



Applications:

- Test & Measurement Systems
- Component Device Testing
- Manufacturing and Process Control
- Semiconductor Processing & Burn-in
- Aerospace & Satellite Testing
- Medical Imaging
- Green Technology

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

Description:

The five year warranty, GENESYS™ high power GSP models of programmable DC power supplies offer 10kW in a 2U high package and 15kW in 3U with output voltages and currents of up to 0-10V/1,500A to 0-600V/25.5A. GSP can operate in constant voltage, constant current and constant power modes.

Control of voltage and current slew rate, arbitrary waveform generation and storage, internal resistance simulation and display brightness control are all standard features. Multiple remote programming methods are available including LAN, USB, RS232 / RS485 and isolated analogue interfaces built in as standard. Interface options will include IEEE488, Modbus-TCP, EtherCAT and more. The units can be ordered to accept three-phase 170-265Vac, 342-460Vac or 342-528Vac input.

Features:

- Leading DC Programmable power density 10kW/15kW in 2U/3U height
- Wide Range of popular worldwide AC inputs: **GSP10kW / 15kW** 3 ϕ (208VAC, 400VAC & 480VAC), Wide-range 3 ϕ 480VAC (342VAC ~ 528VAC)
- Active three-phase PFC (0.94 typical)
- Output Voltage up to 600V, Current up to 1500A
- Built-in LAN (1.5), USB, RS-232/RS-485 Interface
- Constant Voltage/Constant Current operation modes

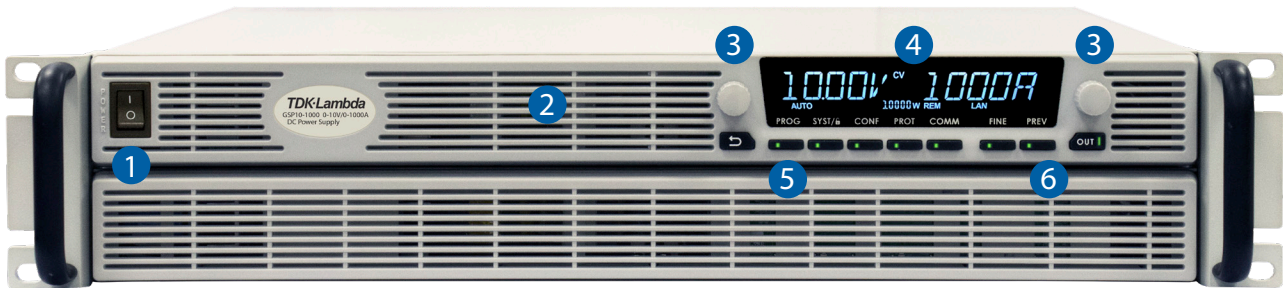
Series Table 10kW Models

Model	Output Voltage (VDC)	Output Current (A)	Output Power (kW)
GSP10-1000	0~10V	0~1000	10
GSP20-500	0~20V	0~500	10
GSP30-340	0~30V	0~340	10.2
GSP40-250	0~40V	0~250	10
GSP50-200	0~50V	0~200	10
GSP60-170	0~60V	0~170	10.2
GSP80-130	0~80V	0~130	10.4
GSP100-100	0~100V	0~100	10
GSP150-68	0~150V	0~68	10.2
GSP200-50	0~200V	0~50	10
GSP300-34	0~300V	0~34	10.2
GSP400-26	0~400V	0~26	10.4
GSP500-20	0~500V	0~20	10
GSP600-17	0~600V	0~17	10.2

Series Table 15kW Models

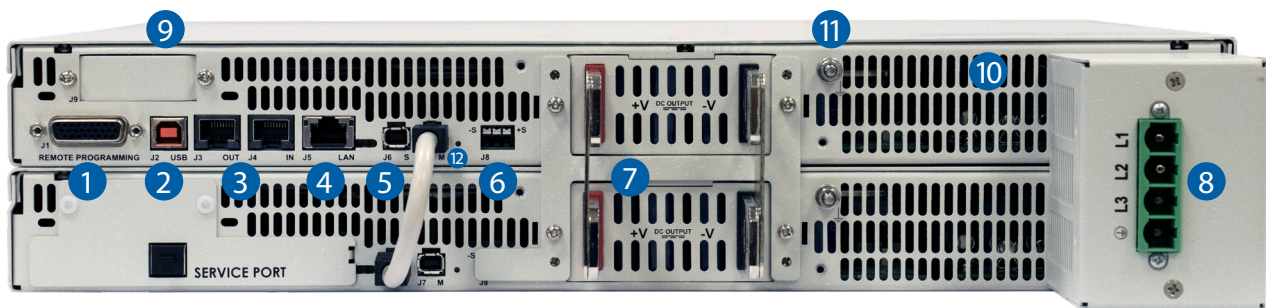
Model	Output Voltage (VDC)	Output Current (A)	Output Power (kW)
GSP10-1500	0~10V	0~1500	15
GSP20-750	0~20V	0~750	15
GSP30-510	0~30V	0~510	15.3
GSP40-375	0~40V	0~375	15
GSP50-300	0~50V	0~300	15
GSP60-255	0~60V	0~255	15.3
GSP80-195	0~80V	0~195	15.6
GSP100-150	0~100V	0~150	15
GSP150-102	0~150V	0~102	15.3
GSP200-75	0~200V	0~75	15
GSP300-51	0~300V	0~51	15.3
GSP300-51	0~400V	0~39	15.6
GSP300-51	0~500V	0~30	15.3
GSP600-25.5	0~600V	0~25.5	15.3

GSP10kW Front Panel Description



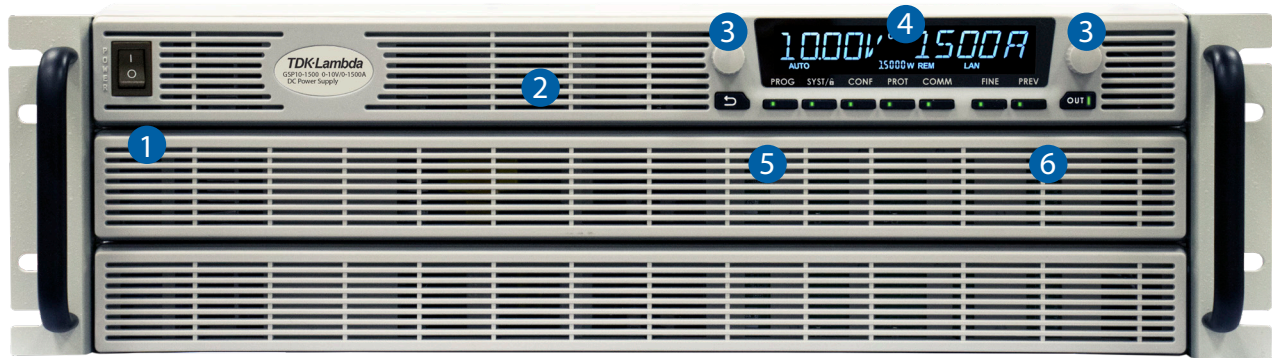
1. Input Power ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable Detent Encoders for settings and Menu navigation.
4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
5. Function/Status LEDs: Active modes and function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

