

Programmable Power Supplies



# Programmable Power Supplies

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### **Applications**

- ATE Systems
- · Battery simulation
- · Component burn-in
- · Plating and etching

#### **Features**

- Output voltage up to 1500V, output current up to 1000A, power range from 200W to 15000W
- Constant voltage or constant current operation with automatic crossover
- Last setting memory stores latest settings when power supply is switched off
- Analogue programming and monitoring for output voltage and current with 0-5V or 0-10V scale
- Integrated RS232/RS485 (and USB for Z+) communication interface as standard
- IEEE, LAN and isolated analogue optional interfaces
- Comprehensive parameter setting menus via front panel or digital interface
- Parallel operation with active current share and advanced parallel mode
- Arbitrary function generation and storage on Z+
- Suitable for benchtop use or 19" rack integration







# GENESYS G Series

Programmable DC Power Supplies Half-Rack 1.5kW in 1U Height Full-Rack 1.7kW/2.7kW/3.4kW/5kW in 1U Height GSP 10kW/15kW in 2U/3U Height

## ! Advanced Features Built-In!

Arbitrary Waveform Generator with Auto-Trigger Capability
 Programmable Slew Rate Control (Vout/lout)
 Constant Power Limit Operation • Internal Resistance Programming
 Built-In LAN (LXI 1.5), USB, and RS-232/RS-485 Interfaces
 Built-In Remote Isolated Analog Interface
 Blank Front Panel Option Available



TDK-Lambda
Innovating Reliable Power





The GENESYS<sup>™</sup> family of programmable power supplies sets a new standard for flexible, reliable, AC/DC power systems in OEM, Industrial and Laboratory applications.

#### Features include:

The <sup>™</sup> family of programmable power supplies sets a new standard for flexible, reliable, AC/DC power systems in OEM, Industrial and Laboratory applications Features include:

- Leading DC Programmable power density (5kW in 1U height, 10kW/15kW in 2U/3U height) in 19" rack-mount
- Light-weight 5kW<7.5 kg, GSP 10kW<15.5 kg, 15kW<23.5 kg
- Wide Range of popular worldwide AC inputs:
  - G1.7kW: 1ø (85~265VAC)
  - G2.7kW / G3.4kW: 1ø (170~265VAC), 3ø (208VAC, 400VAC)
  - G5kW / GSP10kW / 15kW: 3ø (208VAC, 400VAC & 480VAC), Wide-range 3ø 480VAC (342VAC ~ 528VAC)
- Active three-phase PFC (0.94 typical)
- Output Voltage up to 600V, Current up to 1500A
- Built-in LAN (LXI 1.5), USB, RS-232/RS-485 Interface
- Multi-Drop capability (RS-485)
- Multi-functional front panel display
- **Last-Setting Memory**
- Auto-Start / Safe-Start: user selectable
- High Resolution 16 bit ADCs & DACs
- Arbitrary Waveform Generator with Auto-Trigger Capability
- Store up to 100 steps into four internal memory cells
- High-speed Programming
- Constant Voltage/Constant Current operation modes
- Constant Power (CP) Limit
- Slew-Rate Control (V/I)
- Internal Resistance Programming Simulation
- Local / Remote Sensing software controlled
- Built-In Remote Isolated Analog Program/Monitor and Control Interface
- Protection functions (OVP, UVP, UVL, FOLD (CV/CC), OCL, OTP, AC FAIL)
- Fan speed profile controlled by ambient temperature and load
- Certified LabWindows™/CVI, LabVIEW™, and IVI Drivers
- Optional IEEE Interface
- 19" Rack Mount capability for ATE and OEM application
- Scalable Power Systems of 10kW and 15kW
- Parallel Systems (up to 30kW) with Auto-Configure
- Worldwide Safety Agency approvals
- CE Mark for Low Voltage, EMC and RoHS2 Directives







Five year warranty

### **Applications**

**G**ENESYS<sup>™</sup> power supplies have been designed to meet the demands of a wide variety of applications.

Test & Measurement systems, Component Device Testing, Manufacturing and process control.

Semiconductor Processing & Burn-In, Aerospace & Satellite Testing, Medical Imaging, Green Technology.

Higher power systems can be configured with up to four 5kW units. Each unit is 1U with zero space between them (zero stack).

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



### **G1.7kW-5kW Front Panel Description**



- 1. Input Power ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable Detent Encoders for settings and Menu navigation.
- 4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
- 5. Function/Status LEDs: Active modes and function indicators
- 6. Pushbuttons allow flexible user configuration

### **G1.7kW-5kW Rear Panel Description**



- 1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
- 2. USB Interface connector (Type B).
- 3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
- 4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
- 5. Auto paralleling Bus connectors (mini I/O type) for connecting Master unit-to-Slave and slave unit-to-slave unit.
- Remote/Local Output Voltage Sense Connections (spring cage).
- 7. Output Connections: Rugged busbars (shown) for models up to and including 100V Output; Plug connector: PHOENIX CONTACT IPC 5/4-STF-7.62 for models with Outputs >100V.
- 8. G2.7kW / G3.4kW / G5kW AC Input: 208VAC, 400VAC & 480VAC, Three Phase, 50/60 Hz. (Model shown) AC Input Plug Connector: PHOENIX CONTACT Power Combicon PC 5/4-STCL1-7.62 Series with strain relief. G1.7kW / G2.7kW / G3.4kW AC Input Single Phase, 50/60 Hz. AC Input Plug Connector: PHOENIX CONTACT Power Combicon PC 5/3-STCL1-7.62 Series with strain relief.
- 9. Optional Interface Position for IEEE 488.2 SCPI or AnyBus Interface.
- 10. Exhaust air assures reliable operation when units are zero stacked.
- 11. Functional Ground connection (M4x8mm stud).
- 12. Reset button. Set default Power Supply settings.



### **GSP10kW Front Panel Description**



- 1. Input Power ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable Detent Encoders for settings and Menu navigation.
- 4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
- 5. Function/Status LEDs: Active modes and function indicators
- 6. Pushbuttons allow flexible user configuration

### **GSP10kW Rear Panel Description**



- 1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
- 2. USB Interface connector (Type B).
- 3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
- 4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
- 5. Auto paralleling Bus connectors (mini I/O type) for connecting Master unit-to-Slave and slave unit-to-slave unit.
- 6. Remote/Local Output Voltage Sense Connections (spring cage).
- Output Connections: Rugged busbars (shown) for models up to and including 100V Output;
   Plug connector: PHOENIX CONTACT DFK-IPC 16/4-STF-10.16 for models with Outputs >100V.
- 8. Input: 208VAC, 400VAC & 480VAC Three Phase, 50/60 Hz. AC Input Plug Connector: PHOENIX CONTACT DFK-IPC 16/4-STF-10.16 with strain relief.
- 9. Optional Interface Position for IEEE 488.2 SCPI or AnyBus Interface.
- 10. Exhaust air assures reliable operation when zero stacked.
- 11. Functional Ground connection (M4x8mm stud).
- 12. Reset button. Set default Power Supply settings.



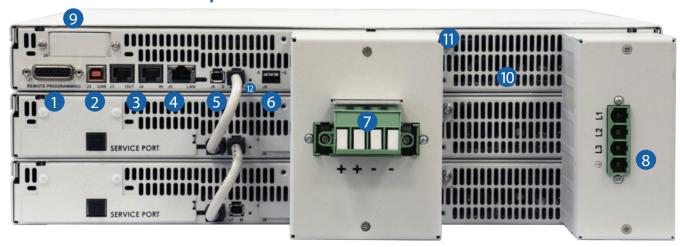
### TDK-Lambda

### **GSP15kW Front Panel Description**



- 1. Input Power ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable Detent Encoders for settings and Menu navigation.
- 4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
- 5. Function/Status LEDs: Active modes and function indicators
- 6. Pushbuttons allow flexible user configuration

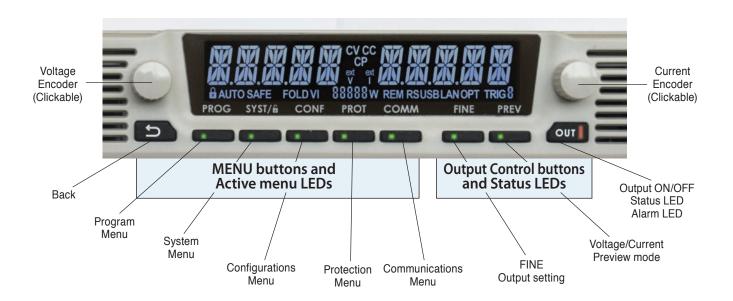
### **GSP15kW Rear Panel Description**



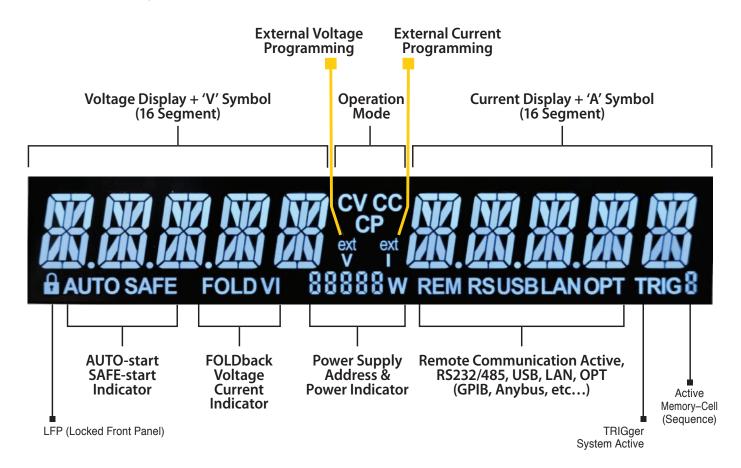
- 1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
- 2. USB Interface connector (Type B).
- 3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
- 4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
- 5. Auto paralleling Bus connectors (mini I/O type) for connecting Master unit-to-Slave and slave unit-to-slave unit.
- 6. Remote/Local Output Voltage Sense Connections (spring cage).
- 7. Output Connections: Rugged busbars for models up to and including 100V Output; Plug connector: PHOENIX CONTACT DFK-IPC 16/4-STF-10.16 for models with Outputs >100V (shown).
- 8. Input: 208VAC, 400VAC & 480VAC Three Phase, 50/60 Hz. AC Input Plug Connector: PHOENIX CONTACT DFK-PC 16/4-ST-10.16 with strain relief.
- 9. Optional Interface Position for IEEE 488.2 SCPI or AnyBus Interface.
- 10. Exhaust air assures reliable operation when zero stacked.
- 11. Functional Ground connection (M4x8mm stud).
- 12. Reset button. Set default Power Supply settings.



### **Front Panel Display MENU/CONTROL buttons:**



### **Front Panel Display indicators**





### 

A Blank Front Panel is available for applications where the front panel display and controls are not required and only remote interface (Digital/Analog) is needed.

The Blank Front Panel option has all the standard product functions and features except the display.

The power supply can be controlled via the rear panel Remote digital interface (LAN, USB, RS-232/RS-485) or via the remote Isolated Analog interface.

### **G**ENESYS™ Parallel and Series Configurations

### Parallel operation - Master/Slave:

Auto paralleling Scalable Master-Slave Operation. Active current sharing allows up to six identical units to be connected

Total real current is programmed measured and reported by the Master. Up to six supplies operate as one.

Separates Parallel Kit available for 30kW (6 unit) systems allowing easy system setup.

Order P/N: G/P - 6U

## Series operation

Two units may be connected in series to increase the output voltage or to provide bipolar output. (Max 600V to Chassis Ground).

### Multi-Drop Remote Programming via Communication Interface

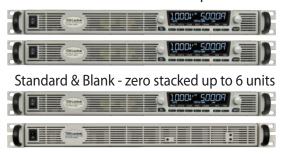
Standard Built-in LAN, USB, RS-232 & RS-485 allows "Multi-Drop" daisy-chain control of up to 31 Power supplies on the same communication bus. Can be Daisy chained via built-in RS-485 Interface.

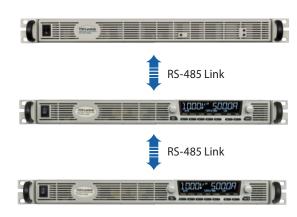
- First unit is LAN, USB, RS-232, RS-485, etc.
- All other units use RS-485 daisy chain with linking cable.



LAN, USB, RS-232, RS-485, IEEE, AnyBus

Standard Unit - zero stacked up to 6 units



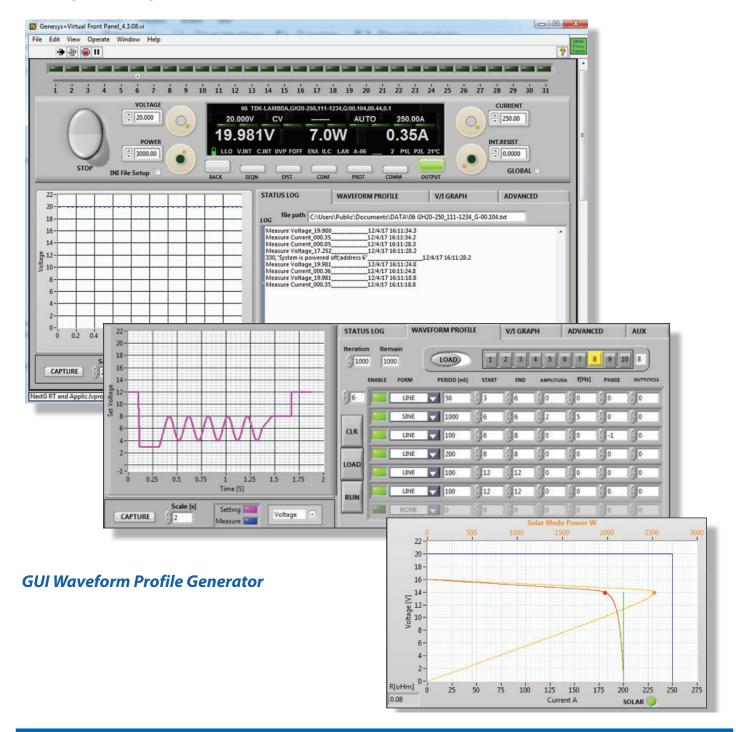




### **Graphical User Interface**

Advanced "Virtual Front Panel" allows programming and monitoring unit(s) with or without front panel display.

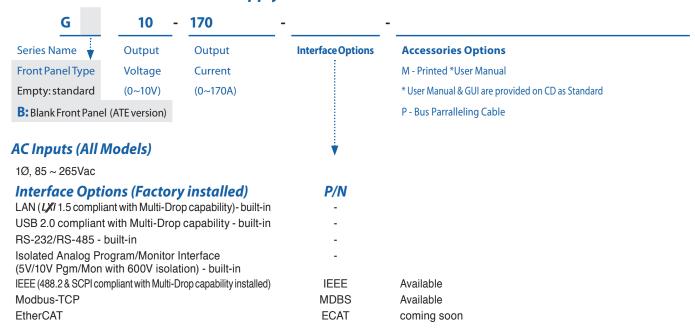
- 1. Control and monitor up-to 31 units with "Address" bar
- 2. Front panel set-up menu control (PROGram, SYSTem, CONFiguration, PROTection and COMMnication)
- 3. Informative "Parameters" status bar
- 4. Individual unit and Global command control
- 5. Data logging including errors, events and recovery
- 6. Realtime Graph and Waveform creator, store/load sequence.
- 7. Solar array mode calculate MPP (Max Peak Power) for solar array.
- 8. Registers View: Operation Status, Fault, Event Status, ENABLE and INTERLOCK signals.
- 9. Remote communication state LOC, REM, LLO.
- 10. Programmed signals 1&2





### TDK·Lambda

### How to order G1.7kW - Power Supply Identification / Accessories



### **Models 1.7kW**

Model	Output Voltage VDC	Output Current ( A )	Output Power (W)	Model	Output Voltage VDC	Output Current ( A )	Output Power ( W )
G10-170	0~10V	0~170	1700	G80-21	0~80V	0~21	1680
G20-85	0~20V	0~85	1700	G100-17	0~100V	0~17	1700
G30-56	0~30V	0~56	1680	G150-11.2	0~150V	0~11.2	1680
G40-42	0~40V	0~42	1680	G300-5.6	0~300V	0~5.6	1680
G60-28	0~60V	0~28	1680	G600-2.8	0~600V	0~2.8	1680

#### **Accessories**

Accessories will be sent separatly from the Power Supply packing, according to order.

#### 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
PC Connector	DB-9F	DB-9F
Communication Cable	Shielded L=2m	Shielded L=2m
Power Supply Connector	RJ-45	RJ-45
P/N	GEN/485-9	GEN/232-9

### 2. Serial link cable (Included with the power supply)

Daisy-chain up to 31 **G**ENESYS<sup>™</sup> power supplies.

Mode	Power Supply Connector	Communication Cable	P/N
RS-485	RJ-45	Shielded L=50cm	GEN/RJ45

### 3. Bus Paralleling cable

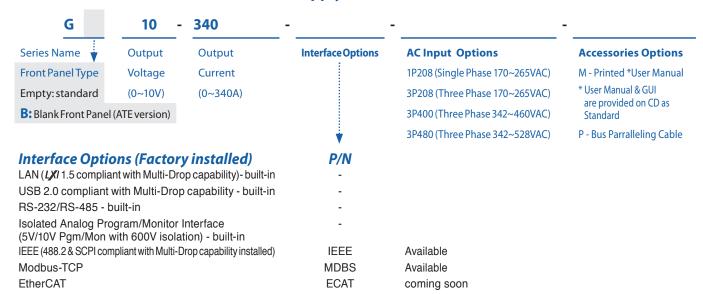
Connectors	Cables	P/N
2013595-1 (TYCO)	Shielded L=11cm	G/P

#### 4. User Manual

Printed User Manual	G/M



### How to order G2.7kW/3.4kW-Power Supply Identification / Accessories



### Models G2.7kW

Model	Output Voltage VDC	Output Current ( A )	Output Power ( W )	Model	Output Voltage VDC	Output Current ( A )	Output Power ( W )
G10-265	0~10V	0~265	2650	G80-34	0~80V	0~34	2720
G20-135	0~20V	0~135	2700	G100-27	0~100V	0~27	2700
G30-90	0~30V	0~90	2700	G150-18	0~150V	0~18	2700
G40-68	0~40V	0~68	2720	G300-9	0~300V	0~9	2700
G60-45	0~60V	0~45	2700	G600-4.5	0~600V	0~4.5	2700

### **Models G3.4kW**

Model	Output Voltage VDC	Output Current ( A )	Output Power (W)	Model	Output Voltage VDC	Output Current ( A )	Output Power ( W )
G10-340	0~10V	0~340	3400	G80-42	0~80V	0~42	3360
G20-170	0~20V	0~170	3400	G100-34	0~100V	0~34	3400
G30-112	0~30V	0~112	3360	G150-22.5	0~150V	0~22.5	3375
G40-85	0~40V	0~85	3400	G300-11.5	0~300V	0~11.5	3450
G60-56	0~60V	0~56	3360	G600-5.6	0~600V	0~5.6	3360

### Accessories

Accessories will be sent separatly from the Power Supply packing, according to order.

**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
PC Connector, Communication Cable, Power Supply Connector	DB-9F. Shielded L=2m. RJ-45	DB-9F. Shielded L=2m, RJ-45
P/N	GEN/485-9	GEN/232-9

### 2. Serial link cable (Included with the power supply)

Daisy-chain up to 31 **GENESYS**<sup>™</sup> power supplies.

Mode	Power Supply Connector	Communication Cable	P/N
RS-485	RJ-45	Shielded L=50cm	GEN/RJ45

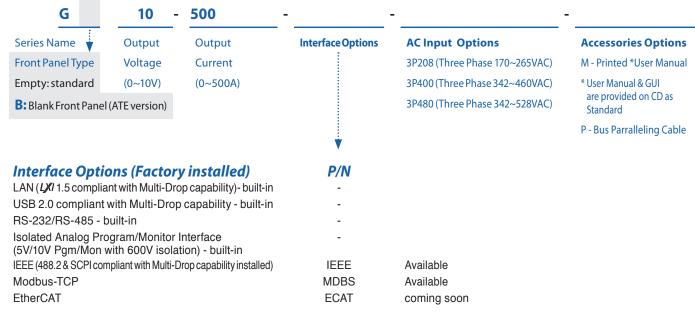
### 3. Bus Paralleling cable

Connectors	Cables	P/N	
2013595-1 (TYCO)	Shielded L=11cm	G/P	
4 11 44 1			

4. User Manual	
Printed User Manual	G/M



### How to order G5kW - Power Supply Identification / Accessories



#### **Models 5kW**

Model	Output Voltage VDC	Output Current ( A )	Output Power (W)	Model	Output Voltage VDC	Output Current ( A )	Output Power (W)
G10-500	0~10V	0~500	5000	G80-65	0~80V	0~65	5200
G20-250	0~20V	0~250	5000	G100-50	0~100V	0~50	5000
G30-170	0~30V	0~170	5100	G150-34	0~150V	0~34	5100
G40-125	0~40V	0~125	5000	G200-25	0~200V	0~25	5000
G60-85	0~60V	0~85	5100	G300-17	0~300V	0~17	5100
				G600-8.5	0~600V	0~8.5	5100

### **Accessories**

Accessories will be sent separatly from the Power Supply packing, according to order.

#### 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
PC Connector Communication Cable Power Supply Connector	DB-9F Shielded L=2m RJ-45	DB-9F Shielded L=2m RJ-45
P/N	GEN/485-9	GEN/232-9

### 2. Serial link cable (Included with the power supply)

Daisy-chain up to 31 **GENESYS**<sup>™</sup> power supplies.

Mode	Power Supply Connector	Communication Cable	P/N
RS-485	RJ-45	Shielded L=50cm	GEN/RJ45

### 3. Bus Paralleling cable

Connectors	Cables	P/N	
2013595-1 (TYCO)	Shielded L=11cm	G/P	
4. User Manual			
Printed User Manual		G/M	

#### 5. Parallel Kit: 20kW/30kW

G/P-4U: BusBar Parallel Kit for 20 kW operation (5kW Models where Vout up to 100V)

G/P-6U: BusBar Parallel Kit for 30 kW operation (5kW Models where Vout up to 100V)



Output Power

(kW)

10.4

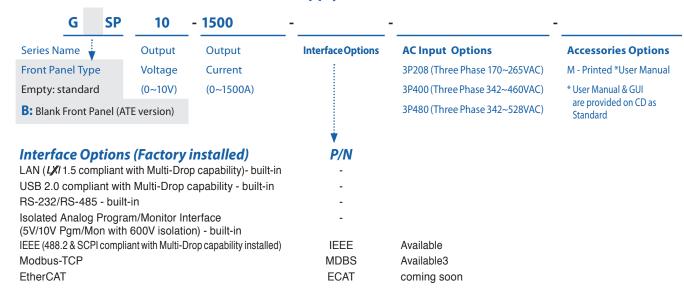
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10.2

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10.2 10.2

### How to order GSP10kW-15kW - Power Supply Identification / Accessories



### **Models GSP 10kW**

Model	Output Voltage VDC	Output Current ( A )	Output Power ( kW )	Model	Output Voltage VDC	Output Current ( A )
GSP10-1000	0~10V	0~1000	10	GSP80-130	0~80V	0~130
GSP20-500	0~20V	0~500	10	GSP100-100	0~100V	0~100
GSP30-340	0~30V	0~340	10.2	GSP150-68	0~150V	0~68
GSP40-250	0~40V	0~250	10	GSP200-50	0~200V	0~50
GSP60-170	0~60V	0~170	10.2	GSP300-34	0~300V	0~34
				GSP600-17	0~600V	0~17

#### **Models GSP 15kW**

Model		oltage VDC	Output Current ( A )	Output Power ( kW )	Mod
GSP10-150	0 (	)~10V	0~1500	15	GSP80-
GSP20-750	(	)~20V	0~750	15	<b>GSP100</b>
GSP30-510	(	)~30V	0~510	15.3	<b>GSP150</b>
GSP40-375	(	)~40V	0~375	15	<b>GSP200</b>
GSP60-255		)~60V	0~255	15.3	<b>GSP300</b>

Model	Output Voltage VDC	Output Current ( A )	Output Power ( kW )
GSP80-195	0~80V	0~195	15.6
GSP100-150	0~100V	0~150	15
GSP150-102	0~150V	0~102	15.3
GSP200-75	0~200V	0~75	15
GSP300-51	0~300V	0~51	15.3
GSP600-25.5	0~600V	0~25.5	15.3

### Accessories

Accessories will be sent separatly from the Power Supply packing, according to order.

### 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
PC Connector	DB-9F	DB-9F
Communication Cable	Shielded L=2m	Shielded L=2m
Power Supply Connector	RJ-45	RJ-45
P/N	GEN/485-9	GEN/232-9

### 2. Bus Paralleling cable (Included with the power supply)

Connectors	Cables	P/N	
2013595-1 (TYCO)	Shielded L=11cm	G/P	

### 3. User Manual

Printed User Manual	G/M	



### TDK·Lambda -

### **G**ENESYS<sup>™</sup> Family Output Voltage and Current

Models Series		G (Std Front Panel Display) GB (Blank Front Panel Display) 1.7kW 2.7kW 3.4kW 5kW				ble Power)
Rated Power	1.7kW					15kW
Voltage Range			Current F	Range (A)		
0-10V	0~170A	0~265A	0~340A	0~500A	0~1000A	0~1500A
0-20V	0~85A	0~135A	0~170A	0~250A	0~500A	0~750A
0-30V	0~56A	0~90A	0~112A	0~170A	0~340A	0~510A
0-40V	0~42A	0~68A	0~85A	0~125A	0~250A	0~375A
0-60V	0~28A	0~45A	0~56A	0~85A	0~170A	0~255A
0-80V	0~21A	0~34A	0~42A	0~65A	0~130A	0~195A
0-100V	0~17A	0~27A	0~34A	0~50A	0~100A	0~150A
0-150V	0~11.2A	0~18A	0~22.5A	0~34A	0~68A	0~102A
0-200V	-	-	-	0~25A	0~50A	0~75A
0-300V	0~5.6A	0~9A	0~11.5A	0~17A	0~34A	0~51A
0-600V	0~2.8A	0~4.5A	0~5.6A	0~8.5A	0~17A	0~25.5A
Weight (kg/lb)	5/11	6.25/14.3	6.25/14.3	7.5/16.5	15.5/34.2	23.5/51.8

**AC Input Range** 

	, –					
Rated Power	1.7kW	2.7kW	3.4kW	5kW	10kW	15kW
1Ø, 85-265Vac	*	N/A	N/A	N/A	N/A	N/A
1Ø, 170-265Vac		*	*	N/A	N/A	N/A
3P208	N/A	*	*	*	*	*
3P400	N/A	*	*	*	*	*
3P480	N/A	*	*	*	*	*

### Also available GH 1.5 kW Series Half-Rack 1.5kW in 1U Height



Models	s Series	GH (Std Front Panel Display) GHB (Blank Front Panel Display)						
Model	Rated Power	1.5kW						
Model	Voltage Range	Current Range (A)						
GH10-150	0-10V	0~150A						
GH20-75	0-20V	0~75A						
GH30-50	0-30V	0~50A						
GH40-38	0-40V	0~38A						
GH60-25	0-60V	0~25A						
GH80-19	0-80V	0~19A						
GH100-15	0-100V	0~15A						
GH150-10	0-150V	0~10A						
GH300-5	0-300V	0~5.0A						
GH600-2.6	0-600V	0~2.6A						



### **G**ENESYS™ 1.7kW SERIES SPECIFICATIONS

					1							
OUTPUT RATING		G	10-170	20-85	30-56	40-42	60-28	80-21	100-17	150-11.2	300-5.6	600-2.8
1.Rated output voltage(*1)		V	10	20	30	40	60	80	100	150	300	600
2.Rated output current (*2)		Α	170	85	56	42	28	21	17	11.2	5.6	2.8
3.Rated output power		W	1700	1700	1680	1680	1680	1680	1700	1680	1680	1680
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	300	600
1.Input voltage/freg. (*3)			-		~63Hz,Single		- 00			.50	300	
2. Maximum Input current at 100	% load (100/200)	Α	20/10									
3.Power Factor (Typ)	70 Toda (100/200)			c 0.98 @ 200	Vac, rated out	put power.						
4.Efficiency at 100 Vac/200Vac, ra	ted output (*19)	%	86/88	87/89	87/89	87/89	87/89	87/89	88/90	88/90	88/90	88/90
5.Inrush current (*5)		A	Less than 50A			1 21,01						
		.,		1	20	10		1 00	400	450	200	500
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*6)				d output volta								
2.Max. Load regulation (*7)				d output volta	,							
3.Ripple and noise (p-p, 20MHz) (	*8)	mV	50	50	50	60	60	75	75	75	120	500
4.Ripple r.m.s. 5Hz~1MHz (*8)		mV	6	6	6	7	7	10	12	8	20	100
5.Temperature coefficient		PPM/°C	50PPM/°C fro	m rated outp	ut voltage, fol	lowing 30 min	utes warm-up	).				
6.Temperature stability			0.01% of rate	d Vout over 8l	hrs interval fol	lowing 30 min	utes warm-up	. Constant lin	e, load & temp	).		
7. Warm-up drift			Less than 0.0	1% of rated ou	utput voltage-	-2mV over 30 r	ninutes follov	ing power on	i.			
8.Remote sense compensation/w	ire (*10)	V	1	1	5	5	5	5	5	5	5	5
9.Up-prog. Response time (*11)	110 ( 10)	mS	20	20	20	20	20	20	25	50	100	100
9.0p-prog. Response time (*11)	F. III I (¥12)											
10.Down-prog.response time:	Full load (*12)	mS	30	30	60	60	60	60	60	120	220	200
	No load (*12)	mS	450	700	1000	1200	1500	1700	2600	2900	4600	4600
11.Transient response time		mS			recover withing than 1mS, for						urrent. Outpu	t set-point:
·			10~100%, LO	cai serise. Less	5 (11411 11115, 101					ve 100V.		
12.Hold-up time		mS				161	ms typical, rat	ed output pov	wer			
CONSTANT CURRENT MODE		٧	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*6)				d output curr								
2.Max. Load regulation (*9)				d output curr								
3.Ripple r.m.s. @ rated voltage. B.\	A/FII= 1A4II= /*13\	mA	≤400	≤160	≤100	≤60	≤50	≤30	≤30	≤10	≤8	≤5
3. hippie i.iii.s. @ rated voitage. b.	W 3HZ~1WHZ. (*13)	IIIA								≥10	_ ≥0	
5.Temperature coefficient		PPM/°C			om rated outp							
<u> </u>					m rated outpu							
6.Temperature stability			0.01% of rate	d lout over 8h	rs. interval fol	lowing 30 min	utes warm-up	. Constant lin	e, load & temp	erature.		
7. Warm-up drift			10V~100V mo	odel: Less thar	n +/-0.25% of r	ated output c	urrent over 30	minutes follo	wing power o	n.		
7. Wariii-up uriit			150V~600V: L	ess than +/-0	.15% of rated o	output current	over 30 minu	tes following	power on.			
ANALOG PROGRAMMING AND N	IONITORING (ISOLATED											
1.Vout voltage programming			0~100%, 0~5	V or 0~10V, us	ser selectable.	Accuracy and	linearity: +/-0	.15% of rated \	Vout.			
2.lout voltage programming (*14	)		0~100%, 0~5	V or 0~10V, us	ser selectable.	Accuracy and	linearity: +/-0	.4% of rated lo	out.			
3.Vout resistor programming			0~100%, 0~5	/10Kohm full	scale, user sele	ectable. Accur	acy and linear	ity: +/-0.5% of	frated Vout.			
4.lout resistor programming (*14	)		0~100%, 0~5	/10Kohm full	scale, user sele	ectable. Accur	acy and linear	ity: +/-0.5% of	f rated lout.			
5.Output voltage monitor					able. Accuracy							
6.Output current monitor (*14)					able. Accuracy							
oloutput current monitor ( 11)			0 37 01 0 10	v, user sereet	ubic. riccurucy	. 17 0.570.						
SIGNALS AND CONTROLS (ISOLA	TED FROM THE OUTPUT	Γ)										
1. Power supply OK #1 signal			Power supply	output moni	itor. Open coll	ector. Output	On: On. Outpu	ut Off: Off. Max	ximum Voltag	e: 30V, Maxim	um Sink Curre	nt: 10mA.
2. CV/CC signal			CV/CC Monite	or. Open colle	ctor. CC mode	: On. CV mode	: Off. Maximu	m Voltage: 30	V, Maximum S	ink Current: 10	DmA.	
3. LOCAL/REMOTE Analog contro	I		Enable/Disab	ole analog pro	gramming co	ntrol by electri	ical signal or c	lry contact. Re	mote: 0~0.6V	or short. Loca	l: 2~30V or op	en.
4. LOCAL/REMOTE Analog signal					ol monitor sig							
5. ENABLE/DISABLE signal					by electrical si							
6. INTERLOCK (ILC) control					by electrical si						-gici	
											/====	
7. Programmed signals			<u> </u>		nable signals. N							5)(
8. TRIGGER IN / TRIGGER OUT sign	als		Maximum lo	ow level inpu	ut voltage = ( ninimum. Tr,1	).8V,Minimur f=1us Mavi~	n high level	input voltage	e = 2.5V, Max	kımum high l	evel input =	5v positive
					-		iuiii, iviiii dei	ay between	z puises IIIIs	•		
9. DAISY_IN/SO control signal			-		5V/2~30V or di	y contact.						
10. DAISY_OUT/PS_OK #2 signal			4~5V=OK, 0V	(500ohm imp	pedance)=Fail							
FUNCTIONS AND FEATURES												
1. Parallel operation			Possible Unit	to 4 identical i	units in Master	/Slave mode	Refer to instru	ction manual				
2. Series operation					ts. Refer to ins				•			
· ·								turn an !	turn off			
3. Daisy chain					nected in Dais					.11		
4. Constant power control					a proggramn		, ,		· · · · · · · · · · · · · · · · · · ·	<u> </u>		
5. Output resistance control					Resistance rai							
6. Slew rate control					and Output f		rogramming r	ange: 0.0001~	999.9 V/mSec	. or A/mSec. P	rogramming v	ria the
					ne front panel.						9	
7. Arbitrary waveforms			Profiles of up	to 100 steps	can be stored	n 4 memory c	ells. Activatio	n by command	d via the comr	nunication po	rts or by the fr	ont panel.
PROGRAMMING AND READBA	CK (USB. LAN.											
RS232/485, Optional IEEE (*18	) Interfaces)	V	10	20	30	40	60	80	100	150	300	600
1.Vout programming accuracy (*1			0.05% of rate	d output volta	age							•
2.lout programming accuracy (*1					ent+0.2% of ra	ted output cui	rent		-			
3.Vout programming resolution				ed output vol		a sarpar cui						
4.lout programming resolution				ed output cur								
5.Vout readback accuracy				ed output volt								
6.lout readback accuracy (*14)				output curre	1	r		1				
7.Vout readback resolution (of rat	ed output voltage)	%	0.011%	0.006%	0.004%	0.003%	0.002%	0.002%	0.011%	0.007%	0.004%	0.002%
8.lout readback resolution (of rat	ed output current))	%	0.007%	0.002%	0.003%	0.003%	0.005%	0.006%	0.007%	0.010%	0.003%	0.004`%



### **GENESYS™ 1.7kW SERIES SPECIFICATIONS**

PROTECTIVE FUNCTIONS		٧	10	20	30	40	60	80	100	150	300	600
1.Foldback protection			Output shut-o	down when pole. Reset by A	ower supply c	hanges mode le in autostart	from CV or Po mode, by Pov	ower Limit to ( ver Switch, by	CC mode or fro OUTPUT butt	om CC or Powe	er Limit to CV r	node. nunication.
2.Over-voltage protection (OVP)			Output shut-o	down. Reset b	y AC input red	ycle in autost	art mode, by	OUTPUT butto	n, by rear par	nel or by comn	nunication.	
3.Over -voltage programming rai	nge	V	0.5~12	1~24	2~36	2~44.1	5~66.15	5~88.2	5~110.25	5~165.37	5~330.75	5~661.5
4. Over-voltage programming ac	curacy		+/-1% of rated	doutput volta	ige							
5.Output under voltage limit (UV	L)		Prevents from	adjusting Vo	ut below limi	t. Does not ap	ply in analog	programming	. Preset by fro	nt panel or co	mmunication	port.
6.Over temperature protection			Shuts down t	he output. Au	to recovery by	y autostart mo	de.		-			,
7. Output under voltage limit (UV	'L)		Prevents adju	stment of Vo	ut below limit							
8. Output under voltage protecti	on (UVP)		Prevents adju mode, by Pow	stment of Vou ver Switch, by	ut below limit OUTPUT butt	. P.S output tu on, by rear pa	rns Off during nel or by com	under voltag munication.	e condition. R	eset by AC inp	ut recycle in a	utostart
FRONT PANEL												
1.Control functions			Multiple option	ons with 2 Fno	oders							
1.control functions			Vout/lout/Por									
			OVP/UVL/UVF									
			Protection Fu			dhack OCL EI	NA II C					
								or Optional co	nmunication	nintorfaco	-	
			Output ON/O			LAN,IEEE,NOZ.	JZ,NJ40J,UJD	or optional Co	Jiiiiluilicalioi	initerrace.		
						Raud Data Ad	droce ID and	communicatio	n language			
								communication, 5V/10V, 5K/1		ning		
									iuk programn	iing		
			Analog Monit					j 5V/10V.	-			
2.Display						utput voltage						
			lout: 4 digits,									
3.Front Panel Buttons Indications	5									л, SEQUENCER		
4. Front Panel Display Indications	i		Voltage, Curre (communicat	ent, Power, C\ ion), RS/USB/I	/, CC, CP, Exter LAN/IEEE com	nal Voltage, E munication, T	xternal Currei rigger, Load/S	nt, Address, LF tore Cell.	P, Autostart, S	afetstart, Folc	lback V/I, Rem	ote
ENVIRONMENTAL CONDITIONS												
1.Operating temperature			0~50°C, 100%	load.								
2.Storage temperature			-30~85°C									
3.Operating humidity		%	20~90% RH (r	no condensati	ion)							
· · · ·												
4.Storage humidity		%	10~95% RH (r									
5.Altitude (*16)			Operating: 10	000ft (3000m	), output curre	ent derating 2 <sup>o</sup>	%/100m or Ta	derating 1°C/1	100m above 2	000m. Non op	erating: 40000	ft (12000m).
MECHANICAL												
1.Cooling			Forced air cod	oling by interr	nal fans. Air flo	w direction: f	rom Front par	el to power su	upply rear			
2.Weight		kg	Less than 5kg									
		ng.			(Mithout by	ısbars and bı	icharc cover	١				
3.Dimensions (WxHxD)		mm						r) (Refer to C	outline draw	ing).		
4.Vibration						t condition Ar	nnex C - 2.1.3.1					
5.Shock			Less than 20G	i, half sine, 11r	mSec. Unit is ι	ınpacked.						
SAFETY/EMC											-	
1. Applicable standards:	Safety		UL60950-1, C	SA22.2 No.609	950-1, IEC6095	50-1, EN60950	-1.					
1.Applicable standards:  1.1. Interface classification	Safety		Vout ≤40V Mo	odels: Output,	, J1,J2,J3,J4,J5	,J6,J7,J8 (sense	e) and ,J9 (con	nmunication o	pptions) are SE I J9 (communi	ELV. cation option:	s) are SELV	
• •	Safety		Vout ≤40V Mo 60≤ Vout≤ 6	odels: Output 00V Models: C	, J1,J2,J3,J4,J5 Output, J8 (ser	,J6,J7,J8 (sense nse) are hazaro	e) and ,J9 (con lous, J1,J2,J3,	14,J5,J6,J7 and	l J9 (communi	cation options	s) are SELV	
1.1. Interface classification	Safety		Vout ≤40V Mc 60≤ Vout≤ 60 Vout ≤40V M 60V≤Vout≤10	odels: Output, 00V Models: C lodels: Input 00V Models:	, J1,J2,J3,J4,J5 Output, J8 (ser - Output (SE Input - Outpu	,J6,J7,J8 (sensense) are hazard LV): 4242VD0 ut: 4242VDC	e) and ,J9 (con lous, J1,J2,J3, C 1min, Input 1min, Input -	14,J5,J6,J7 and - Ground: 28 SELV: 4242V	I J9 (communi 335VDC 1mir	cation options	-	٦,
• •	Safety		Vout ≤40V Mo 60≤ Vout≤ 6 Vout ≤40V M 60V≤Vout≤10 Output - Gro 100 <vout≤60< td=""><td>odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VD</td><td>, J1,J2,J3,J4,J5, Dutput, J8 (ser - Output (SE Input - Outpu )C 1min, Inpu Input - Outpu</td><td>,J6,J7,J8 (sensense) are hazard LV): 4242VDC ut: 4242VDC ut - Ground: 2 ut: 4242VDC</td><td>e) and ,J9 (con dous, J1,J2,J3,. C 1min, Input 1min, Input - 835VDC 1mi 1min, Input -</td><td>14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V</td><td>I J9 (communi 335VDC 1mir 'DC 1min, Ou</td><td>cation options</td><td>850VDC 1mii</td><td>,</td></vout≤60<>	odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VD	, J1,J2,J3,J4,J5, Dutput, J8 (ser - Output (SE Input - Outpu )C 1min, Inpu Input - Outpu	,J6,J7,J8 (sensense) are hazard LV): 4242VDC ut: 4242VDC ut - Ground: 2 ut: 4242VDC	e) and ,J9 (con dous, J1,J2,J3,. C 1min, Input 1min, Input - 835VDC 1mi 1min, Input -	14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V	I J9 (communi 335VDC 1mir 'DC 1min, Ou	cation options	850VDC 1mii	,
1.1. Interface classification  1.2 Withstand voltage	Safety		Vout ≤40V Mo 60≤ Vout≤ 60 Vout ≤40V M 60V≤Vout≤10 Output - Gro 100 <vout≤60 Output - Gro</vout≤60 	odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VE 00V Models: und: 2500VE	, J1,J2,J3,J4,J5, Dutput, J8 (ser - Output (SE Input - Outpu )C 1min, Inpu Input - Outpu	,J6,J7,J8 (sensense) are hazard LV): 4242VDC ut: 4242VDC ut - Ground: 2 ut: 4242VDC	e) and ,J9 (con dous, J1,J2,J3,. C 1min, Input 1min, Input - 835VDC 1mi 1min, Input -	14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V	I J9 (communi 335VDC 1mir 'DC 1min, Ou	cation option: 1. utput - SELV:	850VDC 1mii	,
1.1. Interface classification     1.2 Withstand voltage     1.3 Insulation resistance	Safety		Vout ≤40V Mc 60≤ Vout≤ 6  Vout ≤40V M 60V≤Vout≤10 Output - Gro 100 <vout≤6 -="" 100mohm="" at<="" gro="" output="" td=""><td>odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VD 00V Models: und: 2500VD 25°C, 70%RH.</td><td>, J1,J2,J3,J4,J5, Dutput, J8 (ser - Output (SE Input - Outpu IOC 1min, Inpu Input - Outpu IOC 1min, Inpu</td><td>J6,J7,J8 (senso see) are hazard LV): 4242VDC at: 4242VDC at - Ground: 2 ut: 4242VDC at - Ground: 2</td><td>e) and ,J9 (con dous, J1,J2,J3,. C 1min, Input 1min, Input - 835VDC 1mi 1min, Input - 835VDC 1mi</td><td>14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V n.</td><td>I J9 (communi 335VDC 1mir 'DC 1min, Ou</td><td>cation option: 1. utput - SELV:</td><td>850VDC 1mii</td><td>,</td></vout≤6>	odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VD 00V Models: und: 2500VD 25°C, 70%RH.	, J1,J2,J3,J4,J5, Dutput, J8 (ser - Output (SE Input - Outpu IOC 1min, Inpu Input - Outpu IOC 1min, Inpu	J6,J7,J8 (senso see) are hazard LV): 4242VDC at: 4242VDC at - Ground: 2 ut: 4242VDC at - Ground: 2	e) and ,J9 (con dous, J1,J2,J3,. C 1min, Input 1min, Input - 835VDC 1mi 1min, Input - 835VDC 1mi	14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V n.	I J9 (communi 335VDC 1mir 'DC 1min, Ou	cation option: 1. utput - SELV:	850VDC 1mii	,
1.1. Interface classification  1.2 Withstand voltage  1.3 Insulation resistance  2.Conducted emmision	Safety		Vout ≤40V Mc 60≤ Vout≤ 6  Vout ≤40V Mc 60V≤Vout≤10  Output - Gro 100 <vout≤6 -="" 100mohm="" at="" en61204-<="" gro="" iec="" output="" td=""><td>odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VD 00V Models: und: 2500VD 25°C, 70%RH. 3 Industrial el</td><td>, J1,J2,J3,J4,J5, Output, J8 (ser - Output (SE Input - Outpu OC 1min, Inpu Input - Outpu OC 1min, Inpu</td><td>J6,J7,J8 (sensi nse) are hazard LV): 4242VDC nt: 4242VDC nt - Ground: 2 ut: 4242VDC nt - Ground: 2</td><td>e) and ,J9 (con dous, J1,J2,J3, C 1min, Input 1min, Input - 835VDC 1mi 1min, Input - 835VDC 1mi H.1,FCC Part</td><td>14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V n.</td><td>I J9 (communi 335VDC 1mir IDC 1min, Ou IDC 1min, Ou</td><td>cation option: 1. utput - SELV:</td><td>850VDC 1mii</td><td>,</td></vout≤6>	odels: Output, 00V Models: C lodels: Input 00V Models: und: 1500VD 00V Models: und: 2500VD 25°C, 70%RH. 3 Industrial el	, J1,J2,J3,J4,J5, Output, J8 (ser - Output (SE Input - Outpu OC 1min, Inpu Input - Outpu OC 1min, Inpu	J6,J7,J8 (sensi nse) are hazard LV): 4242VDC nt: 4242VDC nt - Ground: 2 ut: 4242VDC nt - Ground: 2	e) and ,J9 (con dous, J1,J2,J3, C 1min, Input 1min, Input - 835VDC 1mi 1min, Input - 835VDC 1mi H.1,FCC Part	14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V n.	I J9 (communi 335VDC 1mir IDC 1min, Ou IDC 1min, Ou	cation option: 1. utput - SELV:	850VDC 1mii	,
1.1. Interface classification     1.2 Withstand voltage     1.3 Insulation resistance	Safety  EMC(*17)		Vout ≤40V Mc 60≤ Vout≤ 6  Vout ≤40V Mc 60V≤Vout≤10  Output - Gro 100 <vout≤6 -="" 100mohm="" at="" en61204-<="" gro="" iec="" output="" td=""><td>odels: Output, 00V Models: Input 00V Models: und: 1500VD 00V Models: und: 2500VD 25°C, 70%RH. 3 Industrial et</td><td>J1,J2,J3,J4,J5 Dutput, J8 (ser - Output (SE Input - Outpu OC 1min, Inpu Input - Outpu OC 1min, Inpu OC 1min, Inpu nvironment, A</td><td>J6,J7,J8 (sensise) are hazard LV): 4242VDC ut: 4242VDC tt - Ground: 2 ut: 4242VDC ut - Ground: 2 ut: 4242VDC ut - Ground: 2</td><td>e) and ,J9 (con dous, J1,J2,J3, C 1min, Input 1min, Input - 835VDC 1mi 1min, Input - 835VDC 1mi H.1,FCC Part</td><td>14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V n.</td><td>I J9 (communi 335VDC 1mir IDC 1min, Ou IDC 1min, Ou</td><td>cation option: 1. utput - SELV:</td><td>850VDC 1mii</td><td>,</td></vout≤6>	odels: Output, 00V Models: Input 00V Models: und: 1500VD 00V Models: und: 2500VD 25°C, 70%RH. 3 Industrial et	J1,J2,J3,J4,J5 Dutput, J8 (ser - Output (SE Input - Outpu OC 1min, Inpu Input - Outpu OC 1min, Inpu OC 1min, Inpu nvironment, A	J6,J7,J8 (sensise) are hazard LV): 4242VDC ut: 4242VDC tt - Ground: 2 ut: 4242VDC ut - Ground: 2 ut: 4242VDC ut - Ground: 2	e) and ,J9 (con dous, J1,J2,J3, C 1min, Input 1min, Input - 835VDC 1mi 1min, Input - 835VDC 1mi H.1,FCC Part	14,J5,J6,J7 and - Ground: 28 SELV: 4242V n. SELV: 4242V n.	I J9 (communi 335VDC 1mir IDC 1min, Ou IDC 1min, Ou	cation option: 1. utput - SELV:	850VDC 1mii	,

Unless otherwise noted, specifications are warranted over the ambient temperature range of  $0^\circ$  to  $50^\circ$ C

- NOTES:
  \*1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

- \*\*I: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
  \*\*2: Minimum current is guaranteed to maximum 0.2% of rated output current.
  \*\*3: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
  \*\*4: Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
  \*\*5: Not including EMI filter inrush current, less than 0.2mSec.
  \*\*6: 85-132Vac or 170-265Vac. Constant load.
  \*\*7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
  \*\*8: For 10V-300V models: Measured with JETA RC-913TC (1:1) probe. For 400-600V model: Measured with 100:1 probe.
  \*\*9: For load voltage change, equal to the unit voltage rating, constant input voltage.
  \*\*10: The maximum voltage on the power supply terminals must not exceed the rated voltage.
  \*\*11: From 10% to 90% of Rated Output Voltage, with rated, resistive load.
  \*\*12: From 90% to 10% of Rated Output Voltage.
  \*\*13: For 10V model, the ripple is measured at 20~100% of 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 Bus 51z-71MHz.
  \*\*14: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.
  \*\*15: Measured at the sensing point.
  \*\*16: For 10V model Ta derating 2°C/100m.
  \*\*17: Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
  \*\*18: Max. ambient temperature for using IEEE is 40°C.
  \*\*19: Ta=25°C, rated output power.



