



# **GENESYS** Series

Programmable DC Power Supplies 1.7kW-5kW in 1U 0-600V / 0-500A 10kW in 2U / 15kW in 3U / 0-1500A

Built-in LAN (LXI 1.5), USB, RS-232 & RS-485 Interfaces
Built-in Remote Isolated Analog Program/Monitor/Control Interface
Optional Interface: IEEE488.2 SCPI (GPIB)
Scalable Power Systems up to 20kW



TDK·Lambda



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

**Features include:** 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) in 19" rack-mount
- Light-weight <7.5 kg
- Wide Range of popular worldwide AC inputs: G5kW: 3ø (208VAC, 400VAC & 480VAC), Wide-range 3ø 480VAC (342VAC ~ 528VAC) G1.7kW: 1ø (85~265VAC)
- 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-Triggering
- 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 Simulation
- Local / Remote Sensing software controlled
- Built-In Isolated Analog Program/Monitor and Control
- Protection functions (OVP, UVP, UVL, FOLD (CV/CC), OCL, OTP, AC FAIL)
- Fan speed profile controlled by ambient temperature and load
- Certified LabWindows<sup>™</sup>/CVI, LabVIEW<sup>™</sup>, 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 20kW) with Auto-Configure
- Worldwide Safety Agency approvals
- CE Mark for Low Voltage, EMC and RoHS2 Directives









Five year warranty

# **Applications**

**GENESYS™** 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.

# TDK·Lambda

# **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.
- 6. 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.
- G5kW 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 Input: 85~265VAC, 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).

# **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

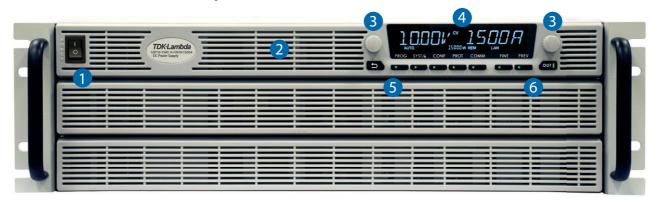
# **GSP10kW Rear Panel Description**



- 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).
- 7. 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).

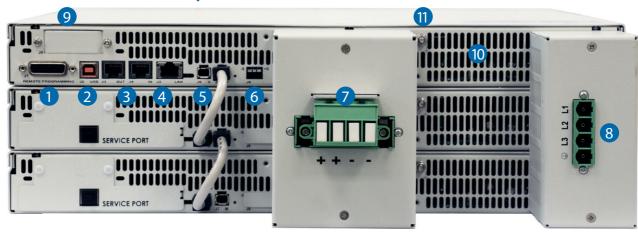
# TDK·Lambda

# **GSP15kW Front Panel Description**



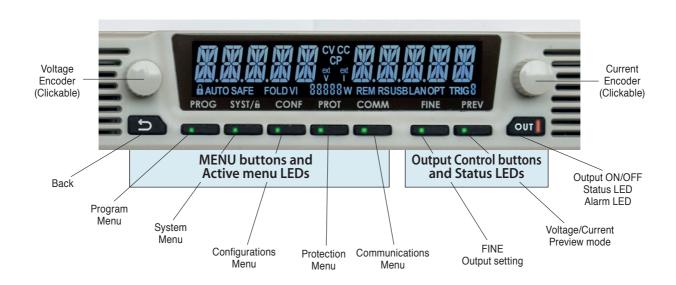
- 1. Input Power ON/OFF Switch
- 2. Air Intake allows zero stacking for maximum system flexibility and power density.
- 3. Reliable Detent Encoders for settings and Menu navigation.
- 4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
- 5. Function/Status LEDs: Active modes and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

# **GSP15kW Rear Panel Description**

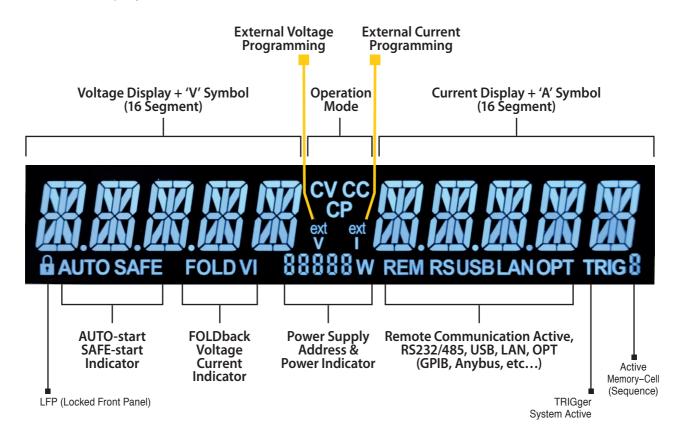


- 1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
- 2. USB Interface connector (Type B).
- 3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
- 4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
- 5. 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).

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



# **Front Panel Display indicators**



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# GENESYS™ G&GSP Series Blank Front Panel POWER (LED) POWER (LED)

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 four identical units to be connected

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

Separates Parallel Kit available for 20kW (4 unit) systems allowing easy system setup.

Order P/N: G/P - 4U

# Standard & Blank - zero stacked up to 4 units

Standard Unit - zero stacked up to 4 units

# **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.

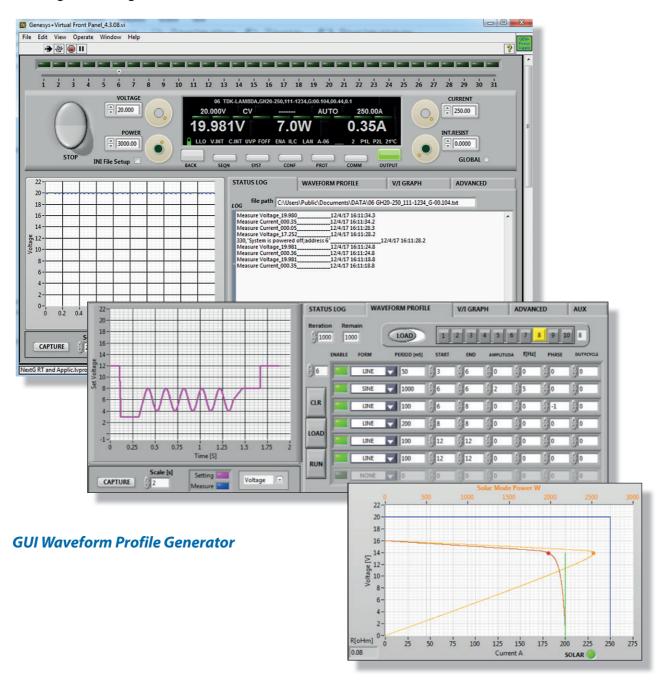
- First unit is LAN, USB, RS-232, RS-485, etc.
- All other units use RS-485 daisy chain with linking cable.



# **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



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# 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 **GENESYS™** power supplies.

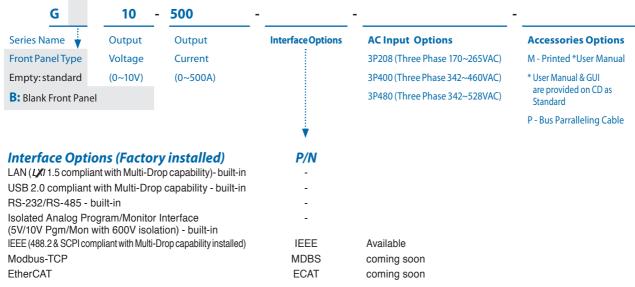
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	RJ-45	Shielded L=50cm	GEN/RJ45

# 3. Bus Paralleling cable

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

Printed User Manual	G/M
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# 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	G300-17	0~300V	0~17	5100
G60-85	0~60V	0~85	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™** power supplies.

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

# 3. Bus Paralleling cable

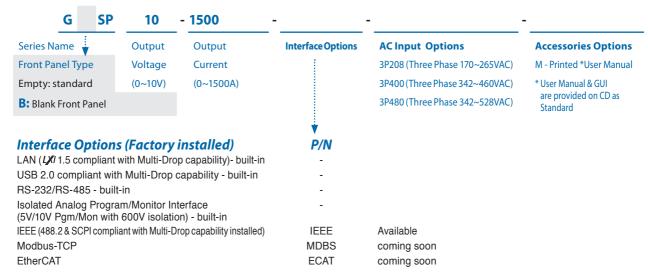
Connectors	Cables	P/N
2013595-1 (TYCO)	Shielded L=11cm	G/P
4. User Manual		
Printed User Manual		G/M

# 5. Parallel Kit: 20kW

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

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# 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 )	Output Power ( kW )
GSP10-1000	0~10V	0~1000	10	GSP80-130	0~80V	0~130	10.4
GSP20-500	0~20V	0~500	10	GSP100-100	0~100V	0~100	10
GSP30-340	0~30V	0~340	10.2	GSP150-68	0~150V	0~68	10.2
GSP40-250	0~40V	0~250	10	GSP300-34	0~300V	0~34	10.2
GSP60-170	0~60V	0~170	10.2	GSP600-17	0~600V	0~17	10.2

# Models GSP 15kW

Model	Output Voltage VDC	Output Current ( A )	Output Power (kW)	Model	Output Voltage VDC	Output Current ( A )	Output Power (kW)
GSP10-1500	0~10V	0~1500	15	GSP80-195	0~80V	0~195	15.6
GSP20-750	0~20V	0~750	15	GSP100-150	0~100V	0~150	15
GSP30-510	0~30V	0~510	15.3	GSP150-102	0~150V	0~102	15.3
GSP40-375	0~40V	0~375	15	GSP300-51	0~300V	0~51	15.3
GSP60-255	0~60V	0~255	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	GSP/M
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# **G**ENESYS<sup>™</sup> Family Output Voltage and Current

	1						
Models Series	G (Std Front Pa GB (Blank Front		GSP (Scala	ble Power)			
Rated Power	1.7kW	5kW	10kW	15kW			
Voltage Range		Current R	ange (A)				
0-10V	0~170A	0~500A	0~1000A	0~1500A			
0-20V	0~85A	0~250A	0~500A	0~750A			
0-30V	0~56A	0~170A	0~340A	0~510A			
0-40V	0~42A	0~125A	0~250A	0~375A			
0-60V	0~28A	0~85A	0~170A	0~255A			
0-80V	0~21A	0~65A	0~130A	0~195A			
0-100V	0~17A	0~50A	0~100A	0~150A			
0-150V	0~11.2A	0~34A	0~68A	0~102A			
0-300V	0~5.6A	0~17A	0~34A	0~51A			
0-600V	0~2.8A	0~8.5A	0~17A	0~25.5A			
Weight (kg/lb)	5/11	7.5/16.5	15.5/34.2	23.5/51.8			

**AC Input Range** 

AC IIIput nully				
Rated Power	1.7kW	5kW	10kW	15kW
1Ø, 85-265Vac	*	N/A	N/A	N/A
3P208	N/A	*	*	*
3P400	N/A	*	*	*
3P480	N/A	*	*	*