GSP10kW Rear Panel Description



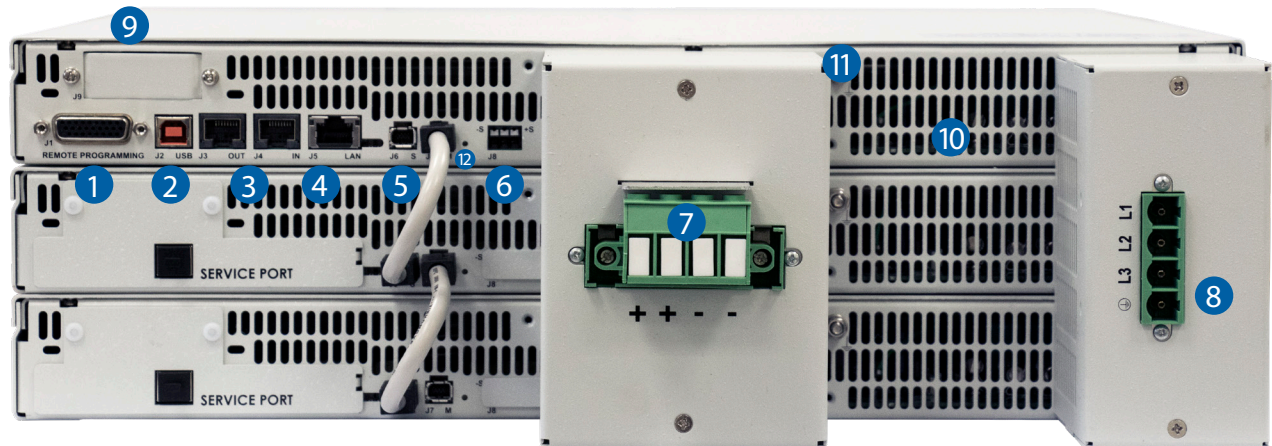
1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
2. USB Interface connector (Type B).
3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
4. LAN (*LXI* 1.5) Interface connector (RJ-45 type with LAN status indicators).
5. Auto paralleling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

GSP15kW Front Panel Description



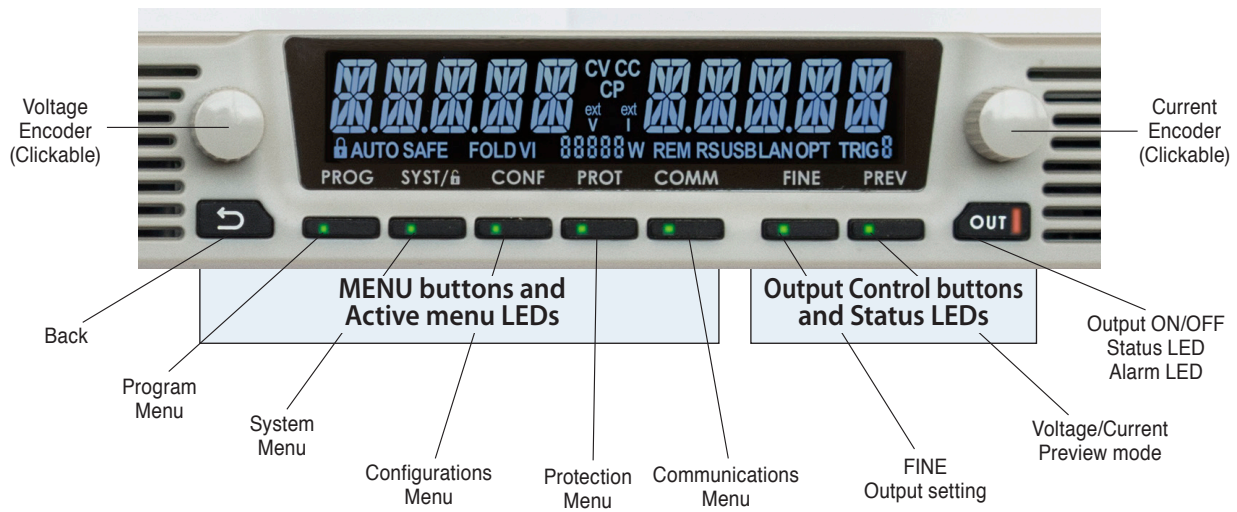
1. Input Power ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable Detent Encoders for settings and Menu navigation.
4. High Contrast/Brightness display with wide viewing angle, 16 segment LCD
5. Function/Status LEDs: Active modes and function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

GSP15kW Rear Panel Description

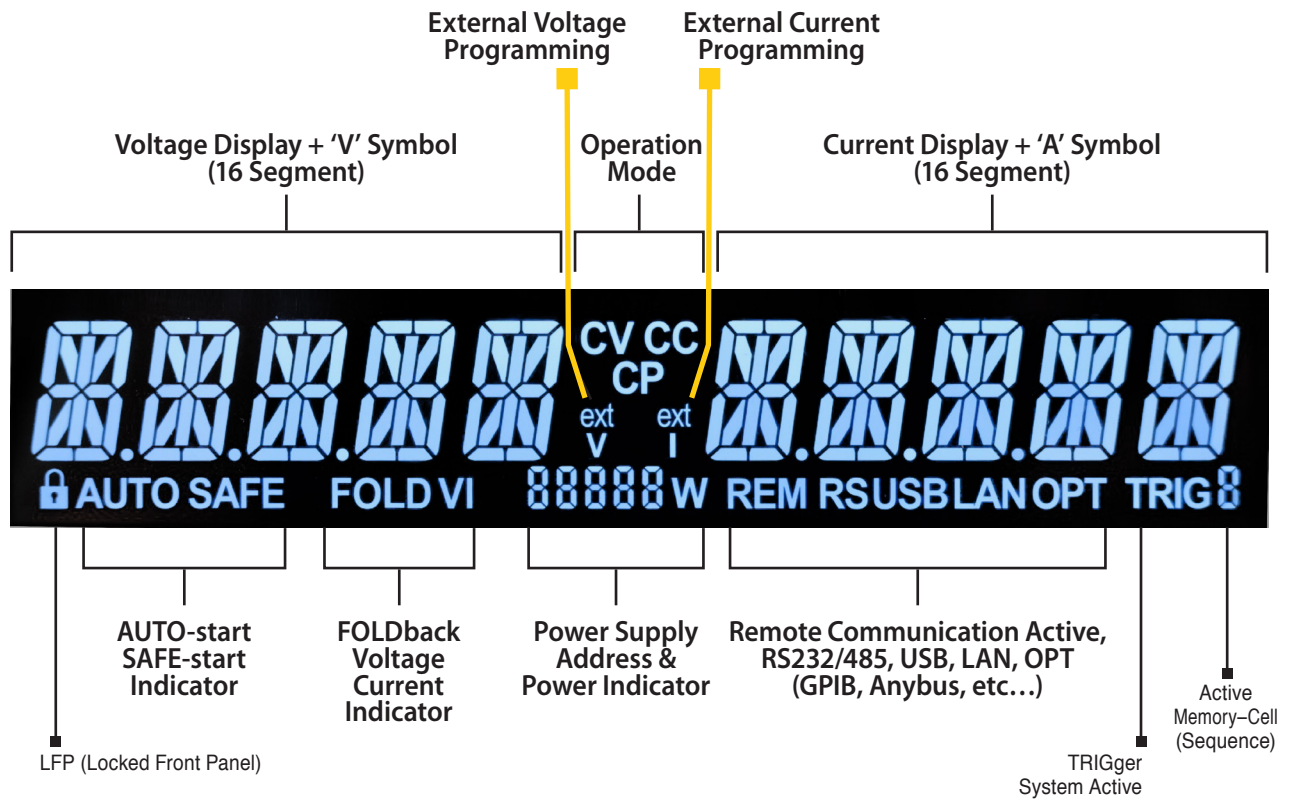


1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
2. USB Interface connector (Type B).
3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
5. Auto paralleling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

Front Panel Display MENU/CONTROL buttons:



Front Panel Display indicators



GENESYS™ G&GSP Series Blank Front Panel (ATE version)



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.

