



Programmable Power Supplies

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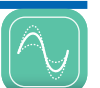


Applications

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

Features

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



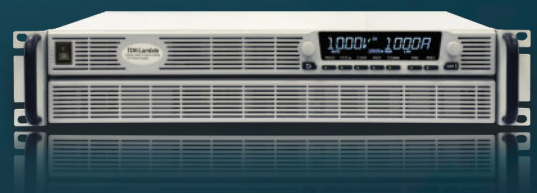
NEW



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

! Advanced Features Built-In !

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



TDK-Lambda
Innovating Reliable Power





The **GENESYS™** 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 **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:

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



- Five year warranty

Applications

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.



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

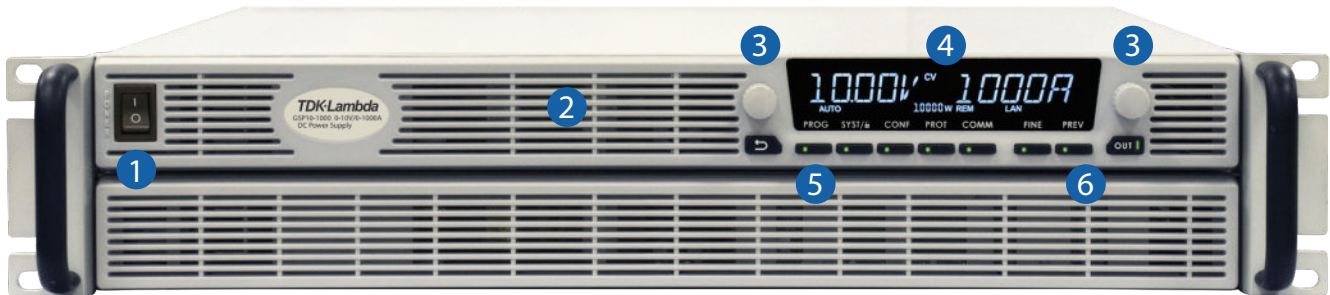
G1.7kW-5kW Rear Panel Description



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.
8. G2.7kW / G3.4kW / G5kW AC Input: 208VAC, 400VAC & 480VAC, Three Phase, 50/60 Hz. (Model shown)
AC Input Plug Connector: PHOENIX CONTACT Power Combicon PC 5/4-STCL1-7.62 Series with strain relief.
G1.7kW / G2.7kW / G3.4kW AC Input Single Phase, 50/60 Hz.
AC Input Plug Connector: PHOENIX CONTACT Power Combicon PC 5/3-STCL1-7.62 Series with strain relief.
9. Optional Interface Position for IEEE 488.2 SCPI or AnyBus Interface.
10. Exhaust air assures reliable operation when units are zero stacked.
11. Functional Ground connection (M4x8mm stud).
12. Reset button. Set default Power Supply settings.

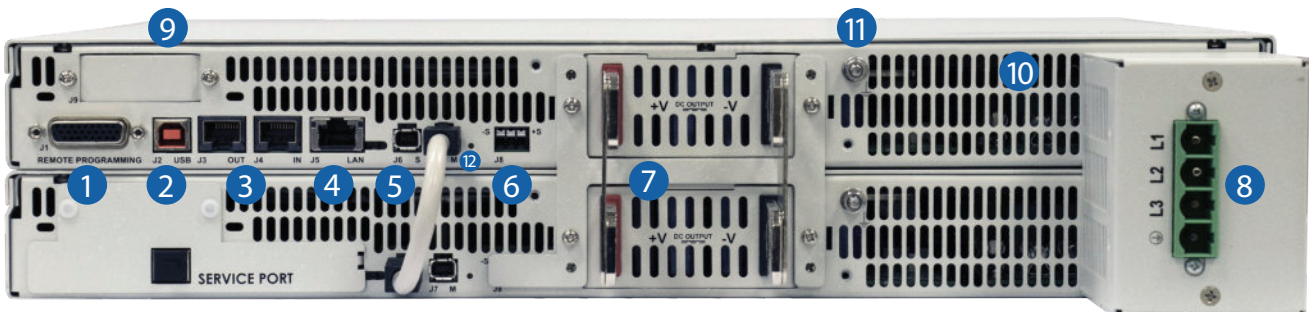


GSP10kW Front Panel Description



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

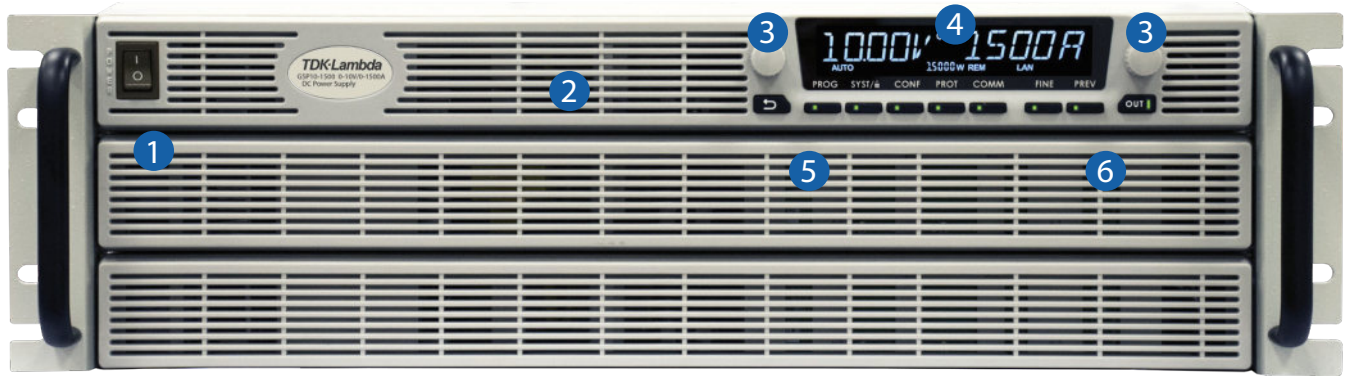
GSP10kW Rear Panel Description



1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
2. USB Interface connector (Type B).
3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
4. LAN (**LXI** 1.5) Interface connector (RJ-45 type with LAN status indicators).
5. Auto paralleling Bus connectors (mini I/O type) for connecting Master unit-to-Slave and slave unit-to-slave unit.
6. Remote/Local Output Voltage Sense Connections (spring cage).
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.

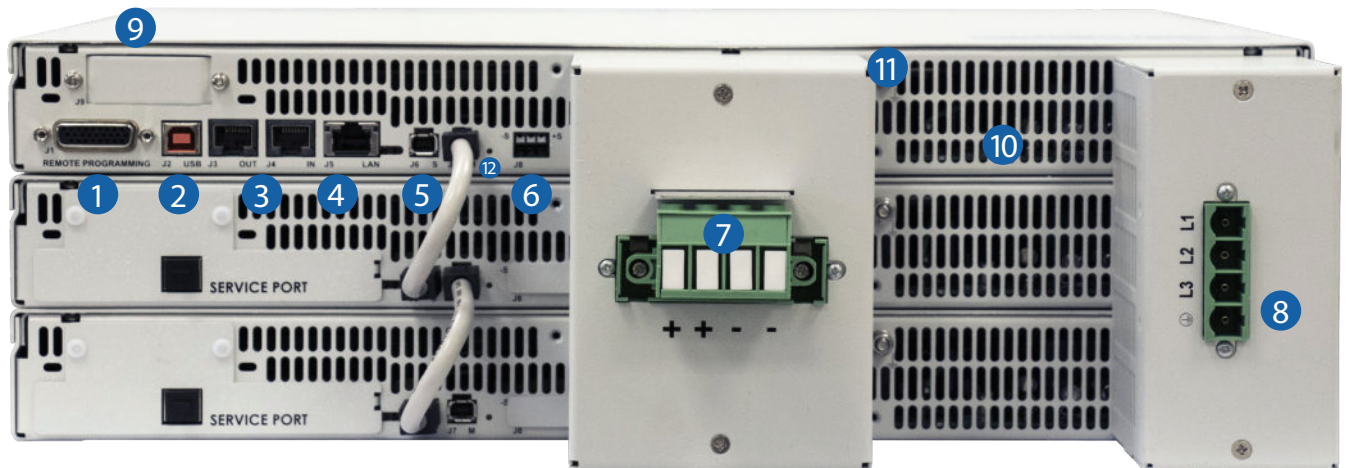


GSP15kW Front Panel Description



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

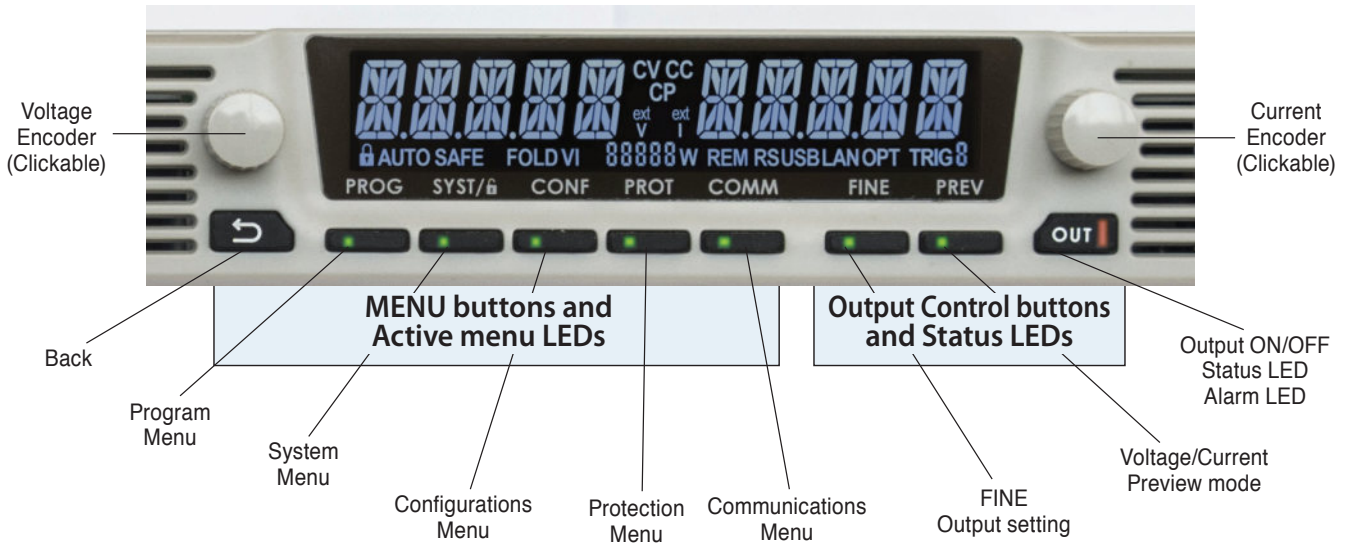
GSP15kW Rear Panel Description



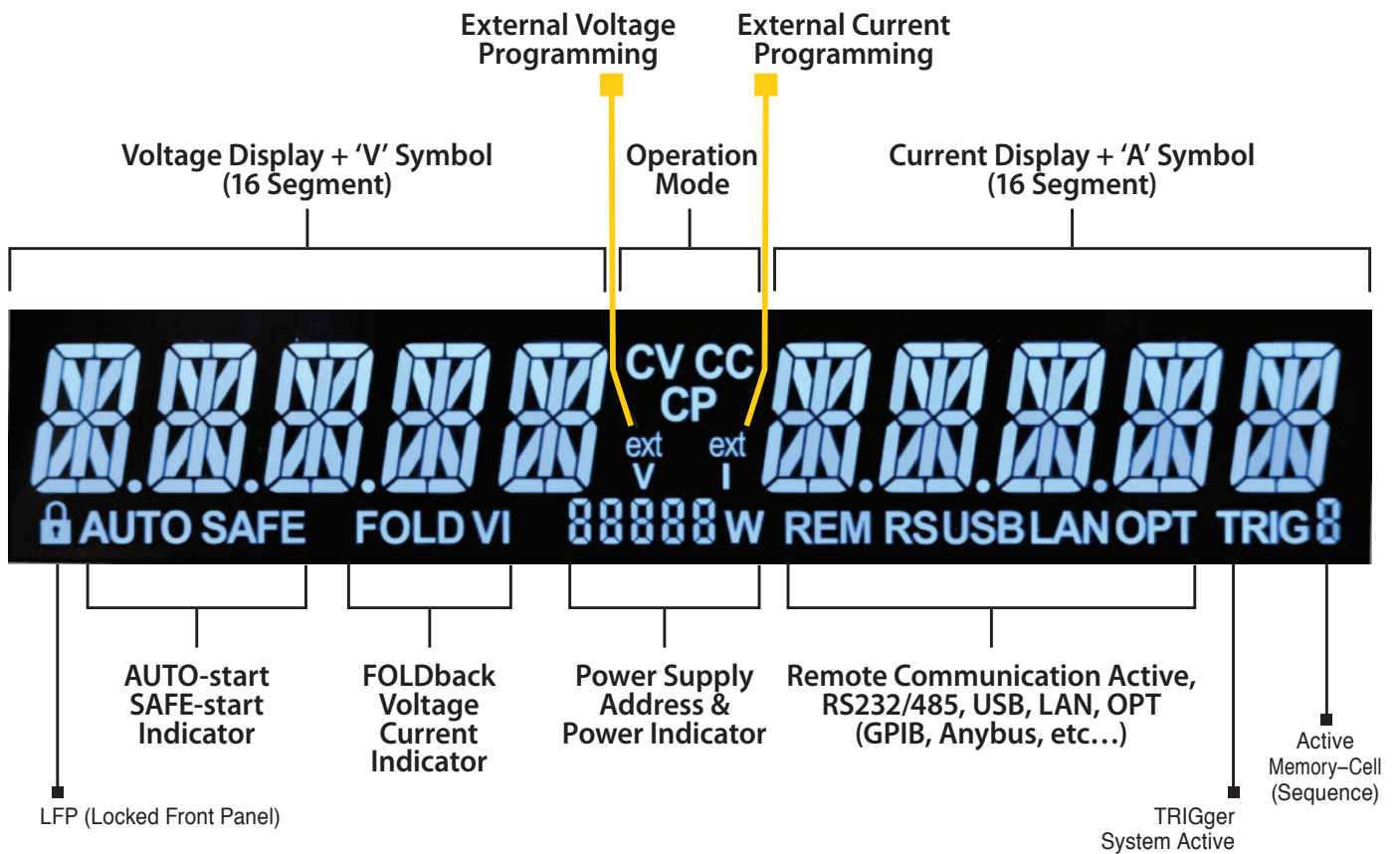
1. Isolated Analog Programming, Monitoring and other control connector (DB26 Female)
2. USB Interface connector (Type B).
3. RS-232/RS-485 IN/OUT Remote Digital Interface (RJ-45 type) for Multi-Drop connection
4. LAN (LXI 1.5) Interface connector (RJ-45 type with LAN status indicators).
5. Auto paralleling 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 six identical units to be connected
Total real current is programmed measured and reported by the Master. Up to six supplies operate as one.

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

Order P/N: G/P - 6U

Series operation

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

Multi-Drop Remote Programming via Communication Interface

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

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

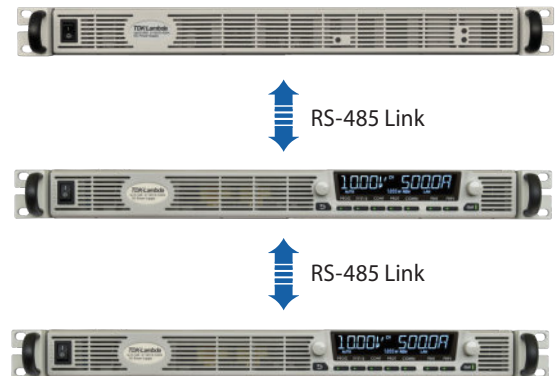
Standard Unit - zero stacked up to 6 units



Standard & Blank - zero stacked up to 6 units



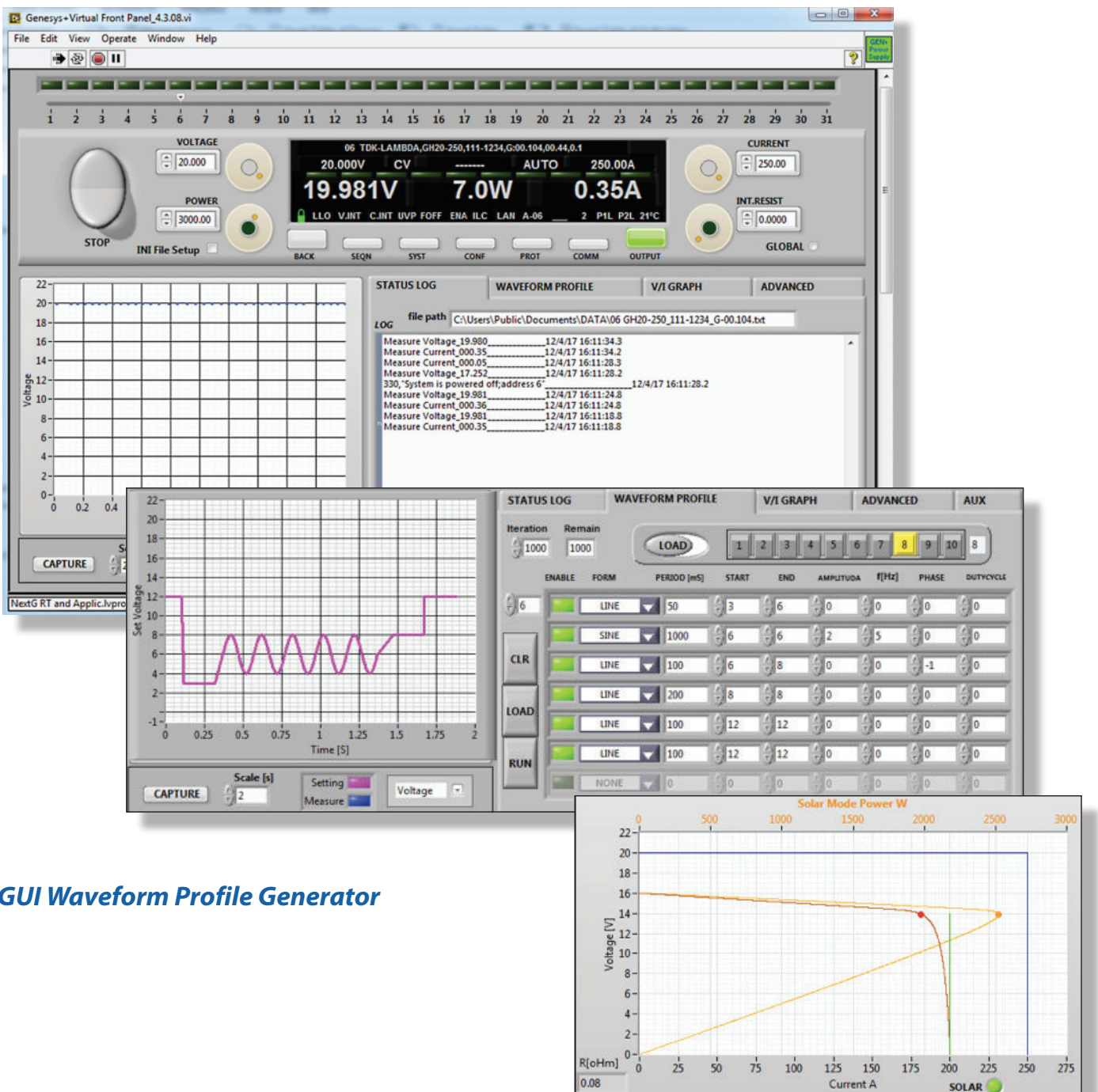
LAN, USB, RS-232, RS-485, IEEE, AnyBus



Graphical User Interface

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

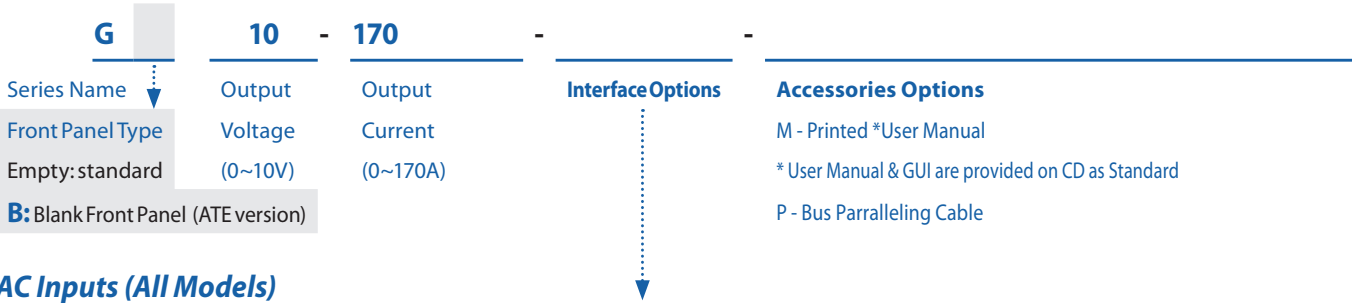
1. Control and monitor up-to 31 units with "Address" bar
2. Front panel set-up menu control (PROGram, SYSTem, CONFIguration, PROTEction and COMMnication)
3. Informative "Parameters" status bar
4. Individual unit and Global command control
5. Data logging including errors, events and recovery
6. Realtime 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



GUI Waveform Profile Generator



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



AC Inputs (All Models)

1Ø, 85 ~ 265Vac

Interface Options (Factory installed)

- LAN (LXI 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)
- Modbus-TCP
- EtherCAT

P/N	Availability
-	-
-	-
-	-
-	-
IEEE	Available
MDBS	Available
ECAT	coming soon

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 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. 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 G2.7kW / 3.4kW - Power Supply Identification / Accessories

G	10	340			
Series Name	Output Voltage	Output Current	Interface Options	AC Input Options	Accessories Options
Front Panel Type	(0~10V)	(0~340A)		1P208 (Single Phase 170~265VAC) 3P208 (Three Phase 170~265VAC) 3P400 (Three Phase 342~460VAC) 3P480 (Three Phase 342~528VAC)	M - Printed *User Manual * User Manual & GUI are provided on CD as Standard P - Bus Parralleling Cable
Empty: standard					
B : Blank Front Panel (ATE version)					

Interface Options (Factory installed)

LAN (LXI 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)
 Modbus-TCP
 EtherCAT

P/N

-	-
-	-
-	-
-	-
IEEE	Available
MDBS	Available
ECAT	coming soon

Models G2.7kW

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

Models G3.4kW

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

Accessories

Accessories will be sent 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, 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

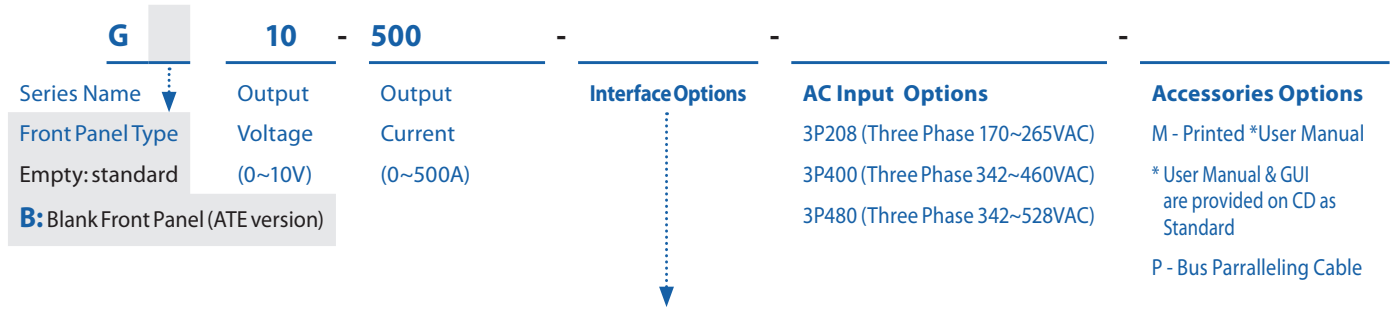
Connectors	Cables	P/N
2013595-1 (TYCO)	Shielded L=11cm	G/P

4. User Manual

Printed User Manual	G/M



How to order G5kW - Power Supply Identification / Accessories



Interface Options (Factory installed)

LAN (LX) 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)
 Modbus-TCP
 EtherCAT

P/N

-
-
-
-
IEEE Available
MDBS Available
ECAT coming soon

Models 5kW

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

Accessories

Accessories will be sent 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. 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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5. Parallel Kit: 20kW/30kW

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

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



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 provided on CD as Standard	
B : Blank Front Panel (ATE version)					3P480 (Three Phase 342~528VAC)		

Interface Options (Factory installed)

LAN (LX) 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)
 Modbus-TCP
 EtherCAT

IEEE	Available
MDBS	Available3
ECAT	coming soon

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	GSP200-50	0~200V	0~50	10
GSP60-170	0~60V	0~170	10.2	GSP300-34	0~300V	0~34	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	GSP200-75	0~200V	0~75	15
GSP60-255	0~60V	0~255	15.3	GSP300-51	0~300V	0~51	15.3
				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™ Family Output Voltage and Current

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

AC Input Range

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

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



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



GENESYS™ 1.7kW SERIES SPECIFICATIONS

OUTPUT RATING		G	10-170	20-85	30-56	40-42	60-28	80-21	100-17	150-11.2	300-5.6	600-2.8
1. Rated output voltage (*1)	V		10	20	30	40	60	80	100	150	300	600
2. Rated output current (*2)	A		170	85	56	42	28	21	17	11.2	5.6	2.8
3. Rated output power	W		1700	1700	1680	1680	1680	1680	1700	1680	1680	1680
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	300	600
1. Input voltage/freq. (*3)	---	85~265Vac, continuous, 47~63Hz, Single Phase										
2. Maximum Input current at 100% load (100/200)	A	20/10										
3. Power Factor (Typ)	---	0.99 @ 100Vac 0.98 @ 200Vac, rated output power.										
4. Efficiency at 100 Vac/200Vac, rated output (*19)	%		86/88	87/89	87/89	87/89	87/89	87/89	88/90	88/90	88/90	88/90
5. Inrush current (*5)	A	Less than 50A										
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	600
1. Max. Line regulation (*6)	---	0.01% of rated output voltage										
2. Max. Load regulation (*7)	---	0.01% of rated output voltage +2mV										
3. Ripple and noise (p-p, 20MHz) (*8)	mV		50	50	50	60	60	75	75	75	120	500
4. Ripple r.m.s. 5Hz~1MHz (*8)	mV		6	6	6	7	7	10	12	8	20	100
5. Temperature coefficient	PPM/°C	50PPM/°C 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 0.01% of rated output voltage+2mV over 30 minutes following power on.										
8. Remote sense compensation/wire (*10)	V		1	1	5	5	5	5	5	5	5	5
9. Up-prog. Response time (*11)	mS		20	20	20	20	20	20	25	50	100	100
10. Down-prog. response time:	Full load (*12)	mS	30	30	60	60	60	60	60	120	220	200
	No load (*12)	mS	450	700	1000	1200	1500	1700	2600	2900	4600	4600
11. Transient response time	mS	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. Hold-up time	mS	16ms typical, rated output power										
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	300	600
1. Max. Line regulation (*6)	---	0.01% of rated output current. +2mA										
2. Max. Load regulation (*9)	---	0.02% of rated output current. +5mA										
3. Ripple r.m.s. @ rated voltage. B.W 5Hz~1MHz. (*13)	mA		≤400	≤160	≤100	≤60	≤50	≤30	≤30	≤10	≤8	≤5
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 (*14)	---	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 (*14)	---	0~100%, 0~5/10Kohm full scale, user selectable. Accuracy and linearity: +/-0.5% of rated Iout.										
5. Output voltage monitor	---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%.										
6. Output current monitor (*14)	---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%.										
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 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 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: 0.0001~999.9V/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) Interfaces)		V	10	20	30	40	60	80	100	150	300	600
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										
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 (*14)	---	0.2% 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%	0.002%
8. Iout 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%



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PROTECTIVE FUNCTIONS	V	10	20	30	40	60	80	100	150	300	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	5~66.15	5~88.2	5~110.25	5~165.37	5~330.75	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,RS232,RS485,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 (*16)	---	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	kg	Less than 5kg.
3.Dimensions (WxHxD)	mm	W: 423, H: 43.6, D: 441.5 (Without busbars and busbars cover), W: 423, H: 43.6, D: 553.5 (Including busbars and busbars cover) (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	---
		UL60950-1, CSA22.2 No.60950-1, IEC60950-1, EN60950-1.
1.1. Interface classification		---
		Vout ≤40V Models: Output, J1,J2,J3,J4,J5,J6,J7,J8 (sense) and ,J9 (communication options) are SELV. 60≤ Vout≤ 600V Models: Output, J8 (sense) are hazardous, J1,J2,J3,J4,J5,J6,J7 and J9 (communication options) are SELV
1.2 Withstand voltage		---
		Vout ≤40V Models: Input - Output (SELV): 4242VDC 1min, Input - Ground: 2835VDC 1min. 60V≤Vout≤100V Models: Input - Output: 4242VDC 1min, Input - SELV: 4242VDC 1min, Output - SELV: 850VDC 1min, Output - Ground: 1500VDC 1min, Input - Ground: 2835VDC 1min. 100<Vout≤600V Models: Input - Output: 4242VDC 1min, Input - SELV: 4242VDC 1min, Output - SELV: 1500VDC 1min, Output - Ground: 2500VDC 1min, Input - Ground: 2835VDC 1min.
1.3 Insulation resistance		---
		100Mohm at 25°C, 70%RH.
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(*17)	---
		According to 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: For cases where conformance to various safety standards (UL, IEC, etc...) is required, to be described as 100-240Vac (50/60Hz).
- *4: Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
- *5: Not including EMI filter inrush current, less than 0.2mSec.
- *6: 85~132Vac or 170~265Vac. Constant load.
- *7: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
- *8: For 10V~300V models: Measured with JEITA RC-9131C (1:1) probe. For 400~600V model: Measured with 100:1 probe.
- *9: For load voltage change, equal to the unit voltage rating, constant input voltage.
- *10: The maximum voltage on the power supply terminals must not exceed the rated voltage.
- *11: From 10% to 90% of Rated Output Voltage, with rated, resistive load.
- *12: From 90% to 10% of Rated Output Voltage.
- *13: For 10V model, the ripple is measured at 20~100% of rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current. B.W 5Hz~1MHz.
- *14: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.
- *15: Measured at the sensing point.
- *16: For 10V model Ta derating 2°C/100m.
- *17 Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
- *18 Max. ambient temperature for using IEEE is 40°C.
- *19: Ta=25°C, rated output power.



GENESYS™ 2.7kW SERIES SPECIFICATIONS

OUTPUT RATING		G	10-265	20-135	30-90	40-68	60-45	80-34	100-27	150-18	300-9	600-4.5
1.Rated output voltage(*1)		V	10	20	30	40	60	80	100	150	300	600
2.Rated output current (*2)		A	265	135	90	68	45	34	27	18	9	4.5
3.Rated output power		W	2650	2700	2700	2720	2700	2720	2700	2700	2700	2700
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	300	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) 1-Phase, 200V models: 170~265Vac, 47~63Hz (Covers 200/208/230/240Vac)									
2. Maximum Input current at 100% load	3-Phase, 200V models:	---	10A @ 200Vac									
	3-Phase, 400V models:	---	5.5A @ 380Vac									
	3-Phase, 480V models:	---	5.5A @ 380Vac									
	1-Phase, 200V models:	---	16A @ 200Vac									
3.Power Factor (Typ)		---	For 3-Phase: 0.94 @ 200/380Vac, rated output power. For 1-Phase: 0.99 @ 200Vac, rated output power.									
4.Efficiency (Typ) (*5) (*22)		%	88	89	89.5	90	90	90.5	90.5	90.5	90.5	90.5
5.Inrush current (*6)		A	Less than 50A									
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	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	80	80	100	120	200	480
4.Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	10	12	12	15	15	20	60	100
5.Temperature coefficient		PPM/°C	50PPM/°C 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
9.Up-prog. Response time (*11)		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
	No load (*12)	mS	450	600	800	900	1100	1300	2100	2000	3000	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 6 Sec									
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	300	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. @ rated voltage. 3-Phase (*14)		mA	≤800	≤450	≤300	≤150	≤100	≤70	≤45	≤30	≤12	≤5
4.Ripple r.m.s. @ rated voltage. 1-Phase (*14)		mA	≤1200	≤600	≤300	≤300	≤200	≤100	≤60	≤40	≤12	≤8
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		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%.									
6.Output current monitor (*15)		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%.									
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 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 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 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	60	80	100	150	300	600
1.Vout programming accuracy (*16)		---	0.05% of rated output voltage									
2.Iout programming accuracy (*15)		---	0.1% of actual output current+0.2% 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%	0.002%	0.002%	0.011%	0.007%	0.004%	0.002%



GENESYS™ 3.4kW SERIES SPECIFICATIONS

OUTPUT RATING		V	10	20	30	40	60	80	100	150	300	600
1. Rated output voltage (*1)	V		10	20	30	40	60	80	100	150	300	600
2. Rated output current (*2)	A		340 (*3)	170	112	85	56	42	34	22.5	11.5	5.6
3. Rated output power	W		3400	3400	3360	3400	3360	3360	3400	3375	3450	3360
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	300	600
1. Input voltage/freq. 3 phase, 3 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) 1-Phase, 200V models: 170~265Vac, 47~63Hz (Covers 200/208/230/240Vac)									
2. Maximum Input current at 100% load	---		3-Phase, 200V models: 12.5A @ 200Vac 3-Phase, 400V models: 6.5A @ 380Vac 3-Phase, 480V models: 6.5A @ 380Vac 1-Phase, 200V models: 21A @ 200Vac									
3. Power Factor (Typ)	---		For 3-Phase: 0.94 @ 200/380Vac, rated output power. For 1-Phase: 0.99 @ 200Vac, rated output power.									
4. Efficiency (Typ) (*5) (*22)	%		88	89	89.5	90	90	90.5	90.5	90.5	90.5	90.5
5. Inrush current (*6)	A		Less than 50A									
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	300	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	80	80	100	120	200	480
4. Ripple r.m.s. 5Hz~1MHz (*9)	mV		8	10	10	12	12	15	15	20	60	100
5. Temperature coefficient	PPM/°C		50PPM/°C 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
9. Up-prog. Response time (*11)	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
	No load (*12)	mS	450	600	800	900	1100	1300	2100	2000	3000	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 6 Sec									
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	300	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. @ rated voltage. 3-Phase (*14)	mA		≤800	≤450	≤300	≤150	≤100	≤70	≤45	≤30	≤12	≤5
4. Ripple r.m.s. @ rated voltage. 1-Phase (*14)	mA		≤1200	≤600	≤300	≤300	≤200	≤100	≤60	≤40	≤12	≤8
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	---		0~5V or 0~10V, user selectable. Accuracy: +/-0.5%.									
6. Output current monitor (*15)	---		0~5V or 0~10V, user selectable. Accuracy: +/-0.5%.									
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 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 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 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	60	80	100	150	300	600
1. Vout programming accuracy (*16)	---		0.05% of rated output voltage									
2. Iout programming accuracy (*15)	---		0.1% of actual output current+0.2% 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%	0.002%	0.002%	0.011%	0.007%	0.004%	0.002%



GENESYS™ 5kW SERIES SPECIFICATIONS

OUTPUT RATING		G	10-500	20-250	30-170	40-125	60-85	80-65	100-50	150-34	200-25	300-17	600-8.5
1. Rated output voltage(*1)		V	10	20	30	40	60	80	100	150	200	300	600
2. Rated output current (*2)		A	500 (*3)	250	170	125	85	65	50	34	25	17	8.5
3. Rated output power		W	5000	5000	5100	5000	5100	5200	5000	5100	5000	5100	5100
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	200	300	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:	17.5A @ 200Vac 9.2A @ 380Vac 9.2A @ 380Vac										
3. Power Factor (Typ)		---	0.94 @ 200/380Vac, rated output power.										
4. Efficiency (Typ) (*5) (*22)		%	89 (*21)	91	91	91	91	91	91	91	91	92	92
5. Inrush current (*6)		A	Less than 50A										
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	200	300	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	80	90	120	200	200	480
4. Ripple r.m.s. 5Hz~1MHz (*9)		mV	8	10	12	12	12	15	15	20	60	60	100
5. Temperature coefficient		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
9. Up-prog. Response time (*11)		mS	30	30	30	30	50	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
		No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	2500	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 5 Sec										
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	200	300	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. @ rated voltage. B.W 5Hz~1MHz (*14)		mA	≤1200	≤600	≤300	≤150	≤100	≤70	≤45	≤45	≤45	≤15	≤8
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		---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5% of rated Vout.										
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)													
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 4 identical units in Master/Slave mode. Refer to instruction manual. For more power please consult with Factory.										
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 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 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	60	80	100	150	200	300	600
1. Vout programming accuracy (*16)		---	0.05% of rated output voltage										
2. Iout programming accuracy (*15)		---	0.1% of actual output current+0.2% 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%	0.002%	0.002%	0.011%	0.007%	0.005%	0.004%	0.002%
8. Iout readback resolution (of rated output current)		%	0.003%	0.005%	0.006%	0.009%	0.002%	0.002%	0.003%	0.004%	0.004%	0.006%	0.002%



GENESYS™ 2.7kW/3.4kW/5kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS	V	10	20	30	40	60	80	100	150	200	300	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 presettable. 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	5~66.15	5~88.2	5~110.25	5~165.37	5~220.5	5~330.75	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,RS232,RS485,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	kg	2.7kW/3.4kW - Less than 6.25kg. 5kW - Less than 7.5kg.
3.Dimensions (WxHxD)	mm	W: 423, H: 43.6, D: 441.5 (Without busbars and busbars cover), W: 423, H: 43.6, D: 553.5 (Including busbars and busbars cover) (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	---
1.1. Interface classification		---
1.2 Withstand voltage		---
1.3 Insulation resistance		---
2.Conducted emission		---
3.Radiated emission		---
4. EMC compliance	EMC(*18)	---

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

NOTES:

- * 1: Minimum voltage is guaranteed to maximum 0.1% of rated output voltage.
- * 2: Minimum current is guaranteed to maximum 0.2% of rated output current.
- * 3: Derate 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: 170~265Vac, 3-Phase 400V models: 342~460Vac, 3-Phase 480V models: 342~528Vac. Constant load.
- * 8: From No-Load to Full-Load, constant input voltage. Measured at the sensing point in Remote Sense.
- * 9: For 10V~150V models: Measured with JEITA RC-9131C (1:1) probe. For 300~600V 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.
- * 13: For load voltage change, equal to the unit voltage rating, constant input voltage.
- * 14: For 10V model, the ripple is measured at 20~100% of rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current. 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 For 10V model only: Max. output current for using IEEE is 400A up to 40°C and 450A up to 30°C.
- * 21: For 10V model only: For 3-Phase 200V efficiency is 88.5%
- * 22: Typ. at Ta=25°C, rated output power.