### **G**ENESYS<sup>™</sup> 2.7kW SERIES SPECIFICATIONS

OUTPUT RATING		G	10-265	20-135	30-90	40-68	60-45	80-34	100-27	150-18	300-9	600-4.5
1.Rated output voltage(*1) 2.Rated output current (*2)		V	10 265	20 135	30 90	40 68	60 45	80 34	100 27	150 18	300	600
3.Rated output current (*2)		A W	2650	2700	2700	2720	2700	2720	2700	2700	2700	4.5 2700
						_		_			1	
INPUT CHARACTERISTICS		V	10 3-Phase 200\	20 / models: 170	30 1~265\/ac_47~	63Hz (Covers	200/230\/ac\	80	100	150	300	600
1.Input voltage/freq. 3 phase, 3 wire	e + Ground (*4)		3-Phase, 400 3-Phase, 480	V models: 342 V models: 342	2~460Vac, 47~ 2~528Vac, 47~	63Hz (Covers 63Hz (Covers 63Hz (Covers	380/400/415 <sup>1</sup> 380/400/415/	440/460/480V	ac)			
2. Maximum Input current at 100% load 3	-Phase, 200V models: -Phase, 400V models: -Phase, 480V models:		10A @ 200Va 5.5A @ 380Va 5.5A @ 380Va	ic ic								
1-	-Phase, 200V models:		16A @ 200Va		201/							
3.Power Factor (Typ) —			For 3-Phase: ( For 1-Phase: (									
4.Efficiency (Typ) (*5) (*22)		%	88	89	89.5	90	90	90.5	90.5	90.5	90.5	90.5
5.Inrush current (*6)		A	Less than 50A		05.5	, ,,		70.5	70.5	70.5	70.5	70.5
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)			0.01% of rate						100	150	500	000
2.Max. Load regulation (*8)			0.01% of rate									
3.Ripple and noise (p-p, 20MHz) (*9	))	mV	75	75	75	75	80	80	100	120	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	10	12	12	15	15	20	60	100
5.Temperature coefficient		PPM/°C	50PPM/°C fro	m rated outp	ut voltage, fo	llowing 30 mi	nutes warm-u	ıp.		1	Į.	
6.Temperature stability			0.01% of rate	d Vout over 8	hrs interval fo	llowing 30 mi	nutes warm-ı	ıp. Constant li	ne, load & ter	mp.		
7. Warm-up drift						+2mV over 30						
8.Remote sense compensation/wire	e (*10)	٧	2	2	5	5	5	5	5	5	5	5
9.Up-prog. Response time (*11)		mS	30	30	30	30	50	50	50	50	50	100
10 Down progressions	ull load (*11)	mS	50	50	80	80	80	100	100	100	100	200
10.Down-prog.response time:	lo load (*12)	mS	450	600	800	900	1100	1300	2100	2000	3000	3000
11.Transient response time		mS	Time for outp 10~100%, Lo	out voltage to cal sense. Les	recover with s than 1mS, fo	in 0.5% of its roor models up to	ated output for and including	or a load chan ng 100V. 2mS,	ge 10~90% o for models al	of rated output bove 100V.	t current. Outp	ut set-point
12.Start up delay		Sec	Less than 6 Se	ec								
CONSTANT CURRENT MODE		٧	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)			0.05% of rate		ent.							
2.Max. Load regulation (*13)			0.08% of rate	d output curr	ent.							
3.Ripple r.m.s. @ rated voltage. 3-Ph	nase (*14)	mA	≤800	≤450	≤300	≤150	≤100	≤70	≤45	≤30	≤12	≤5
4.Ripple r.m.s. @ rated voltage. 1-Ph	ase (*14)	mA	≤1200	≤600	≤300	≤300	≤200	≤100	≤60	≤40	≤12	≤8
5.Temperature coefficient		PPM/°C				put current, fo			•			
6.Temperature stability						llowing 30 mi				mperature.		
7. Warm-up drift			10V~100V mo	odel: Less tha	n +/-0.25% of	rated output output curren	current over 3	0 minutes foll	owing powe			
				.ess tilali +/-0	.15% Of Taleu	output curren	it over 30 mm	utes following	power on.			
ANALOG PROGRAMMING AND MO	NITORING (ISOLATED	FROM		V 0 10V		A	I Itaa aasta aa d	0.150/ -6	I.Vt			
1.Vout voltage programming						. Accuracy and						
2.lout voltage programming (*15) 3.Vout resistor programming						. Accuracy and lectable. Accu						
4.lout resistor programming (*15)						lectable. Accu						
5.Output voltage monitor			0~5V or 0~10				racy and mice	inty. 17 0.570 0	or rated lout.			
6.Output current monitor (*15)												
separ content monitor ( 15)	l l			IV. USPP SPIPCT	able, Accurac							
				v, user select	able. Accurac							
	ED FROM THE OUTPU	T)				y: +/-0.5%.	.00			201111		
5. SIGNALS AND CONTROLS (ISOLATI 1. Power supply OK #1 signal	ED FROM THE OUTPU	T)	Power supply	output mon	itor. Open col	y: +/-0.5%. lector. Output					mum Sink Curr	rent: 10mA.
1. Power supply OK #1 signal 2. CV/CC signal	ED FROM THE OUTPU	T)	Power supply	output mon	itor. Open col	y: +/-0.5%. lector. Output e: On. CV mod	e: Off. Maxim	um Voltage: 3	0V, Maximum	n Sink Current:	10mA.	
Power supply OK #1 signal     CV/CC signal     LOCAL/REMOTE Analog control	ED FROM THE OUTPU	T)	Power supply CV/CC Monito Enable/Disab	output monor. Open colle	itor. Open colector. CC mode	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect	e: Off. Maxim rical signal or	um Voltage: 3 dry contact. R	0V, Maximum emote: 0~0.6	n Sink Current: 6V or short. Lo	10mA. cal: 2~30V or o	pen.
Power supply OK #1 signal     CV/CC signal     LOCAL/REMOTE Analog control     LOCAL/REMOTE Analog signal	ED FROM THE OUTPU	T)	Power supply CV/CC Monito Enable/Disab analog progra	output mon or. Open colle ole analog pro amming contr	itor. Open col ector. CC mod ogramming co ol monitor sig	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle	e: Off. Maxim rical signal or ector. Remote	um Voltage: 3 dry contact. R : On. Local: Off	0V, Maximum emote: 0~0.0 . Maximum V	n Sink Current: 6V or short. Lo oltage: 30V, Ma	: 10mA. cal: 2~30V or o aximum Sink Cu	pen.
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal	ED FROM THE OUTPU	T)	Power supply CV/CC Monito Enable/Disab analog progra Enable/Disab	output mon or. Open colle ole analog pro amming contr ole PS output	itor. Open col ector. CC mode ogramming cc ol monitor sig by electrical s	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry co	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3	OV, Maximum emote: 0~0.6 . Maximum Vo OV or open. U	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable	10mA. cal: 2~30V or o eximum Sink Cu e logic.	pen.
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control	ED FROM THE OUTPU	T)	Power supply CV/CC Monitor Enable/Disab analog progra Enable/Disab Enable/Disab	or output mon or. Open colle ole analog pro amming contr ole PS output	itor. Open col ector. CC mod- ogramming co ool monitor sig by electrical s by electrical s	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry co	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3 de: 0~0.6V or sl	0V, Maximum lemote: 0~0.6 . Maximum V 0V or open. U nort. Local: 2	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open.	: 10mA. cal: 2~30V or o aximum Sink Cu e logic.	pen.
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals		T)	Power supply CV/CC Monito Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra	or Open colle or. Open colle ole analog pro amming contr ole PS output olie PS output	itor. Open col ector. CC mod- ogramming co ol monitor sig by electrical s by electrical s nable signals.	y: +/-0.5%.  lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry co ignal or dry co Maximum vol	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Max	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3 de: 0~0.6V or sl kimum sink cu	0V, Maximum lemote: 0~0.6 . Maximum V 0V or open. L nort. Local: 2 rrent 100mA	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. Irrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control		T)	Power supply CV/CC Monito Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum Io	output mon or. Open colle ole analog pro amming contr ole PS output ole PS output ain programm	itor. Open col ector. CC mode ogramming co ol monitor sig by electrical s by electrical s able signals. ut voltage =	y: +/-0.5%.  lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry co ignal or dry co Maximum vol	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3 de: 0~0.6V or sl kimum sink cu I input voltage	0V, Maximum lemote: 0~0.6 . Maximum Vo 0V or open. Unort. Local: 2 rrent 100mA ge = 2.5V, M	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	: 10mA. cal: 2~30V or o aximum Sink Cu e logic.	pen. Irrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals		T)	Power supply CV/CC Monito Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum Io	output mon or. Open colle ole analog pro amming contr ole PS output ole PS output oin programm ow level inpur r: tw=10us n	itor. Open col ector. CC mod- ogramming co- ol monitor sig by electrical s by electrical s nable signals. ut voltage = ninimum. Tr,	y: +/-0.5%.  lector. Output e: On. CV mod ontrol by elect inal. Open colli ignal or dry cc ignal or dry cc Maximum vol 0.8V,Minimu Tf=1us Maxir	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3 de: 0~0.6V or sl kimum sink cu I input voltage	0V, Maximum lemote: 0~0.6 . Maximum Vo 0V or open. Unort. Local: 2 rrent 100mA ge = 2.5V, M	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. Irrent: 10mA.
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal		T)	Power supply CV/CC Monite Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum le	output mon or. Open colle ole analog pro amming contr ole PS output ole PS output ain programm ow level inpu r: tw=10us n Voltage: 0~0.4	itor. Open col ector. CC mode ogramming co oglimonitor sig by electrical s by electrical s able signals. ut voltage = ninimum. Tr, 60/2~30V or d	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ignal or dry cc Maximum vol Tf=1us Maxir lry contact.	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3 de: 0~0.6V or sl kimum sink cu I input voltage	0V, Maximum lemote: 0~0.6 . Maximum Vo 0V or open. Unort. Local: 2 rrent 100mA ge = 2.5V, M	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. Irrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal		T)	Power supply CV/CC Monite Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum le edge trigge By electrical	output mon or. Open colle ole analog pro amming contr ole PS output ole PS output ain programm ow level inpu r: tw=10us n Voltage: 0~0.4	itor. Open col ector. CC mode ogramming co oglimonitor sig by electrical s by electrical s able signals. ut voltage = ninimum. Tr, 60/2~30V or d	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ignal or dry cc Maximum vol Tf=1us Maxir lry contact.	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve	um Voltage: 30 dry contact. R : On. Local: Off / or short, 2~3 de: 0~0.6V or sl kimum sink cu I input voltage	0V, Maximum lemote: 0~0.6 . Maximum Vo 0V or open. Unort. Local: 2 rrent 100mA ge = 2.5V, M	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. Irrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES		T)	Power supply CV/CC Monite Enable/Disab analog progra Enable/Disab Two open dra Maximum Ic edge trigge By electrical \( 4~5V=OK, 0V \)	y output mon or. Open colle ble analog pro amming contr ble PS output l ain programm ow level inpur r: tw=10us n Voltage: 0~0.6	itor. Open col ector. CC mod- ogramming co- ol monitor sig by electrical s by electrical s hable signals. ut voltage = ninimum. Tr, 6V/2~30V or d pedance)=Fai	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ignal or dry cc Maximum vol Tf=1us Maxir lry contact.	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve mum, Min de	um Voltage: 3: dry contact. R : On. Local: Off / or short, 2~3 :e: 0~0.6V or sl ctimum sink cu I input voltagelay between	ov, Maximum demote: 0~0.4 . Maximum V ov or open. U nort. Local: 2: rrent 100mA ge = 2.5V, M n 2 pulses 1r	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. ırrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation		T)	Power supply CV/CC Monite Enable/Disab analog progra Enable/Disab Two open dra Maximum day Maximum day edge tringe By electrical v 4~5V=OK, 0V	or output mon or. Open colle ole analog pro amming controle PS output lain programm ow level input r. tw=10us n voltage: 0~0.4 identical	itor. Open col ector. CC mod- ogramming co- ol monitor sig by electrical s by electrical s nable signals. ut voltage = ninimum. Tr, 6V/2~30V or d pedance)=Fai units in Maste	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ignal or dry cc Maximum vol 0.8V,Minimu Tf=1us Maxir Iry contact.	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6V ontact. Remot tage 25V, Maxim high leve mum, Min de	um Voltage: 3: dry contact. R : On. Local: Off / or short, 2~3 :e: 0~0.6V or sl ctimum sink cu I input voltagelay between	ov, Maximum demote: 0~0.4 . Maximum V ov or open. U nort. Local: 2: rrent 100mA ge = 2.5V, M n 2 pulses 1r	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. ırrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation		T)	Power supply CV/CC Monitu Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum dedge tringge By electrical \( \) 4~5V=OK, 0V Possible. Up to Possible. Two	or output mon or. Open colle analog pro amming controlle PS output alin programm ow level inpur: tw=10us n voltage: 0~0.0 (5000hm impur: to 4 identical unit of identical unit	itor. Open col ector. CC mod- ogramming co- col monitor sig by electrical s by electrical s nable signals. and signals. fov/2~30V or d pedance)=Fai units in Maste ts. Refer to in:	y: +/-0.5%. lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ignal or dry cc Maximum vol 0.8V,Minimu Tf=1us Maxir lry contact.	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim im high leve mum, Min de . Refer to instrual.	um Voltage: 3: dry contact. R : On. Local: Off / or short, 2~3 e: 0~0.6V or sl kimum sink cu I input voltagelay between	ov, Maximum (emote: 0~0.4 Maximum Violet of the control of the con	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	10mA.  cal: 2~30V or o  eximum Sink Cu  e logic.  7V zener)	pen. Irrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain		T)	Power supply CV/CC Monitu Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum Ide dege trigge By electrical 4~5V=OK, 0V Possible. Up t Possible. Two Power suppli	or output mon or. Open colle ple analog pro amming controlle PS output ple PS output p	itor. Open col ector. CC mod- ogramming co of monitor sig by electrical s by electrical s nable signals. ut voltage = ninimum. Tr, 6V/2~30V or d pedance)=Fai units in Maste ts. Refer to insupected in Dai	y: +/-0.5%.  lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ignal or dry cc Maximum vol 0.8V, Minimu Tf=1us Maxir dry contact.  l er/Slave mode. struction man	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve mum, Min de  Refer to instrual. nchronize the	um Voltage: 3: dry contact. R: On. Local: Off / or short, 2~3 e: 0~0.6V or sl kimum sink cu I input voltagelay between	ov, Maximum venote: 0~0.4.  Maximum Vo ov or open. Lort. Local: 2.  Maximum Vo ov or open. Lort. Local: 2.  Maximum Vo ov or open. Lort. Local: 2.  Maximum Vo ov or open. Local: 2.  Maximum Vo ov or open. Local: 2.  Maximum Vo ov ov open. Local: 2.  Maximum Vo ov open. Local: 2.	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum higl	: 10mA. cal: 2~30V or o eximum Sink Cu e logic. 7V zener) h level input =	pen. Irrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control		T)	Power supply CV/CC Monitu Enable/Disab analog progra Enable/Disab Enable/Disab Two open dra Maximum Id. edge trigge By electrical V 4~5V=OK, 0V Possible. Up t Possible. Two Power suppli Limits the ou	or output mon or. Open colle ple analog pro amming controlle PS output ple PS output p	itor. Open col ector. CC mode gramming co ol monitor sig by electrical s by electrical s anable signals. ut voltage = ininimum. Tr, 6V/2~30V or d pedance)=Fai units in Maste ts. Refer to in: nected in Dai o a proggrami	y: +/-0.5%.  lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry co dignal or dry co Maximum vol 0.8V, Minimu fr=1us Maxir lry contact. I  er/Slave mode. struction man isy chain to syr med value. Pro	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Maxim high leve mum, Min de  Refer to instrual. nchronize the ogramming vi	um Voltage: 3: dry contact. R: On. Local: Off / or short, 2~3 e: 0~0.6V or sl kimum sink cu I input voltagelay between  ruction manua ir turn-on and a the communi	ov, Maximum viemote: 0~0.4.  Maximum Vieword: 0.00 or open. Lenort. Local: 2.  Frent 100mA  ge = 2.5V, M  n 2 pulses 1r  lt.  turn-off.  nication port:	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum high	: 10mA. cal: 2~30V or o eximum Sink Cu e logic.  7V zener) h level input :	pen. ırrent: 10mA
1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control 5. Output resistance control		T)	Power supply CV/CC Monite Enable/Disab analog progra Enable/Disab Two open dra Maximum le edge trigge By electrical v 4~5V=OK, 0V Possible. Up t Possible. Two Power suppli Limits the ou Emulates seri	y output mon or. Open colle ple analog pro amming controlle PS output list in programm own level input; tw=10us n voltage: 0~0.0 (5000hm import to 4 identical unites can be contput power to the contput power to the controlle output rise les output rise les output rise les output rise of the college of the controllege output rise les output rise output rise les output rise output procedure of the controllege output rise output procedure of the controllege output rise output procedure of the controllege output rise output procedure output procedu	itor. Open col ector. CC mod- ogramming co- ol monitor sig by electrical sig by electrical signals. ut voltage = ninimum. Tr, 6V/2~30V or of pedance)=Fai  units in Maste ts. Refer to in: nected in Dai o a proggram Resistance re- e and Output	y: +/-0.5%.  lector. Output e: On. CV mod ontrol by elect inal. Open colle ignal or dry cc ign	e: Off. Maxim rical signal or ector. Remote ontact. 0~0.6\ ontact. Remot tage 25V, Max im high leve mum, Min de  . Refer to instr ual. nchronize the ogramming vi mΩ. Programi	um Voltage: 3: dry contact. R: On. Local: Off / or short, 2~3 e: 0~0.6V or sl kimum sink cu l input voltagelay between  ruction manua ir turn-on and a the commur ming via the ce	ov, Maximum Viemote: 0~0.0 Maximum Viemote: 0~0.0 Maximum Viemott. Local: 2- rrent 100mA ge = 2.5V, Mn 2 pulses 1r  il.  turn-off. hication ports	n Sink Current: 6V or short. Lo oltage: 30V, Ma Jser selectable ~30V or open. (Shunted by 2 laximum high ms.	: 10mA. cal: 2~30V or o eximum Sink Cu e logic.  7V zener) h level input :	ipen. irrent: 10mA = 5V positiv
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### **G**ENESYS™ 3.4kW SERIES SPECIFICATIONS

OUTPUT RATING		G	10-340	20-170	30-112	40-85	60-56	80-42	100-34	150-22.5	300-11.5	600-5.6
1.Rated output voltage(*1) 2.Rated output current (*2)		V A	10 340 (*3)	20 170	30 112	40 85	60 56	80 42	100 34	150 22.5	300 11.5	5.6
3.Rated output power		W	3400	3400	3360	3400	3360	3360	3400	3375	3450	3360
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	300	600
1.Input voltage/freq. 3 phase, 3 w			3-Phase, 200 3-Phase, 400 3-Phase, 480 1-Phase, 200	V models: 170 V models: 342 V models: 342 V models: 170	0~265Vac, 47~ 2~460Vac, 47~ 2~528Vac, 47~	63Hz (Covers 2 -63Hz (Covers -63Hz (Covers 2 63Hz (Covers 2	200/230Vac) 380/400/415V 380/400/415/4	/ac) 140/460/480Va		150	300	
2. Maximum Input current at 100% load	3-Phase, 200V models: 3-Phase, 400V models: 3-Phase, 480V models: 1-Phase, 200V models:		12.5A @ 200V 6.5A @ 380Va 6.5A @ 380Va 21A @ 200Va	ic ic								
3.Power Factor (Typ)			For 1-Phase: 0	0.99 @ 200Va	80Vac, rated o c, rated outpu	it power.						
4.Efficiency (Typ) (*5) (*22) 5.Inrush current (*6)		% A	88 Less than 50A	89 A	89.5	90	90	90.5	90.5	90.5	90.5	90.5
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)			0.01% of rate	<u> </u>								
2.Max. Load regulation (*8) 3.Ripple and noise (p-p, 20MHz) (	/*O)	mV	0.01% of rate 75	d output volt 75	age +5mV 75	75	80	80	100	120	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)	( 9)	mV	8	10	10	12	12	15	15	20	60	100
5.Temperature coefficient					out voltage, fo	llowing 30 mi	1					
6.Temperature stability			0.01% of rate	d Vout over 8	hrs interval fo	llowing 30 mi	nutes warm-u	ıp. Constant lir	ne, load & tem	np.		
7. Warm-up drift				1	<del>, , , , , , , , , , , , , , , , , , , </del>	+2mV over 30					1	
8.Remote sense compensation/w	rire (*10)	V	2	2	5	5	5	5	5	5	5	5
9.Up-prog. Response time (*11)	Full load (*11)	mS mS	30 50	30 50	30 80	30 80	50 80	50 100	50 100	50 100	50 100	100 200
10.Down-prog.response time:	No load (*12)	mS	450	600	800	900	1100	1300	2100	2000	3000	3000
11.Transient response time		mS	Time for outp	out voltage to	o recover with	in 0.5% of its ra	ated output fo	or a load chang	ge 10~90% of	frated output	current. Out	put set-point:
12.Start up delay		Sec	Less than 6 Se		,5 than 11115, 10	i models up to	J dira incidan	19 1001. 21113, 1	or models ub			
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)			0.05% of rate			1 40	00	00	100	150	300	000
2.Max. Load regulation (*13)			0.08% of rate	d output curi	rent.							
3.Ripple r.m.s. @ rated voltage. 3-		mA	≤800	≤450	≤300	≤150	≤100	≤70	≤45	≤30	≤12	≤5
4.Ripple r.m.s. @ rated voltage. 1-l	Phase (*14)	mA	≤1200 10V~100V	≤600 100PPM/°C f	≤300	≤300 put current, fo	≤200 ollowing 30 m	≤100 inutes warm-ı	≤60 In	≤40	≤12	≤8
5.Temperature coefficient		PPM/°C				out current, fol			•			
6.Temperature stability						llowing 30 mii		-				
7. Warm-up drift						rated output o				on.		
ANALOG PROGRAMMING AND N	AONITORING (ISOI ATEC	) FROM										
1.Vout voltage programming	ioitiioitiita (isoziti zz			V or 0~10V, u	ser selectable	. Accuracy and	d linearity: +/-	0.15% of rated	Vout.			
2.lout voltage programming (*15	)		0~100%, 0~5	V or 0~10V, u	ser selectable	. Accuracy and	d linearity: +/-	0.4% of rated I	out.			
3. Vout resistor programming						lectable. Accu						
4.lout resistor programming (*15)	)					lectable. Accu	racy and linea	rity: +/-0.5% c	f rated lout.			
5.Output voltage monitor 6.Output current monitor (*15)					table. Accurac table. Accurac							
SIGNALS AND CONTROLS (ISOLA	TED EDOM THE OUTDIT	T)	1			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
1. Power supply OK #1 signal	RIED FROM THE OUTFO		Power supply	output mon	nitor. Open col	lector. Output	On: On. Outr	out Off: Off. Ma	ximum Volta	ge: 30V. Maxir	num Sink Cu	rrent: 10mA.
2. CV/CC signal						e: On. CV mod				-	,	
3. LOCAL/REMOTE Analog control						ontrol by electi						<u>'</u>
4. LOCAL/REMOTE Analog signal			31 3			nal. Open colle						urrent: 10mA.
5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control					-	signal or dry co signal or dry co					iogic.	
7. Programmed signals						Maximum volt					7V zener)	
8. TRIGGER IN / TRIGGER OUT sign	nals		Maximum lo	ow level inp	ut voltage =		m hiah leve	l input voltac	ie = 2.5V. Ma	aximum high		= 5V positive
9. DAISY_IN/SO control signal			3 33		.6V/2~30V or d		, IVIIII UE	.ay between	- haises III	13.		
10. DAISY_OUT/PS_OK #2 signal			-		pedance)=Fai							
FUNCTIONS AND FEATURES												
1. Parallel operation			Possible. Up 1	to 4 identical	units in Maste	er/Slave mode.	Refer to instr	uction manua	l.			
2. Series operation						struction man						
3. Daisy chain						isy chain to syr				outh-fi	anal	
Constant power control     Output resistance control						med value. Pro ange: 1~1000r	-					
6. Slew rate control			Programmab	le Output ris	e and Output	fall slew rate. F						g via the
7. Arbitrary waveforms					he front panel can be stored	l. I in 4 memory (	cells. Activation	on by comman	d via the com	nmunication p	orts or by th	e front panel.
PROGRAMMING AND READBA		v	10	20	30	40	60	80	100	150	300	600
RS232/485, Optional IEEE(*19)  1. Vout programming accuracy (*1)			0.05% of rate			40	00	00	100	150	300	000
2.lout programming accuracy (*1						ated output cu	ırrent					
3.Vout programming resolution			0.002% of rat			surpur cu						
4.lout programming resolution			0.002% of rat									
5.Vout readback accuracy			0.05% of rate									
6.lout readback accuracy (*15)	tod output volta as	 %	0.2% of rated	0.006%	0.004%	0.003%	0.002%	0.002%	0.011%	0.007%	0.004%	0.002%
7.Vout readback resolution (of rat	en onibut voltage)	1 90	U.U11%	บ.บบ๒%	U.UU4%	0.003%	0.002%	0.002%	U.U11%	U.UU/%	0.004%	0.002%



### **G**ENESYS<sup>™</sup> 5kW SERIES SPECIFICATIONS

					1				1	ı			
OUTPUT RATING		G	10-500	20-250	30-170	40-125	60-85	80-65	100-50	150-34	200-25	300-17	600-8.5
1.Rated output voltage(*1)		V	10	20	30	40	60	80	100	150	200	300	600
2.Rated output current (*2)		Α	500 (*3)	250	170	125	85	65	50	34	25	17	8.5
3.Rated output power		W	5000	5000	5100	5000	5100	5200	5000	5100	5000	5100	5100
NPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	200	300	600
			3-Phase, 20	0V models: 1	70~265Vac,	47~63Hz (Co	vers 200/230	Vac)					
I.Input voltage/freq. 3 phase, 3 w	rire + Ground (*4)				842~460Vac,				0/490\/26\				
	3-Phase, 200V models:		17.5A @ 200		342~528Vac,	4/~63HZ (C0	vers 380/400	)/415/440/46	0/480VaC)				
2. Maximum Input current at 100% load	3-Phase, 400V models:		9.2A @ 380\	/ac									
	3-Phase, 480V models:		9.2A @ 380\										
3.Power Factor (Typ)				380Vac, rate	d output pov								
4.Efficiency (Typ) (*5) (*22)		%	89 (*21)	91	91	91	91	91	91	91	91	92	92
5.Inrush current (*6)		Α	Less than 50	DA .									
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	200	300	600
1.Max. Line regulation (*7)			0.01% of rat	ed output vo	oltage								
2.Max. Load regulation (*8)					oltage +5mV								
3. Ripple and noise (p-p, 20MHz)	(*9)	mV	75	75	75	75	75	80	90	120	200	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)	( -)	mV	8	10	12	12	12	15	15	20	60	60	100
5.Temperature coefficient			_		itput voltage				15	20	00		100
									ataut lina la	a d 0 ta ma m			
5.Temperature stability					r 8hrs interva					ad & temp.			
7. Warm-up drift					output volt					_		_	
B.Remote sense compensation/w	vire (*10)	V	2	2	5	5	5	5	5	5	5	5	5
9.Up-prog. Response time (*11)		mS	30	30	30	30	50	50	50	50	50	50	100
10 Down-prog recognes time:	Full load (*11)	mS	50	50	80	80	80	100	100	100	100	100	200
10.Down-prog.response time:	No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	2500	3000	3000
11.Transient response time		mS	Time for ou	tput voltage	to recover w	vithin 0.5% of	fits rated ou	tput for a loa	nd change 10	~90% of rate	ed output cu	rrent. Outpu	t set-point
12.Start up delay		Sec	Less than 5		ess uidii iilli	, ioi illouels	up to allu III	craumy 100	r. 21113, 101 III	oueis abuve	1000.		
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	200	300	600
1.Max. Line regulation (*7)				ted output ci									
2.Max. Load regulation (*13)			0.08% of rat	ted output c	urrent.								
B.Ripple r.m.s. @ rated voltage. B.	W 5Hz~1MHz (*14)	mA	≤1200	≤600	≤300	≤150	≤100	≤70	≤45	≤45	≤45	≤15	≤8
.Temperature coefficient		PPM/°C	10V~100V		C from rated								
.Temperature stability					from rated o 8hrs. interva					ad 0 tampar	aturo		
					han +/-0.25%						ature.		
7. Warm-up drift					/-0.15% of rat								-
	ACAUTODING (ICOLATED		LIE OLITOLIT	,		•							
ANALOG PROGRAMMING AND N	MONITORING (ISOLATED	FROM I											
1. Vout voltage programming					, user selecta					i			
) laukualkana mu			0~100%. 0~	√5V or 0~10V	, user selecta	ıble. Accurac	y and lineari	ty: +/-0.4% c	f rated lout.				
iout voitage programming  (*15 ر	)				-								
	o) 		0~100%, 0~		ull scale, use	selectable.							
3. Vout resistor programming		-	0~100%, 0~		ull scale, usei ull scale, usei	selectable.							
3. Vout resistor programming 4. lout resistor programming (*15			0~100%, 0~ 0~100%, 0~	-5/10Kohm f		selectable.	Accuracy and	d linearity: +					
3. Vout resistor programming 4. Iout resistor programming (*15 5. Output voltage monitor			0~100%, 0~ 0~100%, 0~ 0~5V or 0~	-5/10Kohm fi 10V, user sele	ull scale, use	r selectable. A r selectable. A racy: +/-0.5%	Accuracy and 6 of rated Vo	d linearity: +. ut.					
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)	)		0~100%, 0~ 0~100%, 0~ 0~5V or 0~	-5/10Kohm fi 10V, user sele	ull scale, user ectable. Accu	r selectable. A r selectable. A racy: +/-0.5%	Accuracy and 6 of rated Vo	d linearity: +. ut.					
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15) SIGNALS AND CONTROLS (ISOLA)	)	   T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~	-5/10Kohm fo 10V, user sele 10V, user sele	ull scale, user ectable. Accu ectable. Accu	r selectable. r selectable. racy: +/-0.5% racy: +/-0.5%	Accuracy and 6 of rated Vo 6 of rated lou	d linearity: +, ut. ıt.	/-0.5% of rate	ed lout.	20V Maximu	m Sink Curro	nt: 10mA
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15) SIGNALS AND CONTROLS (ISOL/ 1. Power supply OK #1 signal	)	   T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~	-5/10Kohm fi 10V, user sele 10V, user sele oly output me	ull scale, user ectable. Accu ectable. Accu onitor. Open	r selectable. A r selectable. A racy: +/-0.5% racy: +/-0.5% collector. Ou	Accuracy and 6 of rated Vo 6 of rated lou utput On: On	d linearity: +. ut. ut. . Output Off	7-0.5% of rate	ed lout. um Voltage: 3		m Sink Curre	nt: 10mA.
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOLA 1. Power supply OK #1 signal 2. CV/CC signal	) ATED FROM THE OUTPU	   T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon	-5/10Kohm fu 10V, user sele 10V, user sele oly output mo itor. Open co	ull scale, user ectable. Accu ectable. Accu onitor. Open ollector. CC m	r selectable. A r selectable. A racy: +/-0.59 racy: +/-0.59 collector. Outdood: On. CV	Accuracy and 6 of rated Vo 6 of rated lou utput On: On mode: Off. N	d linearity: +. ut. it Output Off flaximum Vo	: Off. Maximu	ed lout. um Voltage: 3 aximum Sink	Current: 10	mA.	
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro	) ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa	-5/10Kohm fi 10V, user sele 10V, user sele oly output ma itor. Open co able analog p	ull scale, user ectable. Accu ectable. Accu onitor. Open ollector. CC m orogramming	r selectable. A r selectable. A rracy: +/-0.5% rracy: +/-0.5% collector. Ou ode: On. CV g control by e	Accuracy and 6 of rated Vo 6 of rated Iou atput On: On mode: Off. N	d linearity: +. ut. it Output Off Maximum Vo nal or dry co	: Off. Maximu tage: 30V, M.	ed lout. um Voltage: : aximum Sink e: 0~0.6V or	Current: 10 short. Local:	mA. : 2~30V or op	en.
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal	) ATED FROM THE OUTPU	   T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa	-5/10Kohm fi 10V, user sele 10V, user sele oly output ma itor. Open co able analog p gramming co	ull scale, user ectable. Accu ectable. Accu onitor. Open ollector. CC m orogrammin introl monitor	r selectable. A r selectable. A racy: +/-0.5% racy: +/-0.5% collector. Ou ode: On. CV g control by a r signal. Open	Accuracy and 6 of rated Vo 6 of rated lou atput On: On mode: Off. N electrical sig	d linearity: +. ut Output Off Maximum Vo nal or dry co	: Off. Maximu ltage: 30V, M ntact. Remotocal: Off. Maxi	ed lout.  um Voltage: : aximum Sink :e: 0~0.6V or imum Voltag	Current: 10i short. Local: e: 30V, Maxin	mA. : 2~30V or op num Sink Cur	en.
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal	) ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa	-5/10Kohm fi 10V, user sele 10V, user sele oly output ma itor. Open co able analog p gramming co able PS output	ull scale, user ectable. Accu ectable. Accu onitor. Open ollector. CC m orogramming ntrol monitor ut by electric	r selectabler selectabler selectablerracy: +/-0.5% collector. Outlode: On. CV g control by exignal. Openial signal or displaced to the selectable.	Accuracy and 6 of rated Vo 6 of rated lou atput On: On mode: Off. Melectrical sig collector. Re lry contact. C	d linearity: +. ut Output Off Maximum Vo nal or dry co emote: On. Lc 0~0.6V or sho	: Off. Maximu Itage: 30V, M ntact. Remotocal: Off. Maxiort, 2~30V or	um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s	c Current: 10 short. Local: e: 30V, Maxin electable loc	mA. : 2~30V or op num Sink Cur	en.
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal	) ATED FROM THE OUTPU	   T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa	-5/10Kohm fi 10V, user sele 10V, user sele oly output ma itor. Open co able analog p gramming co able PS output	ull scale, user ectable. Accu ectable. Accu onitor. Open ollector. CC m orogrammin introl monitor	r selectabler selectabler selectablerracy: +/-0.5% collector. Outlode: On. CV g control by exignal. Openial signal or displaced to the selectable.	Accuracy and 6 of rated Vo 6 of rated lou atput On: On mode: Off. Melectrical sig collector. Re lry contact. C	d linearity: +. ut Output Off Maximum Vo nal or dry co emote: On. Lc 0~0.6V or sho	: Off. Maximu Itage: 30V, M ntact. Remotocal: Off. Maxiort, 2~30V or	um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s	c Current: 10 short. Local: e: 30V, Maxin electable loc	mA. : 2~30V or op num Sink Cur	en.
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL/ 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control	) ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~  Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa Two open d	-5/10Kohm fi 10V, user selection, user selecti	ull scale, usei ectable. Accu ectable. Accu onitor. Open ollector. CC m orogrammin introl monitor ut by electric ut by electric nmable sign:	r selectable. Ar selectary in a selectary in a selectable. Ar sele	Accuracy and 6 of rated Vo 6 of rated Iou 16 of rated Iou 17 of Iou 18 of Io	d linearity: + ut Output Off Maximum Vo nal or dry co emote: On. Lo 2~0.6V or sho Remote: 0~0 V, Maximum	: Off. Maximu itage: 30V, M ntact. Remot ocal: Off. Maxi ort, 2~30V or .6V or short. I sink current	ed lout.  um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s Local: 2~30V 100mA (Shu	short. Local: e: 30V, Maxim electable log or open. nted by 27V	mA. : 2~30V or op num Sink Cur gic. zener)	en. rent: 10mA
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15) 5. IGNALS AND CONTROLS (ISOLA 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals	ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~  Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa Two open d	-5/10Kohm fi 10V, user selection, user selecti	ull scale, usei ectable. Accu ectable. Accu onitor. Open ollector. CC m orogrammin introl monitor ut by electric ut by electric nmable sign:	r selectable. Ar selectary in a selectary in a selectable. Ar sele	Accuracy and 6 of rated Vo 6 of rated Iou 16 of rated Iou 17 of Iou 18 of Io	d linearity: + ut Output Off Maximum Vo nal or dry co emote: On. Lo 2~0.6V or sho Remote: 0~0 V, Maximum	: Off. Maximu itage: 30V, M ntact. Remot ocal: Off. Maxi ort, 2~30V or .6V or short. I sink current	ed lout.  um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s Local: 2~30V 100mA (Shu	short. Local: e: 30V, Maxim electable log or open. nted by 27V	mA. : 2~30V or op num Sink Cur gic. zener)	en. rent: 10mA
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL/ 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT sign	ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa Enable/Disa Maximum positive ec	-5/10Kohm fi 10V, user selection, user selection, user selection. Open coable analog pramming coable PS outputable PS outputable PS outputable program low level irain program	ull scale, usei ectable. Accu ectable. Accu entitor. Open ollector. CC m orogrammin ntrol monitoi ut by electric ut by electric mmable signi pput voltage t w=10us m	r selectable r selectable r selectable racy: +/-0.59 racy: +/-0.59 collector. Ou ode: On. CV g control by a signal. Open tal signal or d als. Maximum e = 0.8V,Mir hinimum. Tr,	Accuracy and 6 of rated Vo 6 of rated Iou atput On: On mode: Off. Melectrical sign collector. Refer y contact. Cury contact. For voltage 25' himum high Tf=1us Max	d linearity: + ut Output Off Maximum Vo nal or dry co emote: On. Lo 2~0.6V or sho Remote: 0~0 V, Maximum	: Off. Maximu itage: 30V, M ntact. Remot ocal: Off. Maxi ort, 2~30V or .6V or short. I sink current	ed lout.  um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s Local: 2~30V 100mA (Shu	short. Local: e: 30V, Maxim electable log or open. nted by 27V	mA. : 2~30V or op num Sink Cur gic.	en. rent: 10mA
3. Vout resistor programming 4. lout resistor programming (*15 5. Output voltage monitor 6. Output current monitor (*15)  SIGNALS AND CONTROLS (ISOLA 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal	ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa Enable/Disa Maximum positive ec	-5/10Kohm fi 10V, user selection, user selection, user selection. Open coable analog pramming coable PS outputable PS outputable PS outputable program low level irain program	ull scale, usei ectable. Accu ectable. Accu onitor. Open ollector. CC m orogrammin introl monitor ut by electric ut by electric nmable sign:	r selectable r selectable r selectable racy: +/-0.59 racy: +/-0.59 collector. Ou ode: On. CV g control by a signal. Open tal signal or d als. Maximum e = 0.8V,Mir hinimum. Tr,	Accuracy and 6 of rated Vo 6 of rated Iou atput On: On mode: Off. Melectrical sign collector. Refer y contact. Cury contact. For voltage 25' himum high Tf=1us Max	d linearity: + ut Output Off Maximum Vo nal or dry co emote: On. Lo 2~0.6V or sho Remote: 0~0 V, Maximum	: Off. Maximu itage: 30V, M ntact. Remot ocal: Off. Maxi ort, 2~30V or .6V or short. I sink current	ed lout.  um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s Local: 2~30V 100mA (Shu	short. Local: e: 30V, Maxim electable log or open. nted by 27V	mA. : 2~30V or op num Sink Cur gic. zener)	en. rent: 10mA
2.lout voltage programming (*15 3.Vout resistor programming 4.lout resistor programming 4.lout resistor programming 6.Output voltage monitor 6.Output current monitor (*15)  SIGNALS AND CONTROLS (ISOL/ 1. Power supply OK #1 signal 2. CV/CC signal 3. LOCAL/REMOTE Analog contro 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT sign 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal	ATED FROM THE OUTPU	T)	0~100%, 0~ 0~100%, 0~ 0~5V or 0~ 0~5V or 0~ 0~5V or 0~ Power supp CV/CC Mon Enable/Disa analog prog Enable/Disa Two open d Maximum positive ed By electrica	-5/10Kohm fr 10V, user selection, user selecti	ull scale, usei ectable. Accu ectable. Accu entitor. Open ollector. CC m orogrammin ntrol monitoi ut by electric ut by electric mmable signi pput voltage t w=10us m	r selectable r selectable r selectable racy: +/-0.59 racy: +/-0.59 collector. Ou rode: On. CV g control by a r signal. Oper cal signal or d al signal or d alsi, Maximum a = 0.8V, Mir inimum. Tr, or dry contact	Accuracy and 6 of rated Vo 6 of rated Iou atput On: On mode: Off. Melectrical sign collector. Refer y contact. Cury contact. For voltage 25' himum high Tf=1us Max	d linearity: + ut Output Off Maximum Vo nal or dry co emote: On. Lo 2~0.6V or sho Remote: 0~0 V, Maximum	: Off. Maximu itage: 30V, M ntact. Remot ocal: Off. Maxi ort, 2~30V or .6V or short. I sink current	ed lout.  um Voltage: : aximum Sink e: 0~0.6V or imum Voltag open. User s Local: 2~30V 100mA (Shu	short. Local: e: 30V, Maxim electable log or open. nted by 27V	mA. : 2~30V or op num Sink Cur gic. zener)	en. rent: 10mA
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### GENESYS™ 2.7kW/3.4kW/5kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS		٧	10	20	30	40	60	80	100	150	200	300	600
1.Foldback protection												imit to CV mo	
2.Over-voltage protection (OVP)			Output shu	t-down. Rese	t by AC inpu	t recycle in a	utostart mod	le, by OUTPl	JT button, by	rear panel o	or by commu	nication.	
3.Over -voltage programming rar	nge	V	0.5~12	1~24	2~36	2~44.1	5~66.15	5~88.2	5~110.25	5~165.37	5~220.5	5~330.75	5~661.5
4. Over-voltage programming acc	curacy		+/-1% of rat	ed output vo	ltage		•			•			
5.Output under voltage limit (UVI	L)		Prevents fro	om adjusting	Vout below	limit. Does n	ot apply in a	nalog progra	mming. Pres	et by front p	anel or comr	nunication po	ort.
6.Over temperature protection			Shuts down	the output.	Auto recover	ry by autosta	art mode.						
7. Output under voltage limit (UV	L)		Prevents ac	ljustment of	Vout below li	imit.							
8. Output under voltage protection	on (UVP)		Prevents ac mode, by P	ljustment of ower Switch,	Vout below li by OUTPUT I	imit. P.S outp button, by re	out turns Off ear panel or b	during unde y communic	r voltage con ation.	ndition. Reset	t by AC input	recycle in aut	tostart
FRONT PANEL													
1.Control functions			Multiple op	tions with 2	Encoders							-	
					nanual adjus	t							
				VP manual a		-	-						
					VP, UVL,UVP,	Foldback, C	CL. ENA. ILC						
							E,RS232,RS48	5.USB or Op	tional comm	unication int	terface.		
				OFF. Front P		,	,						
						n of Baud Ra	te, Address, I	P and comm	unication lar	nguage.			
							istive progra				ı		
							Current Mon			9 9			
2.Display							Itage +/-1 co						
							ent +/-1 coun						
3.Front Panel Buttons Indications							ATION, PROT		IFIGURATION	I. SYSTEM. SE	OUENCER.		
4. Front Panel Display Indications			Voltage, Cu	rrent, Power	CV, CC, CP, E	xternal Volta		Current, Add	dress, LFP, Au			ick V/I, Remot	e
ENVIRONMENTAL CONDITIONS													
1.Operating temperature			0~50°C, 100	0% load									
2.Storage temperature			-30~85°C	7010441									
- '		%		I (no conden	+:								
3.Operating humidity													
4.Storage humidity		%		(no condens									
5.Altitude (*17)			Operating:	10000ft (300	0m), output o	current derat	ing 2%/100m	or Ta derati	ng 1°C/100m	above 2000i	m. Non opera	ting: 40000ft	(12000m).
MECHANICAL													
1.Cooling			Forced air c	ooling by int	ernal fans. Ai	ir flow direct	tion: from Fro	nt panel to p	ower supply	rear .			
2.Weight		kg	2 7kW/3 4k	W - Less than	6.25ka			5kW - Less	than 7 5kg				
						t hushars a	nd busbars						
3.Dimensions (WxHxD)		mm	W: 423, H:	43.6, D: 55	3.5 (Includir	ng busbars	and busbar	cover) (Re	fer to Outlir	ne drawing)	).		
4.Vibration							ion Annex C -	2.1.3.1					
5.Shock			Less than 2	0G, half sine,	11mSec. Uni	t is unpacked	d.		-				
SAFETY/EMC													
1. Applicable standards:	Safety		UL60950-1,	CSA22.2 No.	60950-1, IEC	50950-1, EN6	0950-1.						
1.1. Interface classification							(sense) and ,J nazardous, J1				on options) a	re SELV	
			Vout ≤40V	Models: Inn	ut - Output	(SELV): 424	2VDC 1min,	Input - Gro	und: 2835V	DC 1min.			
1.2 Withstand voltage			60V≤Vout≤	100V Mode	ls: Input - O	utput: 4242\		nput - SELV			it - SELV: 85	0VDC 1min,	
			100 <vout≤ Output - G</vout≤ 	600V Mode round: 2500	ls: Input - O VDC 1min, I	utput: 4242' Input - Grou	VDC 1min, lı ınd: 2835VD	nput - SELV C 1min.	: 4242VDC	1min, Outpu	ıt - SELV: 15	00VDC 1min	,
1.3 Insulation resistance			100Mohm a	at 25°C, 70%l	RH.								
2.Conducted emmision			IEC/EN6120	4-3 Industria	l environme	nt, Annex H t	table H.1 , FC	Part 15-A, \	/CCI-A.				
3.Radiated emission							table H.3 and			A			
4. EMC compliance	EMC(*18)				04-3 Industri								
e comphance	1=6( .0)		i. iccording i		Jaustii								

Unless otherwise noted, specifications are warranted over the ambient temperature range of  $0^\circ$  to  $50^\circ$  C.