GENESYS™ Parallel and Series Configurations

Parallel operation - Master/Slave:

Auto paralleling Scalable Master-Slave Operation.

Active current sharing allows up to twelve (12) identical units to be connected

Total real current is programmed measured and reported by the Master. Up to twelve (12) supplies operate as one.

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

Order P/N: G/P - 6U

Series operation

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

Multi-Drop Remote Programming via Communication Interface

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

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

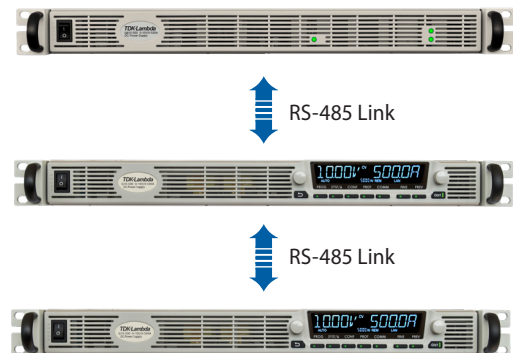
Standard Unit - zero stacked up to 12 units



Standard & Blank - zero stacked up to 12 units



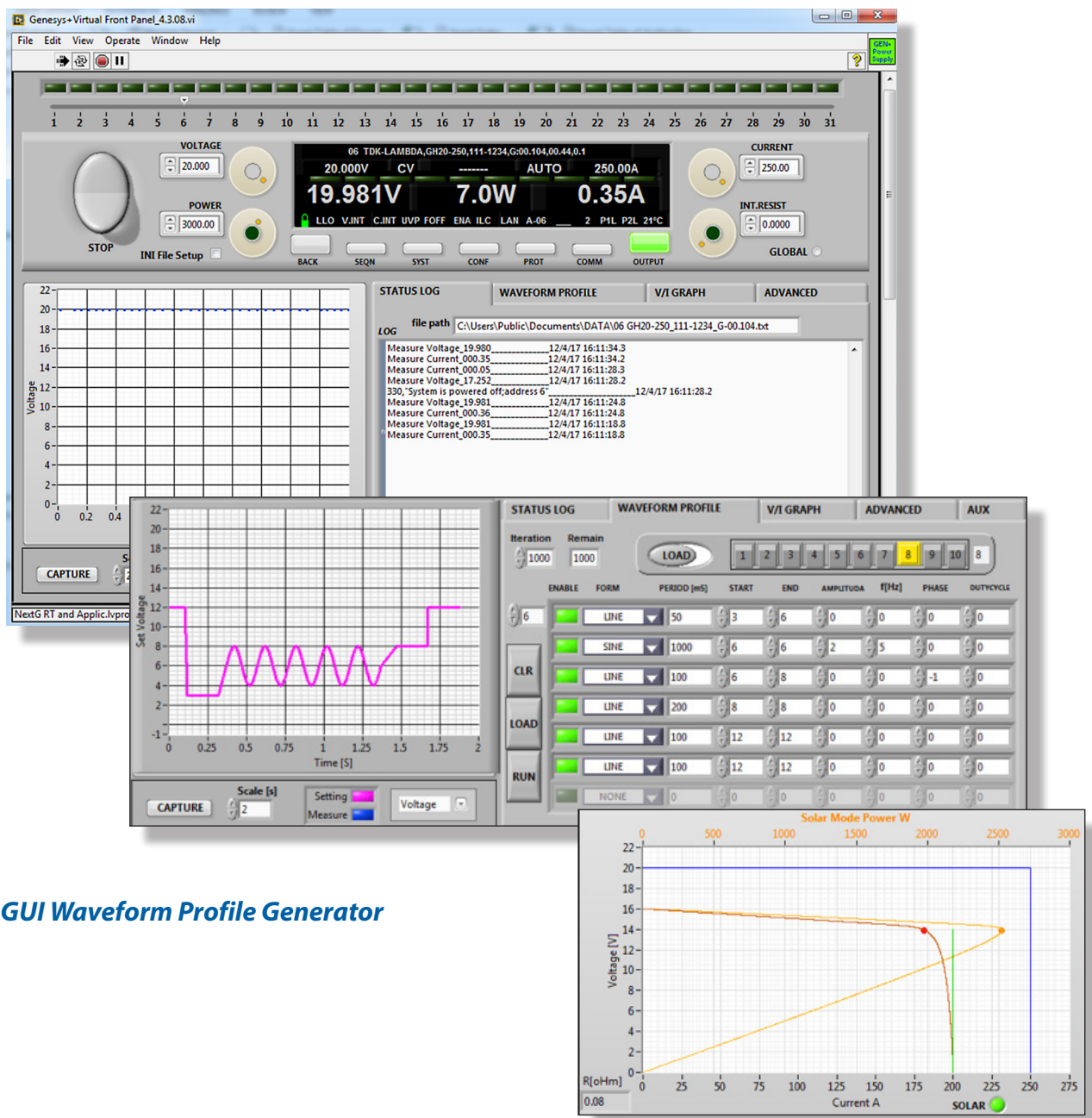
LAN, USB, RS-232, RS-485, IEEE, AnyBus



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 COMMUNICATION)
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



GUI Waveform Profile Generator

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

G	SP	10	-	1500	-	-	-
Series Name	Output	Output	Interface Options		AC Input Options	Accessories Options	
Front Panel Type	Voltage	Current	P/N		3P208 (Three Phase 170~265VAC)	M - Printed *User Manual	
Empty: standard	(0~10V)	(0~1500A)			3P400 (Three Phase 342~460VAC)	* User Manual & GUI are available on the website	
B: Blank Front Panel (ATE version)					3P480 (Three Phase 342~528VAC)		

Interface Options (Factory installed)

LAN (LV) 1.5 compliant with Multi-Drop capability)- built-in	-
USB 2.0 compliant with Multi-Drop capability - built-in	-
RS-232/RS-485 - built-in	-
Isolated Analog Program/Monitor Interface (5V/10V Pgm/Mon with 600V isolation) - built-in	-
IEEE (488.2 & SCPI compliant with Multi-Drop capability installed)	IEEE
Modbus-TCP	MDBS
EtherCAT	ECAT