GENESYS™ GSP10kW SERIES SPECIFICATIONS

OUTPUT RATING		GSP	10-1000	20-500	30-340	40-250	60-170	80-130	100-100	150-68	200-50	300-34	600-17
1. Rated output voltage (*1)	V		10	20	30	40	60	80	100	150	200	300	600
2. Rated output current (*2)	A		1000 (*3)	500	340	250	170	130	100	68	50	34	17
3. Rated output power	kW		10	10	10.2	10	10.2	10.4	10	10.2	10	10.2	10.2
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	200	300	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)	91	91	91	91	91	91	91	91	92	92
5. Inrush current (*6)	A	Less than 100A											
6. AC line phase imbalance	%	< 5%											
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	200	300	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	80	90	120	200	200	480
4. Ripple r.m.s. 5Hz~1MHz (*9)	mV		8	10	12	12	12	15	15	20	45	60	100
5. Temperature coefficient	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
9. Up-prog. Response time (*11)	mS		30	30	30	30	50	50	50	50	50	50	100
10. Down-prog. response time:	Full load (*11)	mS	50	50	80	80	80	100	100	100	100	100	200
	No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	2500	3000	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		---											
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		1500	1200	600	300	150	100	70	45	45	15	10
4. Ripple r.m.s. @ 100% rated voltage. B.W 5Hz~1MHz. (TA25°C)	mA		1200	700	300	150	75	50	35	23	23	7.5	6
5. Temperature coefficient	PPM/°C	10V~100V 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	---	0~5V or 0~10V, user selectable. Accuracy: +/-0.5%. Of rated Vout.											
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)		---											
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	---	Two 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: 0.0001~999.9 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 (*19)(*20) Interfaces)		V	10	20	30	40	60	80	100	150	200	300	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%	0.002%	0.002%	0.011%	0.007%	0.005%	0.004%	0.002%
8. Iout readback resolution (of rated output current)	%		0.012%	0.003%	0.004%	0.005%	0.007%	0.009%	0.012%	0.002%	0.003%	0.003%	0.006%



GENESYS™ GSP15kW SERIES SPECIFICATIONS

OUTPUT RATING		GSP	10-1500	20-750	30-510	40-375	60-255	80-195	100-150	150-102	200-75	300-51	600-25.5
1. Rated output voltage(*1)	V		10	20	30	40	60	80	100	150	200	300	600
2. Rated output current (*2)	A		1500 (*3)	750	510	375	255	195	150	102	75	51	25.5
3. Rated output power	kW		15	15	15.3	15	15.3	15.6	15	15.3	15	15.3	15.3
INPUT CHARACTERISTICS		V	10	20	30	40	60	80	100	150	200	300	600
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	92	92
5. Inrush current (*6)	A		Less than 150A										
6. AC line phase imbalance	%		< 5%										
CONSTANT VOLTAGE MODE		V	10	20	30	40	60	80	100	150	200	300	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	80	90	120	200	200	480
4. Ripple r.m.s. 5Hz~1MHz (*9)	mV		8	10	12	12	12	15	15	20	45	60	100
5. Temperature coefficient	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
9. Up-prog. Response time (*11)	mS		30	30	30	30	50	50	50	50	50	50	100
10. Down-prog. response time:	Full load (*11)	mS	50	50	80	80	80	100	100	100	100	100	200
	No load (*12)	mS	300	600	800	900	1000	1200	1900	2000	2500	3000	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										
13. Hold-up time	---												
CONSTANT CURRENT MODE		V	10	20	30	40	60	80	100	150	200	300	600
1. Max. Line regulation (*7)	---	0.05% of 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	180	100	70	45	45	15	10
4. Ripple r.m.s. @ 100% rated voltage. B.W 5Hz~1MHz. (TA 25°C)	mA		1200	700	300	150	90	60	35	23	23	7.5	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 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.											
FUNCTIONS AND FEATURES													
1. Parallel operation	---	Two 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: 0.0001~999.9 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 (*19)(*20) Interfaces)		V	10	20	30	40	60	80	100	150	200	300	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%	0.002%	0.002%	0.011%	0.007%	0.005%	0.004%	0.003%
8. Iout readback resolution (of rated output current)	%		0.012%	0.003%	0.003%	0.004%	0.005%	0.006%	0.006%	0.006%	0.006%	0.006%	0.006%



GENESYS™ GSP10kW/15kW SERIES SPECIFICATIONS

PROTECTIVE FUNCTIONS	V	10	20	30	40	60	80	100	150	200	300	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	5-66.15	5-88.2	5-110.25	5-165.37	5-220.5	5-330.75	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,RS232,RS485,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	---
		UL60950-1, CSA22.2 No.60950-1, IEC60950-1, EN60950-1.
1.1. Interface classification		---
		Vout ≤40V Models: Output, J1,J2,J3,J4,J5,J6,J7,J8 (sense) and J9 (communication options) are SELV. 60≤ Vouts< 600V Models: Output, J8 (sense) are hazardous, J1,J2,J3,J4,J5,J6,J7 and J9 (communication options) are SELV
1.2 Withstand voltage		---
		Vout ≤40V Models: Input - Output (SELV): 4242VDC 1min, Input - Ground: 2835VDC 1min. 60V≤Vouts≤100V Models: Input - Output: 4242VDC 1min, Input - SELV: 4242VDC 1min, Output - SELV: 850VDC 1min, Output - Ground: 1500VDC 1min, Input - Ground: 2835VDC 1min. 100<Vouts<600V Models: Input - Output: 4242VDC 1min, Input - SELV: 4242VDC 1min, Output - SELV: 1500VDC 1min, Output - Ground: 2500VDC 1min, Input - Ground: 2835VDC 1min.
1.3 Insulation resistance		---
		GSP10kW - 60 Mohm at 25°C, 70%RH. GSP15kW - 90 Mohm at 25°C, 70%RH.
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)	---
		According to 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: 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 300~600V models: Measured with 100:1 probe.
- *10: The maximum voltage on the power supply terminals must not exceed the rated voltage.
- *11: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load.
- *12: From 90% to 10% of Rated Output Voltage.
- *13: For load voltage change, equal to the unit voltage rating, constant input voltage.
- *14: For 10V model the ripple is measured at 2V and rated output current. For other models, the ripple is measured at 10% of rated output voltage. B.W 5Hz~1MHz.
- *15: The Constant Current programming, readback and monitoring accuracy do not include the warm-up and Load regulation thermal drift.
- *16: Measured at the sensing point.
- *17: For 10V model Ta derating 2°C/100m."
- *18: Signal and control ports interface cables length: Less than 3m, DC output power port cables length: Less than 30m.
- *19:Max. ambient temperature for using IEEE is 40°C.
- *20:GSP10kW For 10V model only: Max. output current for using IEEE is 800A up to 40°C and 900A up to 30°C.
- *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™ G1.7kW/2.7kW/3.4kW - 1-Phase

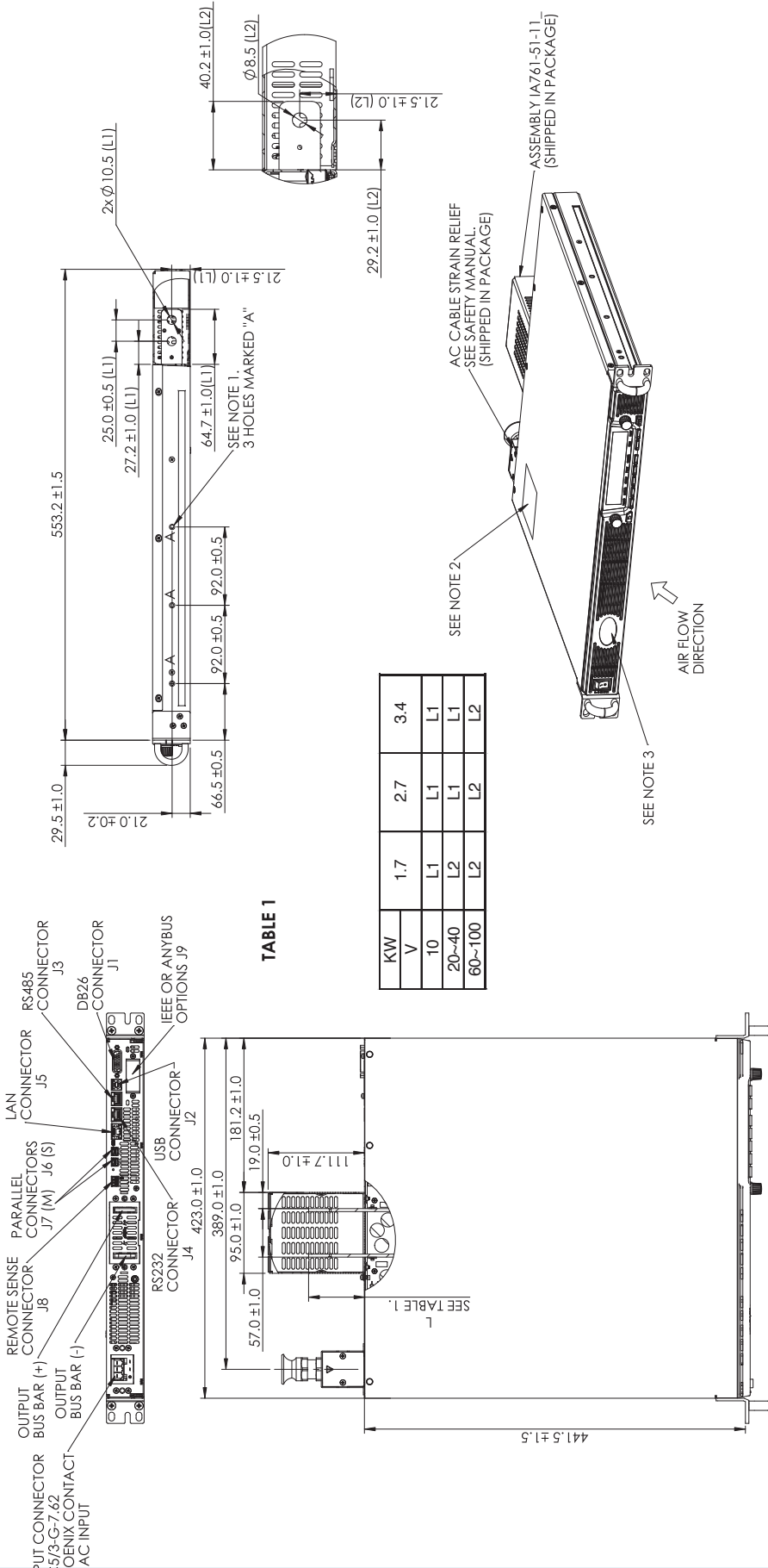
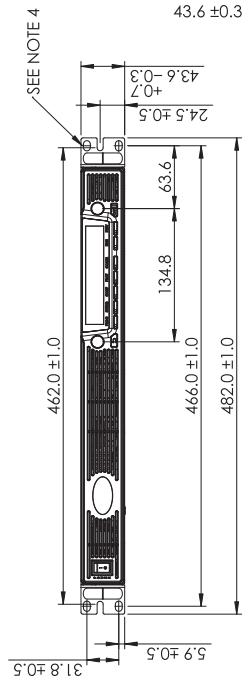
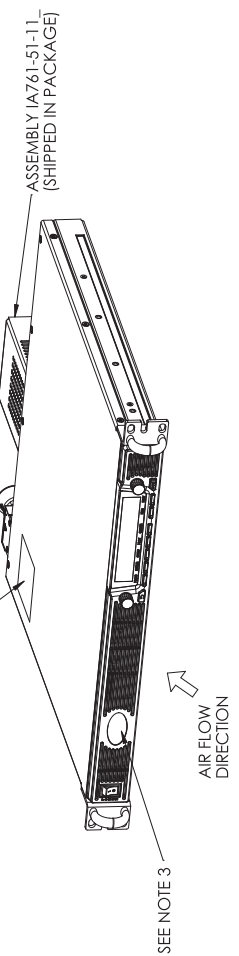


TABLE 1

KW	1.7	2.7	3.4
V	L1	L1	L1
10	L2	L1	L1
20~40	L2	L2	L2
60~100	L2	L2	L2

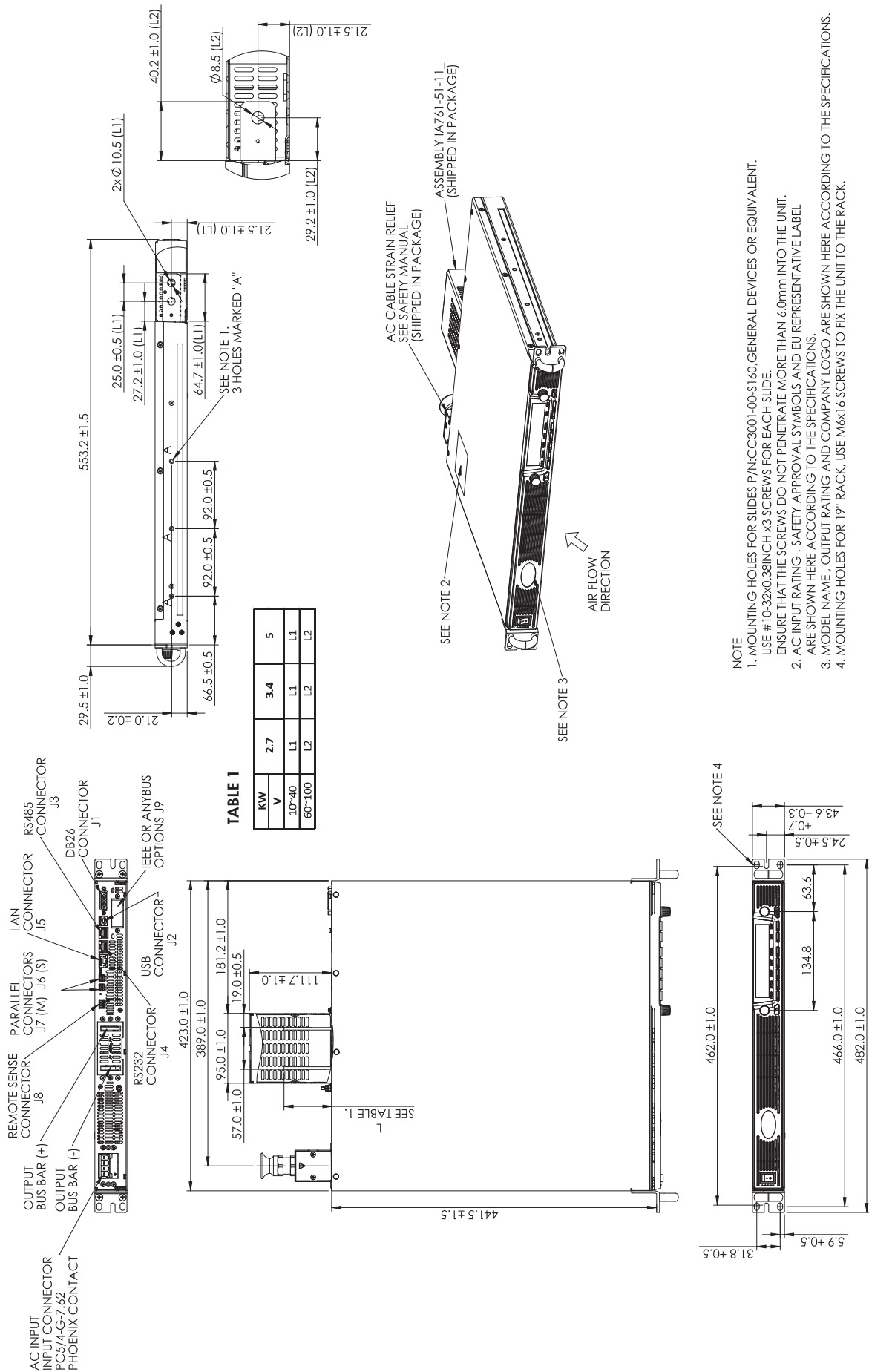
SEE NOTE 2
AC CABLE STRAIN RELIEF
SEE SAFETY MANUAL.
(SHIPPED IN PACKAGE)



- NOTE
1. MOUNTING HOLES FOR SLIDES P/N: CC3001-00-S160, GENERAL DEVICES OR EQUIVALENT. USE #10-32x0.38INCH x3 SCREWS FOR EACH SLIDE. ENSURE THAT THE SCREWS DO NOT PENETRATE MORE THAN 6.0mm INTO THE UNIT.
 2. AC INPUT RATING, SAFETY APPROVAL SYMBOLS AND EU REPRESENTATIVE ADDRESS LABEL ARE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.
 3. MODEL NAME, OUTPUT RATING AND COMPANY LOGO ARE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.
 4. MOUNTING HOLES FOR 19" RACK. USE M6x16 SCREWS TO FIX THE UNIT TO THE RACK.



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



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

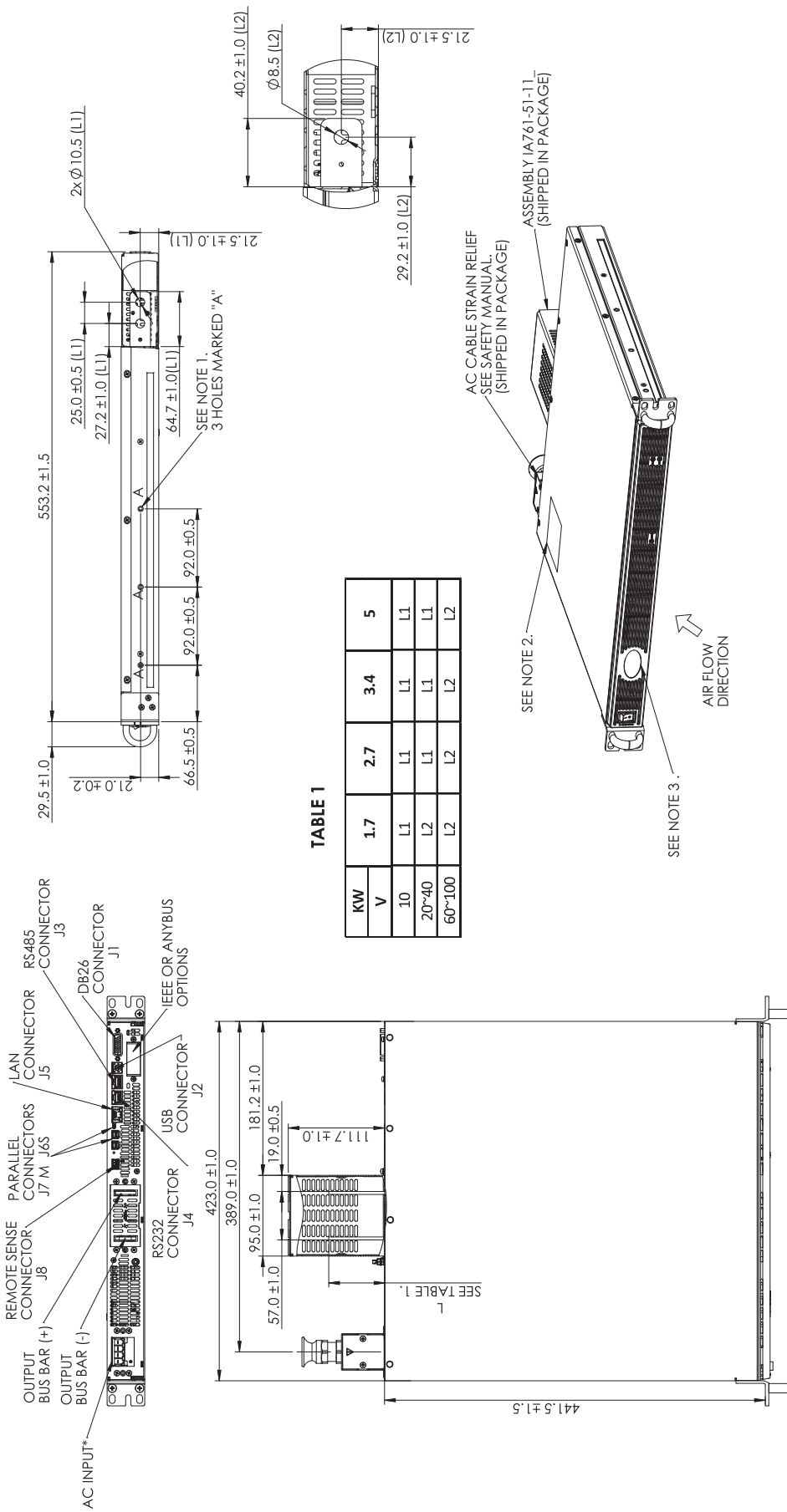
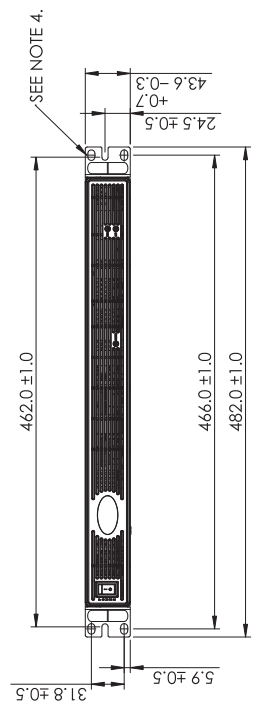
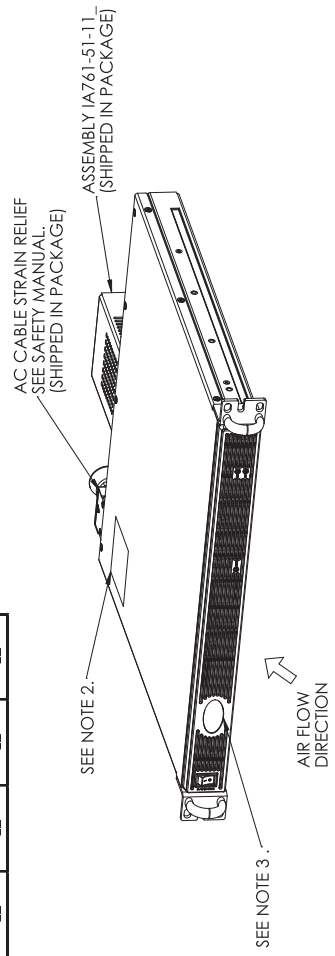
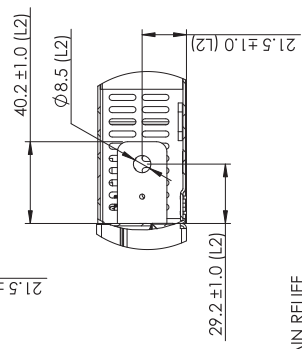


TABLE 1

KW	1.7	2.7	3.4	5
V	L1	L1	L1	L1
20~40	L2	L1	L1	L1
60~100	L2	L2	L2	L2



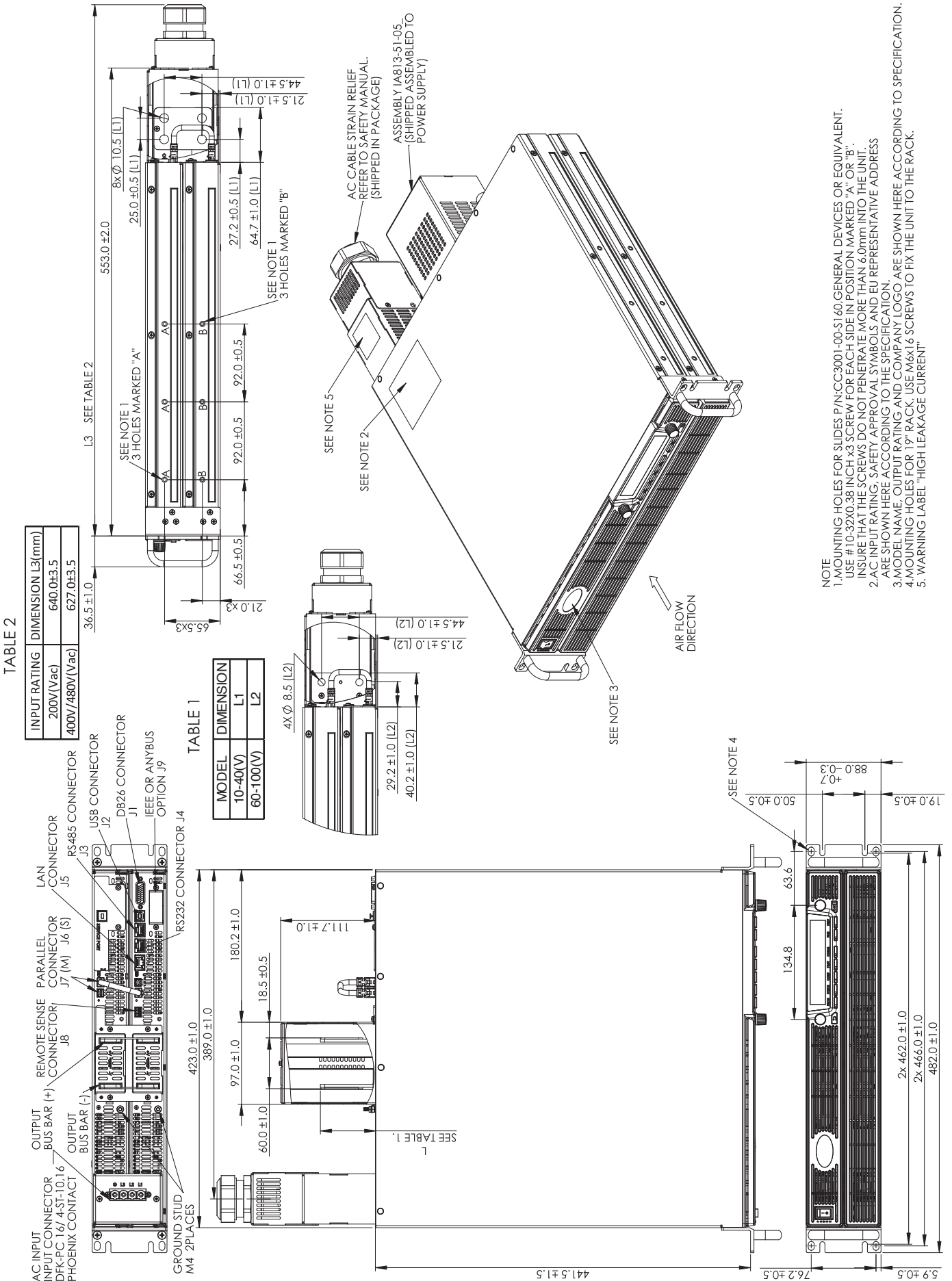
* FOR MODEL WITH 3PHASE AC INPUT CONNECTOR PC5/4-G-7.62 (PHOENIX CONTACT).
 FOR MODEL WITH 1PHASE AC INPUT CONNECTOR PC5/3-G-7.62 (PHOENIX CONTACT)

NOTE

1. MOUNTING HOLES FOR SLIDES P/N:CC3001-00-S160, GENERAL DEVICES OR EQUIVALENT. USE # 10-32x0.38INCH X3 SCREWS FOR EACH SLIDE. ENSURE THAT THE SCREWS DO NOT PENETRATE MORE THAN 6.0mm INTO THE UNIT.
2. AC INPUT RATING, SAFETY APPROVAL SYMBOLS AND EU REPRESENTATIVE ADDRESS LABEL ARE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.
3. MODEL NAME, OUTPUT RATING AND COMPANY LOGO ARE SHOWN HERE ACCORDING TO THE SPECIFICATIONS.
4. MOUNTING HOLES FOR 19" RACK, USE M6x16 SCREWS TO FIX THE UNIT TO THE RACK.