# TDK·Lambda — GENESYS™ 1700W SERIES SPECIFICATIONS

Interest design content	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
State Of Control (1996)   1500   15												600
Improve Chapter Fire 17								-				2.8
Abstract Print		-					1	1680	1/00	1680	1680	1680
2. Abanism input careers at 1000 load (1000 2009)							60	80	100	150	300	600
Thrown programming   Thrown		_		ontinuous, 47	~63HZ,Single	Pnase						
Efficiency of 1810 Vess/20fac, rated outpuy)   S.   S.   S.   S.   S.   S.   S.   S				c 0.98 @ 200	Vac, rated out	put power.						
Mark Link regulation (*)   150   30   40   60   80   100   150   300   500		%	86/88	87/89	1	i i	87/89	87/89	88/90	88/90	88/90	88/90
Max. Line regulation   PG	5.Inrush current (*5)	Α	Less than 50A	1						-		
2May   200   400	CONSTANT VOLTAGE MODE	V	10	20	30	40	60	80	100	150	300	600
Single and note is po. 2.0MHz1 (**)	-	_										
Empelare transfer   Mary   Service   Service   PAPMC   Service and output voltage, following 30 minutes warm-up. Contract line, load & temp.		_		<del>_</del>								
Semperature coefficient										_		-
Command training   Command   Comma	- 11	_							12	8	20	100
Less than O3% of rated output vortinger 2m7 vore 30 minutes following power on.		_							e load & temi	n		
Remote series compersation/wire (**10)										γ.		
DDOwn progratesporse time:   Full load (*12)		_			1	1		1	1	5	5	5
10.Down prog.response time	-	mS	20	20	20	20	20	20	25	50	100	100
No load **P12	10 Down progressponsetime: Full load (*12)	mS	30	30	60	60	60	60	60	120	220	200
Table   Tabl	No load (*12)	mS										4600
CONSTANT CURRENT MODE	11.Transient response time	mS	Time for outp	out voltage to	recover within	n 0.5% of its ra	ited output fo	r a load chang	e 10~90% of	rated output c	urrent. Outpu	t set-point:
CONSTANT CURRENT MODE	12.Hold-up time	mS	10 10070, LO	car serise. Less	, anun 11113, 101					1004.		
Max. Load regulation (*6)			10	20	20		1			150	200	600
2. Abac Load regulation (**9)						40	60	80	100	150	300	600
2.Ripple_rm.s.@ 10% rated voltage (*13)		_										
Repipe rm.s.@ rated voltage, B.W SHz-1MHz	-	_				60	50	30	30	10	8	5
S.Temperature coefficient   PPMC   150V-600V   150PM-600V   150PM-600V   150PM-600V   150V-600V   15		_			_					+	_	-
150V-600V   70PPM/V-(trom rated output current, tollowing 30 minutes warm-up.		DDM /0C	10V~100V	100PPM/°C fr	om rated outp	out current, fo	llowing 30 mi	nutes warm-u	p.			
10V-100V model: Less than +/-0.2% of rated output current over 30 minutes following power on.	5.1emperature coefficient	PPM/°C	150V~600V	70PPM/°C fro	m rated outpu	ut current, foll	owing 30 min	utes warm-up				
A NALOG PROGRAMMING AND MONITORING (ISOLATED PROM THE OUTPUT)	6.Temperature stability											
ANALOG PROGRAMMING AND MONITORING (ISOLATED FROM THE OUTPUT)  1. Nout voltage programming	7. Warm-up drift									n.		
Doubty voltage programming     0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-0.1% of rated Vout.			150V~600V: L	ess than +/-0	.15% of rated o	output current	over 30 minu	tes following	power on.			
2.Jout voltage programming (*14)		FROM 1										
3.Vout resistor programming (*14)		_										
4. Lout resistor programming (*14) 0-100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/- 0.5% of rated lout.  5. Output voltage monitor 0-5V or 0-10V, user selectable. Accuracy: +/- 0.5%.  6. Output curnt monitor (*14) 0-5V or 0-10V, user selectable. Accuracy: +/- 0.5%.  5. GUALS AND CONTROLS (ISOLATED FROM THE OUTPUT)  1. Power supply OK #1 signal Power supply output monitor. Open collector. Condet: On. CV mode: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA  2. CVICC Signal CVICC Monitor. Open collector. CC mode: On. CV mode: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA  3. LOCAL/REMOTE Analog sontrol Enable/Disable analog programming control by electrical signal or dry contact. Remote: 0-0.6V or short. Local: 2-30V or open.  4. LOCAL/REMOTE Analog signal Bable/Disable solution to the signal or dry contact. Remote: 0-0.6V or short. Local: 2-30V or open.  5. ENABLE JOISABLE signal Enable/Disable PS output by electrical signal or dry contact. Remote: 0-0.6V or short. Local: 2-30V or open.  7. Programmed signals Two open drain programmable signals. Maximum voltage: 30V, Maximum Sink Current: 10mA  8. TRIGGER IV TRIGGER OUT signals Two open drain programmable signals. Maximum woltage: 25V, Maximum sink current: 100mA (Shunted by 27V zener)  8. TRIGGER IV TRIGGER OUT signals Two open drain programmable signals. Maximum woltage: 25V, Maximum sink current: 100mA (Shunted by 27V zener)  8. TRIGGER IV TRIGGER Signal Two open drain programmable signals. Maximum woltage: 25V, Maximum sink current: 100mA (Shunted by 27V zener)  8. TRIGGER IV TRIGGER Signal Signal Two open drain programmable signals. Maximum woltage: 25V, Maximum sink current: 100mA (Shunted by 27V zener)  8. TRIGGER IV TRIGGER Signal Signal Signal Two open drain programmable signals. Maximum woltage: 25V, Maximum sink current: 100mA (Shunted by 27V zener)  8. TRIGGER IV TRIGGER Signal Signal Signal Signal Signal Signal Signal		_										
S.Output voltage monitor		_										
SIGNALS AND CONTROLS (ISOLATED FROM THE OUTPUT)   1. Power supply Of #1 signal     Power supply of #1		_					acy and linear	ity: +/-0.5% 01	rated lout.			
SIGNALS AND CONTROLS (ISOLATED FROM THE OUTPUT)   1. Power supply OK #1 signal		_					,					
1. Power supply OK #1 signal 2. CV/CC dignal 3. CV/CC Monitor. Open collector. Cutput On: On. Output Off: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA 3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 7. Two open drain programming control by electrical signal or dry contact. Remote: 0-0.6V or short, 2-30V or open. User selectable logic. 6. INTERLOCK (ILC) control 7. Programmed signals 7. Two open drain programmable signals or dry contact. Remote: 0-0.6V or short, 2-30V or open. User selectable logic. 6. INTERLOCK (ILC) control 7. Programmed signals 7. Two open drain programmable signals and dry contact. Remote: 0-0.6V or short, 2-30V or open. User selectable logic. 7. Programmed signals 7. Two open drain programmable signals and dry contact. Remote: 0-0.6V or short, 2-30V or open. User selectable logic. 8. TRIGGER IN / TRIGGER OUT signals 8. TRIGGER IN / TRIGGER OUT signals 9. DAISY_IN/SO control signal 1. DAISY_IN/SO control signal 1. DAISY_OUT/PS_OK #2 signal 1. Psysible user 1. Psysible user 1. Psysible user 1. Psysible user 2. Psysible user 3. Psysible. Up to 4 identical units in Master/Slave mode. Refer to instruction manual. 9. Daisy chain 9. Daisy chain 9. Possible. Up to 4 identical units in Master/Slave mode. Refer to instruction manual. 9. Daisy chain 9. Daisy chain 9. Possible. Up to 4 identical units in Master/Slave mode. Refer to instruction manual. 9. Constant power control 9. Limits the output power to a programmed value. Programming via the communication ports or the front panel. 9. Enable/Disable PSysible. Up to 4 identical units in Master/Slave mode. Refer to instruction manual. 9. Control user 2. Psysible user 3. Ps			10 37 01 0 10	vv, aser sereet	ubic. riccuracy	. 17 0.570.						
2. CV/CC signal			Dower suppli	, autaut mani	itar Onan sall	actor Output	On On Outn	at Offic Off Man	vimum Valtaa	o. 201/ Mayima	um Cink Curra	nt. 10m A
3. LOCAL/REMOTE Analog control												III. IUIIIA.
4. LOCAL/REMOTE Analog signal analog programming control monitor signal. Open collector. Remote: On. Local: Off. Maximum Voltage: 30V, Maximum Sink Current: 101 5. ENABLE/DISABLE signal Enable/Disable PS output by electrical signal or dry contact. 0~0.6V or short, 2~30V or open. User selectable logic. 6. INTERLOCK (ILC) control Enable/Disable PS output by electrical signal or dry contact. Remote: 0~0.6V or short. Local: 2~30V or open. 7. Programmed signals Two open drain programmable signals. Maximum voltage 25V, Maximum sink current 100mA (Shunted by 27V zener) 8. TRIGGER IN / TRIGGER OUT signals Two open drain programmable signals. Maximum voltage 25V, Maximum sink current 100mA (Shunted by 27V zener) 8. TRIGGER IN / TRIGGER OUT signals Two open drain programmable signals. Maximum voltage 2.5V, Maximum high level input 97V zener) 8. TRIGGER IN / TRIGGER OUT signals Waximum low level input voltage = 0.8V, Minimum high level input voltage = 2.5V, Maximum high level input = 5V posit edge trigger: tw=10us minimum. Tr,Tf=1us Maximum, Min delay between 2 pulses 1ms. 9. DAISY_IN/SO control signal By electrical Voltage: 0~0.6V/2~30V or dry contact. 10. DAISY_OUT/PS_OK #2 signal 4~5V=OK, 0V (500ohm impedance)=Fail  FUNCTIONS AND FEATURES 1. Parallel operation Possible. Up to 4 identical units in Master/Slave mode. Refer to instruction manual. 2. Series operation Possible. Two identical units. Refer to instruction manual. 3. Daisy chain Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off. 4. Constant power control Limits the output power to a proggrammed value. Programming via the communication ports or the front panel. 5. Output resistance control Emulates series resistance. Resistance range: 1~1000mΩ. Programming via the communication ports or the front panel. 6. Slew rate control Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programming via the communication por		_										en
Enable/Disable PS output by electrical signal or dry contact. 0~0.6V or short, 2~30V or open. User selectable logic.   6.INTERLOCK (ILC.) control   C. Enable/Disable PS output by electrical signal or dry contact. Remote: 0~0.6V or short. Local: 2~30V or open.	-				<del></del>							
7. Programmed signals							-	-	-			
8. TRIGGER IN / TRIGGER OUT signals	6. INTERLOCK (ILC) control											
edge trigger: tw=10us minimum. Tr,Tf=1us Maximum, Min delay between 2 pulses 1ms.  9. DAISY_IN/SO control signal	7. Programmed signals											
9. DAISY_IN/SO control signal	8. TRIGGER IN / TRIGGER OUT signals										evel input =	5V positive
FUNCTIONS AND FEATURES   1. Parallel operation   Possible. Up to 4 identical units in Master/Slave mode. Refer to instruction manual.   2. Series operation   Possible. Two identical units. Refer to instruction manual.   2. Series operation   Possible. Two identical units. Refer to instruction manual.   2. Series operation   Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off.   4. Constant power control   Limits the output power to a programmed value. Programming via the communication ports or the front panel.   5. Output resistance control   Emulates series resistance. Resistance range: 1-1000mΩ. Programming via the communication ports or the front panel.   Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programming via the communication ports or the front panel.   Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the front panel   PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*18) Interface)   V							iuiii, iviiii dei	ay between	z puises ims			
FUNCTIONS AND FEATURES   1. Parallel operation	- 3	_	-			,						
1. Parallel operation												
2. Series operation Possible. Two identical units. Refer to instruction manual. 3. Daisy chain Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off. 4. Constant power control Limits the output power to a proggrammed value. Programming via the communication ports or the front panel. 5. Output resistance control Emulates series resistance. Resistance range: 1~1000mΩ. Programming via the communication ports or the front panel. 6. Slew rate control Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programming via the communication ports or the front panel. 7. Arbitrary waveforms Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the front panel.  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*18) Interface) V 10 20 30 40 60 80 100 150 300 600 1. Vout programming accuracy (*15) 0.05% of rated output voltage 2. Jout programming accuracy (*14) 0.1% of actual output current+0.2% of rated output current			Possible Unit	to 4 identical	units in Masto	/Slave modo	Refer to instru	iction manual				
3. Daisy chain		_						caon manual.	•			
4. Constant power control   Constant power control   Constant power to a proggrammed value. Programming via the communication ports or the front panel.		_						turn-on and t	turn-off.	-		
5. Output resistance control  6. Slew rate control  7. Arbitrary waveforms		_								or the front par	nel.	
communication ports or the front panel.  7. Arbitrary waveforms	-			<del> </del>								
Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the front panel.  Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the front panel.  PROGRAMMING AND READBACK (USB, LAN, BS232/485, Optional IEEE (*18) Interface)  1. Vout programming accuracy (*15)   0.05% of rated output voltage  2. Jout programming accuracy (*14)   0.1% of actual output current+0.2% of rated output current	6. Slew rate control	Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programming via the										
PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*18) Interface)         V         10         20         30         40         60         80         100         150         300         600           1.Vout programming accuracy (*15)          0.05% of rated output voltage           2.Jout programming accuracy (*14)          0.1% of actual output current+0.2% of rated output current						n A momon: -	olle Actions: -	n hu comme :	d via the ser	munication = -	etc or butbe	ront panal
RS232/485, Optional IEEE (*18) Interface)   V   10   20   30   40   60   60   100   150   300   600   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300   100   150   300			i romes or up	to roo steps (	curr be stored	memory C	CIIS. ACUVALIO	i by command	u via tile COMI	пинсацоп ро	i co oi by tile li	ont panel.
1.Vout programming accuracy (*15)      0.05% of rated output voltage       2.Iout programming accuracy (*14)      0.1% of actual output current+0.2% of rated output current	PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEF (*18) Interface)	V	10	20	30	40	60	80	100	150	300	600
2.lout programming accuracy (*14) 0.1% of actual output current+0.2% of rated output current	-		0.05% of rate	d output volta	age							
2.1/2.1.4.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.		_				ted output cui	rrent					
3.Vout programming resolution 0.002% of rated output voltage	3.Vout programming resolution											
4.lout programming resolution 0.002% of rated output current		_		<u>.</u>								
5.Vout readback accuracy 0.05% of rated output voltage												
6.lout readback accuracy (*14) 0.2% of rated output current	-	_				0.000	0	0.000	0.000	0.0000	0.000	
		_										0.002%
8.lout readback resolution (of rated output current)  % 0.007% 0.002% 0.003% 0.003% 0.005% 0.006% 0.007% 0.010% 0.003% 0.004	o.iout readback resolution (or rated output current))	1 90	0.007%	0.002%	0.003%	0.003%	0.005%	0.000%	0.00/%	0.010%	0.003%	0.004`%