### NOTES:

- NOTES:

  \* 1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

  \* 2: Minimum current is guaranteed to maximum 0.2% of rated output current.

  \* 3: Derate \$A1^\*C above 40^\*C.

  \* 4: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 190-240Vac (50/60Hz) for 3-Phase

  \* 5: 3-Phase 200V models: At 200Vac input voltage, 3-Phase 400/480V: At 380Vac input voltage. With rated output power.

  \* 6: Not including EMI filter inrush current, less than 0.2m5ec.

  \* 7: 3-Phase 200V models: 170-265Vac, 3-Phase 400V models: 342-460Vac, 3-Phase 480V models: 342-528Vac. Constant load.

  \* 8: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sanes.

  \* 9: For 10V~150V models: Measured with JEITA RC-9131C (1:1) probe. For 300-600V model: Measured with 100:1 probe.

  \* 10: The maximum voltage on the power supply terminals must not exceed the rated voltage.

  \* 11: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load.

  \* 12: From 90% to 10% of Rated Output Voltage, with rated, resistive load.

  \* 12: From 10W model, the ripple is measured at 20-100% of 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 programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

  \* 16: Measured at the sensing point.

  \* 17: For 10V model Ta derating 2°C/100m.

  \* 18 Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.

  \* 19 Max. ambient temperature for using IEEE is 40°C.

  \* 20 For 10V model only: Max. output current for using IEEE is 400A up to 40°C and 450A up to 30°C.

  \* 21: For 10V model only: Max. output current for using IEEE is 400A up to 40°C and 450A up to 30°C.

- \* 22: Typ. at Ta=25°C, rated output power.





### **G**ENESYS<sup>™</sup> **GSP10kW SERIES SPECIFICATIONS**

1.Rated output voltage(*1) 2.Rated output current (*2)		GSP	10-1000	20-500	30-340	40-250	60-170	80-130	100-100	150-68	200-50	300-34	600-17
z.nateu output current ("2)		V A	10 1000 (*3)	20 500	30 340	40 250	60 170	80 130	100	150 68	200 50	300 34	600 17
3.Rated output power		kW	1000 (*3)	10	10.2	250 10	10.2	130	100	10.2	10	10.2	10.2
• • •						1	1			1	1	1	
INPUT CHARACTERISTICS		V	3-Phase 200	0V models: 1	30 70~265Vac, 4	40 17~63Hz (Cov	60 (ars 200/230)	(ac)	100	150	200	300	600
1.Input voltage/freg. 3 phase, 3 wii	re + Ground (*4)				70~265 vac, 4 42~460Vac, 4								
i.iiiput voitage/iieq. 3 piiase, 3 wii	ie + Ground ( 4)				42~528Vac, 4				)/480Vac)				-
	3-Phase, 200V models:		35A @ 200Va					, ,					
2 Maximum Input current at	3-Phase, 400V models:		18.4A @ 380	Vac									
	3-Phase, 480V models:		18.4A @ 380	Vac									
3.Power Factor (Typ)			0.94 @ 200/3	380Vac, rate	d output pow	ver.							
4.Efficiency (Typ) (*5) (*22)		%	89 (*21)	91	91	91	91	91	91	91	91	92	92
5.Inrush current (*6)		Α	Less than 10	JOA									
6.AC line phase imbalance		%	< 5%										
CONSTANT VOLTAGE MODE		٧	10	20	30	40	60	80	100	150	200	300	600
1.Max. Line regulation (*7)			0.01% of rat	ed output vo	oltage								
2.Max. Load regulation (*8)				ed output vo								1	
3.Ripple and noise (p-p, 20MHz) (*	9)	mV	75	75	75	75	75	80	90	120	200	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	15	15	20	45	60	100
5.Temperature coefficient					tput voltage,					10.			
6.Temperature stability					r 8hrs interva					d & temp.			
7. Warm-up drift	ro (*10)	 V	Less than 0.0	1	output volta	_				5	F	F	5
8.Remote sense compensation/wing. 9.Up-prog. Response time (*11)	ie ( 10)	mS	30	30	5 30	5 30	5 50	5 50	5 50	50	5 50	5 50	100
	Full load (*11)	mS	50	50	80	80	80	100	100	100	100	100	200
10.Down-prog.response time:	No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	2500	3000	3000
11.Transient response time		mS	Time for out	tput voltage	to recover w	ithin 0.5% of	its rated out	put for a load	d change 10~	90% of rate	d output curr		
'			10~100%, Lo	ocal sense. L	ess than 1mS	, for models	up to and inc	luding 100V	. 2mS, for mo	dels above 1	00V.		
12.Start up delay		Sec	Less than 7 S	sec									
CONSTANT CURRENT MODE													
1.Max. Line regulation (*7)			0.05% of rat	ed output cu	urrent.								
2.Max. Load regulation (*13)			0.08% of rat	ed output cu	urrent.								
3.Ripple r.m.s. @ 10% rated voltage		mA	1500	1200	600	300	150	100	70	45	45	15	10
4.Ripple r.m.s. @ 100% rated voltage.	B.W 5Hz~1MHz. (TA25°C)	mA	1200	700	300	150	75	50	35	23	23	7.5	6
5.Temperature coefficient		PPM/°C	10V~100V		from rated of						-	,	
6 Tompovatuva atabilitu			150V~600V		from rated ou					d 0 tomonous			
6.Temperature stability					8hrs. interval						ture.		
7. Warm-up drift					/-0.15% of rate								
					0.1570 01140	- Cu output cu	inchi over se	711111111111111111111111111111111111111	lowing powe	1 011.			
ANALOG PROGRAMMING AND M	ONITORING (ISOLATED			-	1		111	. / 0.450/	C . D/				
1.Vout voltage programming     2.lout voltage programming (*15)					, user selectal , user selectal								
3.Vout resistor programming					ıll scale, user					1 Vout			
4.lout resistor programming (*15)					ıll scale, user								
5.Output voltage monitor					ctable. Accur								
6.Output current monitor (*15)					ctable. Accur								
SIGNALS AND CONTROLS (ISOLAT	TEN EDOM THE OUTDUIT	۲)											
1. Power supply OK #1 signal	ILD I KOM IIIL OO IF O		Power supp	ly output me	anitar Onan								
1.1 OWCI Supply OIC#1 Signal						collector Out	tnut On∙ On	Output Off	Ott Mavimu	n Voltage: 30	N Maximum	Sink Curren	t· 10m Δ
2. CV/CC signal			CV/CC Moni	, ,	llector. CC m	collector. Ou ode: On. CV r							t: 10mA.
CV/CC signal     LOCAL/REMOTE Analog control				itor. Open co		ode: On. CV r	mode: Off. Ma	aximum Volt	age: 30V, Ma	ximum Sink	Current: 10m	Α.	
			Enable/Disa	itor. Open co able analog p	llector. CC m	ode: On. CV r control by e	mode: Off. Ma electrical sign	aximum Volt	age: 30V, Ma tact. Remote	ximum Sink	Current: 10m hort. Local: 2	A. ~30V or ope	n.
3. LOCAL/REMOTE Analog control			Enable/Disa analog prog	itor. Open co able analog p gramming co	llector. CC mo	ode: On. CV r g control by e r signal. Open	mode: Off. Ma electrical sign ocollector. Re	aximum Volt al or dry con mote: On. Lo	age: 30V, Ma ntact. Remote ocal: Off. Maxi	ximum Sink :: 0~0.6V or s mum Voltag	Current: 10m hort. Local: 2 e: 30V, Maxim	A. ~30V or ope num Sink Cur	n.
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal			Enable/Disa analog prog Enable/Disa Enable/Disa	itor. Open co able analog p gramming co able PS outpu able PS outpu	orlector. CC mo orogramming ntrol monitor ut by electrica ut by electrica	ode: On. CV r g control by e r signal. Open al signal or di al signal or di	mode: Off. Ma electrical sign of collector. Re ry contact. 0- ry contact. Re	aximum Volt al or dry con mote: On. Lc ~0.6V or sho emote: 0~0.6	rage: 30V, Ma ntact. Remote ocal: Off. Maxi rt, 2~30V or c 6V or short. L	ximum Sink :: 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open.	A. ->30V or ope num Sink Curi c.	n.
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal			Enable/Disa analog prog Enable/Disa Enable/Disa Two open di	itor. Open co able analog p gramming co able PS outpu able PS outpu rain program	ollector. CC mo programming ntrol monitor ut by electrica ut by electrica nmable signa	ode: On. CV r g control by e r signal. Open al signal or di al signal or di als. Maximum	mode: Off. Ma electrical sign o collector. Re ry contact. O- ry contact. Re o voltage 25V	aximum Volt al or dry con mote: On. Lo ~0.6V or sho emote: 0~0.6 , Maximum s	rage: 30V, Ma ntact. Remote ocal: Off. Maxi rt, 2~30V or c 6V or short. L sink current 1	ximum Sink :: 0~0.6V or s mum Voltag pen. User se pcal: 2~30V o 00mA (Shun	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze	A. 2~30V or ope num Sink Curr c. ener)	n. rent: 10mA
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control	als		Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum	itor. Open co able analog p gramming co able PS outpu able PS outpu rain program low level in	orlector. CC mo programming ntrol monitor ut by electrica ut by electrica nmable signa uput voltage	ode: On. CV r g control by e r signal. Open al signal or di al signal or di als. Maximum e = 0.8V, Min	mode: Off. Ma electrical sign o collector. Re ry contact. Or ry contact. Re o voltage 25V imum high	aximum Volt al or dry con mote: On. Lo ~0.6V or sho emote: 0~0.6 , Maximum s level input	rage: 30V, Ma ntact. Remote ocal: Off. Maxi rt, 2~30V or c 6V or short. Le sink current 1 voltage = 2	ximum Sink ( :: 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c 00mA (Shun	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze	A. 2~30V or ope num Sink Curr c. ener)	n. rent: 10mA
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signa	als		Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum edge triggi	itor. Open co able analog p gramming cou able PS outpu rain program low level in er: tw=10us	orogramming ntrol monitor with by electrical to by electrical mable signation with the properties of t	ode: On. CV r g control by e r signal. Open al signal or d al signal or d als. Maximum e = 0.8V,Min Tr,Tf=1us M	mode: Off. Mi electrical sign o collector. Re ry contact. Or ry contact. Re o voltage 25V imum high laximum, M	aximum Volt al or dry con mote: On. Lo ~0.6V or sho emote: 0~0.6 , Maximum s level input	rage: 30V, Ma ntact. Remote ocal: Off. Maxi rt, 2~30V or c 6V or short. Le sink current 1 voltage = 2	ximum Sink ( :: 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c 00mA (Shun	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze	A. 2~30V or ope num Sink Curr c. ener)	n. rent: 10mA
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3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal	als	   	Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum edge trigg By electrical	itor. Open co able analog p gramming con able PS outpu able PS outpu rain program low level in er: tw=10us I Voltage: 0~	orogramming ntrol monitor with by electrical to by electrical mable signation with the properties of t	ode: On. CV r g control by e r signal. Open al signal or di al signal or di als. Maximum e = 0.8V,Min Tr,Tf=1us M or dry contact	mode: Off. Mi electrical sign o collector. Re ry contact. Or ry contact. Re o voltage 25V imum high laximum, M	aximum Volt al or dry con mote: On. Lo ~0.6V or sho emote: 0~0.6 , Maximum s level input	rage: 30V, Ma ntact. Remote ocal: Off. Maxi rt, 2~30V or c 6V or short. Le sink current 1 voltage = 2	ximum Sink vi: 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c 00mA (Shun	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze	A. 2~30V or ope num Sink Curr c. ener)	n. rent: 10mA
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3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation	als		Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum edge trigg By electrical 4~5V=OK, 0	itor. Open co able analog p gramming co able PS outpu rain program low level in er: tw=10us I Voltage: 0~ DV (5000hm in al GSP units. h Factory	orlector. CC morogramming on trol monitor out by electricated	ode: On. CV r g control by e r signal. Open al signal or di al signal or di als. Maximum e = 0.8V,Min Tr,Tf=1us M or dry contact Fail	mode: Off. M. electrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V imum high laximum, M t.	aximum Volti al or dry con mote: On. Lo ~0.6V or sho emote: O~0.6 , Maximum s level input in delay be	age: 30V, Ma htact. Remote ocal: Off. Maxi rt, 2~30V or c 5V or short. L- sink current 1 voltage = 2 tween 2 pul	ximum Sink v: 0~0.6V or s mum Voltag ppen. User se ocal: 2~30V c 00mA (Shun .5V, Maximi ses 1ms.	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze	A. 2~30V or ope num Sink Curr c. ener)	n. rent: 10mA
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain	als		Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum edge trigg By electrical 4~5V=OK, 0 Two identica Consult with Power supp	itor. Open co able analog p gramming co able PS outpu able PS outpu rain program low level in er: tw=10us I Voltage: 0~ DV (5000hm in al GSP units. h Factory dies can be co	onnected in I	ode: On. CV r g control by e r signal. Open al signal or di als. Maximum e = 0.8V,Min Tr,Tf=1us M or dry contact Fail	mode: Off. M. electrical sign collector. Re ry contact. 0- ry contact. R. voltage 25V imum high laximum, M t.  consult with Fa	aximum Voltal or dry con mote: On. Lc vo. 6.6V or sho emote: 0~0.6V or s	age: 30V, Ma atact. Remote ocal: Off. Maxi rt, 2~30V or c 5V or short. L- sink current 1 voltage = 2 tween 2 pul	ximum Sink v: 0~0.6V or s mum Voltag ppen. User se ocal: 2~30V o 00mA (Shun .5V, Maxims ses 1ms.	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze um high lev	A.  2~30V or ope our Sink Curi c.  ener) el input = 5	n. rent: 10mA
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal  FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control	als		Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum edge trigg By electrical 4~5V=OK, 0 Two identica Consult with Power supp Limits the o	itor. Open co able analog p gramming con able PS outputable PS outputain program low level in er: tw=10us I Voltage: 0~ DV (5000hm in al GSP units. h Factory dies can be con output power	or to a proggram  or more portion of the programming of the proggramming of	ode: On. CV r g control by e r signal. Open al signal or di als. Maximum e = 0.8V,Min Tr,Tf=1us M or dry contact Fail	mode: Off. M. electrical sign collector. Re ry contact. 0- ry contact. R. voltage 25V intum high laximum, M t.  consult with Fa o synchroniz e. Programmi	aximum Voltal or dry con mote: On. Lc ~0.6V or sho emote: 0~0.6 Maximum s level input in delay be: actory.	age: 30V, Ma atact. Remote ocal: Off. Maxi rt, 2~30V or c 5V or short. L sink current 1 voltage = 2 tween 2 pul	ximum Sink v: 0~0.6V or s mum Voltag ippen. User se ocal: 2~30V o 00mA (Shun .5V, Maximi ses 1 ms.	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze um high lev	A.  2~30V or ope our Sink Curl c.  ener) el input = 5	n. rent: 10mA
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3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signal 9. DAISY_IN/SO control signal 10. DAISY_OUT/PS_OK #2 signal  FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control 5. Output resistance control 6. Slew rate control	als		Enable/Disa analog prog Enable/Disa Enable/Disa Two open di Maximum edge trigg: By electrical 4~5V=OK, 0 Two identica Consult with Power supp Limits the o Emulates se Programma communica	itor. Open co able analog p gramming cou able PS output rain program low level in er: tw=10us I Voltage: 0~ IV (5000hm in al GSP units. h Factory dies can be cou tries resistance able Output r tition ports or	or o	ode: On. CV r g control by e r signal. Open al signal or di al signal or di als signal or d	mode: Off. M. electrical sign n collector. Re ry contact. 0- ry contact. Re n voltage 25V imum high laximum, M t.  consult with Fa consult wi	aximum Voltal or dry conmote: On. Lc  -0.6V or sho emote: O~0.6  Maximum s level input in delay be:	age: 30V, Ma htact. Remote ocal: Off. Maxi rt, 2~30V or c ov or short. L- isink current 1 voltage = 2 tween 2 pul	ximum Sink v: 0~0.6V or s mum Voltag ppen. User se ocal: 2~30V o 0.5V, Maximi ses 1ms.	Current: 10m short. Local: 2 e: 30V, Maxim electable logi or open. ted by 27V ze um high lev e front panel ts or the fron A/mSec. Prog	A. 2-30V or ope num Sink Curi c. ener) el input = 5  t panel. gramming via	n. rent: 10mA V positive
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### TDK·Lambda -

OUTPUT RATING

### **G**ENESYS™ **GSP15kW SERIES SPECIFICATIONS**

OUTPUT KATING		GSP	10-1500	20-750	30-310	40-3/3	00-255	80-195	100-150	150-102	200-75	300-31	000-25.5
1.Rated output voltage(*1)		V	10	20	30	40	60	80	100	150	200	300	600
2.Rated output current (*2)		Α	1500 (*3)	750	510	375	255	195	150	102	75	51	25.5
3.Rated output power		kW	15	15	15.3	15	15.3	15.6	15	15.3	15	15.3	15.3
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	200	300	600
INPUT CHARACTERISTICS		V			70~265Vac, 4				100	150	200	300	000
1 langua valana /fuan 2 mbasa 2 viina	. Cuaad (*4)				70~265 vac, 4 42~460Vac, 4								
1.Input voltage/freq. 3 phase, 3 wire -	+ Grouna (^4)								(400)( )				
la.	DI 2001/ II				42~528Vac, 4	1/~63HZ (CO\	ers 380/400/	415/440/460	/480Vac)				
	Phase, 200V models:	1	52.5A @ 200										
100% load	Phase, 400V models:		27.6A @ 380										
	Phase, 480V models:	<u> </u>	27.6A @ 380										
3.Power Factor (Typ)				380Vac, rated	doutput pow								
4.Efficiency (Typ) (*5) (*22)		%	89 (*21)	90	91	91	91	91	91	91	91	92	92
5.Inrush current (*6)		Α	Less than 15	0A									
6.AC line phase imbalance		%	< 5%										
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	200	300	600
		-				40	00	00	100	130	200	300	000
1.Max. Line regulation (*7)			0.01% of rate										
2.Max. Load regulation (*8)			0.01% of rate	ed output vo	ltage +5mV								
3.Ripple and noise (p-p, 20MHz) (*9)		mV	75	75	75	75	75	80	90	120	200	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	15	15	20	45	60	100
		PPM/°C							15	20	15	1 00	100
5.Temperature coefficient					tput voltage,					1.0			
6.Temperature stability			0.01% of rate	ed Vout over	8hrs interva	l following 3	0 minutes wa	rm-up. Cons	tant line, loa	d & temp.			
7. Warm-up drift			Less than 0.0	05% of rated	output volta	ge+2mV ove	r 30 minutes	following po	ower on.				
8.Remote sense compensation/wire	(*10)	V	2	2	5	5	5	5	5	5	5	5	5
9.Up-prog. Response time (*11)		mS	30	30	30	30	50	50	50	50	50	50	100
o.op prog. nesponse time (*11)	Full Lover												
10.Down-prog.response time:	Full load (*11)	mS	50	50	80	80	80	100	100	100	100	100	200
p.og.response time.	No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	2500	3000	3000
11 Transient recommend the			Time for out	put voltage	to recover w	ithin 0.5% of	its rated out	out for a load	d change 10~	90% of rate	d output cur	rent. Output	set-point:
11.Transient response time		mS	10~100%, Lo	cal sense. L	ess than 1mS	, for models	up to and inc	luding 100V.	2mS, for mo	dels above 1	00V.	rent. Output	
12Start up delay		Sec	Less than 7 S										
13.Hold-up time													
·													
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	200	300	600
1.Max. Line regulation (*7)			0.05% of rat	ed output cu	irrent.							-	
2.Max. Load regulation (*13)			0.08% of rat										
													I
3.Ripple r.m.s. @ 10% rated voltage - E		mA	2000	1200	600	300	180	100	70	45	45	15	10
4.Ripple r.m.s. @ 100% rated voltage. B.V	N 5Hz~1MHz. (TA 25°C)	mA	1200	700	300	150	90	60	35	23	23	7.5	6
		221106	10V~100V	100PPM/°C	from rated of	output curre	nt, following	30 minutes v	varm-up.				
5.Temperature coefficient		PPM/°C	150V~600V	70PPM/°C1	from rated ou	utput curren	following 3	0 minutes wa	arm-up.				
6.Temperature stability									tant line, load	d & temperat	ture		
o.remperature stability											ture.		
7. Warm-up drift									es following				
		<u> </u>	150V~600V:	Less than +/	-0.15% of rat	ed output cu	rrent over 30	minutes foll	owing powe	r on.			
ANALOG PROGRAMMING AND MON	VITORING (ISOI ATED	FROM T	HE OLITPLIT										
	VITORING (ISOLATED												
1.Vout voltage programming			0~100%, 0~	5V or 0~10V,	user selectal	ole. Accuracy	and linearity	y: +/-0.15% o	f rated Vout.				
2.lout voltage programming (*15)			0~100%, 0~	5V or 0~10V,	user selectal	ble. Accuracy	and linearity	y: +/-0.4% of	rated lout.				
3.Vout resistor programming			0~100%, 0~	5/10Kohm fu	ıll scale, user	selectable. A	ccuracy and	linearity: +/-	0.5% of rated	l Vout.			
4.lout resistor programming (*15)									0.5% of rated		-		
									0.570 01 14100	ilout.			
5.Output voltage monitor (*23)					ctable. Accui								
6.Output current monitor (*15) (*23)			0~5V or 0~1	0V, user sele	ctable. Accui	racy: +/-0.5%	. of rated lou	t.					
SIGNALS AND CONTROLS (ISOLATED	D FROM THE OUTPUT	Γ)											
	D THOM THE COTT O	·	Daau aau		nitar Onan								
1. Power supply OK signal						colloctor O	tout On Or	Output Off	Off May:	n \/al+a~=- 20	N/ Mayim	a Sink Comme	
2. CV/CC signal			ICVICC Moni	tor Onon co								n Sink Curren	t: 10mA.
3. LOCAL/REMOTE Analog control						ode: On. CV ı	node: Off. Ma	aximum Volt	age: 30V, Max	ximum Sink (	Current: 10m	nΑ.	
4. LOCAL/REMOTE Analog signal						ode: On. CV ı	node: Off. Ma	aximum Volt	age: 30V, Max	ximum Sink (	Current: 10m		
			Enable/Disa	ble analog p	rogramming	ode: On. CV i control by e	node: Off. Ma lectrical sign	aximum Volt al or dry con	age: 30V, Max tact. Remote	ximum Sink ( : 0~0.6V or s	Current: 10m short. Local: 2	nΑ.	n.
			Enable/Disa analog prog	ble analog p ramming co	rogramming ntrol monitor	ode: On. CV i control by e signal. Oper	node: Off. Ma lectrical sign collector. Re	aximum Volt al or dry con mote: On. Lo	age: 30V, Max tact. Remote cal: Off. Maxi	ximum Sink ( :: 0~0.6V or s mum Voltag	Current: 10m short. Local: 2 e: 30V, Maxim	nA. 2~30V or ope num Sink Cur	n.
5. ENABLE/DISABLE Signal			Enable/Disa analog prog Enable/Disa	ble analog p ramming co ble PS outpu	rogramming ntrol monitor It by electrica	ode: On. CV i control by e signal. Oper al signal or d	node: Off. Ma lectrical sign collector. Re ry contact. 0	aximum Volt al or dry con mote: On. Lo -0.6V or shor	age: 30V, Max tact. Remote cal: Off. Maxi rt, 2~30V or o	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se	Current: 10m short. Local: 2 e: 30V, Maxin electable logi	nA. 2~30V or ope num Sink Cur	n.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control			Enable/Disa analog prog Enable/Disa Enable/Disa	ble analog p ramming co ble PS outpu ble PS outpu	rogramming ntrol monitor It by electrica It by electrica	ode: On. CV r control by e signal. Oper al signal or d al signal or d	mode: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6	age: 30V, Max tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lc	ximum Sink ( :: 0~0.6V or s mum Voltago pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open.	nA. 2~30V or ope num Sink Cur ic.	n.
5. ENABLE/DISABLE Signal			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d	ble analog p ramming cor ble PS outpu ble PS outpu rain program	rogramming ntrol monitor It by electrica It by electrica nmable signa	ode: On. CV r control by e signal. Oper al signal or d al signal or d ls. Maximum	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 , Maximum s	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d	ble analog p ramming cor ble PS outpu ble PS outpu rain program	rogramming ntrol monitor It by electrica It by electrica nmable signa	ode: On. CV r control by e signal. Oper al signal or d al signal or d ls. Maximum	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 , Maximum s	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d	ble analog p ramming cor ble PS outpu ble PS outpu rain program	rogramming ntrol monitor It by electrica It by electrica nmable signa	ode: On. CV r control by e signal. Oper al signal or d al signal or d ls. Maximum	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 , Maximum s	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic.	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d	ble analog p ramming cor ble PS outpu ble PS outpu rain program	rogramming ntrol monitor It by electrica It by electrica nmable signa	ode: On. CV r control by e signal. Oper al signal or d al signal or d ls. Maximum	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 , Maximum s	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES		   	Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lc tw=10us mir	ble analog p ramming cor ble PS outpu ble PS outpu rain program w level inpu nimum. Tr,Tf	rogramming ntrol monitor it by electrica it by electrica nmable signa it voltage = 0 =1us Maximu	ode: On. CV I control by e signal. Oper al signal or d al signal or d ls. Maximum .8V, Minimur im, Min dela	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V, n high level in between 2 p	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 Maximum s nput voltage oulses 1ms.	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lo tw=10us min	ble analog p ramming cor ble PS outpu ble PS outpu rain program bw level inpu nimum. Tr,Tf	rogramming ntrol monitor It by electrica It by electrica nmable signa	ode: On. CV I control by e signal. Oper al signal or d al signal or d ls. Maximum .8V, Minimur im, Min dela	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V, n high level in between 2 p	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 Maximum s nput voltage oulses 1ms.	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES		   	Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lc tw=10us mir	ble analog p ramming cor ble PS outpu ble PS outpu rain program bw level inpu nimum. Tr,Tf	rogramming ntrol monitor it by electrica it by electrica nmable signa it voltage = 0 =1us Maximu	ode: On. CV I control by e signal. Oper al signal or d al signal or d ls. Maximum .8V, Minimur im, Min dela	node: Off. Ma lectrical sign collector. Re ry contact. 0- ry contact. Re voltage 25V, n high level in between 2 p	aximum Volt al or dry con mote: On. Lo ~0.6V or shor emote: 0~0.6 Maximum s nput voltage oulses 1ms.	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltag pen. User se ocal: 2~30V c	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum Ic tw=10us min	ble analog pramming couble PS outpuble PS outpuble PS outpurain program we level inpublement. Tr, Tf	rogramming ntrol monitor ut by electrica ut by electrica mable signa it voltage = 0 =1us Maximu	ode: On. CV is control by easignal. Oper all signal or dall signal or dall signal or dalls. Maximum. eV, Minimur, Min delaywer please control of the control	node: Off. Mi lectrical sign collector. Re ry contact. O- ry contact. Re voltage 25V, n high level in between 2 p	aximum Volt al or dry con mote: On. Lo ~0.6V or shot emote: 0~0.6 Maximum s nput voltage oulses 1ms.	age: 30V, Maz tact. Remote cal: Off. Maxi rt, 2~30V or o V or short. Lo ink current 10	ximum Sink ( : 0~0.6V or s mum Voltage pen. User se ocal: 2~30V c 00mA (Shun mum high le	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze	nA. 2~30V or ope num Sink Cur ic. ener)	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lc tw=10us mir Two identica Consult with	ble analog pramming couble PS outpuble PS	rogramming ntrol monitor it by electrica it by electrica mable signa it voltage = 0 =1 us Maximu  For more por	ode: On. CV is control by easignal. Oper al signal or dal	node: Off. Milectrical sign collector. Re ry contact. Or ry contact. Re voltage 25V, high level in between 2 ponsult with Fa	aximum Volt al or dry con mote: On. Lo -0.6V or shore mote: 0~0.6 Maximum s nput voltage pulses 1ms.	age: 30V, Maxitact. Remote cal: Off. Maxit, 2~30V or o o o V or short. Loink current 10 = 2.5V, Maxidon and turn-con and turn-c	ximum Sink ( :: 0~0.6V or s mum Voltag: pen. User se ocal: 2~30V c 00mA (Shun: mum high le	Current: 10m short. Local: 2 e: 30V, Maxin electable logi or open. ted by 27V ze evel input = 5	nA. 2~30V or ope num Sink Cur ic. ener) 5V positive ec	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lc tw=10us mir Two identica Consult with Power supp Limits the o	ble analog pramming couple PS output ble PS output rain program ow level inpunimum. Tr,Tf.	rogramming ntrol monitor it by electrica it by electrica mable signa it voltage = 0 = lus Maximu  For more por onnected in I to a proggra	ode: On. CV is control by e signal. Oper al signal or d al signal or d ls. Maximum a.8V,Minimum, Min delay wer please co	node: Off. Malectrical sign collector. Re ry contact. 0-ry contact. Re voltage 25V, h high level in a between 2 ponsult with Factors synchronize. Programmi.	aximum Volt al or dry con mote: On. Lo -0.6V or short mote: 0~0.6V or short mote: 0~0.6V Maximum s nput voltage pulses 1ms.  actory. e their turn-c ng via the co	age: 30V, Maxitact. Remote cal: Off. Maxit, 2~30V or o o o vV or short. Lo ink current 10 = 2.5V, Maximan and turn-communication	ximum Sink (: : 0~0.6V or s mum Voltagi pen. User se ocal: 2~30V o 00mA (Shun mum high le	Current: 10m short. Local: 2 e: 30V, Maxim electable logior open. ted by 27V ze evel input = 5	nA.  2~30V or ope mum Sink Cur ic.  ener)  5V positive ec	n. rent: 10mA.
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lcl tw=10us min Two identica Consult with Power supp Limits the o Emulates se	ble analog pramming coi ble PS output ble PS output rain program we level inpunimum. Tr,Tf al GSP units. a Factory lies can be coutput power ries resistance	rogramming ntrol monitor at by electrica at by electrica at by electrica at voltage = 0 elus Maximu  For more por connected in I to a proggra ce. Resistance	ode: On. CV is control by e signal. Oper al signal or d al signal or d al signal or d sign	node: Off. M. lectrical sign collector. Re ry contact. 0-ry contact. 0-ry contact. Re voltage 25V, h high level ir between 2 possible to be supported by the support of th	aximum Volt al or dry con mote: On. Lo -0.6V or shoi mote: O~0.6 Maximum s nput voltage pulses 1ms.  actory.  e their turn-c ng via the co ramming via	age: 30V, Maxitact. Remote cal: Off. Maxit, 2-30V or o o V or short. Lc ink current 1 = 2.5V, Maximon and turn-communication the communication the communication.	ximum Sink (: 0~0.6V or s mum Voltagi pen. User se ocal: 2~30V c 000mA (Shun mum high le	Current: 10m short. Local: 2 e: 30V, Maxim electable logion open. ted by 27V z evel input = 5	nA.  2~30V or ope mum Sink Cur ic.  ener)  5V positive ec	n. rent: 10mA. Ige trigger:
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum le tw=10us min Two identic. Consult with Power supp Lumits the o Emulates se Programma	ble analog pramming corble PS outpuble PS	rogramming ntrol monitor it by electric, it by	ode: On. CV is control by essignal. Oper al signal or dal signal or dal signal or dal signal or dals. Maximum, Min delay wer please control of the control o	node: Off. M. lectrical sign collector. Re ry contact. 0-ry contact. 0-ry contact. Re voltage 25V, h high level ir between 2 possible to be supported by the support of th	aximum Volt al or dry con mote: On. Lo -0.6V or shoi mote: O~0.6 Maximum s nput voltage pulses 1ms.  actory.  e their turn-c ng via the co ramming via	age: 30V, Maxitact. Remote cal: Off. Maxit, 2-30V or o o V or short. Lc ink current 1 = 2.5V, Maximon and turn-communication the communication the communication.	ximum Sink (: 0~0.6V or s mum Voltagi pen. User se ocal: 2~30V c 000mA (Shun mum high le	Current: 10m short. Local: 2 e: 30V, Maxim electable logion open. ted by 27V z evel input = 5	nA.  2~30V or ope mum Sink Cur ic.  ener)  5V positive ec	n. rent: 10mA. Ige trigger:
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control 5. Output resistance control 6. Slew rate control			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lo tw=10us min Two identic. Consult with Power supp Limits the o Emulates se Programma communica	ble analog pramming cor ble PS outpuble PS	rogramming ntrol monitor at by electrica at by electrica at by electrica at by electrica at voltage = 0 elus Maximu  For more por connected in 1 to a proggra ce. Resistance see and Outp the front pa	ode: On. CV is control by essignal. Operal signal or dal signal s	node: Off. MM lectrical sign collector. Re ry contact. 0- ry contact. Re ry cont	aximum Volt al or dry con mote: On. Lo -0.6V or shore mote: On-0.6 Maximum s nput voltage bulses 1ms.  actory.  e their turn- ng via the co ramming via ning range:	age: 30V, Maxitact. Remote cal: Off. Maxit, t, 2–30V or or or V or short. Lc link current 1 = 2.5V, Maxitact. Amazina and turn-communication, the communication, the communication.	ximum Sink (: 0~0.6V or s mum Voltagi pen. User se ocal: 2~30V c 000mA (Shuni mum high le	Current: 10m short. Local: 2 e: 30V, Maxim electable logior open. ted by 27V ze evel input = 5	nA.  2~30V or ope num Sink Curi ic.  ener)  5V positive ec	n. rent: 10mA. Ige trigger:
5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control 5. Output resistance control			Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lo tw=10us min Two identic. Consult with Power supp Limits the o Emulates se Programma communica	ble analog pramming cor ble PS outpuble PS	rogramming ntrol monitor at by electrica at by electrica at by electrica at by electrica at voltage = 0 elus Maximu  For more por connected in 1 to a proggra ce. Resistance see and Outp the front pa	ode: On. CV is control by essignal. Operal signal or dal signal s	node: Off. MM lectrical sign collector. Re ry contact. 0- ry contact. Re ry cont	aximum Volt al or dry con mote: On. Lo -0.6V or shore mote: On-0.6 Maximum s nput voltage bulses 1ms.  actory.  e their turn- ng via the co ramming via ning range:	age: 30V, Maxitact. Remote cal: Off. Maxit, t, 2–30V or or or V or short. Lc link current 1/1 = 2.5V, Maxitact. Age on and turn-communication, the communication, the communication.	ximum Sink (: 0~0.6V or s mum Voltagi pen. User se ocal: 2~30V c 000mA (Shuni mum high le	Current: 10m short. Local: 2 e: 30V, Maxim electable logior open. ted by 27V ze evel input = 5	nA.  2~30V or ope mum Sink Cur ic.  ener)  5V positive ec	n. rent: 10mA. Ige trigger:
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5. ENABLE/DISABLE Signal 6. INTERLOCK (ILC) control 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals FUNCTIONS AND FEATURES 1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control 5. Output resistance control 6. Slew rate control 7. Arbitrary waveforms	ISB, LAN,		Enable/Disa analog prog Enable/Disa Enable/Disa Two open d Maximum lo tw=10us min Two identic. Consult with Power supp Limits the o Emulates se Programma communica	ble analog pramming cor ble PS outpuble PS	rogramming ntrol monitor at by electrica at by electrica at by electrica at by electrica at voltage = 0 elus Maximu  For more por connected in 1 to a proggra ce. Resistance see and Outp the front pa	ode: On. CV is control by essignal. Operal signal or dal signal s	node: Off. MM lectrical sign collector. Re ry contact. 0- ry contact. Re ry cont	aximum Volt al or dry con mote: On. Lo -0.6V or shore mote: On-0.6 Maximum s nput voltage bulses 1ms.  actory.  e their turn- ng via the co ramming via ning range:	age: 30V, Maxitact. Remote cal: Off. Maxit, t, 2–30V or or or V or short. Lc link current 1/1 = 2.5V, Maxitact. Age on and turn-communication, the communication, the communication.	ximum Sink (: 0~0.6V or s mum Voltagi pen. User se ocal: 2~30V c 000mA (Shuni mum high le	Current: 10m short. Local: 2 e: 30V, Maxim electable logior open. ted by 27V ze evel input = 5	nA.  2~30V or ope num Sink Curi ic.  ener)  5V positive ec	n. rent: 10mA. Ige trigger:
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GSP 10-1500 20-750 30-510 40-375 60-255 80-195 100-150 150-102 200-75 300-51 600-25.5



### GENESYS™ GSP10kW/15kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS		V	10	20	30	40	60	80	100	150	200	300	600
					power suppl								
1.Foldback protection			User preset	able. Reset b	y AC input rec	ycle in auto	start mode, k	y Power Sw	itch, by OUT	PUT button,	by rear pane	l or by comm	
2.Over-voltage protection (OV					t by AC input								
3.Over -voltage programming		V	0.5~12	1~24	2~36	2~44.1	5~66.15	5~88.2	5~110.25	5~165.37	5~220.5	5~330.75	5~661.5
4. Over-voltage programming				ed output vo									
5.Output under voltage limit (					Vout below lin			ialog progra	imming. Pres	et by front p	anel or comi	munication po	ort.
6.Over temperature protection					Auto recovery		rt mode.						
7. Output under voltage limit (	UVL)		Prevents ac	justment of \	out below lin	nit.							
8. Output under voltage prote	ction (UVP)		Prevents ad mode, by P	justment of \ ower Switch,	out below lin	nit. P.S outp utton, by re	ut turns Off o ar panel or by	during under y communic	r voltage cor ation.	ndition. Rese	t by AC input	recycle in au	tostart
FRONT PANEL													
1.Control functions				tions with 2 E									
					nanual adjust								
				VP manual ad									
					VP, UVL,UVP, F								
					ns - Selection	of LAN,IEEE	,RS232,RS48	5,USB or Opt	tional comm	unication int	erface.		
				OFF. Front Pa									
					ns - Selection								
					ıs - Selection \					rogramming			
					ns - Selection				V.				
2.Display					0.05% of rated								
					.2% of rated o								
3.Front Panel Buttons Indication	ons		OUTPUT ON	I, ALARM, PR	EVIEW, FINE, C	OMMUNICA	ATION, PROTI	ECTION,CON	IFIGURATION	I, SYSTEM, SE	QUENCER.		
4. Front Panel Display Indication	ons				CV, CC, CP, Ext B/LAN/IEEE co					tostart, Safe	start, Foldba	ack V/I, Remot	e
ENVIRONMENTAL CONDITIO	NS												
1.Operating temperature			0~50°C, 100	)% load.									
2.Storage temperature			-30~85°C							-		-	
3.Operating humidity		%		(no condens	atian)								
4.Storage humidity		%		(no condens									
5.Altitude (*17)			Operating:	10000ft (3000	m), output cu	ırrent derati	ing 2%/100m	or Ta deratii	ng 1°C/100m	above 2000	m. Non oper	ating: 40000ft	(12000m).
MECHANICAL													
1.Cooling			Forced air c	ooling by int	ernal fans. Air	flow direct	ion: from Fro	nt panel to p	ower supply	/ rear			
2.Weight	GSP 10kW	kg	Less than 15	5.5kg.									
3.Dimensions (WxHxD)	GSP 10kW	mm	W: 423, H: 8 W: 423, H: 8	8, D: 441.5 (V	/ithout husbar								
2.Weight	CCD 1514W			10, D. 040 (IIIC	luding busbar	rs and busba s and busba	rs cover), rs cover, and s	strain relief)	(Refer to Out	ine drawing).			
z.weigiit	GSP 15kW	kg	Less than 2		luding busbar	rs and busba s and busba	rs cover), rs cover, and s	strain relief)	(Refer to Out	line drawing).			
3.Dimensions (WxHxD)	GSP 15kW	kg mm	W: 423, H:	3.5kg. 132.5, D:441.	luding busbar 5 (Without bu (Including bu	s and busba usbars and b	rs cover, and s	-),			awing).		
			W: 423, H: W: 423, H:	3.5kg. 132.5, D: 441. 132.5, D: 640	luding busbar 5 (Without bu	s and busba usbars and b usbars and b	rs cover, and s ousbars cover ousbars cover	r), , and strain re			awing).		
3.Dimensions (WxHxD)		mm	W: 423, H: W: 423, H: MIL-810G, n	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6	Juding busbar 5 (Without bu (Including bu	s and busba usbars and b usbars and b test condition	rs cover, and sousbars cover ousbars cover on Annex C -	r), , and strain re			awing).		
3.Dimensions (WxHxD) 4.Vibration 5.Shock		mm	W: 423, H: W: 423, H: MIL-810G, n	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6	5 (Without bu (Including bu , Procedure I, 1	s and busba usbars and b usbars and b test condition	rs cover, and sousbars cover ousbars cover on Annex C -	r), , and strain re			awing).		
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC	GSP 15kW	mm	W: 423, H: W: 423, H: MIL-810G, n Less than 20	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6 OG, half sine,	5 (Without bu (Including bu , Procedure I, 1 11mSec. Unit i	s and busba usbars and b usbars and b test condition	ousbars cover ousbars cover on Annex C -	r), , and strain re			awing).		
3.Dimensions (WxHxD) 4.Vibration 5.Shock		mm	W: 423, H: W: 423, H: MIL-810G, n Less than 20	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6 OG, half sine,	5 (Without bu (Including bu , Procedure I, 1	s and busba usbars and b usbars and b test condition	ousbars cover ousbars cover on Annex C -	r), , and strain re			wing).		
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC	GSP 15kW	mm	W: 423, H: W: 423, H: MIL-810G, n Less than 20 UL60950-1, Vout ≤40V	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6 DG, half sine, CSA22.2 No.0	5 (Without bu (Including bu , Procedure I, 1 11mSec. Unit i	s and busba usbars and b usbars and b test conditi- is unpacked 0950-1, EN6	pusbars cover, and subars cover on Annex C - l.  0950-1.  sense) and ,J	r), , and strain ro 2.1.3.1	elief) (Refer t	o Outline dra		are SELV	
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC 1.Applicable standards:	GSP 15kW	mm	W: 423, H: W: 423, H: MIL-810G, n Less than 20 UL60950-1, Vout ≤40V I 60≤ Vout≤ Vout ≤40V I 00√SVouts	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6 DG, half sine, CSA22.2 No.6 Models: Outp 600V Models Models: Inp 4:100V Model round: 1500'	5 (Without bu (Including bu , Procedure I, 11mSec. Unit i 50950-1, IEC60 ut, J1,J2,J3,J4,	s and busba usbars and b test conditi is unpacked 0950-1, EN6 U.J., J6, J7, J8 (sense) are h SELV): 4242 Uput - Groun tout: 4242 Uput - Groun	ousbars cover, and sousbars cover on Annex C - l.  0950-1.  sense) and ,J azardous, J1,  2VDC 1min, Ir mid: 2835VDC	9 (communi 12,13,14,15,16 Input - Gro put - SELV C 1 min.	cation optio 6,J7 and J9 (c und: 2835V : 4242VDC	o Outline dra	on options) a	50VDC 1min,	ı,
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC 1.Applicable standards: 1.1. Interface classification 1.2 Withstand voltage	GSP 15kW		W: 423, H: W: 423, H: MIL-810G, n Less than 2l UL60950-1, Vout ≤40V 60≤ Vout≤ Vout ≤40V 60V≤Vouts Output - G	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6 DG, half sine, CSA22.2 No.0 Models: Outp 600V Models: 100V Model round: 1500'	Juding busbar  5 (Without bu (Including bu , Procedure I, 1 11mSec. Unit i 50950-1, IEC60 ut, J1, J2, J3, J4, s: Output, J8 (s ut - Output (\$ s: Input - Out VDC 1min, In s: Input - Out VDC 1min, In	s and busba usbars and b test conditi is unpacked 0950-1, EN6 U.J., J6, J7, J8 (sense) are h SELV): 4242 Uput - Groun tout: 4242 Uput - Groun	ousbars cover, and sousbars cover on Annex C - l.  0950-1.  sense) and ,J azardous, J1,  VDC 1min, Ir  dic 2835VDd/DC 1min, Ir  nd: 2835VDd/DC 1min, Ir	9 (communi J2,13,14,J5,J0 Input - Gro pput - SELV C 1min.	cation optio 6,J7 and J9 (c und: 2835V : 4242VDC	o Outline dra	on options) at - SELV: 85	50VDC 1min,	l,
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC 1.Applicable standards: 1.1. Interface classification 1.2 Withstand voltage	GSP 15kW		W: 423, H: W: 423, H: MIL-810G, r, ILESS than 20  UL60950-1, Vout ≤40V 60≤ Vout≤ Vout ≤40V 00∨50ut = 0 00∨50ut+ G 00∨50ut+ G 000<00tput - G GSP10kW -	3.5kg. 132.5, D: 640 132.5, D: 640 nethod 514.6 OG, half sine, CSA22.2 No.0 Models: Outp 600V Models: 100V Models round: 1500' 6600V Model round: 2500' 6600V Model	Juding busbar  5 (Without bu (Including bu, Procedure I, 11mSec. Unit in 11mSe	s and busba usbars and b stest conditi- is unpacked 0950-1, EN6- ,U5,J6,J7,J8 (sense) are h SELV): 424- tput: 4242\ tput: 4242\ uput - Groui	ousbars cover, and sousbars cover on Annex C - l.  0950-1.  sense) and ,J azardous, J1, 2VDC 1min, Ir md: 2835VDc //DC 1min, Ir nd: 2835VDc	9 (communi J2,13,14,15,16 Input - Gro Dput - SELV C 1 min. GSP15kW - (1)	cation optio 6,J7 and J9 (e und: 2835V : 4242VDC : 4242VDC	o Outline dra	on options) at - SELV: 85	50VDC 1min,	1,
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC 1.Applicable standards: 1.1. Interface classification 1.2 Withstand voltage 1.3 Insulation resistance 2.Conducted emmision	GSP 15kW		W: 423, H: W: 423, H: MIL-810G, r, MIL-810G, r, Less than 2i  UL60950-1, Vout ≤40V 605 Vout≤ Vout ≤40V 60 Vout≤ 0 Vout ≤40V 100 Coutput - G 100 < Voutst Output - G GSP10kW - IEC/EN6120	3.5kg. 132.5, D: 441. 132.5, D: 640 132.5, D: 64	Juding busbar.  5 (Without bu (Including bus, Procedure I, 11mSec. Unit in 11m	s and busba usbars and b test conditi- is unpacked 0950-1, EN6- (J5,J6,J7,J8 (sense) are h SELV): 424- tput: 4242\tput - Grout tput: - Grout t, Annex H t	ousbars cover, and sousbars cover on Annex C - l.  1.  1.  1.  1.  1.  1.  1.  1.  1.	9 (communi J2,J3,J4,J5,J6 Input - Gro pput - SELV C 1min. GSP15kW-1	cation optio 6,J7 and J9 (c und: 2835V : 4242VDC : 4242VDC 90 Mohm at /CCI-A.	o Outline dra ns) are SELV. communicati DC 1min. 1min, Outpu 1min, Outpu 25°C, 70%RH	on options) at - SELV: 85	50VDC 1min,	ı,
3.Dimensions (WxHxD) 4.Vibration 5.Shock SAFETY/EMC 1.Applicable standards: 1.1. Interface classification 1.2 Withstand voltage	GSP 15kW		W: 423, H: W: 423, H: MIL-810G, r, Less than 2i  UL60950-1, Vout ≤40V 60≤ Vout≤ Output - G Output - G GSP10kW - IEC/EN6120 IEC/EN6120	3.5kg. 132.5, D: 441. 132.5, D: 640 nethod 514.6 DG, half sine,  CSA22.2 No.0 Models: Outp 600V Models Models: Inp :100V Model round: 1500' 600V Model 600V Model 600V Model 600V Model 600V Model 600V Model 64-3 Industria	Juding busbar  5 (Without bu (Including bu, Procedure I, 11mSec. Unit in 11mSe	isbars and bisbars and bisbars and bisbars and bisbars and bitest conditions in the conditions of the	ousbars cover, and sousbars cover on Annex C - l.  1.  1.  1.  1.  1.  1.  1.  1.  1.	9 (communi J2,J3,J4,J5,J6 Input - Gro pput - SELV C 1min. GSP15kW-1	cation optio 6,J7 and J9 (c und: 2835V : 4242VDC : 4242VDC 90 Mohm at /CCI-A.	o Outline dra ns) are SELV. communicati DC 1min. 1min, Outpu 1min, Outpu 25°C, 70%RH	on options) at - SELV: 85	50VDC 1min,	1,

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0° to 50° C.