Outline Drawing GENESYS™ GSP10kW



Outline Drawing GENESYS™ GSP15kW

TABLE 1

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

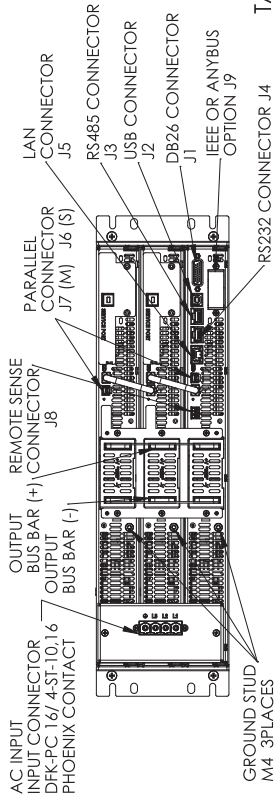
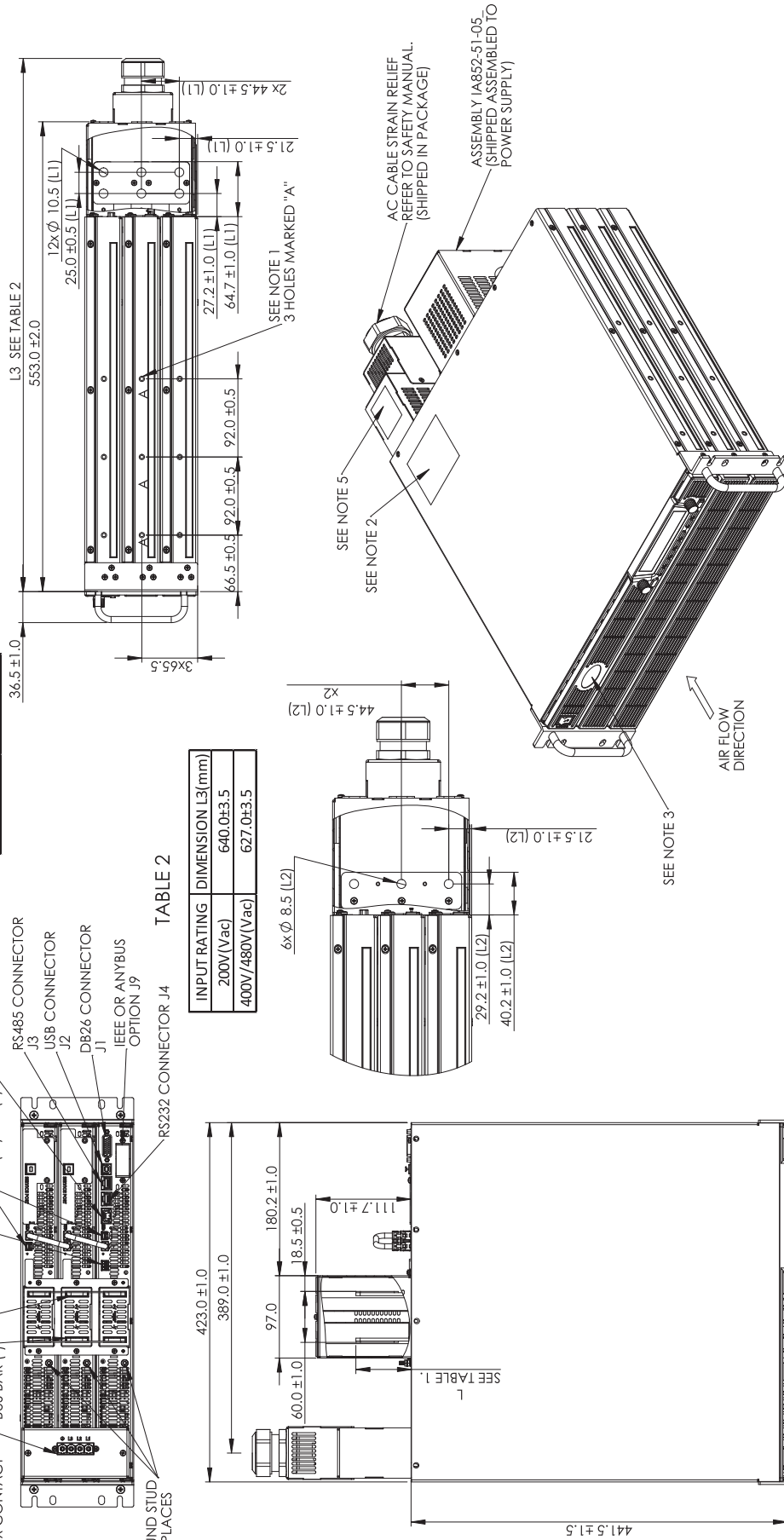


TABLE 2

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

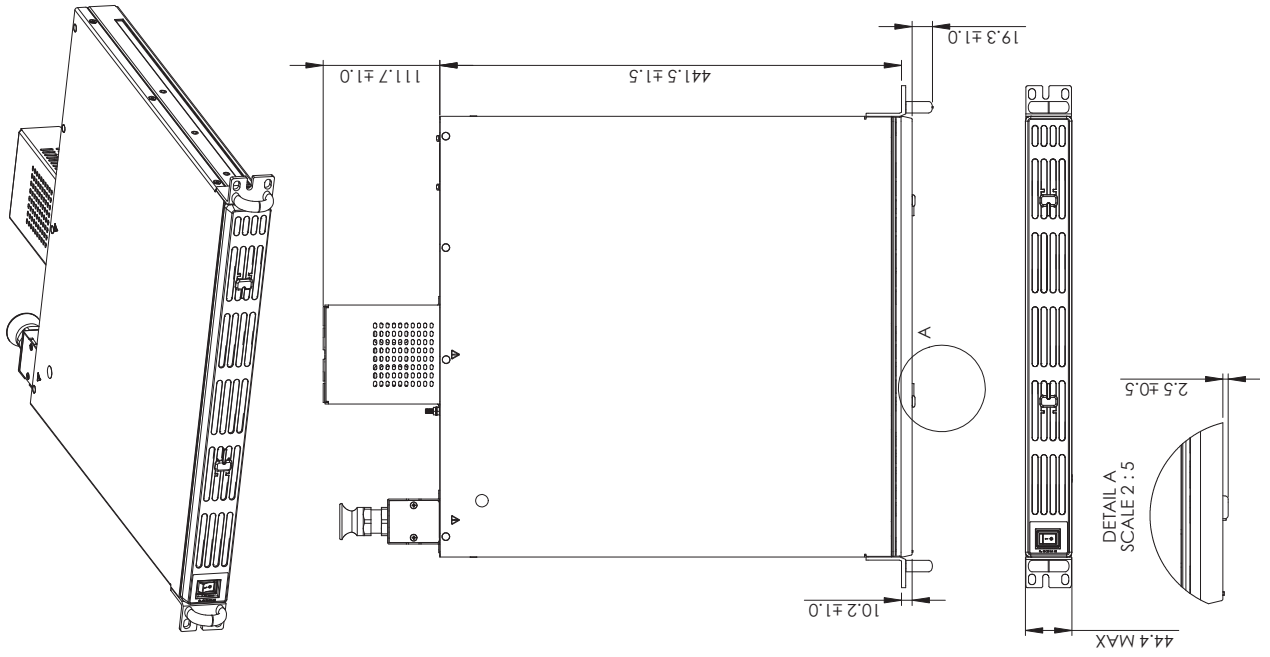


- NOTE
1. MOUNTING HOLES FOR SLIDES P/N:CC3001-00-S1 60 GENERAL DEVICES OR EQUIVALENT. USE #10-32X0.38 INCH X3 SCREW FOR EACH SIDE IN POSITION MARKED "A". INSURE THAT THE SCREWS DO NOT PENETRATE MORE THAN 6.0mm INTO THE UNIT.
 2. AC INPUT RATING: SAFETY APPROVAL SYMBOLS AND EU REPRESENTATIVE ADDRESS 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".

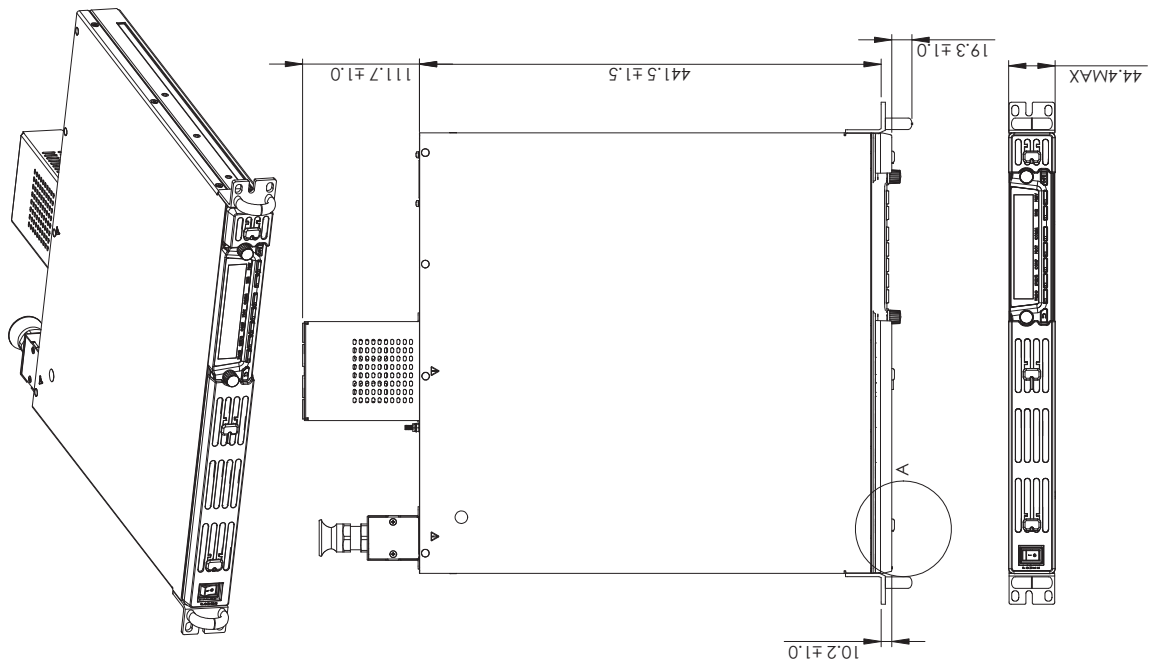


Outline Drawing **GENESYS™** Air Filter Kit

BLANK AIR FILTER (GB-AFK)



STANDARD AIR FILTER (G-AFK)



Front Panel Air Filter Assembly

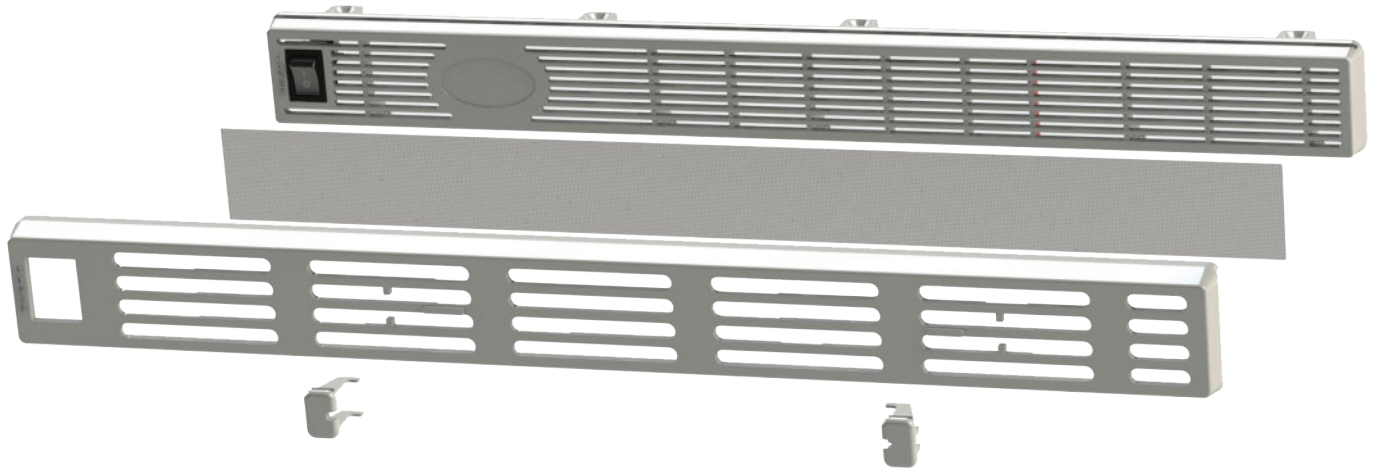
Front panel dust cover is available for dusty air environment applications

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

Filter Foam Technical Specifications

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

Air Filter Assembly Components

Standard Unit (P/N: G-AFK)

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

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

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



**Improved
Specifications**

Genesys™

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

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



Genesys™ Family

GenH 750W Half Rack

Gen1U 750/1500W Full Rack

Gen2U 3.3/5kW

TDK-Lambda



Genesys™ GENH750W-1U

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

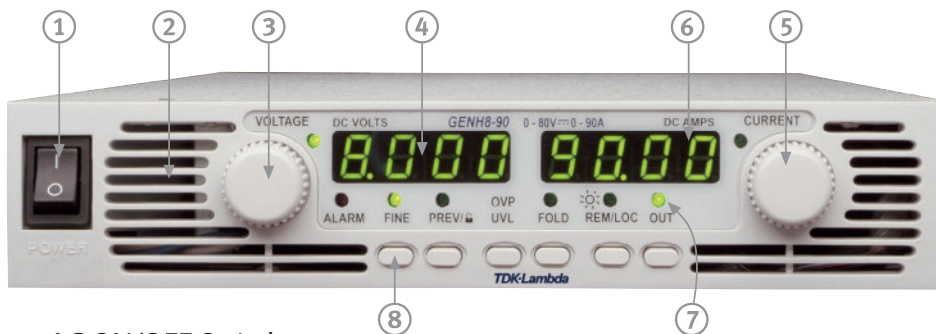
Features include:

- High Power Density available: 750W in 1U half-rack size.
- Wide Range Input (85 - 265Vac Continuous)
- Active Power Factor Correction (0.99 typical)
- Output Voltage up to 600V, Current up to 100A
- Built-in RS-232/RS-485 Interface
- Front Panel Lockout
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Advanced Parallel reports total current up to four identical units
- Global Commands for Serial RS-232/RS-485 Interface
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring
- Reliable Modular and SMT Design
- 19" Rack Mounted ATE benchtop and OEM applications
- Side-by-side mounting of two units in a 19" rack
- Optional Interfaces
 - Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA)
 - IEEE 488.2 SCPI (GPIB) Multi-Drop
 - LAN Compliant LAN
- LabView® and LabWindows® drivers
- Five Year Warranty



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

Front Panel Description



1. AC ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable encoder controls Output Voltage and sets Address.
4. Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Reliable encoder controls Output Current, sets baudrate and Advanced Parallel mode.
6. Current Display shows Output Current and displays baudrate.
7. Function/Status LEDs:
 - Alarm
 - Fine Control
 - Preview Settings
 - Foldback Mode
 - Remote Mode
 - Output On
8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave
 - Preview settings and set Voltage/Current with Output OFF, Front Panel Lockout
 - Set OVP and UVL Limits
 - Set Current Foldback
 - Local/Remote Mode and select Address and Baudrate
 - Output ON/OFF and Auto-Start/Safe-Start Mode



Applications

Genesys™ power supplies are designed for demanding applications. Common controls are shared across all platforms

Test and Measurement

Last-Setting memory simplifies test design and requires no battery backup.

Built-in RS-232/RS-485 gives maximum system flexibility along with 0-5V and 0-10V, selectable analog programming.

Wide range of available inputs allows testing of many different devices.

Semiconductor Processing and Burn-in

Safe-Start may be ENABLED to re-start at Output OFF to protect load.

Wide range input (85-265Vac) with Active Power Factor correction rides through input transients easily.

Component Test

High power density, zero stacking and single wire parallel operation give maximum system flexibility.

Laser Diode

OVP is directly set on Voltage Display, assuring accurate protection settings.

Current Limit Fold Back assures load is protected from current surges.

Heater Supplies

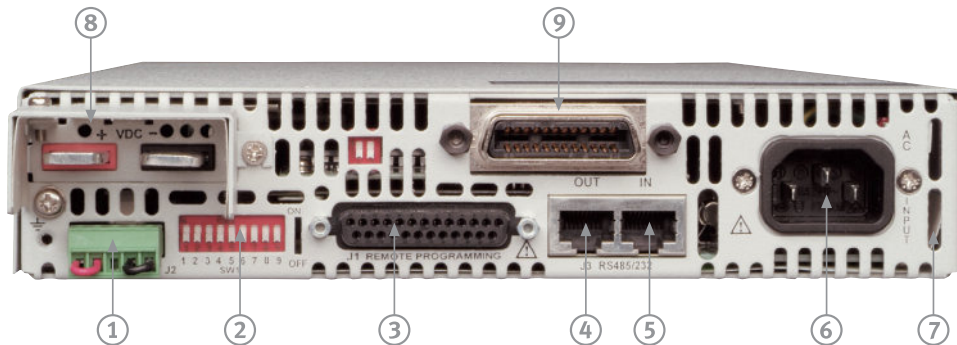
Smooth, reliable encoders enhance front panel control. Remote analog programming is user selectable 0-5V or 0-10V.

RF Amplifiers and Magnets

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

High linearity in voltage and current mode.

Rear Panel Description



1. Remote/Local Output Voltage Sense Connections.
2. DIP Switches select 0-5V or 0-10V Programming and other functions.
3. DB25 (Female) connector allows (Non-isolated) Analog Program and Monitor and other functions.
4. RS-485 OUT to other Genesys™ Power Supplies.
5. RS-232/RS-485 IN Remote Serial Programming.
6. Wide-Range Input 85-265VAC continuous, 47/63Hz with Active Power Factor Correction (0.99 typical) AC Input Connector: IEC320.
7. Exit air assures reliable operation when zero stacked.
8. Output Connections: Rugged busbars for 6V up to 60V Output; Connector for Outputs >60V.
9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.



TDK-Lambda

Genesys™ GENH750W Specifications

Specifications in Blue are improved

1.0 MODEL	GENH	6-100	8-90	12.5-60	20-38	30-25	40-19	60-12.5	80-9.5	100-7.5	150-5	300-2.5	600-1.3
1. Rated output voltage (*1)	V	6	8	12.5	20	30	40	60	80	100	150	300	600
2. Rated Output Current (*2)	A	100	90	60	38	25	19	12.5	9.5	7.5	5	2.5	1.3
3. Rated Output Power	W	600	720	750	760	750	760	750	760	750	750	750	780
4. Efficiency at 100/200Vac (*3)	%	76/78	77/80	81/84	82/85	82/85	83/87	83/87	83/87	83/87	83/87	83/87	83/87

1.1 CONSTANT VOLTAGE MODE

1. Max. line regulation (0.01% of Vo+ 2mV)(*4)	mV	2.6	2.8	3.3	4	5	6	8	10	12	17	32	62	
2. Max. load regulation (0.01% of Vo+2mV)(*5)	mV	2.6	2.8	3.3	4	5	6	8	10	12	17	32	62	
3. Ripple and noise p-p 20MHz (*9)	mV	60	50	60	60	50	60	60	75	75	75	130	300	
4. Ripple r.m.s 5Hz~1MHz (*9)	mV	8	6	7	7.5	6	7	7	8	8	8	20	60	
5. Remote sense compensation/line	V	1	1	1	1	1.5	2	3	4	5	5	5	5	
6. Temp. coefficient	PPM/°C	50PPM/°C of rated output voltage, following 30 minutes warm up												
7. Temp. stability	%	0.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.												
8. Up-prog. response time, 0~Vo Rated	mS	80mS, N.L./F.L, resistive load								150mS, N.L./F.L, resistive load				250
9. Down-prog response time full-load	mS	10	50	80								150	250	
10. Down-prog response time No-load	mS	500	600	700	800	900	1000	1100	1200	1500	2000	2500	4000	
11. Transient response time (*8)	mS	Less than 1mSec for models up to and including 100V. 2mSec for models above 100V												
12. Temp. drift	%	0.01% of rated Vout over 8hrs interval following 30 minutes warm up. Constant line, load & temp.												

1.2 CONSTANT CURRENT MODE

1. Max. line regulation (0.01% of Io+ 2mA)(*4)	mA	12	11	8.0	5.8	4.5	3.9	3.25	2.95	2.75	2.5	2.25	2.13
2. Max. load regulation (0.02% of Io+5mA)(*6)	mA	25	23	17	12.6	10	8.8	7.5	6.9	6.5	6.0	5.5	5.26
3. Ripple r.m.s 5Hz~1MHz (*7)	mA	190	160	110	50	45	30	15	10	10	8	6	4
4. Temp. coefficient	PPM/°C	70PPM/°C from rated output voltage, following 30 minutes warm up											
5. Temp. stability	%	0.01% of rated Iout over 8hrs interval following 30 minutes warm up. Constant line, load & temp.											
6. Warm up drift	%	Less than 0.1% rated output current over 30 min following power on or output voltage / current change											

1.3 PROTECTIVE FUNCTIONS

1. OCP	0~105% Constant Current												
2. OCP Foldback	Output shut down when power supply change from CV to CC. User selectable.												
3. OVP type	Inverter shut-down, manual reset by AC input recycle or by OUT button or by communication port												
4. OVP trip point	0.5~7.5V 0.5~10V 1~15V 1~24V 2~36V 2~44V 5~66V 5~88V 5~110V 5~165V 5~330V 5~660V												
5. Over Temp Protection	User selectable, latched or non latched												

1.4 ANALOG PROGRAMMING AND MONITORING

1. Vout Voltage Programming	0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: +/-0.5% of rated Vout.												
2. Iout Voltage Programming	0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: +/-1% of rated Iout.												
3. Vout Resistor Programming	0~100%, 0~5/10Kohm full scale, user select. Accuracy and linearity: +/-1% of rated Vout.												
4. Iout Resistor Programming	0~100%, 0~5/10Kohm full scale, user select. Accuracy and linearity: +/-1.5% of rated Iout.												
5. On/Off control (rear panel)	By electrical. Voltage: 0~0.6V/2~15V, or dry contact, user selectable logic												
6. Output Current monitor	0~5V or 0~10V, accuracy: 1%, user selectable												
7. Output Voltage monitor	0~5V or 0~10V, accuracy: 1%, user selectable												
8. Power Supply OK signal	TTL high (4~5V) -OK, 0V-Fail 500ohm series resistance												
9. CV/CC indicator	Open collector, CC mode: On, CV mode: Off, Maximum voltage: 30V, maximum sink current: 10mA												
10. Enable/Disable	Dry contact. Open: off, Short: on. Max. voltage at Enable/Disable in: 6V												
11. Local/Remote analog control	By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local.												
12. Local/Remote analog control indicator	Open collector, Local: Open, Remote: On. Maximum voltage: 30V, maximum sink current: 5mA.												

1.5 FRONT PANEL

1. Control functions	Vout/Iout manual adjust by separate encoders (coarse and fine adjustment selectable) OVP/UVL manual adjust by Volt. Adjust encoder AC on/off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control Address selection by Voltage (or current) adjust encoder. Number of addresses: 31 RS232/485 and IEEE488.2 selection by IEEE enable switch and DIP switch Baudrate selection: 1200, 2400, 4800, 9600 and 19,200												
2. Display	Voltage 4 digits, accuracy: 0.05%+/-1 count Current 4 digits, accuracy: 0.2%+/-1 count												
3. Indications	Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock												

1.6 Interface RS-232&RS-485 or Optional GPIB / LAN Interface

Model	V	6	8	12.5	20	30	40	60	80	100	150	300	600
1. Remote Voltage Programming (16 bit)													
Resolution (0.02% of Vo Rated)	mV	0.12	0.16	0.25	0.4	0.6	0.8	1.2	1.6	2.0	3.0	6.0	12.0
Accuracy (0.05%Vo Rated Output voltage) (*11)	mV	3.0	4.0	6.3	10	15	20	30	40	50	75	150	300
2. Remote Current Programming (16 bit)													
Resolution (0.002% of Io Rated)	mA	2.00	1.80	1.20	0.76	0.50	0.38	0.25	0.19	0.15	0.10	0.05	0.03
Accuracy (0.1% of Io Rated+0.1% of Io Actual Output)(*10)	mA	200	180	120	76	50	38	25	19	15	10	5.0	2.6
3. Readback Voltage													
Resolution of Vo Rated	mV	0.12	0.16	1.125	1.20	1.20	1.2	1.2	1.60	11.0	10.50	12	12
Accuracy 0.05% Vo Rated	mV	3	4	6.3	10	15	20	30	40	50	75	150	300
4. Readback Current													
Resolution of Io Rated	mA	11	1.80	1.20	1.14	1.25	1.14	1.13	0.19	0.15	0.15	0.13	0.12
Accuracy 0.3% of Io Rated(*10)	mA	300	270	180	114	75	57	37.50	28.50	22.50	15	7.50	3.90
5. OVP/UVL Programming													
Resolution (0.1% of Vo Rated)	mV	6	8	12	20	30	40	60	80	100	150	300	600
Accuracy (1% of Vo Rated)	mV	60	80	125	200	300	400	600	800	1000	1500	3000	6000

*1: Minimum voltage is guaranteed to maximum 0.2% of Vo Rated.

*2: Minimum current is guaranteed to maximum 0.4% of Io Rated.

*3: At maximum output power.

*4: 85~132Vac or 170~265Vac, constant load.

*5: From No-load to Full-load, constant input voltage.

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

*7: For 6V models the ripple is measured at 2~6V output voltage and full output current.

For other models, the ripple is measured at 10~100% output voltage and full output current.

*8: Time for the output voltage to recover within 0.5% of its rated for a load change 10~90% of rated output, Output set-point:10~100%.

*9: For 6V~300V models: measured with JEITA RC-9131A 1:1 probe. For 600V model: measured with 10:1 probe Accuracy -Values have been calculated at Vo Rated & Io Rated.

*10: The Constant Current programming readback and monitoring accuracy does not include the warm-up and Load regulation thermal drift.

*11: Measured at the sense point.



General Specifications Genesys™ GENH750W

2.1 INPUT CHARACTERISTICS

1. Input voltage/freq. (*1)	85~265Vac continuous, 47~63Hz, single phase
2. Power Factor	0.99 @100/200Vac, rated output power.
3. EN61000-3-2,3 compliance	Complies with EN61000-3-2 class A and EN61000-3-3 at 20~100% output power.
4. Input current 100/200Vac	750W :10.5A / 5A,
5. Inrush current 100/200Vac	750W :Less than 25A,
6. Hold-up time	More than 20mS, 100Vac, at 100% load.

2.2 POWER SUPPLY CONFIGURATION

1. Parallel Operation	Up to 4 units in master/slave mode with single wire current balance connection
2. Series Operation	Up to 2 units. with external diodes. 600V Max to Chassis ground

2.3 ENVIRONMENTAL CONDITIONS

1. Operating temp	0~50°C, 100% load.
2. Storage temp	-20~70°C
3. Operating humidity	30~90% RH (non-condensing).
4. Storage humidity	10~95% RH (non-condensing).
5. Vibration	MIL-810E, method 514.4, test cond. I-3.3.1. The EUT is fixed to the vibrating surface.
6. Shock	Less than 20G, half sine, 11mSec. Unit is unpacked.
7. Altitude	Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 40000ft (12000m).

2.4 EMC

1. Applicable Standards:	
2. ESD	IEC1000-4-2. Air-disch. -8KV, contact disch. -4KV
3. Fast transients	IEC1000-4-4. 2KV
4. Surge immunity	IEC1000-4-5. 1KV line to line, 2KV line to ground
5. Conducted immunity	IEC1000-4-6. 3V
6. Radiated immunity	IEC1000-4-3. 3V/m
7. Conducted emission	EN55022B, FCC part 15J-B, VCCI-B.
8. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.
9. Voltage dips	EN61000-4-11
10. Conducted emission	EN55022B, FCC part 15-B, VCCI-B.
11. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.

2.5 SAFETY

1. Applicable standards:	UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1
2. Interface classification	Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.
3. Withstand voltage	Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min. 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414VDC 1min, Input-Ground: 2828VDC 1min. 300V Vout 600V models: Input-Output(Hazardous): 3490VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Hazardous. Output-communication/control(SELV): 4242VDC 1min, Output(Hazardous)-Ground: 2738VDC 1min, Input-Ground: 2828VDC 1min.
4. Insulation resistance	More than 100Mohm at 25°C, 70% RH.

2.6 MECHANICAL CONSTRUCTION

1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.
2. Dimensions (WxHxD)	W: 214.0mm, H: 43.6mm, (57.0mm Benchtop version), D: 437.5mm (excluding connectors, encoders, handles, etc.)
3. Weight	7Kg (15 Lbs)
4. AC Input connector	IEC320 AC Inlet.
5. Output connectors	6V to 60V models: Bus-bars (hole Ø 6.5mm). 80V to 600V models: Meating plug, Phoenix P/N: GIC 2.5/4-ST-7.62.

2.7 RELIABILITY SPECS

1. Warranty	5 years.
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Also available, Genesys™

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

2U full Rack 3300W/5000W



Genesys™ Power Benchtop Parallel and Series Configurations

Parallel operation - Master/Slave:

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

In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four supplies act as one.



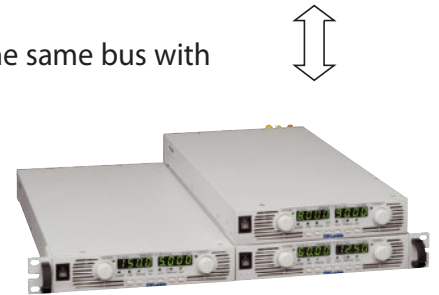
Series operation

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



Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows chain control of up to 31 power supplies on the same bus with built-in RS-232 & RS-485 Interface.



Programming Options (Factory installed)

Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 slaves over RS-485 daisy-chain
- Only the Master needs be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages
- Program Current
- Measure Current
- Current Foldback shutdown

P/N: IEEE

Isolated Analog Programming

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

- Voltage Programming, user-selectable 0-5V or 0-10V signal. P/N: IS510
- Power supply Voltage and Current Programming Accuracy ±1%
- Power supply Voltage and Current Monitoring Accuracy ±1.5%
- Current Programming with 4-20mA signal. P/N: IS420
- Power supply Voltage and Current Programming Accuracy ±1%
- Power supply Voltage and Current Monitoring Accuracy ±1.5%

LAN Interface

LXI Compliant to Class C

P/N: LAN

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



Accessories

Rack Mounting applications P/N:GENH/RM

The Rack Mounted kit allows the units to be zero stacking for maximum system flexibility and power density without increasing the 1U height of the units To install one GENH750W unit or two units side-by-side in a standard 19" rack in 1U(1.75") height, use option kit P/N:GENH/RM

Single unit installation

Single GENH750W power supply in a standard 19" rack in 1U(1.75") height,



Dual unit installation

Two GENH750W power supplies side-by-side in a standard 19" rack in 1U (1.75") height,



Benchtop applications P/N:GENH/MO

The benchtop stacking kit allows the units to be Zero stacked for maximum system flexibility and power density without increasing the 1U height of the units. To install a GENH750W two units or three units one on top of the other use option kit P/N:GENH/MO



Communication cable

RS-232/RS-485 Cable is used to connect the power supply to the PC Controller.

Mode	RS-485	RS-232	RS-232
PC Connector	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	FShield Ground L=2m
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

Serial link cable*

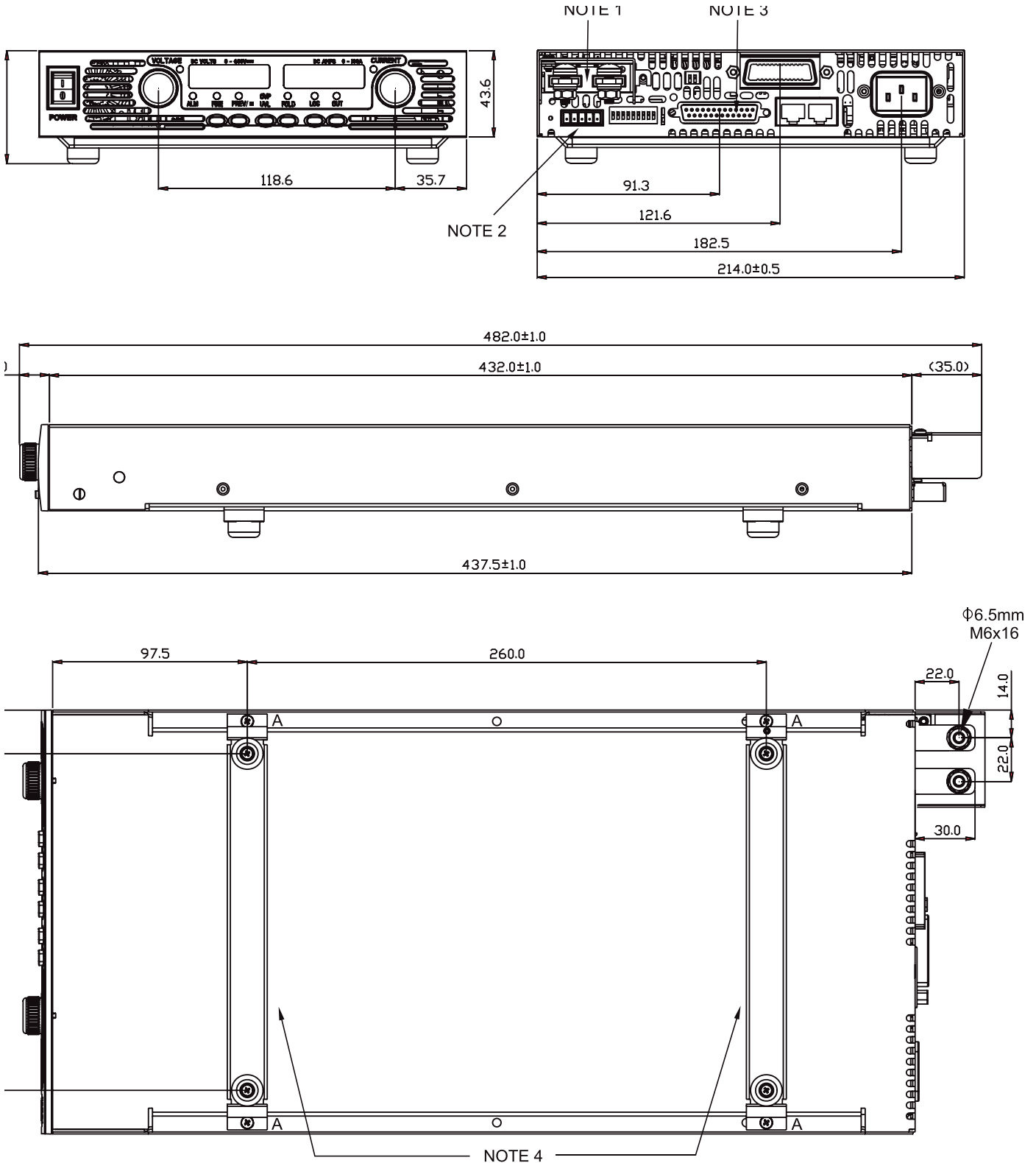
Daisy-chain up to 31 Genesys™ power supplies.

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

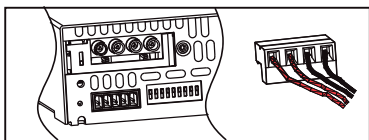
* Included with power supply



Outline Drawings Genesys™ GENH 750W



NOTE 1



GENH Models 80V to 600V.

NOTES:

1. Bus-bars 6V-60V models
Connector 80V to 600V model
Header Phoenix P/N: GIC 2.5/4-G-7.62
Mating plug Phoenix P/N: GIC 2.5/4-ST-7.62.
2. Mating plug Phoenix P/N: MC 1.5/5-ST-3.81.
3. Mating plug AMP P/N: 745211-2.
4. Benchtop assembly x 2 (removable)
Screws: 4 x M3x8 marked "A"
Supplies with the power supply.



Power Supply Identification / Accessories

How to order

GENH	60	-	12.5	-	-
Series Name	Output Voltage (0~60V)	Output Current (0~12.5A)	Factory Options Option: IEEE IS510 IS420 LAN	AC Cable option Region E - Europe GB - United Kingdom J - Japan I - Middle East U - North America	

Models GENH750W






Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GENH6-100	0~6V	0~100	600
GENH8-90	0~8V	0~90	720
GENH12.5-60	0~12.5V	0~60	750
GENH20-38	0~20V	0~38	760
GENH30-25	0~30V	0~25	750
GENH40-19	0~40V	0~19	760
GENH60-12.5	0~60V	0~12.5	750
GENH80-9.5	0~80V	0~9.5	760
GENH100-7.5	0~100V	0~7.5	750
GENH150-5	0~150V	0~5	750
GENH300-2.5	0~300V	0~2.5	750
GENH600-1.3	0~600	0~1.3	780

Factory option

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

P/N

-
 IEEE
 IS510
 IS420
 LAN

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



**Improved
Specifications**

Genesys™

**Programmable DC Power Supplies
750W/1500W in 1U**

**Built in RS-232 & RS-485 Interface
Advanced Parallel Operation**

**Optional Interface:
LXI Compliant LAN**

**IEEE488.2 SCPI (GPIB) Multi-drop
Isolated Analog Programming**



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

TDK-Lambda



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

Features include:

- High Power Density: 1500W in 1U
- Wide Range Input (85 - 265Vac Continuous, single phase, 47/63Hz)
- Active Power Factor Correction (0.99 typical)
- Output Voltage up to 600V, Current up to 200A
- Built-in RS-232/RS-485 Interface Standard
- Last-Setting Memory
- Global Commands for Serial RS-232/RS-485 Interface
- Front Panel Lock selectable from Front Panel or Software
- High Resolution 16 bit ADCs & DACs
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Advanced Parallel reports total current up to four identical units
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring (user selectable 0-5V & 0-10V)
- Reliable Modular and SMT Design
- 19" Rack Mounted ATE and OEM applications
- Optional Interfaces
 - Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA)
 - IEEE 488.2 SCPI (GPIB) Multi-Drop
 - **LXI** Compliant LAN Interface
- LabView® and LabWindows® drivers
- Five Year Warranty

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



Applications

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

Common controls are shared all Genesys™ Series.

Test and Measurement

Last-Setting memory simplifies test design and requires no battery backup.