# **G**ENESYS™ 1700W SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS	V	10	20	30	40	60	80	100	150	300	600
1.Foldback protection		Output shut- User presetal	down when p	ower supply o	hanges mode le in autostart	from CV or Pomode, by Pom	ower Limit to wer Switch, by	CC mode or fro	om CC or Pow	er Limit to CV nel or by com	mode. munication.
2.Over-voltage protection (OVP)		Output shut-	down. Reset b	y AC input red	ycle in autost	art mode, by	OUTPUT butt	on, by rear par	nel or by comr	nunication.	
3.Over -voltage programming range	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 accuracy		+/-1% of rate	d output volta	age							
5.Output under voltage limit (UVL)		Prevents from	n adjusting Vo	out below limi	t. Does not app	oly in analog	programming	g. Preset by fro	nt panel or co	mmunication	port.
6.Over temperature protection					y autostart mo						
7. Output under voltage limit (UVL)		Prevents adju	ustment of Vo	ut below limit							
8. Output under voltage protection (UVP)		Prevents adjumode, by Pov	ustment of Vo wer Switch, by	ut below limit OUTPUT butt	. P.S output tui on, by rear pai	rns Off during nel or by com	g under voltag Imunication.	ge condition. F	leset by AC in	out recycle in	autostart
FRONT PANEL											
1.Control functions		Multiple opti	ons with 2 En	coders							
			wer Limit ma								
			P manual adju								
					dback, OCL, EN	NA. ILC			-		
					LAN,IEEE,RS23		or Optional c	ommunicatio	n interface.		
			FF. Front Pan			,					
					Baud Rate, Ad	dress IP and	communicati	on language			
					tage/resistive				nina	-	
					Voltage/Curre				9		
2.Display					utput voltage						
210101010					put current +/					-	
3.Front Panel Buttons Indications					MMUNICATION		N.CONFIGUR	ATION, SYSTEM	M. SEQUENCE	3.	
					nal Voltage, Ex						note
4. Front Panel Display Indications		(communicat	tion), RS/USB/	LAN/IEEE com	munication, Tr	igger, Load/S	Store Cell.	. Tyriatostai ty			
ENVIRONMENTAL CONDITIONS											
1.Operating temperature		0~50°C, 1009	6 load.								
2.Storage temperature		-30~85°C									
3.Operating humidity	%	20~90% RH (	no condensat	ion).							
4.Storage humidity	%	10~95% RH (i	no condensat	ion)							
5.Altitude (*16)					ent derating 29	%/100m or Ta	derating 1°C/	100m above 2	000m. Non op	erating: 4000	0ft (12000m).
MECHANICAL	<u> </u>										
1.Cooling		Forcad air co	oling by intor	nal fanc Air flo	w direction: fr	om Eront na	nol to nower s	upply roor			
				ilai iaiis. Ali iic	w direction. II	om From par	nei to power s	пирріу геаг			
2.Weight	kg	Less than 5kg									
3.Dimensions (WxHxD)	mm				isbars and bu ousbars and b			Outline draw	ina).		
4.Vibration		MIL-810G, me	ethod 514.6, P	rocedure I, tes	t condition Ar	nex C - 2.1.3.	1				
5.Shock		Less than 200	3, half sine, 11	mSec. Unit is ι	ınpacked.						
SAFETY/EMC											
1.Applicable standards: Safety		UL60950-1, C	SA22.2 No.60	950-1, IEC6095	50-1, EN60950-	1.					
		Vout ≤40V M	odels: Output	. J1.J2.J3.J4.J5	.J6.J7.J8 (sense	and .J9 (cor	nmunication	options) are SE	LV.		
1.1. Interface classification		60≤ Vout≤ 6	00V Models: 0	Output, J8 (ser	nse) are hazard	ous, J1,J2,J3,	J4,J5,J6,J7 and	d J9 (communi	ication option	s) are SELV	
					LV): 4242VD0						
					it: 4242VDC			VDC 1min, Ou	utput - SELV:	850VDC 1mi	in,
1.2 Withstand voltage		Output - Ground: 1500VDC 1min, Input - Ground: 2835VDC 1min.  100 <vout≤600v -="" 1275vdc="" 1min,="" 1min,<="" 4242vdc="" input="" models:="" output="" output:="" selv:="" td=""><td></td></vout≤600v>									
		100 <vout≤6 Output - Gro</vout≤6 	00V Models: ound: 2500VI	Input - Outpu OC 1min, Inpu	ut: 4242VDC	1min, Input - 835VDC 1m	SELV: 4242' in.	VDC 1min, O	utput - SELV:	1275VDC 1n	nin,
1.3 Insulation resistance		-	25°C, 70%RH.								
2.Conducted emmision					nnex H table I	4.1 ECC Dave	15-A VCCI A				
3.Radiated emission											
		+			nnex H table I	1.5 and H4, F	CC Part 15-A,	VCCI-A			
4. EMC compliance EMC(*17)		According to	IEC/EN61204	-3 Industrial er	ivironment						

- 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: 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 0.2m5ec.
  \*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 JEITA RC-913IC (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 99% of Rated Output Voltage, with rated, resistive load.
  \*12: From 90% to 10% of Rated Output Voltage, with rated, resistive load.
  \*13: 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.
  \*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 Tale aderating 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.

# TDK·Lambda GENESYS™ 5000W SERIES SPECIFICATIONS

OUTPUT RATING		G	10-500	20-250	30-170	40-125	60-85	80-65	100-50	150-34	300-17	600-8.5
1.Rated output voltage(*1)		٧	10	20	30	40	60	80	100	150	300	600
2.Rated output current (*2)		Α	500 (*3)	250	170	125	85	65	50	34	17	8.5
3.Rated output power		W	5000	5000	5100	5000	5100	5200	5000	5100	5100	5100
INPUT CHARACTERISTICS		٧	10	20	30	40	60	80	100	150	300	600
					~265Vac, 47~6							
1.Input voltage/freq. 3 phase, 3 w	vire + Ground (*4)				~460Vac, 47~			ac) 40/460/480Va	c)			
	3-Phase, 200V models:		17.5A @ 200V		~528Vac, 4/~t	53HZ (Covers 3	880/400/415/4	40/460/480Va	C)			
2. Maximum Input current at	3-Phase, 400V models:		9.2A @ 380Va									
100% load	3-Phase, 480V models:	1	9.2A @ 380Va									
3.Power Factor (Typ)				80Vac, rated o	utput power.							
4.Efficiency (*5)		%	89.5	91	91	91	91	91	91	91	92	92
5.Inrush current (*6)		A	Less than 50/	A								
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)			0.01% of rate	d output volta	age	_					_	
2.Max. Load regulation (*8)			0.01% of rate	d output volta	age +5mV							
3.Ripple and noise (p-p, 20MHz)	(*9)	mV	75	75	75	75	75	80	90	120	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	15	15	20	60	100
5.Temperature coefficient		PPM/°C			ut voltage, fol							
6.Temperature stability							<u>'</u>	p. Constant lin		0.		
7. Warm-up drift			Less than 0.0	5% of rated or	utput voltage-	+2mV over 30 i	minutes follov	ving power or	١.			
8.Remote sense compensation/w	vire (*10)	V	2	2	5	5	5	5	5	5	5	5
9.Up-prog. Response time (*11)	I= · · ·	mS	30	30	30	30	50	50	50	50	50	100
10.Down-prog.response time:	Full load (*11)	mS	50	50	80	80	80	100	100	100	100	200
, 5	No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	3000	3000
11.Transient response time		mS						r a load chang g 100V. 2mS, fo		rated output c	urrent. Outpu	τ set-point:
12.Start up delay		Sec	Less than 5 Se		uii 11113, 101	oucis up to	and meluulli	9 .001.21113,10	J	1007.		
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)				d output curr								
2.Max. Load regulation (*13)	(*14)			d output curr		150	100	70	45	45	1.5	
3.Ripple r.m.s. @ 10% rated voltage	-	mA	1200	600	300	150	100	70	45	45	15	8
4.Ripple r.m.s. @ rated voltage. B.	.W 5HZ~IMHZ.	mA	700 10V~100V	300	150	75	50	35 nutes warm-u	23	23	7.5	4
5.Temperature coefficient		PPM/°C	-									
C.T								utes warm-up				
6.Temperature stability								o. Constant line minutes follo				
7. Warm-up drift				ouei. Less tilai								
				locc than 1/0								
				Less than +/-0				ites following				
ANALOG PROGRAMMING AND M	MONITORING (ISOLATED	FROM T	HE OUTPUT)		.15% of rated o	output current	t over 30 minu	ites following	power on.			
1.Vout voltage programming			<b>HE OUTPUT)</b> 0~100%, 0~5	5V or 0~10V, us	.15% of rated of	output current	t over 30 minu	ites following	power on. Vout.			
1.Vout voltage programming 2.lout voltage programming (*15			0~100%, 0~5	SV or 0~10V, us	.15% of rated of ser selectable.	Accuracy and	linearity: +/-0	o.15% of rated to	power on.  Vout.  out.			
1.Vout voltage programming     2.lout voltage programming (*15     3.Vout resistor programming	5)		0~100%, 0~5 0~100%, 0~5 0~100%, 0~5	5V or 0~10V, us 5V or 0~10V, us 5/10Kohm full	ser selectable. ser selectable. ser selectable.	Accuracy and Accuracy and Accuracy and	linearity: +/-0 linearity: +/-0 acy and linear	0.15% of rated to 0.4% of rated to rity: +/-0.5% of	Vout.  Frated Vout.			
1.Vout voltage programming 2.lout voltage programming (*15 3.Vout resistor programming 4.lout resistor programming (*15	5)		0~100%, 0~5 0~100%, 0~5 0~100%, 0~5 0~100%, 0~5 0~100%, 0~5	5V or 0~10V, us 5V or 0~10V, us 5/10Kohm full 5/10Kohm full	ser selectable. ser selectable. scale, user sele scale, user sele	Accuracy and Accuracy and Accuracy and ectable. Accur	linearity: +/-0 linearity: +/-0 acy and linear	o.15% of rated to	Vout.  Frated Vout.			
Nout voltage programming     Shout voltage programming (*15)     Nout resistor programming     Alout resistor programming (*15)     Soutput voltage monitor	5)		HE OUTPUT)  0~100%, 0~5  0~100%, 0~5  0~100%, 0~5  0~100%, 0~5  0~5V or 0~10	SV or 0~10V, us SV or 0~10V, us S/10Kohm full S/10Kohm full SV, user select	ser selectable. ser selectable. scale, user sele scale, user sele able. Accuracy	Accuracy and Accuracy and ectable. Accur	linearity: +/-0 linearity: +/-0 acy and linear	0.15% of rated to 0.4% of rated to rity: +/-0.5% of	Vout.  Frated Vout.			
1.Vout voltage programming 2.lout voltage programming (*15 3.Vout resistor programming 4.lout resistor programming (*15	5)		HE OUTPUT)  0~100%, 0~5  0~100%, 0~5  0~100%, 0~5  0~100%, 0~5  0~5V or 0~10	SV or 0~10V, us SV or 0~10V, us S/10Kohm full S/10Kohm full SV, user select	ser selectable. ser selectable. scale, user sele scale, user sele	Accuracy and Accuracy and ectable. Accur	linearity: +/-0 linearity: +/-0 acy and linear	0.15% of rated to 0.4% of rated to rity: +/-0.5% of	Vout.  Frated Vout.			
Nout voltage programming     Shout voltage programming (*15)     Nout resistor programming     Alout resistor programming (*15)     Soutput voltage monitor	5)	  	HE OUTPUT)  0~100%, 0~5  0~100%, 0~5  0~100%, 0~5  0~100%, 0~5  0~5V or 0~10	SV or 0~10V, us SV or 0~10V, us S/10Kohm full S/10Kohm full SV, user select	ser selectable. ser selectable. scale, user sele scale, user sele able. Accuracy	Accuracy and Accuracy and ectable. Accur	linearity: +/-0 linearity: +/-0 acy and linear	0.15% of rated to 0.4% of rated to rity: +/-0.5% of	Vout.  Frated Vout.			
1.Vout voltage programming 2.lout voltage programming (*15 3.Vout resistor programming (*15 5.Output voltage monitor 6.Output current monitor (*15) SIGNALS AND CONTROLS (ISOLA 1. Power supply OK #1 signal	5)	  	0~100%, 0~5 0~100%, 0~5 0~100%, 0~5 0~100%, 0~5 0~100%, 0~5 0~5V or 0~10 0~5V or 0~10	iv or 0~10V, us iv or 0~10V, us iv/10Kohm full iv/10Kohm full iv/, user select iv/, user select	ser selectable. ser selectable. scale, user sele scale, user sele able. Accuracy able. Accuracy	Accuracy and Accuracy and Accuracy and Accuracy and ectable. Accur ectable. Accur r: +/-0.5%. r: +/-0.5%.	linearity: +/-C linearity: +/-C acy and linear acy and linear	0.15% of rated of the control of the	power on.  Vout.  f rated Vout. f rated lout.	e: 30V, Maxim		nt: 10mA.
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# **GENESYS™ 5000W SERIES SPECIFICATIONS**