- "NOTES:

  \*1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.

  \*2: Minimum current is guaranteed to maximum 0.2% of rated output current.

  \*3: Derate 15A/1°C above 40°C.

  \*4: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 190-240Vac (50/60Hz) for 3-Phase \*5: 3-Phase 200V models: At 200Vac input voltage, 3-Phase 400/480V: At 380Vac input voltage. With rated output power.

  \*6: Not including EMI filter inrush current, less than 0.2mSec.

  \*7: 3-Phase 200V models: 170~265Vac, 3-Phase 400V models: 342~460Vac, 3-Phase 480V models: 342~528Vac. Constant load.

- \*7:3-Phase 200V models: 170~265Vac, 3-Phase 400V models: 342~460Vac, 3-Phase 480V models: 342~528Vac. Constant load.

  \*8: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.

  \*9: For 10V~150V models: Measured with JEITA RC-9131C (1:1) probe. For 300~600V models: Measured with 100:1 probe.

  \*10: The maximum voltage on the power supply terminals must not exceed the rated voltage.

  \*11: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load.

  \*12: From 90% to 10% of Rated Output Voltage.

  \*13: For load voltage change, equal to the unit voltage rating, constant input voltage.

  \*14: For 10V model the ripple is measured at 2V and rated output current. For other models, the ripple is measured at 10% of rated output voltage. B.W 5Hz~1MHz.

  \*15: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.

  \*16: Measured at the sensing point.

  \*17: For 10V model Ta derating 2°C/100m."

  \*18:"Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.

  \*19:Max. ambient temperature for using IEEE is 40°C.

  \*20:GSP10kW For 10V model only: Max. output current for using IEEE is 800A up to 40°C and 900A up to 30°C.

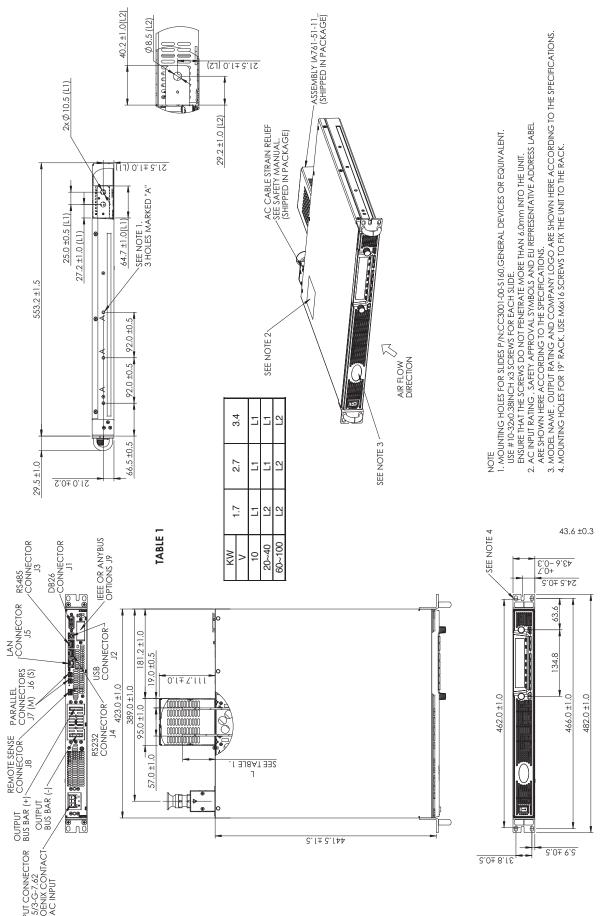
  \*21: For 10V model only: Max. output current for using IEEE is 1200A up to 40°C and 1350A up to 30°C.

  \*22: Typ. at Ta=25°C, rated output power.

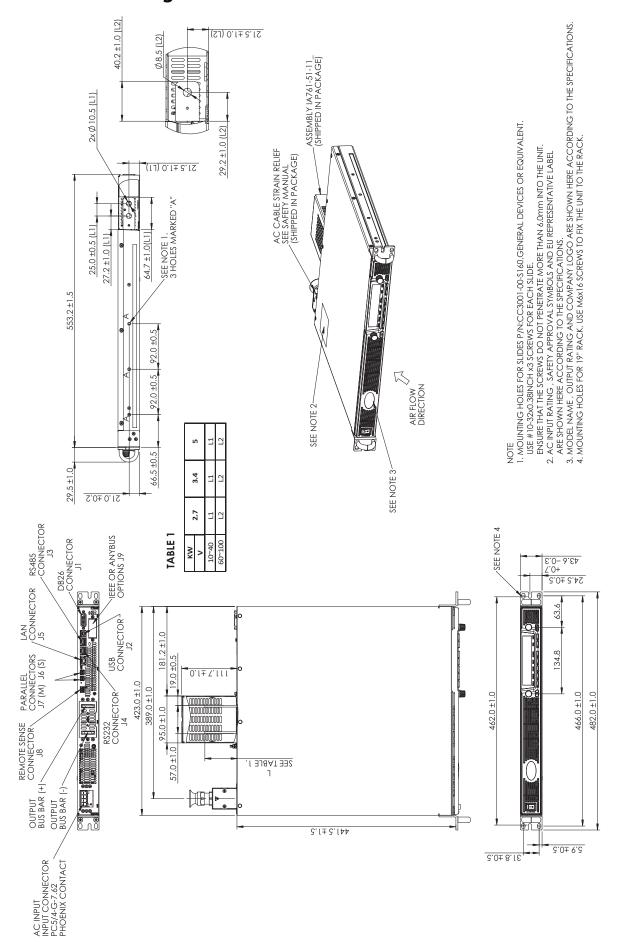
  \*23: For steady state only.



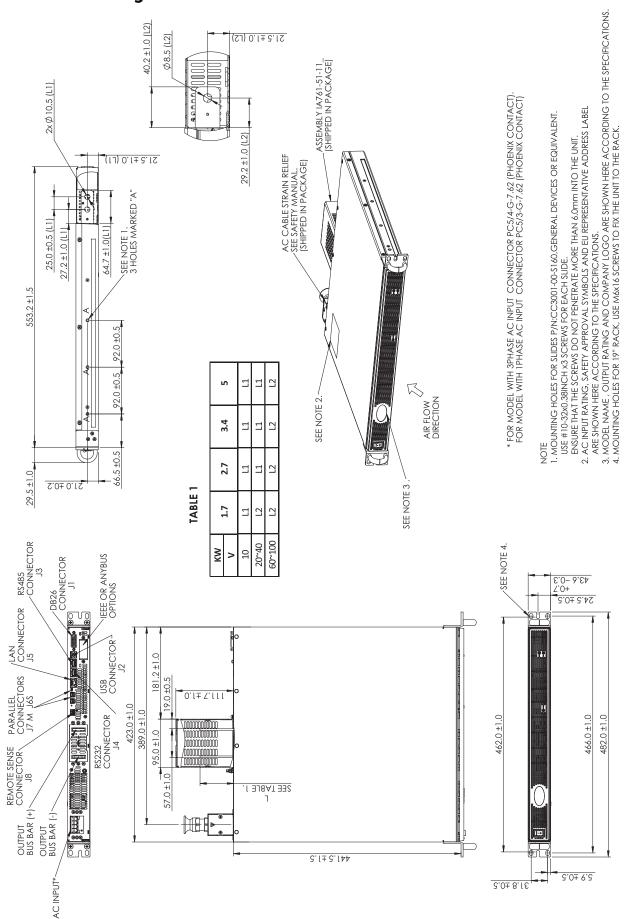
## Outline Drawing GENESYS™ G1.7kW/2.7kW/3.4kW - 1-Phase



## Outline Drawing GENESYS™ G2.7kW/G3.4kW/G5kW - 3-Phase

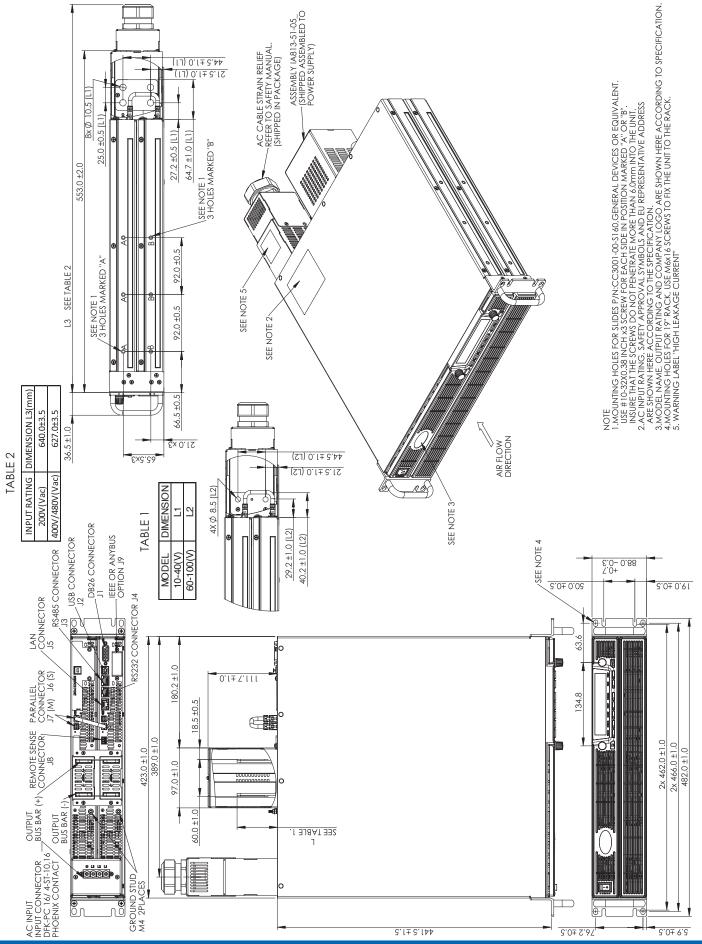


## Outline Drawing GENESYS™ GB1.7kW/GB2.7kW/GB3.4kW/GB5kW - ATE Version

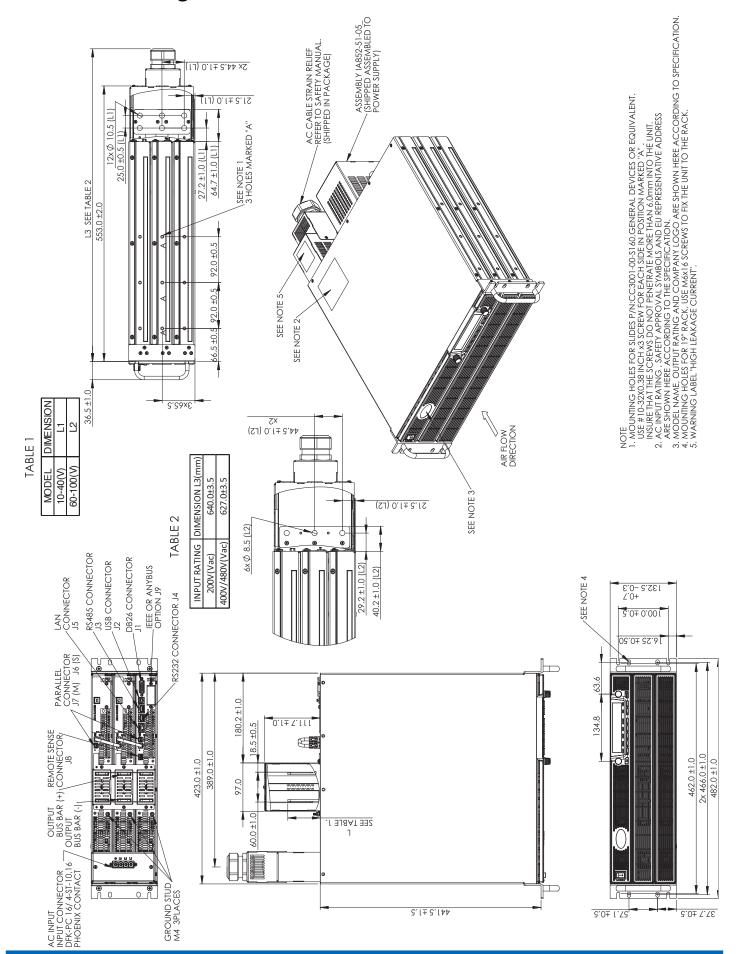




## Outline Drawing **GENESYS™** GSP10kW



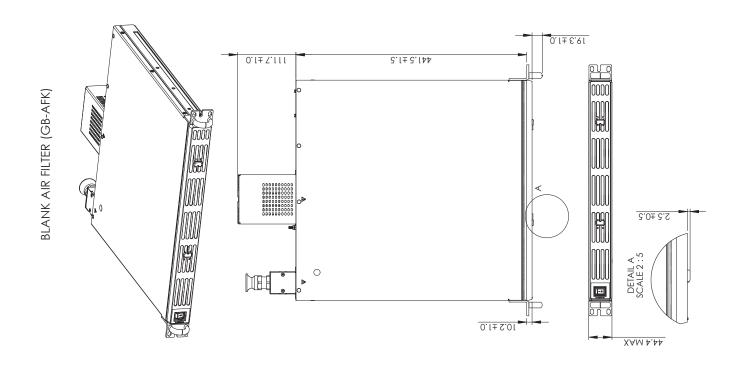
## Outline Drawing **GENESYS™** GSP15kW

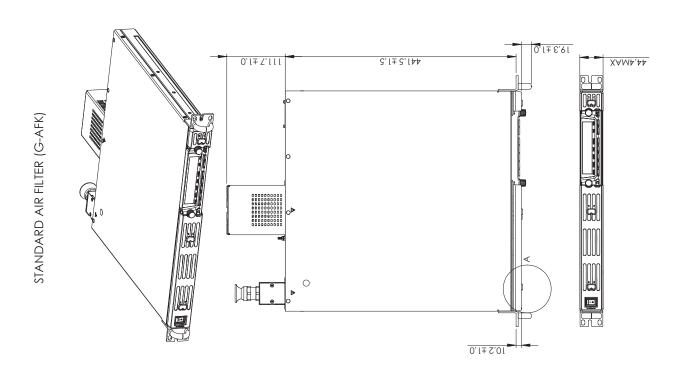






## Outline Drawing **GENESYS™** Air Filter Kit





### Front Panel Air Filter Assembly

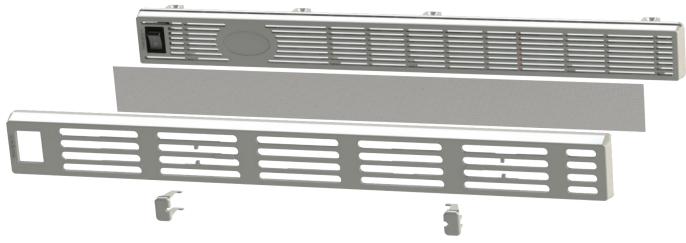
Front panel dust cover is available for dusty air environment applications

Dust cover is removable snap-in filter (for easy maintenance)

• Part Number (for standard unit) : G-AFK



• Part Number (for unit with blank front panel): GB-AFK



For GSP 10kW/15kW series order part number: GSP10kW-AFK / GSP15kW-AFK

### **Accessories**

1. Front Panel dust filter / Field installation kit:

### Technical Specifications: Unit with Air Filter Assembly Installed

- · Derating (environmental):
- Operating Temperature
- For all models (except 10V): 0°C to +40°C; For 10V model: 0°C to +30°C, derate 5A/°C for 30°C < Ta < +40°C
- Altitude
- For all models (except 10V): derate 2°C/100m or 2% of load/100m (above 2000m)
- For 10V model: derate 1°C/100m or 2% of load/100m (above 2000m)

### **Filter Foam Technical Specifications**

- · Material: reticulated polyurethane foam
- Thickness: 4.0mm
- Porosity: 30ppi
- Operating Temperature Range: 0°C to +60°C
- Storage Temperature Range: -40°C to +85°C
- Humidity: 95% RH

### **Air Filter Assembly Components**

Standard Unit (P/N: G-AFK)

- · Air Filter Cover (two pieces)
- Slide Button #1 (two locations: near AC ON/OFF switch and near left-hand side of front panel display)
- Slide Button #2 (one location: right-hand side of front panel display)
- · Filter foam (two pieces)

### Blank Front Panel Unit (P/N: GB-AFK)

- · Air Filter Cover (one piece)
- Slide Button #1 (two locations) Filter foam (one piece)



Improved 5Pecifications

# Genesys™

GENH Series
Programmable DC Power Supplies
750W in 1U Half-Rack Size
Built in RS-232 & RS-485 Interface
Advanced Parallel Operation

Optional Interface:
LXI Compliant LAN
IEEE488.2 SCPI (GPIB) Multi-drop
Isolated Analog Programming



**Genesys™ Family** 

GenH 750W Half Rack

Gen1U 750/1500W Full Rack

Gen2U 3.3/5kW

TDK-Lambda



### TDK·Lambda

### Genesys™ GENH750W-1U

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 available: 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
- Front Panel Lockout
- Last-Setting Memory
- 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
- Reliable Modular and SMT Design
- 19"Rack Mounted ATE benchtop and OEM applications
- Side-by-side mounting of two units in a 19" rack
- 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

### **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

Preview Settings

Remote Mode

Fine Control

Foldback 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 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<sup>™</sup> 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 inputs allows testing of many different devices.

### **Semiconductor Processing and 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**

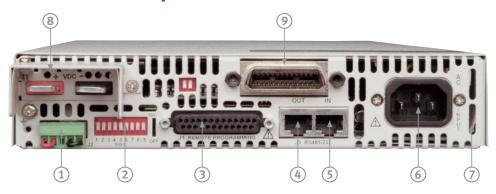
Smooth, reliable encoders enhance front panel control. Remote analog programming is user selectable 0-5V or 0-10V.

### **RF Amplifiers and Magnets**

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

High linearity in voltage and current mode.

### **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) or Isolated Analog Interface or LAN Interface.



### **TDK·Lambda**

### **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		600-1.3
1. Rated output voltage (*1)	V	6	8	12.5	20	30-23	40-19	60	80	100-7.3	150	300-2.3	600
2. Rated Output Current (*2)	A	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	77/80	81/84	82/85	82/85	83/87	83/87	83/87	83/87	83/87	83/87	83/87
*	,,,	70/70	77700	01/01	02/03	02/03	03/01	03/07	03/07	03/07	03/01	03/07	03/07
1.1 CONSTANT VOLTAGE MODE		2.6	2.0	2.2		-			4.0	40	47	22	
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	50	60	60	50	60	60	75	75	75	130	300
4. Ripple r.m.s 5Hz~1MHz (*9)	mV	8	6	7	7.5	6	7	7	7	8	8	20	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		of rated	output vol	<u>ltage, follo</u>	wing 30 r	ninutes w	arm up			1.0		
7.Temp. stability	%	0.01% of	rated vo	ut over 8r	<u>irs interva</u>	<u>I followin</u>	g 30 minu	tes warm-	up. Const	ant line, lo	ad & temp	).	250
8. Up-prog. response time, 0~Vo Rated	mS	80mS, N.I	_/F.L, resis						150mS, N	LL/F.L, resi			250
9. Down-prog response time full-load	mS	10	600	50	222	200	80	4400	4000		0	2500	250
10. Down-prog response time No-load	mS	500	600	700	800	900	1000	1100	1200	1500	2000	2500	4000
11. Transient response time (*8)	mS			r models ι							0.		
12. Temp. drift	%	0.01% of r	ated Vout	over 8hrs	interval fo	ollowing :	0 minutes	s warm up	. Constan	t line, load	& temp.		
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 lo+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	190	160	110	50	45	30	15	10	10	8	6	4
4. Temp. coefficient		70PPM/°C											
5. Temp. stability	%	0.01% of r	ated lout	over 8hrs	interval fo	llowing 3	0 minutes	warm up.	Constant	line, load	& temp.		
6. Warm up drift	%									voltage / c		ange	
•	, ,,												
1.3 PROTECTIVE FUNCTIONS		0 1050/ 5											
1. OCP		0~105% (				-la - a	CV/	CC 11	اللعدداد				
2. OCP Foldback				when pow									
3. OVP type		Inverter s	hut-down	<u>, manual r</u>	eset by AC	input red	ycle or by	OUI butt	on or by o	communic	ation port		
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
5. Over Temp Protection		User selec	ctable, late	ched or no	on latched								
1.4 ANALOG PROGRAMMING AND MONITORING	;												
1. Vout Voltage Programming		0~100%	0~5V or 0	~10V, user	select Ac	curacy an	d linearity	+/-0.5%	of rated V	out			
2. lout Voltage Programming				~10V, user									
3. Vout Resistor Programming				hm full sca									
4. lout Resistor Programming										rated lout.			
5. On/Off control (rear panel)				ge: 0~0.6V						rateu iout.			
6. Output Current monitor				uracy: 1%,			ct, user se	iectable i	ogic				
7. Output Voltage monitor				uracy: 1%, uracy: 1%,									
8. Power Supply OK signal				K, 0V-Fail 5			2000						
9. CV/CC indicator		Open cell	00tor CC	modo: On	CVmodo	· Off Max	imum valt	2001 201/	mavimum	sink curre	nt. 10m A		
10. Enable/Disable		Open con	ector, cc	off, Short:	, CV mode	coltage of	Enable/D	<u>.age: 30v,</u>	<u>maximum</u>	i Sirik Curre	int: IUMA		
11. Local/Remote analog control										cal			
				or Open/S							. F.no. A		
12. Local/Remote analog control indicator		Open con	ector, Loc	ai: Open, i	Remote: O	<u>n. Maxim</u>	um voitag	e: 30v, ma	iximum si	nk current	: 5MA.		
1.5 FRONT PANEL													
		Vout/lout	: manual a	djust by s	eparate er	ncoders (c	oarse and	fine adjus	tment sel	lectable)			
		OVP/UVL	manual a	djust by Vo	olt. Adjust	encoder							
1. Control functions		AC on/off	Output o	n/off, Ře-	start mode	es (auto, s	afe), Foldb	ack contr	ol (CV to C	CC), Go to I	ocal contr	rol	
		Address s	election b	y Voltage	(or curren	t) adjust e	ncoder. N	umber of	addresses	s: 31			
		RS232/48	5 and IEFF	488.2 sele	ection by I	EEE enabl	e switch a	nd DIP sw	itch				
		<b>Baudrate</b>	selection:	1200, 240	0,4800,9	600 and 1							
2 Display		Voltage	4 digits, a	accuracy: (	0.05%+/-1	count							
2. Display		Current	4 digits, a	accuracy: (	).2%+/-1 c	ount							
3. Indications				larm, Fine,			Local, Out	tput On, F	ront Pane	l Lock			
	I A NI 1-4-		.,				,						
1.6 Interface RS-232&RS-485 or Optional GPIB /			n	12.5	20	20	40	60	00	100	150	200	600
Model	V	6	8	12.5	20	30	40	60	80	100	150	300	600
1. Remote Voltage Programming (16 bit)		0.10	0.11	0.25	0.1	0.1	0.0	1.0	1.0	2.0	2.0		12.0
Resolution (0.02% of Vo Rated)	mV	0.12	0.16	0.25	0.4	0.6	0.8	1.2	1.6	2.0	3.0	6.0	12.0
Accuracy (0.05%Vo Rated Output voltage) (*11)	mV	3.0	4.0	6.3	10	15	20	30	40	50	75	150	300
2. Remote Current Programming (16 bit)													
Resolution (0.002% of lo Rated)	mA	2.00	1.80	1.20	0.76	0.50	0.38	0.25	0.19	0.15	0.10	0.05	0.03
Accuracy (0.1% of lo Rated+0.1% of lo Actual Output)(*10)		200	180	120	76	50	38	25	19	15	10	5.0	2.6
										,			 
3. Readback Voltage													
Resolution of Vo Rated	mV	0.12	0.16	1.125	1.20	1.20	1.2	1.2	1.60	11.0	10.50	12	12
Accuracy 0.05% Vo Rated	mV	3	4	6.3	10	15	20	30	40	50	75	150	300
4. Readback Current													
	m A	11	1.00	1.20	114	1.25	114	1 1 2	0.10	0.15	0.15	0.12	0.12
Resolution of lo Rated	mA	11	1.80	1.20	1.14	1.25	1.14	1.13	0.19	0.15	0.15	0.13	0.12
Accuracy 0.3% of Io Rated(*10)	mA	300	270	180	114	75	57	37.50	28.50	22.50	15	7.50	3.90
5. OVP/UVL Programming													
Resolution (0.1% of Vo Rated)	mV	6	8	12	20	30	40	60	80	100	150	300	600
Accuracy (1% of Vo Rated)	mV	60	80	125	200	300	400	600	800	1000	1500	3000	6000

<sup>\*1:</sup> Minimum voltage is guaranteed to maximum 0.2% of Vo Rated.

Specifications in Blue are improved



<sup>\*2:</sup> Minimum current is guaranteed to maximum 0.4% of lo Rated.

<sup>2.</sup> Willindin Control is guaranteed to maximum 0.4% of to nated.

\*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.

<sup>\*7:</sup> 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.

 $<sup>*8:</sup> Time for the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage to recover within 0.5\% of its rated for a load change 10 \sim 90\% of rated and the output voltage is a load change 10 \sim 90\% of rated and the output voltage is a load change 10 \sim 90\% of rated and the output voltage is a load change of the output voltage of the output voltage$ output, Output set-point:10~100%.

<sup>\*9:</sup> For 6V~300V models: measured with JEITA RC-9131A 1:1 probe. For 600V model: measured with

 <sup>10:1</sup> probe Accuracy -Values have been calculated at Vo Rated & Io Rated.
 \*10: The Constant Current programming readback and monitoring accuracy does not include the warm-up and Load regulation thermal drift.

<sup>\*11:</sup> Measured at the sense point.

# General Specifications Genesys™ GENH750W

1. Input voltage/freq. (*1) 2. Power Factor 0.99 @100/200Vac, rate of uptup t power. 3. EN61000-3-2.3 compliance 1. Input current 100/200Vac 7. SOW 1.0.5 A/ 5.A, 5. Inrush current 100/200Vac 7. FOW 1.0.5 A/ 5.A, 5. Inrush current 100/200Vac 7. FOW 1.0.5 A/ 5.A, 6. Hold-up time More than 20m\$, 100Vac, at 100% load. 2. POWER SUPPLY CONFIGURATION 1. Parallel Operation 1. Parallel Operation 1. Parallel Operation 1. Operating temp 1. Op-50°C, 100% load. 2. Series Operation 2. Series Operation 2. Series Operation 2. Series Operation 3. Operating temp 2. O-50°C, 100% load. 2. Storage temp 2. O-70°C 3. Operating humidity 3. Operating humidity 4. Storage humidity 4. Storage humidity 5. Vibration 4. Storage humidity 6. Shock 1. Less than 205, half sine, 11mSec. Unit is unpacked. 7. Altitude 7. Alt	: 40000ft (12000m).
LENGIOOG-3-2,3 compliance Linput current 100/200Vac Linput current 100	: 40000ft (12000m).
Input current 100/200Vac   750W:1ess than 25A,   Intrush current 100/200Vac   750W:Less than 25A,   Interface classification   Intrush current 100/200Vac   750W:Less than 25A,   Interface classification   Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring) interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring Interfaces (RS 232/485, IEEE LAN, Sense, Remote Programm	: 40000ft (12000m).
Infrush current 100/200Vac	: 40000ft (12000m).
Hold-up time	: 40000ft (12000m).
.2 POWER SUPPLY CONFIGURATION Parallel Operation Up to 4 units in master/slave mode with single wire current balance connection .5 eries Operation Up to 2 units, with external diodes. 600V Max to Chassis ground .3 ENVIRONMENTAL CONDITIONS .0 perating temp 0~50°C, 100% load5 torage temp 2-0~70°C .0 perating humidity 30~90% BH (non-condensing)5 torage humidity .10—95% BH (non-condensing)Vibration MIL-810E, method 514.4, test cond. F-3.3.1. The EUT is fixed to the vibrating surface5 hock Less than 20G, half sine, 11mSec, Unit is unpacked4 thitude Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating4 EMC .4 Applicable Standards: .ESD IEC1000-4-2. Air-disch8KV, contact disch4KV .5 urge immunity .EC1000-4-3. XIV line to line, 2KV line to ground .Conducted immunity .EC1000-4-3, 3V/m .Radiated immunity .EC1000-4-3, 3V/m .Radiated immunity .EC1000-4-3, 3V/m .Radiated emission .ENS5022B, FCC part 15-B, VCCI-BRadiated emission .ENS5022B, FCC part 15-B, VCCI-BRadiated emission .Radiated emis	: 40000ft (12000m).
Parallel Operation	: 40000ft (12000m).
Series Operation	: 40000ft (12000m).
Series Operation	: 40000ft (12000m).
3ENVIRONMENTAL CONDITIONS  Operating temp  O-50°C, 100% load. Storage temp  O-20-70°C Operating humidity  30~90% RH (non-condensing). Storage humidity  10~95% RH (non-condensing). Wibration MIL-810E, method 514.4, test cond. I-3.3.1. The EUT is fixed to the vibrating surface. Shock Less than 20G, half sine, 11mSec. Unit is unpacked. Altitude Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating.  AEMC  Applicable Standards: ESD  EC1000-4-2. Air-disch8KV, contact disch4KV  Surge immunity EC1000-4-3. 1KV line to line, 2KV line to ground EC1000-4-4. 2KV  Surge immunity EC1000-4-5. 1KV line to line, 2KV line to ground EC1000-4-3. 3V/m  Conducted immunity EC1000-4-3, 3V/m  Conducted emission EN55022B, FCC part 15-B, VCCI-B. Radiated emission EN55022B, FCC part 15-B, VCCI-B. Radiated emission EN55022B, FCC part 15-B, VCCI-B.  EN5000-4-11  Applicable standards: UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1  Models with 60V out 400% Output is Hazardous, communication/control interfaces (RS232/485, IECE LAN, Sense, Remote Programming and Monitoring) pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitor	: 40000ft (12000m).
. Operating temp 2-20~70°C 3. Operating temp 2-20~70°C 3. Operating humidity 30~90% RH (non-condensing). 4. Storage humidity 10~95% RH (non-condensing). 5. Storage humidity 10~95% RH (non-condensing). 6. Shock 10. Less than 2006, half sine, 11mSec. Unit is unpacked. 7. Altitude 10. Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output (3000m), Derat ou	: 40000ft (12000m).
Storage temp 20~70°C Operating humidity 30~90% RH (non-condensing) Storage humidity 30~90% RH (non-condensing) Vibration MIL-810E, method 514.4, test cond. 1-3.3.1. The EUT is fixed to the vibrating surface Shock Less than 20G, half sine, 11mSec. Unit is unpacked Altitude Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 4EMC Applicable Standards: ESD IEC1000-4-2. Air-disch8KV, contact disch4KV Fast transients IEC1000-4-2. IkV line to line, 2KV line to ground Conducted immunity IEC1000-4-3. IkV line to line, 2KV line to ground Conducted emission IEC1000-4-3. 3V/m Radiated immunity IEC1000-4-3, 3V/m Radiated emission ENS5022B, FCC part 15-B, VCCI-B S S AFETY Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV Models with Vout 50V: Output is Hazardous, communication/control interfaces: RS232/ Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring are Hazardous Wort 50V models: Input-Output (SELV): Hazardous, 3425VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output (Hazardous): 5425VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output (Hazardous): 5425VD	: 40000ft (12000m).
. Operating humidity . Storage humidity . Storage humidity . 10—95% RH (non-condensing) Storage humidity . 10—95% RH (non-condensing) Milk_810E, method 514.4, test cond. I-3.3.1. The EUT is fixed to the vibrating surface Shock . Less than 20G, half sine, 11mSec. Unit is unpacked Altitude . Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating AEMC . Applicable Standards: . ESD . IEC1000-4-2. Air-disch8KV, contact disch4KV . Fast transients . IEC1000-4-3. IKV line to line, 2KV line to ground . Conducted immunity . IEC1000-4-5. IKV line to line, 2KV line to ground . Conducted immunity . IEC1000-4-6, 3W . Radiated immunity . IEC1000-4-3. 3W/m . Radiated emission . EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-A, VCCI-A Voltage dips . EN61000-4-11 . On Conducted emission . EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-B, VCCI-B Inadiated emission . EN55022B, FCC part 15-B, VCCI-B SAFETY . Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1  Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous Models with Vout 50V: Output is Hazardous, Communication/control interfaces (RS Isolated Analog, LAN, Sense, Remote Programming and Monitoring are Hazardous Vout 50V models: Input-Output (SELV): Hazardous, 3425VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, . 60V Vout 150V models: Input-Output (Hazardous). 3425VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output (Hazardous). Ground: 1414V	: 40000ft (12000m).
. Storage Fumidity . Vibration . MIL-810E, method 514.4, test cond. I-3.3.1. The EUT is fixed to the vibrating surface Shock . Less than 20G, half sine, 11mSec. Unit is unpacked Altitude . Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating AEMC . Applicable Standards: . ESD . IEC 1000-4-2. Air-disch8KV, contact disch4KV . Fast transients . IEC 1000-4-2. Air-disch8KV in to ground . Conducted immunity . IEC 1000-4-5. 1KV line to line, 2KV line to ground . Conducted emission . Radiated immunity . IEC 1000-4-3. 3W/m . Conducted emission . ENS 5022B, FCC part 15J-B, VCCI-B Radiated emission . ENS 5022B, FCC part 15-A, VCCI-A Voltage dips . Conducted emission . ENS 5022B, FCC part 15-B, VCCI-B Radiated emission . ENS 5022B, FCC part 15-B, VCCI-B Radiated emission . ENS 5022B, FCC part 15-B, VCCI-B Radiated emission . ENS 5022B, FCC part 15-B, VCCI-B Models with 4000-4-11 . Models with Vout 50V: Output is SELV, all communication/control interfaces (RS 232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS 232/. Solated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV. Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV. Sen Programming and Monitoring (pins 1-3, pins 14-16) are SELV. Sen Programming and Monitoring (pins 1-3, pins 14-16) are Hazardous.  Vout 50V models: Input-Output (SELV): 442VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output(Hazardous): S425VDC 1min, Output(Hazardous): G700-01-1414V	i: 40000ft (12000m).
	i: 40000ft (12000m).
. Shock . Altitude . Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 24 EMC . Applicable Standards: . ESD .	: 40000ft (12000m).
Altitude Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating:  APPlicable Standards:  ESD   IEC1000-4-2. Air-disch8KV, contact disch4KV    Est transients   IEC1000-4-3. IKV line to line, 2KV line to ground    Conducted immunity   IEC1000-4-6, 3V    Radiated immunity   IEC1000-4-3. 3V/m    Conducted emission   EN55022B, FCC part 15J-B, VCCI-B.  Radiated emission   EN55022A, FCC part 15-A, VCCI-A.  Voltage dips   EN61000-4-11    Conducted emission   EN55022B, FCC part 15-B, VCCI-B.  Radiated emission   EN55022B, FCC part 15-B, VCCI-B.  Radiated emission   EN55022B, FCC part 15-B, VCCI-B.  Woltage dips   EN61000-4-11    Conducted emission   EN55022B, FCC part 15-B, VCCI-B.  Radiated emission   EN55022B, FCC part 15-B, VCCI-B.  Rodiated emission   EN55022B, FCC part 15-B, VCCI-B.  Rodiated emission   EN55022B, FCC part 15-B, VCCI-B.  Solution   EN55022B, FCC part 15-B, VCCI-B.  Rodiated emission   EN55022B, FCC part 15-B, VCCI-B.  Solution   EN55022B, FCC part 15-B, VCCI-B.  Rodels with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V vout 400V: Output is Hazardous, communication/control interfaces: RS232/  Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V vout 600V: Output is Hazardous, all communication/control interfaces (RS Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (IHazardous): 3425VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	: 40000ft (12000m).
2.4 EMC 1. Applicable Standards: 2. ESD IEC1000-4-2. Air-disch8KV, contact disch4KV 3. Fast transients IEC1000-4-3. 1KV line to line, 2KV line to ground 5. Conducted immunity IEC1000-4-5. 1KV line to line, 2KV line to ground 6. Conducted 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-B. 9. Voltage dips EN61000-4-11 9. Conducted emission EN55022B, FCC part 15-B, VCCI-B. 11. Radiated emission EN55022A, FCC part 15-B, VCCI-B. 12. S SAFETY 13. Applicable standards: UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1 14. Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV. 15. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/15. Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. 15. Models with 400V Out 600V: Output is Hazardous, all communication/control interfaces (RS Isolated Analog, LAN, Sense, Remote Programming and Monitoring are Hazardous. 15. Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output(Hazardous)-Ground: 1414V	<u>:</u> 40000ft (12000m).
. Applicable Standards: . ESD . IEC1000-4-2. Air-disch8KV, contact disch4KV . Fast transients . IEC1000-4-2. XIV . Surge immunity . Conducted immunity . Conducted immunity . IEC1000-4-5. IKV line to line, 2KV line to ground . Conducted immunity . Radiated immunity . IEC1000-4-3, 3V/m . Radiated emission . EN55022B, FCC part 15J-B, VCCI-B Radiated emission . EN55022B, FCC part 15-A, VCCI-A Voltage dips . EN61000-4-11 0. Conducted emission . EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-A, VCCI-A SAFETY . Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1 Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/ Models with 400V Vout 400V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, Output(Hazardous)-3425VDC 1min, Output(Hazardous)-Ground: 1414V	
. Applicable Standards:  2. ESD  1. EC1000-4-2. Air-disch8KV, contact disch4KV  3. Fast transients  1. EC1000-4-2. 1KV line to line, 2KV line to ground  4. Conducted immunity  5. Conducted immunity  6. Radiated immunity  7. Conducted emission  8. Radiated emission  8. Radiated emission  8. Radiated emission  8. EN55022B, FCC part 15J-B, VCCI-B.  8. Radiated emission  9. Voltage dips  1. Radiated emission  2. S SAFETY  Applicable standards:  1. UL 60950-1, CSA22.2 No.60950-1, EN 60950-1  Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/  Models with 400V Vout 400V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Wout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 00V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Output(Hazardous)-Ground: 1414V	
IEC1000-4-2. Air-disch8KV, contact disch4KV	
IEC1000-4-4. 2KV  I. Surge immunity IEC1000-4-5. 1KV line to line, 2KV line to ground  IEC1000-4-5. 1KV line to line, 2KV line to ground  IEC1000-4-6, 3V  IEC1000-4-6, 3V  IEC1000-4-3, 3V/m  IEC1000-4-1, 3V/m  IEC1000-4-1, 3V/m  IEC1000-4-1, 3V/m  IEC1000-4-1, 3V/m  IEC1000-4-1, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-1, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC100-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-3, 3V/m  IEC1000-4-5, 3V  IEC1000-4-5, 3V  IEC1000-4-6, 3V  IEC100-4-6, 3V  IEC100	
IEC1000-4-5. 1KV line to line, 2KV line to ground  Conducted immunity IEC1000-4-6, 3V Radiated immunity IEC1000-4-3, 3V/m IEC1000-4-3, 3V/m IEC1000-4-3, 3V/m IEC1000-4-3, 3V/m IEC1000-4-3, 3V/m IEC1000-4-3, 3V/m IEC1000-4-1 IEC1000-4 IEC1000-4 IE	
. Conducted immunity IEC1000-4-6, 3V . Radiated immunity IEC1000-4-3, 3V/m . Conducted emission EN55022B, FCC part 15J-B, VCCI-B Radiated emission EN55022A, FCC part 15-A, VCCI-A Voltage dips EN61000-4-11 0. Conducted emission EN55022B, FCC part 15-B, VCCI-B. 1. Radiated emission EN55022B, FCC part 15-B, VCCI-B. 1. Radiated emission EN55022A, FCC part 15-A, VCCI-A S SAFETY . Applicable standards: UL 60950-1, CSA22.2 No.60950-1, EN 60950-1, EN 60950-1 Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/ Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous. Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-Ground: 1414V	
. Radiated immunity . Conducted emission . EN55022B, FCC part 15J-B, VCCI-B Radiated emission . EN55022A, FCC part 15-A, VCCI-A Voltage dips . EN55022B, FCC part 15-B, VCCI-B EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-B, VCCI-B Radiated emission . EN55022B, FCC part 15-B, VCCI-B EN55022A, FCC part 15-A, VCCI-A S SAFETY . Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1 Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 40VV: Output is Hazardous, communication/control interfaces: RS232/ Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous. Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cortrol (SELV): Input-Ground: 2424VDC 1min, Output(Hazardous)-Ground: 1414V	
EN55022B, FCC part 15J-B, VCCI-B.	
. Radiated emission  EN55022A, FCC part 15-A, VCCI-A.  . Voltage dips  EN61000-4-11  0. Conducted emission  EN55022B, FCC part 15-B, VCCI-B.  1. Radiated emission  EN55022A, FCC part 15-B, VCCI-B.  1. Radiated emission  EN55022A, FCC part 15-A, VCCI-A.  2. S SAFETY  Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1  Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V Vout 40V: Output is Hazardous, communication/control interfaces: RS232/ Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins 14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/cortrol (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Output(Hazardous)-Ground: 1414V	
. Voltage dips D. Conducted emission EN55022B, FCC part 15-B, VCCI-B. 1. Radiated emission EN55022B, FCC part 15-A, VCCI-A.  S SAFETY  Applicable standards: UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1 Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/ Interface classification Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous. Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Output(Hazardous)-Ground: 1414V	
0. Conducted emission 1. Radiated emission 2.5 SAFETY 2. EN55022A, FCC part 15-B, VCCI-B. 2.5 SAFETY 3. Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1 4. Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV. 4. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/ 4. Interface classification 4. Interface classification 5. Interface classification 6. Interface classifica	
1. Radiated emission  EN55022A, FCC part 15-A, VCCI-A.  2.5 SAFETY  Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1  Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/  Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	
2.5 SAFETY  Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1  Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/  Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen: Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min,  60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output (Hazardous)-Ground: 1414V	
Applicable standards:  UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1  Models with Vout 50V: Output is SELV, all communication/control interfaces (R5232/485, IEEE LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: R5232/  Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen- Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output (Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	
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LAN, Sense, Remote Programming and Monitoring) are SELV.  Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/ Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins 1-3, pins 1-4-16) are SELV, Sen- Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous. Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	
Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen.  Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min,  60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-Ground: 1414V	Isolated Analog,
2.Interface classification   Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sen.   Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.     Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.     Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min,     60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/corticles (PAZVDC 1min, Output(Hazardous)-Ground: 1414V)     Viviet to a viviet of the sense of th	405 1555
Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS. Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output (Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	+85, IEEE,
Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV):  Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	e, remote
Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV):  Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	)22/A95 IEEE
Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV):   Input-Ground: 2828VDC 1min,   Input-Ground: 2828VDC 1min,   Input-Communication/cor   60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor   4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	132/403, IEEE,
Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	4242VDC 1min
60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/cor 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	TETEVIC IIIIII,
4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414V	trol (SELV):
Withstand voltage Input-Ground: 2828VDC Imin., Output Initiation of the Initiation o	
300V Vout 600V models: Input-Output(Hazardous): 3490VDC 1min, Input-communication/co	ntrol (SELV):
4242VDC 1min Hazardous Output-communication/control(SELV): 4242VDC 1min	, ,
Output(Hazardous)-Ground: 2738VDC 1min, Input-Ground: 2828VDC 1min.	
Insulation resistance More than 100Mohm at 25°C, 70% RH.	
C MECHANICAL CONCEDUCTION	
.6 MECHANICAL CONSTRUCTION  Cooling Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Va	riable fan speed
	oders, nandies, etc.)
. Weight 7Kg (15 Lbs)	oue.s, nariares, etc.,
I. AC Input connector IEC320 AC Inlet.	
5. Output connectors 6V to 60V models: Bus-bars (hole Ø 6.5mm). 80V to 600V models: Meating plug, Phoenix P/N:	
2.7 RELIABILITY SPECS	
1. Warranty 5 years.	

Also available, Genesys™

1U full Rack 750W/1500W/2400W

**2U full Rack 3300W/5000W** 





# **Genesys™ Power Benchtop 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).



P/N: IEEE

P/N: IS510

P/N: IS420

# 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.





# **Programming Options (Factory installed)**

### Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 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

### **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 ±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%

LAN Interface LXI Compliant to Class C P/N: LAN

- Meets all LXI-C Requirements
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Compatible with most standard Networks
- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Fast Startup



### 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\*

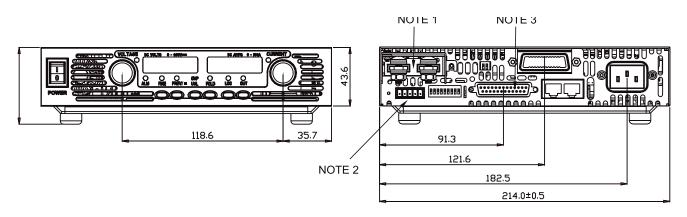
Daisy-chain up to 31 Genesys<sup>™</sup> power supplies.

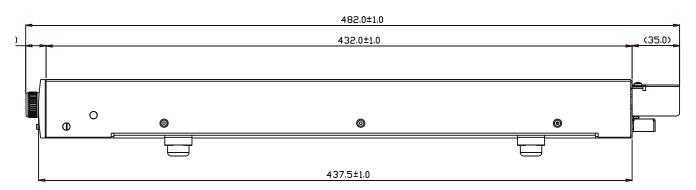
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

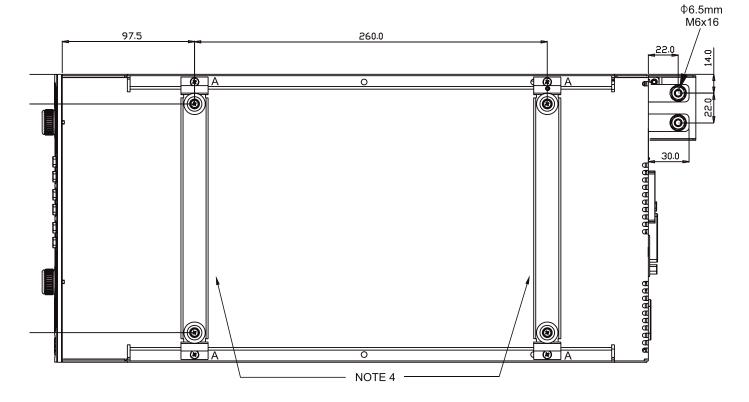
<sup>\*</sup> Included with power supply



# Outline Drawings Genesys™ GENH 750W







### NOTE 1



GENH Models 80V to 600V.

NOTES:

Bus-bars 6V-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.

Supplies with the power supply.

Mating plug Phoenix P/N: MC 1.5/5-ST-3.81.
Mating plug AMP P/N: 745211-2.
Benchtop assembly x 2 (removable)
Screws: 4 x M3x8 marked "A" 4.