Built-in RS-232/RS-485 gives maximum system flexibility along with 0-5V and 0-10V, selectable analog programming.

Wide range of available inputs allows testing of many different devices.

Semiconductor Burn-in

Safe-Start may be ENABLED to re-start at Output OFF to protect load.

Wide range input (85-265Vac) with Active Power Factor correction rides through input transients easily.

Component Test

High power density, zero stacking and single wire parallel operation give maximum system flexibility.

Laser Diode

OVP is directly set on Voltage Display, assuring accurate protection settings.

Current Limit Fold Back assures load is protected from current surges.

Heater Supplies

Smooth, reliable encoders enhance front panel control.

Remote analog programming is user selectable 0-5V or 0-10V.

RF Amplifiers and Magnets

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

High linearity in voltage and current mode.

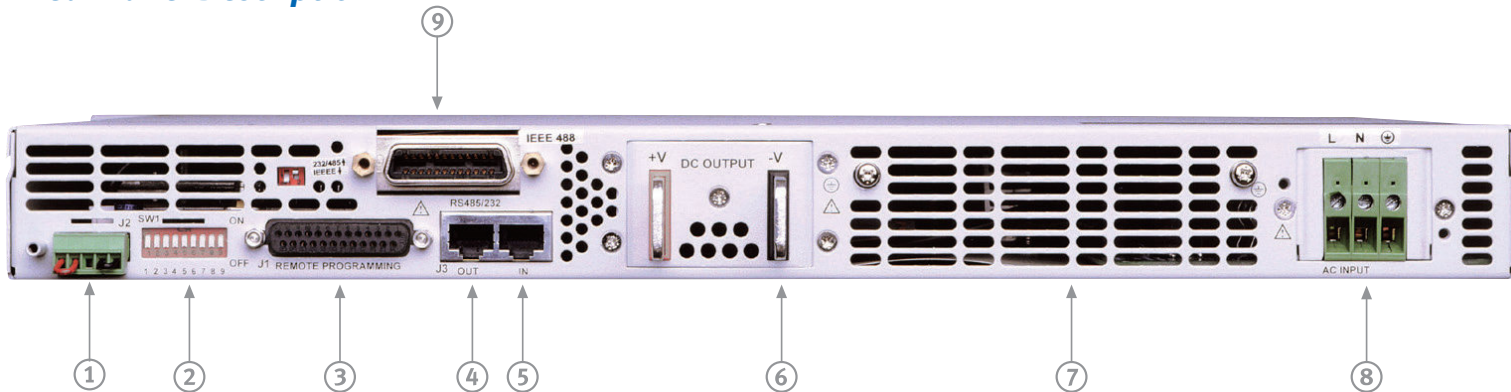


Front Panel Description



1. AC ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable encoder controls Output Voltage and sets Address.
4. Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Reliable encoder controls Output Current, sets baudrate and Advanced Parallel mode.
6. Current Display shows Output Current and displays baudrate.
7. Function/Status LEDs:
 - Alarm
 - Fine Control
 - Preview Settings
 - Foldback Mode
 - Remote Mode
 - Output On
8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave
 - Preview settings and set Voltage/Current with Output OFF, Front Panel Lockout
 - Set OVP and UVL Limits
 - Set Current Foldback
 - Local/Remote Mode and select Address and Baudrate
 - Output ON/OFF and Auto-Start/Safe-Start Mode

Rear Panel Description



1. Remote/Local Output Voltage Sense Connections.
2. DIP Switches select 0-5V or 0-10V Programming and other functions.
3. DB25 (Female) connector allows (Non-isolated) Analog Program and Monitor and other functions.
4. RS-485 OUT to other Genesys™ Power Supplies.
5. RS-232/RS-485 IN Remote Serial Programming.
6. Output Connections: Rugged busbars for up to 60V Output; wire clamp connector for Outputs >60V.
7. Exit air assures reliable operation when zero stacked.
8. Wide-Range Input 85-265VAC continuous, 47/63Hz with Active Power Factor Correction (0.99 typical). AC Input Connector: 750W (IEC320), 1500W (screw terminal-shown).
9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.



TDK-Lambda

Genesys™ 750W/1500W Specifications

Specifications in Blue are improved

		GEN	6-200	8-180	12.5-120	20-76	30-50	40-38	50-30	60-25	80-19	100-15	150-10	300-5	600-2.6	750W	1500W		
1.0 MODEL																			
1. Rated output voltage (*1)	V	6	8	12.5	20	30	40	50	60	80	100	150	300	600			X		
2. Rated Output Current (*2)	A	200	180	120	76	50	38	30	25	19	15	10	5	2.6			X		
3. Rated Output Power	W	1200	1440	1500	1520	1500	1520	1500	1500	1520	1500	1500	1500	1500	1560		X		
4. Efficiency at 100/200Vac (*3)	%	77/79	78/81	82/85	83/86	83/86	84/88	84/88	84/88	84/88	84/88	84/88	84/88	84/88	84/88		X		
1.0 MODEL																			
1. Rated output voltage (*1)	V	6	8	12.5	20	30	40	---	60	80	100	150	300	600			X		
2. Rated Output Current (*2)	A	100	90	60	38	25	19	---	12.5	9.5	7.5	5	2.5	1.3			X		
3. Rated Output Power	W	600	720	750	760	750	760	---	750	760	750	750	750	780			X		
4. Efficiency at 100/200Vac (*3)	%	76/78	77/80	81/84	82/85	82/85	83/87	---	83/87	83/87	83/87	83/87	83/87	83/87			X		
1.1 CONSTANT VOLTAGE MODE																			
1. Max.line regulation (0.01% of Vo+ 2mV)(*4)	mV	2.6	2.8	3.3	4	5	6	7	8	10	12	17	32	62			X		
2. Max load regulation (0.01% of Vo+2mV)(*5)	mV	2.6	2.8	3.3	4	5	6	7	8	10	12	17	32	62			X		
3. Ripple and noise p-p 20MHz (*9)	mV	60	50	60	60	50	60	40	60	75	75	75	130	300			X		
4. Ripple r.m.s 5Hz~1MHz (*9)	mV	8	6	7	7.5	6	7	5	7	7	8	8	8	20	60		X		
5. Remote sense compensation/line	V	1	1	1	1	1.5	2	2	3	4	5	5	5	5			X		
6. Temp. coefficient	PPM/°C	50PPM/°C of rated output voltage, following 30 minutes warm up																	X
7. Temp. stability	%	0.01% of rated Iout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.																	X
8. Up-prog. response time, 0~Vo Rated	mS	80mS, N.L./F.L, resistive load										150mS, N.L./F.L, resistive load					250		X
9. Down-prog response time full-load	mS	10	50											80	150	250		X	
10. Down-prog response time No-load	mS	500	600	700	800	900	1000	1100	1100	1200	1500	2000	2500	4000			X		
11. Transient response time (*8)	mS	Less than 1mSec for models up to and including 100V. 2mSec for models above 100V																	X
12. Temp. drift	%	0.01% of rated Vout over 8hrs interval following 30 minutes warm up. Constant line, load & temp.																	X
1.2 CONSTANT CURRENT MODE																			
1. Max.line regulation (0.01% of Io+ 2mA)(*4)	mA	12	11	8.0	5.8	4.5	3.9	---	3.25	2.95	2.75	2.5	2.25	2.13			X		
2. Max load regulation (0.02% of Io+5mA)(*6)	mA	25	23	17	12.6	10	8.8	---	7.5	6.9	6.5	6.0	5.5	5.26			X		
3. Ripple r.m.s 5Hz~1MHz. (*7)	mA	190	160	110	50	45	30	---	15	10	10	8	6	4			X		
4. Max.line regulation (0.01% of Io+ 2mA)(*4)	mA	22	20	14	9.6	7.0	5.8	5	4.5	3.9	3.5	3.0	2.5	2.26			X		
5. Max.load regulation (0.02% of Io+5mA)(*6)	mA	45	41	29	20.2	15	12.6	11	10	8.8	8.0	7.0	6.0	5.52			X		
6. Ripple r.m.s 5Hz~1MHz. (*7)	mA	350	300	210	120	60	65	60	60	40	20	15	15	7			X		
7. Temp. coefficient	PPM/°C	70PPM/°C from rated output voltage, following 30 minutes warm up																	X
8. Temp. drift	%	0.01% of rated Vout over 8hrs interval following 30 minutes warm up. Constant line, load & temp.																	X
9. Warm up drift	%	Less than 0.1% rated output current over 30 min following power on or output voltage / current change																	X
1.3 PROTECTIVE FUNCTIONS																			
1. OCP		0~105% Constant Current																	X
2. OCP Foldback		Output shut down when power supply change from CV to CC. User selectable.																	X
3. OVP type		Inverter shut-down, manual reset by AC input recycle or by OUT button or by communication port																	X
4. OVP trip point		0.5~7.5V 0.5~10V 1~15V 1~24V 2~36V 2~44V 5~57V 5~66V 5~88V 5~110V 5~165V 5~330V 5~660V																	X
5. Over Temp Protection		User selectable, latched or non latched																	X
1.4 ANALOG PROGRAMMING AND MONITORING																			
1. Vout Voltage Programming		0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: +/-0.5% of rated Vout.																	X
2. Iout Voltage Programming		0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: +/-1% of rated Iout.																	X
3. Vout Resistor Programming		0~100%, 0~5/10Kohm full scale,user select. Accuracy and linearity: +/-1% of rated Vout.																	X
4. Iout Resistor Programming		0~100%, 0~5/10Kohm full scale,user select. Accuracy and linearity: +/-1.5% of rated Iout.																	X
5. On/Off control (rear panel)		By electrical. Voltage: 0~0.6V/2~15V, or dry contact, user selectable logic																	X
6. Output Current monitor		0~5V or 0~10V, accuracy: 1%, user selectable																	X
7. Output Voltage monitor		0~5V or 0~10V, accuracy: 1%, user selectable																	X
8. Power Supply OK signal		TTL high (4~5V) -OK, 0V-Fail 500ohm series resistance																	X
9. CV/CC indicator		Open collector, CC mode: On, CV mode: Off, Maximum voltage: 30V, maximum sink current: 10mA																	X
10. Enable/Disable		Dry contact. Open: off, Short: on. Max. voltage at Enable/Disable in: 6V																	X
11. Local/Remote analog control		By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local.																	X
12. Local/Remote analog control indicator		Open collector, Local: Open, Remote: On. Maximum voltage: 30V, maximum sink current: 5mA.																	X
1.5 FRONT PANEL																			
1. Control functions		Vout/Iout manual adjust by separate encoders (coarse and fine adjustment selectable) OVP/UVL manual adjust by Volt. Adjust encoder AC on/off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control Address selection by Voltage (or current) adjust encoder. Number of addresses: 31 RS232/485 and IEEE488.2 selection by IEEE enable switch and DIP switch Baudrate selection: 1200, 2400, 4800, 9600 and 19,200																	X
2. Display		Voltage 4 digits, accuracy: 0.05%+/-1 count Current 4 digits, accuracy: 0.2%+/-1 count																	X
3. Indications		Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock																	X
																750W	1500W		
1.6 Interface RS-232&RS-485 or Optional GPIB / LAN Interface																			
Model	V	6	8	12.5	20	30	40	50	60	80	100	150	300	600			X		
1. Remote Voltage Programming (16 bit)																			
Resolution (0.02% of Vo Rated)	mV	0.12	0.16	0.25	0.4	0.6	0.8	1.0	1.2	1.6	2.0	3.0	6.0	12.0			X		
Accuracy 0.05%Vo Rated Output Voltage (*11)	mV	3.0	4.0	6.3	10	15	20	25	30	40	50	75	150	300			X		
2. Remote Current Programming (16 bit)																			
Resolution (0.002% of Io Rated)	mA	2.00	1.80	1.20	0.76	0.50	0.38	---	0.25	0.19	0.15	0.10	0.05	0.03			X		
Accuracy (0.1% of Io Rated+0.1% of Io Actual Output)(*10)	mA	200	180	120	76	50	38	---	25	19	15	10	5.0	2.6			X		
Resolution (0.002% of Io Rated)	mA	4.0	3.60	2.40	1.52	1.0	0.76	0.60	0.50	0.38	0.30	0.20	0.10	0.05			X		
Accuracy (0.1% of Io Rated+0.1% of Io Actual Output)(*10)	mA	400	360	240	152	100	76	60	50	38	30	20	10	5.2			X		
3. Readback Voltage																			
Resolution of Vo Rated	mV	0.12	0.16	1.125	1.20	1.20	1.2	1.5	1.2	1.60	11.0	10.50	12	12			X		
Accuracy 0.05% Vo Rated	mV	3	4	6.3	10	15	20	25	30	40	50	75	150	300			X		
4. Readback Current																			
Resolution of Io Rated	mA	11	1.80	1.20	1.14	1.25	1.14	---	1.13	0.19	0.15	0.15	0.13	0.12			X		
Accuracy 0.3% of Io Rated (*10)	mA	300	270	180	114	75	57	---	37.50	28.50	22.50	15	7.50	3.90			X		
Resolution of Io Rated output	mA	12	10.80	10.80	1.52	1.50	1.14	1.20	1.25	1.14	1.05	1.10	0.15	0.10			X		
Accuracy 0.3% of Io Rated (*10)	mA	600	540	360	228	150	114	90	75	57	45	30	15	7.8			X		
5. OVP/UVL Programming																			
Resolution (0.1% of Vo Rated)	mV	6	8	12	20	30	40	50	60	80	100	150	300	600			X		
Accuracy (1% of Vo Rated)	mV	60	80	125	200	300	400	500	600	800	1000	1500	3000	6000			X		

*1: Minimum voltage is guaranteed to maximum 0.2% of Vo Rated.

*2: Minimum current is guaranteed to maximum 0.4% of Io Rated.

*3: At maximum output power.

*4: 85~132Vac or 170~265Vac, constant load.

*8: Time for the output voltage to recover within 0.5% of its rated for a load change 10~90% of rated output , Output set-point:10~100%.

*9: For 6V~300V models: measured with JEITA RC-9131A 1:1 probe. For 600V model: measured with 10:1 probe Accuracy -Values have been calculated at Vo Rated & Io Rated.



General Specifications Genesys™ 750W/1500W

2.1 INPUT CHARACTERISTICS

1. Input voltage/freq. (*1)	85~265Vac continuous, 47~63Hz, single phase
2. Power Factor	0.99 @100/200Vac, rated output power.
3. EN61000-3-2,3 compliance	Complies with EN61000-3-2 class A and EN61000-3-3 at 20~100% output power.
4. Input current 100/200Vac	750W :10.5A / 5A, 1500W :21A / 11A
5. Inrush current 100/200Vac	750W :Less than 25A, 1500W :Less than 50A
6. Hold-up time	More than 20mS, 100Vac, at 100% load.

2.2 POWER SUPPLY CONFIGURATION

1. Parallel Operation	Up to 4 units in master/slave mode with single wire current balance connection
2. Series Operation	Up to 2 units. with external diodes. 600V Max to Chassis ground

2.3 ENVIRONMENTAL CONDITIONS

1. Operating temp	0~50°C, 100% load.
2. Storage temp	-20~70°C
3. Operating humidity	30~90% RH (non-condensing).
4. Storage humidity	10~95% RH (non-condensing).
5. Vibration	MIL-810E, method 514.4, test cond. I-3.3.1. The EUT is fixed to the vibrating surface.
6. Shock	Less than 20G, half sine, 11mSec. Unit is unpacked.
7. Altitude	Operating: 10000ft (3000m), Derat output current by 2%/100m above 2000m, Non operating: 40000ft (12000m).

2.4 EMC

1. Applicable Standards:	
2. ESD	IEC1000-4-2. Air-disch. -8KV, contact disch. -4KV
3. Fast transients	IEC1000-4-4. 2KV
4. Surge immunity	IEC1000-4-5. 1KV line to line, 2KV line to ground
5. Conducted immunity	IEC1000-4-6, 3V
6. Radiated immunity	IEC1000-4-3, 3V/m
7. Conducted emission	EN55022B, FCC part 15J-B, VCCI-B.
8. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.
9. Voltage dips	EN61000-4-11
10. Conducted emission	EN55022B, FCC part 15-B, VCCI-B.
11. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.

2.5 SAFETY

1. Applicable standards:	UL 60950-1, CSA22.2 No.60950-1, IEC 60950-1, EN 60950-1
2. Interface classification	Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.
3. Withstand voltage	Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min. 60V Vout 150V models: Input-Output (Hazardous): 3425VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Output(Hazardous)-SELV: 2307VDC 1min, Output(Hazardous)-Ground: 1414VDC 1min, Input-Ground: 2828VDC 1min. 300V Vout 600V models: Input-Output(Hazardous): 3490VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Hazardous. Output-communication/control(SELV): 4242VDC 1min, Output(Hazardous)-Ground: 2738VDC 1min, Input-Ground: 2828VDC 1min.
4. Insulation resistance	More than 100Mohm at 25°C, 70% RH.

2.6 MECHANICAL CONSTRUCTION

1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.
2. Dimensions (WxHxD)	W: 422.8mm, H: 43.6mm, D: 432.8mm (excluding connectors, encoders, handles, etc.)
3. Weight	750W: 7Kg (15 Lbs) 1500W: 8.5Kg (18 Lbs)
4. AC Input connector	750W: IEC320 AC Inlet. 1500W: Screw terminal block, Phoenix P/N: FRONT-4-H-7.62, with strain relief
5. Output connectors	6V to 60V models: Bus-bars (hole Ø 8.5mm). 80V to 600V models: wire clamp connector, Phoenix P/N: FRONT-4-H-7.62

2.7 RELIABILITY SPECS

1. Warranty	5 years.
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*1: For cases where conformance to various safety standards (UL, IEC etc.) is required, to be described as 100-240Vac (50/60Hz).
All specifications subject to change without notice.



Genesys™ Power Parallel and Series Configurations

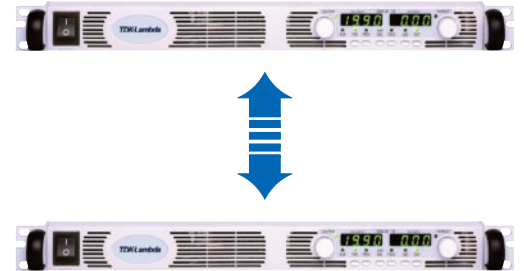
Parallel operation - Master/Slave:

Active current sharing allows up to four identical units to be connected in an auto-parallel configuration for four times the output power. In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four supplies act as one.



Series operation

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



Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows chain control of up to 31 power supplies on the same bus with built-in RS-232 & RS-485 Interface.



Programming Options (Factory installed)

Digital Programming via IEEE Multi-Drop Interface

P/N: IEEE

- Allows IEEE Master to control up to 30 slaves over RS-485 daisy-chain
- Only the Master needs be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages
- Program Current
- Measure Current
- Current Foldback shutdown

Isolated Analog Programming

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

- Voltage Programming, user-selectable 0-5V or 0-10V signal. P/N: IS510
Power supply Voltage and Current Programming Accuracy $\pm 1\%$
Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$
- Current Programming with 4-20mA signal. P/N: IS420
Power supply Voltage and Current Programming Accuracy $\pm 1\%$
Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$

LAN Interface

LXI Compliant to Class C

P/N: LAN

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



Power Supply Identification / Accessories How to order

GEN	600	-	2.6	-	-
			Factory Options	AC Cable option is 750W only	
Series Name	Output Voltage (0~600V)	Output Current (0~2.6A)	Option: IEEE IS510 IS420 LAN	Region: E - Europe GB - United Kingdom J - Japan I - Middle East U- North America	

Models 750/1500W

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GEN6-100	0~6V	0~100	600
GEN6-200		0~200	1200
GEN8-90	0~8V	0~90	720
GEN8-180		0~180	1440
GEN12.5-60	0~12.5V	0~60	750
GEN12.5-120		0~120	1500
GEN20-38	0~20V	0~38	760
GEN20-76		0~76	1520
GEN30-25	0~30V	0~25	750
GEN30-50		0~50	1500
GEN40-19	0~40V	0~19	760
GEN40-38		0~38	1520

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






Factory option

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

P/N

-
 IEEE
 IS510
 IS420
 LAN

AC Cords sets (750W only)

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

Accessories

1. Communication cable

RS-232/RS-485 Cable is used to connect the power supply to the PC Controller.

Mode	RS-485	RS-232	RS-232
PC Connector Communication Cable Power Supply Connector	DB-9F Shield Ground L=2m EIA/TIA-568A (RJ-45)	DB-9F Shield Ground L=2m EIA/TIA-568A (RJ-45)	DB-25F Shield Ground L=2m EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

2. Serial link cable*

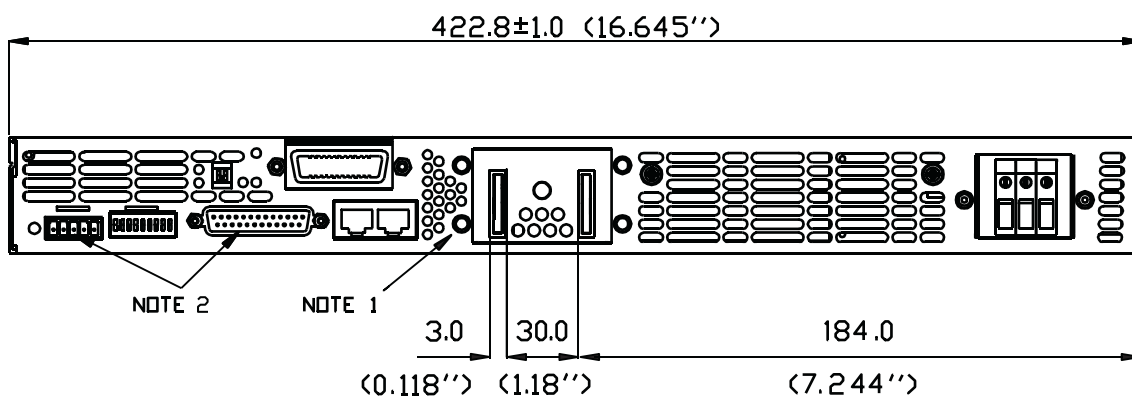
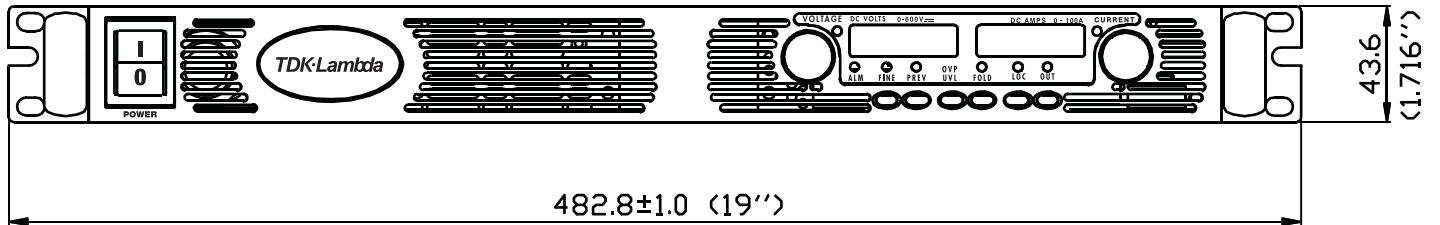
Daisy-chain up to 31 Genesys™ power supplies.

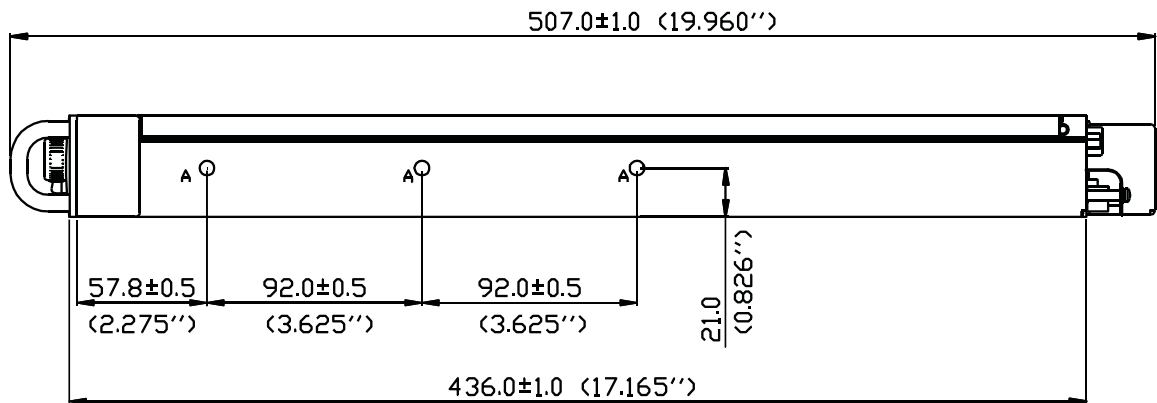
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

* Included with power supply



Outline Drawing Genesys™ 750W/1500W Units





NOTE

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



**Improved
Specifications**

Genesys™

Programmable DC Power Supplies

2.4kW in 1U

Built in RS-232 & RS-485 Interface

Advanced Parallel Operation

Auxiliary Outputs 5V & 15V

Optional Interface:

LXI Compliant LAN

IEEE488.2 SCPI (GPIB) Multi-drop

Isolated Analog Programming



Genesys™ Family

GenH 750W Half Rack

Gen1U 750/1500W Full Rack

Gen2U 3.3/5kW

TDK-Lambda



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

Features include:

- High Power Density 2.4kW in 1U
- Wide Range of popular worldwide AC inputs, 1 ϕ (230VAC) & 3 ϕ (208VAC)
- Active Power Factor Correction (Single-Phase & Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 300A
- Auxillary Outputs 5V/0.2A; 15V/0.2A for increased system control functionality
- Built-in RS-232/RS-485 Interface Standard
- Global Commands for Serial RS-232/RS-485 Interface
- Auto-Re-Start / Safe-Start: user selectable
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Low Ripple & Noise
- Front Panel Lock selectable from Front Panel or Software
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Parallel Operation with Active Current Sharing; up to four identical units.
- Advanced Parallel Master / Slave. Total Current is Programmed and Measured via the Master.
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring (user selectable 0-5V & 0-10V)
- Reliable Modular and SMT Design
- 19" Rack Mount capability for ATE and OEM applications
- Optional Interfaces
 - IEEE 488.2 SCPI (GPIB) Multi-Drop
 - LXI** Compliant LAN
- LabView® and LabWindows® drivers
- Five Year Warranty

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



Applications

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

Test Systems using the IEEE-488 bus may achieve significant cost savings by incorporating the Optional IEEE Multi-Drop Interface for a Master and up to 30 RS-485 Multi-Drop Slaves.

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

Flexible configuration is provided by the complete Genesys™ Family: 1U 750W Half-Rack, 1U 750W and 1500W Full-Rack, 2U 3.3kW & 5kW. All are identical in Front Panel, Rear Panel Analog, and all Digital Interface Commands.

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

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



Front Panel Description



1. ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable encoder controls Output Voltage, Address, OVP and UVL settings.
4. Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Reliable encoder controls Output Current, sets baudrate and Advanced Parallel mode.
6. Current Display shows Output Current and displays Baud rate. Displays total current in Parallel Master/Slave Mode
7. Function/Status LEDs:
 - Alarm
 - Foldback Mode
 - Fine Control
 - Remote Mode
 - Preview Settings
 - Output On
8. Pushbuttons allow flexible user configuration
8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave select.
 - Preview settings and set Voltage/Current with Output OFF, Front Panel Lock
 - Parallel Master/Slave
 - Set OVP and UVL Limits
 - Set Current Foldback Protection
 - Go to Local Mode and select Address and Baud rate
 - Output ON/OFF and Auto-Re-Start/Safe-Start Mode

Rear Panel Description



1. Remote/Local Output Voltage Sense Connections.
2. DIP Switches select 0-5V or 0-10V Programming and other functions.
3. DB25 (Female) connector allows (Non-isolated) Analog Program and Monitor and other functions.
4. RS-485 OUT to other Genesys™ Power Supplies.
5. RS-232/RS-485 IN Remote Serial Programming.
6. Output Connections: Rugged busbars (shown) for up to 100V Output; wire clamp connector for Outputs >100V.
7. Exit air assures reliable operation when zero stacked.
8. Input: 230VAC Single Phase (shown), 208 VAC Three Phase, 50/60 Hz AC Input Connector: Phoenix P/N: FRONT-4-H-7.62.
9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.
10. Auxiliary Output Voltage Connector. Phoenix P/N: IMC1.5/7-ST-3.81



Specifications in blue are improved

1.0 MODEL

MODEL	GEN	8-300	10-240	16-150	20-120	30-80	40-60	60-40	80-30	100-24	150-16	300-8	600-4
1. Rated output voltage(*1)	V	8	10	16	20	30	40	60	80	100	150	300	600
2. Rated Output Current(*2)	A	300	240	150	120	80	60	40	30	24	16	8	4
3. Rated Output Power	W	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400

1.1 CONSTANT VOLTAGE MODE

1. Max. line regulation (0.01% of rated Vo+2mV)(*6)	mV	2.8	3	3.5	4	5	6	8	10	12	17	32	62
2. Max. load regulation (0.015% of rated Vo+5mV)(*7)	mV	6.2	6.5	7.25	8	9.5	11	14	17	20	27.5	50	95
3. Ripple and noise p-p 20MHz (*8)	mV	50	50	50	50	55	55	60	60	70	90	150	240
4. Ripple r.m.s 5Hz~1MHz	mV	6	6	6	6	6	6	6	7	10	20	45	60
5. Remote sense compensation/wire	V	2	2	2	2	5	5	5	5	5	5	5	5
6. Temp. coefficient	PPM/°C	50PPM/°C of rated output voltage, following 30 minutes warm-up											
7. Temp. stability		0.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.											
8. Warm-up drift		Less than 0.05% of rated output voltage+2mV over 30 minutes following power On.											
9. Up-prog. response time, 0~Vo Rated (*9)	mS	15											
10. Down-prog response time	Full-load (*9)	10	10	20	20	20	20	30	30	40	50	80	100
	No-load (*10)	500	500	500	500	600	700	1100	1200	1500	2500	3000	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 1mSec for models up to and including 100V. 2msec for models above 100V											

1.2 CONSTANT CURRENT MODE

1. Max. line regulation (0.01% of rated Io+2mA)(*6)	mA	32	26	17	14	10	8	6	5	4.4	3.6	2.8	2.4
2. Max. load regulation (0.02% of rated Io+5mA)(*11)	mA	65	53	35	29	21	17	13	11	9.8	8.2	6.6	5.8
3. Ripple r.m.s 5Hz~1MHz (*12)	mA	700	500	400	250	150	90	60	40	30	12	10	5
4. Load regulation thermal drift		Less than 0.1% of rated output current over 30 minutes following load change.											
5. Temp. coefficient	PPM/°C	70PPM/°C from rated output current, following 30 minutes warm-up.											
6. Temp. stability		0.01% of rated Iout over 8hrs. interval following 30minutes warm-up. Constant line, load & temperature.											
7. Warm-up drift		8V~20V models: Less than ±0.5% of rated output current over 30 minutes following power On. 30V~600V models: Less than ±0.25% of rated output current over 30 minutes following power On.											

1.3 PROTECTIVE FUNCTIONS

1. OCP		0~105% Constant Current											
2. OCP Foldback		Output shut down when power supply change from CV to CC. User selectable.											
3. OVP type		Inverter shut-down, manual reset by AC input recycle or by OVP button or by communication port command.											
4. OVP trip point		0.5~10V 0.5~12V 1~18V 1~24V 2~36V 2~44V 5~66V 5~88V 5~110V 5~165V 5~330V 5~660V											
5. Output Under Voltage Limit		Preset by front panel or communication port. Prevents from adjusting Vout below limit.											
6. Over Temp. Protection		User selectable, latched or non-latched.											

1.4 ANALOG PROGRAMMING AND MONITORING

1. Vout Voltage Programming		0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: ±0.5% of rated Vout.											
2. Iout Voltage Programming (*13)		0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: ±1% of rated Iout.											
3. Vout Resistor Programming		0~100%, 0~5/10Kohm full scale, user select., Accuracy and linearity: ±1% of rated Vout.											
4. Iout Resistor Programming (*13)		0~100%, 0~5/10Kohm full scale, user select. Accuracy and linearity: ±1.5% of rated Iout.											
5. On/Off control (rear panel)		By electrical. Voltage: 0~0.6V/2~15V, or dry contact, user selectable logic.											
6. Output Current monitor (*13)		0~5V or 0~10V, Accuracy: ±1%, user selectable.											
7. Output Voltage monitor		0~5V or 0~10V, Accuracy: ±1%, user selectable.											
8. Power Supply OK signal		TTL high (4~5V) -OK, 0V-Fail 500ohm series resistance.											
9. CV/CC Indicator		Open collector, CC mode: On, CV mode: Off, Maximum voltage: 30V, maximum sink current: 10mA											
10. Enable/Disable		Dry contact. Open: off, Short: on. Max. voltage at Enable/Disable in: 6V.											
11. Local/Remote analog control		By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local.											
12. Local/Remote analog control Indicator		Open collector, Local: Off, Remote: On. Maximum voltage: 30V, maximum sink current: 10mA.											

1.5 FRONT PANEL

1. Control functions		Vout/ Iout manual adjust by separate encoders (coarse and fine adjustment selectable). OVP/UVL manual adjust by Volt. Adjust encoder. On/Off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control. Address selection by Voltage (or current) adjust encoder. Number of addresses: 31. Re-start modes (automatic restart, safe mode). Baud rate selection: 1200, 2400, 4800, 9600 and 19,200.											
2. Display		Voltage: 4 digits, Accuracy: 0.05% of rated output Voltage ±1 count. Current: 4 digits, Accuracy: 0.2% of rated output current ±1 count.											
3. Indications		Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock, CVCC.											

1.6 Interface Specifications for the GENESYS Series with RS-232/RS-485 Or Optional GPIB/LAN Interface Installed

1. Remote Voltage Programming (16 bit)	V	8	10	15	20	30	40	60	80	100	150	300	600
Resolution (0.002% of Vo Rated)	mV	0.16	0.2	0.3	0.4	0.6	0.8	1.2	1.6	2	3	6	12
Accuracy (0.05% of Vo Rated) (*14)	mV	4	5	8	10	15	20	30	40	50	75	150	300
2. Remote Current Programming (16 bit)													
Resolution (0.002% of Io Rated)	mA	6	4.80	3.00	2.40	1.60	1.20	0.80	0.60	0.48	0.32	0.16	0.08
Accuracy (0.2% of Io Rated+0.1% of Io Actual Output) (*13)	mA	900	720	450	360	240	180	120	90	72	48	24	12
3. Readback Voltage													
Resolution (% of Vo Rated)	%	0.002	0.011	0.007	0.006	0.004	0.003	0.002	0.002	0.011	0.007	0.004	0.002
Resolution (Readback Voltage)	mV	0.16	1.10	1.05	1.20	1.20	1.20	1.20	1.60	11.00	10.50	12.00	12.00
Accuracy (0.05% of Vo Rated)	mV	4	5	8	10	15	20	30	40	50	75	150	300
4. Readback Current													
Resolution (% of Io Rated)	%	0.004	0.005	0.007	0.009	0.002	0.002	0.003	0.004	0.005	0.007	0.002	0.003
Resolution (Readback Current)	mA	12	12	10.5	10.8	1.6	1.2	1.2	1.2	1.2	1.120	0.160	0.120
Accuracy (0.3% of Io Rated) (*13)	mA	900	720	450	360	240	180	120	90	72	48	24	12
5. OVP/UVL Programming													
Resolution (0.1% of Vo Rated)	mV	8	10	15	20	30	40	60	80	100	150	300	600
Accuracy (1% of Vo Rated)	mV	80	100	150	200	300	400	600	800	1000	1500	3000	6000

*1: Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.