PROTECTIVE FUNCTIONS		V	10	20	30	40	60	80	100	150	300	600
1.Foldback protection			Output shut- User preseta	down when p ble. Reset by <i>i</i>	oower supply o AC input recyc	hanges mode le in autostart	from CV or Po mode, by Pov	ower Limit to ( wer Switch, by	CC mode or fro OUTPUT butte	om CC or Pow on, by rear pa	er Limit to CV nel or by com	mode. munication.
2.Over-voltage protection (OVP)			Output shut-	down. Reset I	by AC input red	ycle in autost	art mode, by	OUTPUT butto	on, by rear pan	el or by comr	nunication.	
3.Over -voltage programming ran	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			+/-1% of rate	d output volt	age							
5.Output under voltage limit (UV	L)				out below limi			programming	. Preset by froi	nt panel or co	mmunication	port.
6.Over temperature protection					uto recovery by		ode.					
7. Output under voltage limit (UV	L)		Prevents adj	ustment of Vo	out below limit							
8. Output under voltage protecti	on (UVP)				out below limit y OUTPUT butt				e condition. R	eset by AC in	out recycle in a	utostart
FRONT PANEL												
1.Control functions			Multiple opt	ons with 2 En	coders							
				wer Limit ma		,						
				P manual adj					_			
					P, UVL,UVP, Fol							
					s - Selection of	LAN,IEEE,RS2	32,RS485,USB	or Optional c	ommunication	interface.		
	-			OFF. Front Pan								
	-				s - Selection of						_	
					- Selection Vol				10K programm	ing		
2 D: 1					- Selection of			g 5V/10V.	-			
2.Display					05% of rated o							
25 10 10 11 11 11					% of rated out			N CONFICUR	TION CYCTEN	A CEOUENICE		
3. Front Panel Buttons Indications					/IEW, FINE, COI							
4. Front Panel Display Indications			Voltage, Curi (communica	ent, Power, C tion), RS/USB/	V, CC, CP, Exter LAN/IEEE com	nal Voltage, E munication, T	xternal Curre rigger, Load/S	nt, Address, LF Store Cell.	P, Autostart, S	afetstart, Fol	dback V/I, Rem	ote
ENVIRONMENTAL CONDITIONS												
1.Operating temperature			0~50°C, 1009	% load.								
2.Storage temperature			-30~85°C									
3.Operating humidity		%	20~90% RH (	no condensat	tion).							
4.Storage humidity		%	10~95% RH (	no condensat	rion).							
5.Altitude (*17)	-				n), output curre	ent derating 2	%/100m or Ta	derating 1°C/	100m above 20	000m. Non on	erating: 40000	)ft (12000m)
MECHANICAL			operating.		ny output curr	- cacrating 2	707 100111 01 10	deruting i e		, , , , , , , , , , , , , , , , , , ,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
			F	alta a las stagas			Г	-14				
1.Cooling					nal fans. Air flo	ow direction: r	rom Front par	iei to power si	uppiy rear		-	
2.Weight		kg	Less than 7.5									
3.Dimensions (WxHxD)		mm	W: 423, H: 4	3.6, D: 553.5	5 (Without bu 5 (Including b	usbars and l	ousbars cove	er) (Refer to C	Outline drawi	ng).		
4.Vibration					Procedure I, tes		nnex C - 2.1.3.	1				
5.Shock			Less than 20	G, half sine, 11	mSec. Unit is ι	ınpacked.						
SAFETY/EMC												
1.Applicable standards:	Safety		UL60950-1, C	SA22.2 No.60	950-1, IEC6095	0-1, EN60950	-1.					
1.1. Interface classification	,		Vout ≤40V M	odels: Output	t, J1,J2,J3,J4,J5 Output, J8 (ser	,J6,J7,J8 (sens	e) and ,J9 (cor	nmunication o	options) are SE	LV.	s) are SELV	
					t - Output (SE						-, -, -, - , -, -, -, -, -, -, -, -, -,	
1.2 Withstand voltage			60V≤Vout≤1	00V Models:	: Input - Outpu	ıt: 4242VDC	1min, Input -	SELV: 4242\			850VDC 1mi	n,
					: Input - Outpu DC 1min, Inpu				/DC 1min, Ou	ıtput - SELV:	1275VDC 1m	nin,
1.3 Insulation resistance	I.			25°C, 70%RH								
2.Conducted emmision					nvironment, A	nnex H table	H.1 , FCC Part	15-A, VCCI-A .				
3.Radiated emission					nvironment, A				/CCI-A			
	EMC(*18)				-3 Industrial er		11.5 and 114, F	cc rait is A,	VCCI-A			
4. EMC compliance	EIVIC(" 18)		According to	IEC/END1204	-5 industrial ef	iviionment						

- NOTES:
  \*I: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
  \*2: Minimum voltage is guaranteed to maximum 0.2% of rated output current.
  \*3: Derate 5A/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: 170-256Vac, 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 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.
  \*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.
  \*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 400°C.