# Power Supply Identification / Accessories How to order

GENH	60	- 12.5	-		-	
Series	Output	Output	Factory O <sub>l</sub>	otions	AC Cabl	e option
Name	Voltage (0~60V)	Current (0~12.5A)	Option:	IEEE IS510 IS420 LAN	Region	E - Europe GB - United Kingdom J - Japan I - Middle East U - North America

# **Models GENH750W**

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

Factory option	P/N
RS-232/RS-485 Interface built-in Standard	-
GPIB Interface	IEEE
Voltage Programming Isolated Analog Interface	IS510
Current Programming Isolated Analog Interface	IS420
LAN Interface (Complies with LXI Class C)	LAN

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



Improved ons

# Genesys™

Programmable DC Power Supplies
750W/1500W in 1U
Built in RS-232 & RS-485 Interface
Advanced Parallel Operation
Optional Interface:
LXI Compliant LAN
IEEE488.2 SCPI (GPIB) Multi-drop
Isolated Analog Programming



Genesys™ Family GenH 750W Half Rack Gen1U 750/1500W Full Rack Gen2U 3.3/5kW

TDK·Lambda



# TDK·Lambda

The GenesysTM 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
- Global Commands for Serial RS-232/RS-485 Interface
- 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
- 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 Interface

- LabView® and LabWindows® drivers
- Five Year Warranty

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





### **Applications**

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

Common controls are shared all Genesys™ Series.

#### **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.

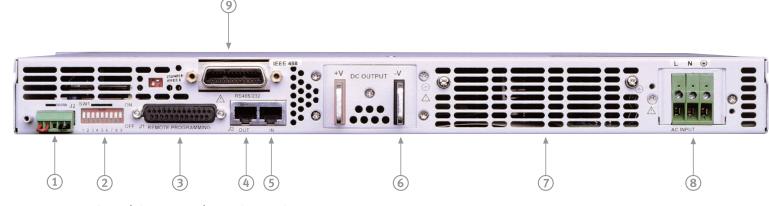


### **Front Panel Description**



- 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.



# TDK·Lambda

# **Genesys ™ 750W/1500W Specifications**

1.0 MODEL	GEN			12.5-120			40-38	50-30		80-19	100-15	150-10	300-5	600-2.6		X
1. Rated output voltage (*1)	V	6	8	12.5	20	30	40	50	60	80	100	150	300	600		X
l. Rated Output Current (*2) B. Rated Output Power	A W	200 1200	180 1440	120 1500	76 1520	50 1500	38 1520	30 1500	25 1500	19 1520	15 1500	10 1500	5 1500	2.6 1560		X
l. Efficiency at 100/200Vac (*3)	%	77/79	78/81	82/85		83/86	84/88		84/88					84/88		X
.0 MODEL	GEN		8-90	12.5-60		•	40-19		60-12.5				*	600-1.3		
Rated output voltage (*1)	V	6	8	12.5	20-38	30-25	40-19		60	80	100-7.5	150-5	300-2.5	600	X	
P. Rated Output Current (*2)	Å	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	
Efficiency at 100/200Vac (*3)	%	76/78	77/80	81/84	82/85	82/85	83/87		83/87	83/87	83/87	83/87	83/87	83/87	X	
.1 CONSTANT VOLTAGE MODE																
. 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
B. Ripple and noise p-p 20MHz (*9) H. Ripple r.m.s 5Hz~1MHz (*9)	mV mV	60 8	50 6	60 7	60 7.5	50 6	60 7	<u>40</u> 5	60 7	<u>75</u> 7	75 8	75 8	130 20	300 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
5. Temp. coefficient		C 50PPM													X	X
7. Temp. stability	%	0.01%	of rated	lout ov	er 8hrs i	interval	followin	g 30 mii	nutes wa	rm-up.					Х	Х
3. Up-prog. response time, 0~Vo Rated	mS		Ŋ.L/F.L, r	esistive l	oad					150mS,		resistive	e load	250	X	X
9. Down-prog response time full-load	mS	10	600	50 700	000	000	1000	1100	1100	1200	1500	2000	2500	250	X	X
0. Down-prog response time No-load 1. Transient response time (*8)	mS mS	500		c for mo	dole up	1 900 to and it	1000	100// 2	mSoc fo	1200 r modeli	1500		2500	4000	X	X
2. Temp. drift	1113 %	0.01%	of rated \	out ove	r 8hrs in	iterval fo	llowing	30 mini	ites war	m up. Co	nstant	line, loa	d & tem	p.	X	T X
.2 CONSTANT CURRENT MODE	, /0	10.01/00		221010		vai 10		20 mm	wull					p.,	, ,,	, ,
. 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	Х	Т
!. Max.load regulation (0.02% of lo+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	190	160	110	50	45	30		15	10	10	8	6	4	X	
. Max.line regulation (0.01% of lo+ 2mA)(*4)	mA		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 mA	45	41	29	20.2	15	12.6	11	10	8.8	8.0	7.0	6.0	5.52		X
5. Ripple r.m.s 5Hz~1MHz .(*7) 7. Temp. coefficient	mA PPM/°	350 C 70PPM	300 °C from	rated or	120	ltage fo	dowing	30 minu	ites war	40 m un	20	15	15	7	X	X
3. Temp. coemcient B. Temp. drift	PPIVI/   %			out ove							nstant	line. loa	d & tem	p.	X	X
. Warm up drift	%			ated out												X
.3 PROTECTIVE FUNCTIONS									-							
. OCP		0~1059	6 Consta	nt Curre	nt										Х	Х
!. OCP Foldback		Output	shut do	wn whei	n power	supply	change	from CV	to CC. U	ser sele	ctable.				Х	Х
S. OVP type		Inverte	r shut-de	own, ma	nual res	et by AC	input re	cycle o	r by OUT	button	or by co	mmuni	cation p	ort	X	X
. OVP trip point . Over Temp Protection				1~15V			2~44V	5~57V	5~66V	5~88V	5~110V	5~165V	5~330V	/ 5~660V	X	X
		Juser se	iectable	, latched	01 11011	iatched										
I.4 ANALOG PROGRAMMING AND MONITORIN	G	0 1000	/ O F\/	0 101/		l+ A-				F0/ -f.	- 4 l \/ -				V	V
I. Vout Voltage Programming 2. lout Voltage Programming		0~1009	6,0~5V	or 0~10V or 0~10V	, user se	lect. Ac	curacy a	nd linea nd linea	rity: +/-0 rity: ±/-1	% of rate	atea vo	ut.			X	X
3. Vout Resistor Programming		0~1009	6. 0~5/1	0Kohm fi	<u>, user se</u> ull scale	user se	ect. Acc	uracy ar	nd linear	itv: +/-1	% of rate	ed Vout.			X	X
1. Jout Resistor Programming		0~1009	6, 0~5/10	<u>0Kohm f</u> ı	<u>ull scale</u>	user sel,	ect. Acc	uracy ar	<u>nd linear</u> i	ty: +/-1.	<u>5% of ra</u>	ted lout	t.		X	X
5. On/Off control (rear panel)				اtage: 0ء				act, use	<u>r selecta</u>	<u>ble logi</u>	С				X	X
5. Output Current monitor 7. Output Voltage monitor		0~50 0	<u>r 0~10V,</u> • 010V	accuracy accuracy	<u>/: 1%, us</u>	er selec	table								X	X
3. Power Supply OK signal		TTI hig	h (4~5V	) -OK, 0V	<u>y. 1%, us</u> -Fail 500	Oohm se	ries resi	stance							X	X
P. CV/CC indicator		Onen c	olloctor	CC mod	e: On. C	V mode	OCC NA	ximum	1.	1 /						
IO. Enable/Disable		Opciic	unectur,				: Off, Ma		voltage:	30V, ma	ximum :	sink curi	rent: 10r	mA	X	X
		Dry cor	ntact. Op	oen: off, S	Short: or	n. Max. \	oltage a	ıt Enable	e/Disable	e in: 6V		sink curr	rent: 10r	mA	X	Х
1. Local/Remote analog control		Dry cor By elec	<u>ntact. Op</u> trical sig	oen: off, S nal or O	Short: or pen/Sho	<u>n. Max. v</u> ort: 0~0.	<u>roltage a</u> 6V or sh	<u>it Enable</u> ort: Rem	<u>e/Disable</u> note, 2~1	<u>e in: 6V</u> 5V or op	en: Loc	al.		mA	X	
Local/Remote analog control     Local/Remote analog control indicator		Dry cor By elec	<u>ntact. Op</u> trical sig	oen: off, S	Short: or pen/Sho	<u>n. Max. v</u> ort: 0~0.	<u>roltage a</u> 6V or sh	<u>it Enable</u> ort: Rem	<u>e/Disable</u> note, 2~1	<u>e in: 6V</u> 5V or op	en: Loc	al.		mA	X	Х
1. Local/Remote analog control 12. Local/Remote analog control indicator 1.5 FRONT PANEL		Dry cor By elec Open c	ntact. Op trical sig ollector,	oen: off, S nal or O <sub>l</sub> Local: O	Short: or pen/Sho pen, Re	n. Max. v ort: 0~0. mote: 0	oltage a 6V or sh n. Maxin	it Enable ort: Rem num vol	e/Disable note, 2~1 tage: 30'	e in: 6V 5V or op V, maxin	en: Loc num sin	al. k curren		mA	X X X X	X X X
11. Local/Remote analog control 12. Local/Remote analog control indicator		Dry cor By elec Open c	ntact. Op trical sig ollector, out manu	oen: off, S nal or Op Local: O ual adjus	Short: or pen/Sho pen, Re t by sep	n. Max. v ort: 0~0. mote: 0 arate en	oltage a 6V or sho n. Maxin	ort: Rem num vol	e/Disable note, 2~1 tage: 30'	e in: 6V 5V or op V, maxin	en: Loc num sin	al. k curren		mA	X X X X	X X X
11. Local/Remote analog control 2. Local/Remote analog control indicator 1.5 FRONT PANEL		Dry cor By elec Open c	ntact. Op trical sig ollector, out manu /L manu	oen: off, S nal or Op Local: O ual adjus al adjust	short: or pen/Sho pen, Re t by sep	n. Max. v ort: 0~0. mote: 0 arate en . Adjust	oltage a 6V or sh n. Maxin coders ( encoder	ort: Rem num vol	e/Disable note, 2~1 tage: 30 and fine	e in: 6V 5V or op V, maxin	en: Loc num sin ent sele	al. k curren ctable)	t: 5mA.		X X X X	XXX
11. Local/Remote analog control 12. Local/Remote analog control indicator		Dry cor By elec Open c Vout/Ic OVP/UN AC on/o Addres	ntact. Op trical sig ollector, out manu /L manu off, Outp s selecti	pen: off, S nal or Op Local: O ual adjus al adjust out on/of on by Vo	Short: or pen/Sho pen, Re t by sep by Volt. f, Re-sta ltage (o	n. Max. vort: 0~0. mote: 0 arate en . Adjust art mode r curren	oltage a 6V or sh n. Maxin coders ( encoder es (auto, t) adjust	ort: Rem num vol coarse a safe), Fo	e/Disable note, 2~1 tage: 30 and fine a oldback c	e in: 6V 5V or op V, maxin adjustm control (er of add	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable)	t: 5mA.		X X X X X	X X X X X X
11. Local/Remote analog control   12. Local/Remote analog control indicator   1.5 FRONT PANEL		Dry cor By elec Open c Vout/lo OVP/UV AC on/o Addres RS232/o	ntact. Op trical sig ollector, out manu off, Outp s selecti 485 and	pen: off, S nal or Op Local: O ual adjus al adjust out on/of on by Vo IEEE488.	bhort: or pen/Sho pen, Re t by sep by Volt f, Re-sta ltage (o 2 select	n. Max. vort: 0~0. mote: 0  arate en Adjust art mode r curren ion by II	oltage a 6V or sh n. Maxin coders ( encoder es (auto, t) adjust EEE enak	coarse a safe), Fo encode	e/Disable note, 2~1 tage: 30 and fine a oldback c	e in: 6V 5V or op V, maxin adjustm control (er of add	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable)	t: 5mA.		X X X X X X X X	X X X X X X X
11. Local/Remote analog control 2. Local/Remote analog control indicator5 FRONT PANEL  I. Control functions		Dry cor By elec Open c Vout/Ic OVP/UV AC on/o Addres RS232/- Baudra	ntact. Op trical sig ollector, out manu /L manu off, Outp s selecti 485 and	pen: off, S nal or Op Local: O ual adjus al adjust out on/of on by Vo IEEE488.	short: or pen/Sho pen, Re t by sep by Volt f, Re-sta ltage (o 2 select	n. Max. vort: 0~0. mote: 0 marate en Adjust ert mode r curren ion by II	voltage a 6V or sho n. Maxin coders ( encoder es (auto, t) adjust EEE enak	coarse a safe), Fo encode	e/Disable note, 2~1 tage: 30 and fine a oldback c	e in: 6V 5V or op V, maxin adjustm control (er of add	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable)	t: 5mA.		X X X X X X X X	X
Local/Remote analog control     Local/Remote analog control indicator     S FRONT PANEL     Control functions		Dry cor By elec Open c Vout/Ic OVP/UV AC on/c Addres RS232/- Baudra Voltage	ntact. Op trical sig ollector, out manu /L manu off, Outp s selecti 485 and te select	pen: off, Sinal or Op Local: O Local: O	bhort: or pen/Sho pen, Re t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, cy: 0.05%	n. Max. vort: 0~0. mote: 0 marate en Adjust art mode r curren ion by II 4800, 96 %+/-1 co	voltage a 6V or sho n. Maxin ecoders ( encoder es (auto, t) adjust EEE enak 500 and unt	coarse a safe), Fo encode	e/Disable note, 2~1 tage: 30 and fine a oldback c	e in: 6V 5V or op V, maxin adjustm control (er of add	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable)	t: 5mA.		X X X X X X X X	X
Local/Remote analog control     Local/Remote analog control indicator     S FRONT PANEL     Control functions     Display		Vout/Ic OVP/UV AC on/c Addres RS232/2 Baudra Voltage Current	ntact. Op trical sig ollector, out manu off, Outp s selecti 485 and te select e 4 digits	pen: off, S nal or Op Local: O ual adjus al adjust out on/of on by Vo IEEE488.	t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, cy: 0.05%	n. Max. vort: 0~0. mote: 0 marate en . Adjust art mode r curren tion by II 4800, 96 %+/-1 cou	coltage a 6V or shon. Maxin coders (encoder es (auto, t) adjust EEE enak 600 and unt nt	coarse a safe), Fo encode ble switc	e/Disable note, 2~1 tage: 30' and fine a oldback c ir. Numb	e in: 6V 5V or op V, maxin adjustm control (er of add P switch	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable) C), Go to 31	t: 5mA.		X	X
11. Local/Remote analog control 12. Local/Remote analog control indicator 1.5 FRONT PANEL 1. Control functions 2. Display 3. Indications	/ I AN In	Vout/lo OVP/UV AC on/o Addres RS232/- Baudra Voltage Current	ntact. Op trical sig ollector, out manu off, Outp s selecti 485 and te select e 4 digits	pen: off, S nal or Op Local: O ual adjust al adjust out on/of on by Vo IEEE488. tion: 1200 to accuracy	t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, cy: 0.05%	n. Max. vort: 0~0. mote: 0 marate en . Adjust art mode r curren tion by II 4800, 96 %+/-1 cou	coltage a 6V or shon. Maxin coders (encoder es (auto, t) adjust EEE enak 600 and unt nt	coarse a safe), Fo encode ble switc	e/Disable note, 2~1 tage: 30' and fine a oldback c ir. Numb	e in: 6V 5V or op V, maxin adjustm control (er of add P switch	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable) C), Go to 31	t: 5mA.		X	X
1. Local/Remote analog control 2. Local/Remote analog control indicator 3. FRONT PANEL  Control functions  Display Indications  6 Interface RS-232&RS-485 or Optional GPIB /	/ LAN Ir	Vout/lo OVP/UV AC on/o Addres RS232/- Baudra Voltage Current	ntact. Op trical sig ollector, out manu off, Outp s selecti 485 and te select e 4 digits	pen: off, S nal or Op Local: O ual adjust al adjust out on/of on by Vo IEEE488. tion: 1200 to accuracy	t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, cy: 0.05%	n. Max. vort: 0~0. mote: 0 marate en . Adjust art mode r curren tion by II 4800, 96 %+/-1 cou	coltage a 6V or shon. Maxin coders (encoder es (auto, t) adjust EEE enak 600 and unt nt	coarse a safe), Fo encode ble switc	e/Disable note, 2~1 tage: 30' and fine a oldback c ir. Numb	e in: 6V 5V or op V, maxin adjustm control (er of add P switch	en: Loc num sin ent sele CV to CO dresses:	al. k curren ctable) C), Go to 31	t: 5mA.		X	X X X X X X X X X X X X X X X X X X X
11. Local/Remote analog control 22. Local/Remote analog control indicator 23. FRONT PANEL 24. Control functions 25. Display 26. Indications 26. Indications 27. Indications 28. Indications 29. Indications 29. Indications		Dry cor By elec Open c Vout/Ic OVP/UV AC on/o Addres RS232/ Baudra Voltage Current Voltage	ntact. Optrical signollector, but manu/L manu/L manuoff, Outps s selecti 485 and te selectie 4 digits 4 digits e, Curren	pen: off, S nal or Op Local: O ual adjust al adjust put on/of oon by Vo IEEE488. iion: 1200 a, accurac a, accurac a, t, Alarm,	short: or pen/Sho pen, Re t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, cy: 0.059 y: 0.2% Fine, Pr	n. Max. v prt: 0~0. mote: O marate en . Adjust art moder r curren ion by III 4800, 90 %+/-1 coureview, F	voltage a 6V or shn. Maxin n. Maxin encoders es (auto, t) adjust EEE enab 500 and unt nt	coarse a safe), Fo encode sle switc 19,200	e/Disable note, 2~1 tage: 30 and fine a aldback c r. Numb h and Di	e in: 6V 5V or op V, maxin adjustm control (er of add P switch	ent sele CV to CC dresses:	al. k curren ctable) C), Go to 31	t: 5mA.	ontrol	X	X
1. Local/Remote analog control 2. Local/Remote analog control indicator 3. FRONT PANEL 4. Control functions 5. Display 5. Indications 6. Interface RS-232&RS-485 or Optional GPIB / Model 6. Remote Voltage Programming (16 bit)	V	Dry cor By elec Open c Vout/lc OVP/U\ AC on/\(\) Address R5232/\(\) Baudra Voltage Current Voltage	ntact. Optrical signollector, but manu /L manu off, Outp s selecti 485 and te 4 digits 4 digits e, Curren 8	pen: off, S nal or Or Local: O ual adjuss al adjust but on/of on by Vo IEEE488. icice1200 ic, accurac it, Alarm,	short: or pen/Sho pen, Re t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, cy: 0.059 y: 0.2% Fine, Pr	n. Max. v ort: 0~0, mote: O warate en . Adjust art mode r curren ion by II 4800, 90 %+/-1 coureview, F	voltage a 6V or sh n. Maxin coders ( encoders) encoders s (auto, t) adjust EEE enab 500 and unt nt foldback	coarse a safe), Fc encode ole switc 19,200	e/Disable note, 2~1 tage: 30' and fine a oldback c rr. Numb h and Di  Output (	e in: 6V 5V or op V, maxin adjustm control ( er of add P switch	ent sele CV to CC dresses: 1 t Panel	al. k curren ctable) C), Go to 31 Lock	t: 5mA.	ontrol	X	X
11. Local/Remote analog control 2. Local/Remote analog control indicator 1.5 FRONT PANEL  1. Control functions 2. Display 3. Indications 1.6 Interface RS-232&RS-485 or Optional GPIB / Model 1. Remote Voltage Programming (16 bit) Resolution (0.02% of Vo Rated)		Dry cor By elec Open c Vout/Ic OVP/UV AC on/o Addres RS232/ Baudra Voltage Current Voltage	ntact. Optrical signollector, but manu/L manu/L manuoff, Outps s selecti 485 and te selectie 4 digits 4 digits e, Curren	pen: off, S nal or Op Local: O ual adjust al adjust put on/of oon by Vo IEEE488. iion: 1200 a, accurac a, accurac a, t, Alarm,	t by sep by Volt f, Re-sta ltage (o 2 select 0, 2400, y: 0.059 y: 0.2% Fine, Pr	n. Max. v prt: 0~0. mote: O marate en . Adjust art moder r curren ion by III 4800, 90 %+/-1 coureview, F	voltage a 6V or shn. Maxin n. Maxin encoders es (auto, t) adjust EEE enab 500 and unt nt	coarse a safe), Fo encode sle switc 19,200	e/Disable note, 2~1 tage: 30 and fine a aldback c r. Numb h and Di	e in: 6V 5V or op V, maxin adjustm control (er of add P switch	ent sele CV to CC dresses:	al. k curren ctable) C), Go to 31	local co	ontrol	X	X X X X X X X X X X X X X X X X X X X
1. Local/Remote analog control 2. Local/Remote analog control indicator 3. S FRONT PANEL 4. Control functions 5. Display 6. Indications 7. Indications 7. Indications 7. Indications 7. Indications 7. Indications 7. Indications 8. Interface RS-232&RS-485 or Optional GPIB / Model 9. Remote Voltage Programming (16 bit) 9. Remote Voltage Programming (16 bit) 9. Resolution (0.02% of Vo Rated) 9. Recuracy 0.05%Vo Rated Output Voltage (*11)	V mV	Dry cor By elec Open c Vout/lc OVP/UV AC on/s Addres RS232/B Baudra Voltage Current Voltage 1 6	ntact. Optrical signollector, but manu /L manu off, Outp s selecti 485 and te selecti 4 digits 4 digits 4, Curren 8	pen: off, Span long o	t by sep by Volt. f, Re-sta ltage (o 2 select 0, 2400, cy: 0.05% y: 0.2% Fine, Pr	n. Max. v ort: 0~0, mote: O marate en . Adjust art mode r curren ion by II 4800, 90 %+/-1 co +/-1 co review, F	voltage a 6V or sh n. Maxin coders ( encoders) encoders ( encoders) s (auto, t) adjust EEE enab 500 and unt nt foldback	coarse a safe), For encode switch 19,200	e/Disable lote, 2~1 tage: 30' and fine a bldback c rr. Numb h and Di  Output 0	e in: 6V 5V or op V, maxin adjustm control (er of add P switch On, Fron 80	ent sele CV to CC dresses: 1 100	al. k curren ctable) C), Go to 31 Lock	local co	600 12.0	X	X
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11. Local/Remote analog control 2. Local/Remote analog control indicator 1.5 FRONT PANEL	W   MV   MV   MA   MA   MA   MA   MA   MA	Dry cor     By elec     Open c     Vout/Ic     OVP/UV     Addres     R5232/Baudra     Saudra     Voltage     Current     Voltage     12     3.0     2.00     4.0     4.0     0.12     3     11     300	ntact. Optrical sign of leaves a selection of leaves and leaves a selection of leaves and leaves a selection of leaves a selection o	pen: off, spen: off, s	Short: or pen/Shorpen/Shorpen, Revented to by seption by Volt for Revented to 2 select 0, 2400, 250, 0.55% (Select 10, 2400, 250, 250, 250, 250, 250, 250, 250, 2	n. Max. v. ort: 0~0. mote: O warate en. Adjust art mode r curren ion by II 4800, 90 %+/-1 coureview, F 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	oltage a for or shift of the control	coarse a safe), For encode switch 19,200    1.0   1.0   25   1.0   25   1.5   1.5   25   1.5   1	e/Disable lote, 2~1 tage: 30' and fine a loldback cor. Numb h and Di lote lote lote lote lote lote lote lote	e in: 6V 5V or op V, maxin adjustm ontrol (er of add P switch 0n, Fron 1.6 40 0.19 19 0.38 38 1.60 40	en: Loc hum sin ent sele CV to CC dresses: 1 100 2.0 50 0.15 15 0.30 30 11.0 50	al. k curren ctable)	300   6.0   150   0.05   5.0   0.10   10   12   150   0.13   7.50	0.03 0.03 2.6 0.05 5.2 12 300	X	X
11. Local/Remote analog control 22. Local/Remote analog control indicator 23. Local/Remote analog control indicator 24. Local/Remote analog control indicator 25. FRONT PANEL 26. Control functions 27. Display 28. Indications 28. Indications 29. Indication	W   MV   MV   MA   MA   MA   MA   MA   MA	Dry cor	ntact. Optrical sign of leaves and sign of leaves a	pen: off, 9 nal or Or Local: O	bhort: or pen/Shorpen/Shorpen, Reit by sep by Volt f, Re-staltage (o 2 select 0, 2400, 2400, 2400, 2400, 2400, 2500, 2400, 25000, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 25	n. Max. v ort: 0~0. max errors of the control of th	oltage a 6 of the control of the con	tt Enable ort: Rem num vol coarse a safe), For encode ole switce 19,200	e/Disable lote, 2~1 tage: 30° and fine a soldback c.r. Numb h and Di coutput C coutput C c c c c c c c c c c c c c c c c c c	e in: 6V 5V or op V, maxin adjustm ontrol (er of add P switch On, Fron 80 1.6 40 0.19 19 0.38 38 1.60 40 0.19 28.50 1.14	en: Loc hum sin ent sele CV to CC dresses: 1 100 2.0 50 11.0 50 11.0 50	al. k curren ctable) (So to 31	300  6.0 150  0.05 5.0 0.10 10  12 150  0.13 7.50 0.15	600   12.0   300   0.03   2.6   0.05   5.2   12   300   0.12   3.90   0.10	X	X
1. Local/Remote analog control 2. Local/Remote analog control indicator 3. FRONT PANEL  Control functions  Display Indications Glinterface RS-232&RS-485 or Optional GPIB / Model Remote Voltage Programming (16 bit) Lesolution (0.02% of Vo Rated) Loccuracy 0.05%Vo Rated Output Voltage (*11) Remote Current Programming (16 bit) Lesolution (0.002% of lo Rated) Loccuracy (0.1% of lo Rated+0.1% of lo Actual Output)(*10 Lesolution (0.002% of lo Rated) Loccuracy (0.1% of lo Rated+0.1% of lo Actual Output)(*10 Lesolution (0.002% of lo Rated) Lesolution of Vo Rated Lesolution of Vo Rated Loccuracy (0.05% Vo Rated Loccur	W   MV   MV   MA   MA   MA   MA   MA   MA	Dry cor	ntact. Optrical sign of leaves and sign of leaves a	pen: off, 9 nal or Or Local: O	bhort: or pen/Shorpen/Shorpen, Reit by sep by Volt f, Re-staltage (o 2 select 0, 2400, 2400, 2400, 2400, 2400, 2500, 2400, 25000, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 2500, 25	n. Max. v ort: 0~0. max errors of the control of th	oltage a 6 of the control of the con	tt Enable ort: Rem num vol coarse a safe), For encode ole switce 19,200	e/Disable lote, 2~1 tage: 30° and fine a soldback c.r. Numb h and Di coutput C coutput C c c c c c c c c c c c c c c c c c c	e in: 6V 5V or op V, maxin adjustm ontrol (er of add P switch On, Fron 80 1.6 40 0.19 19 0.38 38 1.60 40 0.19 28.50 1.14	en: Loc hum sin ent sele CV to CC dresses: 1 100 2.0 50 11.0 50 11.0 50	al. k curren ctable) (So to 31	300  6.0 150  0.05 5.0 0.10 10  12 150  0.13 7.50 0.15	600   12.0   300   0.03   2.6   0.05   5.2   12   300   0.12   3.90   0.10	X	X
I. Local/Remote analog control 2. Local/Remote analog control indicator 2. Local/Remote analog control indicator 3. FRONT PANEL  Control functions  Display Indications 6. Interface RS-232&RS-485 or Optional GPIB / lodel  Remote Voltage Programming (16 bit) esolution (0.02% of Vo Rated) ccuracy 0.05%Vo Rated Output Voltage (*11)  Remote Current Programming (16 bit) esolution (0.002% of lo Rated) ccuracy (0.1% of lo Rated+0.1% of lo Actual Output)(*10 esolution (0.002% of lo Rated) ccuracy (0.1% of lo Rated+0.1% of lo Actual Output)(*10 esolution of Vo Rated ccuracy (0.9% of lo Rated) ccuracy 0.5% Vo Rated  Readback Voltage esolution of Vo Rated ccuracy 0.3% of lo Rated (*10) esolution of lo Rated output ccuracy 0.3% of lo Rated (*10) evolvUVL Programming	mV mV mA	Dry cor	ntact. Optrical sign of leaves and sign of leaves and test of leaves and leave	pen: off, 9 nal or Or Local: O	5hort: or pen/Shorpen/Shorpen, Reinter Short: or pen/Shorpen, Reinter Shorpen, Reinter Shor	n. Max. v. ort: 0~0. mote: O warate en. Adjust art moder curren ion by II 4800, 90 %+/-1 coureview, F 50 1.0 100 15 15 1.25 7.5 1.50 150 150 150 150 150 150 150 150 150 1	oltage a 6V or sh. n. Maxin coders (encoders (encoders s)	tenable ort: Rem volum v	e/Disable lote, 2~1 tage: 30° and fine a bldback c.r. Numb h and Di bldback	e in: 6V 5V or og V, maxin adjustm control (er of add P switch 0n, Fron 1.6 40 0.19 19 0.38 38 1.60 40 0.19 28.50 1.14 57	en: Loc hum sin ent sele CV to CC dresses: 1 100 2.0 50 0.15 15 0.30 30 11.0 50	al. k curren ctable) Go to 31	300   6.0   150   0.05   5.0   0.10   10   12   150   0.13   7.50   0.15   15	0.03 2.6 0.05 5.2 12 300 0.12 3.90 0.10 7.8	X	X

<sup>\*1:</sup> Minimum voltage is guaranteed to maximum 0.2% of Vo Rated.



<sup>\*2:</sup> Minimum current is guaranteed to maximum 0.4% of lo Rated. \*3: At maximum output power. \*4: 85~132Vac or 170~265Vac, constant load.

<sup>\*8:</sup> 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/freg. (*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.
o. Hold up time	imore than zoma, roovae, at roomada.
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	IEC1000-4-2, All along to the control of the cont
4. Surge immunity	IEC1000-4-5. IKV line to line. 2KV line to ground
5. Conducted immunity	IEC1000-4-6. 3V
6. Radiated immunity	IEC1000 + 0,3 3V/m
7. Conducted emission	EN5002B, 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	EN55022B, FCC part 15-A, VCC1-A.
2.5 SAFETY	ENSOUZA, Fee part 15 h, veer h.
1.Applicable standards:	UL 60950-1. CSA22.2 No.60950-1. IEC 60950-1. EN 60950-1
1.Applicable standards.	Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE, Isolated Analog,
	I AN. Sense, Remote Programming and Monitoring) are SFLV.
	Models with 60V Yout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE,
2.Interface classification	Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote
	Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous.  Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS232/485, IEEE,
	Models with 400V Vout 600V. Output is Hazardous, all communication/control interfaces (RS232/485, IEEE,
	Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.  Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min,
	Vout 50V models: Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min,
	Input-Ground: 2828VDC 1min, 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/control (SELV):
	4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414VDC 1min,
3.Withstand voltage	4242VDC   min, Output(Hazardous)-SELV: 2307VDC   min, Output(Hazardous)-Ground: 1414VDC   min,   linput-Ground: 2828VDC   min,
	300V Vout 600V models: Input-Output(Hazardous): 3490VDC 1min, Input-communication/control (SELV):
	4242VDC Imin, Hazardous, Output-communication/control(SELV).
	Output(Hazardous)-Ground: 2738VDC Imin, Input-Ground: 2828/VDC Imin,
4.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 Lbs) 1500W: 8.5Kg (18 Lbs)
	750W: IEC320 AC Inlet.
4. AC Input connector	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

<sup>\*1:</sup> 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.

5 years.



2.7 RELIABILITY SPECS
1. Warranty

### Genesys<sup>™</sup> 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 chain control of up to 31 power supplies on the same bus with built-in RS-232 & RS-485 Interface.







P/N: IEEE

## **Programming Options (Factory installed)**

### Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 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

### **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%

P/N: IS510

P/N: IS420

P/N: LAN

#### **LAN Interface**

## Meets all LXI-C Requirements

- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Compatible with most standard Networks

# Compliant to Class C

- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Fast Startup





### **Power Supply Identification / Accessories How to order**

**GEN** Factory Options AC Cable option is 750W only Series Output Output **Option: IEEE** Region: E - Europe Voltage Current GB - United Kingdom Name **IS510**  $(0 \sim 600 \text{V})$ (0~2.6A)**IS420** J - Japan LAN 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	U~6V	0~200	1200
GEN8-90	0~8V	0~90	720
GEN8-180	U~6V	0~180	1440
GEN12.5-60	0~12.5V	0~60	750
GEN12.5-120	U~12.5V	0~120	1500
GEN20-38	0~20V	0~38	760
GEN20-76	U~2UV	0~76	1520
GEN30-25	0~30V	0~25	750
GEN30-50	U~3UV	0~50	1500
GEN40-19	0~40V	0~19	760
GEN40-38	U~40V	0~38	1520

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GEN50-30	0~50V	0~30	1500
GEN60-12.5	0.601/	0~12.5	750
GEN60-25	0~60V	0~25	1500
GEN80-9.5	0~80V	0~9.5	760
GEN80-19	U~8UV	0~19	1520
GEN100-7.5	0 1001/	0~7.5	750
GEN100-15	0~100V	0~15	1500
GEN150-5	0 1501/	0~5	750
GEN150-10	0~150V	0~10	1500
GEN300-2.5	0 2001/	0~2.5	750
GEN300-5	0~300V	0~5	1500
GEN600-1.3	0.6001	0~1.3	780
GEN600-2.6	0~600V	0~2.6	1560

### **Factory option**

RS-232/RS-485 Interface built-in Standard GPIB Interface Voltage Programming Isolated Analog Interface Current Programming Isolated Analog Interface LAN Interface (Complies with LXXI Class C)

### P/N

IEEE IS510 IS420 LAN

# AC Cords sets (750W only)

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

### Accessories

### 1. 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	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	Shield 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<sup>™</sup> power supplies.

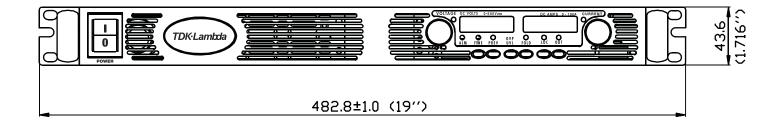
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

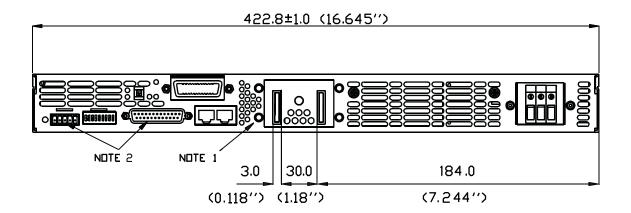
<sup>\*</sup> Included with power supply





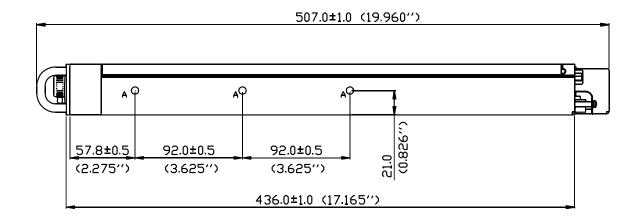
# Outline Drawing Genesys™ 750W/1500W Units







**8** | **GENESYS**™ | 750-1500kW <sup>-</sup>



### **NOTE**

- 1. Bus bars for 6v to 60v models (shown)
  Wire clamp connector for 80V to 600V models
- 2. Plug connectors included with the power supply
- 3. Chassis slides mounting holes #10-32 marked "A" GENERAL DEVICES P/N: C-300-S-116 or equivalent

- 750-1500kW | **GENESYS™** | **9** 



Improved 5 Specifications

# Genesys\*\*

Programmable DC Power Supplies
2.4kW in 1U
Built in RS-232 & RS-485 Interface
Advanced Parallel Operation
Auxiliary Outputs 5V & 15V

Optional Interface:

LXI Compliant LAN
IEEE488.2 SCPI (GPIB) Multi-drop
Isolated Analog Programming



Genesys™ Family GenH 750W Half Rack Gen1U 750/1500W Full Rack Gen2U 3.3/5kW

TDK-Lambda



# TDK·Lambda

The GenesysTM 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 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
- Auxillary Outputs 5V/0.2A; 15V/0.2A for increased system control functionality
- 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
   IEEE 488.2 SCPI (GPIB) Multi-Drop

Compliant LAN

- LabView® and LabWindows® drivers
- Five Year Warranty

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





### **Applications**

GenesysTM 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.

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 and 1500W Full-Rack, 2U 3.3kW & 5kW. All are identical in Front Panel, Rear Panel Analog, and all Digital Interface Commands.

A wide variety of outputs allows testing of many different devices.

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.
- 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 Baud rate. Displays total current in Parallel Master/Slave Mode
- 7. Function/Status LEDs:
- Alarm

- Fine Control
- Preview Settings

- Foldback Mode
- Remote Mode
- Output On
- 8. Pushbuttons allow flexible user configuration
- 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 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-Re-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 (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 (shown), 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 Interface or LAN Interface.
- 10. Auxiliary Output Voltage Connector. Phoenix P/N: IMC1.5/7-ST-3.81





# **Genesys** ™ 2.4kW Specifications

2.4KW Specific														
1.0 MODEL MODEL	GEN	8-300	10-240	16-150	20-120	30-80	40-60	60-40	80-30	Specifica 100-24	tions in b 150-16	lue are ii 300-8	nproved 600-4	
1.Rated output voltage(*1)	V	8	10-240	16	20-120	30-80	40-60	60	80	100-24	150-16	300-8	600	
2.Rated Output Current(*2)	Α	300	240	150	120	80	60	40	30	24	16	8	4	
3.Rated Output Power 1.1 CONSTANT VOLTAGE MODE	W	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	
1.Max.line regulation (0.01% of rated Vo+2mV)(*6)	mV	2.8	3	3.5	4	5	6	8	10	12	17	32	62	
2.Max load regulation (0.015% of rated Vo+5mV)(*7)		6.2	6.5	7.25	8	9.5	11	14	17	20	27.5	50	95	
3.Ripple and noise p-p 20MHz (*8)	mV	50	50	50	50	55	55	60	60	70	90	150	240	
4.Ripple r.m.s 5Hz~1MHz 5.Remote sense compensation/wire	mV V	6	<u>6</u> 2	6	6	<u>6</u> 5	5	5	<u>7</u> 5	10	20 5	45 5	60 5	
6.Temp. coefficient		50PPM/°	C of rate	d output	voltage,	ollowing	30 minute	s warm-u	D					
7.Temp. stability			1.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp. ess than 0.05% of rated output voltage+2mV over 30 minutes following power On.											
8.Warm-up drift 9.Up-prog. response time, 0~Vo Rated (*9)	mS	Less than	0.05% of		out voltag	e+2mV ov	<u>/er 30 min</u> 20		ving pow 40	er On. 40	60	80	100	
10.Down-prog response Full-load (*9)	mS	10	10	15 20	20	20	20	30	50	50	80	100	100	
time No-load (*10)	mS	500	500	500	500	600	700	1100	1200	1500	2500	3000	3000	
11 Transient response time	mS	Time for c	utput vol1	tage to rec	over within	n 0.5% of it	s rated ou	tput for a lo	ad chang	e 10-90% d	of rated ou	tput curre	nt.Outpu	
11.Transient response time	1113	set-point	: 10-100%	, local sen	se. Less th	an 1mSec	for mode	ls up to ar	ıd includii	ng 100V.2	msec for n	nodels ab	ove 100V	
1.2 CONSTANT CURRENT MODE			26	1 47	- 44	10					2.6	2.0	2.4	
1.Max.line regulation (0.01% of rated lo+2mA)(*6) 2.Max.load regulation (0.02% of rated lo+5mA)(*11)		32 65	26 53	17 35	14 29	10 21	8 17	13	5 11	9.8	3.6 8.2	2.8 6.6	2.4 5.8	
3.Ripple r.m.s 5Hz~1MHz . (*12)	mA	700	500	400	250	150	90	60	40	30	12	10	5	
4.Load regulation thermal drift		Less than	0.1% of ra	ted outpu	ut current	over 30 m	inutes fol	lowing loa	d change					
5.Temp. coefficient	PPM/°C	70PPM/9									10:			
6.Temp. stability										ant line, lo		oerature.		
7.Warm-up drift										following				
1.3 PROTECTIVE FUNCTIONS										. Jiio willig				
1. OCP			Constant (											
2. OCP Foldback								CC. User s						
3. OVP type 4. OVP trip point		0.5 - 10V	hut-dowr	1~18V	reset by A	L input re	cycle or by			communio 5~110V				
5. Output Under Voltage Limit		Preset by	front pan	el or com	municatio	n port. Pr	events fro			elow limit.		J.~330V	J.~000V	
6. Over Temp. Protection				tched or n					.9					
1.4 ANALOG PROGRAMMING AND MONITO	RING	T												
1.Vout Voltage Programming 2.lout Voltage Programming (*13)								y:±0.5% of y:±1% of ra		ut.				
3.Vout Resistor Programming								linearity: ±		ed Vout				
4.lout Resistor Programming (*13)								inearity:±						
5.On/Off control (rear panel)		By electrical. Voltage: 0~0.6V/2~15V,or dry contact ,user selectable logic. 0~5V or 0~10V , Accuracy:±1% , user selectable.												
6.Output Current monitor (*13)							-	-						
7.Output Voltage monitor 8.Power Supply OK signal				uracy:±19 K, 0V-Fail			tanco							
9. CV/CC Indicator								tage: 30V.	maximun	n sink curr	ent: 10mA	\		
10. Enable/Disable		Dry conta	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.											
11. Local/Remote analog control								e, 2~15V o						
12. Local/Remote analog control Indicator 1.5 FRONT PANEL		Open col	lector, Loc	cal: Off, Re	mote: On.	Maximur	n voltage:	30V, maxi	mum sink	current: 1	0mA.			
1.5 FRONT PANEL		Vout/Iou	t manual	adjust hy	senarate e	ncoders (	coarse and	d fine adiu	stment se	electable).				
				djust by V				a mic dajo	Jennene Je	cicciabic <sub>j</sub> .				
1.Control functions										), Go to lo	cal control			
							encoder. N	Number of	addresse	s:31.				
				<u>tomatic re</u> n: 1200,240			9 200							
3 Display		Voltage: 4	4 digits , A	ccuracy:	0.05% of	rated ou	tput Volt	age ±1 co	ount.					
2.Display		Current: 4	4 digits, A	ccuracy:	0.2% of ra	ated out	out curre	nt ±1 cou	nt.					
3.Indications		J - ,			,			,		el Lock, CV	CC.			
1.6 Interface Specifications for the GENESY				<del></del>										
1. Remote Voltage Programming (16 bit)	V	8	10	15	20	30	40	60	80	100	150	300	600	
Resolution (0.002% of Vo Rated) Accuracy (0.05% of Vo Rated) (*14)	mV mV	0.16 4	0.2 5	0.3	0.4 10	0.6 15	0.8 20	1.2 30	1.6 40	50	3 75	6 150	12 300	
· · · · · · · · · · · · · · · · · · ·	1117	- 4	<u> </u>	0	10	13			40		/3	130	300	
2. Remote Current Programming (16 bit)  Resolution (0.002% of Io Rated)	mA	6	4.80	3.00	2.40	1.60	1.20	0.80	0.60	0.48	0.32	0.16	0.08	
Accuracy (0.2% of lo Rated) Accuracy (0.2% of lo Rated) (*13)		900	720	450	360	240	180	120	90	72	48	24	12	
3. Readback Voltage				*		-								
Resolution (% of Vo Rated)	%	0.002	0.011	0.007	0.006	0.004	0.003	0.002	0.002	0.011	0.007	0.004	0.002	
Resolution (Readback Voltage)	mV	0.16	1.10	1.05	1.20	1.20	1.20	1.20	1.60	11.00	10.50	12.00	12.00	
Accuracy (0.05% of Vo Rated)	mV	4	5	8	10	15	20	30	40	50	75	150	300	
4. Readback Current							T = -			T - '				
Resolution (% of lo Rated )	% ^	0.004	0.005	0.007	0.009	0.002	0.002	0.003	0.004	0.005	0.007	0.002	0.003	
Resolution (Readback Current ) Accuracy (0.3% of Io Rated) (*13)	mA mA	900	720	10.5 450	10.8 360	1.6 240	1.2 180	1.2 120	1.2 90	1.2 72	1.120 48	0.160 24	0.120 12	
	11174	300	/ 20	430	_ 500	∠40	100	120	30	1 /2	70		12	
5. OVP/UVL Programming Resolution (0.1% of Vo Rated)	mV	8	10	15	20	30	40	60	80	100	150	300	600	
Accuracy (1% of Vo Rated)	mV	80	100	150	200	300	400	600	800	1000	1500	3000	6000	
*1. Minimum voltage is guaranteed to maximum 0.2					*10. Ero			d Output \						

- Minimum voltage is guaranteed to maximum 0.2% of rated output voltage. \*1:
- Minimum current is guaranteed to maximum 0.4% of rated output current.
- \*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.
- \*5:
- 3-Phase 208V models: 170~265Vac, constant load. \*6:
- 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
- \*9: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load with 10:1 probe.
- \*10: From 90% to 10% of Rated Output Voltage.
- For load voltage change, equal to the unit voltage rating, constant input voltage.
- 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.
- The Constant Current programming readback and monitoring accuracy does not include the warm-up and Load regulation thermal drift.
- \*14: Measured at the sensing point.