*2: Minimum current is guaranteed to maximum 0.4% of rated output current.

*3: For cases where conformance to various safety standards (UL, IEC, etc.) is required, to be described as 190-240Vac (50/60Hz) for 3-Phase 208V models.

*4: 3-Phase 208V models: At 208Vac input voltage. With rated output power.

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

*6: 3-Phase 208V models: 170~265Vac, constant load.

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

*8: For 8V~300V models: Measured with JEITA RC-9131A (1:1) probe. For 600V model: Measured

*9: From 10% to 90% or 90% to 10% of Rated Output Voltage, with rated, resistive load with 10:1 probe.

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

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

*12: For 8V~16V models the ripple is measured from 2V to rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current.

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

*14: Measured at the sensing point.



General Specifications Genesys™ 2.4kW

2.1 INPUT CHARACTERISTICS		GEN	8-300	10-240	16-150	20-120	30-80	40-60	60-40	80-30	100-24	150-16	300-8	600-4
1. Input voltage/freq. (*3)		VAC	Single Phase,230V models: 170~265Vac, 47~63Hz 3-Phase, 208V models: 170~265Vac, 47~63Hz											
2. Maximum Input current at 100% load	Single Phase,230V models: 3-Phase, 208V models:	A	17.3 10.5	17.3 10.5	17.3 10.5	16.8 10.2	16.6 10.1	16.6 10.1	16.6 10.1	16.6 10.1	16.6 10.1	16.6 10.1	16.6 10.1	16.6 10.1
3. Power Factor (Typ)			Single Phase models: 0.99@230Vac, rated output power. 3-Phase models: 0.94@208Vac, rated output power.											
4. Efficiency (*4)		%	84	84	86	86	86	88	88	88	88	88	88	87
5. Inrush Current (*5)		A	Single-Phase and 3-Phase 208V models: Less than 50A											

2.2 POWER SUPPLY CONFIGURATION	
1. Parallel Operation	Up to 4 identical units in master/slave mode
2. Series Operation	Up to 2 identical units. with external diodes. 600V Max to Chassis ground

2.3 ENVIRONMENTAL CONDITIONS	
1. Operating temp	0~50°C, 100% load.
2. Storage temp	-20~85°C
3. Operating humidity	20~90% RH (non-condensing).
4. Storage humidity	10~95% RH (non-condensing).
5. Vibration	MIL-810F, method 514.5, The EUT is fixed to the vibrating surface.
6. Shock	Less than 20G, half sine, 11mSec. Unit is unpacked.
7. Altitude	Operating: 10000ft (3000m), Derate output current by 2%/100m above 2000m, Alternatively, derate maximum ambient temp. by 1°C/100m above 2000m. Non operating: 40000ft (12000m).
8. RoHS Compliance	Complies with the requirements of RoHS directive.

2.4 EMC	
1. Applicable Standards:	
2. ESD	IEC1000-4-2. Air-disch.-8KV, contact disch.-4KV
3. Fast transients	IEC1000-4-4. 2KV
4. Surge immunity	IEC1000-4-5. 1KV line to line, 2KV line to ground
5. Conducted immunity	IEC1000-4-6, 3V
6. Radiated immunity	IEC1000-4-3, 3V/m
7. Magnetic field immunity	EN61000-4-8, 1A/m
8. Voltage dips	EN61000-4-11
9. Conducted emission	EN55022A, FCC part 15-A, VCCI-A.
10. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.

2.5 SAFETY	
1. Applicable standards:	UL 60950-1, CSA 22.2 No. 60950-1, IEC 60950-1, EN 60950-1
2. Interface classification	Models with Vout 50V: Output is SELV, all communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring, 5V d.c. auxiliary output are SELV Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins 14-16), 5V d.c. auxiliary output are SELV, Sense, Remote Programming and Monitoring (pins 8-13, pins 21-25), 15V auxiliary output are Hazardous. Models with 400V Vout 600V: Output is Hazardous, all communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring (all pins), 5V d.c./15V d.c. auxiliary outputs are Hazardous.
3. Withstand voltage	Vout 50V models: Input-Output/communication/control/auxiliary outputs (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min., Output/communication/control/auxiliary outputs (SELV)-Ground: 1000VDC 1min. 60V Vout 100V models: Input-Output/15V d.c. auxiliary output/communication/control (Hazardous): 2600VDC 1min, Input-communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -communication/control/5V d.c. auxiliary output (SELV): 1900VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -Ground: 1200VDC 1min, Input-Ground: 2828VDC 1min. 100V Vout 600V models: Input-Output/15V d.c. auxiliary output/communication/control (Hazardous): 4000VDC 1min, Input-communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -communication/control/5V d.c. auxiliary output (SELV): 3550VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -Ground: 2670VDC 1min, Input-Ground: 2828VDC 1min.
3. Insulation resistance	More than 100Mohm at 25°C, 70% RH.

2.6 MECHANICAL CONSTRUCTION	
1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.
2. Dimensions (WxHxD)	W: 423mm, H: 43.6mm, D: 441mm (excluding connectors, encoders, handles, etc.)
3. Weight	Less than 10 kg.
4. AC Input connector (with Protective Cover)	Single Phase, 230V models, Power Combicon PC 6-16/3-GF-10,16 series, with Strain relief. 3-Phase, 208V & 400V models, Power Combicon PC 6-16/4-GF-10,16 series, with Strain relief.
5. Output connectors	8V to 100V models: Bus-bars (hole Ø 10.5mm). 150V to 600V models: wire clamp connector, Phoenix P/N: FRONT-4-H-7.62

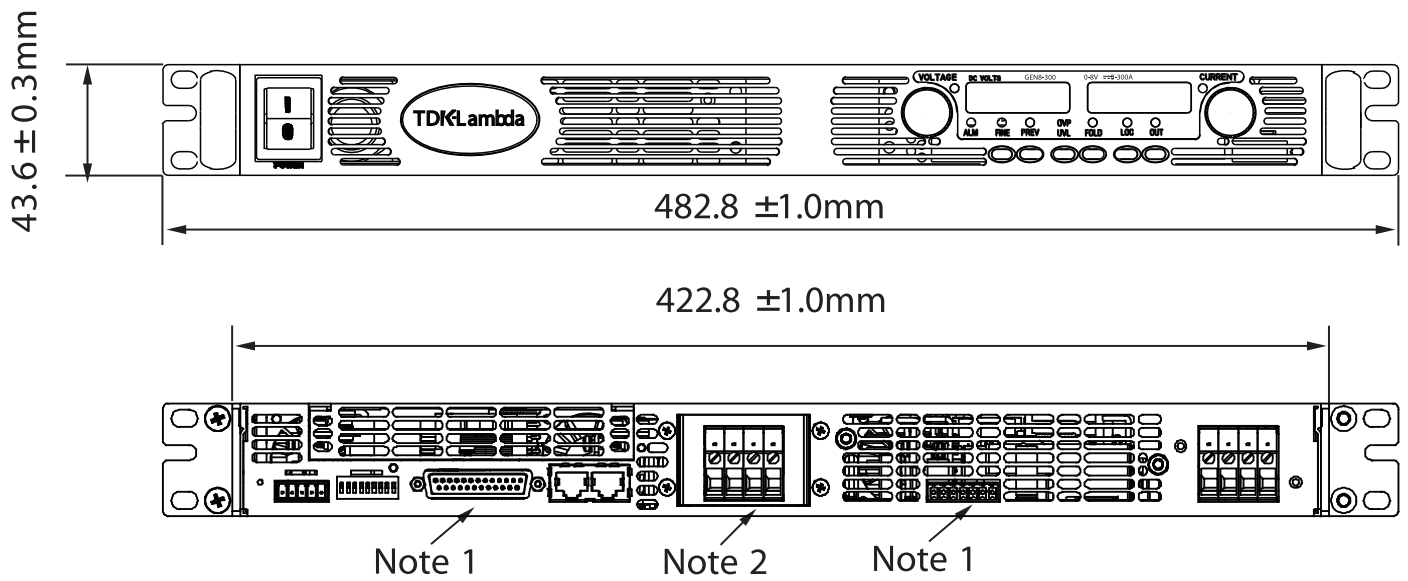
2.7 AUXILIARY OUTPUTS	
1. 15V Output (*8)	15V± 5%, 0.2A Max Load, Ripple & Noise 100mVp-p. referenced internally to the negative output potential.
2. 5V Output	5V± 5%, 0.2A Max Load, Ripple & Noise 100mVp-p. referenced internally to IF_COM potential.

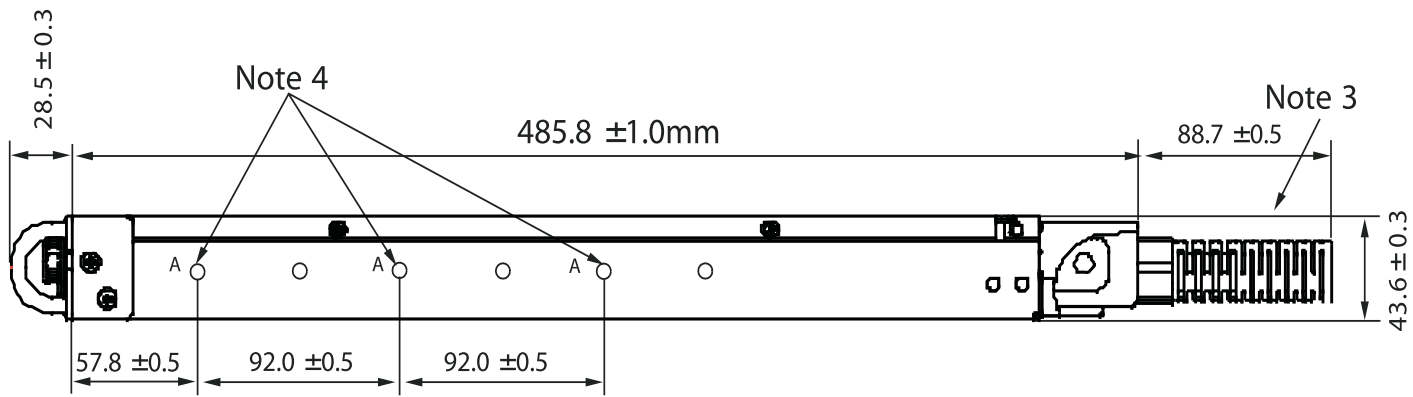
2.8 RELIABILITY SPECS	
1. Warranty	5 years.

All specifications subject to change without notice.



Outline Drawing Genesys™ 2.4kW Units





NOTE

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



Genesys™ Power Parallel and Series Configurations

Parallel operation - Master/Slave:

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

In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four supplies act as one.

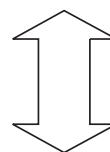
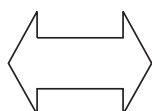


Series operation

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

Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows daisy-chain control of up to 31 power supplies on the same communication bus with built-in RS-232 & RS-485 Interface.



Programming Options (Factory installed)

Digital Programming via IEEE Multi-Drop Interface

P/N: IEEE

- Allows IEEE Master to control up to 30 slaves over RS-485 daisy-chain
- Only the Master needs be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages
- Program Current
- Measure Current
- Current Foldback shutdown

Isolated Analog Programming

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

- Voltage Programming, user-selectable 0-5V or 0-10V signal. P/N: IS510
- Power supply Voltage and Current Programming Accuracy $\pm 1\%$
- Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$
- Current Programming with 4-20mA signal. P/N: IS420
- Power supply Voltage and Current Programming Accuracy $\pm 1\%$
- Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$

LAN Interface **LXI** Compliant to Class C

P/N: LAN

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



Power Supply Identification / Accessories

How to order

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

Models 2.4kW

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

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

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

Accessories

1. Serial Communication cable

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

Mode	RS-485	RS-232	RS-232
PC Connector	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	Shield Ground L=2m
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

2. Serial link cable*

Daisy-chain up to 31 Genesys™ power supplies.

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

* Included with power supply



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



**Improved
Specifications**

Genesys™

**Programmable DC Power Supplies
3.3kW in 2U**

Built in RS-232 & RS-485 Interface

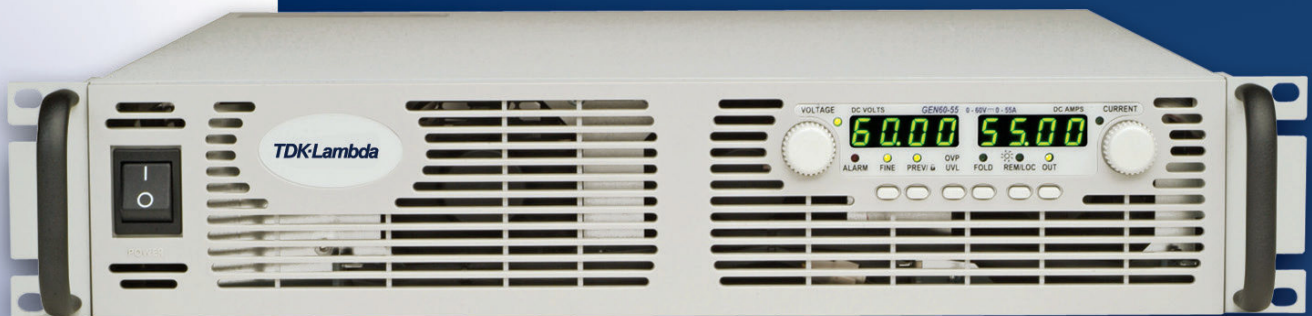
Advanced Parallel Operation

Optional Interface:

LXI Compliant LAN

IEEE488.2 SCPI (GPIB) Multi-Drop

Isolated Analog Programming



Genesys™ Family

GENH 750W Half Rack

GEN1U 750/1500/2400W Full Rack

GEN2U 3.3/5kW

TDK-Lambda



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

Features include:

- High Power Density 3.3kW in 2U
- Wide Range of popular worldwide AC inputs, 1 ϕ (230VAC) & 3 ϕ (208VAC, 400VAC)
- Active Power Factor Correction (Single-Phase & Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 400A
- Built-in RS-232/RS-485 Interface Standard
- Global Commands for Serial RS-232/RS-485 Interface
- Auto-Re-Start / Safe-Start: user selectable
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Low Ripple & Noise
- Front Panel Lock selectable from Front Panel or Software
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Parallel Operation with Active Current Sharing; up to four identical units.
- Advanced Parallel Master / Slave. Total Current is Programmed and Measured via the Master.
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring (user selectable 0-5V & 0-10V)
- Reliable Modular and SMT Design
- 19" Rack Mount capability for ATE and OEM applications
- Optional Interfaces
 - Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA)
 - IEEE 488.2 SCPI (GPIB) Multi-Drop
 - LXI** Compliant LAN
- LabView® and LabWindows® drivers
- Five Year Warranty

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



Applications

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

Test & Measurement systems, Component Device Testing.

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

System Designers will appreciate new, standard, remote programming features such as Global commands.

Also, new high-speed status monitoring is available for the RS-485 bus.

Test Systems using the IEEE-488 bus may achieve significant cost savings by incorporating the Optional IEEE Multi-Drop Interface for a Master and up to 30 RS-485 Multi-Drop Slaves.

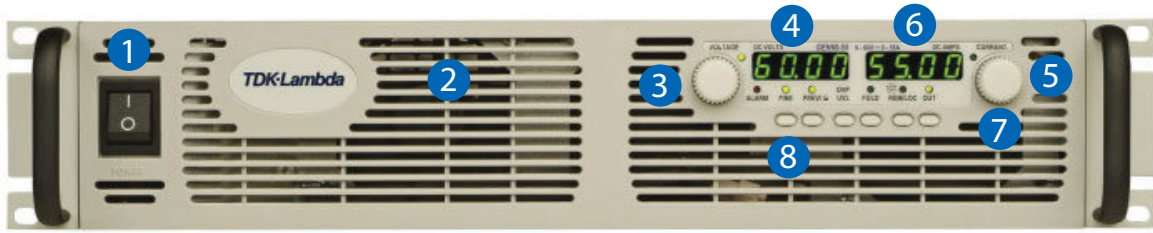
Higher power systems can be configured with up to four 3.3kW modules. Each module is 2U with zero space between them (zero stack).

Flexible configuration is provided by the complete Genesys™ Family: 1U 750W Half-Rack, 1U 750W, 1500W and 2400W Full-Rack. All are identical in Front Panel, Rear Panel Analog, and all Digital Interface Commands.

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



Front Panel Description



1. ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable encoder controls Output Voltage, Address, OVP and UVL settings.
4. Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Reliable encoder controls Output Current, sets baudrate and Advanced Parallel mode.
6. Current Display shows Output Current and displays Baud rate. Displays total current in Parallel Master/Slave Mode
7. Function/Status LEDs:
 - **Alarm**
 - **Foldback Mode**
 - **Fine Control**
 - **Remote Mode**
 - **Preview Settings**
 - **Output On**
8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave
 - Preview settings and set Voltage/Current with Output OFF, Front Panel Lock
 - Parallel Master/Slave
 - Set OVP and UVL Limits
 - Set Current Foldback Protection
 - Go to Local Mode and select Address and Baud rate
 - Output ON/OFF and Auto-Re-Start/Safe-Start Mode

Rear Panel Description



1. Remote/Local Output Voltage Sense Connections.
2. DIP Switches select 0-5V or 0-10V Programming and other functions.
3. DB25 (Female) connector allows (Non-isolated) Analog Program and Monitor and other functions.
4. RS-485 OUT to other Genesys™ Power Supplies.
5. RS-232/RS-485 IN Remote Serial Programming.
6. Output Connections: Rugged busbars (shown) for up to 100V Output; wire clamp connector for Outputs >100V.
7. Exit air assures reliable operation when zero stacked.
8. Input: 230VAC Single Phase (shown), 208 & 400VAC Three Phase, 50/60 Hz
AC Input Connector: PHOENIX CONTACT Power Combicon PC 6/... Series with strain relief.
9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.



1.0 MODEL

Specifications in blue are improved

MODEL	GEN	8-400	10-330	15-220	20-165	30-110	40-85	60-55	80-42	100-33	150-22	200-16.5	300-11	600-5.5
1. Rated output voltage(*1)	V	8	10	15	20	30	40	60	80	100	150	200	300	600
2. Rated Output Current(*2)	A	400	330	220	165	110	85	55	42	33	22	16.5	11	5.5
3. Rated Output Power	W	3200	3300	3300	3300	3300	3400	3300	3360	3300	3300	3300	3300	3300

1.1 CONSTANT VOLTAGE MODE

1. Max. line regulation (0.01% of rated Vo+2mV)(*6)	mV	2.8	3	3.5	4	5	6	8	10	12	17	22	32	62	
2. Max. load regulation (0.015% of rated Vo+5mV)(*7)	mV	6.2	6.5	7.25	8	9.5	11	14	17	20	27.5	35	50	95	
3. Ripple and noise p-p 20MHz (*8)	mV	55	55	55	55	55	55	60	70	100	100	275	300	350	
4. Ripple r.m.s 5Hz~1MHz	mV	8	8	7	7	7	7	7	20	25	20	70	80	80	
5. Remote sense compensation/wire	V	2	2	2	2	5	5	5	5	5	5	5	5	5	
6. Temp. coefficient	PPM/°C	50PPM/°C of rated output voltage, following 30 minutes warm-up													
7. Temp. stability		0.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.													
8. Warm-up drift		Less than 0.05% of rated output voltage+2mV over 30 minutes following power On.													
9. Up-prog. response time, 0~Vo Rated (*9)	mS	80													
10. Down-prog response time	Full-load (*9)	mS	20	100	160	150	300	200	500						
	No-load (*10)	mS	500	600	700	800	900	1000	1100	1200	1500	2000	3000	3500	4000
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 1mSec for models up to and including 100V. 2msec for models above 100V													

1.2 CONSTANT CURRENT MODE

1. Max. line regulation (0.01% of rated Io+2mA)(*6)	mA	42	35	24	18.5	13	10.5	7.5	6.2	5.3	4.2	3.65	3.1	2.6	
2. Max. load regulation (0.02% of rated Io+5mA)(*11)	mA	85	71	49	38	27	22	16	13.4	11.6	9.4	8.3	7.2	6.1	
3. Ripple r.m.s 5Hz~1MHz (*12)	mA	1000	650	400	300	250	150	70	60	50	20	30	15	8	
4. Load regulation thermal drift		Less than 0.1% of rated output current over 30 minutes following load change.													
5. Temp. coefficient	PPM/°C	70PPM/°C from rated output current, following 30 minutes warm-up.													
6. Temp. stability		0.01% of rated Iout over 8hrs. interval following 30minutes warm-up. Constant line, load & temperature.													
7. Warm-up drift		8V~20V models: Less than ±0.5% of rated output current over 30 minutes following power On.													
		30V~600V models: Less than ±0.25% of rated output current over 30 minutes following power On.													

1.3 PROTECTIVE FUNCTIONS

1. OCP		0~105% Constant Current													
2. OCP Foldback		Output shut down when power supply change from CV to CC. User selectable.													
3. OVP type		Inverter shut-down, manual reset by AC input recycle or by OUT button or by communication port command.													
4. OVP trip point		0.5~10V	0.5~12V	1~18V	1~24V	2~36V	2~44V	5~66V	5~88V	5~110V	5~165V	5~220V	5~330V	5~660V	
5. Output Under Voltage Limit		Preset by front panel or communication port. Prevents from adjusting Vout below limit.													
6. Over Temp. Protection		User selectable, latched or non-latched.													

1.4 ANALOG PROGRAMMING AND MONITORING

1. Vout Voltage Programming		0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: ±0.5% of rated Vout.													
2. Iout Voltage Programming (*13)		0~100%, 0~5V or 0~10V, user select. Accuracy and linearity: ±1% of rated Iout.													
3. Vout Resistor Programming		0~100%, 0~5/10Kohm full scale, user select., Accuracy and linearity: ±1% of rated Vout.													
4. Iout Resistor Programming (*13)		0~100%, 0~5/10Kohm full scale, user select. Accuracy and linearity: ±1.5% of rated Iout.													
5. On/Off control (rear panel)		By electrical. Voltage: 0~0.6V/2~15V, or dry contact, user selectable logic.													
6. Output Current monitor (*13)		0~5V or 0~10V, Accuracy: ±1%, user selectable.													
7. Output Voltage monitor		0~5V or 0~10V, Accuracy: ±1%, user selectable.													
8. Power Supply OK signal		TTL high (4~5V) -OK, 0V-Fail 500ohm series resistance.													
9. CV/CC Indicator		Open collector, CC mode: On, CV mode: Off, Maximum voltage: 30V, maximum sink current: 10mA													
10. Enable/Disable		Dry contact. Open: off, Short: on. Max. voltage at Enable/Disable in: 6V.													
11. Local/Remote analog control		By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local.													
12. Local/Remote analog control Indicator		Open collector, Local: Off, Remote: On. Maximum voltage: 30V, maximum sink current: 10mA.													

1.5 FRONT PANEL

1. Control functions		Vout/ Iout manual adjust by separate encoders (coarse and fine adjustment selectable).													
		OVP/UVL manual adjust by Volt. Adjust encoder.													
		On/Off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control.													
		Address selection by Voltage (or current) adjust encoder. Number of addresses: 31.													
2. Display		Voltage: 4 digits, Accuracy: 0.05% of rated output Voltage ±1 count.													
		Current: 4 digits, Accuracy: 0.2% of rated output current ±1 count.													
		Re-start modes (automatic restart, safe mode). Baud rate selection: 1200, 2400, 4800, 9600 and 19,200.													
3. Indications		Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock, CVCC.													

1.6 Interface Specifications for the GENESYS Series with RS-232/RS-485 Or Optional GPIB/LAN Interface Installed

1. Remote Voltage Programming (16 bit)	V	8	10	15	20	30	40	60	80	100	150	200	300	600
Resolution (0.002% of Vo Rated)	mV	0.16	0.2	0.3	0.4	0.6	0.8	1.2	1.6	2	3	4	6	12
Accuracy (0.05% of Vo Rated) (*14)	mV	4	5	8	10	15	20	30	40	50	75	100	150	300
2. Remote Current Programming (16 bit)	mA	8	6.6	4.4	3.3	2.2	1.7	1.1	0.84	0.66	0.44	0.33	0.22	0.11
Accuracy (0.2% of Io Rated+0.1% of Io Actual Output) (*13)	mA	1200	990	660	495	330	255	165	126	99	66	49.5	33	16.5
3. Readback Voltage														
Resolution (% of Vo Rated)	%	0.002	0.011	0.007	0.006	0.004	0.003	0.002	0.002	0.011	0.007	0.006	0.004	0.002
Resolution (Readback Voltage)	mV	0.16	1.10	1.05	1.20	1.20	1.20	1.20	1.60	11.00	10.50	12.00	12.00	12.00
Accuracy (0.05% of Vo Rated)	mV	4	5	8	10	15	20	30	40	50	75	100	150	300
4. Readback Current														
Resolution (% of Io Rated)	%	0.003	0.004	0.005	0.007	0.01	0.002	0.002	0.003	0.004	0.005	0.007	0.01	0.002
Resolution (Readback Current)	mA	12.00	13.20	11.00	11.55	11.00	1.70	1.10	1.26	1.32	1.10	1.16	0.11	0.11
Accuracy (0.3% of Io Rated) (*13)	mA	1200	990	660	495	330	255	165	126	99	66	49.5	33.0	16.5
5. OVP/UVL Programming														
Resolution (0.1% of Vo Rated)	mV	8	10	15	20	30	40	60	80	100	150	200	300	600
Accuracy (1% of Vo Rated)	mV	80	100	150	200	300	400	600	800	1000	1500	2000	3000	6000

*1: Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.

*2: Minimum current is guaranteed to maximum 0.4% of rated output current.

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

*4: Single-Phase and 3-Phase 208V models: At 208Vac input voltage, 3-Phase 400V: At 380Vac input voltage. With rated output power.

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

*6: Single-Phase and 3-Phase 208V models: 170~265Vac, constant load. 3-Phase 400V models: 342~460Vac, constant load.

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

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

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

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

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

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

*12: For 8V~15V models the ripple is measured from 2V to rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current.

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

*14: Measured at the sensing point.



General Specifications Genesys™ 3.3kW

2.1 INPUT CHARACTERISTICS		GEN	8-400	10-330	15-220	20-165	30-110	40-85	60-55	80-42	100-33	150-22	200-16.5	300-11	600-5.5
1. Input voltage/freq. (*3)		VAC	Single Phase,230V models: 170~265Vac, 47~63Hz 3-Phase, 208V models: 170~265Vac, 47~63Hz 3-Phase, 400V models: 342~460Vac, 47~63Hz												
2. Maximum Input current at 100% load	Single Phase,230V models: 3-Phase, 208V models: 3-Phase, 400V models:	A	24	24	24	24	23	24	23	23.5	23	23	23	23	23
3. Power Factor (Typ)			Single Phase models: 0.99@230Vac, rated output power. 3-Phase models: 0.94@208/380Vac, rated output power.												
4. Efficiency (*4)		%	82	83	83	83	86	86	88	88	88	87	87	87	87
5. Inrush Current (*5)		A	Single-Phase and 3-Phase 208V models: Less than 50A 3-Phase 400V models: Less than 20A												
6. Hold-up time (Typ)		mS	10mSec for Single-Phase and 3-phase 208V models, 6mSec for 3-Phase 400V models. Rated output power.												
2.2 POWER SUPPLY CONFIGURATION															
1. Parallel Operation	Up to 4 identical units in master/slave mode														
2. Series Operation	Up to 2 identical units. with external diodes. 600V Max to Chassis ground														
2.3 ENVIRONMENTAL CONDITIONS															
1. Operating temp	0~50°C, 100% load.														
2. Storage temp	-20~85°C														
3. Operating humidity	20~90% RH (non-condensing).														
4. Storage humidity	10~95% RH (non-condensing).														
5. Vibration	MIL-810F, method 514.5 , The EUT is fixed to the vibrating surface.														
6. Shock	Less than 20G, half sine , 11mSec. Unit is unpacked.														
7. Altitude	Operating: 10000ft (3000m), Derate output current by 2%/100m above 2000m, Alternatively, derate maximum ambient temp. by 1°C/100m above 2000m. Non operating: 40000ft (12000m).														
8. RoHS Compliance	Complies with the requirements of RoHS directive.														
2.4 EMC															
1.Applicable Standards:															
2.ESD	IEC1000-4-2. Air-disch.-8KV, contact disch.-4KV														
3.Fast transients	IEC1000-4-4. 2KV														
4.Surge immunity	IEC1000-4-5. 1KV line to line, 2KV line to ground														
5.Conducted immunity	IEC1000-4-6, 3V														
6.Radiated immunity	IEC1000-4-3, 3V/m														
7.Magnetic field immunity	EN61000-4-8, 1A/m														
8.Voltage dips	EN61000-4-11														
9.Conducted emission	EN55022A, FCC part 15-A, VCCI-A.														
10. Radiated emission	EN55022A, FCC part 15-A, VCCI-A.														
2.5 SAFETY															
1.Applicable standards:	UL 60950-1, CSA 22.2 No. 60950-1,IEC 60950-1, EN 60950-1														
2.Interface classification	Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Remote Programing and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V<Vout 600V: Output is Hazardous, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.														
3.Withstand voltage	Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min, 60V<Vout 100V models: Input-Output (Hazardous): 2600VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Output(Hazardous)-SELV: 1900VDC 1min, Output(Hazardous)-Ground: 1200VDC 1min, Input-Ground: 2828VDC 1min. 100V< Vout 600V models: Input-Output(Hazardous): 3550VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Hazardous. Output-communication/control(SELV): 4242VDC 1min, Output(Hazardous)-Ground: 2670VDC 1min, Input-Ground: 2828VDC 1min.														
3.Insulation resistance	More than 100Mohm at 25°C , 70% RH.														
2.6 MECHANICAL CONSTRUCTION															
1. Cooling	Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.														
2. Dimensions (WxHxD)	W: 423mm, H: 88mm, D: 442.5mm (excluding connectors, encoders, handles, etc.)														
3. Weight	13 kg.														
4. AC Input connector (with Protective Cover)	Single Phase,230V models, Power Combicon PC 6-16/3-GF-10,16 series, with Strain relief. 3-Phase, 208V & 400V models, Power Combicon PC 6-16/4-GF-10,16 series, with Strain relief.														
5.Output connectors	8V to 100V models: Bus-bars (hole Ø 10.5mm). 150V to 600V models: wire clamp connector, Phoenix P/N: FRONT-4-H-7.62														
2.7 RELIABILITY SPECS															
1. Warranty	5 years.														

All specifications subject to change without notice.



Genesys™ Power Parallel and Series Configurations

Parallel operation - Master/Slave:

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

In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four supplies act as one.



Series operation

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

Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows daisy-chain control of up to 31 power supplies on the same communication bus with built-in RS-232 & RS-485 Interface.



Programming Options (Factory installed)

Digital Programming via IEEE Multi-Drop Interface

P/N: IEEE

- Allows IEEE Master to control up to 30 slaves over RS-485 daisy-chain
- Only the Master needs be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages
- Program Current
- Measure Current
- Current Foldback shutdown

Isolated Analog Programming

Four Channels to Program and Monitor Voltage and Current.

Isolation allows operation with floating references in harsh electrical environments.

Choose between programming with Voltage or Current.

Connection via removable terminal block: Phoenix MC1,5/8-ST-3.81.

- Voltage Programming, user-selectable 0-5V or 0-10V signal. P/N: IS510
- Power supply Voltage and Current Programming Accuracy $\pm 1\%$
- Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$
- Current Programming with 4-20mA signal. P/N: IS420
- Power supply Voltage and Current Programming Accuracy $\pm 1\%$
- Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$

LAN Interface Compliant to Class C

P/N: LAN

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



Power Supply Identification / Accessories How to order

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

Models 3.3kW

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

Model	Output Voltage VDC	Output Current (A)	Output Power (W)
GEN 60-55	0~60V	0~55	3300
GEN 80-42	0~80V	0~42	3360
GEN 100-33	0~100V	0~33	3300
GEN 150-22	0~150V	0~22	3300
GEN200-16.5	0~200V	0~16.5	3300
GEN 300-11	0~300V	0~11	3300
GEN 600-5.5	0~600V	0~5.5	3300

Factory option P/N

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

Accessories

1. Serial Communication cable

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

Mode	RS-485	RS-232	RS-232
PC Connector	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	Shield Ground L=2m
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

2. Serial link cable*

Daisy-chain up to 31 Genesys™ power supplies.