# **G**ENESYS<sup>™</sup> **G**SP10kW SERIES SPECIFICATIONS

Selection of processing	OUTPUT RATING		GSP	10-1000	20-500	30-340	40-250	60-170	80-130	100-100	150-68	300-34	600-17
State decorptop power	1.Rated output voltage(*1)		٧	10	20	30	40	60	80	100	150	300	600
Page   Color   Color	<u> </u>					_		-	ł — — — — — — — — — — — — — — — — — — —				17
James voltage from 3 phases, 3 wire + Ground (*4)	3.Rated output power			10	10	10.2	10	10.2	10.4	10	10.2	10.2	10.2
	INPUT CHARACTERISTICS		V	-					80	100	150	300	600
Jahnsus (1997 models)													
2   Maximum Input Current at   2   3   3   4   2   3   3   4   3   3   3   4   3   3   3	1.Input voltage/freq. 3 phase, 3 wi	ire + Ground (*4)			,					-\			
2. Masternum import current at   0.09% book   3. Phase, 480V models   3. Pha		2 Phase 200V models:				!~528Vac, 4/~t	3HZ (Covers 3	880/400/415/4	40/460/480Va	c)			
18.4 A   380Vcc    18.4 A   280Vcc    18.4 A   28													
Shower factor (Typ)	100% load												
Strict   S	3.Power Factor (Typ)	5 Thase, 1007 models.				output power.							
Section   Sect			%	_		<del>,</del>	91	91	91	91	91	92	92
Mode   The regulation   17     20   10   40   60   80   100   150   30	5.Inrush current (*6)		Α	Less than 100	)A								
JAMA_Line regulation (19)	6.AC line phase imbalance		%	< 5%									
JAMA_Line regulation (19)	CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	600
2. Aba Cu Load regulation (**)							10	00	00	100	150	300	1 000
Applies m.s. 548-mMHz (**)	•												-
Stemperature coefficient	3.Ripple and noise (p-p, 20MHz) (	*9)	mV	75	75	75	75	75	80	90	120	200	480
Gamperature stability	4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	15	15	20	60	100
2.	5.Temperature coefficient		PPM/°C	50PPM/°C fro	m rated outp	ut voltage, fol	lowing 30 mir	utes warm-u	o.				•
Semons terms compensation/wire (*10)	6.Temperature stability			0.01% of rate	d Vout over 8	hrs interval fol	lowing 30 mir	nutes warm-u	p. Constant lin	e, load & tem	p.		
Supprogramming	7. Warm-up drift			Less than 0.0	5% of rated o	utput voltage-	-2mV over 30	minutes follov	ving power on	ı.			
10.Down-progresponse time:   Full load (*11)   MS   50   50   80   80   90   100   100   100   100   100   101		ire (*10)	V								_	-	5
10.Down-progresponce time	9.Up-prog. Response time (*11)						30				_	-	100
Till_Tansient response time	10.Down-prog response time-												200
10-100%, Local sense; Less than 1m5, for models up to and including 100W.2m5, for models above 100W.	o p. og.icopolise tille.	No load (*12)	mS										3000
2. Start up delay	11.Transient response time		mS	Time for outp	out voltage to	recover within	n 0.5% of its ra	ited output fo	r a load chang	e 10~90% of	rated output o	urrent. Outpu	t set-point:
CONSTANT CURRENT MODE  1. Max. Line regulation (*7)  3. Ripple r.m.s. ⊕ 10% rated voltage (*14)  MA  1500  1200  700  300  150  150  70  35   30  35   23  75. Semperature coefficient  PPMN  5. Emperature coefficient  PPMN  6. Temperature stability	<u> </u>					3 citati 11113, 101	models up to	ana maaan	y 100V. ZM3, T	n mouers and	VE 100V.		
Max. Lude regulation (17)			Jec	Less than 7 sec									
2.08% of rated output current.   2.08% of rated output current.   3.8 pipple r.m.s. @ 10% rated voltage (*14)   mA   1500   1200   600   300   150   75   50   35   23   7.5													
3Ripple t.m.s. @ 10% rated voltage ("14)													
ARIPOPE cm.s.@ rated voltage. 8.W SHz-1MHz.	-												
Stemperature coefficient													10
S.Temperature coefficient  PPMC  150V-600V 70PPM/PC from rated output current, following 30 minutes warm-up.  170V-60V 10V-60V 10V-60	4.Ripple r.m.s. @ rated voltage. B.V	W 5Hz~1MHz.	mA								23	7.5	6
6.Temperature stability 0.01% of rated lout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature.  10V-100V model: Less than +/-0.25% of rated output current over 30 minutes following power on.  150V-600V: Less than +/-0.15% of fated output current over 30 minutes following power on.  ANALOG PROGRAMMING AND MONITORING (ISOLATED FROM THE OUTPUT)  1.Vout voltage programming 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-0.15% of fated Vout.  2.lout voltage programming (15) 0-100%, 0-5V or 0-10V, user selectable. Accuracy and linearity: +/-0.5% of fated Vout.  3.Vout resistor programming (15) 0-100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of fated Vout.  4.lout resistor programming (15) 0-100%, 0-5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of fated Vout.  4.lout resistor programming (15) 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  5.Cutput voltage monitor 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  6.Cutput outage monitor 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  6.Cutput outage monitor 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  7.Cutput outage monitor 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  8.Cutput outage monitor (15) 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  8.Cutput outage monitor (15) 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  9.Cutput outage monitor (15) 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  9.Cutput outage monitor (15) 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  9.Cutput outage monitor (15) 0-5V or 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  9.Cutput outage monitor (15) 0-10V, user selectable. Accuracy: +/-0.5% of fated Vout.  9.Cutput outage monitor (15) 0-10V, user selectable. Accuracy: +/-0.5% of fated Vou	5.Temperature coefficient		PPM/°C										
2.	C.T at a bility.												
ANALOG PROGRAMMING AND MONITORING (ISOLATED FROM THE OUTPUT)	o. remperature stability										-		
ANALOG PROGRAMMING AND MONITORING (ISOLATED FROM THE OUTPUT)  1.Vout voltage programming	7. Warm-up drift										JII.		
1.Vout voltage programming					LC35 triuit 17 0	.1570 01 14104 0	output current		ites following	power on.			
2. Out voltage programming (*15)		IONITORING (ISOLATED	FROMT								-		
3.Vout resistor programming		,											
4.Iout resistor programming (*15)		)											
5.Output voltage monitor		\	_								-		
Signals AND CONTROLS (ISOLATED FROM THE OUTPUT)   1. Power supply OK #1 signal     Power supply output monitor. Open collector. Output On: On. Output Off: Off. Maximum Voltage: 30V, Maximum Sink Current: 10m.A.		)						acy and imea	ity: +/-0.5% 01	rateu iout.			
SIGNALS AND CONTROLS (ISOLATED FROM THE OUTPUT)   1. Power supply OK #1 signal	<u> </u>		_										
1. Power supply OK #1 signal				034 01 010	v, user select	able. Accuracy	. +/-0.570.						
2. CV/CC signal		TED FROM THE OUTPUT	·										
3. LOCAL/REMOTE Analog control 4. LOCAL/REMOTE Analog signal 5. ENABLE/DISABLE signal 6. INTERLOCK (ILC) control 7. Programmed signals 7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals 8. TRIGGER IN / TRIGGER OUT signals 9. DAISY_IN/SO control signal 9. DAISY_UT/PS_OK #2 signal 9. Consult with Factory 2. Series operation 9. Daisy chain 1. Parallel operation 9. Daisy chain 1. Parallel operation 9. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 9. Daisy chain 1. Consult with Factory 1. Series operation 1. Consult with Factory 2. Series operation 3. Daisy chain 1. Series operation 4. Constant power control 4. Constant power control 5. Output resistance control 6. Slew rate control 7. Arbitrary waveforms 7. Arbitrary waveforms 7. Programming control waveforms 2. Programming via the communication ports or the front panel. 8. Translet operation 2. Programming control waveform 2. Programming via the communication ports or by the front panel. 8. Translet operation 2. Programmi									•				nt: 10mA.
4. LOCAL/REMOTE Analog signal analog programming control monitor signal. Open collector. Remote: On. Local: Off. Maximum Voltage: 30V, Maximum Sink 5. ENABLE/DISABLE signal Enable/Disable PS output by electrical signal or dry contact. 0-0.6V or short, 2-30V or open. User selectable logic. 6. INTERLOCK (ILC) control Enable/Disable PS output by electrical signal or dry contact. Remote: 0-0.6V or short. Local: 2-30V or open. 7. Programmed signals Two open drain programmable signals. Maximum voltage 25V, Maximum sink current 100mA (Shunted by 27V zener) 8. TRIGGER IN / TRIGGER OUT signals Maximum low level input voltage = 0.8V, Minimum high level input voltage = 2.5V, Maximum high level input edge trigger: tw=10us minimum. Tr,Tf=1us Maximum, Min delay between 2 pulses 1ms. 9. DAISY_IN/SO control signal By electrical Voltage: 0-0.6V/2-30V or dry contact. 10. DAISY_OUT/PS_OK #2 signal 4-5V=OK, 0V (500ohm impedance)=Fail  FUNCTIONS AND FEATURES 1. Parallel operation Consult with Factory 2. Series operation Consult with Factory 3. Daisy chain Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off. 4. Constant power control Limits the output power to a programmed value. Programming via the communication ports or the front panel. 5. Output resistance control Emulates series resistance. Resistance range: 1~1000mΩ. Programming via the communication ports or the front panel. 6. Slew rate control Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programming communication ports or the front panel. 7. Arbitrary waveforms Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the			_					-					
5. ENABLE/DISABLE signal		!	_										
6. INTERLOCK (ILC) control 7. Programmed signals													irent: IUMA.
7. Programmed signals Two open drain programmable signals. Maximum voltage 25V, Maximum sink current 100mA (Shunted by 27V zener)  8. TRIGGER IN / TRIGGER OUT signals Maximum low level input voltage = 0.8V, Minimum high level input voltage = 2.5V, Maximum high level input v												ogic.	-
8. TRIGGER IN / TRIGGER OUT signals			_									V zener)	
9. DAISY_IN/SO control signal		-1-											5V positive
10. DAISY_OUT/PS_OK \$2 signal 4~5V=OK, 0V (5000hm impedance)=Fail  FUNCTIONS AND FEATURES  1. Parallel operation Consult with Factory 2. Series operation Consult with Factory 3. Daisy chain Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off. 4. Constant power control Limits the output power to a programmed value. Programming via the communication ports or the front panel. 5. Output resistance control Emulates series resistance. Resistance range: 1~1000mΩ. Programming via the communication ports or the front panel. 6. Slew rate control Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programming communication ports or the front panel. 7. Arbitrary waveforms Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the ROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) V 10 20 30 40 60 80 100 150 300	<u> </u>	dis						num, Min de	lay between	2 pulses 1ms	s	P. == -	
FUNCTIONS AND FEATURES  1. Parallel operation 2. Series operation 3. Daisy chain 4. Consult with Factory 3. Daisy chain 5. Output resistance control 6. Slew rate control 7. Arbitrary waveforms 7. Arbitrary waveforms 7. Arbitrary waveforms 7. Programming AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 7. Arous consult with Factory 7. Consult with Factory 8. Consult with Factory 9. Consult			_				y contact.						
1. Parallel operation Consult with Factory 2. Series operation Consult with Factory 3. Daisy chain Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off. 4. Constant power control Limits the output power to a programmed value. Programming via the communication ports or the front panel. 5. Output resistance control Emulates series resistance. Resistance range: 1~1000mΩ. Programming via the communication ports or the front panel. 6. Slew rate control Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.9 V/mSec. or A/mSec. Programmine communication ports or the front panel. 7. Arbitrary waveforms Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) V 10 20 30 40 60 80 100 150 300	10. DAISY_OUT/PS_OK #2 signal			4~5V=OK, 0V	(500ohm im	pedance)=Fail							
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6. Slew rate control  7. Arbitrary waveforms	4. Constant power control			Limits the ou	tput power to	a proggramm	ned value. Pro	gramming via	the communi	cation ports o	or the front pa	nel.	
communication ports or the front panel.  7. Arbitrary waveforms	5. Output resistance control												
7. Arbitrary waveforms Profiles of up to 100 steps can be stored in 4 memory cells. Activation by command via the communication ports or by the PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) V 10 20 30 40 60 80 100 150 300	6. Slew rate control						all slew rate. P	rogramming	range: 0.0001~	999.9 V/mSec	c. or A/mSec. P	rogramming \	/ia the
PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface)         V         10         20         30         40         60         80         100         150         300							n 1 maw	olle Astirist	n hu com	dyjatha	municati :	orte or burth - f	ront nanci
RS232/485, Optional IEEE (*19)(*20) Interface)	<u> </u>			r ronnes of up	to rousteps	can be stored i	ıı 4 memory c	ens. ACTIVATIO	ii by command	a via tne comi	munication po	i is or by the fi	ont panel.
RS232/485, Optional IEEE (*19)(*20) Interface)	PROGRAMMING AND READBACK	( (USB, LAN,	V	10	20	30	40	60	80	100	150	300	600
1 Vout programming accuracy (*16) 0.05% of rated output voltage	•												
1.Vout programming accuracy (*16) 0.05% of rated output voltage 2.lout programming accuracy (*15) 0.3% of rated output current													
3.Vout programming resolution 0.002% of rated output voltage		٥)											
4.lout programming resolution 0.002% of rated output voltage	· • •												
Solutiveaback accuracy (*15) 0.02% of rated output current								-					
7. Vout readback resolution (of rated output voltage) % 0.011% 0.006% 0.004% 0.003% 0.002% 0.002% 0.011% 0.007% 0.004%		ed output voltage)	%		· ·	1	0.003%	0.002%	0.002%	0.011%	0.007%	0.004%	0.002%
8.lout readback resolution (of rated output current)) % 0.012% 0.003% 0.004% 0.005% 0.007% 0.009% 0.012% 0.003%													0.006%