# General Specifications Genesys™ 2.4kW

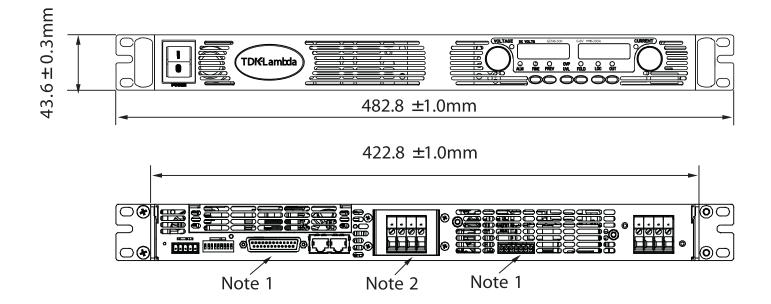
General Specifications	<u> </u>	.595											
2.1 INPUT CHARACTERISTICS	GEN	8-300	10-240	16-150	20-120	30-80	40-60	60-40	80-30	100-24	150-16	300-8	600-4
1. Input voltage/freq. (*3)	VAC	<u> </u>	ase,230V m										
		3-Phase,	208V mode	els: 170~26	5Vac, 47~	63Hz			1				
2. Maximum   Single Phase, 230V models:	A	17.3	17.3	17.3	16.8	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
at 100% load 3-Phase, 208V models:		10.5	10.5	10.5	10.2	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1
3. Power Factor (Typ)				s: 0.99@23	T .	d output p	ower. 3-Ph	ase mode	ls: 0.94@20	8Vac, rated	d output p	ower.	,
4. Efficiency (*4)	%	84	84	86	86	86	88	88	88	88	88	88	87
5. Inrush Current (*5)	A	Single-Ph	ase and 3-	Phase 208	V models:	Less than :	50A						
2.2 POWER SUPPLY CONFIGURATION		lu					-	-					
1. Parallel Operation 2. Series Operation			entical uni				M+- Ch-						
2.3 ENVIRONMENTAL CONDITIONS		Up to 2 to	entical uni	ts. with ex	ternardio	des. 600v	viax to Cha	issis grour	iu				
1. Operating temp		0~50°C 1	00% load.										
2. Storage temp		-20~85°C	00701000.										
3. Operating humidity			RH (non-co	ndensing									
4. Storage humidity			RH (non-co										
5. Vibration		MIL-810F, method 514.5, The EUT is fixed to the vibrating surface.											
6. Shock		Less than 20G, half sine, 11mSec. Unit is unpacked.											
7. Altitude			g: 10000ft ( 0m above						000m, Alte	rnatively, d	erate maxi	mum amb	ient ten
8. RoHS Compliance		Complies	with the re	equiremer	nts of RoH	directive.							
2.4 EMC													
1. Applicable Standards:													
2.ESD			1-2. Air-disc	ch8KV, co	ontact disc	h4KV							
3.Fast transients		IEC1000-4			10/11:								
4.Surge immunity 5.Conducted immunity		IEC1000-4	1-5. 1KV lin	e to line, 2	KV line to	grouna							
5.Conducted Immunity 5.Radiated immunity		IEC1000-4					-	-					
7.Magnetic field immunity		+	4-8, 1A/m										
8.Voltage dips		EN61000-						-					
9.Conducted emission			A, FCC part	15-A. VCC	I-A.								
10. Radiated emission			A, FCC part			-							-
2.5 SAFETY													
1. Applicable standards:		UL 60950	-1, CSA 22.	2 No. 6095	0-1,IEC 60	950-1, EN 6	0950-1		,				
			rith Vout 50 rogrammii							32/485, IEE	E, Isolated	Analog,L	AN, Sen
2.Interface classification		Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN Remote Programing and Monitoring (pins 1-3, pins 14-16), 5V d.c. auxiliary output are SELV, Sense, Remote Programming and Monitoring (pins 8-13, pins 21-25), 15V auxiliary output are Hazardous.											
		Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces-RS232/485, IEEE, Isolated Analog LAN, Sense, Remote Programming and Monitoring (all pins), 5V d.c./15V d.c. auxiliary outputs are Hazardous.											
		Vout 50V models: Input-Output/communication/control/auxiliary outputs (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min., Output/communication/control/auxiliary outputs (SELV)-Ground: 1000VDC 1min.											
3.Withstand voltage		60V Vout 100V models: Input-Output/15V d.c. auxiliary output/communication/control (Hazardous): 2600VDC 1min, Input-communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): - communication/control/5V d.c. auxiliary output (SELV): 1900VDC 1min,Output/15V d.c. auxiliary output/communication/control (Hazardous): - Ground: 1200VDC 1min,Input-Ground: 2828VDC 1min.											
		100V Vout 600V models: Input-Output/15V d.c. auxiliary output/communication/control (Hazardous): 4000VDC 1min, Input-communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -communication/control/5V d.c. auxiliary output (SELV): 3550VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -Ground: 2670VDC 1min, Input-Ground: 2828VDC 1min.											
3.Insulation resistance		More tha	n 100Mohr	n at 25°C,	70% RH.				_				
2.6 MECHANICAL CONSTRUCTION		1											
1. Cooling		1								chassis; Va	riable fan	speed.	_
2. Dimensions (WxHxD)			n, H: 43.6m	ım, D: 441ı	nm (exclu	ding conn	ectors, enc	oders, har	idles, etc.)				
3. Weight		Less than		andal- D		ican PC C 1	16/2 CF 10	16 00-1-	with Ctur'	valiat			
4. AC Input connector (with Protective Cove	er)		ase,230V m										
5.Output connectors		<u> </u>	208V & 400							rain relief. onnector, P	hooniy D/N	I. EDONT	
2.7 AUXILARY OUTPUTS		101 10 100	v models: I	ט צומע-נטע (ו	וטוב ש וט.:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10 0000 11	ioueis. WI	e ciamp C	Jilliectol, P	HOCHIX F/I	v. 1 NOIV1-4	T 11-7.02
1. 15V Output (*8)		15V+ 5%	0.2A Max I	oad, Rinn	le & Noise	100mVn-r	reference	ed interna	ly to the n	egative ou	tout noten	tial.	
2. 5V Output										M potential			
2.8 RELIABILITY SPECS		. = 5.75/6		ррп		р.			, 231	,			
1. Warranty		5 years.											-
All specifications subject to change withou	t notice												-

1. Warranty
All specifications subject to change without notice.

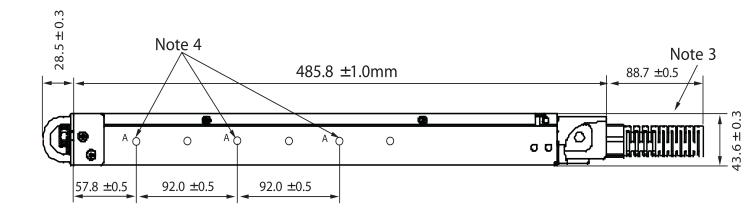




# Outline Drawing Genesys™ 2.4kW Units







### NOTE

- 1. Mating plug supplied with power supply.
- 2. Bus bars for 8V to 100V models. See Detail
- 2. Ac cable strain relief supplied with power supply.
- 4. Chassis slides mounting holes #10-32 marked "A". GENERAL DEVICES P/N: CC3001-00-5160 or equivalent.



### Genesys<sup>™</sup> 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.









### **Programming Options (Factory installed)**

### Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 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: IEEE

### **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%

#### ----

P/N: IS420

P/N: LAN

P/N: IS510

# LAN Interface LXI Compliant to Class C

- Meets all LXI-C Requirements
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Compatible with most standard Networks
- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Fast Startup



# Power Supply Identification / Accessories How to order

GEN	8 -	300	-	
			Factory Options:	Factory AC Input Options:
Series	Output	Output	Option: IEEE	1P230 (Single Phase 170~265VAC)
Name	Voltage	Current	IS510	3P208 (Three Phase 170~265VAC)
	(0~8V	(0~300A)	IS420	
			LAN	

### **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

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

Factory option P/N
RS-232/RS-485 Interface built-in Standard GPIB Interface IEEE
Voltage Programming Isolated Analog Interface IS510
Current Programming Isolated Analog Interface IS420
LAN Interface (Complies with LXI Class C) LAN

### **Accessories**

### 1. Serial Communication cable

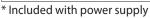
RS-232/RS-485 cable is used to connect the power supply to the Host PC.

Mode	RS-485	RS-232	RS-232
PC Connector 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 Shield Ground L=2m 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<sup>™</sup> power supplies.

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





Also available, Genesys™
1U Half Rack 750W
1U full Rack
750W/1500W/2400W
2U full Rack 3300W/5000W



Improved 5pecifications

# Genesys™

Programmable DC Power Supplies
3.3kW in 2U
Built in RS-232 & RS-485 Interface
Advanced Parallel Operation
Optional Interface:
LXI Compliant LAN
IEEE488.2 SCPI (GPIB) Multi-Drop
Isolated Analog Programming



Genesys™ Family GENH 750W Half Rack GEN1U 750/1500/2400W Full Rack GEN2U 3.3/5kW

TDK-Lambda



# TDK·Lambda

The Genesys<sup>™</sup> 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 3.3kW in 2U
- Wide Range of popular worldwide AC inputs, 1ø (230VAC) & 3ø (208VAC, 400VAC)
- Active Power Factor Correction (Single-Phase & Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 400A
- 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

- 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 & Measurement systems, Component Device Testing.

Semiconductor Processing & Burn-In, Aerospace & Satellite Testing, Medical Imaging, Green Technology.

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.

**Higher power systems** can be configured with up to four 3.3kW modules. Each module is 2U with zero space between them (zero stack).

Flexible configuration is provided by the complete Genesys™ Family: 1U 750W Half-Rack, 1U 750W, 1500W and 2400W 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.
- 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 Baud rate. Displays total current in Parallel Master/Slave Mode
- 7. Function/Status LEDs:
- Alarm

- Fine Control
- Preview Settings

- Foldback Mode
- 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-Re-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 (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 (shown), 208 & 400VAC Three Phase, 50/60 Hz AC Input Connector: PHOENIX CONTACT Power Combicon PC 6/... Series with strain relief.
- 9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.



# Genesys ™ 3.3kW Specifications

1.0 MODEL										c	nocificat	ions in bl	uo aro in	anrovad
MODEL	GEN	8-400	10-330	15-220	20-165	30-110	40-85	60-55	80-42	100-33		ions in bl 200-16.5		
1.Rated output voltage(*1)	V	8	10	15	20	30	40	60	80	100	150	200	300	600
2.Rated Output Current(*2)	A	400	330	220	165	110	85	55	42	33	22	16.5	11	5.5
3.Rated Output Power 1.1 CONSTANT VOLTAGE MODE	W	3200	3300	3300	3300	3300	3400	3300	3360	3300	3300	3300	3300	3300
1.Max.line regulation (0.01% of rated Vo+2mV)(*6)	mV	2.8	3	3.5	4	5	6	8	10	12	17	22	32	62
2.Max load regulation (0.015% of rated Vo+5mV)(*7)		6.2	6.5	7.25	8	9.5	11	14	17	20	27.5	35	50	95
3.Ripple and noise p-p 20MHz (*8)	mV	55	55	55	55	55	55	60	70	100	100	275	300	350
4.Ripple r.m.s 5Hz~1MHz	mV	8	8	7	7	7	7	7	20	25	20	70	80	80
5.Remote sense compensation/wire 6.Temp. coefficient	PPM/°C	2 50PPM/	°C of rat	2 ed outp	ut volta	ne follow	5 ing 30 m	5 inutes wa	5 arm-un	5	5	5	5	5
7.Temp. stability	11111/	0.01% o	f rated V	out over	8hrs inte	erval follo	wing 30	minutes	warm-up	. Constan	t line, loa	d & temp.		
8.Warm-up drift			n 0.05% o	f rated o	utput vol							'		
9.Up-prog. response time, 0~Vo Rated (*9)	mS				30				1	50		20	0	250
10.Down-prog response Full-load (*9) No-load (*10)	mS mS	20 500	600	100 700	800	900	160 1000	1100	1200	1500	300 2000	3000	3500	500 4000
time [NO-load ( 10)	1113											rated outp		
11.Transient response time	mS											sec for mo		
1.2 CONSTANT CURRENT MODE		set po		, o, 10 ca. 5	C.13C1 2C3	J (11411 111			,	-cia aiii g		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
1.Max.line regulation (0.01% of rated lo + 2mA)(*6)		42	35	24	18.5	13	10.5	7.5	6.2	5.3	4.2	3.65	3.1	2.6
2.Max.load regulation (0.02% of rated Io+5mA)(*11)		85	71	49	38	27	22	16	13.4	11.6	9.4	8.3	7.2	6.1
3.Ripple r.m.s 5Hz~1MHz . (*12)	mA	1000	650	400	300	250	150	70	60	50	20	30	15	8
4.Load regulation thermal drift 5.Temp. coefficient	PPM/°C	70PPM/	n 0.1% of oC from											-
6.Temp. stability	,,	0.01% o	f rated lo	out over	8hrs. inte	rval follo	wing 30n	ninutes v	varm-up.	Constant		l & temper	ature.	
7.Warm-up drift											ng power			
'		30V~600	OV model	s: Less th	an ±0.25	% of rate	doutput	current o	ver 30 m	nutes fol	lowing po	wer On.	-	-
1.3 PROTECTIVE FUNCTIONS 1. OCP		0~1050/-	Constant	Current										
2. OCP Foldback			shut dow		ower sur	pply chan	ae from (	V to CC.	User sele	ctable.				
3. OVP type		Inverter	shut-dow	/n, manu	al reset b	y AC inpu	it recycle	or by OU	JT button	or by co		ion port co	ommand	
4. OVP trip point											5~165V	5~220V	5~330V	5~660V
5. Output Under Voltage Limit			y front pa				t. Prevent	s from ac	djusting \	<u>out belo</u>	w limit.			
6. Over Temp. Protection  1.4 ANALOG PROGRAMMING AND MONITO	RING	User sele	ectable , l	atcned o	r non-late	cnea.								
1. Vout Voltage Programming	KING	0~100%	, 0~5V or	0~10V. u:	ser select	. Accurac	v and line	earity:±0	.5% of rat	ed Vout.				
2.lout Voltage Programming (*13)		0~100%	, 0~5V or	0~10V, u:	ser select	. Accurac	y and line	earity:±1	% of rate	lout.				
3.Vout Resistor Programming			, 0~5/10K											
4.lout Resistor Programming (*13)			, 0~5/10K								d lout.			
5.On/Off control (rear panel) 6.Output Current monitor (*13)			<u>rical. Volta</u> 0~10V , A					er seiect	able logi	L.				-
7.Output Voltage monitor			0~10V,A											
8. Power Supply OK signal		TTL high	(4~5V) -(	OK, OV-Fa	ail 500ohi	m series r	esistance							
9. CV/CC Indicator										ximum s	ink curren	t: 10mA		
10. Enable/Disable 11. Local/Remote analog control		By clock	tact. Oper rical signa	n:off, Sho	ort: on. M	ax. volta	ge at Enal	ole/Disab	15 // or o	on:Loca				
12. Local/Remote analog control Indicator		Open co	llector L	ncal: Off	Remote:	On Maxi	mum volt	ane: 30V	maximu	m sink cı	ırrent: 10r	nΑ		
1.5 FRONT PANEL		Торен со	incetor, Le	ocui. Oti,	nemote.	OTIL MIGAL	mann von	uge. 50v	, maxima	III SIIIIK CC				
			ut manua					e and fin	e adjustn	nent sele	ctable).			
16. 4.16			L manual						+ 1 (C)	(+- CC) C				
1.Control functions			selection								io to local	control.		
			modes (a					aei. ivuiii	Dei Oi au	u163363.5	1.			-
		Baud rat	e selectio	n: 1200,2	2400,480	0,9600 ar	id 19,200.							
2.Display		Voltage:	4 digits,	Accurac	y: 0.05%	of rated	output	Voltage	±1 cour	nt.				
. ,	-		4 digits, /								a ale CVCC			
3.Indications  1.6 Interface Specifications for the GENESY	C Caria										ock, CVCC			
											150	200	300	600
1. Remote Voltage Programming (16 bit) Resolution (0.002% of Vo Rated)	V mV	0.16	10 0.2	15 0.3	20 0.4	30 0.6	40 0.8	60 1.2	1.6	100	150 3	200 4	300 6	600 12
Accuracy (0.05% of Vo Rated)	mV	4	5	8	10	15	20	30	40	50	75	100	150	300
2. Remote Current Programming (16 bit)														
Resolution (0.002% of lo Rated)	mA	8	6.6	4.4	3.3	2.2	1.7	1.1	0.84	0.66	0.44	0.33	0.22	0.11
Accuracy (0.2% of lo Rated+0.1% of lo Actual Output) (*13)		1200	990	660	495	330	255	165	126	99	66	49.5	33	16.5
3. Readback Voltage			_		_	_	_		_	_		_		_
Resolution (% of Vo Rated)	%	0.002	0.011	0.007	0.006	0.004	0.003	0.002	0.002	0.011	0.007	0.006	0.004	0.002
Resolution (Readback Voltage)	mV	0.16	1.10	1.05	1.20	1.20	1.20	1.20	1.60	11.00	10.50	12.00	12.00	12.00
Accuracy (0.05% of Vo Rated)	mV	4	5	8	10	15	20	30	40	50	75	100	150	300
4. Readback Current	0/	0.000	0.001	0.005	0.007	0.01	0.000	0.000	0.000	0.001	0.005	0.007	0.01	0.000
Resolution (% of Io Rated ) Resolution (Readback Current )	% mA	0.003	0.004 13.20	0.005	0.007	0.01	0.002 1.70	0.002 1.10	0.003 1.26	0.004 1.32	0.005 1.10	0.007 1.16	0.01	0.002
Accuracy (0.3% of lo Rated) (*13)	mA mA	12.00	990	660	495	330	255	165	126	99	66	49.5	33.0	16.5
5. OVP/UVL Programming	, 111/1	200	, ,,,,			, 550			, ,		, 00	12.3	, 55.0	
Resolution (0.1% of Vo Rated)	mV	8	10	15	20	30	40	60	80	100	150	200	300	600
Accuracy (1% of Vo Rated)	mV	80	100	150	200	300	400	600	800	1000	1500	2000	3000	6000
· · · · · · · · · · · · · · · · · · ·														

<sup>\*1:</sup> Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.



<sup>\*2:</sup> Minimum current is guaranteed to maximum 0.4% of rated output current.

<sup>\*3:</sup> For cases where conformance to various safety standards (UL, IEC, etc.) is required, to be described as 190-240Vac (50/60Hz) for single phase and 3-Phase 208V models, and 380~415Vac (50/60Hz) for 3-Phase 400V models.

<sup>\*4:</sup> Single-Phase and 3-Phase 208V models: At 208Vac input voltage, 3-Phase 400V: At 380Vac input voltage. With rated output power.
\*5: Not including EMI filter inrush current, less than 0.2mSec.
\*6: Single-Phase and 3-Phase 208V models: 170~265Vac, constant load. 3-Phase 400V models:

<sup>342~460</sup>Vac, constant load.

<sup>\*7:</sup> From No-Load to Full-Load, constant input voltage. Maximum drop in Remote Sense.

<sup>\*8:</sup> For 8V~300V models: Measured with JEITA RC-9131A (1:1) probe.

For 600V model: Measured with 10:1 probe.

<sup>\*9:</sup> From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load. \*10:From 90% to 10% of Rated Output Voltage. \*11: For load voltage change, equal to the unit voltage rating, constant input voltage.

<sup>\*12</sup>: For 8V $\sim$ 15V models the ripple is measured from 2V to rated output voltage and rated output current. For other models, the ripple is measured at 10  $\sim\!100\%$  of rated output voltage and rated output current.

<sup>\*13:</sup> The Constant Current programming readback and monitoring accuracy does not include the warm-up and Load regulation thermal drift.

<sup>\*14:</sup> Measured at the sensing point.

# General Specifications Genesys™ 3.3kW

2.1 INPUT CH	ARACTERISTICS	GEN	8-400			20-165		40-85	60-55	80-42	100-33	150-22	200-16.5	300-11	600-5.
4.1	/f (¥2)	14.6				170~265V		lz							
1. Input voltage	r/freq. (*3)	VAC				265Vac, 4					,				
	c:   D  2201/			1	1	460Vac, 4	r	2.4		22.5	- 22				T 22
2. Maximum	Single Phase, 230V models:	1	24	24	24	24	23	24	23	23.5	23	23	23	23	23
Input current at 100% load	3-Phase, 208V models:	A	14.5	14.5	14.5	14.5	14	14.5	13.6	14	13.7	13.7	13.7	13.8	13.9
	5 Triase, 1007 modelsi		7.2	7.2	7.2	7.2	7.0	7.2	6.8	7.0	6.8	6.8	6.8	6.9	7.0
3. Power Factor		0/			T	1			Ti .	1	1	1	ted output		1 07
4. Efficiency (*4	)	%	82	83	83	83	86	86	88	88	88	87	87	87	87
5. Inrush Curren	nt (*5)	Α			3-Phase 2 lels: Less 1	08V mode than 20A	els: Less th	an 50A		-					
6. Hold-up time	(Typ)	mS					208V mo	dels. 6mS	ec for 3-P	hase 400\	/ models	Rated ou	tput powei	r.	
	JPPLY CONFIGURATION		1.0	o. og.c	. mase an	a o priase	2001	u c 15 / 0 1 1 1 5		11450 100		nated ou	tput porte.		
1. Parallel Opera			Up to 4 io	dentical u	nits in ma	ster/slave	mode								
2. Series Operat						external		0V Max to	Chassis o	round					
	MENTAL CONDITIONS		O P 10 2 10			external t		or max co	2	J. 0 a a					
1. Operating ter		-	0~50°C	100% load	1		-								
2. Storage temp			-20~85°C		4.										
3. Operating hu					ondensir	na)									
4. Storage humi					ondensin	<u>J,                                      </u>									
5. Vibration	idity					<u></u>	ved to the	vihrating	n surface						
6. Shock		MIL-810F, method 514.5, The EUT is fixed to the vibrating surface.  Less than 20G, half sine, 11mSec. Unit is unpacked.													
o. JHOCK		Operating: 10000ft (3000m), Derate output current by 2%/100m above 2000m, Alternatively, derate maximum ambient te											iont to~		
7. Altitude						Non opei				OVE 2000	iii, Aiterna	ativery, de	iale iildXiM	iuiii diiiDi	encten
0 DoUC Com-!	anco					ivon opei ents of Ro			iouiii).						
8. RoHS Compli	ance		Compiles	with the	requirem	ients of Ro	ons airect	ive.							
2.4 EMC			1												
1.Applicable Sta	andards:		IEC4000	4 2 4: 1			l: 1 4101								
2.ESD					isch8KV,	contact c	lisch4KV								
3.Fast transient			IEC1000-												
4.Surge immun	·		IEC1000-4-5. 1KV line to line, 2KV line to ground IEC1000-4-6, 3V												
5.Conducted im	,														
6.Radiated imm			IEC1000-4-3,3V/m												
7.Magnetic field	d immunity		EN61000	-4-8, 1A/r	n										
8.Voltage dips			EN61000									_			
9.Conducted er	nission		EN55022A, FCC part 15-A, VCCI-A.												
10. Radiated em	nission		EN55022	A, FCC pa	rt 15-A, V	CCI-A.									
2.5 SAFETY															
1.Applicable sta	andards:		UL 60950	)-1, CSA 2	2.2 No. 60	950-1,IEC	60950-1, I	N 60950	-1						
			Models v	vith Vout	50V: Out	put is SELV Monitorin	/, all comi	nunicatio	n/control	interface	es (RS232/	485, IEEE,	Isolated A	nalog, L <i>A</i>	N, Sens
							7		unication	/control i		DC222/40	OF IFFF Iso	latad An	
2.Interface class	sification		Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote Programming and Monitoring (pins 8-13 pins 21-25) are Hazardous.												
			Models v	vith 400V	<vout 600<="" td=""><td>OV: Outpu</td><td>t is Hazaro</td><td>lous, all c</td><td>ommunic</td><td>ation/con</td><td>trol interf</td><td>faces (RS2</td><td>32/485, IEE</td><td>E, Isolate</td><td>d Analo</td></vout>	OV: Outpu	t is Hazaro	lous, all c	ommunic	ation/con	trol interf	faces (RS2	32/485, IEE	E, Isolate	d Analo
			Vout 50	V model		t-Output					nmunicat	ion/cont	rol (SELV)	: 4242VI	OC 1m
			60V <vou< td=""><td>t 100V m</td><td>odels: Inp</td><td></td><td>t (Hazardo</td><td>us): 2600</td><td>VDC 1min</td><td>, Input-co</td><td>mmunica</td><td>ation/cont</td><td>rol (SELV):</td><td></td><td></td></vou<>	t 100V m	odels: Inp		t (Hazardo	us): 2600	VDC 1min	, Input-co	mmunica	ation/cont	rol (SELV):		
3.Withstand vol	ltage		Input-Gr	ound: 282	8VDC 1m	in.									
			4242VDC	1min, Ha	zardous.	put-Outp Output-co l: 2670VD0	mmunica	tion/con	trol(SELV):	4242VDC	ommunic 1min,	cation/cor	ntrol (SELV)	:	
3.Insulation res	istance		More tha	n 100Mol	nm at 25°	C , 70% RF	l								
2.6 MECHANI	CAL CONSTRUCTION														
1. Cooling			Forced ai	r flow: fro	m front t	o rear. No	ventilatio	n holes a	t the top o	or bottom	of the cha	assis; Varia	able fan sp	eed.	
2. Dimensions (	WxHxD)					2.5mm (ex									
3. Weight	,	-	13 kg.	,		,,,,,									
	. ( )   0			ase,230V	models. I	Power Cor	nbicon PC	6-16/3-0	F-10.16 se	ries, with	Strain rel	ief.			
4. AC Input con	nector (with Protective Cove	er)				els, Power									
5.Output conne	ectors	-											enix P/N: F	RONT-4-	H-7.62
2.7 RELIABILI			10110100	· models	. Das Dal	ו ש אוטוני ע	J.J.1111/1. 1	201 10 00	. J T III UUCI	1711 C CIG		22101,1110			
1. Warranty	51 LC5	-	5 years.												
			J J Cuis.												

1. Warranty
All specifications subject to change without notice.



## TDK·Lambda

### 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.







P/N:IEEE

### **Programming Options (Factory installed)**

### Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 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

### **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%

# P/N: IS510

P/N: IS420

# LAN Interface Compliant to Class C

- Meets all LXI-C Requirements
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Compatible with most standard Networks
- TCP / UDP Socket Programming

#### P/N: LAN

- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Fast Startup

# **Power Supply Identification / Accessories How to order**

GEN	8 -	400	-	<u>-</u>	
			<b>Factory Options:</b>	Factory AC Input Options:	
Series	Output	Output	Option: IEEE	1P230 (Single Phase 170~265VAC)	
Name	Voltage	Current	IS510	3P208 (Three Phase 170~265VAC)	
	(0~8V	(0~400A)	IS420	3P400 (Three Phase 342~460VAC)	
			LAN		

### **Models 3.3kW**

Model	Output Voltage VDC	Output Current ( A )	Output Power (W)
GEN 8-400	0~8V	0~400	3200
GEN 10-330	0~10V	0~330	3300
GEN 15-220	0~15V	0~220	3300
GEN 20-165	0~20V	0~165	3300
GEN 30-110	0~30V	0~110	3300
GEN 40-85	0~40V	0~85	3400

Model	Output Voltage VDC	Output Current ( A )	Output Power (W)				
GEN 60-55	0~60V	0~55	3300				
GEN 80-42	0~80V	0~42	3360				
GEN 100-33	0~100V	0~33	3300				
GEN 150-22	0~150V	0~22	3300				
GEN 200-16.5	0~200V	0~16.5	3300				
GEN 300-11	0~300V	0~11	3300				
GEN 600-5.5	0~600V	0~5.5	3300				

### Factory option P/N

RS-232/RS-485 Interface built-in Standard -

GPIB Interface IEEE

Voltage Programming Isolated Analog Interface IS510

Current Programming Isolated Analog Interface IS420

LAN Interface (Complies with Class C)

LAN

#### 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 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 Shield Ground L=2m 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<sup>™</sup> power supplies.

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

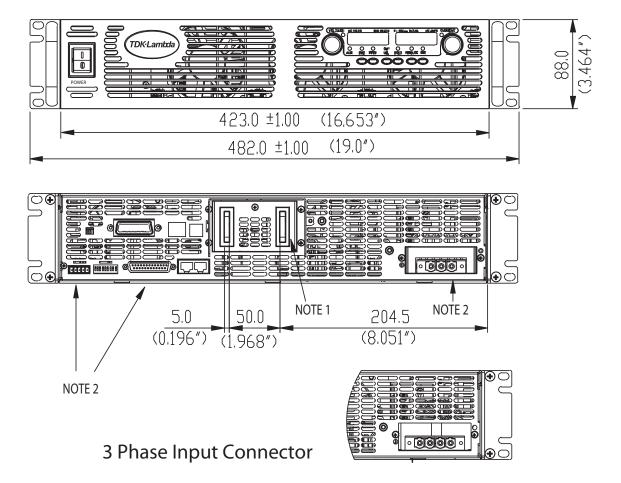
\* Included with power supply



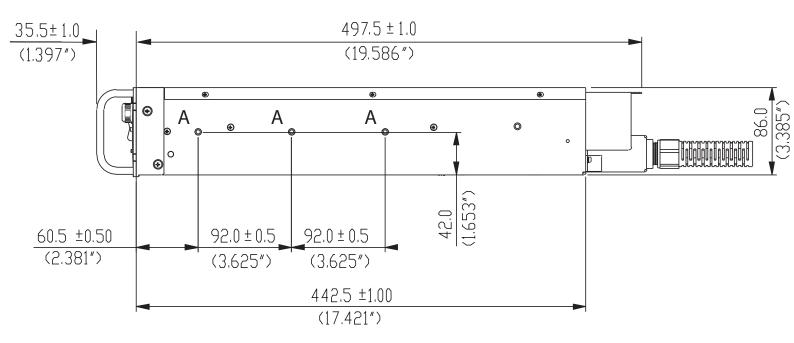
Also available, Genesys™ 1U Half Rack 750W 1U full Rack 750W/1500W/2400W 2U full Rack 5000W



# Outline Drawing Genesys™ 3.3kW Units







### NOTE

1. Bus bars for 8V to 100V models (shown)

Wire clamp connector for 150V to 600V models

- 2. Plug connectors included with the power supply
- 3. Chassis slides mounting holes #10-32 marked "A" GENERAL DEVICES P/N: C-300-S-116 or equivalent

Improved 5 Specifications

# Genesys\*\*

Programmable DC Power Supplies
5kW in 2U
Built in RS-232 & RS-485 Interface
Advanced Parallel Operation
Optional Interface:
LXI Compliant LAN
IEEE488.2 SCPI (GPIB) Multi-drop
Isolated Analog Programming



Genesys™ Family GENH 750W Half Rack GEN1U 750/1500/2400W Full Rack GEN2U 3.3/5kW

TDK-Lambda



# TDK·Lambda

The Genesys<sup>™</sup> 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 5kW in 2U
- Wide Range of popular worldwide AC inputs, 3ø (208VAC, 400VAC)
- Active Power Factor Correction (Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 600A
- 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 Compliant LAN
- LabView<sup>®</sup> and LabWindows<sup>®</sup> drivers
- Five Year Warranty

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





## **Applications**

**Genesys<sup>™</sup>** power supplies have been designed to meet the demands of a wide variety of applications.

Test & Measurement systems, Component Device Testing.

Semiconductor Processing & Burn-In, Aerospace & Satellite Testing, Medical Imaging, Green Technology. 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.

Higher power systems can be configured with up to four 5kW modules. Each module is 2U with zero space between them (zero stack).

Flexible configuration is provided by the complete Genesys™ Family: 1U 750W Half-Rack, 1U 750W, 1500W and 2400W 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.
- 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 Baud rate. Displays total current in Parallel Master/Slave Mode
- 7. Function/Status LEDs:
  - Alarm
- Fine Control
- Preview Settings

- Foldback Mode
- 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 (shown), 208 & 400VAC Three Phase, 50/60 Hz AC Input Connector: PHOENIX CONTACT Power Combicon PC 6/... Series with strain relief.
- 9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.



# **Genesys** ™ 5kW Specifications

1 A MODEL												Cnoc	ification	as in Dlu		لممييميا
1.0 MODEL MODEL	GEN	8-600	10 500	16 210	20.250	20 170	40-125	60-85	80-65	100 50	150 24			ns in Blu 400-13		
1.Rated output voltage(*1)	V	8	10-300	16	20-230	30-170	40-123	60	80	100-30	150-34	200-23	300-17	400-13	500	600
2.Rated Output Current(*2)	Å	600	500	310	250	170	125	85	65	50	34	25	17	13	10	8.5
3.Rated Output Power	W	4800	5000	4960	5000	5100	5000	5100	5200	5000	5100	5000	5100	5200	5000	5100
1.1 CONSTANT VOLTAGE MODE																
1.Max.lineregulation (0.01% of rated Vo)(*6)		0.8	1.0	1.6	2	3	4	6	8	10	15	20	30	40	50	60
2.Max load regulation (0.015% of rated Vo+5mV)(*7)		6.2	6.5	7.4	8	9.5	11	14	17.7	20	27.5	35	50	65	80	95
3.Ripple and noise p-p 20MHz (*8)	mV	75	75	70	75	70	70	70	80	90	120	200	200	350	300	450
4.Ripple r.m.s 5Hz~1MHz	mV	8	8	10	10	10	8	8	15	15	20	45	60	70	70	100
5.Remote sense compensation/wire	V	2	2	2	2	5	5	5	5	5	5	5	5	5	5	5
6.Temp. coefficient	PPM/°C	50PPM									and the	. 1 10				
7.Temp. stability							llowing					e, load &	temp.			
8.Warm-up drift 9.Up-prog. response time, 0~Vo Rated (*9)	mS	Less tha	in 0.05%		output v 0	oitage+.	2mV ove	1 30 minu	ites folio		wer On. 0			65	80	100
10.Down-progresponse Full-load (*9)	mS	15		<u></u>	U		80				100			135	170	200
time No-load (*10)	mS	400	500	600	700	800	900	1000	1200	1500		2000	2500	3000	3000	3000
, , ,														utput cur		
11.Transient response time	mS													above 10		tputset
1.2 CONSTANT CURRENT MODE		point.	0 10070,	iocai scri	JC. EC33 1	indir iiii.	JCC 101 111	oucis up	rto una i	riciaanig	1001.21	11300101	models	1001010	<u> </u>	
1.Max.line regulation (0.05% of rated Io)(*6)	mA	300	250	155	125	85	62.5	42.5	32.5	25	17	12.5	8.5	6.5	5	4.25
2.Max.load regulation (0.1% of rated Io)(*11)		600	500	310	250	170	125	85	65	50	34	25	17	13	10	8.5
3.Ripple r.m.s 5Hz~1MHz . (*12)	mA	1700	1600	1000	700	350	180	120	80	50	50	50	20	15	10	10
4.Load regulation thermal drift							er 30 min				ge.					
5.Temp. coefficient	PPM/°C	70PPM														
6.Temp. stability							llowing							ture.		
7.Warm-up drift							output c									
·		20V~60	<u>0V mode</u>	els: Less t	han ±0.2	25% of ra	ted outp	ut curre	nt over 3	0 minute	s followi	ing powe	er On.			
1.3 PROTECTIVE FUNCTIONS		la														
1. OCP			Constar													
2. OCP Foldback							ange fro									
3. OVP type							put recy								F 550V	F 660V
4. OVP trip point													5~330V	5~440V	5~550V	5~660V
5. Output Under Voltage Limit							ort. Prev	ents fror	n adjusti	ing vout	below III	nit.				
6. Over Temp. Protection	UTODINI		ectable ,	latched	or non-la	atched.			-							
1.4 ANALOG PROGRAMMING AND MON	IIIOKING		0 51/-	0 10\/		-+ A		Dia a a site o	0	£						
1.Vout Voltage Programming							racy and									
2.lout Voltage Programming (*13) 3.Vout Resistor Programming							racy and t.,Accura					+				
4.lout Resistor Programming (*13)							t. Accura									
5.On/Off control (rear panel)							contact				i ateu iot	π.	-			-
6.Output Current monitor (*13)			0~10V ,					,user se	iectable	iogic.						
7.Output Voltage monitor			0~10V,													
8. Power Supply OK signal							es resista	nce.								
9. CV/CC Indicator							ff, Maxin		age: 30V	/. maximi	ım sink c	urrent: 1	0mA			
10. Enable/Disable							tage at E				5		011111			
11. Local/Remote analog control							or short				Local.					
12. Local/Remote analog control Indicate	or						ximum					nt: 10mA				
1.5 FRONT PANEL																
		Vout/ lo	ut manu	al adjust	by sepa	rate enc	oders (co	arse and	fine adj	ustment	selectab	ile).				
			L manua													
1.Control functions							ito, safe),					local co	ntrol.			
							adjust en	coder. N	umber c	of addres	ses:31.					
			modes (													
							and 19,2									
2.Display							ed outpu						-			
. ,							dback				ا - ا ام	CVICC				
3.Indications							dback, L		•		iei Lock,	CVCC.	-			
1.6 Interface Specifications for the GEN	ESYS Sei	ries with	RS-232/	RS-485 (	Or Optio	nal GPII	3/LAN In	terface I	nstalled							
1. Remote Voltage Programming (16 bit)	V	8	10	16	20	30	40	60	80	100	150	200	300	400	500	600
Resolution (0.002% of Vo Rated)	mV	0.16	0.20	0.32	0.40	0.60	0.80	1.20	1.60	2.0	3.0	4.0	6.0	8.0	10.0	12.0
Accuracy (0.05% of Vo Rated) (*14)	mV	4	5	8	10	15	20	30	40	50	75	100	150	200	250	300
2. Remote Current Programming (16 bit)																
Resolution (0.002% of lo Rated)	mA	12	10	6.20	5.00	3.40	2.50	1.70	1.30	1.00	0.68	0.50	0.34	0.26	0.20	0.17
Accuracy (0.3% of lo Rated+0.1% of lo Actual Output) (*13)		2400	2000	1240	1000	680	500	340	260	200	136	100	68	52	40	34
3. Readback Voltage Resolution (% of Vo Rated)	0/-	0.002	0.011	0.007	0.006	0.004	0.003	0.002	0.002	0.011	0.007	0.006	0.004	0.003	0.003	0.002
Resolution (% of vo Rated) Resolution (Readback Voltage)	% mV	0.002	1.10	0.007 1.12	1.20	1.20	1.20	1.20	1.60	0.011	10.50			0.003		12.00
Accuracy (0.05%Vo Rated)	mV mV	4	5	8	1.20	1.20	20	30	40	50	75	100	150	200	250	300
	1117	-		U	10	נו			40		/3	100	150	200	250	1 200
4. Readback Current		0.000	0.655	0.651	0.000	0.000	0.000	0.555	0.555	0.555	0.65	0.000	0.000	0.555	0.611	
Resolution (% of lo Rated )	%	0.002	0.003	0.004	0.005	0.006		0.002	0.002	0.003	0.004		0.006		0.011	0.002
Resolution (Readback Current)	mA	12.00	15.00	12.40	12.50	10.20	11.25	1.70	1.30	1.50	1.36	1.25	1.02	1.04	40	34
Accuracy (0.3% of lo Rated) (*13)	mA	1800	1500	930	750	510	375	255	195	150	102	75	51	39	30	25.5
5. OVP/UVL Programming																
Resolution (0.1% of Vo Rated)	mV	8	10	16	20	30	40	60	80	100	150	200	300	400	500	600
Accuracy (1% of Vo Rated)	mV	80	100	160	200	300	400	600	800	1000	1500	2000	3000	4000	5000	6000

<sup>\*1:</sup> Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.



<sup>\*2:</sup> Minimum current is guaranteed to maximum 0.4% of rated output current.

<sup>\*3:</sup> 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, and 380~415Vac (50/60Hz) for 3-Phase 400V models.

<sup>\*4: 3-</sup>Phase 208V models: At 208Vac input voltage, 3-Phase 400V: At 380Vac input voltage. With rated output power.
\*5: Not including EMI filter inrush current, less than 0.2mSec.
\*6: 3-Phase 208V models: 170~265Vac, constant load. 3-Phase 400V models: 342~460Vac,

constant load.

\*7: From No-Load to Full-Load, constant input voltage. Maximum drop in Remote Sense.

<sup>\*8:</sup> For 8V~300V models: Measured with JEITA RC-9131A (1:1) probe.

For 600V model: Measured with 10:1 probe.

<sup>\*9:</sup> From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load. \*10:From 90% to 10% of Rated Output Voltage. \*11: For load voltage change, equal to the unit voltage rating, constant input voltage.

<sup>\*12</sup>: For 8V $\sim$ 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.

<sup>\*13:</sup> The Constant Current programming readback and monitoring accuracy does not include the warm-up and Load regulation thermal drift. \*14: Measured at the sense point.

## General Specifications Genesys™ 5kW

2.1 INPUT CH	ARACTERISTICS	GEN	8-600	10-500	16-310	20-250	30-170	40-125	60-85	80-65	100-50	150-34	200-25	300-17	400-13	500-10	600-8.5
1	/f=0 == (*2)	VAC	3-Phase	, 208V m	odels: 17	′0~265Va	ac, 47~63	3Hz				1					
1. Input voltage	/freq. (*3)	VAC	3-Phase	, 400V m	odels: 34	12~460V	ac, 47~6	3Hz									
2. Maximum	3-Phase, 208V models:		21	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Input current at 100% load	3-Phase, 400V models:	A	10.5	11	11	12	11	11	11	11	11	11	11	11	11	11	11
3. Power Factor	(Typ)		3-Phase	models:	0.94@20	08/380Va	c, rated	output p	ower.								
4. Efficiency (*4)	)	%	83	84	84	86	86	88	88	88	88	88	88	88	88	88	88
5. Inrush Curren	t (*5)	Α		208V m													
2.2 POWER SU	JPPLY CONFIGURATION		15 Thuse	1001111	oucis. Ec	33 (11411 2	.071										
1. Parallel Opera			Up to 4	identical	units in	master/s	lave mo	de									
2. Series Operat	ion		Up to 2	identical	units. w	ith exter	nal diod	es. 600V l	Max to C	hassis qı	round						
	MENTAL CONDITIONS		100														
1. Operating ten			0~50°C.	100% lo	ad.												
2. Storage temp	<u> </u>		0~50°C, 100% load. -20~85°C														
3. Operating hu			20~90% RH (non-condensing).														
4. Storage humi			20~90% RH (non-condensing).  10~95% RH (non-condensing).														
5. Vibration	~···,		MIL-810F, method 514.5, The EUT is fixed to the vibrating surface.														
6. Shock			<del> </del>					inpacked		arrace.							
								ut curren		100m ah	ove 2000	m Alter	natively	derate n	naximum	amhien	t temn
7. Altitude			by 1°C/	100m ab	ove 2000	m. Non	operatin	g: 40000	ft (12000		000 2000	m, Aitei	natively,	derate ii	IIaxiiiiuii	Tamblen	it temp
8. RoHS Complia	ance		Complie	es with th	ne requir	ements o	of RoHS	directive.									
2.4 EMC																	
1. Applicable Sta	andards:																
2.ESD			IEC1000	-4-2. Air-	disch8	KV, conta	act disch	ı4KV									
3. Fast transients	5		IEC1000	-4-4. 2K\	/												
4.Surge immuni	ity		IEC1000	-4-5. 1K\	/ line to l	ine, 2KV	line to g	round									
5.Conducted im	ımunity		IEC1000-4-6, 3V														
6.Radiated imm	unity		IEC1000-4-3, 3V/m														
7.Magnetic field	limmunity		EN61000-4-8, 1A/m														
8.Voltage dips	•		EN61000-4-11														
9.Conducted en	nission		EN55022A, FCC part 15-A, VCCI-A.														
10. Radiated em	ission		EN55022A, FCC part 15-A, VCCI-A.														
2.5 SAFETY																	
1. Applicable sta	indards:		UL 6095	0-1. CSA	22.2 No.	60950-1	JEC 609	50-1, EN 6	50950-1								
			Models		t 50V: Ou	tput is SE	LV, all co	mmunic		ntrolinte	erfaces (R	S232/48	5, IEEE, Iso	olated Ar	nalog, LA	N, Sense,	Remot
2.Interface class	sification		Remote	with 60\ Program re Hazaro	ning and	00V: Out Monitor	put is Ha	azardous 5 1-3, pins	, commı 14-16) ar	unication e SELV, S	n/control ense, Re	interfac mote Pro	es: RS232 ogrammi	2/485, IE ng and M	EE, Isolat Ionitorin	ed Analog (pins 8	og, LAN -13, pin
								azardous, ring) are			on/contr	ol interfa	aces (RS2	32/485,1	EEE, Isola	ted Anal	og, LAN
			Vout 5 Input-G	0V mod round: 2	els : In 828VDC	put-Out 1min,	tput (SI	ELV): 42	42VDC	1min, lı	nput-co	mmunio	ation/c	ontrol (	(SELV):	4242VD	C 1mir
3.Withstand vol	tage		4242VD	ut 100V r C 1min, 0 round: 2	Output(H	lazardou	tput (Ha s)-SELV:	izardous) 1900VDC	: 2600VE : 1min, O	OC 1min, utput(H	Input-co azardous	mmunic )-Groun	ation/co d: 1200VI	ntrol (SEI DC 1min,	LV):		
			4242VD	C 1min, F	Hazardou	ıs. Öutpı	ıt-comm	lazardou: nunication nin, Input-	n/contro	I(SELV): 4	1242VDC		cation/co	ontrol (SI	ELV):		
3.Insulation resi	stance		More th	an 100M	ohm at 2	25°C, 709	% RH.										
2.6 MECHANIC	CAL CONSTRUCTION																
1. Cooling			Forced a	air flow: f	rom fror	nt to rear	. No ven	tilation h	oles at th	ne top or	bottom	of the ch	nassis; Va	riable fai	n speed.		
2. Dimensions (\	WxHxD)		W: 423n	nm, H: 88	mm, D: 4	142.5mm	(exclud	ing conn	ectors, e	ncoders	, handles	, etc.)					
3. Weight			13 kg.														
4. AC Input conr	nector (with Protective Cov	er)						on PC 6-									
5.Output conne	ctors		-					nm). 150\						noeniy D	/N·FR∩N	T-4-H-7	52
2.7 RELIABILIT			124 10 10	o v mode	Dus L	(11010		,. 1501		. models	C.Id	p com		.JCIIIA I /			
1. Warranty		-	5 years.														
			Ju yeurs.														

1. Warranty 5 years.
All specifications subject to change without notice.



## **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.

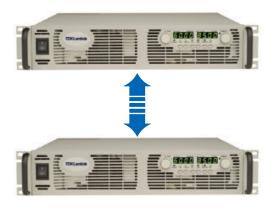


## **Series operation**

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.



P/N: IEEE

## **Programming Options (Factory installed)**

## Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 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

### **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 ±1%
   Power supply Voltage and Current Monitoring Accuracy ±1.5%

## P/N: LAN

P/N: IS510

P/N: IS420

- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Fast Startup

## LAN Interface (Compliant to Class C

- Meets all LXI-C Requirements
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Compatible with most standard Networks
- TCP / UDP Socket Programming

## Power Supply Identification / Accessories How to order

GEN	8 -	600	-	-
			Factory Options:	Factory AC Input Options:
Series	Output	Output	Option: IEEE	3P208 (Three Phase 170~265VAC)
Name	Voltage	Current	IS510	3P400 (Three Phase 342~460VAC)
	(0~8V	(0~600A)	IS420	
80 - 4 - 1 - 5	-1-147		LAN	

#### **Models 5kW**

Model	Output Voltage VDC	Output Current ( A )	Output Power ( W )
GEN 8-600	0~8V	0~600	4800
GEN 10-500	0~10V	0~500	5000
GEN 16-310	0~16V	0~310	4960
GEN 20-250	0~20V	0~250	5000
GEN 30-170	0~30V	0~170	5100
GEN 40-125	0~40V	0~125	5000

Factory option	P/N
RS-232/RS-485 Interface built-in Standard	-
GPIB Interface	IEEE
Voltage Programming Isolated Analog Interface	IS510
Current Programming Isolated Analog Interface	IS420
LAN Interface (Complies with <b>L</b> / Class C)	LAN

Model	Output Voltage VDC	Output Current ( A )	Output Power ( W )
GEN 60-85	0~60V	0~85	5100
GEN 80-65	0~80V	0~65	5200
GEN 100-50	0~100V	0~50	5000
GEN 150-34	0~150V	0~34	5100
GEN 200-25	0~200V	0~25	5000
GEN 300-17	0~300V	0~17	5100
GEN 400-13	0~400V	0~13	5200
GEN 500-10	0~500V	0~10	5000
GEN 600-8.5	0~600V	0~8.5	5100

## 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 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 Shield Ground L=2m 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<sup>™</sup> power supplies.