Models GSP 10kW

Model	Voltage (VDC)	Current (A)	Power (kW)	Model	Voltage (VDC)	Current (A)	Power (kW)
GSP10-1000	0~10V	0~1000	10	GSP100-100	0~100V	0~100	10
GSP20-500	0~20V	0~500	10	GSP150-68	0~150V	0~68	10.2
GSP30-340	0~30V	0~340	10.2	GSP200-50	0~200V	0~50	10
GSP40-250	0~40V	0~250	10	GSP300-34	0~300V	0~34	10.2
GSP50-200	0~50V	0~200	10	GSP400-26	0~400V	0~26	10.4
GSP60-170	0~60V	0~170	10.2	GSP500-20	0~500V	0~20	10
GSP80-130	0~80V	0~130	10.4	GSP600-17	0~600V	0~17	10.2

Models GSP 15kW

Model	Voltage (VDC)	Current (A)	Power (kW)	Model	Voltage (VDC)	Current (A)	Power (kW)
GSP10-1500	0~10V	0~1500	15	GSP100-150	0~100V	0~150	15
GSP20-750	0~20V	0~750	15	GSP150-102	0~150V	0~102	15.3
GSP30-510	0~30V	0~510	15.3	GSP200-75	0~200V	0~75	15
GSP40-375	0~40V	0~375	15	GSP300-51	0~300V	0~51	15.3
GSP50-300	0~50V	0~300	15	GSP400-39	0~400V	0~39	15.6
GSP60-255	0~60V	0~255	15.3	GSP500-30	0~500V	0~30	15
GSP80-195	0~80V	0~195	15.6	GSP600-25.5	0~600V	0~25.5	15.3

Accessories

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

1. Serial Communication cable

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

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

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

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

3. User Manual

Printed User Manual	G/M
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GENESYS™ GSP10kW SERIES SPECIFICATIONS

OUTPUT RATING		GSP	10-1000	20-500	30-340	40-250	50-200	60-170	80-130	100-100	150-68	200-50	300-34	400-26	500-20	600-17	
1. Rated output voltage (*1)		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
2. Rated output current (*2)		A	1000 (*3)	500	340	250	200	170	130	100	68	50	34	26	20	17	
3. Rated output power		kW	10	10	10.2	10	10	10.2	10.4	10	10.2	10	10.2	10.4	10	10.2	
INPUT CHARACTERISTICS		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1. Input voltage/freq. 3 phase, 3 wire + Ground (*4)		---	3-Phase, 200V models: 170~265Vac, 47~63Hz (Covers 200/230Vac) 3-Phase, 400V models: 342~460Vac, 47~63Hz (Covers 380/400/415Vac) 3-Phase, 480V models: 342~528Vac, 47~63Hz (Covers 380/400/415/440/460/480Vac)														
2. Maximum Input current at 100% load		3-Phase, 200V models: 3-Phase, 400V models: 3-Phase, 480V models:	35A @ 200Vac 18.4A @ 380Vac 18.4A @ 380Vac														
3. Power Factor (Typ)		---	0.94 @ 200/380Vac, rated output power.														
4. Efficiency (Typ) (*5) (*22)		%	89 (*21)	90	91	91	91	91	91	91	91	91	92	92	91	92	
5. Inrush current (*6)		A	Less than 100A														
6. AC line phase imbalance		%	< 5%														
CONSTANT VOLTAGE MODE		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1. Max. Line regulation (*7)		---	0.01% of rated output voltage														
2. Max. Load regulation (*8)		---	0.01% of rated output voltage +5mV														
3. Ripple and noise (p-p, 20MHz) (*9)		mV	75	75	75	75	75	75	80	90	120	200	200	400	450	480	
4. Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	12	15	15	20	45	60	80	80	100	
5. Temperature coefficient		PPM/°C	50PPM/°C from rated output voltage, following 30 minutes warm-up.														
6. Temperature stability		---	0.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.														
7. Warm-up drift		---	Less than 0.05% of rated output voltage+2mV over 30 minutes following power on.														
8. Remote sense compensation/wire (*10)		V	2	2	5	5	5	5	5	5	5	5	5	5	5	5	
9. Up-prog. Response time (*11)		mS	30	30	30	30	50	50	50	50	50	50	50	100	100	100	
10. Down-prog. response time:		Full load (*11)	mS	50	50	80	80	80	80	100	100	100	100	100	150	200	200
		No load (*12)	mS	300	600	800	900	950	1000	1200	1900	2000	2500	3000	4000	4000	3000
11. Transient response time		mS	Time for output voltage to recover within 0.5% of its rated output for a load change 10~90% of rated output current. Output set-point: 10~100%, Local sense. Less than 1mS, for models up to and including 100V. 2mS, for models above 100V.														
12. Start up delay		Sec	Less than 7 Sec														
CONSTANT CURRENT MODE		---	0.05% of rated output current.														
1. Max. Line regulation (*7)		---	0.08% of rated output current.														
2. Max. Load regulation (*13)		---	0.08% of rated output current.														
3. Ripple r.m.s. @ 10% rated voltage. B.W 5Hz~1MHz. (*14)		mA	1500	1200	600	300	200	150	100	70	45	45	15	15	12	10	
4. Ripple r.m.s. @ 100% rated voltage. B.W 5Hz~1MHz. (TA25°C)		mA	1200	700	300	150	100	75	50	35	23	23	7.5	7.5	8	6	
5. Temperature coefficient		PPM/°C	10V~100V 100PPM/°C from rated output current, following 30 minutes warm-up. 150V~600V 70PPM/°C from rated output current, following 30 minutes warm-up.														
6. Temperature stability		---	0.01% of rated Iout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature.														
7. Warm-up drift		---	10V~100V model: Less than +/-0.25% of rated output current over 30 minutes following power on. 150V~600V: Less than +/-0.15% of rated output current over 30 minutes following power on.														
ANALOG PROGRAMMING AND MONITORING (ISOLATED FROM THE OUTPUT)		---	0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-0.15% of rated Vout.														
1. Vout voltage programming		---	0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-0.4% of rated Iout.														
2. Iout voltage programming (*15)		---	0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated Vout.														
3. Vout resistor programming		---	0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated Iout.														
4. Iout resistor programming (*15)		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%. Of rated Vout.														
5. Output voltage monitor		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%. Of rated Iout.														
6. Output current monitor (*15)		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%. Of rated Iout.														
SIGNALS AND CONTROLS (ISOLATED FROM THE OUTPUT)		---	Power supply output monitor. Open collector. Output On: On. Output Off: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA.														
1. Power supply OK #1 signal		---	CV/CC Monitor. Open collector. CC mode: On. CV mode: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA.														
2. CV/CC signal		---	Enable/Disable analog programming control by electrical signal or dry contact. Remote: 0~0.6V or short. Local: 2~30V or open.														
3. LOCAL/REMOTE Analog control		---	analog programming control monitor signal. Open collector. Remote: On. Local: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA.														
4. LOCAL/REMOTE Analog signal		---	Enable/Disable PS output by electrical signal or dry contact. 0~0.6V or short, 2~30V or open. User selectable logic.														
5. ENABLE/DISABLE signal		---	Enable/Disable PS output by electrical signal or dry contact. Remote: 0~0.6V or short. Local: 2~30V or open.														
6. INTERLOCK (ILC) control		---	Two open drain programmable signals. Maximum voltage 25V, Maximum sink current 100mA (Shunted by 27V zener)														
7. Programmed signals		---	Maximum low level input voltage = 0.8V, Minimum high level input voltage = 2.5V, Maximum high level input = 5V positive edge trigger: tw=10us minimum. Tr, Tf=1us Maximum, Min delay between 2 pulses 1ms.														
8. TRIGGER IN / TRIGGER OUT signals		---	By electrical Voltage: 0~0.6V/2~30V or dry contact.														
9. DAISY_IN/SO control signal		---	4~5V=OK, 0V (500ohm impedance)=Fail														
10. DAISY_OUT/PS_OK #2 signal		---															
FUNCTIONS AND FEATURES		---	Possible. Up to four (4) identical GSP units. For more power please consult with Factory.														
1. Parallel operation		---	Consult with Factory														
2. Series operation		---	Power supplies can be connected in Daisy chain to synchronize their turn-on and turn-off.														
3. Daisy chain		---	Limits the output power to a programmed value. Programming via the communication ports or the front panel.														
4. Constant power control		---	Emulates series resistance. Resistance range: 1~1000mΩ. Programming via the communication ports or the front panel.														
5. Output resistance control		---	Programmable Output rise and Output fall slew rate. Programming range: 0.0001~999.99 V/mSec. or A/mSec. Programming via the communication ports or the front panel.														
6. Slew rate control		---	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.														
7. Arbitrary waveforms		---															
PROGRAMMING AND READBACK (USB, LAN, RS232/485, Optional IEEE (*19)(*20) Interfaces)		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1. Vout programming accuracy (*16)		---	0.05% of rated output voltage														
2. Iout programming accuracy (*15)		---	0.3% of rated output current														
3. Vout programming resolution		---	0.002% of rated output voltage														
4. Iout programming resolution		---	0.002% of rated output current														
5. Vout readback accuracy		---	0.05% of rated output voltage														
6. Iout readback accuracy (*15)		---	0.2% of rated output current														
7. Vout readback resolution (of rated output voltage)		%	0.011%	0.006%	0.004%	0.003%	0.003%	0.002%	0.002%	0.011%	0.007%	0.005%	0.004%	0.003%	0.003%	0.002%	
8. Iout readback resolution (of rated output current)		%	0.012%	0.003%	0.004%	0.005%	0.006%	0.007%	0.009%	0.012%	0.002%	0.003%	0.003%	0.004%	0.006%	0.006%	