# **G**ENESYS<sup>™</sup> GSP15kW SERIES SPECIFICATIONS

	1										
OUTPUT RATING	GSP	10-1500	20-750	30-510	40-375	60-255	80-195	100-150	150-102	300-51	600-25.5
1.Rated output voltage(*1)	V	10	20	30	40	60	80	100	150	300	600
2.Rated output current (*2)	A	1500 (*3)	750	510	375	255	195	150	102	51	25.5
3.Rated output power	kW	15	15	15.3	15	15.3	15.6	15	15.3	15.3	15.3
INPUT CHARACTERISTICS	V	10	20	30	40	60	80	100	150	300	600
		3-Phase, 200\	/ models: 170	~265Vac, 47~6	3Hz (Covers 2	00/230Vac)				1	
1.Input voltage/freq. 3 phase, 3 wire + Ground (*4)					63Hz (Covers		ac)				
							40/460/480Va	:)			
3-Phase, 200V models	:	52.5A @ 200V									
2. Maximum Input current at		27.6A @ 380V									
100% load 3-Phase, 480V models		27.6A @ 380V									
3.Power Factor (Typ)		0.94 @ 200/38		utnut nower							
4.Efficiency (*5)	%	89.5	90	91	91	91	91	91	91	92	92
5.Inrush current (*6)	A	Less than 150			,			,			1 /2
6.AC line phase imbalance	%	< 5%					-				
				1	T .	1	1		1		
CONSTANT VOLTAGE MODE	V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)		0.01% of rate	d output volta	ige							
2.Max. Load regulation (*8)		0.01% of rate	d output volta	ige +5mV							
3.Ripple and noise (p-p, 20MHz) (*9)	mV	75	75	75	75	75	80	90	120	200	480
	_	8	10	12	12	12	15	15	20	60	
4.Ripple r.m.s. 5Hz~1MHz (*9)	mV							15	20	] 60	100
5.Temperature coefficient	PPM/°C				lowing 30 min						
6.Temperature stability		0.01% of rate	d Vout over 8h	rs interval fol	lowing 30 min	utes warm-u	p. Constant lin	e, load & temp	).		
7. Warm-up drift		Less than 0.0	5% of rated οι	tput voltage-	-2mV over 30 r	minutes follo	ving power on				
8.Remote sense compensation/wire (*10)	V	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
1 1 3 1 1 1 1							-				
10.Down-prog.response time: Full load (*11)	mS	50	50	80	80	80	100	100	100	100	200
No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	3000	3000
11.Transient response time	mS	Time for outp	out voltage to	recover within	n 0.5% of its ra	ted output fo	r a load chang	e 10~90% of r	ated output c	urrent. Output	t set-point:
		10~100%, Lo	cal sense. Less	than 1mS, for	models up to	and includin	g 100V. 2mS, fo	r models abo	ve 100V.		
12Start up delay	Sec	Less than 7 Se	ec								
13.Hold-up time											
	_										
CONSTANT CURRENT MODE	V	10	20	30	40	60	80	100	150	300	600
1.Max. Line regulation (*7)		0.05% of rate	d output curre	ent.							
2.Max. Load regulation (*13)		0.08% of rate	d output curre	ent.							
3.Ripple r.m.s. @ 10% rated voltage (*14)	mA	2000	1200	600	300	180	100	70	45	15	10
4.Ripple r.m.s. @ rated voltage. B.W 5Hz~1MHz.	mA	1200	700	300	150	90	60	35	23	7.5	6
4.htppier.m.s.@rated voitage.b.w 5Hz~minz.	IIIA								23	7.5	0
5.Temperature coefficient	PPM/°C		0V~100V 100PPM/°C from rated output current, following 30 minutes warm-up.  50V~600V 70PPM/°C from rated output current, following 30 minutes warm-up.								
		150V~600V	70PPM/°C fro	m rated outpu	ut current, follo	owing 30 min	utes warm-up.				
6.Temperature stability		0.01% of rate	d lout over 8h	rs. interval fol	lowing 30 min	utes warm-u	o. Constant line	e, load & temp	erature.		
		10V~100V mo	del: Less than	+/-0.25% of r	ated output ci	urrent over 30	) minutes follo	wina power o	n.		
7. Warm-up drift							ites following				
		1300-0000.	.033 (11411 +/-0.	1570 Of Tateu C	output current	over 30 mine	ites following p	Jowel on.			
ANALOG PROGRAMMING AND MONITORING (ISOLATE	D FROM T	HE OUTPUT)									
1.Vout voltage programming		0~100%, 0~5	V or 0~10V, us	er selectable.	Accuracy and	linearity: +/-0	0.15% of rated \	/out.			
2.lout voltage programming (*15)							0.4% of rated Ic		-	-	
3.Vout resistor programming							rity: +/-0.5% of				
	+										
4.lout resistor programming (*15)						acy and linea	rity: +/-0.5% of	rated lout.			
5.Output voltage monitor		0~5V or 0~10	V, user selecta	able. Accuracy	r: +/-0.5%.						
6.Output current monitor (*15)		0~5V or 0~10	V, user selecta	able. Accuracy	r: +/-0.5%.						
CICNAL CAND CONTROL CUICOLATED EDOM THE OUTD	IT\										
SIGNALS AND CONTROLS (ISOLATED FROM THE OUTPU	T .										
1. Power supply OK signal		,					ut Off: Off. Max				nt: 10mA.
2. CV/CC signal		CV/CC Monito	or. Open colle	ctor. CC mode	: On. CV mode	: Off. Maximu	m Voltage: 30	/, Maximum S	ink Current: 10	JmA.	
3. LOCAL/REMOTE Analog control		Enable/Disab	le analog pro	gramming co	ntrol by electri	ical signal or o	dry contact. Re	mote: 0~0.6V	or short. Loca	ıl: 2~30V or op	en.
4. LOCAL/REMOTE Analog signal							On. Local: Off.				
5. ENABLE/DISABLE Signal											
-		Friable/ Disqu	output i			ntact N~N 6W	or short 7~20	/oronen lica		and the	
6. INTERLOCK (ILC) control		Enable/Dis-1-	lo DC output l	<del>'</del>	<u> </u>	ntact. 0~0.6V					
				y electrical si	gnal or dry cor	ntact. Remote	:: 0~0.6V or sho	ort. Local: 2~3	0V or open.		
7. Programmed signals		Two open dra	in programm	by electrical si able signals. N	gnal or dry cor Naximum volta	ntact. Remote age 25V, Maxi	e: 0~0.6V or sho	ort. Local: 2~3 ent 100mA (S	0V or open. hunted by 27\	/ zener)	
7. Programmed signals 8. TRIGGER IN / TRIGGER OUT signals		Two open dra	in programm	by electrical si able signals. N	gnal or dry cor Naximum volta	ntact. Remote age 25V, Maxi	e: 0~0.6V or sho	ort. Local: 2~3 ent 100mA (S	0V or open. hunted by 27\	/ zener)	edge trigger:
		Two open dra	in programm	by electrical si able signals. N	gnal or dry cor Naximum volta	ntact. Remote age 25V, Maxi	:: 0~0.6V or sho	ort. Local: 2~3 ent 100mA (S	0V or open. hunted by 27\	/ zener)	edge trigger:
		Two open dra	in programm	by electrical si able signals. N	gnal or dry cor Naximum volta	ntact. Remote age 25V, Maxi	e: 0~0.6V or sho	ort. Local: 2~3 ent 100mA (S	0V or open. hunted by 27\	/ zener)	edge trigger:
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES		Two open dra Maximum lov tw=10us min	nin programm v level input v imum. Tr,Tf=1	by electrical si able signals. N	gnal or dry cor Naximum volta	ntact. Remote age 25V, Maxi	e: 0~0.6V or sho	ort. Local: 2~3 ent 100mA (S	0V or open. hunted by 27\	/ zener)	edge trigger:
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES  1. Parallel operation		Two open dra Maximum lov tw=10us min	nin programm v level input v imum. Tr,Tf=1 Factory	by electrical si able signals. N	gnal or dry cor Naximum volta	ntact. Remote age 25V, Maxi	e: 0~0.6V or sho	ort. Local: 2~3 ent 100mA (S	0V or open. hunted by 27\	/ zener)	edge trigger:
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES  1. Parallel operation 2. Series operation		Two open dra Maximum lov tw=10us min  Consult with Consult with	ain programm v level input v imum. Tr,Tf=1u Factory	oy electrical si able signals. M oltage = 0.8V, us Maximum,	gnal or dry cor Maximum volta Minimum higl Min delay betv	ntact. Remote age 25V, Maxi h level input v ween 2 pulses	e: 0~0.6V or sho mum sink curr roltage = 2.5V, 1 ms.	ort. Local: 2~3 ent 100mA (S Maximum hig	0V or open. hunted by 27\	/ zener)	edge trigger:
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES  1. Parallel operation 2. Series operation 3. Daisy chain		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli	ain programm v level input v imum. Tr,Tf=1  Factory Factory es can be con	by electrical si able signals. Noltage = 0.8V, us Maximum,	gnal or dry cor Maximum volta Minimum higl Min delay betv sy chain to syn	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei	e: 0~0.6V or sho mum sink curr voltage = 2.5V, 1 ms.	ort. Local: 2~3 ent 100mA (S Maximum hig urn-off.	0V or open. hunted by 27\ yh level input	/ zener) = 5V positive e	edge trigger:
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES  1. Parallel operation 2. Series operation		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli	ain programm v level input v imum. Tr,Tf=1  Factory Factory es can be con	by electrical si able signals. Noltage = 0.8V, us Maximum,	gnal or dry cor Maximum volta Minimum higl Min delay betv sy chain to syn	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei	e: 0~0.6V or sho mum sink curr roltage = 2.5V, 1 ms.	ort. Local: 2~3 ent 100mA (S Maximum hig urn-off.	0V or open. hunted by 27\ yh level input	/ zener) = 5V positive e	edge trigger:
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES  1. Parallel operation 2. Series operation 3. Daisy chain		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou	in programm v level input v imum. Tr,Tf=1  Factory Factory es can be cont	by electrical si able signals. Noltage = 0.8V, us Maximum, nected in Dais a proggramn	gnal or dry cor Maximum volta Minimum higl Min delay bets by chain to syn ned value. Prog	ntact. Remote age 25V, Maxi h level input v ween 2 pulse: chronize thei gramming via	e: 0~0.6V or sho mum sink curr voltage = 2.5V, 1 ms.	ort. Local: 2~3 ent 100mA (S Maximum hig urn-off. cation ports c	0V or open. hunted by 27V yh level input : or the front pai	/ zener) = 5V positive e nel.	edge trigger:
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		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri	ain programm w level input v imum. Tr,Tf=1 Factory Factory es can be cont tput power to es resistance.	by electrical si able signals. No lotage = 0.8V, us Maximum, nected in Dais a proggramn Resistance rai	gnal or dry cor Maximum volta Minimum higl Min delay betu delay betu delay betu delay betu delay betu delay betu delay betu delay betu	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm	e: 0~0.6V or she mum sink curr roltage = 2.5V, 1 ms. r turn-on and t the communi	ort. Local: 2~3 ent 100mA (S Maximum hig  urn-off. cation ports o	0V or open. hunted by 27\ gh level input:  or the front pai	/ zener) = 5V positive e	
8. TRIGGER IN / TRIGGER OUT signals  FUNCTIONS AND FEATURES  1. Parallel operation 2. Series operation 3. Daisy chain 4. Constant power control		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri	hin programm w level input v imum. Tr,Tf=1  Factory Factory es can be cont tput power to es resistance.	by electrical si able signals. Noltage = 0.8V, us Maximum, nected in Dais a proggramn Resistance rai and Output fi	gnal or dry cor Aaximum volta Minimum higl Min delay bets cy chain to syn- ned value. Prognee: 1~1000m	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm	e: 0~0.6V or she mum sink curr roltage = 2.5V, 1 ms.	ort. Local: 2~3 ent 100mA (S Maximum hig  urn-off. cation ports o	0V or open. hunted by 27\ gh level input:  or the front pai	/ zener) = 5V positive e	
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		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati	nin programm w level input v imum. Tr,Tf=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th	by electrical si able signals. No lotage = 0.8V, us Maximum, nected in Dais a proggramn Resistance ral and Output fe e front panel.	gnal or dry cor Maximum volta Minimum high Min delay betu ry chain to syn- ned value. Pro- nege: 1~1000m all slew rate. Pro-	ntact. Remote age 25V, Maxi h level input v ween 2 pulses  chronize thei gramming via r ogramming	e: 0~0.6V or she mum sink curr roltage = 2.5V, 1 ms. r turn-on and t the communi	ort. Local: 2~3 ent 100mA (S Maximum hig  urn-off. cation ports of munication 999.9 V/mSec	0V or open. hunted by 27\ yh level input:  or the front pai ports or the fr or A/mSec. P	/ zener) = 5V positive e  nel. roont panel. rrogramming v	via the
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		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati	nin programm w level input v imum. Tr,Tf=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th	by electrical si able signals. No lotage = 0.8V, us Maximum, nected in Dais a proggramn Resistance ral and Output fe e front panel.	gnal or dry cor Maximum volta Minimum high Min delay betu ry chain to syn- ned value. Pro- nege: 1~1000m all slew rate. Pro-	ntact. Remote age 25V, Maxi h level input v ween 2 pulses  chronize thei gramming via r ogramming	e: 0~0.6V or she mum sink curr voltage = 2.5V, 1ms. r turn-on and t the communi ining via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum hig  urn-off. cation ports of munication 999.9 V/mSec	0V or open. hunted by 27\ yh level input:  or the front pai ports or the fr or A/mSec. P	/ zener) = 5V positive e  nel. roont panel. rrogramming v	via the
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  PROGRAMMING AND READBACK (USB, LAN,		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati	nin programm w level input v imum. Tr,Tf=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th	by electrical si able signals. No lotage = 0.8V, us Maximum, nected in Dais a proggramn Resistance ral and Output fe e front panel.	gnal or dry cor Maximum volta Minimum high Min delay betu ry chain to syn- ned value. Pro- nege: 1~1000m all slew rate. Pro-	ntact. Remote age 25V, Maxi h level input v ween 2 pulses  chronize thei gramming via r ogramming	e: 0~0.6V or she mum sink curr voltage = 2.5V, 1ms. r turn-on and t the communi ining via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum hig  urn-off. cation ports of munication 999.9 V/mSec	0V or open. hunted by 27\ yh level input:  or the front pai ports or the fr or A/mSec. P	/ zener) = 5V positive e  nel. roont panel. rrogramming v	via the
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface)		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up	nin programm w level input v imum. Tr,Tf=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th to 100 steps o	y electrical si able signals. No oltage = 0.8V, us Maximum, nected in Dais a proggramn Resistance rai and Output f. e front panel. can be stored i	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1. Vout programming accuracy (*16)		Two open dra Maximum lov tw=10us min  Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10 0.05% of rate	in programm w level input v imum. Tr, Tf=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th to 100 steps of	y electrical si able signals. No oltage = 0.8V, us Maximum, nected in Dais a proggramn Resistance ral and Output f. e front panel. can be stored i	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface)		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up	in programm w level input v imum. Tr, Tf=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th to 100 steps of	y electrical si able signals. No oltage = 0.8V, us Maximum, nected in Dais a proggramn Resistance ral and Output f. e front panel. can be stored i	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1. Vout programming accuracy (*16)		Two open dra Maximum lov tw=10us min  Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10 0.05% of rate	in programm w level input v imum. Tr, IT=1  Factory Factory es can be cont tput power to es resistance. le Output rise on ports or th to 100 steps c  20 d output volta output volta output currei	py electrical si able signals. No lotage = 0.8V, us Maximum, mected in Dais a proggramn Resistance ral and Output f. e front panel. an be stored i	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1. Vout programming accuracy (*16) 2. lout programming accuracy (*15) 3. Vout programming resolution		Two open dra Maximum lov tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10  0.05% of rated 0.3% of rated	in programm w level input v imum. Tr,Tf=1  Factory Factory es can be con tput power to es resistance. le Output rise on ports or th to 100 steps of d output volta output currer ed output volta	py electrical si able signals. No litage = 0.8V, us Maximum, nected in Dais a proggramm Resistance rai and Output fi e front panel. can be stored in 30 sige that tage	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1.Vout programming accuracy (*16) 2.lout programming accuracy (*15) 3.Vout programming resolution 4.lout programming resolution	V	Two open dra Maximum los tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10  0.05% of rate 0.3% of rated 0.002% of rat	in programm w level input v imum. Tr,Tf=1r Factory es can be con tput power to es resistance. le Output rise on ports or th to 100 steps o  20 d output volte output cure ed output vole ed output cure	y electrical si able signals. Noltage = 0.8V, us Maximum, elected in Dais a proggramm Resistance rai and Output five el front panel. an be stored a general signal and signal sig	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1.Vout programming accuracy (*16) 2.lout programming resolution 4.lout programming resolution 5.Vout readback accuracy		Two open dra Maximum los tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10  0.05% of rate 0.002% of rat 0.002% of rat 0.005% of rate	in programm w level input v imum. Tr,Tf=1r Factory Factory es can be con tput power to es resistance. le Output rise on ports or th to 100 steps of d output volta output currel ed output cur	y electrical si able signals. No litage = 0.8V, us Maximum, us a proggramm Resistance rai and Output fie e front panel. can be stored age age to the signal	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1. Vout programming accuracy (*16) 2. lout programming resolution 4. lout programming resolution 5. Vout readback accuracy 6. lout readback accuracy (*15)	V	Two open dra Maximum los tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10 0.05% of rated 0.3% of rated 0.002% of rat 0.002% of rate 0.05% of rated	in programm w level input v imum. Tr,Tf=11 Factory Factory es can be cont tput power to es resistance. le Output rise no ports or th to 100 steps of d output volta output currer ed output currer d output volt output currer d output volt output currer d output currer	y electrical si able signals. No litage = 0.8V, us Maximum, us Max	gnal or dry cor Aaximum volta Minimum high Min delay bets by chain to syn- ned value. Pro- nge: 1–1000m all slew rate. Pi in 4 memory c	ntact. Remote age 25V, Maxin level input viewen 2 pulses chronize thei gramming via Ω. Programming ells. Activatio	e: 0~0.6V or she mum sink curry oltage = 2.5V, i 1ms.  In turn-on and to the community of t	ort. Local: 2~3 ent 100mA (S Maximum hig  urn-off. cation ports o mmunication 999.9 V/mSec I via the comr	ov or open. hunted by 27\ hunted by 27\ hunted input:  or the front pai ports or the fr . or A/mSec. P munication po	nel. cont panel. drogramming v	via the ront panel.
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  PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interface) 1.Vout programming accuracy (*16) 2.lout programming resolution 4.lout programming resolution 5.Vout readback accuracy		Two open dra Maximum los tw=10us min  Consult with Consult with Power suppli Limits the ou Emulates seri Programmab communicati Profiles of up  10  0.05% of rate 0.002% of rat 0.002% of rat 0.005% of rate	in programm w level input v imum. Tr,Tf=1r Factory Factory es can be con tput power to es resistance. le Output rise on ports or th to 100 steps of d output volta output currel ed output cur	y electrical si able signals. No litage = 0.8V, us Maximum, us a proggramm Resistance rai and Output fie e front panel. can be stored age age that tage rent age	gnal or dry cor Maximum volta Minimum higl Min delay bets cy chain to syn- ned value. Pro- nge: 1~1000m all slew rate. Pro- in 4 memory c	ntact. Remote age 25V, Maxi h level input v ween 2 pulses chronize thei gramming via Ω. Programm rogramming ells. Activation	e: 0~0.6V or she mum sink curr roltage = 2.5V, i 1ms. r turn-on and t the communi ing via the cor range: 0.0001~	ort. Local: 2~3 ent 100mA (S Maximum high urn-off. cation ports of munication 999.9 V/mSec d via the comm	ov or open. hunted by 27\ gh level input :  or the front pai ports or the fr . or A/mSec. P	vzener) = 5V positive e  nel. root panel. roogramming v	via the ront panel.