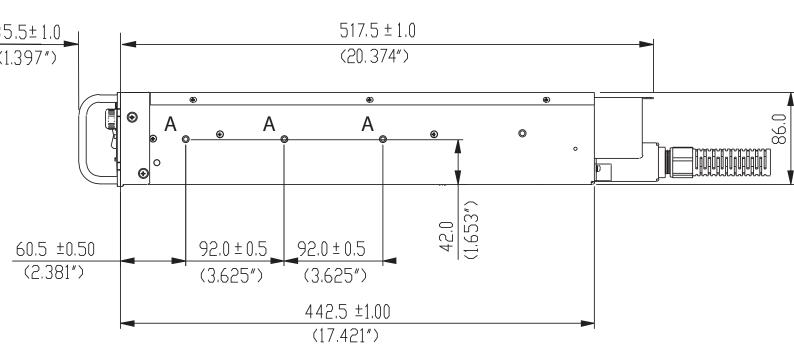
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

<sup>\*</sup> Included with power supply



Also available, Genesys™ 1U Half Rack 750W 1U full Rack 750W/1500W/2400W 2U full Rack 3300W

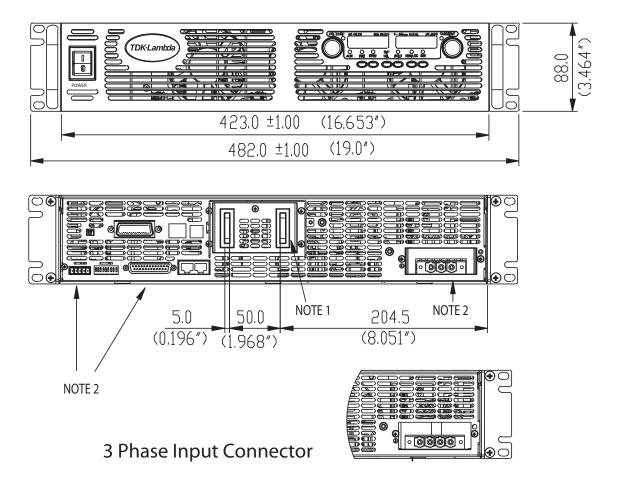




## NOTE

- 1. Bus bars for 8V to 100V models (shown)
  Wire clamp connector for 150V to 600V models
- 2. Plug connectors included with the power supply
- 3. Chassis slides mounting holes #10-32 marked "A" GENERAL DEVICES P/N: C-300-S-116 or equivalent

## Outline Drawing Genesys™ 5kW Units





enesi

New! 800V, 1000V, 1250V and 1500V models - 10kW/15kW - 208VAC/400VAC/480VAC Programmable DC Power Supplies Full-Rack 10kW/15kW in 3U Height Built in RS-232 & RS-485 Interface Parallel Operation (Basic or Advanced)

**Optional Interfaces:** LAN ( [X] compliant w/ Multi-Drop) IEEE (488.2 & SCPI compliant w/ Multi-Drop) USB (2.0 w/ Multi-Drop) Isolated Analog (5V/10V or 4-20mA Pgm/Mon)



Genesys™ Family

GENH-1U 750W Half-Rack

GEN-1U 750W/1.5kW/2.4kW Full-Rack

GEN-2U 3.3kW/5.0kW Full-Rack

GEN-3U 10kW/15kW Full-Rack

TDK·Lambda

www.us.tdk-lambda.com/hp



The Genesys<sup>™</sup> 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 10kW/15kW in full-rack 3U package
- High Output Current (up to 1000ADC)
- Popular worldwide 3Φ AC inputs, (208VAC, 400VAC, 480VAC)
- Power Factor 0.88 (Passive PFC on all 3Φ AC Inputs)
- Output Voltage from 7.5V (1000A) to 1500V (10A)
- Built-in RS-232/RS-485 Serial Interface (standard)
- Last Setting Memory, Safe/Auto-ReStart, Front Panel Lock/Unlock
- "Advanced Parallel" configuration reports total system current (up to four identical units)
- Global Commands for RS-232/RS-485 Serial Interface
- Continuous Encoders for Voltage and Current Adjustment (Coarse & Fine mode)
- Independent Remote SHUTOFF and Remote ENABLE/DISABLE
- 19" Rack Mounted for ATE and OEM Applications, zero-stack capability
- Optional Interfaces

Light compliant LAN (Class C) w/ Multi-Drop capability: option for all models IEEE (488.2 & SCPI compliant) w/ Multi-Drop capability: option for all models USB (2.0) w/ Multi-Drop capability: option for all models Isolated Analog Programming and Monitoring Interface

0-5V/0-10V: option for models with Vout ≤ 600V, standard for models with Vout ≥ 800V 4-20mA: option for all models

- LabView<sup>™</sup> and LabWindows<sup>™</sup> Software Drivers
- Worldwide Safety Agency Approvals; UL Recognized and CE Mark for LV, EMC and RoHS2 Directives (208VAC (all models), 400VAC (all models) and 480VAC models (30V ≤ Vout ≤ 1500V))
- Five Year Warranty



## **Applications**

**Genesys<sup>TM</sup>** power supplies are designed for demanding applications.

**Test & Measurement** systems using GPIB control save significant costs by incorporating the optional IEEE Multi-Drop Interface (IEMD) in the Master unit. This allows up to 30 Slave units to be used with the standard RS-485 Multi-Drop Serial interface.

**Automated System** designers will appreciate new, standard, remote programming features such as Global commands. Also, new high-speed status monitoring is available for the standard RS-485 and optional LAN (LXI compliant) Interface.

**Industrial & Military** high power systems can be configured with up to four identical units in parallel (up to 60kW). No space is required above or below each power supply (zero-stack). The Master unit can be configured by the user to report the total Output current of the combined system. Applications include Heaters, Magnets and Laser Diodes.

**Aerospace & Satellite Testing** systems use the complete Genesys™ Family: <u>1U</u>-750W Half-Rack, <u>1U</u>-750W/ 1.5kW/2.4kW Full-Rack, <u>2U</u>-3.3kW/5kW Full-Rack and <u>3U</u>-10kW/15kW Full-Rack. All are identical in Front Panel, Rear Panel Analog and Digital Interface commands. A wide variety of Outputs (voltage and current) allows testing of many different user configurations.

**Component Device Testing** is simplified because of the many user-friendly control options in the Analog and Digital interfaces. Lamps, capacitors, motors and actuators are typical devices tested.

**Medical Imaging and Treatment** systems require reliable power. Modular construction, SMT and thoroughly proven designs assure continuous performance at full rated power.

**Semiconductor Processing & Burn-in** equipment designers appreciate the wide variety of worldwide AC Inputs and DC Outputs from which to select, depending on application. Selectable Safe-Start and Auto Re-Start protects loads and process integrity. Typical applications include Magnets, Filaments and Heaters.



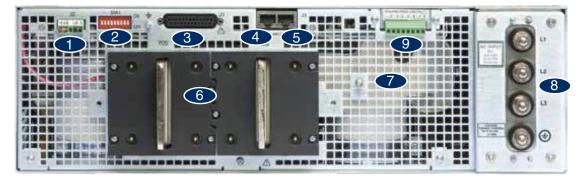
## Front Panel Description (7.5V < Vout < 25V)



- 1. AC ON/OFF Switch (circuit breaker for Vout < 25V; rocker switch for Vout > 30V models)
- 2. Air Intake allows zero-stacking for maximum system flexibility and power density.
- 3. Continuous encoder controls Output Voltage, Address, OVP and UVL settings.
- 4. Voltage Display shows Output Voltage and directly displays OVP, UVL and Address settings.
- 5. Continuous 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
- Fine Control
- Preview Settings

- Foldback Mode
- Remote Mode
- Output On
- 8. Pushbuttons allow flexible user configuration
  - Coarse and Fine adjustment of Output Voltage/Output Current and Advanced Parallel Master or Slave select.
  - Preview Settings and set Voltage/Current with Output OFF, Front Panel Lock/Unlock.
  - Parallel Master/Slave (Basic and Advanced).
  - Set Output OVP and UVL Limits.
  - Set Output Current Foldback Protection.
  - Go to Local Mode and select unit Address and Baud rate.
  - Output ON/OFF and Safe-Start/Auto Re-Start mode.

## Rear Panel Description (7.5V < Vout < 25V)



- 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 Analog Program and Monitor (non-isolated) and other functions.
- 4. RS-485 OUT to other Genesys™ Power Supplies.
- 5. RS-232/RS-485 IN Remote Serial Programming.
- 6. Output Connectors: Rugged 2 hole busbars (shown) for models where Vout < 30V, single hole busbars for 30V ≤ Vout ≤ 300V Output, and threaded-stud terminals for models where Vout > 300V.
- 7. Exit air assures reliable operation when zero-stacked.
- 8. Input Terminals L1, L2, L3, and Ground (threaded studs).
- 9. Optional location for LAN (LXI Class C), IEEE (488.2 & SCPI compliant), USB (2.0) or Isolated Analog Interface.



Genesys™ 3U 10kW Specifications

10 MODE!	OFN	T== 4000	40 4000	40 5 000	00 500	05.400	00.000	40.050	E0 000	00.407	00.405	400 400	405.00	10k\
1.0 MODEL	GEN		10-1000			25-400	30-333	40-250	50-200		80-125	100-100	125-80	X
1.Rated Output Voltage	VDC ADC	7.5 1000	1000	12.5 800	20 500	25 400	333	40 250	200	60 167	80 125	100	125 80	X
2.Rated Output Current 3.Rated Output Power	kW	7.5	1000	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	+ x
4.Efficiency (min) at low AC line, 100% Rated Load	% %	7.5	10.0	10.0	10.0	10.0	10.0	83	10.0	10.0	10.0	10.0	10.0	<del>  ^</del>
4. Elliciency (min) at low AC line, 100 % Hated Load	+ /0	1 //			С	ontact Fac	ctory for c		els					<del>  ^</del> x
1.1 CONSTANT VOLTAGE MODE (CV)						ornaot r a	otory for c	tiloi illou	0.0					1 ^
1. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤		T 7.5												T
600V; 0.05% - 600V < Vor ≤ 1500V)	mV	7.5	10	12.5	20	25	30	20	25	30	40	50	62.5	X
2. Max. Load Reg (0.1% for Vor ≤ 30V; 0.05% for 30V < Vor	mV	7.5	10	10.5	20	25	20		25	20	40		60 F	X
≤ 600V; 0.1% for 600V < Vor ≤ 1500V); (*5)	mv	7.5	10	12.5	20	25	30	20	25	30	40	50	62.5	<u> </u>
3. Output Ripple, rms (5Hz~1MHz), CV mode; (*1)	mV	20	20	20	20	20	20	20	20	20	25	25	25	X
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	60	60	60	60	60	60	60	75	75	100	100	125	X
5.Remote Sense Compensation / Wire	V	1	1	1	1	1	1.5	2	3	3	4	5	5	X
6. Temperature Stability			6 of Vo(rat			ter 30 mir	ute warm	up (cons	tant Line	, Load &	Temperati	ure)		<u> </u>
7. Temperature Coefficient	ppm / °C	± 200 (±	± 0.02% o	f Vo(rated	I)) / °C									×
8. Up-Prog. Response Time, 0 ~ Vomax, full-load	ms	—						100						X
9. Up-Prog. Response Time, 0~Vomax, no-load	ms	—						50						X
10. Transient Response Time (CV mode); (*2), (*4)	ms						Les	s than 3						X
1.2 CONSTANT CURRENT MODE (CC)														
1. Max. Line Reg. (0.1% - Ior ≥ 333A; 0.050% - 17A < Ior < 333A; 0.15% - Ior < 17A)	mA	1000	1000	800	500	400	333	125	100	83.5	62.5	50	40	X
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 17A ≤ Ior <	<b>T</b>	1000	1000		500	400		400	450	405				١.
333A; 0.2% - lor < 17A); (*3), (*5)	mA	1000	1000	800	500	400	333	188	150	125	94	75	60	X
3. Output Ripple, rms (5Hz~1MHz), CC mode	mA	5300	4000	2560	1000	640	444	250	160	67	50	40	32	X
4. Temperature Stability		± 0.05%	6 of Io(rate	ed) over 8	hours, af	ter 30 mir	ute warm	up (cons	stant Line	, Load &	Temperati	ure)		X
5. Temperature Coefficient	ppm/°C	± 300 (:	± 0.03% o	f lo(rated)	)) / °C									X
1.3 PROTECTIVE FUNCTIONS														
1. OCP	%	0 ~ 100												X
2. OCP type			nt current											T X
3. Foldback Protection (FOLD)			shutdown	; Manual r	reset by fr	ont panel	OUT but	on or Dia	ital comn	nunication	n, user-sel	lectable		X
4. Foldback Response Time	s	<del></del>	an 1 (Min											X
5. OVP type		+									g or Digita	al commuin	cation	X
6. OVP Programming Accuracy	%	<del></del>	Vo(rated)								_ 5			X
7. OVP Trip Point	V	5% to 1	05% of Vo	(rated) fo							1500V			T <sub>x</sub>
7. Ovi Tilp i Olik			ways be g						of Vo(ra	ted)				_′
8. OVP Response Time	ms		an 10 (for an 2.0 (for						V					×
9. Max. OVP Reset Time	S	7 (from	AC On/Of	ff switch tu	ırn On)									T X
10. Over-Temperature Protection (OTP)		Shut do	wn if inter	nal tempe	erature ex	ceeds saf	e operatir	ng levels	(Latched:	Safe / Ur	nlatched: /	Auto)		X
11. Phase-Loss Protection		Yes, por	wer supply	y shutdow	n (Latche	d: Safe-S	tart / Unla	atched: Au	uto-Resta	rt)				X
1.4 REMOTE ANALOG CONTROLS & SIGNALS														
Vout Voltage Programming	0~100%.	0 ~ 5V or	0 ~ 10V, I	user-selec	table., Ac	curacy &	Linearity:	±1% of V	o(rated)					X
2. lout Voltage Programming		0 ~ 5V or												X
3. Vout Resistor Programming	<del></del>	0 ~ 5/10kg							<u> </u>	ated)				İχ
Iout Resistor Programming	0~100%,	0 ~ 5/10kg	ohm full-s	cale, user	r-selectab	le, Accura	cy & Line	arity: ± 1°	% of lo(ra	ited)				X
5. Shut-Off (SO) Control (rear panel)	By Voltaç	je: 0.6V =	DIS, 2-15	V = ENA	(default) o	r by Dry (	Contact: C	Dpen = El	NA, Shor	t = DIS (u	ser-select	table logic)		X
6. Output Current Monitor	0 ~ 5V or	r 0 ~ 10V, A	Accuracy:	± 1% of le	o(rated), ı	user-selec	table							X
7. Output Voltage Monitor	0 ~ 5V or	r 0 ~ 10V, A	Accuracy:	± 1% of V	/o(rated),	user-sele	ctable							X
8. Power Supply OK (PS_OK) Signal	Yes. TTL	High = Ok	<, 0V = Fa	il (500ohr	m series i	mpedance	e)							X
9. CV/CC Signal	CV: TTL	High (4 ~ §	5V), Max	source cu	rrent = 10	mA; CC:	TTL Low	(0 ~ 0.4V)	, Max sir	k current	= 10mA			X
10. Enable/Disable	<del></del>	act; Open :								acts = 6V				X
11. Remote/Local Selection		Remote or												X
12. Remote/Local Signal	Signals o	perating r	node; Ope	en collecto	or: Local =	Open (N	lax voltag	e = 30V),	Remote	= On (Ma	ax sink cu	rrent = 10m	A)	X
1.5 FRONT PANEL	· · · · · · · · · · · · · · · · · · ·				· <u></u>	· <u></u>								
1.Control Functions	Vout/ lou	t manual a	adjust by s	separate e	encoders	COARSE	and FIN	E adjustm	nent selec	ctable)				X
		L manual a				•		-		,				X
		selection b												Х
		OFF, Outpu	•	-					CV to CC	, Go-to-L	ocal			X
		RS-485, LA							,					X
		e selection		. ,						URRENT	Γ Adjust e	ncoder)		X
	1	d Parallel I									-	,		X
2.Display		4 digits, Ad												X
. ,	_	4 digits, Ad	-		. ,									X
	1	E meter di	-		. ,		sense) or	at load (I	Remote s	ense)				X
3.Indications		ED's: PRE												$\top$
		: ALARM (												X
1.6 DIGITAL PROGRAMMING & READBACK														
Vout Programming Accuracy	± 0.5% o	of Vo(rated)	,											T X
2. lout Programming Accuracy		of lo(rated)		with In < 1	87.5A· + (	).7% of In	(rated) fo	r lo >187	5A					<del>  x</del>
3. Vout Programming Resolution		Vo(rated)	.o. unito V	10 < 1	J.J⊓, ± (	,,, ,o oi io	(raica) 10	. 10 = 107.						<del>  x</del>
4. lout Programming Resolution	0.02% of													$\pm$
-1. IOUL 1 TOGICATIONING FICOGUAGUI			al) + 0 2%	of Vo(rate	ed))									+
5 Vout Readback Accuracy	+ (0 10/				ouii									$\overline{}$
5. Vout Readback Accuracy	± (0.1% c													
6. lout Readback Accuracy	± (0.1% c	of lo(actua	al) + 0.4%											-
6. lout Readback Accuracy 7. Vout Readback Resolution	± (0.1% of	of Io(actua Vo(rated)	al) + 0.4%											X
6. lout Readback Accuracy 7. Vout Readback Resolution 8. lout Readback Resolution	± (0.1% of 0.02% of 0.02% of	of Io(actua Vo(rated) Io(rated)	al) + 0.4%	of lo(rate	d))	Limitors	l eupply le	ahihit tura	ing On)					X
6. lout Readback Accuracy 7. Vout Readback Resolution	± (0.1% of 0.02% of 0.02% of 20ms ma	of Io(actua Vo(rated)	al) + 0.4% etween Vo	of lo(rate	d)) ding IEEE					tv.				<b>&gt;</b>



10kW

<sup>\*1</sup> Ripple and Noise at Vo(rated) and rated Load, Ta = +25C and nominal AC Input per EIJ R900A.

\*2. Time for the Output voltage to recover within 2% of rating for a load current change of 50~100% or 100-50% of lo(rated).

\*3 .From 20% - 100% for models with lor < 17A.

\*4 Operating with a load that continuously pulses the current (or voltage) can reduce the operating life of the Power Supply. Please contact TDK-Lambda Sales/Technical Support to discuss the

application in detail.
\*5. CV Mode: from 5% to 100% of Irated (over 5% to 100% of Prated); CC Mode: from 20% to 100% of Vrated (over 20% to 100% of Prated).

Genesvs™ 3U 10kW Specifications

1.0 MODEL	GEN	150-66	200-50	250-40	300-33	400-25	500-20	600-17	800-12.5	1000-10	1250-8	1500-6.7	
1.Rated Output Voltage	VDC	150	200	250	300	400	500	600	800	1000	1250	1500	
2.Rated Output Current	ADC	66	50	40	33	25	20	17	12.5	10	8.0	6.7	
3.Rated Output Power	kW	9.9	10.0	10.0	9.9	10.0	10.0	10.2	10.0	10.0	10.0	10.0	
f.Efficiency (min) at low AC line, 100% Rated Load	%				83						3.5		
I.1 CONSTANT VOLTAGE MODE (CV)					Con	act Factor	y for othe	r models					
I. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤													一
600V; 0.05% - 600V < Vor ≤ 1500V)	mV	75	100	125	150	200	250	300	400	500	625	750	L
2. Max. Load Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.1% - 600V < Vor ≤ 1500V); (*5)	mV	75	100	125	150	200	250	300	800	1000	1250	1500	
3. Output Ripple, rms (5Hz~1MHz), CV mode; (*1)	mV	25	35	35	60	60	60	60	80	100	120	140	Т
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	150	175	200	200	300	350	350	700	800	1000	1400	
5.Remote Sense Compensation / Wire	V	5	5	5	5	5	5	5	5	5	5	5	
6. Temperature Stability						ıfter 30 miı	nute warn	n up (cons	stant Line,	Load & Te	mperature	)	
7. Temperature Coefficient	ppm / °C	± 200 (	0.02% of	Vo(rated)									$\vdash$
3. Up-Prog. Response Time, 0~Vomax, full-load	ms				100					1			╄
9. Up-Prog. Response Time, 0~Vomax, no load	ms				50					1			╄
10. Transient Response Time (CV mode); (*2), (*4)	ms				ess than	3				Less t	han 1		L
1.2 CONSTANT CURRENT MODE (CC)													
l. Max. Line Reg. (0.1% - Ior ≥ 333A; 0.050% - 17A < Ior < 333A; 0.15% - Ior < 17A)	mA	33	25	20	17	13	10	9	19	15	12	10	
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 17A ≤ Ior < 333A; 0.2% - Ior < 17A); (*3), (*5)	mA	50	38	30	25	19	15	13	25	20	15	14	Г
B. Output Ripple, rms (5Hz~1MHz), CC mode	mA	26	20	16	13	10	8	7	15	10	6	4	t
4. Temperature Stability											mperature)		H
5. Temperature Coefficient	ppm / °C	-		lo(rated))				- , , , , , , , , , , ,			,		t
· · · · · · · · · · · · · · · · · · ·	, , , , , ,	_ = 500 (		. (. 2.00/)	<del></del>			-					_
I.3 PROTECTIVE FUNCTIONS  I. OCP	0/	0 400			-		-				-		_
1. OCP 2. OCP type	%	0 ~ 100				-	-						$\vdash$
2. OCP type 3. Foldback Protection (FOLD)			nt current		rocot hir	front none	I OUT bu	tton or Di	nital como	nunication	user-selec	table	$\vdash$
4. Foldback Response Time	s	<del></del>				/ Default =					user-seleC	ICLUIC .	$\vdash$
5. OVP type	s										or Digital c	omm	$\vdash$
5. OVP type 6. OVP Programming Accuracy	%		f Vo(rated		u iesei D	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	песуые	, JOT BUI	ion, nemo	ne Analog	or Digital C	OIIIII.	$\vdash$
· · · · · · · · · · · · · · · · · · ·	i e				for Vor -	600\/· 10%	6 to 105%	of Vo(ret	ed) - 600\	/ < Vor ≤ 15	5001/		$\vdash$
7. OVP Trip Point	V	Shall al	ways be	greater tha	an 105%	of Vo(setti	ng); Defa	ult = 105%					$\perp$
3. OVP response time	ms					drop) for ' drop) for			)V				
9. Max. OVP reset time	s	7 (from	AC On/C	off switch t	urn On)								Г
10. Over-Temperature Protection (OTP)		Shut do	own if inte	rnal temp	erature e	xceeds sa	fe operati	ng levels.	(Latched:	Safe / Unla	atched: Aut	to)	$oxed{oxed}$
11. Phase-Loss Protection		Yes, po	wer supp	ly shutdov	vn (Latch	ed: Safe-S	Start / Unl	atched: A	uto-Restar	rt)			<u> </u>
1.4 REMOTE ANALOG CONTROLS & SIGNALS													
1. Vout Voltage Programming	0~100%,	0 ~ 5V or	0 ~ 10V,	user-sele	ctable, Ad	curacy &	Linearity:	± 1% of \	o(rated)				П
2. lout Voltage Programming						curacy &							⇈
3. Vout resistor programming						e. Accurac				ed)			⇈
4. Iout Resistor Programming	0~100%,	0~5/10ko	hm full-so	cale, user-	selectabl	e. Accurac	y & Linea	arity ± 1%	of lo(rate	d)			Т
5. Shut-Off (SO) Control (rear panel)	By Voltag	e: 0.6V =	DIS, 2-15	5V = ENA	(default)	or Dry Co	ntact : Op	en = ENA	, Short =	DIS (user-s	selectable l	logic)	
6. Output Current Monitor						user-sele							oxdot
7. Output Voltage Monitor						, user-sele							┖
B. Power Supply OK (PS_OK) Signal	Yes. TTL	high = Oh	C, OV = Fa	ail (500oh	m series	impedanc	e)						上
9. CV/CC Signal										k current =	10mA		$\perp$
10. Enable/Disable						m voltage				acts = 6V			$\vdash$
11. Remote/Local Selection						0 ~ 0.6V =				0 ":	· .		$\vdash$
12. Remote/Local Signal	Signals o	perating r	mode; Op	en collect	or: Local	= Open (N	nax voltaç	ge = 30V)	, Hemote :	= On (Max	sink currer	nt = 10mA)	_
I.5 FRONT PANEL	\/at/!	h mac == '	adir-+ '			(00450		F 5-20: 1	ant - '	toble\			_
1.Control Functions						(COARSI ncoder, Fr				iabie)			$\vdash$
			, ,		•	of Addres		LOUN/UIII	JON				$\vdash$
			, ,	•				Control (	CV to CC)	Go-to-Loc	al		$\vdash$
					•	selection b				, 30 10-200	, m		$\vdash$
			,	'			, ,			URRENT 4	Adjust enco	oder)	$\vdash$
											ave unit(s)	,	$\vdash$
2.Display						) ±1 count			,/,		(3)		$\vdash$
. ,		-		± 0.5% of	•	•							$\vdash$
			,		` ,	ply (Local	sense) o	r at load (	Remote se	ense)			$\vdash$
3.Indications	Green LE	D's: PRE	VIEW, FO	DLD, REN	1/LOCAL	OUT ON	OFF, CV			,			T
I.6 DIGITAL PROGRAMMING & READBACK	Hed LED	: ALARM	(OVP, OT	r, FOLD,	AU FAIL,	ENA, SO	1						
. Vout Programming Accuracy	± 0.5% o	f Vo(rated	)										Т
2. lout Programming Accuracy				with lo <	187.5A: +	0.7% of Id	(rated) fo	r lo ≥187.	5A				T
3. Vout Programming Resolution	0.02% of				,-	, , , , , ,	,				-		$\vdash$
4. lout Programming Resolution	0.02 % of												$\vdash$
5. Vout Readback Accuracy			al) + 0.29	6 of Vo(ra	ted))								$\vdash$
6. lout Readback Accuracy	_ `			6 of Vo(ra									┝
·	<del></del>	0.02% of Vo(rated) X											
7. Vout Readback Resolution	0.02% of lo(rated) X												
		lo(rated)											L
7. Vout Readback Resolution 8. lout Readback Resolution 9. OV Response Time	0.02% of		etween V	out excee	ding IEEI	E Limit and	d supply I	nhibit turr	ning On)				$\vdash$



<sup>\*1.</sup> Ripple and Noise at Vo(rated) and rated Load, Ta = +25C and nominal AC input, per EIJ R9002A
\*2. Time for the Output voltage to recover within 2% of rating for a load current change of 50~100% or 100~50% of lo(rated).
\*3. From 20% - 100% for models with lor < 17A.
\*4 Operating with a load that continuously pulses the current (or voltage) can reduce the operating life of the Power Supply. Please contact TDK-Lambda Sales/Technical Support to discuss the application in detail.
\*5. CV Mode: from 5% to 100% of Irated (over 5% to 100% of Prated); CC Mode: from 20% to 100% of Vrated (over 20% to 100% of Prated).
All specifications subject to change without notice.

## Genesys<sup>™</sup> 3U 15kW Specifications

1.0 MODEL	GEN	N/A	N/A	N/A	N/A	N/A	30-500	40-375	50-300	60-250	80-187.5	100-150	125-120	Τ
1.Rated Output Voltage	VDC						30	40	50	60	80	100	125	Ť
2.Rated Output Current	ADC						500	375	300	250	187.5	150	120	╈
B.Rated Output Power	kW						15.0	15.0	15.0	15.0	15.0	15.0	15.0	Ť
4.Efficiency (min) at low AC line, 100% Rated Load	%							10.0		88	10.0	10.0	10.0	十
F. Emiciency (min) at low AC line, 100 % Hated Load	/6						actory for o	ther mod	lels	- 00				+
I.1 CONSTANT VOLTAGE MODE (CV)						ornaot r	201019 101 0							_
I. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤	mV						30	20	25	30	40	50	62.5	Τ
600V; 0.05% - 600V < Vor ≤ 1500V)	1117							20			40		02.5	ļ
2. Max. Load Reg (0.1% - Vor $\leq$ 30V; 0.05% - 30V < Vor $\leq$	mV						30	20	25	30	40	50	62.5	1
600V; 0.1% - 600V < Vor ≤ 1500V); (*5)	!													1
3. Output Ripple, rms (5Hz~1MHz), CV mode; (*1)	mV						20	20	20	20	25	25	25	4
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV						60	60	75	75	100	100	125	4
5.Remote Sense Compensation / Wire	V						1.5	2	3	3	4	5	5	4
6. Temperature Stability						ter 30 m	inute warm	up (cons	stant Line	, Load &	Temperatu	ire)		1
7. Temperature Coefficient	ppm / °C	± 200 (:	± 0.02% c	of Vo(rated	)) / °C									4
B. Up-Prog. Response Time, 0 ~ Vomax, full-load	ms							00						4
9. Up-Prog. Response Time, 0~Vomax, no load	ms							50						ļ
0. Transient Response Time (CV mode); (*2), (*4)	ms						Less	s than 3						⅃
.2 CONSTANT CURRENT MODE (CC)														
. Max. Line Reg. (0.1% - lor ≥ 333A; 0.050% - lor < 333A)	mA						500	375	334	125	94	75	60	Т
2. Max. Load Reg (0.1% - lor ≥ 333A; 0.075% - 25A ≤ lor <	ĺ													+
133A; 0.2% - lor < 25A); (*3), (*5)	mA						500	375	334	188	141	113	90	1
B. Ripple, rms (5Hz~1MHz), CC mode	mA						350	200	150	100	100	100	50	+
I. Temperature Stability							nute warm						- 30	+
i. Temperature Stability ii. Temperature Coefficient	-					or 30 IIII	iule Wd[[]]	up (CONS	tant LINE	LUAU &	remperatul	<i>U)</i>		+
	ppm/°C	± 300 (:	± U.U3% (	of lo(rated)	)/ · C									_
.3 PROTECTIVE FUNCTIONS														_
. OCP	%	0 ~ 100												I
2. OCP type		Constar	nt current											7
B. Foldback Protection (FOLD)		Output	shutdown	; Manual r	eset by fr	ont pane	I OUT butte	on or Dig	ital comr	nunicatio	n, user-sele	ectable		1
I. Foldback Response Time	s	Less tha	an 1 (Min	= 0.25 / N	Max = 25 /	Default	= 0.25); Se	ttable via	"FBD" c	ommand				1
i. OVP type							Off recycle,				og or Digita	l communi	cation	1
S. OVP Programming Accuracy	%	_	Vo(rated				,				3 - 3			t
, , , , , , , , , , , , , , , , , , ,	i				- for Vor	< 600V:	10% to 105	5% of Vo	rated) - 6	00V < V0	or < 1500V			t
7. OVP Trip Point	V 5% to to 105% of Vo(rated) - for Vor ≤ 600V; 10% to 105% of Vo(rated) - 600V < Vor ≤ 1500V Shall always be greater than 105% of Vo(setting); Default = 105% of Vo(rated)													
OVB Bosponos Timo	Loss than 10 /for Output to hagin to drop) for /for < 600V													
3. OVP Response Time	ms Less than 2.0 (for Output to begin to drop) for 600V < Vor ≤ 1500V													
9. Max. OVP Reset Time	s 7 (from AC On/Off switch turn On)													
10. Over-temperature Protection (OTP)		Shut do	wn if inte	rnal tempe	erature ex	ceeds sa	afe operatin	ng levels	(Latched:	Safe / U	nlatched: A	uto)		Ť
11. Phase-Loss Protection							Start / Unla							1
1.4 REMOTE ANALOG CONTROLS & SIGNALS	•			-										_
	I o 1000/	O 51/0*	0 101/		toble As	011500110	Lincoritus	. 10/ of \	/o/rotod\					т
1. Vout Voltage Programming							Linearity:							+
2. lout Voltage Programming							Linearity: ±							+
3. Vout Resistor Programming							acy & Line							4
4. lout Resistor Programming							acy & Line							4
5. Shut-Off (SO) Control (rear panel)	<del></del>						ntact: Ope	n = ENA	, Short =	DIS (use	r-selectable	e logic)		4
S. Output Current Monitor	0 ~ 5V or													⇃
COutput Voltage Monitor	0 ~ 5V or	0 ~ 10V, A	Accuracy:	± 1% of V	o(rated),	user-sele	ectable							
B. Power Supply OK (PS_OK) Signal	Yes. TTL	High = Oh	K, $OV = Fa$	ail (500ohr	n series i	mpedan	ce)							T
D. CV/CC Signal	CV: TTL I	ligh (4 ~ !	5V), Max	source cu	rrent = 10	mA; CC	TTL Low (	0 ~ 0.4V	), Max sir	nk current	t = 10mA			J
0. Enable/Disable	Dry conta	ct; Open	= OFF, SI	nort = ON;	Maximur	n voltage	across En	nable/Dis	able cont	acts = 6V	/			1
11. Remote/Local Selection	<del></del>						= Local / 2							1
12. Remote/Local Signal							Max voltage			= On (Ma	ax sink cur	rent = 10m	A)	1
	5		, - p			- 1 (	9			\-				_
.5 FRONT PANEL	1 ,, .,,					00:55		- 1: :	<del></del>					_
Control Functions						•	E and FINE			ctable)				1
	1						ront Panel		OCK					ļ
	1		,	,			lresses = 3							ļ
						, .	Foldback (			), Go-to-L	ocal			Į
				. ,			by rear pan							Į
	Baud rate	selection	n (RS-232	/RS-485 c	only): 1200	), 2400,	4800, 9600	and 19,	200 (by C	Current Ad	djust encod	ler)		ſ
	Advanced	Parallel	Master/SI	ave: Hx =	Master ur	nit, where	e x = # of S	lave unit	s (0 to 4)	; S = Slav	e unit(s)			I
2.Display				0.5% of \										1
. ,		0 ,	,	0.5% of \	` ,									t
	1		,		' '		sense) or	at load (	Remote s	ense)				Ì
B.Indications							N/OFF, CV/			/				†
-				P, FOLD, /				_ O, 1 11VL	_					
C DICITAL DEOCEDAMAINO O DEADRACIO			<u>, , - · · </u>	,,,	,	,	·							_
.6 DIGITAL PROGRAMMING & READBACK	1 . 0.50/	N-(- · ·												_
. Vout Programming Accuracy	± 0.5% of				075:	701	1							4
2. lout Programming Accuracy	<del> </del>		tor units	with lo < 1	87.5A; ± (	)./% of I	o(rated) for	10 ≥187.	5A					1
. Vout Programming Resolution	0.02% of													ļ
1. lout Programming Resolution	0.04% of													╝
5. Vout Readback Accuracy	± (0.1% c	f Vo(actua	al) + 0.2%	of Vo(rate	ed))									J
6. lout Readback Accuracy	± (0.1% c	f lo(actua	l) + 0.4%	of lo(rate	d))									Î
7. Vout Readback Resolution	0.02% of	Vo(rated)												1
3. lout Readback Resolution	0.02% of													†
			,		ii IEEE		al according law	la Ha Ha A	ina Onl					+
9. OV Response Time	20ms ma	ximum (bo	etween vo	out exceed	ing ieee	Limit an	a supply in	ınıbit türr	iirig Off)					- 1



<sup>\*1.</sup> Ripple and Noise at Vo(rated) and rated Load, Ta = 25C and nominal AC input, per EIJ R9002A.

\*2. Time for the Output voltage to recover within 2% of rating for a load current change of 50~100% or 100-50% of rated Output.

\*3. From 20% - 100% for models with lor < 25A.

\*4. Operating with a load that continuously pulses the current (or voltage) can reduce the operating life of the Power Supply. Please contact TDK-Lambda Sales/Technical Support to discuss the application in detail.

\*5. CV Mode: from 5% to 100% of Irated (over 5% to 100% of Prated); CC Mode: from 20% to 100% of Vrated (over 20% to 100% of Prated).

All specifications subject to change without notice.

Genesys™ 3U 15kW Specifications

VDC

ADC

kW

150

100

15.0

200

75

15.0

250

60

15.0

300

50

15.0

88

1.Rated Output Voltage

2.Rated Output Current

3.Rated Output Power

4.Efficiency (min) at low AC line, 100% Rated Load

4. Elliciency (Illin) at low AC line, 100 % Hated Load	/0				- 00						33.3		+-:
1.1 CONSTANT VOLTAGE MODE (CV)					Cont	act Factor	y for othe	r models					)
1. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.05% - 600V < Vor ≤ 1500V)	mV	75	100	125	150	200	250	300	400	500	625	750	,
2. Max. Load Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤	mV	75	100	125	150	200	250	300	800	1000	1250	1500	,
600V; 0.1% - 600V < Vor ≤ 1500V); (*5) 3. Output Ripple, rms (5Hz~1MHz), CV mode; (*1)	mV	25	35	35	60	60	60	60	80	100	120	140	+ ;
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	150	175	200	200	300	350	350	700	800	1000	1400	1 7
5.Remote Sense Compensation / Wire	V	5	5	5	5	5	5	5	5	5	5	5	
•													_
6. Temperature Stability			<u> </u>			mer 30 m	inute wari	n up, con	stant Line	e, Load & I	emperature		
7. Temperature Coefficient	ppm / °C	200 (0.	02% of Vo	(rated)) /	<u>°C</u>								
8. Up-Prog. Response Time, 0~Vomax, full-load	ms				100					1	17		
9. Up-Prog. Response Time, 0~Vomax, no load	ms				50					1	17		
10. Transient Response Time (CV mode); (*2), (*4)	ms	İ		L	ess than	3				Less	than 1		
1.2 CONSTANT CURRENT MODE (CC)													
1. Max. Line Reg (0.1% - lor ≥ 333A; 0.050% - lor < 333A)	mA	50	38	30	25	19	15	13	28	23	18	15	T
	IIIA	30				10	- 13	-10					-
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 25A ≤ Ior < 333A; 0.2% - Ior < 25A); (*3), (*5)	mA	75	57	45	38	28	23	19	38	30	24	20	
3. Output Ripple, rms (5Hz~1MHz), CC mode	mA	50	20	20	20	10	10	10	15	10	6	4	
4. Temperature Stability		± 0.059	% of lo(rate	ed) over 8	3 hours af	ter 30 mir	nute warm	up (cons	tant Line.	Load & Te	emperature)		
5. Temperature Coefficient	ppm / °C		± 0.03% c					-1- (			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
· ·	ррии / С	T = 300 (	± 0.00 /6 C	or io(ratec	1)) / 0					-			
1.3 PROTECTIVE FUNCTIONS													
1. OCP	%	0 ~ 100	)										
2. OCP type		Consta	nt current										
3. Foldback Protection					reset by	front nane	el OUT bu	tton or DI	gital com	munication	, user-select	able	
4. Foldback Response Time			an 1 (Min								, 200. 00100		$\dagger$
	S										D: 11 1		-
5. OVP type		-			a reset by	On/Off re	ecycle, Ol	ıı button,	Hemote /	Analog or I	Digital comn	nunication	<u> </u>
6. OVP Programming Accuracy	%	± 5% o	f Vo(rated)	)									
7 OVD Trip Point	17	5% to	to 105% o	f Vo(rated	d) - for Vor	≤ 600V:	10% to 10	5% of Vo	rated) - 6	00V < Vor	≤ 1500V		
7. OVP Trip Point	V	Shall a	lways be g	reater th	an 105% (	of Vo(setti	ng); Defai	ult = 105%					
8. OVP response time	ms		nan 10 (for nan 2.0 (fo						V				
9. Max. OVP reset time	s		AC On/O										t
10. Over temperature Protection						reade es	fe operati	na levole	(Latchod:	Safe / Lini	atched: Auto	<u>,)</u>	_
											atorica. Auto	7	2
11. Phase Loss Protection		res, po	wer suppl	y snutaov	vn (Latche	eu: Sare-S	otart / Uni	atched: Al	uio-Hesta	111)			
1.4 REMOTE ANALOG CONTROLS & SIGNALS													
Vout Voltage Programming	0~100%.	0 ~ 5V oi	r 0 ~ 10V,	user-sele	ctable, Ac	curacy &	Linearity:	± 1% of \	o(rated)				
2. lout Voltage Programming	0 ~ 100%	. 0~5V oi	r 0 ~ 10V,	user-sele	ctable. Ac	curacy &	Linearity :	1% of Ic	(rated)				
3. Vout resistor programming			hm full-sc							ed)			1
Vour resistor programming     Iout Resistor Programming			ohm full-sc								-		1
· · ·											lectable log	:-\	
5. Shut-Off (SO) Control (rear panel)								en = EINA	, Snort-D	is (user-se	electable log	<u>C)</u>	_
6. Output Current Monitor			Accuracy:										
7. Output Voltage Monitor	-		Accuracy:										
8. Power Supply OK (PS_OK) Signal	Yes. TTL	High = O	K, $0V = Fa$	ail (500oh	m series	impedanc	:e)						
9. CV/CC Signal	CV: TTL I	High (4 ~	5V), Max	source ci	urrent = 10	mA; CC:	TTL Low	(0 ~ 0.4V	), Max sin	nk current =	= 10mA		
10. Enable/Disable	Dry conta	ct; Open	= OFF, Sh	nort = ON	l; Max. vol	tage acro	ss Enable	/Disable	contacts =	= 6V			
11. Remote/Local Selection	<del></del>		Local ope										
12. Remote/Local Signal										= On (May	sink curren	t = 10mΔ\	
	Ungrials 0	porauriy	oue, Opt	on someth	or. Local	- Open (II	ux volidi	,5 – 50 v)	, , , , , , , , , , , , , , , , , , , ,	- On (Ivid)	. Jii ii Guileli	. – 10111A)	
1.5 FRONT PANEL													
1.Control Functions	1		adjust by s			*		,		ctable)			
	OVP/UVL	. manual	adjust by \	VOLTAGE	Adjust ei	ncoder, Fr	ront Pane	Lock/Unl	ock				
	1		by VOLTA		-								
	1		•	-					(CV to CC	C), Go-to-L	ocal		
	1		AN, IEEE (		,	,			•	ع-ان-L	Jui		
	l l			. ,									_
	1		•								Adjust enco	der)	_
	Advanced	d Parallel	Master/SI	ave: Hx =	Master u	nit, where	x = # of	Slave unit	s (0 to 4);	; S = Slave	unit(s)		
2.Display	Voltage: 4	digits, A	ccuracy: :	± 0.5% of	Vo(rated)	±1 count	i						
• •	_		ccuracy: ±		. ,								
	1		isplays Vo		. ,		sense) o	at load (	Remote s	ense)			
3.Indications			VIEW, FO							.51100)			t
O.III MIGGEROLIG			OVP, OT					, JO, FINE	-				
1.6 DIGITAL PROGRAMMING & READBACK			, ,	,		., 55	<i></i>						
	± 0.5% of	Volrete -	1/				_						т
1. Vout Programming Accuracy			,		10751	0.70/ 11	-/		7 F A				<u> </u>
2. lout Programming Accuracy	<del></del>		) for units	with lo <	187.5A; +/	-u./% of I	o(rated) f	or Io ≥187	.5A				
3. Vout Programming Resolution	0.02% of												
4. lout Programming Resolution	0.04% of	lo(rated)											
5. Vout Readback Accuracy	-		ıal) + 0.2%	of Vo(ra	ted))								i –
6. lout Readback Accuracy	<del>- `</del>		al) + 0.4%										t
7. Vout Readback Resolution	0.02% of			3. 10 Tale	//								+
· ·	<del>.                                      </del>												-
8. lout Readback Resolution	0.02% of												_
	1												
10. Other Functions	Set OVP/	UVL limit	s, Set Loc	al/Remot	e, Operat	ing param	neters and	Status, C	et Identit	ty			
I Ripple and Noise at Vo(rated) and rated Load. Ta = 25C and	l nominal Δ0	Cinput	er Fl.I Ro	002A									
9. OV Response Time 10. Other Functions 1. Ripple and Noise at Vo(rated) and rated Load, Ta = 25C and 2. Time for the Output voltage to recover within 2% of rating for 3. From 20% - 100% for models with lor < 25A. 14. Operating with a load that continuously pulses the current (rapplication in detail.	Set OVP/ I nominal A0 r a load cur	UVL limit C input, p rent chan	er EIJ R90 nge of 50~	al/Remot 002A. 100% or	e, Operat	ing param	eters and	Status, C	Set Identit		Technical Su	upport to di	

150-100 200-75 250-60 300-50 400-37.5 500-30 600-25 800-18.8 1000-15 1250-12

400

37.5

15.0

500

30

15.0

600

25

15.0

800

18.8

15.04

<sup>\*4.</sup> Operating with a load that continuously pulses the current (or voltage) can reduce the operating life of the Power Supply. Please contact TDK-Lambda Sales/Technical Support to discuss the application in detail.



15kW

Χ

Χ

Х

1500-10

1500

10

15.0

1250

12

15.0

93.5

1000

15

15.0

## General Specifications, Genesys™ 3U 10kW/15kW

2.1 INPUT CHARACTERISTICS		
1. Input Voltage / Frequency (range)		208VAC (180-253), 400VAC (342-440 for Vout ≥ 30V; 360-440 for Vout < 30V), 480VAC (432-528); 47-63Hz (all)
2. No. of phases		3-Phase (Wye or Delta) 4 wire total (3 phases and 1 Protective Earth (PE) ground)
3. Dropout Voltage	٧	180 / (342/360) / 432
4. Input Current (180VAC/342VAC or 360VAC/432VAC)	Arms	10kW - 45/23/20 (Vout ≤ 600V); 40/23/20 (800V ≤ Vout ≤ 1500V) - at full rated Output power 15kW - 64/32/27 (Vout ≤ 600V); 55/32/27 (800V ≤ Vout ≤ 1500V) - at full rated Output power
5. Inrush Current	Α	Not to exceed full rated Input current (see 2.1.4 (Input Current))
6. Power Factor, passive (typical)		Vout < 600V: 0.88 (passive), 10kW/15kW (208VAC, 400VAC, 480VAC) Vout > 600V: 0.90/0.93 - 10kW/15kW (208VAC), 0.89/0.92 - 10kW/15kW (400VAC), 0.84/0.88 - 10kW/15kW (480VAC)
7. Leakage Current	mA	3.5 maximum (EN60950)
8. Input Protection		Circuit breaker: 208VAC, (Vout ≤ 30V); Line fuse: 208VAC (Vout ≥ 30V) and 400VAC/480VAC (all models)
10. Phase Imbalance	%	≤ 5% on three-phase Input

#### 2.2 POWER SUPPLY CONFIGURATION

1. Parallel Operation; (*6)	Up to four (4) identical units may be connected in Master/Slave Mode with Single-Wire/Two-Wire connection. In "Advanced-Parallel", the current of Master unit multiplied by number of units connected in parallel is available via digital interface and displayed on the front panel display of the Master unit. Remote Analog current monitor of Master unit is scaled to the Output current of the Master unit (only)
2. Series Operation (*6)	Possible (with external diodes); Up to two identical units with total Output voltage not to exceed ± 600V from Chassis ground (for Vor ≤ 600V) or not to exceed ± 1500V from Chassis ground (for 600V < Vor ≤ 1500V)

#### 2.3 ENVIRONMENTAL CONDITIONS

Operating Temperature	0 to +50°C, 100% load
2. Storage Temperature	-20 to +70°C
Operating Humidity	20 to 80% RH (non-condensing)
Storage Humidity	10 to 90% RH (non-condensing)
5. Vibration & Shock	ASTM D4169, Standard Practice for Performance Testing of Shipping Containers and Systems, Shipping Unit: Single Package Assurance Level: Level II; Acceptance Criteria: Criterion 1 - No product damage Criterion 2 - Packaging is intact, Distribution Cycle: 12 - Air (intercity) and motor freight (local), unitized is used.
6. Altitude	Operating: +50°C up to 7500ft. (2500m), +45°C from 7501 to 10,000ft (2501m - 3000m), Non-Operating 40,000ft (12,000m)
7. Audible Noise	70dBA at lo(rated) (measured 1m from front panel) for Vout < 30V; 65dBA at lo(rated) (measured 1m from front panel) for Vout ≥ 30V

2.4 EMC	
1. 208VAC Input (all models)	CE Mark
1. ESD	EN61000-4-2 (IEC 801-2): Air-discharge ± 8kV , Contact-discharge ± 4kV
2. Fast Transients	EN61000-4-4 (IEC 1000-4-3)
3. Surge Immunity	EN61000-4-5 (IEC 1000-4-5)
Conducted Immunity	EN61000-4-6 (IEC 1000-4-6)
5. Radiated Immunity	EN61000-4-3 (IEC 1000-4-3)
Power Frequency Magnetic Field	EN61000-4-8
7. Conducted Emissions	EN55011A, FCC part 15J-A
8. Radiated Emissions	EN55011A, FCC part 15J-A
2. 400VAC (all models) /480VAC Input (Vout ≥ 30V)	CE Mark
1. ESD	EN61000-4-2 (IEC 801-2): Air-discharge ± 8kV , Contact-discharge ± 4kV
2. Fast Transients	EN61000-4-4 (IEC 1000-4-3)
3. Surge Immunity	EN61000-4-5 (IEC 1000-4-5)
Conducted Immunity	EN61000-4-6 (IEC 1000-4-6)
5. Radiated Immunity	EN61000-4-3 (IEC 1000-4-3)
Power Frequency Magnetic Field	EN61000-4-8
7. Voltage Dips, Short Interruptions and Voltage Variations Immunity Test (400VAC Only)	IEC 61000-4-11
8. Conducted Emissions	EN55011A, FCC part 15J-A
9. Radiated Emissions	EN55011A, FCC part 15J-A

#### 2.5 SAFETY

Z.3 SAFETT	
1.Applicable Standards	UL/cUL 60950-1, EN60950-1 recognized, CB Scheme, CE Mark (208VAC, 400VAC and 480VAC) 7.5V ≤ Vout ≤ 400V: Output is Hazardous; LAN/IEEE/USB/Isolated Analog are SELV 400V < Vout ≤ 600V: Output is Hazardous; LAN/IEEE/USB/Isolated Analog are SELV 600V < Vout ≤ 1500V: Output is Hazardous; LAN/IEEE/USB/Isolated Analog are SELV
2. Withstand Voltage: (208VAC/400VAC/480VAC; for 60 seconds); (*7)	Vout < 80V: Input - Ground: 2200VDC/2900VDC/2900VDC, Input-Hazardous Output: 2200VDC/3100VDC, Input - SELV: 2200VDC/2900VDC/2900VDC;
3.Insulation Resistance	20Megohms (typical) at 500VDC, Ta = +25°C

2.6 MECHANICAL CONSTRUCTION	
1. Cooling	Fan-driven with airflow from front to rear. Fan-speed control on models with Vout ≥ 30V "Zero Stackable" top and bottom. Vents on side shall not be blocked. Chassis slides or suitable rear support required. EIA rack mounting
2. Dimensions (W x H x D)	Width: 429mm / 16.9"; Height: 3U - 133mm / 5.22"  Depth: 564mm / 22.2" for Vout ≤ 600V, 581mm / 22.9" for 800V ≤ Vout ≤ 1500V; excluding connectors, encoders, handles, etc.
3. Weight	43kg / 97 lbs (Vout ≤ 600V); 32kg / 70lbs (Vout > 600V)
AC Input connector (with Protective Cover)	M6 x 1" (25.4mm) threaded studs (L1, L2, L3 and Chassis GND) and terminal cover.
5.Output Connectors (busbar)	Busbars: Vout $\leq$ 25V: (two-hole busbars); 30V $\leq$ Vout $\leq$ 300V: busbars (one hole busbars)  Threaded-stud terminals: 400V $\leq$ Vout $\leq$ 600V: M6 x 0.5" (12.7mm) threaded-stud; 800V $\leq$ Vout $\leq$ 1500V: M6 x 1.0" (25.4mm) threaded-stud
6.Control Connectors	Analog Programming: DB25, plastic connector, AMP747461-5, Female on Supply; Male on Mating connector, 747321, 25 pin Sub-D connector.
7. Mounting Method	Standard 19" Rack-Mount, provision for standard chassis slides. Side/Rear Support is required; Do not mount by front panel only
8. Output Ground Connection	M5 x 0.91" (23mm) threaded-stud

#### 2.7 WARRANTY 1. Warranty

5 years

\*6. Please contact TDK-Lambda Sales/Technical Support to discuss your Parallel or Series application in more detail.