GENESYS™ GSP15kW SERIES SPECIFICATIONS

OUTPUT RATING		GSP	10-1500	20-750	30-510	40-375	50-300	60-255	80-195	100-150	150-102	200-75	300-51	400-39	500-30	600-25.5	
1.Rated output voltage(*1)		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
2.Rated output current (*2)		A	1500 (*3)	750	510	375	300	255	195	150	102	75	51	39	30	25.5	
3.Rated output power		kW	15	15	15.3	15	15	15.3	15.6	15	15.3	15	15.3	15.6	15	15.3	
INPUT CHARACTERISTICS		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1.Input voltage/freq. 3 phase, 3 wire + Ground (*4)		---	3-Phase, 200V models: 170~265Vac, 47~63Hz (Covers 200/230Vac) 3-Phase, 400V models: 342~460Vac, 47~63Hz (Covers 380/400/415Vac) 3-Phase, 480V models: 342~528Vac, 47~63Hz (Covers 380/400/415/440/460/480Vac)														
2. Maximum Input current at 100% load		3-Phase, 200V models: 3-Phase, 400V models: 3-Phase, 480V models:	52.5A @ 200Vac 27.6A @ 380Vac 27.6A @ 380Vac														
3.Power Factor (Typ)		---	0.94 @ 200/380Vac, rated output power.														
4.Efficiency (Typ) (*5) (*22)		%	89 (*21)	90	91	91	91	91	91	91	91	91	92	92	91	92	
5.Inrush current (*6)		A	Less than 150A														
6.AC line phase imbalance		%	< 5%														
CONSTANT VOLTAGE MODE		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1.Max. Line regulation (*7)		---	0.01% of rated output voltage														
2.Max. Load regulation (*8)		---	0.01% of rated output voltage +5mV														
3.Ripple and noise (p-p, 20MHz) (*9)		mV	75	75	75	75	75	75	80	90	120	200	200	400	450	480	
4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	12	15	15	20	45	60	80	80	100	
5.Temperature coefficient		PPM/°C	50PPM/°C from rated output voltage, following 30 minutes warm-up.														
6.Temperature stability		---	0.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.														
7. Warm-up drift		---	Less than 0.05% of rated output voltage+2mV over 30 minutes following power on.														
8.Remote sense compensation/wire (*10)		V	2	2	5	5	5	5	5	5	5	5	5	5	5	5	
9.Up-prog. Response time (*11)		mS	30	30	30	30	50	50	50	50	50	50	50	100	100	100	
10.Down-prog.response time:		Full load (*11)	mS	50	50	80	80	80	80	100	100	100	100	100	150	200	200
		No load (*12)	mS	300	600	800	900	950	1000	1200	1900	2000	2500	3000	4000	4000	3000
11.Transient response time		mS	Time for output voltage to recover within 0.5% of its rated output for a load change 10~90% of rated output current. Output set-point: 10~100%, Local sense. Less than 1mS, for models up to and including 100V. 2mS, for models above 100V.														
12..Start up delay		Sec	Less than 7 Sec														
CONSTANT CURRENT MODE		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1.Max. Line regulation (*7)		---	0.05% of rated output current.														
2.Max. Load regulation (*13)		---	0.08% of rated output current.														
3.Ripple r.m.s. @ 10% rated voltage B.W 5Hz~1MHz. (*14)		mA	2000	1200	600	300	250	180	100	70	45	45	15	15	12	10	
4.Ripple r.m.s. @ 100% rated voltage. B.W 5Hz~1MHz. (TA 25°C)		mA	1200	700	300	150	130	90	60	35	23	23	7.5	7.5	8	6	
5.Temperature coefficient		PPM/°C	10V~100V 100PPM/°C from rated output current, following 30 minutes warm-up. 150V~600V 70PPM/°C from rated output current, following 30 minutes warm-up.														
6.Temperature stability		---	0.01% of rated Iout over 8hrs. interval following 30 minutes warm-up. Constant line, load & temperature.														
7. Warm-up drift		---	10V~100V model: Less than +/-0.25% of rated output current over 30 minutes following power on. 150V~600V: Less than +/-0.15% of rated 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 rated Vout.														
2.Iout voltage programming (*15)		---	0~100%, 0~5V or 0~10V, user selectable. Accuracy and linearity: +/-0.4% of rated Iout.														
3.Vout resistor programming		---	0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated Vout.														
4.Iout resistor programming (*15)		---	0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated Iout.														
5.Output voltage monitor (*23)		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5% of rated Vout.														
6.Output current monitor (*15) (*23)		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5% of rated Iout.														
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: 10mA.														
2. CV/CC signal		---	CV/CC Monitor. Open collector. CC mode: On. CV mode: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA.														
3. LOCAL/REMOTE Analog control		---	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		---	analog programming control monitor signal. Open collector. Remote: On. Local: Off. Maximum Voltage: 30V, Maximum Sink Current: 10mA.														
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 = 5V positive 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 four (4) identical GSP units. For more power please 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: 0.0001~999.99 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 (*19)(*20) Interfaces)		V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1.Vout programming accuracy (*16)		---	0.05% of rated output voltage														
2.Iout programming accuracy (*15)		---	0.3% of rated output current														
3.Vout programming resolution		---	0.002% of rated output voltage														
4.Iout programming resolution		---	0.002% of rated output current														
5.Vout readback accuracy		---	0.05% of rated output voltage														
6.Iout readback accuracy (*15)		---	0.2% of rated output current														
7.Vout readback resolution (of rated output voltage)		%	0.011%	0.006%	0.004%	0.003%	0.003%	0.002%	0.002%	0.011%	0.007%	0.005%	0.004%	0.003%	0.003%	0.002%	
8.Iout readback resolution (of rated output current)		%	0.012%	0.003%	0.003%	0.004%	0.004%	0.005%	0.006%	0.008%	0.012%	0.002%	0.003%	0.003%	0.003%	0.005%	