# **G**ENESYS<sup>™</sup> GSP10kW/15kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS		V	10	20	30	40	60	80	100	150	300	600
1.Foldback protection			Output shut- User presetal	down when pole. Reset by A	ower supply o	hanges mode le in autostart	from CV or P mode, by Po	ower Limit to ( wer Switch, by	CC mode or fro OUTPUT butt	om CC or Powe on, by rear pa	er Limit to CV r	node. nunication.
2.Over-voltage protection (OVP)			Output shut-	down. Reset b	y AC input re	cycle in autost	art mode, by	OUTPUT butto	on, by rear pan	el or by comn	nunication.	
3.Over -voltage programming rang		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 accu	racy			d output volta								
5.Output under voltage limit (UVL)						t. Does not app		programming	. Preset by fro	nt panel or co	mmunication	port.
6.Over temperature protection						y autostart mo	de.					
7. Output under voltage limit (UVL)					ut below limit							
8. Output under voltage protection	(UVP)		Prevents adju mode, by Pov	istment of Vo ver Switch, by	ut below limit OUTPUT butt	. P.S output tui on, by rear pai	rns Off during nel or by com	g under voltag imunication.	e condition. R	eset by AC inp	ut recycle in a	utostart
FRONT PANEL												
1.Control functions			Multiple opti	ons with 2 En	coders							
			Vout/Iout/Po	wer Limit maı	nual adjust							
				P manual adju								
						dback, OCL, El						
						LAN,IEEE,RS23	32,RS485,USB	or Optional co	ommunication	n interface.		
				FF. Front Pan			1 10 1					
						Baud Rate, Ad tage/resistive				ina		
						Voltage/Curre			iok programm	iiiig		
2.Display						utput voltage		g 5 V/ 10 V.				
2.B.13B1ay						put current +/		-				
3.Front Panel Buttons Indications						MMUNICATION		N,CONFIGURA	ATION, SYSTEM	A, SEQUENCER		
4. Front Panel Display Indications			Voltage, Curr (communicat	ent, Power, C\ ion), RS/USB/	/, CC, CP, Exter LAN/IEEE com	nal Voltage, Ex munication, Tr	kternal Curre rigger, Load/S	nt, Address, LF Store Cell.	P, Autostart, S	afetstart, Folc	lback V/I, Rem	ote
ENVIRONMENTAL CONDITIONS	<u> </u>											
1.Operating temperature			0~50°C, 1009	6 load								
2.Storage temperature			-30~85°C	0.1000.								
3.Operating humidity		%		no condensat	ion)							
4.Storage humidity		%		no condensati								
5.Altitude (*17)			-			ent derating 29	6/100m or To	dorating 1°C/	100m abovo 20	000m Non on	orating: 40000	ft (12000m)
			Operating. It	100011 (300011	ij, output curi	ent derating 2	10011101 1a	derating i c/	TOOTH ADOVE 20	ооні. <del>Пон ор</del>	erating. 40000	11 (12000111).
MECHANICAL			I									
1.Cooling					nal fans. Air flo	ow direction: fr	om Front pai	nel to power su	upply rear			
2.Weight (	GSP 10kW	kg	Less than 15.									
	GSP 10kW	mm	W: 423, H: 88	, D: 640 (Inclu		nd busbars cov		relief) (Refer to	Outline drawi	ng).		
2.Weight (	GSP 15kW	kg	Less than 23.									
	GSP 15kW	mm	W: 423, H: 13	2.5, D: 640 (Ir	ncluding busb	ars and busba ars and busba	rs cover, and		efer to Outline	drawing).		
4.Vibration						t condition An	inex C - 2.1.3.	1				
5.Shock			Less than 200	, half sine, 11	mSec. Unit is ι	ınpacked.						
SAFETY/EMC												
1.Applicable standards:	Safety		UL60950-1, C	SA22.2 No.60	950-1, IEC609	50-1, EN60950-	1.					
1.1. Interface classification			Vout ≤40V M 60≤ Vout≤ 6	odels: Output 00V Models: 0	, J1,J2,J3,J4,J5 Dutput, J8 (ser	,J6,J7,J8 (sensense) are hazard	e) and ,J9 (cor lous, J1,J2,J3,	nmunication o J4,J5,J6,J7 and	ptions) are SE I J9 (communi	LV. cation option:	s) are SELV	
1.2 Withstand voltage			60V≤Vout≤1 Output - Gro 100 <vout≤6< td=""><td>00V Models: und: 1500VE 00V Models:</td><td>Input - Output C 1min, Input Input - Output</td><td>LV): 4242VDC ut: 4242VDC ut - Ground: 20 ut: 4242VDC</td><td>1min, Input - 835VDC 1mi 1min. Input -</td><td>SELV: 4242V in. SELV: 4242V</td><td>/DC 1min, Ou</td><td>ıtput - SELV:</td><td></td><td></td></vout≤6<>	00V Models: und: 1500VE 00V Models:	Input - Output C 1min, Input Input - Output	LV): 4242VDC ut: 4242VDC ut - Ground: 20 ut: 4242VDC	1min, Input - 835VDC 1mi 1min. Input -	SELV: 4242V in. SELV: 4242V	/DC 1min, Ou	ıtput - SELV:		
			Output - Gro	und: 2500VE	OC 1min, Inpu	ut - Ground: 2	835VDC 1m	in.	0, 00	OLLV.		,
1.3 Insulation resistance				25°C, 70%RH.								
2.Conducted emmision						Innex H table I						
3.Radiated emission			IEC/EN61204	-3 Industrial e	nvironment, A	Innex H table I	H.3 and H4, F	CC Part 15-A, \	VCCI-A			
4. EMC compliance	EMC(*18)		According to	IEC/EN61204-	3 Industrial e	nvironment						

- "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 2007 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 2007 models: 170-265Vac, 3-Phase 400/ 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, with rated, resistive load.