\*7 Please contact TDK-Lambda Sales/Technical Support to discuss your System-Level Withstand Voltage requirements in more detail.

All specifications subject to change without notice.





## Genesys™ Power Parallel and Series Configurations

### Parallel Operation - Master/Slave (\*6)

Active current sharing allows up to four identical units to be connected in an Auto-parallel configuration for the Output power. In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four 10kW/15kW Power Supplies in parallel act as one 40kW/60kW Power Supply.



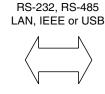
## **Series Operation (\*6)**

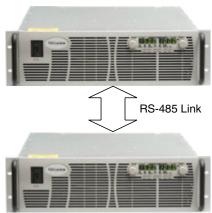
Up to two units may be connected in series to increase the Output voltage or to provide bipolar output. (Max 600V to Chassis GND for Vor  $\leq$  600V; Max 1500V to Chassis GND for 600V < Vor  $\leq$  1500V).

## 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 or optional LAN, USB or IEEE Interface.







P/N: "----

## **Programming Options (Factory installed)**

## Standard RS-232/RS-485 (Multi-Drop) Interface

- Standard Units are equipped with the RS-485 Multi-Drop function
- Allows RS-232 or RS-485 Master unit to control up to 30 (standard) Slave units using RS-485 daisy-chain

## LAN Interface (LXI Compliant w/ Multi-Drop)

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

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

#### **IEEE** (Multi-Drop) Interface

- IEEE 488.2 & SCPI compliant
- Allows IEEE Master to control up to 30 (standard) Slave units using RS-485 daisy-chain
- Program/Measure Voltage
- Over-Voltage setting and shutdown
- Error and Status Messages

- Program/Measure Current Current Foldback shutdown

## P/N: USB (for all models)

P/N: LAN (for all models)

P/N: IEMD (for all models)

#### **USB** (Multi-Drop) Interface

- USB 2.0 compliant
- Allows serial connection to computer USB port
- Allows USB Master to control up to 30 (standard) Slaves using RS-485 daisy-chain
- Uses same command set as standard RS-232/RS-485 interface

### **Isolated Analog Programming**

- Option for models with Vout ≤ 600V (IS510 & IS420); IS510 built-in for models where 800V ≤ Vout ≤ 1500V
- Four Channels total (Two channels to Program Voltage and Current; Two channels to 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: ±1.0% Power supply Voltage and Current Monitoring Accuracy: ±1.5%

Current Programming with 4-20mA signal

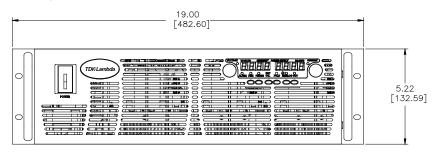
Power supply Voltage and Current Programming Accuracy: ±1.0%

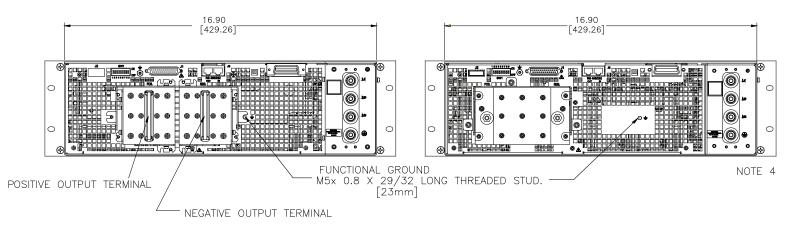
P/N: IS510 (for Vout  $\leq$  600V)

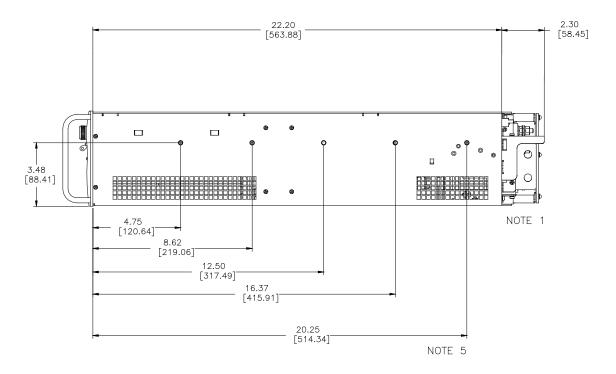
P/N: IS420 (for all models)



## Outline Drawing: Genesys™ 10kW/15kW (7.5V to 25V - 208VAC/400VAC/480VAC)



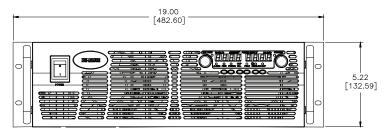


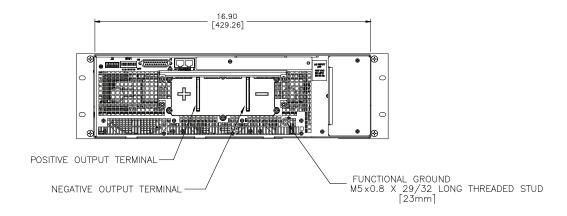


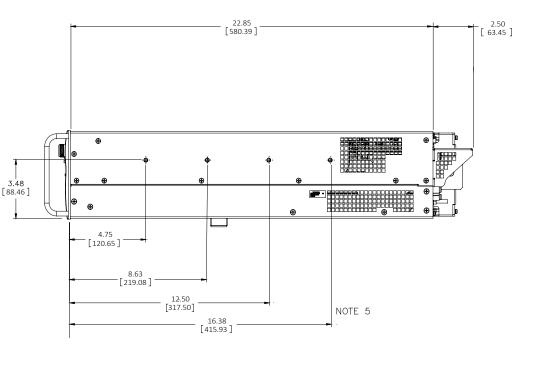
- 1. Busbars for models where Vout < 30V Output: two holes 0.42" (10.72mm) diameter.
- 2. N/A
- 3. N/A
- 4. Input Terminals: M6 x 1" (Qty = 3); Ground Terminal: M5 x 1" (Qty = 2)
- 5. Mounting for Slide Mounts (not included).
  Recommend: General Devices, Chassis Trak P/N C230-S-122; Verify requirements with slide manufacturer.
  Secure with pan head screw: M5 x 0.8-8mm long (max).

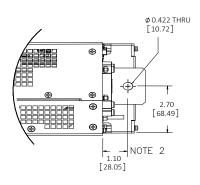


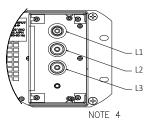
## **Outline Drawing:** Genesys™ 10kW/15kW (30V to 300V - 208VAC/400VAC/480VAC)







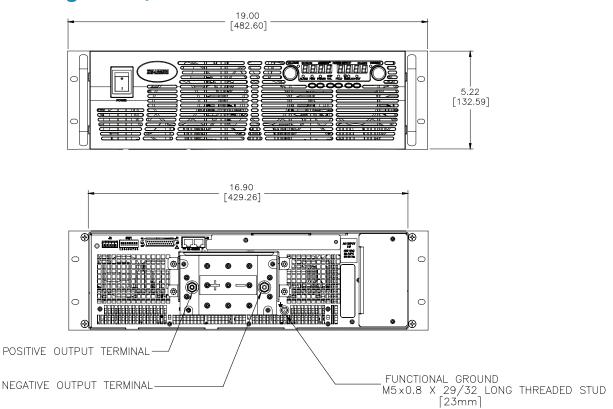


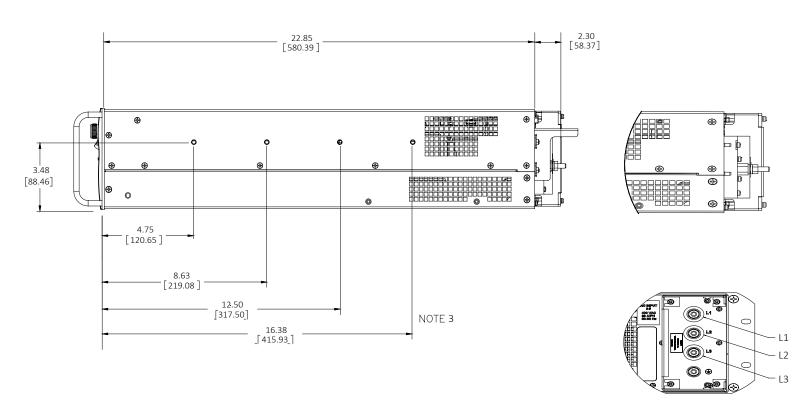


- 1. N/A
- 2. Bus bars for models 30-300V Output (10kW/15kW): one hole 0.42" (10.72mm) diameter.
- 3. N/A
- 4. Input Terminals: M6 x 1" (Qty = 3) + Ground M5 x 1" (Qty = 2)
- 5. Mounting for Slide Mounts (not included).
  Recommend General Devices, Chassis Trak P/N C230-S-122; Verify requirements with slide manufacturer.
  Secure with pan head screw: M5 x 0.8-8mm long (max).



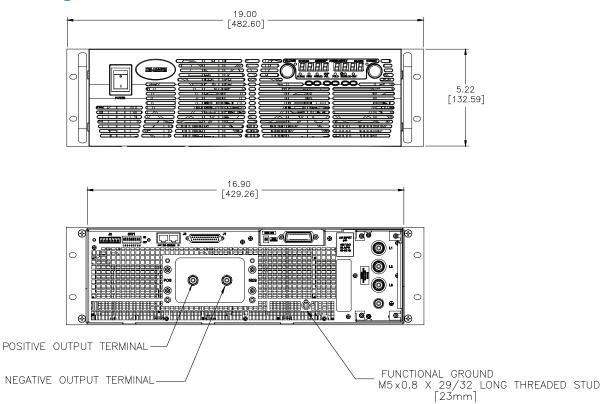
## Outline Drawing: Genesys™ 10kW/15kW (400V to 600V - 208VAC/400VAC/480VAC)

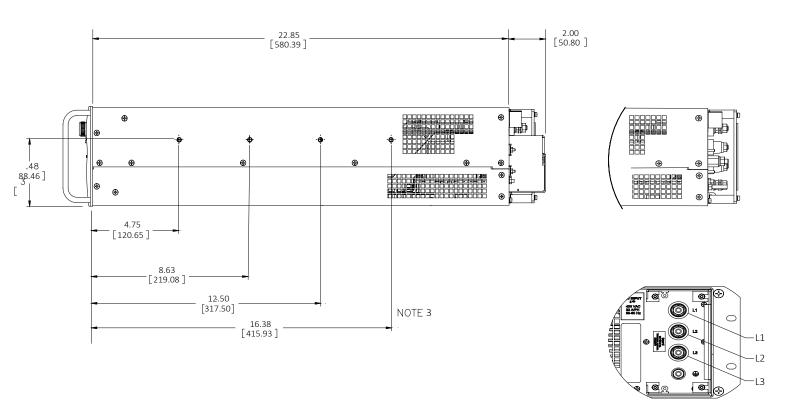




- 1. N/A
- 2. N/A
- 3. Threaded-stud terminals for models with 300V < Vout  $\leq$  600V (M5 x 1").
- 4. Input Terminals M6 x 1" (Qty = 3) + Ground M5 x 1" (Qty = 2)
- 5. Mounting for Slide Mounts (not included).
  Recommend General Devices, Chassis Trak P/N C230-S-122; Verify requirements with slide manufacturer.
  Secure with pan head screw: M5 x 0.8-8mm long (max).

## Outline Drawing: Genesys™ 10kW/15kW (800V to 1500V - 208VAC/400VAC/480VAC)





- 1. N/A
- 2. N/A
- 3. Threaded stud terminals for models with  $800V \le Vout \le 1500V$  Output (M5 x 1").
- 4. Input Terminals M6 x 1" (Qty = 3) + Ground M5 x 1" (Qty = 2)
- 5. Mounting for Slide Mounts (not included).

  Recommend General Devices, Chassis Trak P/N C230-S-122; Verify requirements with slide manufacturer.



## Power Supply Identification / Accessories (Genesys™ 3U 10kW/15kW) How to Order:

10 **GEN** 1000 LAN Factory Options Series Output Output Option: LAN Name Voltage Current (0~10V) (0~1000A)**IEMD** USB

IS510 IS420 3P208

AC Input Options 3P208 (Three-Phase 208VAC) 3P400 (Three-Phase 400VAC) 3P480 (Three-Phase 480VAC)

Model	Output Voltage (Vdc)	Output Current (Adc)	Output Power (kW)
GEN 7.5-1000	0~7.5	0~1000	7.5
GEN 10-1000	0~10	0~1000	10
GEN 12.5-800	0~12.5	0~800	10
GEN 20-500	0~20	0~500	10
GEN 25-400	0~25	0~400	10
GEN 30-333	0~30	0~333	10
GEN 30-500	0~30	0~500	15
GEN 40-250	0~40	0~250	10
GEN 40-375	0~40	0~375	15
GEN 50-200	0~50	0~200	10
GEN 50-300	0~50	0~300	15
GEN 60-167	0~60	0~167	10
GEN 60-250	0~00	0~250	15
GEN 80-125	0~80	0~125	10
GEN 80-187.5	0~80	0~187.5	15
GEN 100-100	0~100	0~100	10
GEN 100-150	0~100 	0~150	15
GEN 125-80	0~125	0~80	10
GEN 125-120	0~125	0~120	15
GEN 150-66	0~150	0~66	10
GEN 150-100	0~150	0~100	15

Model	Output Voltage (Vdc)	Output Current (Adc)	Output Power (kW)	
GEN 200-50	0~200	0~50	10	
GEN 200-75	0~200	0~75	15	
GEN 250-40	0~250	0~40	10	
GEN 250-60	0~250	0~60	15	
GEN 300-33	0.000	0~33	10	
GEN 300-50	0~300	0~50	15	
GEN 400-25	0~400	0~25	10	
GEN 400-37.5	0~400	0~37.5	15	
GEN 500-20	0~500	0~20	10	
GEN 500-30	0~500	0~30	15	
GEN 600-17	0.000	0~17	10	
GEN 600-25	0~600	0~25	15	
*GEN 800-12.5	0~800	0~12.5	10	
*GEN 800-18.8	0~800	0~18.8	15	
*GEN 1000-10	0. 1000	0~10	10	
*GEN 1000-15	0~1000	0~15	15	
*GEN 1250-8	0.1050	0~8	10	
*GEN 1250-12	0~1250	0~12	15	
*GEN 1500-6.7	0.4500	0~6.7	10	
*GEN 1500-10	0~1500	0~10	15	

## **Factory options**

RS-232/RS-485 Multi-Drop Interface (built-in standard) LAN Interface ( LXI Class C compliant w/ Multi-Drop) GPIB (488.2 w/ Multi-Drop) Interface USB (2.0 w/ Multi-Drop) Interface Isolated Analog Interface (Voltage Program/Monitor) Isolated Analog Interface (Current Program/Monitor)

#### P/N

LAN

**IEMD USB** 

IS510 \*(built-in standard on 800-1500V models)

**IS420** 

### **Accessories**

### 1. Serial Communication cable (optional)

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	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 (optional)

Daisy-chain up to 31 Genesys™ power supplies.

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



## Genesys™ Family - Output Voltage / Output Current

Model	GENH		GEN-1U		GE	N-2U	GE	EN 3U
Rated Power	750W	750W	1.5kW	2.4kW	3.3kW	5.0kW	10kW	15kW
Voltage Range Output Current Range								
0~6V	0~100A	0~100A	0~200A					
0~7.5V							0~1000A	
0~8V	0~90A	0~90A	0~180A	0~300A	0~400A	0~600A		
0~10V				0~240A	0~330A	0~500A	0~1000A	
0~12.5V	0~60A	0~60A	0~120A				0~800A	
0~15V					0~220A			
0~16V				0~150A		0~310A		
0~20V	0~38A	0~38A	0~76A	0~120A	0~165A	0~250A	0~500A	
0~25V							0~400A	
0~30V (15kW) - NEW !	0~25A	0~25A	0~50A	0~80A	0~110A	0~170A	0~333A	0~500A
0~40V (15kW) - NEW !	0~19A	0~19A	0~38A	0~60A	0~85A	0~125A	0~250A	0~375A
0~50V (15kW) - NEW !			0~30A				0~200A	0~300A
0~60V	0~12.5	0~12.5A	0~25A	0~40A	0~55A	0~85A	0~167A	0~250A
0~80V	0~9.5A	0~9.5A	0~19A	0~30A	0~42A	0~65A	0~125A	0~187.5A
0~100V	0~7.5A	0~7.5A	0~15A	0~24A	0~33A	0~50A	0~100A	0~150A
0~125V							0~80A	0~120A
0~150V	0~5A	0~5A	0~10A	0~16A	0~22A	0~34A	0~66A	0~100A
0~200V - NEW !					0~16.5A	0~25A	0~50A	0~75A
0~250V							0~40A	0~60A
0~300V	0~2.5A	0~2.5A	0~5A	0~8A	0~11A	0~17A	0~33A	0~50A
0~400V (5.0kW) - NEW !						0~12.5A	0~25A	0~37.5A
0~500V (5.0kW) - NEW !						0~10A	0~20A	0~30A
0~600V	0~1.3A	0~1.3A	0~2.6A	0~4A	0~5.5A	0~8.5A	0~17A	0~25A
0~800V - NEW !							0~12.5A <sup>(5)</sup>	0~18.8A (5)
0~1000V - NEW !							0~10A <sup>(5)</sup>	0~15A (5)
0~1250V - NEW !							0~8A <sup>(5)</sup>	0~12A (5)
0~1500V - NEW !							0~6.7A <sup>(5)</sup>	0~10A (5)
Weight (kg/lb)	4.5 / 9.9	7.0 / 15.0	8.5 / 18.0	10 .0 / 22.0	13.0 / 29.0	16.0 / 35.0	43.0 / 97.0	43.0 / 97.0 32.0 / 70.0 <sup>(6)</sup>

<sup>(6) 800</sup>V - 1500V models only (10kW/15kW)

## **AC Inputs**

85-265Vac, 1Ø	• (1)	• (1)	• (1)					
230Vac, 1Ø				• (1	• (1)			
208Vac, 3Ø				• (1	• (1)	• (1)	• (3)	• (3)
400Vac, 3Ø					• (1)	• (1)	• (3)	• (3)
480Vac, 3Ø					• <sup>(2)</sup> - <b>NEW</b> !	• <sup>(2)</sup> - <b>NEW</b> !	• (3), (4)	• (3), (4)

 $<sup>(1) \ \ \</sup>text{UL Listed; CE Mark (\textbf{RoHS2}); (2) UL Listed (\textbf{RoHS2}); (3) \ \ \text{UL Recognized, CE Mark (\textbf{RoHS2}) - (Vout $\geq 25V$);} \ \ 4) \ \ \text{UL Recognized, RoHS2 (Vout $< 25V$)}$ 

## Options (All Models)

""	Standard RS-232/RS-485 Master with RS-485 Multi-Drop capability installed
LAN	LXI Compliant LAN Interface (Class C) with RS-485 Multi-Drop capability installed
IEMD	IEEE Master (IEEE 488.2 & SCPI compliant) with RS-485 Multi-Drop capability installed
USB	USB (2.0) Master with RS-485 Multi-Drop capability installed
IS510	Isolated Analog Program/Monitor (0-5V or 0-10V, user-selectable) for 6V-600V models; *(5)
IS420	Isolated Analog Program/Monitor (4-20mA)

All "Options" are factory installed and limited to one "option" per power supply \*(5) Isolated 5V/10V (IS510) Interface is bulit-in standard for 800V-1500V models All specifications are subject to change without notice



www.uk.tdk-lambda.com/zplus





ustrial Tes

Features	Benefits
• 2U high	Minimises system rack height
Built-in USB, RS232 & RS485	Highly flexible system integration
Optional LAN, GPIB & isolated analogue programming interfaces	Choice of additional communications
Outputs up to 650Vdc	Wide application coverage
Arbitrary function generation	Convenient for repeated test processes
• 5 year warranty	High reliability

## 200W, 400W, 600W and 800W Programmable DC Power Supplies



Model Selec	ctor							
Model	Voltage Adjust Range	Current Adjust Range	Max Power (W)	Ripple 5Hz-1MHz (mV)	Noise 20MHz BW (mV)	Ripple 5Hz-1MHz (mA)	Efficiency % (100-200VAC)	Front Panel Output Jacks (Option)
Z10-20	0 - 10	0 - 20	200	5	50	25	80 / 82	L/L2
Z10-40	0 - 10	0 - 40	400	5	50	70	80 / 82	L/L2*
Z10-60	0 - 10	0 - 60	600	5	50	150	80 / 82	L/L2*
Z10-72	0 - 10	0 - 72	720	5	50	180	80 / 82	L/L2*
Z20-10	0 - 20	0 - 10	200	6	50	15	82 / 84	L/L2
Z20-20	0 - 20	0 - 20	400	6	50	40	81 / 83	L/L2
Z20-30	0 - 20	0 - 30	600	5	50	75	82 / 84	L/L2*
Z20-40	0 - 20	0 - 40	800	5	50	100	82 / 84	L/L2*
Z36-6	0 - 36	0 - 6	216	6	50	8	83 / 85	L/L2
Z36-12	0 - 36	0 - 12	432	6	50	15	83 / 85	L/L2
Z36-18	0 - 36	0 - 18	648	5	50	25	84 / 85	L/L2
Z36-24	0 - 36	0 - 24	864	5	50	31	84 / 85	L/L2
Z60-3.5	0 - 60	0 - 3.5	210	7	50	4	83 / 85	L/L2
Z60-7	0 - 60	0 - 7	420	7	50	8	83 / 85	L/L2
Z60-10	0 - 60	0 - 10	600	12	50	8	83 / 85	L/L2
Z60-14	0 - 60	0 - 14	840	12	60	28	83 / 85	L/L2
Z100-2	0 - 100	0 - 2	200	8	80	3	83 / 85	L2
Z100-4	0 - 100	0 - 4	400	8	80	3	84 / 86	L2
Z100-6	0 - 100	0 - 6	600	15	80	5	84 / 86	L2
Z100-8	0 - 100	0 - 8	800	15	80	12	84 / 86	L2
Z160-1.3	0 - 160	0 - 1.3	208	10	100	1.2	79 / 81	L2
Z160-2.6	0 - 160	0 - 2.6	416	10	100	1.5	84 / 86	L2
Z160-4	0 - 160	0 - 4	640	10	100	2	86.5 / 88.5	L2
Z160-5	0 - 160	0 - 5	800	10	100	2	86.5 / 88.5	L2
Z320-0.65	0 - 320	0 - 0.65	208	25	150	0.8	79 / 81	L2
Z320-1.3	0 - 320	0 - 1.3	416	25	150	1	84 / 86	L2
Z320-2	0 - 320	0 - 2	640	30	150	1.5	87 / 88.5	L2
Z320-2.5	0 - 320	0 - 2.5	800	30	150	1.5	86.5 / 89	L2
Z375-2.2	0 - 375	0 - 2.2	825	30	150	1.5	87.5 / 89.5	L2
Z650-0.32	0 - 650	0 - 0.32	208	60	150	0.5	79 / 81	L2
Z650-0.64	0 - 650	0 - 0.64	416	60	150	0.6	84 / 86	L2
Z650-1	0 - 650	0 - 1	650	60	250	1	86.5 / 88.5	L2
Z650-1.25	0 - 650	0 - 1.25	812	60	250	1	87 / 89	L2

<sup>\*</sup> Note: Front panel output jacks fuse limited to 24A



Model		Z10	Z20	Z36	<b>Z60</b>	Z100
Load Regulation	CV	2m\	/ + 0.01% of rated	d voltage over 0 - 1	00% load change	
Line Regulation	CV	2mV + 0.01%	of rated voltage	over a 85 - 132 or	170 - 265VAC line	e change
Recovery Time (1)	CV		· ·	1ms		
Temperature Coefficient	CV		30ppm/C fo	llowing 30 minute v	varm up	
Temperature Stability	CV	0.02% of r	* *	8 hours following	•	p time
Warm up Drift (2)	CV		-	tage + 2mV of rate		
Load Regulation	CC			d current over 0 - 10		
Load Regulation thermal drift	CC			ent over 30 minutes	-	
Line Regulation	CC			over a 85 - 132 or	-	
Temperature Coefficient	CC			urrent after 30 minu		onango
Temperature Stability	CC			8 hours following		n time
Warm up Drift (2)	CC	0.0070 011		.1% of rated currer		p unio
Vout & lout programming & readback resolution	Digitally			of rated voltage/ci		
Vout & lout programming & readback resolution  Vout & lout programming & readback accuracy	Digitally			voltage, < 0.1% of		
				or 0-10V) or Resist		)k)
Voltage & Current Programming Voltage & Current Monitoring	Analog Analog	•		,	•	JK)
*	-			e (user selectable)		F 440
Overvoltage Shutdown (user programmable)	V	0.5 - 12	1 - 24	2 - 40	5 - 66	5 - 110
Overtemperature Protection	-	4 11 11		ble - latched or nor	•	
Display - Voltage	-	•	•	of rated voltage or		
Remote On/Off	-	Ву ар	plied voltage or d	ry contact relay (us	er selectable logi	C)
Output Good	-			Low on fail		_
Remote Sense Compensation (per wire)	V	1	1	2	3	5
Communication Interface	-	RS232,		andard, IEEE488 (		onal
Series Operation	-		•	cal units (with exte	,	
Parallel Operation	-		•	in master-slave co	nfiguration	
Input Voltage / Frequency (3)	VAC		85-	265VAC, 47-63Hz		
Inrush Current	A			< 30A		
Hold Up Time (Typical)	ms			16ms		
Power Factor Correction	-		Complies with E	N61000-3-2 Class	A (0.99 typ)	
Operating Temperature	°C			0 - 50°C		
Storage Temperature	°C			-20 to +85°C		
Humidity (non condensing)	%RH		Operating: 10 -	90%RH, Storage 1	0 - 95%RH	
Cooling	-			ariable speed fan		
Withstand Voltage	VAC	I/P to GN		O/P 3kVAC, O/P to	GND 1380VDC 1	min
Insulation Resistance	Ω			IΩ at 25°C & 70%F		
Vibration (non operating)	-			IEC60068-2-64		
Shock	G			ine, 11ms. IEC600	068-2-27	
Safety Agency Certifications	-	UL61010-1		C61010 (Designed		950-1)
Immunity	_	0_01010	,, 1, 12	IEC61326		
Conducted Emission	_	IFC/FN	J61326-1 Industri	al Location - B, FC	C part 15-B, VCC	I-B
Radiated Emission	_			al Location - B, FO		
Size (H x W x D) (Excluding handles and busbars)	mm			350mm; Wide Bod	•	
OLEO (11 X VV X D) (Excluding handles and busbais)	1/1111		•	andard body 1.9kg,	•	
Weight	kg			andard body 1.9kg, andard body 2.1kg,		
Warranty	yrs	0	OUVV & OUUVV. Sta	andard body 2. ikg, 5	vviue body 2.0kg	

#### Notes

- (1) Recovery to within 0.5% of rated voltage after a load change of 10-90% (Output current 10-100% of Imax)
- (2) During 30 minute warm up time after power on

See www.emea.tdk-lambda.com/zplus for further information



Specification					
Model		Z160 Z320 Z650			
Load Regulation	CV	0.01% of rated voltage over 0 - 100% load change			
Line Regulation	CV	0.01% of rated voltage over 0 - 100% input change			
Recovery Time (1)	CV	2ms			
Temperature Coefficient	CV	30ppm/°C following 30 minute warm up			
Temperature Stability	CV	0.02% of rated voltage over 8 hours following 30 minute warm up time			
Warm up Drift (2)	CV	<0.05% of rated voltage of rated output voltage			
Load Regulation	CC	0.09% of rated current over 0 - 100% Vout change			
Load Regulation thermal drift	CC	< 0.05% of rated current over 30 minutes after load change			
Line Regulation	CC	<0.02% of rated current over a 85 - 132 or 170 - 265VAC line change			
Temperature Coefficient	CC	100ppm/°C of rated current after 30 minute warm up time			
Temperature Stability	CC	0.05% of rated current over 8 hours following 30 minute warm up time			
Warm up Drift(2)	CC	<±0.1% of rated current			
Vout & lout programming & readback resolution	Digitally	< 0.012% of rated voltage/current			
Vout & lout programming & readback accuracy	Digitally	0.05% of rated voltage + 0.05% of actual, 0.2% of rated current			
Voltage & Current Programming	Analog	By either Voltage (0-5V or 0-10V) or Resistance (0-5k or 0-10k)			
Voltage & Current Monitoring	Analog	0-5V or 0-10V Voltage (user selectable), ±1% accuracy			
Overvoltage Shutdown (user programmable)	V	5 - 176 5 - 353 5 - 717			
Overtemperature Protection	-	User selectable - latched or non-latching			
Display - Voltage	-	4 digits. Accuracy 0.5% of rated voltage or current ± 1 count			
Remote On/Off	-	By applied voltage or dry contact relay (user selectable logic)			
Output Good	-	Low on fail			
Remote Sense Compensation (per wire)	V	5 5 5			
Communication Interface	-	RS232, RS485 & USB standard, IEEE488 (GPIB) & LAN optional			
Series Operation	-	Up to two identical units (with external diodes)			
Parallel Operation	-	Up to six units in master-slave configuration			
Input Voltage / Frequency	-	85-265VAC, 47-63Hz			
Inrush Current	-	< 30A			
Hold Up Time (Typical)	ms	16ms			
Power Factor Correction	-	Complies with EN61000-3-2 Class A (0.99 typ)			
Operating Temperature	°C	0 - 50°C			
Storage Temperature	°C	-20 to +85°C			
Humidity (non condensing)	%RH	Operating: 20 - 90%RH, Storage 10 - 95%RH			
Cooling	-	Variable speed fan			
Withstand Voltage	-	I/P to GND 2kVAC, I/P to O/P 3kVAC, O/P to GND 1380VDC 1 min			
Insulation Resistance	-	>100M at 25°C & 70%RH			
Vibration (non operating)	-	IEC60068-2-64			
Shock	-	<20G, half sine, 11ms. IEC60068-2-27			
Safety Agency Certifications	-	UL61010-1, EN61010-1, IEC61010 (Designed to meet UL/EN60950-1)			
Immunity	-	IEC61326			
Conducted EMI	-	IEC/EN61326-1 Industrial location B, FCC part 15-B, VCCI-B			
Radiated EMI	-	IEC/EN61326-1 Industrial location A, FCC part 15-A, VCCI-A			
Size (H x W x D) (Excluding handles and busbars)	mm	Standard body 83 x 70 x 350mm; Wide Body 83 x 105 x 350mm			
Weight	kg	200W & 400W Standard body 1.9kg; Wide Body 2.4kg			
Warranty	yrs	5			

#### Notes:

- (1) Recovery to within 0.5% of rated voltage after a load change of 10-90% (Output current 10-100% of Imax)
- 2) Over 30 minute warm up time after power on

See www.emea.tdk-lambda.com/zplus for further information



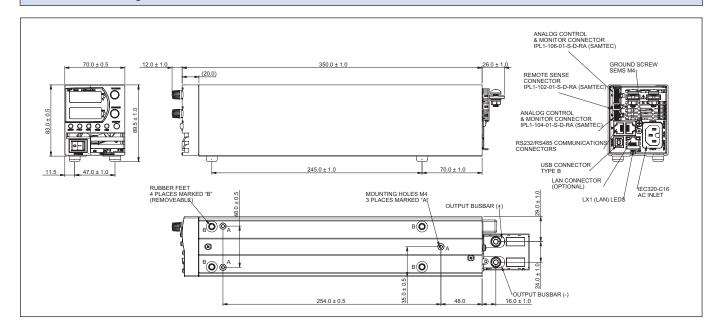
Factory Installed Options	
	Option Code
For models up to 60V only: Front panel output jacks (binding post style ø 4mm) <sup>1</sup>	-L
For all models: <sup>2</sup> Front panel insulated output sockets (ø 4mm) <sup>1</sup>	-L2
Only one of the options below can be included: GPIB Interface <sup>1</sup> Voltage Programming Isolated Analog Interface <sup>1</sup> Current Programming Isolated Analog Interface <sup>1</sup> LAN Interface (Complies with "LXI" Class C)	-IEEE -IS510 -IS420 -LAN

<sup>1:</sup>Requires wide body (105mm) case style 2:Front panel output jacks fuse limited to 24A

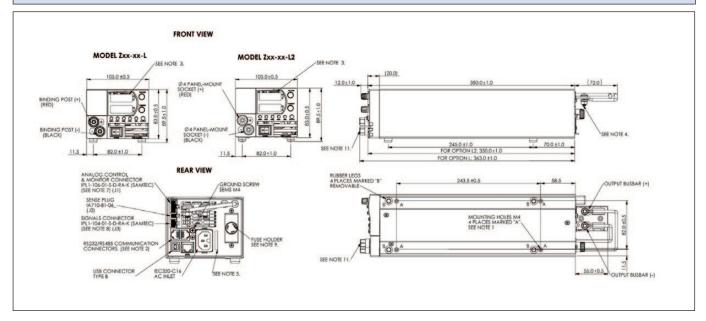
Part Number Examples
Z10-20-LAN-L Z650-0.64

Accessories	
	Part Number
19" Rack Housing (Accepts four 105mm width units or six 70mm width units) 70mm Blanking Panel For 19" Rack	Z-NL100 Z-BP
105mm Blanking Panel For 19" Rack	Z-WBP
<b>Dual/Triple Housing</b> (Accepts two 105mm case units or three 70mm case units)	Z-NL200
Serial Link Cable (One is included with each power supply)	Z-RJ45
Communication Cable RS485	Z-485-9
Communication Cable RS232	Z-232-9
British AC Cord	Z-GB
European AC Cord	Z-E

### **Z+ Outline Drawing**

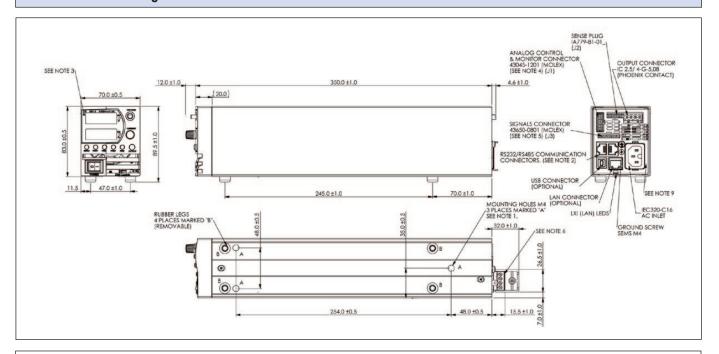


## Z+ with L or L2 Option Outline Drawing



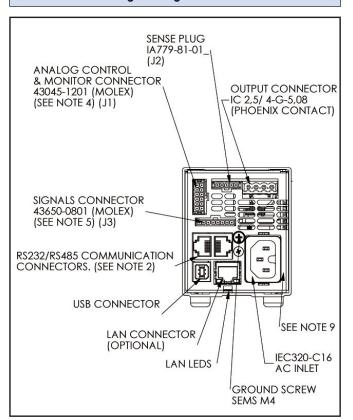


### **Z+ HV Outline Drawing**

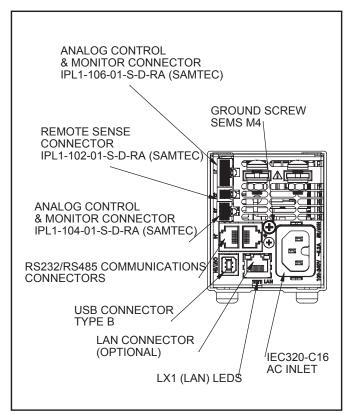


See Longform Datasheet for rack & wide body dimensions www.emea.tdk-lambda.com/zplus

#### Z+ Connections high voltage models 160V and above



## Z+ Connections low voltage models up to 100V





- Constant Voltage / Constant Current
- Last Setting Memory
- Digital Meters
- Built-in RS232 & RS485
- Bench or Rack Mount
- Embedded Microprocessor Controller
- Voltage up to 120V, Current up to 132A

## **ZUP Series**

Zero Up Programmable Power Supplies

MODELS		ZUP6	ZUP10	ZUP20	ZUP36	ZUP60	ZUP80	ZUP120
ITEMS	Cond.							
Load Regulation	CV	2mV + 0.005% over 0 - 100% load change						
Line Regulation	CV		1mV +	0.005% over 8	5 - 132 or 170 - 2	265VAC constan	nt load	
Recovery Time (1)	CV	1ms	0.5ms			0.2ms		
Temperature Coefficient	CV			30ppm/°C fo	ollowing 30 minu	te warm up		
Temperature Drift (2)	CV			0.01% -	+ 2mV change in	output		
Up programming response time	CV			50 - 60ms			80ms	120ms
Down prog. resp. time (CV)	Full			50m	s (70ms ZUP60-	-14)	•	'
Down prog. resp. time (CV)	Zero	250ms	350ms	400ms	500ms	750ms	800ms	1000ms
Load Regulation	CC		0.01% + 5mA	on 200W and 40	00W models, 0.0	7% + 10mA on	800W models	I.
Line Regulation	CC				00W models, 0.0			
Temperature Coefficient	CC				current after 30			
Temperature Drift (2)	CC				00W models, 0.0			
Prog Voltage resolution	-				n 0.028% of rate			
Prog Voltage accuracy	-	.02%+5mV.	.02%+8mV.		.02%+20mV	.02%+35mV	.02%+50mV	.02%+80mV
Prog Current resolution	-		·		n 0.03% of rate	1	'	
Prog Current accuracy	-				0.4% + 40mA			
Overvoltage Shutdown	V	0 - 7.5	0 - 13	0 - 24	0 - 40	0 - 66	0 - 88	0 - 132
Thermal Protection	-			Over t	emperature prot	ected		
Display - Voltage	-	3 digits (6, 20, 36, 60, 80V models), 3.5 digits (10, 120V models). Accuracy 0.2% ± 2 digits						
Display - Current	-		3 dig	its, (3.5 digits 13	32A model). Accu	ıracy 0.5% ± 3 c	digits	
Display - Status	-	CV / CC, Alarm, Foldback, Local/Remote, On/Off						
Remote On/Off	-				nal or dry contac			
Output Good	-	Open Collector						
Voltage & Current Programming	-	By either Voltage (0-4V) or Resistance (0-4k)						
Remote Sense	-	Up to 0.5V compensation per output cable						
Communication Interface	-	RS232 & RS485 standard						
Series & Parallel Operation	-		Series: Up to to	wo units; Paralle	l: Up to five units	s in master-slave	e configuration	
AC Input Voltage range	-	85-265VAC (47-63Hz)						
Inrush Current (100/200VAC) (3)	-		15/30A,	200W models,	15A, 400W mod	els, 30A, 800W	models	
Hold Up Time (Typ) at 100VAC	ms				20			
Power Factor Correction	-			Complies with	EN61000-3 Class	ss A (0.99 typ)		
Temperature Range	- 1	Operating: 0°C - 50°C; Storage: -20°C to +70°C						
Humidity (non condensing)	-	Operating: 30°C - 90% RH, Storage 10°C - 95%RH						
Cooling	- 1	Internal fan						
Withstand Voltage	-	Input to Ground 2kVAC, Input to Output 3kVAC, Output to Ground 500VAC for 1 min.						
Isolation Resistance	Ω	>100MΩ at 25°C & 70%RH						
Vibration & Shock (non-op.)	-	Vibration:10-55Hz(1 min.) 2G constant X, Y, Z, when correctly mounted; Shock: <20G						
Safety Agency Approvals	-	UL3111-1, EN61010-1, CE Mark						
Conducted & Radiated EMI	-	EN55022-B conducted, A radiated, FCC Class B conducted,						
				A radiated, V	CCI-B conducted	d, -A radiated		
Warranty	yrs				3			

(1) Recovery to within +/-50mV after load change of 50-100% (2) Over 8 hour period following 30 minute warm up time (3) 25°C ambient (cold start)

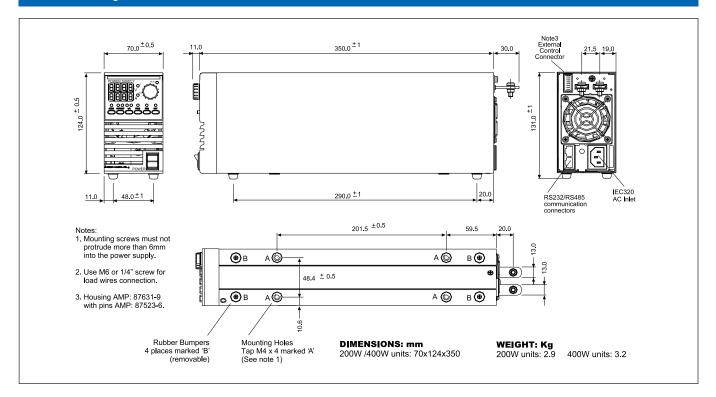


# **TDK-Lambda**

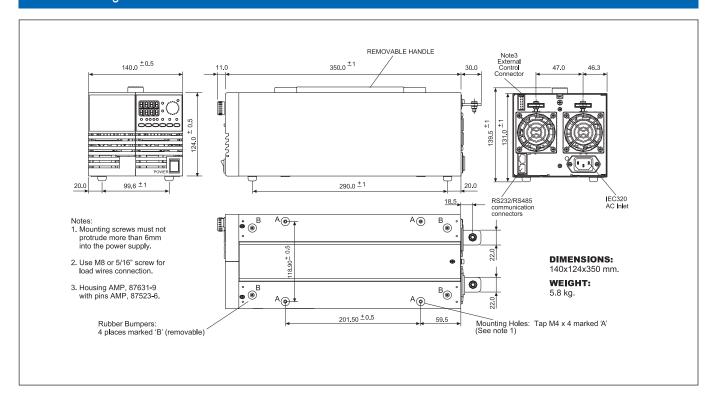
Model Select	tor							
Model	Voltage Adjust Range	Current Adjust Range	Max Power	Ripple 5Hz-1MHz mV	Noise 20MHz BW mV	Ripple 5Hz-1MHz mA	Efficiency % (100/200VAC)	Weight kg
ZUP6-33	0-6V	0-33	198	5	50	50	69 / 72	2.9
ZUP6-66	0-6V	0-66	396	5	50	100	74 / 77	3.2
ZUP6-132	0-6V	0-132	792	8	100	200	74 / 77	5.8
ZUP10-20	0-10	0-20	200	5	50	25	73 / 77	2.9
ZUP10-40	0-10	0-40	400	5	50	50	79 / 82	3.2
ZUP10-80	0-10	0-80	800	8	90	100	77 / 81	5.8
ZUP20-10	0-20	0-10	200	5	50	15	74 / 78	2.9
ZUP20-20	0-20	0-20	400	5	50	30	79 / 83	3.2
ZUP20-40	0-20	0-40	800	5	80	60	79 / 82	5.8
ZUP36-6	0-36	0-6	216	5	50	7.5	76 / 80	2.9
ZUP36-12	0-36	0-12	432	5	50	15	80 / 84	3.2
ZUP36-24	0-36	0-24	864	5	70	30	80 / 84	5.8
ZUP60-3.5	0-60	0-3.5	210	5	50	5	75 / 79	2.9
ZUP60-7	0-60	0-7	420	5	50	10	80 / 84	3.2
ZUP60-14	0-60	0-14	840	5	60	20	80 / 84	5.8
ZUP80-2.5	0-80	0-2.5	200	20	70	5	78 / 82	2.9
ZUP80-5	0-80	0-5	400	20	70	10	83 / 87	3.2
ZUP120-1.8	0-120	0-1.8	216	20	80	5	78 / 82	2.9
ZUP120-3.6	0-120	0-3.6	432	20	80	10	82 / 86	3.2

Options and Accessories	Model Cuffin	Don't Namehou
Option	Model Suffix	Part Number
Front panel terminals (20A max) <sup>5</sup>	/L <sup>4</sup>	ZUP200/400/L4
Front panel terminals (20A max) <sup>6</sup>	/L <sup>4</sup>	ZUP800/L <sup>4</sup>
EC320 cable Europe plug	/E	ZUP/E
Serial link cable RJ-45	/W	ZUP/W
Dual Unit Assembly		NL200*
(accepts 200W or 400W models)		
19" 3U rack (accepts up to 6 200/400W models)	NL100*	
Blanking panels for NL100 (19 in. rack)	NL101*	
RS232 Communications Cable DB-9F	ZUP/NC401	
RS232 Communications Cable DB-25F	ZUP/NC403	
RS485 Communications Cable DB-9F	ZUP/NC402	
RS485 Communications Cable DB-25F	ZUP/NC404	
User Manual		NL102
* (See website for more details)		
<sup>4</sup> Not available with ZUP80 or ZUP120 models.		
5 200W and 400W models		
6 800W models		

## Outline Drawing 200/400W



## **Outline Drawing 800W**







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