half Rack 750W 1U Full Rack 750W/1500W/2400W 2U Full Rack 3300W 3U Full Rack 10/15kW

Output Output Output Model Voltage Current Power VDC (A) (W) GEN 60-40 0~40 0~60V 2400 GEN 80-30 0~80V 0~30 2400 GEN 100-24 0~24 0~100V 2400 0~16 GEN 150-16 0~150V 2400 GEN 300-8 0~300V 0~8 2400 GEN 600-4 0~600V 0~4 2400

P/N

IEMD MD IS510 IS420 LAN USB