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

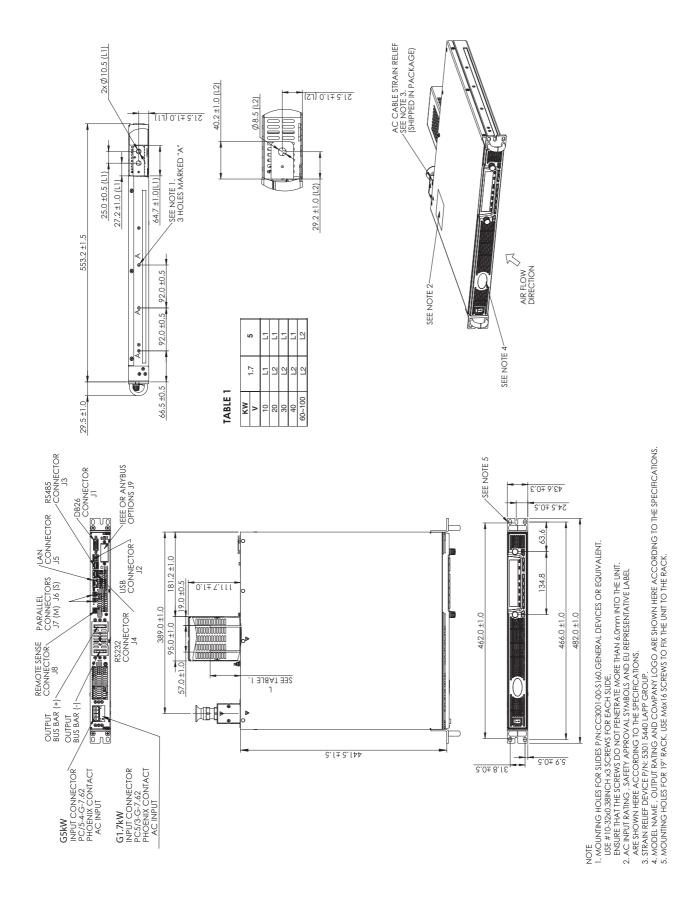
  \*17: For 10V model Ta derating 2°C/100m."

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

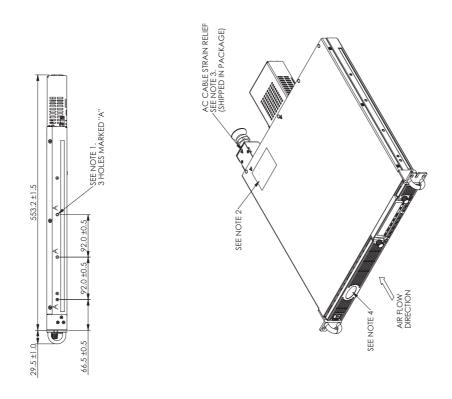
  \*19: Max. ambient temperature for using IEEE is 40°C.

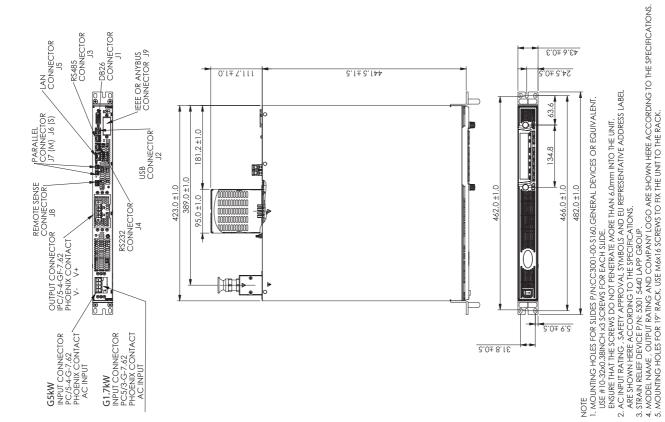
  \*20: GSP10kW For 10V model only: Max. output current for using IEEE is 1200A up to 40°C and 3350A up to 30°C.

# Outline Drawing GENESYS™ G1.7kW & G5kW

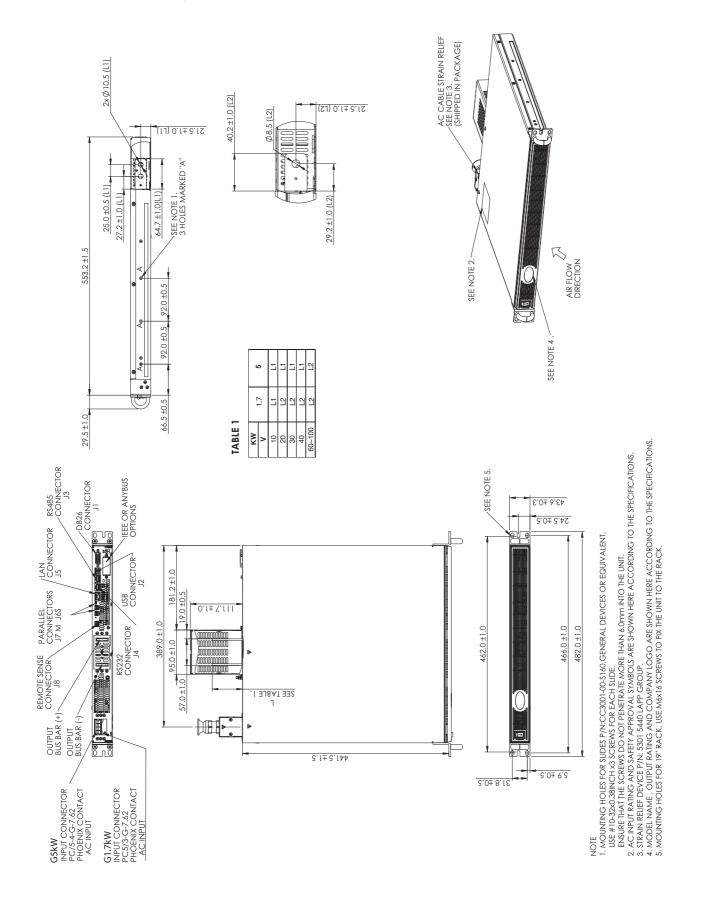


# Outline Drawing GENESYS™ G1.7kW & G5kW (Models 150V/300V/600V)

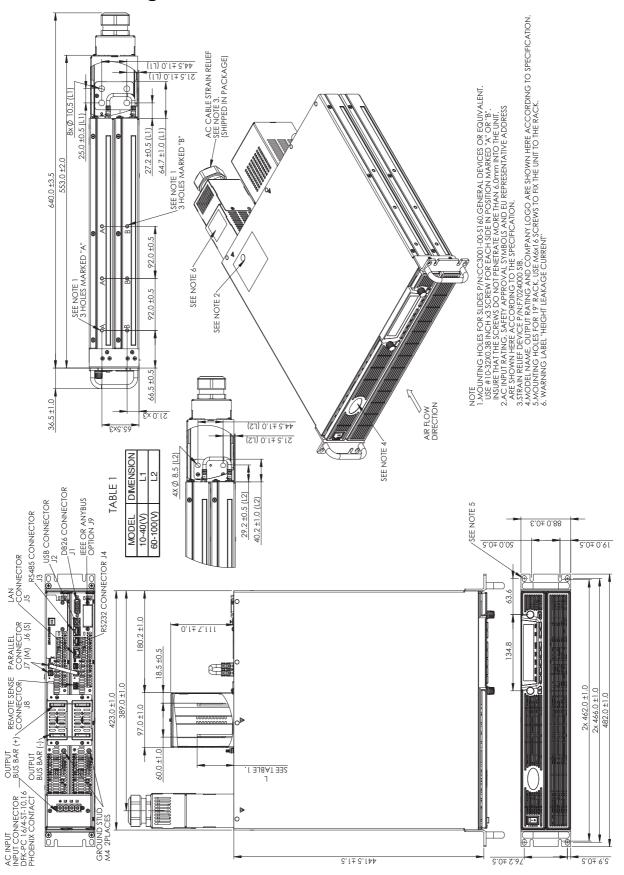




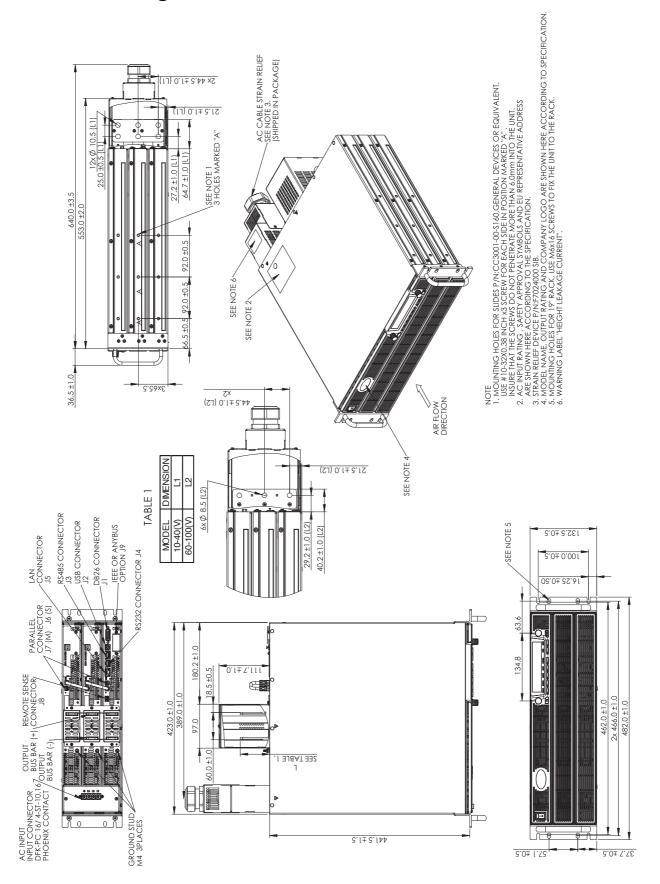
# Outline Drawing **GENESYS™** GB1.7kW & GB5kW



# Outline Drawing GENESYS™ GSP10kW

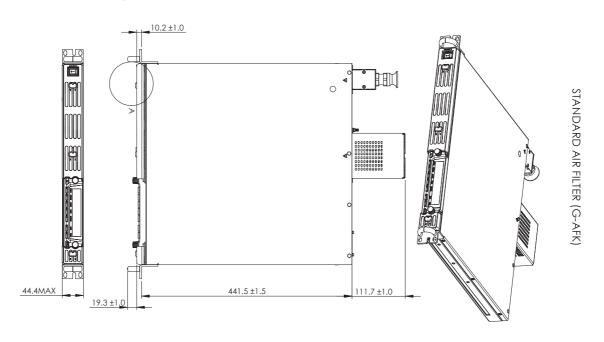


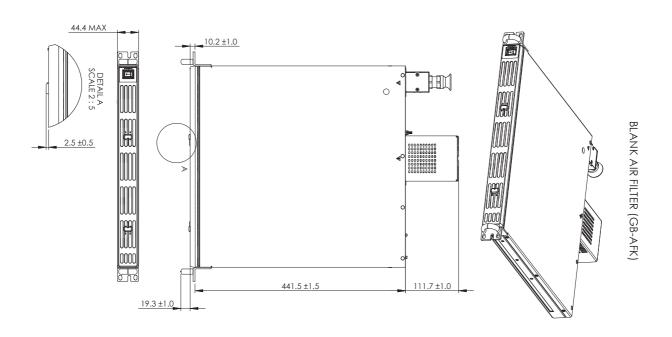
# Outline Drawing GENESYS™ GSP15kW



# TDK·Lambda -

# Outline Drawing **G**ENESYS<sup>™</sup> Air Filter Kit

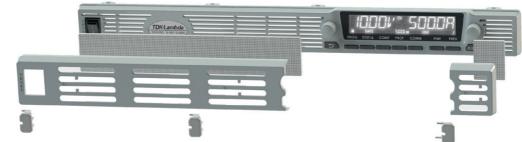




# Front Panel Air Filter Assembly

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)

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