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

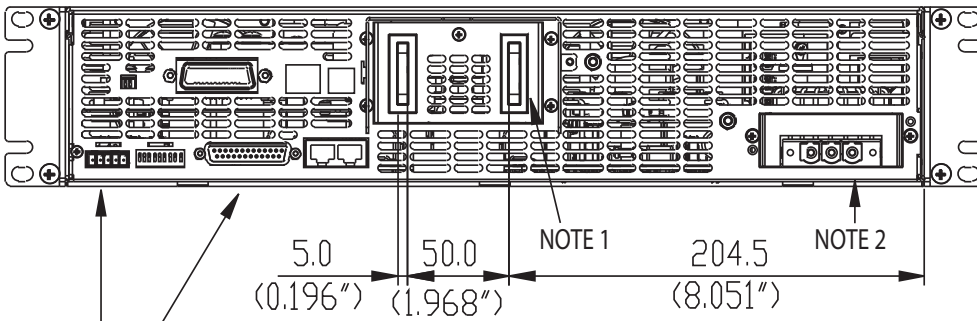
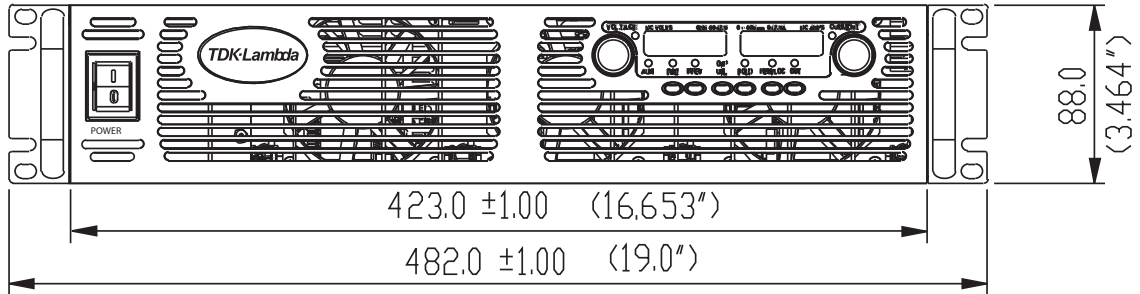
* Included with power supply



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

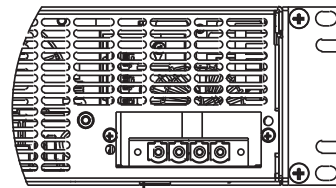


Outline Drawing Genesys™ 3.3kW Units



NOTE 2

3 Phase Input Connector



**Improved
Specifications**

Genesys™

**Programmable DC Power Supplies
5kW in 2U**

Built in RS-232 & RS-485 Interface

Advanced Parallel Operation

Optional Interface:

LXI Compliant LAN

IEEE488.2 SCPI (GPIB) Multi-drop

Isolated Analog Programming



Genesys™ Family

GENH 750W Half Rack

GEN1U 750/1500/2400W Full Rack

GEN2U 3.3/5kW


TDK-Lambda



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

Features include:

- High Power Density 5kW in 2U
- Wide Range of popular worldwide AC inputs, 3 ϕ (208VAC, 400VAC)
- Active Power Factor Correction (Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 600A
- Built-in RS-232/RS-485 Interface Standard
- Global Commands for Serial RS-232/RS-485 Interface
- Auto-Re-Start / Safe-Start: user selectable
- Last-Setting Memory
- High Resolution 16 bit ADCs & DACs
- Low Ripple & Noise
- Front Panel Lock selectable from Front Panel or Software
- Reliable Encoders for Voltage and Current Adjustment
- Constant Voltage/Constant Current auto-crossover
- Parallel Operation with Active Current Sharing; up to four identical units.
- Advanced Parallel Master / Slave. Total Current is Programmed and Measured via the Master.
- Independent Remote ON/OFF and Remote Enable/Disable
- External Analog Programming and Monitoring (user selectable 0-5V & 0-10V)
- Reliable Modular and SMT Design
- 19" Rack Mount capability for ATE and OEM applications
- Optional Interfaces
 - Isolated Analog Programming and Monitoring Interface (0-5V/0-10V & 4-20mA)
 - IEEE 488.2 SCPI (GPIB) Multi-Drop

 Compliant LAN

- LabView® and LabWindows® drivers
- Five Year Warranty

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



Applications

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

Test & Measurement systems, Component Device Testing.

Semiconductor Processing & Burn-In, Aerospace & Satellite Testing, Medical Imaging, Green Technology. System Designers will appreciate new, standard, remote programming features such as Global commands. Also, new high-speed status monitoring is available for the RS-485 bus.

Test Systems using the IEEE-488 bus may achieve significant cost savings by incorporating the Optional IEEE Multi-Drop Interface for a Master and up to 30 RS-485 Multi-Drop Slaves.

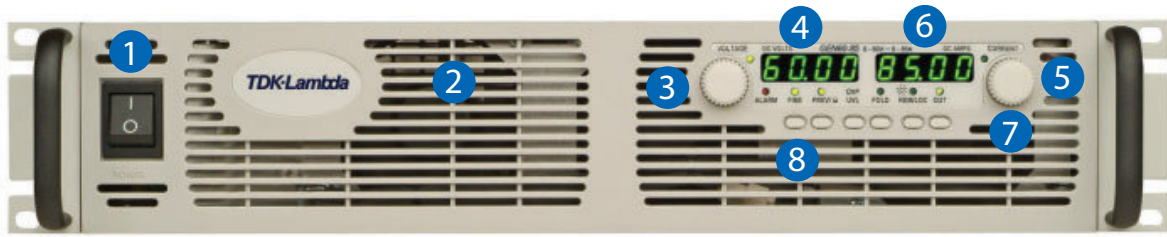
Higher power systems can be configured with up to four 5kW modules. Each module is 2U with zero space between them (zero stack).

Flexible configuration is provided by the complete Genesys™ Family: 1U 750W Half-Rack, 1U 750W, 1500W and 2400W Full-Rack. All are identical in Front Panel, Rear Panel Analog, and all Digital Interface Commands.

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



Front Panel Description



1. ON/OFF Switch
2. Air Intake allows zero stacking for maximum system flexibility and power density.
3. Reliable encoder controls Output Voltage, Address, OVP and UVL settings.
4. Volt Display shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Reliable encoder controls Output Current, sets baudrate and Advanced Parallel mode.
6. Current Display shows Output Current and displays Baud rate.
Displays total current in Parallel Master/Slave Mode
7. Function/Status LEDs:
 - Alarm
 - Foldback Mode
 - Fine Control
 - Remote Mode
 - Preview Settings
 - Output On
8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Current and Advanced Parallel Master or Slave
 - Preview settings and set Voltage/Current with Output OFF, Front Panel Lock
 - Parallel Master/Slave
 - Set OVP and UVL Limits
 - Set Current Foldback Protection
 - Go to Local Mode and select Address and Baud rate
 - Output ON/OFF and Auto/Safe Re-Start Mode

Rear Panel Description



1. Remote/Local Output Voltage Sense Connections.
2. DIP Switches select 0-5V or 0-10V Programming and other functions.
3. DB25 (Female) connector allows (Non-isolated) Analog Program and Monitor and other functions.
4. RS-485 OUT to other Genesys™ Power Supplies.
5. RS-232/RS-485 IN Remote Serial Programming.
6. Output Connections: Rugged busbars (shown) for up to 100V Output; wire clamp connector for Outputs >100V.
7. Exit air assures reliable operation when zero stacked.
8. Input: 230VAC Single Phase (shown), 208 & 400VAC Three Phase, 50/60 Hz
AC Input Connector: PHOENIX CONTACT Power Combicon PC 6/... Series with strain relief.
9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.



Specifications in Blue are improved

1.0 MODEL

MODEL	GEN	8-600	10-500	16-310	20-250	30-170	40-125	60-85	80-65	100-50	150-34	200-25	300-17	400-13	500-10	600-8.5
1.Rated output voltage(*1)	V	8	10	16	20	30	40	60	80	100	150	200	300	400	500	600
2.Rated Output Current(*2)	A	600	500	310	250	170	125	85	65	50	34	25	17	13	10	8.5
3.Rated Output Power	W	4800	5000	4960	5000	5100	5000	5100	5200	5000	5100	5000	5100	5200	5000	5100

1.1 CONSTANT VOLTAGE MODE

1.Max.line regulation (0.01% of rated Vo)(*6)	mV	0.8	1.0	1.6	2	3	4	6	8	10	15	20	30	40	50	60
2.Max.load regulation (0.015% of rated Vo+5mV)(*7)	mV	6.2	6.5	7.4	8	9.5	11	14	17.7	20	27.5	35	50	65	80	95
3.Ripple and noise p-p 20MHz (*8)	mV	75	75	70	75	70	70	70	80	90	120	200	200	350	300	450
4.Ripple r.m.s 5Hz~1MHz	mV	8	8	10	10	10	8	8	15	15	20	45	60	70	70	100
5.Remote sense compensation/wire	V	2	2	2	2	5	5	5	5	5	5	5	5	5	5	5
6.Temp. coefficient	PPM/°C	50PPM/°C of rated output voltage, following 30 minutes warm-up														
7.Temp. stability		0.01% of rated Vout over 8hrs interval following 30 minutes warm-up. Constant line, load & temp.														
8.Warm-up drift		Less than 0.05% of rated output voltage+2mV over 30 minutes following power On.														
9.Up-prog. response time, 0~Vo Rated (*9)	mS	30					50					65	80	100		
10.Down-prog response	mS	50					80					100				
Full-load (*9)	mS	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
No-load (*10)	mS	400	500	600	700	800	900	1000	1200	1500	2000	2000	2500	3000	3000	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 1mSec for models up to and including 100V. 2msec for models above 100V														

1.2 CONSTANT CURRENT MODE

1.Max.line regulation (0.05% of rated Io)(*6)	mA	300	250	155	125	85	62.5	42.5	32.5	25	17	12.5	8.5	6.5	5	4.25
2.Max.load regulation (0.1% of rated Io)(*11)	mA	600	500	310	250	170	125	85	65	50	34	25	17	13	10	8.5
3.Ripple r.m.s 5Hz~1MHz (*12)	mA	1700	1600	1000	700	350	180	120	80	50	50	50	20	15	10	10
4.Load regulation thermal drift		Less than 0.1% of rated output current over 30 minutes following load change.														
5.Temp. coefficient	PPM/°C	70PPM/°C from rated output current, following 30 minutes warm-up.														
6.Temp. stability		0.01% of rated Iout over 8hrs. interval following 30minutes warm-up. Constant line, load & temperature.														
7.Warm-up drift		8V~16V models: Less than ±0.5% of rated output current over 30 minutes following power On. 20V~600V models: Less than ±0.25% of rated output current over 30 minutes following power On.														

1.3 PROTECTIVE FUNCTIONS

1. OCP	0~105% Constant Current
2. OCP Foldback	Output shut down when power supply change from CV to CC. User selectable.
3. OVP type	Inverter shut-down, manual reset by AC input recycle or by OUI button or by communication port command.
4. OVP trip point	0.5~10V 0.5~12V 1~19V 1~24V 2~36V 2~44V 5~66V 5~88V 5~110V 5~165V 5~220V 5~330V 5~440V 5~550V 5~660V
5. Output Under Voltage Limit	Preset by front panel or communication port. Prevents from adjusting Vout below limit.
6. Over Temp. Protection	User selectable, latched or non-latched.

1.4 ANALOG PROGRAMMING AND MONITORING

1.Vout Voltage Programming	0~100%, 0~5V or 0~10V, user select. Accuracy and linearity:±0.5% of rated Vout.
2.Iout Voltage Programming (*13)	0~100%, 0~5V or 0~10V, user select. Accuracy and linearity:±1% of rated Iout.
3.Vout Resistor Programming	0~100%, 0~5/10Kohm full scale, user select., Accuracy and linearity: ±1% of rated Vout.
4.Iout Resistor Programming (*13)	0~100%, 0~5/10Kohm full scale, user select. Accuracy and linearity:±1.5% of rated Iout.
5.On/Off control (rear panel)	By electrical. Voltage: 0~0.6V/2~15V, or dry contact, user selectable logic.
6.Output Current monitor (*13)	0~5V or 0~10V, Accuracy:±1%, user selectable.
7.Output Voltage monitor	0~5V or 0~10V, Accuracy:±1%, user selectable.
8.Power Supply OK signal	TTL high (4~5V) -OK, 0V-Fail 500ohm series resistance.
9. CV/CC Indicator	Open collector, CC mode: On, CV mode: Off, Maximum voltage: 30V, maximum sink current: 10mA
10. Enable/Disable	Dry contact. Open:off, Short: on. Max. voltage at Enable/Disable in: 6V.
11. Local/Remote analog control	By electrical signal or Open/Short: 0~0.6V or short: Remote, 2~15V or open: Local.
12. Local/Remote analog control Indicator	Open collector, Local: Off, Remote: On. Maximum voltage: 30V, maximum sink current: 10mA.

1.5 FRONT PANEL

1.Control functions	Vout/ Iout manual adjust by separate encoders (coarse and fine adjustment selectable). OVP/UVL manual adjust by Volt. Adjust encoder. On/Off, Output on/off, Re-start modes (auto, safe), Foldback control (CV to CC), Go to local control. Address selection by Voltage (or current) adjust encoder. Number of addresses:31. Re-start modes (automatic restart, safe mode). Baud rate selection: 1200,2400,4800,9600 and 19,200.
2.Display	Voltage: 4 digits, Accuracy: 0.05% of rated output Voltage ±1 count. Current: 4 digits, Accuracy: 0.2% of rated output current ±1 count.
3.Indications	Voltage, Current, Alarm, Fine, Preview, Foldback, Local, Output On, Front Panel Lock, CVCC.

1.6 Interface Specifications for the GENESYS Series with RS-232/RS-485 Or Optional GPIB/LAN Interface Installed

1. Remote Voltage Programming (16 bit)	V	8	10	16	20	30	40	60	80	100	150	200	300	400	500	600
Resolution (0.002% of Vo Rated)	mV	0.16	0.20	0.32	0.40	0.60	0.80	1.20	1.60	2.0	3.0	4.0	6.0	8.0	10.0	12.0
Accuracy (0.05% of Vo Rated) (*14)	mV	4	5	8	10	15	20	30	40	50	75	100	150	200	250	300
2. Remote Current Programming (16 bit)	mA	12	10	6.20	5.00	3.40	2.50	1.70	1.30	1.00	0.68	0.50	0.34	0.26	0.20	0.17
Accuracy (0.3% of Io Rated+0.1% of Io Actual Output) (*13)	mA	2400	2000	1240	1000	680	500	340	260	200	136	100	68	52	40	34
3. Readback Voltage																
Resolution (% of Vo Rated)	%	0.002	0.011	0.007	0.006	0.004	0.003	0.002	0.002	0.011	0.007	0.006	0.004	0.003	0.003	0.002
Resolution (Readback Voltage)	mV	0.16	1.10	1.12	1.20	1.20	1.20	1.20	1.60	11.00	10.50	12.00	12.00	12.00	15.00	12.00
Accuracy (0.05%Vo Rated)	mV	4	5	8	10	15	20	30	40	50	75	100	150	200	250	300
4. Readback Current																
Resolution (% of Io Rated)	%	0.002	0.003	0.004	0.005	0.006	0.009	0.002	0.002	0.003	0.004	0.005	0.006	0.008	0.011	0.002
Resolution (Readback Current)	mA	12.00	15.00	12.40	12.50	10.20	11.25	1.70	1.30	1.50	1.36	1.25	1.02	1.04	40	34
Accuracy (0.3% of Io Rated) (*13)	mA	1800	1500	930	750	510	375	255	195	150	102	75	51	39	30	25.5
5. OVP/UVL Programming																
Resolution (0.1% of Vo Rated)	mV	8	10	16	20	30	40	60	80	100	150	200	300	400	500	600
Accuracy (1% of Vo Rated)	mV	80	100	160	200	300	400	600	800	1000	1500	2000	3000	4000	5000	6000

*1: Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.

*2: Minimum current is guaranteed to maximum 0.4% of rated output current.

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

*4: 3-Phase 208V models: At 208Vac input voltage, 3-Phase 400V: At 380Vac input voltage. With rated output power.

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

*6: 3-Phase 208V models: 170~265Vac, constant load. 3-Phase 400V models: 342~460Vac, constant load.

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

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

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

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

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

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

*12: For 8V~16V models the ripple is measured from 2V to rated output voltage and rated output current. For other models, the ripple is measured at 10~100% of rated output voltage and rated output current.

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

*14: Measured at the sense point.



General Specifications Genesys™ 5kW

2.1 INPUT CHARACTERISTICS		GEN	8-600	10-500	16-310	20-250	30-170	40-125	60-85	80-65	100-50	150-34	200-25	300-17	400-13	500-10	600-8.5	
1. Input voltage/freq. (*3)		VAC	3-Phase, 208V models: 170~265Vac, 47~63Hz 3-Phase, 400V models: 342~460Vac, 47~63Hz															
2. Maximum Input current at 100% load	3-Phase, 208V models:	A	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	3-Phase, 400V models:		10.5	11	11	12	11	11	11	11	11	11	11	11	11	11	11	11
3. Power Factor (Typ)		3-Phase models: 0.94@208/380Vac, rated output power.																
4. Efficiency (*4)		%	83	84	84	86	86	88	88	88	88	88	88	88	88	88	88	88
5. Inrush Current (*5)		A	3-Phase 208V models: Less than 50A 3-Phase 400V models: Less than 20A															
2.2 POWER SUPPLY CONFIGURATION																		
1. Parallel Operation		Up to 4 identical units in master/slave mode																
2. Series Operation		Up to 2 identical units. with external diodes. 600V Max to Chassis ground																
2.3 ENVIRONMENTAL CONDITIONS																		
1. Operating temp		0~50°C, 100% load.																
2. Storage temp		-20~85°C																
3. Operating humidity		20~90% RH (non-condensing).																
4. Storage humidity		10~95% RH (non-condensing).																
5. Vibration		MIL-810F, method 514.5 , The EUT is fixed to the vibrating surface.																
6. Shock		Less than 20G , half sine , 11mSec. Unit is unpacked.																
7. Altitude		Operating: 10000ft (3000m), Derate output current by 2%/100m above 2000m, Alternatively, derate maximum ambient temp. by 1°C/100m above 2000m. Non operating: 40000ft (12000m).																
8. RoHS Compliance		Complies with the requirements of RoHS directive.																
2.4 EMC																		
1. Applicable Standards:																		
2. ESD		IEC1000-4-2. Air-disch.-8KV, contact disch.-4KV																
3. Fast transients		IEC1000-4-4. 2KV																
4. Surge immunity		IEC1000-4-5. 1KV line to line, 2KV line to ground																
5. Conducted immunity		IEC1000-4-6, 3V																
6. Radiated immunity		IEC1000-4-3, 3V/m																
7. Magnetic field immunity		EN61000-4-8, 1A/m																
8. Voltage dips		EN61000-4-11																
9. Conducted emission		EN55022A, FCC part 15-A, VCCI-A.																
10. Radiated emission		EN55022A, FCC part 15-A, VCCI-A.																
2.5 SAFETY																		
1. Applicable standards:		UL 60950-1, CSA 22.2 No. 60950-1, IEC 60950-1, EN 60950-1																
2. Interface classification		Models with Vout 50V: Output is SELV, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are SELV. Models with 60V Vout 400V: Output is Hazardous, communication/control interfaces: RS232/485, IEEE, Isolated Analog, LAN, Remote Programming and Monitoring (pins 1-3, pins14-16) are SELV, Sense, Remote Programming and Monitoring (pins 8-13, pins 21-25) are Hazardous. Models with 400V<Vout 600V: Output is Hazardous, all communication/control interfaces (RS232/485, IEEE, Isolated Analog, LAN, Sense, Remote Programming and Monitoring) are Hazardous.																
3. Withstand voltage		Vout 50V models : Input-Output (SELV): 4242VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min, 60V<Vout 100V models: Input-Output (Hazardous): 2600VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Output(Hazardous)-SELV: 1900VDC 1min, Output(Hazardous)-Ground: 1200VDC 1min, Input-Ground: 2828VDC 1min. 100V< Vout 600V models: Input-Output(Hazardous): 3550VDC 1min, Input-communication/control (SELV): 4242VDC 1min, Hazardous. Output-communication/control(SELV): 4242VDC 1min, Output(Hazardous)-Ground: 2670VDC 1min, Input-Ground: 2828VDC 1min.																
3. Insulation resistance		More than 100Mohm at 25°C , 70% RH.																
2.6 MECHANICAL CONSTRUCTION																		
1. Cooling		Forced air flow: from front to rear. No ventilation holes at the top or bottom of the chassis; Variable fan speed.																
2. Dimensions (WxHxD)		W: 423mm, H: 88mm, D: 442.5mm (excluding connectors, encoders, handles, etc.)																
3. Weight		13 kg.																
4. AC Input connector (with Protective Cover)		Single Phase, 230V models, Power Combicon PC 6-16/3-GF-10,16 series, with Strain relief. 3-Phase, 208V & 400V models, Power Combicon PC 6-16/4-GF-10,16 series, with Strain relief.																
5. Output connectors		8V to 100V models: Bus-bars (hole Ø 10.5mm). 150V to 600V models: wire clamp connector, Phoenix P/N: FRONT-4-H-7.62																
2.7 RELIABILITY SPECS																		
1. Warranty		5 years.																

All specifications subject to change without notice.



Genesys™ Power Parallel and Series Configurations

Parallel operation - Master/Slave:

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

In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master, Up to four supplies act as one.



Series operation

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

Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows daisy-chain control of up to 31 power supplies on the same communication bus with built-in RS-232 & RS-485 Interface.



Programming Options (Factory installed)

Digital Programming via IEEE Multi-Drop Interface

- Allows IEEE Master to control up to 30 slaves over RS-485 daisy-chain
- Only the Master needs be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
- Program Voltage
- Measure Voltage
- Over Voltage setting and shutdown
- Error and Status Messages
- Program Current
- Measure Current
- Current Foldback shutdown

P/N: IEEE

Isolated Analog Programming

Four Channels to Program and Monitor Voltage and Current. Isolation allows operation with floating references in harsh electrical environments. Choose between programming with Voltage or Current.

Connection via removable terminal block: Phoenix MC1,5/8-ST-3.81.

- Voltage Programming, user-selectable 0-5V or 0-10V signal.
Power supply Voltage and Current Programming Accuracy $\pm 1\%$
Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$
- Current Programming with 4-20mA signal.
Power supply Voltage and Current Programming Accuracy $\pm 1\%$
Power supply Voltage and Current Monitoring Accuracy $\pm 1.5\%$

P/N: IS510

P/N: IS420

LAN Interface **LXI** Compliant to Class C

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

P/N: LAN



Power Supply Identification / Accessories How to order

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

Models 5kW

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

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

Factory option

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

Accessories

1. Serial Communication cable

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

Mode	RS-485	RS-232	RS-232
PC Connector	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground L=2m	Shield Ground L=2m	Shield Ground L=2m
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

2. Serial link cable*

Daisy-chain up to 31 Genesys™ power supplies.

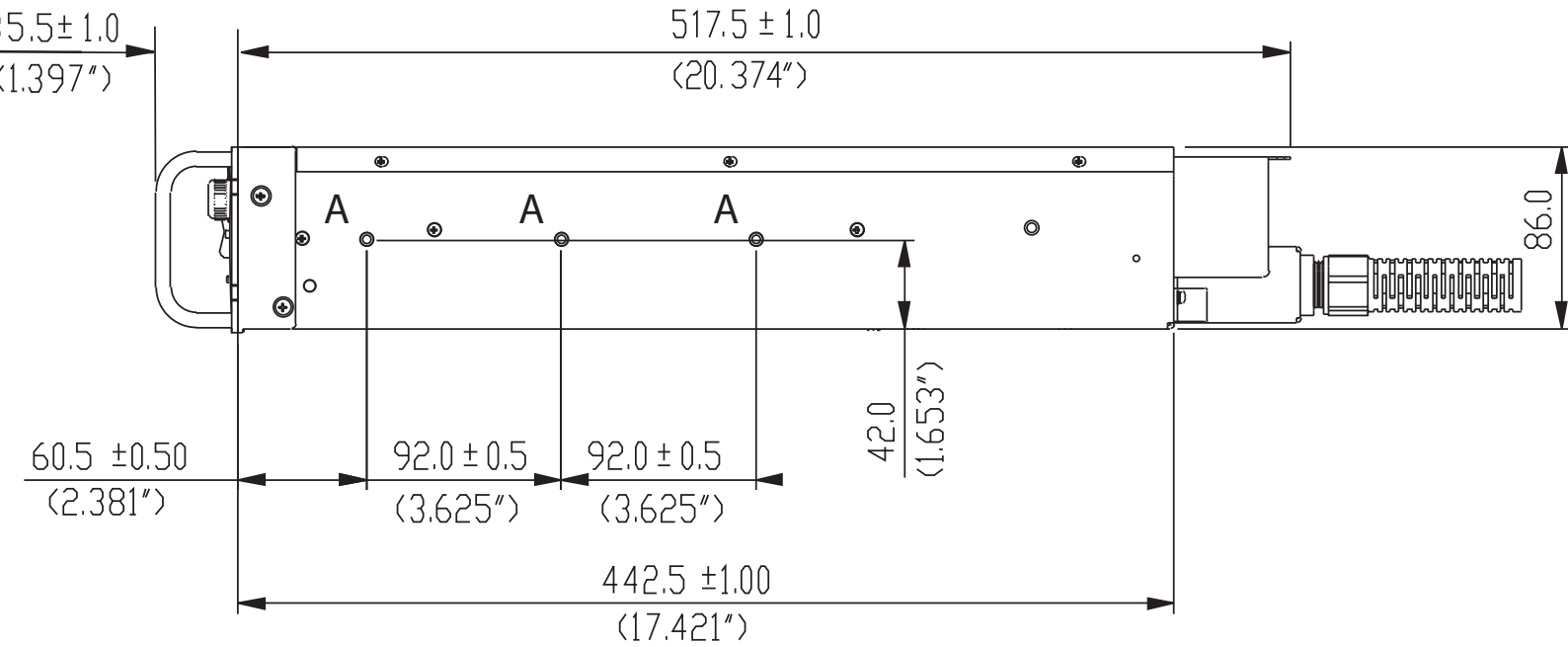
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

* Included with power supply



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



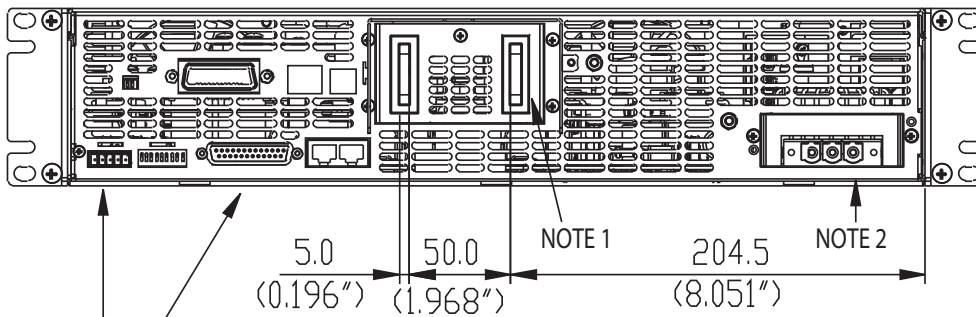
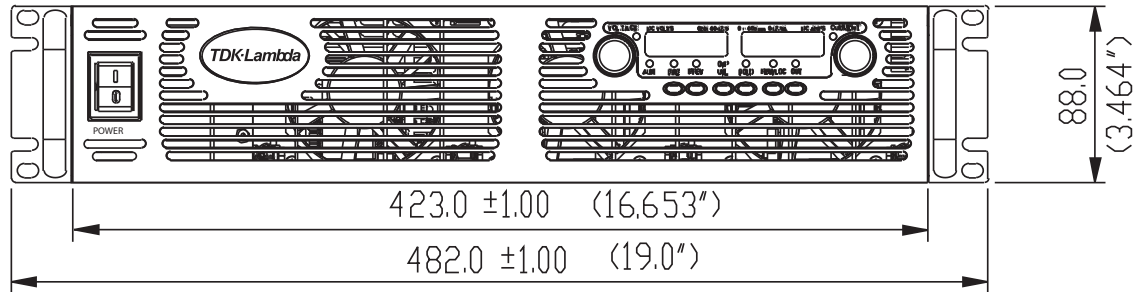


NOTE

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

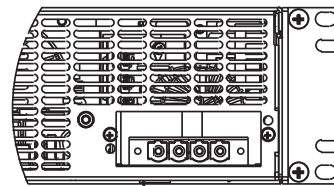


Outline Drawing Genesys™ 5kW Units



NOTE 2

3 Phase Input Connector



Identical User Interfaces

New ! 30V, 40V and 50V models - 15kW

New ! 800V, 1000V, 1250V and 1500V models - 10kW/15kW - 208VAC/400VAC/480VAC

Genesys™

Programmable DC Power Supplies
Full-Rack 10kW/15kW in 3U Height
Built in RS-232 & RS-485 Interface
Parallel Operation (Basic or Advanced)

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



Genesys™ Family

GENH-1U 750W Half-Rack

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

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

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

TDK-Lambda

www.us.tdk-lambda.com/hp



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

Features include:

- **High Power Density 10kW/15kW in full-rack 3U package**
- **High Output Current (up to 1000ADC)**
- **Popular worldwide 3Φ AC inputs, (208VAC, 400VAC, 480VAC)**
- **Power Factor 0.88 (Passive PFC on all 3Φ AC Inputs)**
- **Output Voltage from 7.5V (1000A) to 1500V (10A)**
- **Built-in RS-232/RS-485 Serial Interface (standard)**
- **Last Setting Memory, Safe/Auto-ReStart, Front Panel Lock/Unlock**
- **“Advanced Parallel” configuration reports total system current (up to four identical units)**
- **Global Commands for RS-232/RS-485 Serial Interface**
- Continuous Encoders for Voltage and Current Adjustment (Coarse & Fine mode)
- Independent Remote SHUTOFF and Remote ENABLE/DISABLE
- 19” Rack Mounted for ATE and OEM Applications, zero-stack capability
- Optional Interfaces
 - **LXI** compliant LAN (Class C) w/ Multi-Drop capability: option for all models
 - IEEE (488.2 & SCPI compliant) w/ Multi-Drop capability: option for all models
 - USB (2.0) w/ Multi-Drop capability: option for all models
 - Isolated Analog Programming and Monitoring Interface
 - 0-5V/0-10V: option for models with $V_{out} \leq 600V$, standard for models with $V_{out} \geq 800V$
 - 4-20mA: option for all models
- LabView™ and LabWindows™ Software Drivers
- Worldwide Safety Agency Approvals; UL Recognized and CE Mark for LV, EMC and RoHS2 Directives (208VAC (all models), 400VAC (all models) and 480VAC models ($30V \leq V_{out} \leq 1500V$))
- Five Year Warranty



Applications

Genesys™ power supplies are designed for demanding applications.

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

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

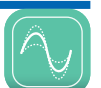
Industrial & Military high power systems can be configured with up to four identical units in parallel (up to 60kW). No space is required above or below each power supply (zero-stack). The Master unit can be configured by the user to report the total Output current of the combined system. Applications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

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

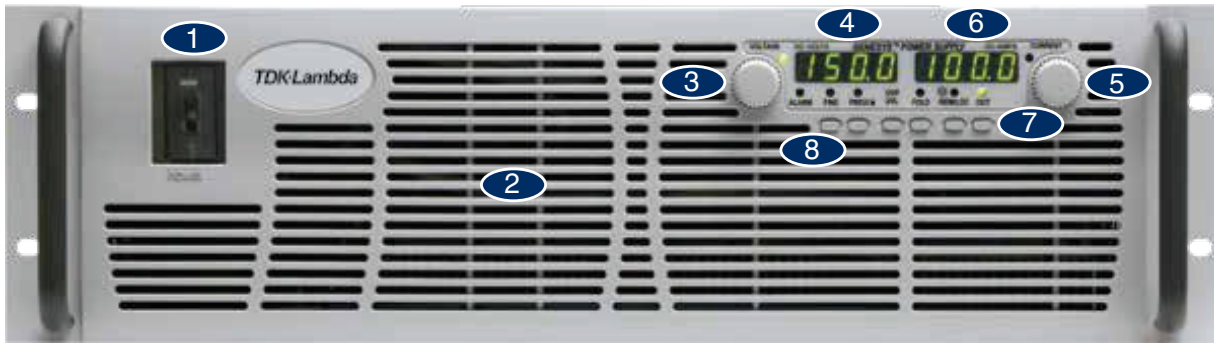
Component Device Testing is simplified because of the many user-friendly control options in the Analog and Digital interfaces. Lamps, capacitors, motors and actuators are typical devices tested.

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

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

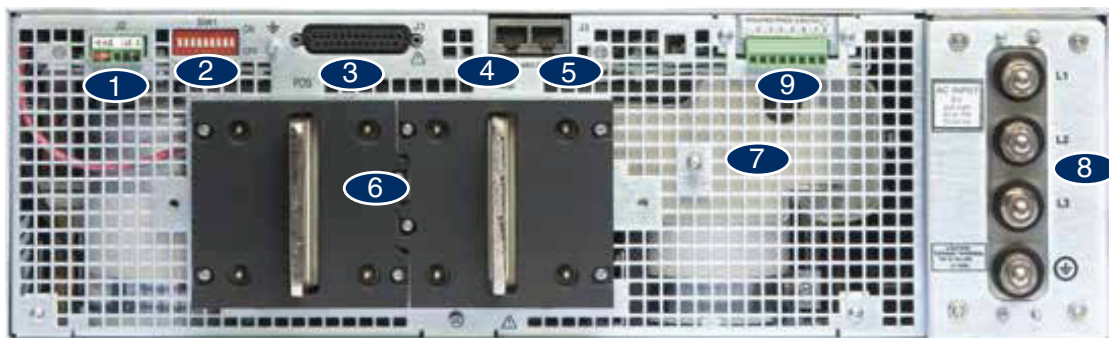


Front Panel Description ($7.5V \leq V_{out} \leq 25V$)



1. AC ON/OFF Switch (circuit breaker for $V_{out} \leq 25V$; rocker switch for $V_{out} \geq 30V$ models)
2. Air Intake allows zero-stacking for maximum system flexibility and power density.
3. Continuous encoder controls Output Voltage, Address, OVP and UVL settings.
4. Voltage Display shows Output Voltage and directly displays OVP, UVL and Address settings.
5. Continuous encoder controls Output Current, sets Baud rate and Advanced Parallel mode.
6. Current Display shows Output Current and displays Baud rate. Displays total current in Parallel Master/Slave Mode.
7. Function/Status LEDs:
 - Alarm
 - Foldback Mode
 - Fine Control
 - Remote Mode
 - Preview Settings
 - Output On
8. Pushbuttons allow flexible user configuration
 - Coarse and Fine adjustment of Output Voltage/Output Current and Advanced Parallel Master or Slave select.
 - Preview Settings and set Voltage/Current with Output OFF, Front Panel Lock/Unlock.
 - Parallel Master/Slave (Basic and Advanced).
 - Set Output OVP and UVL Limits.
 - Set Output Current Foldback Protection.
 - Go to Local Mode and select unit Address and Baud rate.
 - Output ON/OFF and Safe-Start/Auto Re-Start mode.

Rear Panel Description ($7.5V \leq V_{out} \leq 25V$)



1. Remote/Local Output Voltage Sense Connections.
2. DIP Switches select 0-5V or 0-10V Programming and other functions.
3. DB25 (Female) connector allows Analog Program and Monitor (non-isolated) and other functions.
4. RS-485 OUT to other Genesys™ Power Supplies.
5. RS-232/RS-485 IN Remote Serial Programming.
6. Output Connectors: Rugged 2 hole busbars (shown) for models where $V_{out} < 30V$, single hole busbars for $30V \leq V_{out} \leq 300V$ Output, and threaded-stud terminals for models where $V_{out} > 300V$.
7. Exit air assures reliable operation when zero-stacked.
8. Input Terminals L1, L2, L3, and Ground (threaded studs).
9. Optional location for LAN (LXI Class C), IEEE (488.2 & SCPI compliant), USB (2.0) or Isolated Analog Interface.