GENESYS™ GSP10kW/15kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS	V	10	20	30	40	50	60	80	100	150	200	300	400	500	600	
1.Foldback protection	---	Output shut-down when power supply changes mode from CV or Power Limit to CC mode or from CC or Power Limit to CV mode. User presetable. Reset by AC input recycle in autostart mode, by Power Switch, by OUTPUT button, by rear panel or by communication.														
2.Over-voltage protection (OVP)	---	Output shut-down. Reset by AC input recycle in autostart mode, by OUTPUT button, by rear panel or by communication.														
3.Over-voltage programming range	V	0.5~12	1~24	2~36	2~44.1	5~55.125	5~66.15	5~88.2	5~110.25	5~165.37	5~220.5	5~330.75	5~441	5~551.25	5~661.5	
4.Over-voltage programming accuracy	---	+/-1% of rated output voltage														
5.Output under voltage limit (UVL)	---	Prevents from adjusting Vout below limit. Does not apply in analog programming. Preset by front panel or communication port.														
6.Over temperature protection	---	Shuts down the output. Auto recovery by autostart mode.														
7. Output under voltage limit (UVL)	---	Prevents adjustment of Vout below limit.														
8. Output under voltage protection (UVP)	---	Prevents adjustment of Vout below limit. P.S output turns Off during under voltage condition. Reset by AC input recycle in autostart mode, by Power Switch, by OUTPUT button, by rear panel or by communication.														
FRONT PANEL																
1.Control functions	---	Multiple options with 2 Encoders														
	---	Vout/Iout/Power Limit manual adjust														
	---	OVP/UVL/UVP manual adjust														
	---	Protection Functions - OVP, UVL,UVP, Foldback, OCL, ENA, ILC														
	---	Communication Functions - Selection of LAN,IEEE,R5232,R5485,USB or Optional communication interface.														
	---	Output ON/OFF. Front Panel Lock.														
	---	Communication Functions - Selection of Baud Rate, Address, IP and communication language.														
	---	Analog Control Functions - Selection Voltage/resistive programming, 5V/10V, 5K/10K programming														
	---	Analog Monitor Functions - Selection of Voltage/Current Monitoring 5V/10V.														
2.Display	---	Vout: 4 digits, accuracy: 0.05% of rated output voltage +/-1 count.														
	---	Iout: 4 digits, accuracy: 0.2% of rated output current +/-1 count.														
3.Front Panel Buttons Indications	---	OUTPUT ON, ALARM, PREVIEW, FINE, COMMUNICATION, PROTECTION,CONFIGURATION, SYSTEM, SEQUENCER.														
4. Front Panel Display Indications	---	Voltage, Current, Power, CV, CC, CP, External Voltage, External Current, Address, LFP, Autostart, Safetstart, Foldback V/I, Remote (communication), RS/USB/LAN/IEEE communication, Trigger, Load/Store Cell.														
ENVIRONMENTAL CONDITIONS																
1.Operating temperature	---	0~50°C, 100% load.														
2.Storage temperature	---	-30~85°C														
3.Operating humidity	%	20~90% RH (no condensation).														
4.Storage humidity	%	10~95% RH (no condensation).														
5.Altitude (*17)	---	Operating: 10000ft (3000m), output current derating 2%/100m or Ta derating 1°C/100m above 2000m. Non operating: 40000ft (12000m).														
MECHANICAL																
1.Cooling	---	Forced air cooling by internal fans. Air flow direction: from Front panel to power supply rear														
2.Weight	GSP 10kW	kg	Less than 15.5kg.													
3.Dimensions (WxHxD)	GSP 10kW	mm	W: 423, H: 88, D: 441.5 (Without busbars and busbars cover), W: 423, H: 88, D: 640 (Including busbars and busbars cover, and strain relief) (Refer to Outline drawing).													
2.Weight	GSP 15kW	kg	Less than 23.5kg.													
3.Dimensions (WxHxD)	GSP 15kW	mm	W: 423, H: 132.5, D: 441.5 (Without busbars and busbars cover), W: 423, H: 132.5, D: 640 (Including busbars and busbars cover, and strain relief) (Refer to Outline drawing).													
4.Vibration	---	MIL-810G, method 514.6, Procedure I, test condition Annex C - 2.1.3.1														
5.Shock	---	Less than 20G, half sine, 11mSec. Unit is unpacked.														
SAFETY/EMC																
1.Applicable standards:	Safety	---	UL61010-1, CSA22.2 No.L61010-1, IEC61010-1, ENL61010-1.													
1.1. Interface classification		---	Vout<50V Models: Output, J1, J2, J3, J4, J5, J6, J7, J8 (sense) & J9 (communication options) are Non Hazardous. 60<Vout<600V Models: Output & J8 (sense) are hazardous, J1, J2, J3, J4, J5, J6, J7 & J9 (communication options) are Non Hazardous.													
1.2 Withstand voltage		---	Vout<50V Models: Input - Output & J8 (sense), J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 4242VDC 1min, Input - Ground: 2835VDC 1min. 60V<Vout<100V Models: Input - Output & J8 (sense), J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 4242VDC 1min, Output & J8 (sense) - J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 850VDC 1min. Output & J8 (sense) - Ground: 1500VDC 1min, Input - Ground: 2835VDC 1min. 100V<Vout<600V Models: Input - Output & J8 (sense), J1, J2, J3, J4, J5, J6, J7 and J9 (communication options): 4242VDC 1min. Output & J8 (sense) - J1, J2, J3, J4, J5, J6, J7 & J9 (communication options): 1275VDC 1min. Output & J8 (sense) - Ground: 2500VDC 1min. Input - Ground: 2835VDC 1min.													
1.3 Insulation resistance		---	GSP10kW/15kW: 60 Mohm at 25°C, 70%RH. Output to Ground 500VDC													
2.Conducted emission		---	IEC/EN61204-3 Industrial environment, Annex H table H.1 , FCC Part 15-A, VCCI-A.													
3.Radiated emission		---	IEC/EN61204-3 Industrial environment, Annex H table H.3 and H4, FCC Part 15-A, VCCI-A.													
4. EMC compliance	EMC(*18)	---	IEC/EN61204-3 Industrial environment													

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

***NOTES:**

- *1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
- *2: Minimum current is guaranteed to maximum 0.2% of rated output current.
- *3: GSP 10kW: Derate 10A/1°C above 40°C. GSP 15kW: Derate 15A/1°C above 40°C.
- *4: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 190-240Vac (50/60Hz) for 3-Phase
- *5: 3-Phase 200V models: At 200Vac input voltage, 3-Phase 400/480V: At 380Vac input voltage. With rated output power.
- *6: Not including EMI filter inrush current, less than 0.2mSec.
- *7: 3-Phase 200V models: 170~265Vac, 3-Phase 400V models: 342~460Vac, 3-Phase 480V models: 342~528Vac. Constant load.
- *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 200~600V models: Measured with 100:1 probe.
- *10: The maximum voltage on the power supply terminals must not exceed the rated voltage.
- *11: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load.
- *12: From 90% to 10% of Rated Output Voltage.
- *13: For load voltage change, equal to the unit voltage rating, constant input voltage.
- *14: For 10V model the ripple is measured at 2V and rated output current. For other models, the ripple is measured at 10% of rated output voltage. B.W 5Hz~1MHz.
- *15: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.
- *16: Measured at the sensing point.
- *17: For 10V model Ta derating 2°C/100m."
- *18:"Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
- *19:Max. ambient temperature for using IEEE is 40°C.
- *20:GSP10kW For 10V model only: Max. output current for using IEEE is 800A up to 40°C and 900A up to 30°C.
- *20:GSP15kW For 10V model only: Max. output current for using IEEE is 1200A up to 40°C and 1350A up to 30°C.
- *21: For 10V model only: For 3-Phase 200V efficiency is 88.5%
- *22: Typ. at Ta=25°C, rated output power.
- *23: For steady state only.

Outline Drawing GENESYS™ GSP15kW

TABLE 1

MODEL	DIMENSION
10-40(V)	L1
60-100(V)	L2

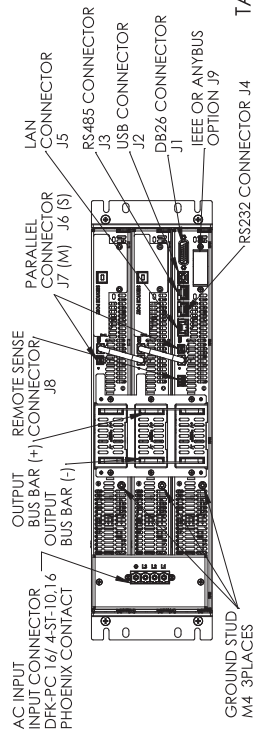
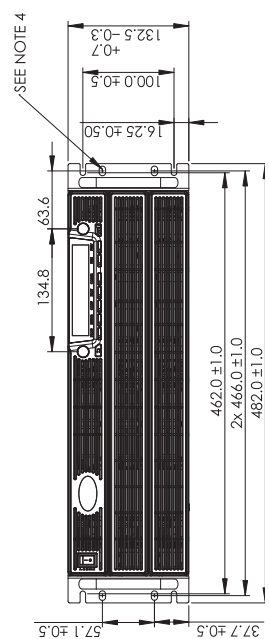
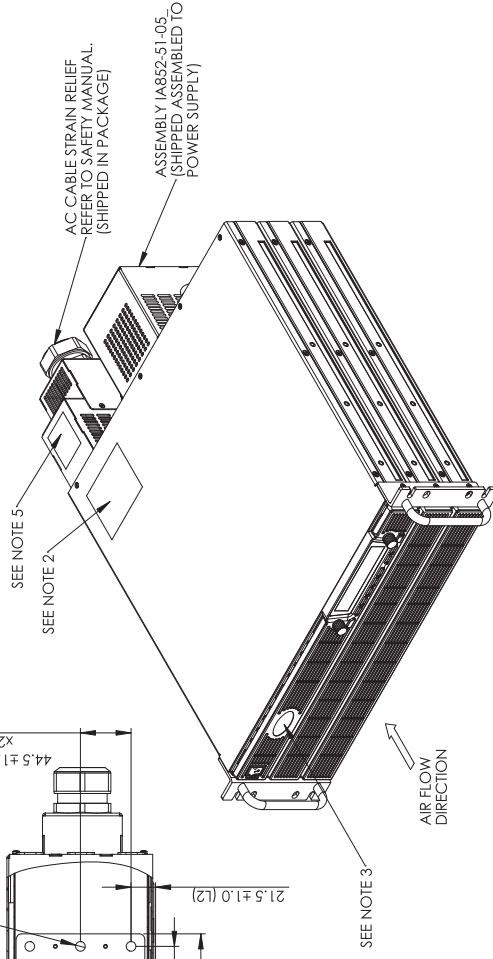
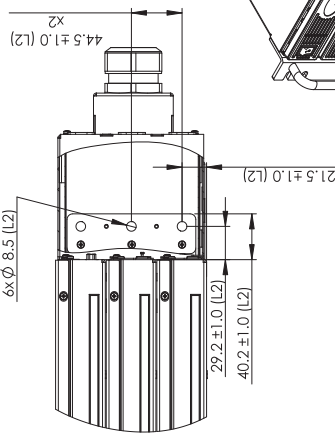
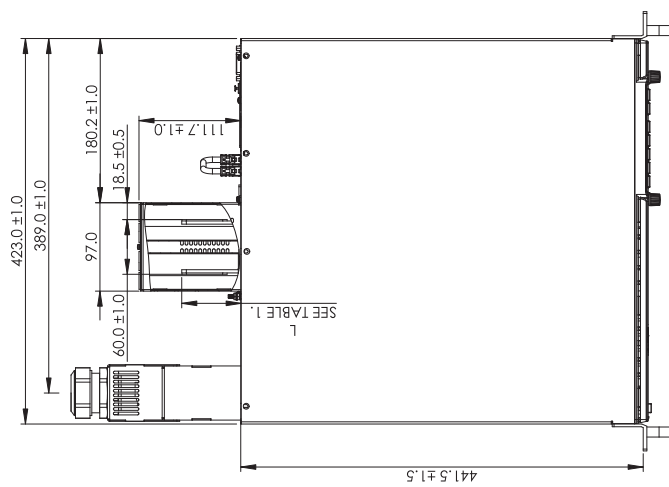
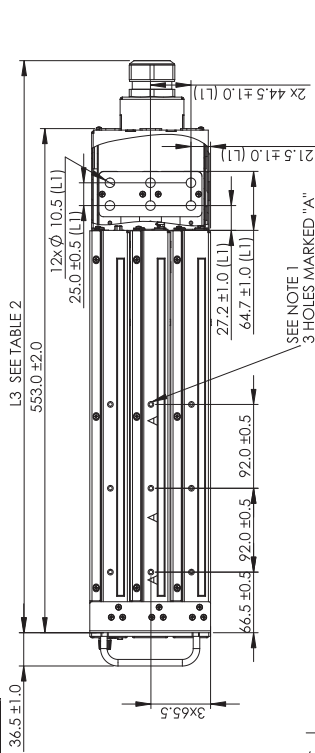