Genesys™ 3U 10kW Specifications

10kW

1.0 MODEL	GEN	7.5-1000	10-1000	12.5-800	20-500	25-400	30-333	40-250	50-200	60-167	80-125	100-100	125-80	X
1. Rated Output Voltage	VDC	7.5	10	12.5	20	25	30	40	50	60	80	100	125	X
2. Rated Output Current	ADC	1000	1000	800	500	400	333	250	200	167	125	100	80	X
3. Rated Output Power	kW	7.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	X
4. Efficiency (min) at low AC line, 100% Rated Load	%	77	83											X
Contact Factory for other models														

1.1 CONSTANT VOLTAGE MODE (CV)														
1. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.05% - 600V < Vor ≤ 1500V)	mV	7.5	10	12.5	20	25	30	20	25	30	40	50	62.5	X
2. Max. Load Reg (0.1% for Vor ≤ 30V; 0.05% for 30V < Vor ≤ 600V; 0.1% for 600V < Vor ≤ 1500V); (*5)	mV	7.5	10	12.5	20	25	30	20	25	30	40	50	62.5	X
3. Output Ripple, rms (5Hz-1MHz), CV mode; (*1)	mV	20	20	20	20	20	20	20	20	20	25	25	25	X
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	60	60	60	60	60	60	60	75	75	100	100	125	X
5. Remote Sense Compensation / Wire	V	1	1	1	1	1	1.5	2	3	3	4	5	5	X
6. Temperature Stability	---	± 0.05% of Vo(rated) over 8 hours after 30 minute warm up (constant Line, Load & Temperature)												X
7. Temperature Coefficient	ppm / °C	± 200 (± 0.02% of Vo(rated)) / °C												X
8. Up-Prog. Response Time, 0 - Vomax, full-load	ms	100												X
9. Up-Prog. Response Time, 0 - Vomax, no-load	ms	50												X
10. Transient Response Time (CV mode); (*2), (*4)	ms	Less than 3												X

1.2 CONSTANT CURRENT MODE (CC)														
1. Max. Line Reg. (0.1% - Ior ≥ 333A; 0.050% - 17A < Ior < 333A; 0.15% - Ior < 17A)	mA	1000	1000	800	500	400	333	125	100	83.5	62.5	50	40	X
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 17A ≤ Ior < 333A; 0.2% - Ior < 17A); (*3), (*5)	mA	1000	1000	800	500	400	333	188	150	125	94	75	60	X
3. Output Ripple, rms (5Hz-1MHz), CC mode	mA	5300	4000	2560	1000	640	444	250	160	67	50	40	32	X
4. Temperature Stability	---	± 0.05% of Io(rated) over 8 hours, after 30 minute warm up (constant Line, Load & Temperature)												X
5. Temperature Coefficient	ppm/°C	± 300 (± 0.03% of Io(rated)) / °C												X

1.3 PROTECTIVE FUNCTIONS														
1. OCP	%	0 ~ 100												X
2. OCP type	---	Constant current												X
3. Foldback Protection (FOLD)	---	Output shutdown; Manual reset by front panel OUI button or Digital communication, user-selectable												X
4. Foldback Response Time	s	Less than 1 (Min = 0.25 / Max = 25 / Default = 0.25); Settable via "FBD" command												X
5. OVP type	---	Inverter shut-down; Manual reset by AC On/Off recycle, OUI button, Remote Analog or Digital communication												X
6. OVP Programming Accuracy	%	± 5% of Vo(rated)												X
7. OVP Trip Point	V	5% to 105% of Vo(rated) for Vor ≤ 600V; 10% to 105% of Vo(rated) for 600V < Vor ≤ 1500V Shall always be greater than 105% of Vo(setting); Default = 105% of Vo(rated)												X
8. OVP Response Time	ms	Less than 10 (for Output to begin to drop) for Vor ≤ 600V Less than 2.0 (for Output to begin to drop) for 600V < Vor ≤ 1500V												X
9. Max. OVP Reset Time	s	7 (from AC On/Off switch turn On)												X
10. Over-Temperature Protection (OTP)	---	Shut down if internal temperature exceeds safe operating levels (Latched: Safe / Unlatched: Auto)												X
11. Phase-Loss Protection	---	Yes, power supply shutdown (Latched: Safe-Start / Unlatched: Auto-Restart)												X

1.4 REMOTE ANALOG CONTROLS & SIGNALS														
1. Vout Voltage Programming		0-100%, 0 ~ 5V or 0 ~ 10V, user-selectable., Accuracy & Linearity: ±1% of Vo(rated)												X
2. Iout Voltage Programming		0-100%, 0 ~ 5V or 0 ~ 10V, user-selectable, Accuracy & Linearity: ± 1% of Io(rated)												X
3. Vout Resistor Programming		0-100%, 0 ~ 5/10kohm full-scale, user-selectable, Accuracy & Linearity: ± 1% of Vo(rated)												X
4. Iout Resistor Programming		0-100%, 0 ~ 5/10kohm full-scale, user-selectable, Accuracy & Linearity: ± 1% of Io(rated)												X
5. Shut-Off (SO) Control (rear panel)		By Voltage: 0.6V = DIS, 2-15V = ENA (default) or by Dry Contact: Open = ENA, Short = DIS (user-selectable logic)												X
6. Output Current Monitor		0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Io(rated), user-selectable												X
7. Output Voltage Monitor		0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Vo(rated), user-selectable												X
8. Power Supply OK (PS_OK) Signal		Yes. TTL High = OK, 0V = Fail (500ohm series impedance)												X
9. CV/CC Signal		CV: TTL High (4 ~ 5V), Max source current = 10mA; CC: TTL Low (0 ~ 0.4V), Max sink current = 10mA												X
10. Enable/Disable		Dry contact; Open = OFF, Short = ON; Maximum voltage across Enable/Disable contacts = 6V												X
11. Remote/Local Selection		Selects Remote or Local operation by voltage: 0 ~ 0.6V = Local / 2 ~ 15V = Remote												X
12. Remote/Local Signal		Signals operating mode; Open collector: Local = Open (Max voltage = 30V), Remote = On (Max sink current = 10mA)												X

1.5 FRONT PANEL														
1. Control Functions		Vout/ Iout manual adjust by separate encoders (COARSE and FINE adjustment selectable) OVP/UVL manual adjust by VOLTAGE Adjust encoder, Front Panel Lock/Unlock Address selection by VOLTAGE Adjust encoder. # of Addresses = 31 AC ON/OFF, Output On/Off, Restart Modes (Auto/Safe), Foldback Control (CV to CC), Go-to-Local RS-232/RS-485, LAN, IEEE (IEMD) and USB selection by rear panel DIP-switch Baud rate selection (RS-232/RS-485 only): 1200, 2400, 4800, 9600 and 19,200 (by CURRENT Adjust encoder) Advanced Parallel Master/Slave: Hx = Master unit, where x = # of Slave units (0 to 4), S = Slave unit(s)												X
2. Display		Voltage: 4 digits, Accuracy: ± 0.5% of Vo(rated) ±1 count Current: 4 digits, Accuracy: ± 0.5% of Io(rated) ±1 count VOLTAGE meter displays voltage at power supply (Local sense) or at load (Remote sense)												X
3. Indications		Green LED's: PREVIEW, FOLD, REM/LOCAL, OUT ON/OFF, CV/CC, FINE Red LED: ALARM (OVP, OTP, FOLD, AC FAIL, ENA, SO)												X

1.6 DIGITAL PROGRAMMING & READBACK														
1. Vout Programming Accuracy		± 0.5% of Vo(rated)												X
2. Iout Programming Accuracy		± 0.5% of Io(rated) for units with Io < 187.5A; ± 0.7% of Io(rated) for Io ≥ 187.5A												X
3. Vout Programming Resolution		0.02% of Vo(rated)												X
4. Iout Programming Resolution		0.04% of Io(rated)												X
5. Vout Readback Accuracy		± (0.1% of Vo(actual) + 0.2% of Vo(rated))												X
6. Iout Readback Accuracy		± (0.1% of Io(actual) + 0.4% of Io(rated))												X
7. Vout Readback Resolution		0.02% of Vo(rated)												X
8. Iout Readback Resolution		0.02% of Io(rated)												X
9. OV Response Time		20ms maximum (between Vout exceeding IEEE Limit and supply Inhibit turning On)												X
10. Other Functions		Set OVP/UVL limits; Set Local/Remote, Operating parameters and Status, Get Identity												X

*1 Ripple and Noise at Vo(rated) and rated Load, Ta = +25C and nominal AC Input per EIJ R900A.
 *2 Time for the Output voltage to recover within 2% of rating for a load current change of 50-100% or 100-50% of Io(rated).
 *3 From 20% - 100% for models with Ior < 17A.
 *4 Operating with a load that continuously pulses the current (or voltage) can reduce the operating life of the Power Supply. Please contact TDK-Lambda Sales/Technical Support to discuss the application in detail.
 *5 CV Mode: from 5% to 100% of Irated (over 5% to 100% of Prated); CC Mode: from 20% to 100% of Vrated (over 20% to 100% of Prated).



Genesys™ 3U 10kW Specifications

	GEN	150-66	200-50	250-40	300-33	400-25	500-20	600-17	800-12.5	1000-10	1250-8	1500-6.7	10kW
1.0 MODEL													
1. Rated Output Voltage	VDC	150	200	250	300	400	500	600	800	1000	1250	1500	X
2. Rated Output Current	ADC	66	50	40	33	25	20	17	12.5	10	8.0	6.7	X
3. Rated Output Power	kW	9.9	10.0	10.0	9.9	10.0	10.0	10.2	10.0	10.0	10.0	10.0	X
4. Efficiency (min) at low AC line, 100% Rated Load	%	83								93.5			X
Contact Factory for other models													X
1.1 CONSTANT VOLTAGE MODE (CV)													
1. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.05% - 600V < Vor ≤ 1500V)	mV	75	100	125	150	200	250	300	400	500	625	750	X
2. Max. Load Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.1% - 600V < Vor ≤ 1500V); (*5)	mV	75	100	125	150	200	250	300	800	1000	1250	1500	X
3. Output Ripple, rms (5Hz-1MHz), CV mode; (*1)	mV	25	35	35	60	60	60	60	80	100	120	140	X
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	150	175	200	200	300	350	350	700	800	1000	1400	X
5. Remote Sense Compensation / Wire	V	5	5	5	5	5	5	5	5	5	5	5	X
6. Temperature Stability	---	± 0.05% of Vo(rated) over 8 hours after 30 minute warm up (constant Line, Load & Temperature)											X
7. Temperature Coefficient	ppm / °C	± 200 (0.02% of Vo(rated)) / °C											X
8. Up-Prog. Response Time, 0~Vomax, full-load	ms	100							17				X
9. Up-Prog. Response Time, 0~Vomax, no load	ms	50							17				X
10. Transient Response Time (CV mode); (*2), (*4)	ms	Less than 3							Less than 1				X
1.2 CONSTANT CURRENT MODE (CC)													
1. Max. Line Reg. (0.1% - Ior ≥ 333A; 0.050% - 17A < Ior < 333A; 0.15% - Ior < 17A)	mA	33	25	20	17	13	10	9	19	15	12	10	X
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 17A ≤ Ior < 333A; 0.2% - Ior < 17A); (*3), (*5)	mA	50	38	30	25	19	15	13	25	20	15	14	X
3. Output Ripple, rms (5Hz-1MHz), CC mode	mA	26	20	16	13	10	8	7	15	10	6	4	X
4. Temperature Stability	---	± 0.05% of Io Rated over 8 hours after 30 minute warm up (constant Line, Load & Temperature)											X
5. Temperature Coefficient	ppm / °C	± 300 (0.03% of Io(rated)) / °C											X
1.3 PROTECTIVE FUNCTIONS													
1. OCP	%	0 ~ 100											X
2. OCP type	---	Constant current											X
3. Foldback Protection (FOLD)	---	Output shut down; Manual reset by front panel OUT button or Digital communication, user-selectable											X
4. Foldback Response Time	s	Less than 1 (Min = 0.25 / Max = 25 / Default = 0.25); Settable via "FBD" command											X
5. OVP type	---	Inverter shut-down; Manual reset by AC On/Off recycle, OUT button, Remote Analog or Digital comm.											X
6. OVP Programming Accuracy	%	± 5% of Vo(rated)											X
7. OVP Trip Point	V	5% to 105% of Vo(rated) - for Vor ≤ 600V; 10% to 105% of Vo(rated) - 600V < Vor ≤ 1500V Shall always be greater than 105% of Vo(setting); Default = 105% of Vo(rated)											X
8. OVP response time	ms	Less than 10 (for Output to begin to drop) for Vor ≤ 600V Less than 2.0 (for Output to begin to drop) for 600V < Vor ≤ 1500V											X
9. Max. OVP reset time	s	7 (from AC On/Off switch turn On)											X
10. Over-Temperature Protection (OTP)	---	Shut down if internal temperature exceeds safe operating levels. (Latched: Safe / Unlatched: Auto)											X
11. Phase-Loss Protection	---	Yes, power supply shutdown (Latched: Safe-Start / Unlatched: Auto-Restart)											X
1.4 REMOTE ANALOG CONTROLS & SIGNALS													
1. Vout Voltage Programming		0~100%, 0 ~ 5V or 0 ~ 10V, user-selectable, Accuracy & Linearity: ± 1% of Vo(rated)											X
2. Iout Voltage Programming		0 ~ 100%, 0~5V or 0 ~ 10V, user-selectable. Accuracy & Linearity ± 1% of Io(rated)											X
3. Vout resistor programming		0~100%, 0~5/10kohm full-scale, user-selectable. Accuracy & Linearity ± 1% of Vo(rated)											X
4. Iout Resistor Programming		0~100%, 0~5/10kohm full-scale, user-selectable. Accuracy & Linearity ± 1% of Io(rated)											X
5. Shut-Off (SO) Control (rear panel)		By Voltage: 0.6V = DIS, 2-15V = ENA (default) or Dry Contact : Open = ENA, Short = DIS (user-selectable logic)											X
6. Output Current Monitor		0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Io(rated), user-selectable											X
7. Output Voltage Monitor		0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Vo(rated), user-selectable											X
8. Power Supply OK (PS_OK) Signal		Yes. TTL high = OK, 0V = Fail (500ohm series impedance)											X
9. CV/CC Signal		CV: TTL High (4 ~ 5V), Max source current = 10mA; CC: TTL Low (0 ~ 0.4V), Max sink current = 10mA											X
10. Enable/Disable		Dry contact; Open = OFF, Short = ON; Maximum voltage across Enable/Disable contacts = 6V											X
11. Remote/Local Selection		Selects Remote or Local operation by voltage: 0 ~ 0.6V = Local / 2 ~ 15V = Remote											X
12. Remote/Local Signal		Signals operating mode; Open collector: Local = Open (Max voltage = 30V), Remote = On (Max sink current = 10mA)											X
1.5 FRONT PANEL													
1. Control Functions		Vout/ Iout manual adjust by separate encoders (COARSE and FINE adjustment selectable) OVP/UVL manual adjust by VOLTAGE Adjust encoder, Front Panel Lock/Unlock Address selection by Voltage Adjust encoder. # of Addresses = 31 AC ON/OFF, Output On/Off, Restart Modes (Auto/Safe), Foldback Control (CV to CC), Go-to-Local RS-232/RS-485, LAN, IEEE (IEMD) and USB selection by rear-panel DIP-switch Baud rate selection (RS-232/RS-485 only): 1200, 2400, 4800, 9600 and 19,200 (by CURRENT Adjust encoder) Advanced Parallel Master/Slave: Hx = Master unit, where x = # of Slave units (0 to 4), Slave = Slave unit(s)											X
2. Display		Voltage: 4 digits, Accuracy: ± 0.5% of Vo(rated) ± 1 count											X
		Current: 4 digits, Accuracy: ± 0.5% of Io(rated) ± 1 count											X
		VOLTAGE meter displays voltage at power supply (Local sense) or at load (Remote sense)											X
3. Indications		Green LED's: PREVIEW, FOLD, REM/LOCAL, OUT ON/OFF, CV/CC, FINE Red LED: ALARM (OVP, OTP, FOLD, AC FAIL, ENA, SO)											X
1.6 DIGITAL PROGRAMMING & READBACK													
1. Vout Programming Accuracy		± 0.5% of Vo(rated)											X
2. Iout Programming Accuracy		± 0.5% of Io(rated) for units with Io < 187.5A; ± 0.7% of Io(rated) for Io ≥ 187.5A											X
3. Vout Programming Resolution		0.02% of Vo(rated)											X
4. Iout Programming Resolution		0.04% of Io(rated)											X
5. Vout Readback Accuracy		± (0.1% of Vo(actual) + 0.2% of Vo(rated))											X
6. Iout Readback Accuracy		± (0.1% of Io(actual) + 0.4% of Io(rated))											X
7. Vout Readback Resolution		0.02% of Vo(rated)											X
8. Iout Readback Resolution		0.02% of Io(rated)											X
9. OV Response Time		20ms maximum (between Vout exceeding IEEE Limit and supply Inhibit turning On)											X
10. Other Functions		Set OVP/UVL limits; Set Local/Remote, Operating Parameters and Status; Get Identity											X

*1. Ripple and Noise at Vo(rated) and rated Load, Ta = +25C and nominal AC input, per EIJ R9002A

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

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

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

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

All specifications subject to change without notice.



Genesys™ 3U 15kW Specifications

1.0 MODEL	GEN	N/A	N/A	N/A	N/A	N/A	30-500	40-375	50-300	60-250	80-187.5	100-150	125-120	15kW
1. Rated Output Voltage	VDC	---	---	---	---	---	30	40	50	60	80	100	125	X
2. Rated Output Current	ADC	---	---	---	---	---	500	375	300	250	187.5	150	120	X
3. Rated Output Power	kW	---	---	---	---	---	15.0	15.0	15.0	15.0	15.0	15.0	15.0	X
4. Efficiency (min) at low AC line, 100% Rated Load	%	---	---	---	---	---	88						X	
Contact Factory for other models														
X														

1.1 CONSTANT VOLTAGE MODE (CV)

1. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.05% - 600V < Vor ≤ 1500V)	mV	---	---	---	---	---	30	20	25	30	40	50	62.5	X
2. Max. Load Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.1% - 600V < Vor ≤ 1500V); (*5)	mV	---	---	---	---	---	30	20	25	30	40	50	62.5	X
3. Output Ripple, rms (5Hz-1MHz), CV mode; (*1)	mV	---	---	---	---	---	20	20	20	20	25	25	25	X
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	---	---	---	---	---	60	60	75	75	100	100	125	X
5. Remote Sense Compensation / Wire	V	---	---	---	---	---	1.5	2	3	3	4	5	5	X
6. Temperature Stability	---	± 0.05% of Vo(rated) over 8 hours after 30 minute warm up (constant Line, Load & Temperature)												X
7. Temperature Coefficient	ppm / °C	± 200 (± 0.02% of Vo(rated)) / °C												X
8. Up-Prog. Response Time, 0 ~ Vomax, full-load	ms	100												X
9. Up-Prog. Response Time, 0 ~ Vomax, no load	ms	50												X
10. Transient Response Time (CV mode); (*2), (*4)	ms	Less than 3												X

1.2 CONSTANT CURRENT MODE (CC)

1. Max. Line Reg. (0.1% - Ior ≥ 333A; 0.050% - Ior < 333A)	mA	---	---	---	---	---	500	375	334	125	94	75	60	X
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 25A ≤ Ior < 333A; 0.2% - Ior < 25A); (*3), (*5)	mA	---	---	---	---	---	500	375	334	188	141	113	90	X
3. Ripple, rms (5Hz-1MHz), CC mode	mA	---	---	---	---	---	350	200	150	100	100	100	50	X
4. Temperature Stability	---	± 0.05% of Io(rated) over 8 hours after 30 minute warm up (constant Line, Load & Temperature)												X
5. Temperature Coefficient	ppm/°C	± 300 (± 0.03% of Io(rated)) / °C												X

1.3 PROTECTIVE FUNCTIONS

1. OCP	%	0 ~ 100												X
2. OCP type	---	Constant current												X
3. Foldback Protection (FOLD)	---	Output shutdown; Manual reset by front panel OUT button or Digital communication, user-selectable												X
4. Foldback Response Time	s	Less than 1 (Min = 0.25 / Max = 25 / Default = 0.25); Settable via "FBD" command												X
5. OVP type	---	Inverter shut-down; Manual reset by AC On/Off recycle, OUT button, Remote Analog or Digital communication												X
6. OVP Programming Accuracy	%	± 5% of Vo(rated)												X
7. OVP Trip Point	V	5% to 105% of Vo(rated) - for Vor ≤ 600V; 10% to 105% of Vo(rated) - 600V < Vor ≤ 1500V Shall always be greater than 105% of Vo(setting); Default = 105% of Vo(rated)												X
8. OVP Response Time	ms	Less than 10 (for Output to begin to drop) for Vor ≤ 600V Less than 2.0 (for Output to begin to drop) for 600V < Vor ≤ 1500V												X
9. Max. OVP Reset Time	s	7 (from AC On/Off switch turn On)												X
10. Over-temperature Protection (OTP)	---	Shut down if internal temperature exceeds safe operating levels (Latched: Safe / Unlatched: Auto)												X
11. Phase-Loss Protection	---	Yes, power supply shutdown (Latched: Safe-Start / Unlatched: Auto-Restart)												X

1.4 REMOTE ANALOG CONTROLS & SIGNALS

1. Vout Voltage Programming	0~100%, 0 ~ 5V or 0 ~ 10V, user-selectable., Accuracy & Linearity: ±1% of Vo(rated)	X
2. Iout Voltage Programming	0~100%, 0 ~ 5V or 0 ~ 10V, user-selectable, Accuracy & Linearity: ± 1% of Io(rated)	X
3. Vout Resistor Programming	0~100%, 0 ~ 5/10kohm full-scale, user-selectable, Accuracy & Linearity: ± 1% of Vo(rated)	X
4. Iout Resistor Programming	0~100%, 0 ~ 5/10kohm full-scale, user-selectable, Accuracy & Linearity: ± 1% of Io(rated)	X
5. Shut-Off (SO) Control (rear panel)	By Voltage: 0.6V = DIS, 2-15V = ENA (default) or Dry Contact: Open = ENA, Short = DIS (user-selectable logic)	X
6. Output Current Monitor	0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Io(rated), user-selectable	X
7. Output Voltage Monitor	0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Vo(rated), user-selectable	X
8. Power Supply OK (PS_OK) Signal	Yes. TTL High = OK, 0V = Fail (500ohm series impedance)	X
9. CV/CC Signal	CV: TTL High (4 ~ 5V), Max source current = 10mA; CC: TTL Low (0 ~ 0.4V), Max sink current = 10mA	X
10. Enable/Disable	Dry contact; Open = OFF, Short = ON; Maximum voltage across Enable/Disable contacts = 6V	X
11. Remote/Local Selection	Selects Remote or Local operation by voltage: 0 ~ 0.6V = Local / 2 - 15V = Remote	X
12. Remote/Local Signal	Signals operating mode; Open collector: Local = Open (Max voltage = 30V), Remote = On (Max sink current = 10mA)	X

1.5 FRONT PANEL

1. Control Functions	Vout/ Iout manual adjust by separate encoders (COARSE and FINE adjustment selectable) OVP/UVL manual adjust by VOLTAGE Adjust encoder, Front Panel Lock/Unlock Address selection by VOLTAGE Adjust encoder. # of Addresses = 31 AC ON/OFF, Output On/Off, Restart Modes (Auto/Safe), Foldback Control (CV to CC), Go-to-Local RS-232/RS-485, LAN, IEEE (IEMD) and USB selection by rear panel DIP-switch Baud rate selection (RS-232/RS-485 only): 1200, 2400, 4800, 9600 and 19,200 (by Current Adjust encoder) Advanced Parallel Master/Slave: Hx = Master unit, where x = # of Slave units (0 to 4); S = Slave unit(s)	X X X X X X X
2. Display	Voltage: 4 digits, Accuracy: ± 0.5% of Vo(rated) ±1 count Current: 4 digits, Accuracy: ± 0.5% of Vo(rated) ±1 count VOLTAGE meter displays voltage at power supply (Local sense) or at load (Remote sense)	X X X
3. Indications	Green LED's: PREVIEW, FOLD, REM./LOCAL, OUT ON/OFF, CV/CC, FINE Red LED: ALARM (OVP, OTP, FOLD, AC FAIL, ENA, SO)	X

1.6 DIGITAL PROGRAMMING & READBACK

1. Vout Programming Accuracy	± 0.5% of Vo(rated)	X
2. Iout Programming Accuracy	± 0.5% of Io(rated) for units with Io < 187.5A; ± 0.7% of Io(rated) for Io ≥ 187.5A	X
3. Vout Programming Resolution	0.02% of Vo(rated)	X
4. Iout Programming Resolution	0.04% of Io(rated)	X
5. Vout Readback Accuracy	± (0.1% of Vo(actual) + 0.2% of Vo(rated))	X
6. Iout Readback Accuracy	± (0.1% of Io(actual) + 0.4% of Io(rated))	X
7. Vout Readback Resolution	0.02% of Vo(rated)	X
8. Iout Readback Resolution	0.02% of Io(rated)	X
9. OV Response Time	20ms maximum (between Vout exceeding IEEE Limit and supply Inhibit turning On)	X
10. Other Functions	Set OVP/UVL limits, Set Local/Remote, Operating parameters and Status, Get Identity	

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

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

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

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

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

All specifications subject to change without notice.



Genesys™ 3U 15kW Specifications

	GEN	150-100	200-75	250-60	300-50	400-37.5	500-30	600-25	800-18.8	1000-15	1250-12	1500-10	15kW
1.0 MODEL													
1. Rated Output Voltage	VDC	150	200	250	300	400	500	600	800	1000	1250	1500	X
2. Rated Output Current	ADC	100	75	60	50	37.5	30	25	18.8	15	12	10	X
3. Rated Output Power	kW	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.04	15.0	15.0	15.0	X
4. Efficiency (min) at low AC line, 100% Rated Load	%	88							93.5			X	
1.1 CONSTANT VOLTAGE MODE (CV)													
Contact Factory for other models													
1. Max. Line Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.05% - 600V < Vor ≤ 1500V)	mV	75	100	125	150	200	250	300	400	500	625	750	X
2. Max. Load Reg (0.1% - Vor ≤ 30V; 0.05% - 30V < Vor ≤ 600V; 0.1% - 600V < Vor ≤ 1500V); (*5)	mV	75	100	125	150	200	250	300	800	1000	1250	1500	X
3. Output Ripple, rms (5Hz~1MHz), CV mode; (*1)	mV	25	35	35	60	60	60	60	80	100	120	140	X
4. Output Noise, p-p (20MHz), CV mode; (*1)	mV	150	175	200	200	300	350	350	700	800	1000	1400	X
5. Remote Sense Compensation / Wire	V	5	5	5	5	5	5	5	5	5	5	5	X
6. Temperature Stability	---	± 0.05% of Vo(rated) over 8 hours, after 30 minute warm up, constant Line, Load & Temperature											X
7. Temperature Coefficient	ppm / °C	200 (0.02% of Vo(rated)) / °C											X
8. Up-Prog. Response Time, 0-Vomax, full-load	ms	100							17			X	
9. Up-Prog. Response Time, 0-Vomax, no load	ms	50							17			X	
10. Transient Response Time (CV mode); (*2), (*4)	ms	Less than 3							Less than 1			X	
1.2 CONSTANT CURRENT MODE (CC)													
1. Max. Line Reg (0.1% - Ior ≥ 333A; 0.050% - Ior < 333A)	mA	50	38	30	25	19	15	13	28	23	18	15	X
2. Max. Load Reg (0.1% - Ior ≥ 333A; 0.075% - 25A ≤ Ior < 333A; 0.2% - Ior < 25A); (*3), (*5)	mA	75	57	45	38	28	23	19	38	30	24	20	X
3. Output Ripple, rms (5Hz~1MHz), CC mode	mA	50	20	20	20	10	10	10	15	10	6	4	X
4. Temperature Stability	---	± 0.05% of Io(rated) over 8 hours after 30 minute warm up (constant Line, Load & Temperature)											X
5. Temperature Coefficient	ppm / °C	± 300 (± 0.03% of Io(rated)) / °C											X
1.3 PROTECTIVE FUNCTIONS													
1. OCP	%	0 ~ 100											X
2. OCP type	---	Constant current											X
3. Foldback Protection	---	Output shut down; Manual reset by front panel OUT button or DIgital communication, user-selectable											X
4. Foldback Response Time	s	Less than 1 (Min = 0.25 / Max = 25 / Default = 0.25); Settable via "FBD" command											X
5. OVP type	---	Inverter shut-down; Manual reset by On/Off recycle, OUt button, Remote Analog or Digital communication											X
6. OVP Programming Accuracy	%	± 5% of Vo(rated)											X
7. OVP Trip Point	V	5% to 105% of Vo(rated) - for Vor ≤ 600V; 10% to 105% of Vo(rated) - 600V < Vor ≤ 1500V Shall always be greater than 105% of Vo(setting); Default = 105% of Vo(rated)											X
8. OVP response time	ms	Less than 10 (for Output to begin to drop) for Vor ≤ 600V Less than 2.0 (for Output to begin to drop) for 600V < Vor ≤ 1500V											X
9. Max. OVP reset time	s	7 (from AC On/Off switch turn On)											X
10. Over temperature Protection	---	Shut down if internal temperature exceeds safe operating levels (Latched: Safe / Unlatched: Auto)											X
11. Phase Loss Protection	---	Yes, power supply shutdown (Latched: Safe-Start / Unlatched: Auto-Restart)											X
1.4 REMOTE ANALOG CONTROLS & SIGNALS													
1. Vout Voltage Programming		0~100%, 0 ~ 5V or 0 ~ 10V, user-selectable, Accuracy & Linearity: ± 1% of Vo(rated)											X
2. Iout Voltage Programming		0 ~ 100%, 0~5V or 0 ~ 10V, user-selectable, Accuracy & Linearity ± 1% of Io(rated)											X
3. Vout resistor programming		0~100%, 0~5/10kohm full-scale, user-selectable, Accuracy & Linearity ± 1% of Vo(rated)											X
4. Iout Resistor Programming		0~100%, 0~5/10kohm full-scale, user-selectable, Accuracy & Linearity ± 1% of Io(rated)											X
5. Shut-Off (SO) Control (rear panel)		By Voltage: 0.6V = DIS, 2-15V = ENA (default) or Dry Contact: Open = ENA, Short-DIS (user-selectable logic)											X
6. Output Current Monitor		0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Io(rated), user-selectable											X
7. Output Voltage Monitor		0 ~ 5V or 0 ~ 10V, Accuracy: ± 1% of Vo(rated), user-selectable											X
8. Power Supply OK (PS_OK) Signal		Yes, TTL High = OK, 0V = Fail (500ohm series impedance)											X
9. CV/CC Signal		CV: TTL High (4 ~ 5V), Max source current = 10mA; CC: TTL Low (0 ~ 0.4V), Max sink current = 10mA											X
10. Enable/Disable		Dry contact; Open = OFF, Short = ON; Max. voltage across Enable/Disable contacts = 6V											X
11. Remote/Local Selection		Selects Remote or Local operation by voltage: 0 ~ 0.6V = Local / 2 ~ 15V = Remote											X
12. Remote/Local Signal		Signals operating mode; Open collector: Local = Open (Max voltage = 30V), Remote = On (Max sink current = 10mA)											X
1.5 FRONT PANEL													
1. Control Functions		Vout/ Iout manual adjust by separate encoders (COARSE and FINE adjustment selectable) OVP/UVL manual adjust by VOLTAGE Adjust encoder, Front Panel Lock/Unlock Address selection by VOLTAGE Adjust encoder. # of Addresses = 31 AC ON/OFF, Output On/Onn, Restart Modes (Auto/Safe), Foldback Control (CV to CC), Go-to-Local RS232/RS-485, LAN, IEEE (IEMD) and USB selection by rear panel DIP-switch Baud rate selection (RS-232/RS-485 only): 1200, 2400, 4800, 9600 and 19,200 (by CURRENT Adjust encoder) Advanced Parallel Master/Slave: Hx = Master unit, where x = # of Slave units (0 to 4); S = Slave unit(s)											X
2. Display		Voltage: 4 digits, Accuracy: ± 0.5% of Vo(rated) ± 1 count											X
		Current: 4 digits, Accuracy: ± 0.5% of Io(rated) ± 1 count											X
		VOLTAGE meter displays Voltage at power supply (Local sense) or at load (Remote sense)											X
3. Indications		Green LED's: PREVIEW, FOLD, REM./LOCAL, OUT ON/OFF, CV/CC, FINE Red LED: ALARM (OVP, OTP, FOLD, AC FAIL, ENA, SO)											X
1.6 DIGITAL PROGRAMMING & READBACK													
1. Vout Programming Accuracy		± 0.5% of Vo(rated)											X
2. Iout Programming Accuracy		± 0.5% of Io(rated) for units with Io < 187.5A; +/-0.7% of Io(rated) for Io ≥ 187.5A											X
3. Vout Programming Resolution		0.02% of Vo(rated)											X
4. Iout Programming Resolution		0.04% of Io(rated)											X
5. Vout Readback Accuracy		± (0.1% of Vo(actual) + 0.2% of Vo(rated))											X
6. Iout Readback Accuracy		± (0.1% of Io(actual) + 0.4% of Io(rated))											X
7. Vout Readback Resolution		0.02% of Vo(rated)											X
8. Iout Readback Resolution		0.02% of Io(rated)											X
9. OV Response Time		20ms maximum (between Vout exceeding OVP Limit and supply inhibit turning On)											X
10. Other Functions		Set OVP/UVL limits, Set Local/Remote, Operating parameters and Status, Get Identity											X

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

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

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

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



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

2.1 INPUT CHARACTERISTICS

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

2.2 POWER SUPPLY CONFIGURATION

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

2.3 ENVIRONMENTAL CONDITIONS

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

2.4 EMC

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

2.5 SAFETY

1.Applicable Standards	UL/cUL 60950-1, EN60950-1 recognized, CB Scheme, CE Mark (208VAC, 400VAC and 480VAC) 7.5V $\leq V_{out} \leq 400V$: Output is Hazardous; LAN/IEEE/USB/Isolated Analog are SELV 400V $< V_{out} \leq 600V$: Output is Hazardous; LAN/IEEE/USB/Isolated Analog are not SELV 600V $< V_{out} \leq 1500V$: Output is Hazardous; LAN/IEEE/USB/Isolated Analog are SELV
2. Withstand Voltage: (208VAC/400VAC/480VAC; for 60 seconds); (*7)	$V_{out} < 80V$: Input - Ground: 2200VDC/2900VDC/2900VDC, Input-Hazardous Output: 2200VDC/3100VDC/3100VDC, Input - SELV: 2200VDC/2900VDC/2900VDC; Hazardous Output - SELV: 900VDC/900VDC/900VDC, Hazardous Output - Ground: 900VDC/900VDC/900VDC. $80V \leq V_{out} \leq 300V$: Input - Ground: 2200VDC/2900VDC/2900VDC, Input-Hazardous Output: 2200VDC/3500VDC/3500VDC, Input - SELV: 2200VDC/2900VDC/2900VDC; Hazardous Output - SELV: 900VDC/900VDC/900VDC, Hazardous Output - Ground: 900VDC/900VDC/900VDC. $300 < V_{out} \leq 600V$ models: Input-Ground: 2200VDC/2900VDC/2900VDC, Input-Hazardous Output: 3300VDC/3900VDC/3900VDC, Input-SELV: 2200VDC/2900VDC/2900VDC, Hazardous Output - SELV: 900VDC/900VDC/900VDC, Hazardous Output - Ground: 900VDC/900VDC/900VDC $600 < V_{out} \leq 1500V$ models: Input-Ground: 2200VDC/2900VDC/2900VDC, Input-Hazardous Output: 4500VDC/5040VDC/5040VDC, Input-SELV: 2900VDC/2900VDC/2900VDC, Hazardous Output - SELV: 2500VDC/2500VDC/2500VDC, Hazardous Output - Ground: 2500VDC/2500VDC/2500VDC
3. Insulation Resistance	20Megohms (typical) at 500VDC, $T_a = +25^\circ C$

2.6 MECHANICAL CONSTRUCTION

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

2.7 WARRANTY

1. Warranty	5 years
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*6. Please contact TDK-Lambda Sales/Technical Support to discuss your Parallel or Series application in more detail.