TABLE 2

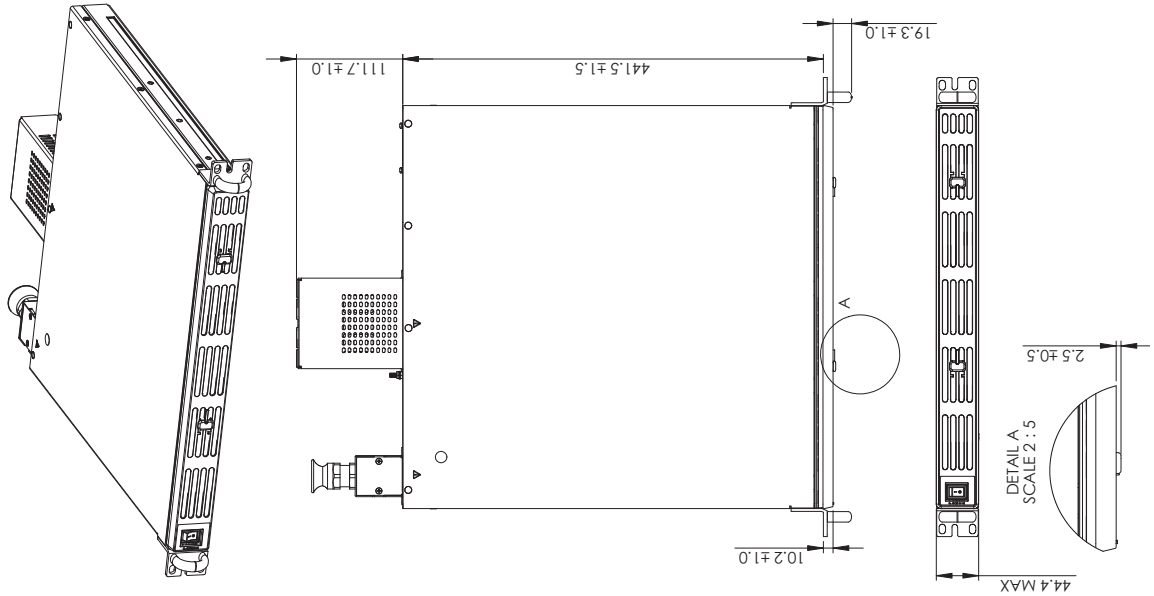
INPUT RATING	DIMENSION L3(mm)
200V(Vac)	640.0±3.5
400V/480V(Vac)	627.0±3.5



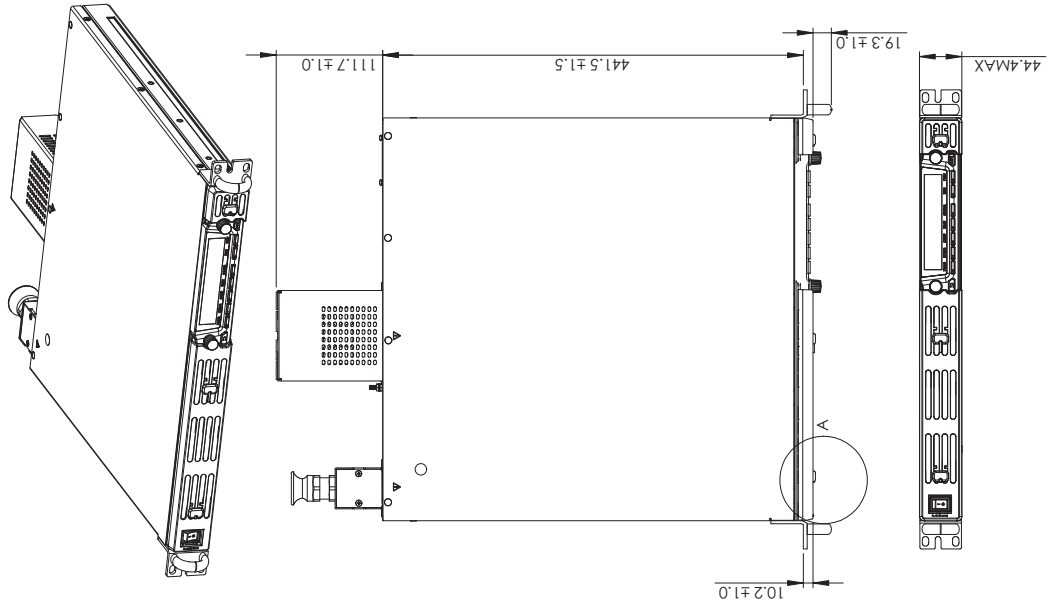
NOTE
 1. MOUNTING HOLES FOR SLIDES P/N/CC3001-00-S160, GENERAL DEVICES OR EQUIVALENT. USE # 10-32X0.38 INCH X3 SCREW FOR EACH SIDE IN POSITION MARKED "A". INSURE THAT THE SCREWS DO NOT PENETRATE MORE THAN 4.0mm INTO THE UNIT.
 2. AC INPUT RATING, SAFETY APPROVAL SYMBOLS AND EU REPRESENTATIVE ADDRESS ARE SHOWN HERE ACCORDING TO THE SPECIFICATION.
 3. MODEL NAME, OUTPUT RATING AND COMPANY LOGO ARE SHOWN HERE ACCORDING TO SPECIFICATION.
 4. MOUNTING HOLES FOR 19" RACK. USE M6X1.6 SCREWS TO FIX THE UNIT TO THE RACK.
 5. WARNING LABEL "HIGH LEAKAGE CURRENT".

Outline Drawing GENESYS™ Air Filter Kit

BLANK AIR FILTER (GB-AFK)



STANDARD AIR FILTER (G-AFK)



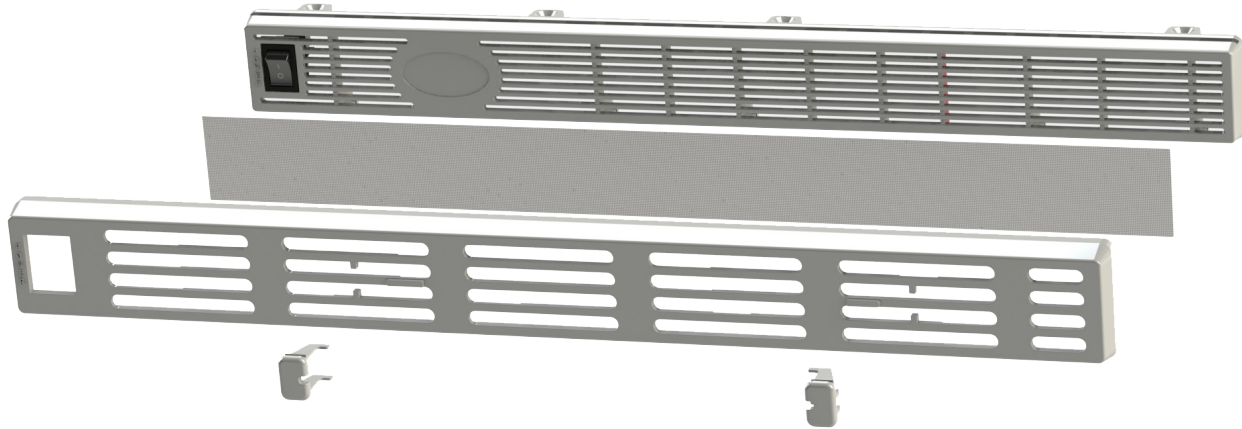
Front Panel Air Filter Assembly

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 full load; 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: 3.8 mm
- Porosity: 45ppi
- 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)