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

All specifications subject to change without notice.



Genesys™ Power Parallel and Series Configurations

Parallel Operation - Master/Slave (*6)

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



Series Operation (*6)

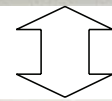
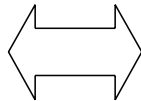
Up to two units may be connected in series to increase the Output voltage or to provide bipolar output. (Max 600V to Chassis GND for $V_{or} \leq 600V$; Max 1500V to Chassis GND for $600V < V_{or} \leq 1500V$).

Remote Programming via RS-232 & RS-485 Interface

Standard Serial Interface allows daisy-chain control of up to 31 power supplies on the same communication bus with built-in RS-232 & RS-485 Interface or optional LAN, USB or IEEE Interface.



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



RS-485 Link



Programming Options (Factory installed)

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

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

P/N: “-----”

LAN Interface (LXI Compliant w/ Multi-Drop)

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

P/N: LAN (for all models)

IEEE (Multi-Drop) Interface

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

P/N: IEMD (for all models)

USB (Multi-Drop) Interface

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

P/N: USB (for all models)

Isolated Analog Programming

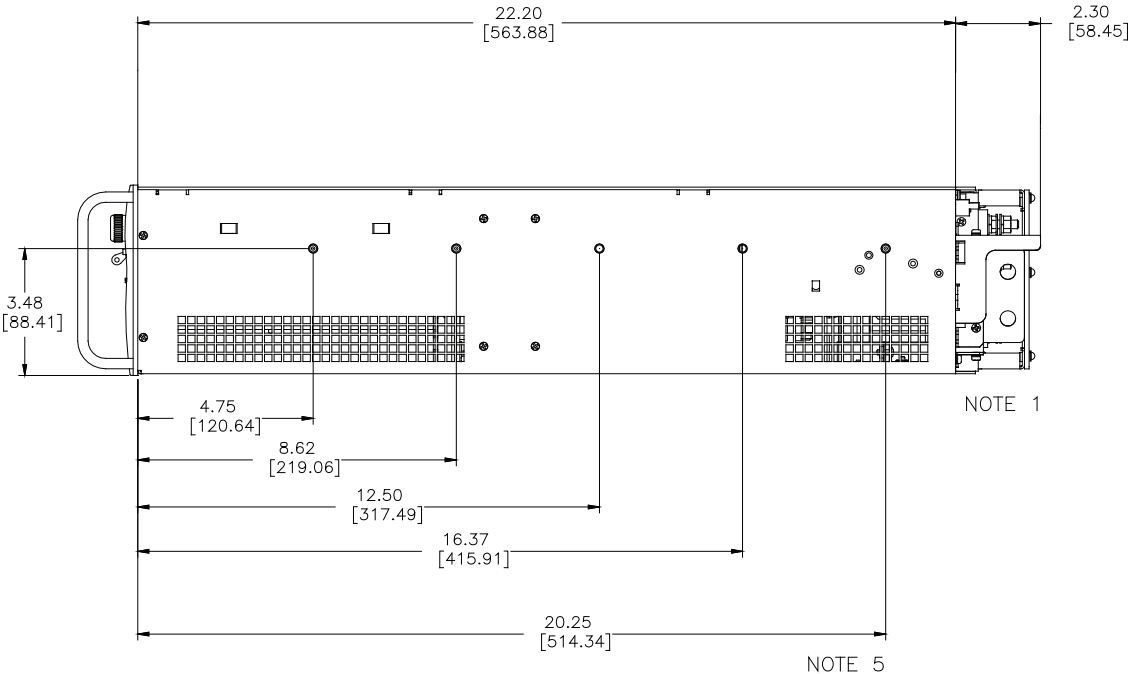
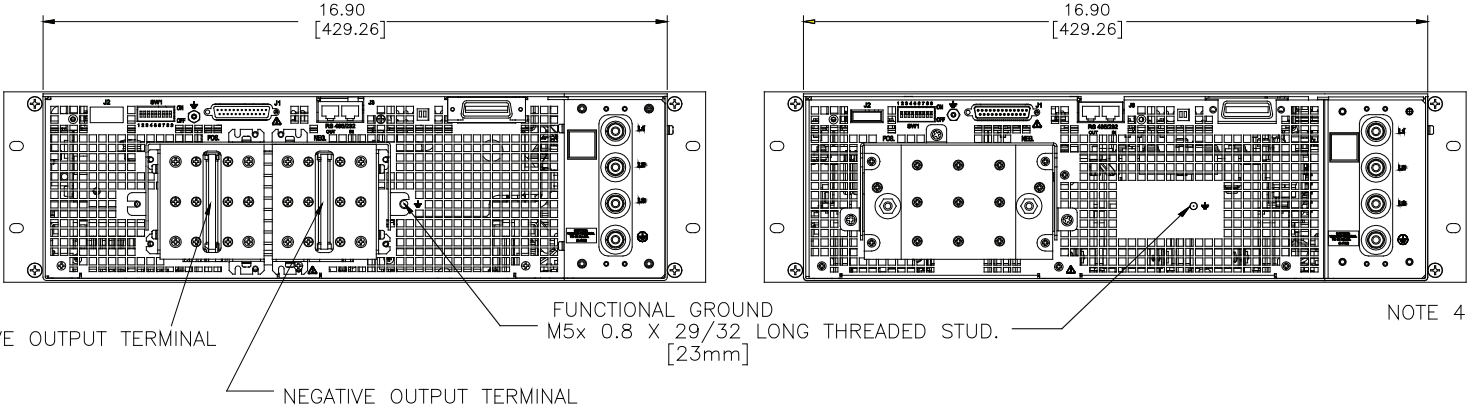
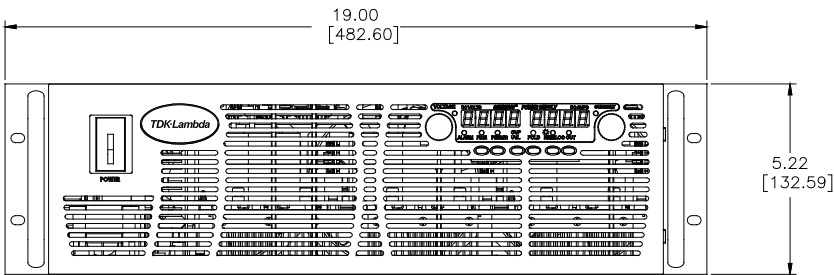
- Option for models with $V_{out} \leq 600V$ (IS510 & IS420); IS510 built-in for models where $800V \leq V_{out} \leq 1500V$
- Four Channels total (Two channels to Program Voltage and Current; Two channels to Monitor Voltage and Current)
- Isolation allows operation with floating references in harsh electrical environments
- Choose between programming with Voltage or Current
- Connection via removable terminal block: Phoenix MC1,5/8-ST-3.81
- Voltage Programming, User-selectable 0-5V or 0-10V signal
 - Power supply Voltage and Current Programming Accuracy: $\pm 1.0\%$
 - Power supply Voltage and Current Monitoring Accuracy: $\pm 1.5\%$
- Current Programming with 4-20mA signal
 - Power supply Voltage and Current Programming Accuracy: $\pm 1.0\%$

P/N: IS510 (for $V_{out} \leq 600V$)

P/N: IS420 (for all models)



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

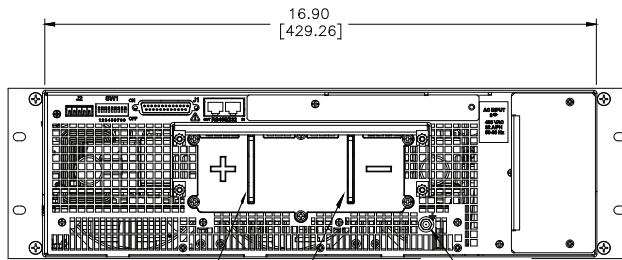
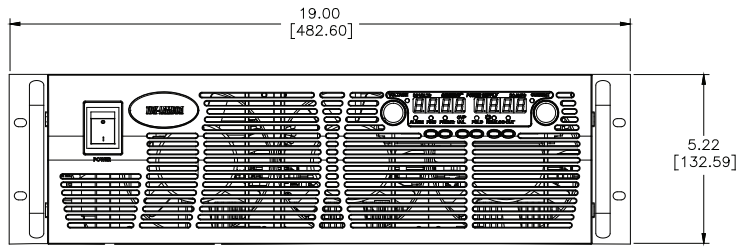


NOTES:

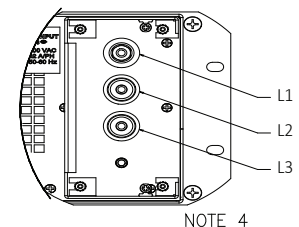
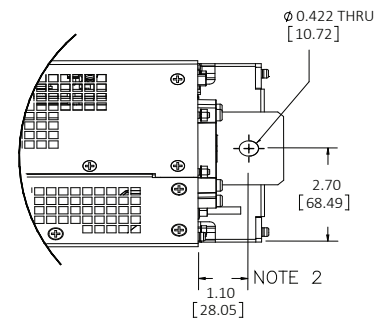
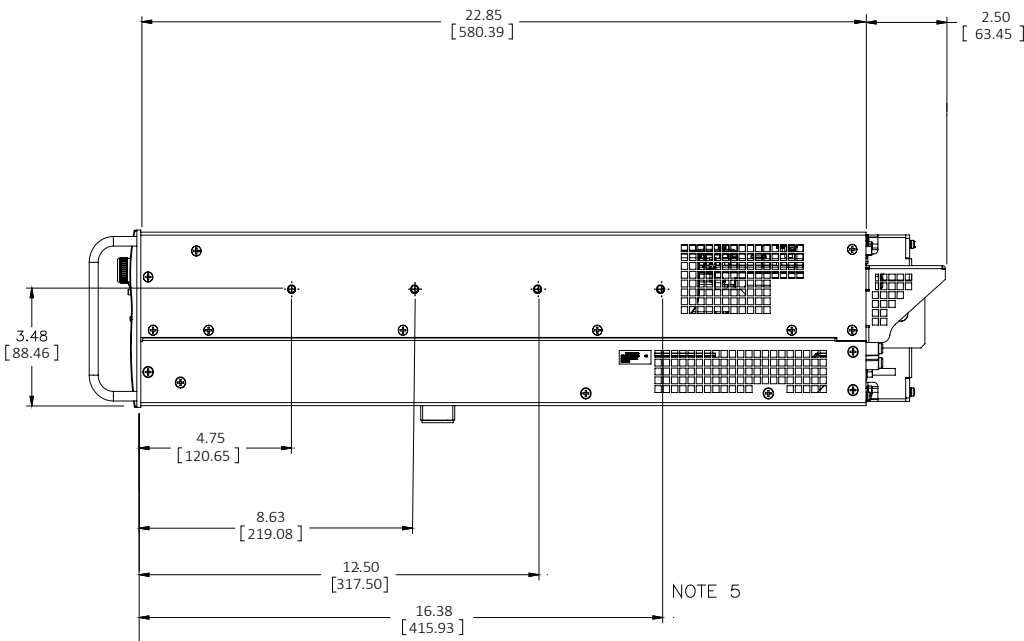
1. Busbars for models where $V_{out} < 30V$ Output: two holes 0.42" (10.72mm) diameter.
2. N/A
3. N/A
4. Input Terminals: M6 x 1" (Qty = 3); Ground Terminal: M5 x 1" (Qty = 2)
5. Mounting for Slide Mounts (not included).
 Recommend: General Devices, Chassis Trak P/N C230-S-122; Verify requirements with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



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



POSITIVE OUTPUT TERMINAL
NEGATIVE OUTPUT TERMINAL
FUNCTIONAL GROUND
M5x0.8 X 29/32 LONG THREADED STUD [23mm]

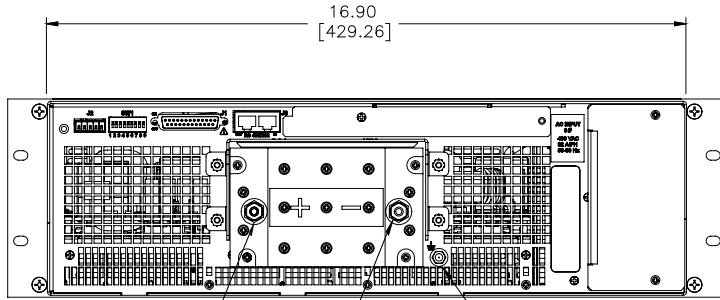
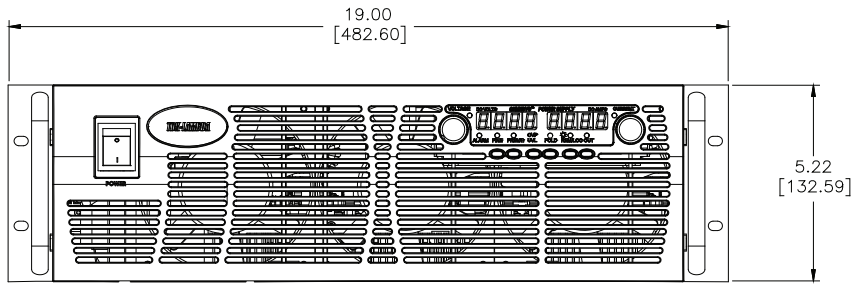


NOTES:

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



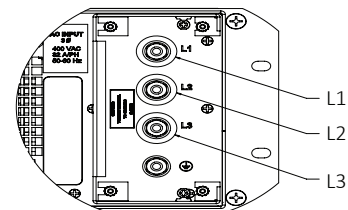
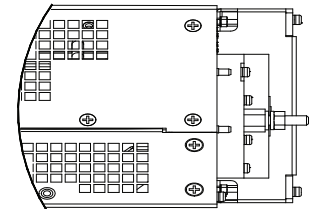
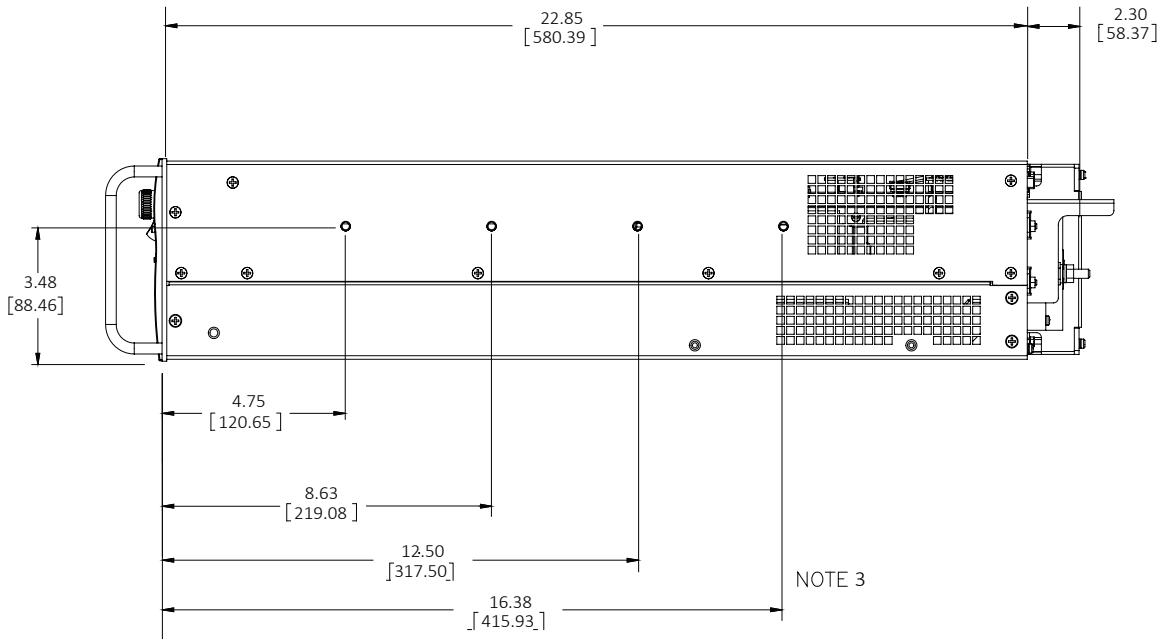
Outline Drawing: Genesys™ 10kW/15kW (400V to 600V - 208VAC/400VAC/480VAC)



POSITIVE OUTPUT TERMINAL

NEGATIVE OUTPUT TERMINAL

FUNCTIONAL GROUND
M5x0.8 X 29/32 LONG THREADED STUD
[23mm]



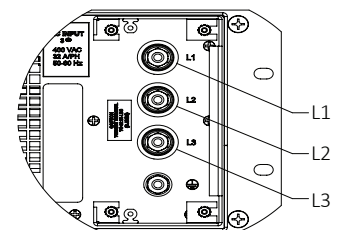
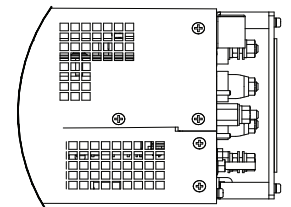
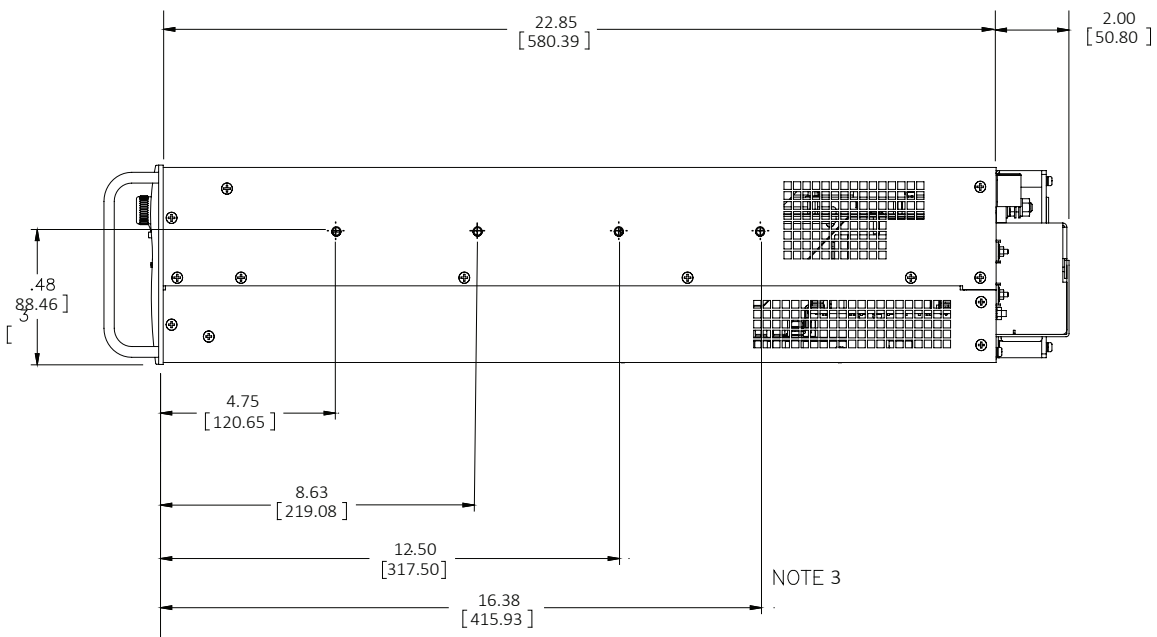
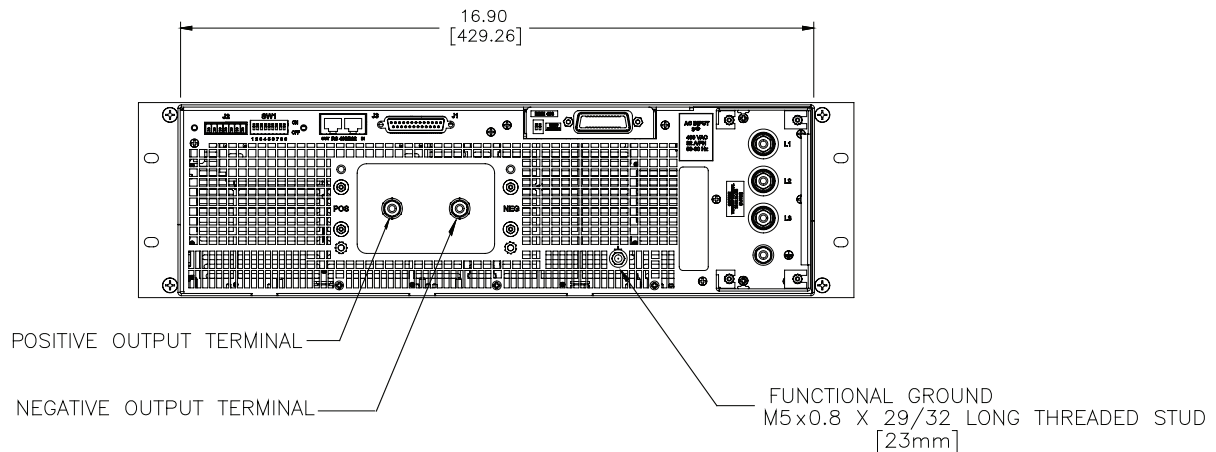
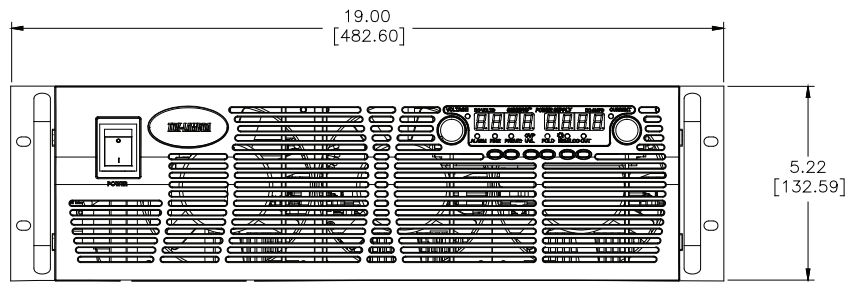
NOTES:

1. N/A
2. N/A
3. Threaded-stud terminals for models with $300V < V_{out} \leq 600V$ (M5 x 1").
4. Input Terminals M6 x 1" (Qty = 3) + Ground M5 x 1" (Qty = 2)
5. Mounting for Slide Mounts (not included).

Recommend General Devices, Chassis Trak P/N C230-S-122; Verify requirements with slide manufacturer.
Secure with pan head screw: M5 x 0.8-8mm long (max).



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



NOTES:

1. N/A
2. N/A
3. Threaded stud terminals for models with $800V \leq V_{out} \leq 1500V$ Output (M5 x 1").
4. Input Terminals M6 x 1" (Qty = 3) + Ground M5 x 1" (Qty = 2)
5. Mounting for Slide Mounts (not included).
Recommend General Devices, Chassis Trak P/N C230-S-122; Verify requirements with slide manufacturer.



Power Supply Identification / Accessories (Genesys™ 3U 10kW/15kW)

How to Order:

GEN **10** - **1000** - **LAN** - **3P208**

Series Name Output Voltage (0~10V) Output Current (0~1000A) Factory Options Option: "-----" LAN IEMD USB IS510 IS420 AC Input Options 3P208 (Three-Phase 208VAC) 3P400 (Three-Phase 400VAC) 3P480 (Three-Phase 480VAC)

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

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

Factory options

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

P/N

- "-----"
- LAN**
- IEMD**
- USB**
- IS510** *(built-in standard on 800-1500V models)
- IS420**

Accessories

1. Serial Communication cable (optional)

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

Mode	RS-485	RS-232	RS-232
PC Connector	DB-9F	DB-9F	DB-25F
Communication Cable	Shield Ground, L=2m	Shield Ground, L=2m	Shield Ground, L=2m
Power Supply Connector	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)	EIA/TIA-568A (RJ-45)
P/N	GEN/485-9	GEN/232-9	GEN/232-25

2. Serial Link cable (optional)

Daisy-chain up to 31 Genesys™ power supplies.

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



Genesys™ Family - Output Voltage / Output Current

Model	GENH	GEN-1U		GEN-2U		GEN 3U		
Rated Power	750W	750W	1.5kW	2.4kW	3.3kW	5.0kW	10kW	15kW
Voltage Range	Output Current Range							
0~6V	0~100A	0~100A	0~200A					
0~7.5V							0~1000A	
0~8V	0~90A	0~90A	0~180A	0~300A	0~400A	0~600A		
0~10V				0~240A	0~330A	0~500A	0~1000A	
0~12.5V	0~60A	0~60A	0~120A				0~800A	
0~15V					0~220A			
0~16V				0~150A		0~310A		
0~20V	0~38A	0~38A	0~76A	0~120A	0~165A	0~250A	0~500A	
0~25V							0~400A	
0~30V (15kW) - NEW !	0~25A	0~25A	0~50A	0~80A	0~110A	0~170A	0~333A	0~500A
0~40V (15kW) - NEW !	0~19A	0~19A	0~38A	0~60A	0~85A	0~125A	0~250A	0~375A
0~50V (15kW) - NEW !			0~30A				0~200A	0~300A
0~60V	0~12.5	0~12.5A	0~25A	0~40A	0~55A	0~85A	0~167A	0~250A
0~80V	0~9.5A	0~9.5A	0~19A	0~30A	0~42A	0~65A	0~125A	0~187.5A
0~100V	0~7.5A	0~7.5A	0~15A	0~24A	0~33A	0~50A	0~100A	0~150A
0~125V							0~80A	0~120A
0~150V	0~5A	0~5A	0~10A	0~16A	0~22A	0~34A	0~66A	0~100A
0~200V - NEW !					0~16.5A	0~25A	0~50A	0~75A
0~250V							0~40A	0~60A
0~300V	0~2.5A	0~2.5A	0~5A	0~8A	0~11A	0~17A	0~33A	0~50A
0~400V (5.0kW) - NEW !						0~12.5A	0~25A	0~37.5A
0~500V (5.0kW) - NEW !						0~10A	0~20A	0~30A
0~600V	0~1.3A	0~1.3A	0~2.6A	0~4A	0~5.5A	0~8.5A	0~17A	0~25A
0~800V - NEW !							0~12.5A⁽⁵⁾	0~18.8A⁽⁵⁾
0~1000V - NEW !							0~10A⁽⁵⁾	0~15A⁽⁵⁾
0~1250V - NEW !							0~8A⁽⁵⁾	0~12A⁽⁵⁾
0~1500V - NEW !							0~6.7A⁽⁵⁾	0~10A⁽⁵⁾
Weight (kg/lb)	4.5 / 9.9	7.0 / 15.0	8.5 / 18.0	10.0 / 22.0	13.0 / 29.0	16.0 / 35.0	43.0 / 97.0	43.0 / 97.0 32.0 / 70.0 ⁽⁶⁾

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

AC Inputs

85-265Vac, 1Ø	• (1)	• (1)	• (1)					
230Vac, 1Ø				• (1)	• (1)			
208Vac, 3Ø				• (1)	• (1)	• (1)	• (3)	• (3)
400Vac, 3Ø					• (1)	• (1)	• (3)	• (3)
480Vac, 3Ø					• (2) - NEW !	• (2) - NEW !	• (3), (4)	• (3), (4)

(1) UL Listed; CE Mark (RoHS2); (2) UL Listed (RoHS2); (3) UL Recognized, CE Mark (RoHS2) - (Vout ≥ 25V); 4) UL Recognized, RoHS2 (Vout < 25V)

Options (All Models)

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

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





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



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

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

* Note: Front panel output jacks fuse limited to 24A



Specification		Z10	Z20	Z36	Z60	Z100
Load Regulation	CV	2mV + 0.01% of rated voltage over 0 - 100% load change				
Line Regulation	CV	2mV + 0.01% of rated voltage over a 85 - 132 or 170 - 265VAC line change				
Recovery Time (1)	CV	1ms				
Temperature Coefficient	CV	30ppm/C following 30 minute warm up				
Temperature Stability	CV	0.02% of rated voltage over 8 hours following 30 minute warm up time				
Warm up Drift (2)	CV	<0.05% of rated voltage + 2mV of rated output voltage				
Load Regulation	CC	5mA + 0.01% of rated current over 0 - 100% Vout change				
Load Regulation thermal drift	CC	< 0.05% of rated current over 30 minutes after load change				
Line Regulation	CC	2mA + 0.01% of rated current over a 85 - 132 or 170 - 265VAC line change				
Temperature Coefficient	CC	100ppm/C of rated current after 30 minute warm up time				
Temperature Stability	CC	0.05% of rated current over 8 hours following 30 minute warm up time				
Warm up Drift (2)	CC	<+/-0.1% of rated current				
Vout & Iout programming & readback resolution	Digitally	< 0.012% of rated voltage/current				
Vout & Iout programming & readback accuracy	Digitally	< 0.05% of rated voltage, < 0.1% of rated current				
Voltage & Current Programming	Analog	By either Voltage (0-5V or 0-10V) or Resistance (0-5k or 0-10k)				
Voltage & Current Monitoring	Analog	0-5V or 0-10V Voltage (user selectable), +/-1% accuracy				
Overvoltage Shutdown (user programmable)	V	0.5 - 12	1 - 24	2 - 40	5 - 66	5 - 110
Overtemperature Protection	-	User selectable - latched or non-latching				
Display - Voltage	-	4 digits. Accuracy 0.5% of rated voltage or current +/- 1 count				
Remote On/Off	-	By applied voltage or dry contact relay (user selectable logic)				
Output Good	-	Low on fail				
Remote Sense Compensation (per wire)	V	1	1	2	3	5
Communication Interface	-	RS232, RS485 & USB standard, IEEE488 (GPIB) & LAN optional				
Series Operation	-	Up to two identical units (with external diodes)				
Parallel Operation	-	Up to six units in master-slave configuration				
Input Voltage / Frequency (3)	VAC	85-265VAC, 47-63Hz				
Inrush Current	A	< 30A				
Hold Up Time (Typical)	ms	16ms				
Power Factor Correction	-	Complies with EN61000-3-2 Class A (0.99 typ)				
Operating Temperature	°C	0 - 50°C				
Storage Temperature	°C	-20 to +85°C				
Humidity (non condensing)	%RH	Operating: 10 - 90%RH, Storage 10 - 95%RH				
Cooling	-	Variable speed fan				
Withstand Voltage	VAC	I/P to GND 2kVAC, I/P to O/P 3kVAC, O/P to GND 1380VDC 1 min				
Insulation Resistance	Ω	>100MΩ at 25°C & 70%RH				
Vibration (non operating)	-	IEC60068-2-64				
Shock	G	<20G, half sine, 11ms. IEC60068-2-27				
Safety Agency Certifications	-	UL61010-1, EN61010-1, IEC61010 (Designed to meet UL/EN60950-1)				
Immunity	-	IEC61326				
Conducted Emission	-	IEC/EN61326-1 Industrial Location - B, FCC part 15-B, VCCI-B				
Radiated Emission	-	IEC/EN61326-1 Industrial Location - A, FCC part 15-A, VCCI-A				
Size (H x W x D) (Excluding handles and busbars)	mm	Standard body 83 x 70 x 350mm; Wide Body 83 x 105 x 350mm				
Weight	kg	200W & 400W: Standard body 1.9kg, Wide body 2.4kg 600W & 800W: Standard body 2.1kg, Wide body 2.6kg				
Warranty	yrs	5				

Notes:

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

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



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

Notes:

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

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



Factory Installed Options

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

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

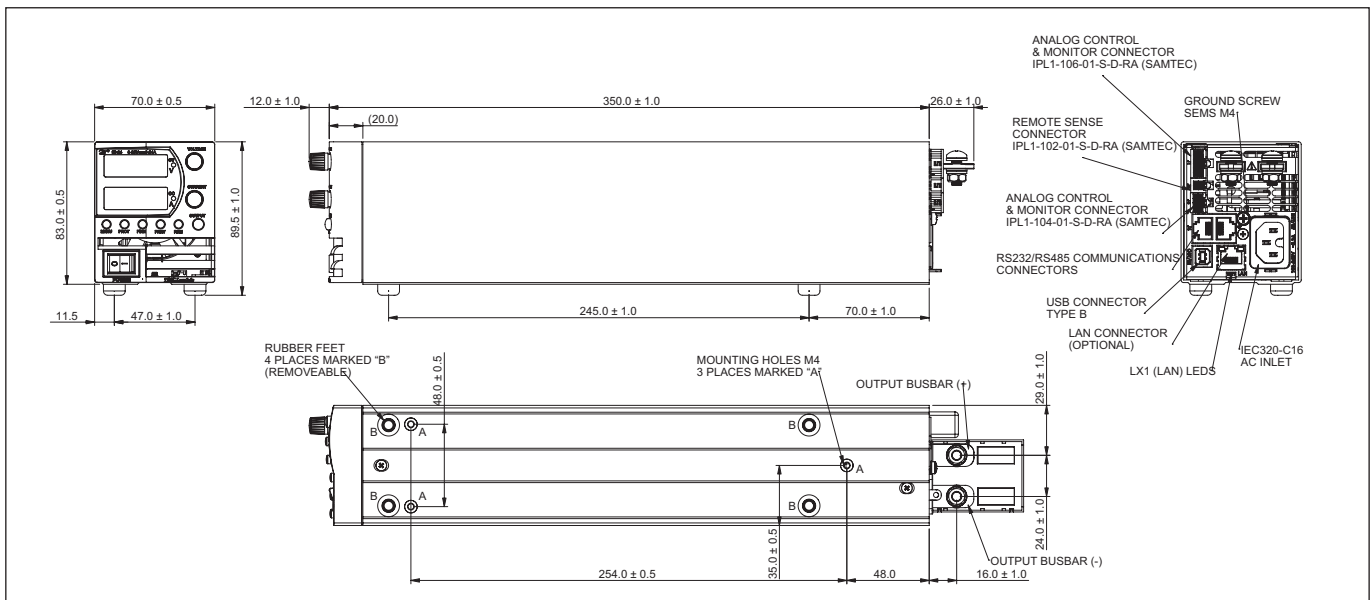
Part Number Examples

Z10-20-LAN-L Z650-0.64

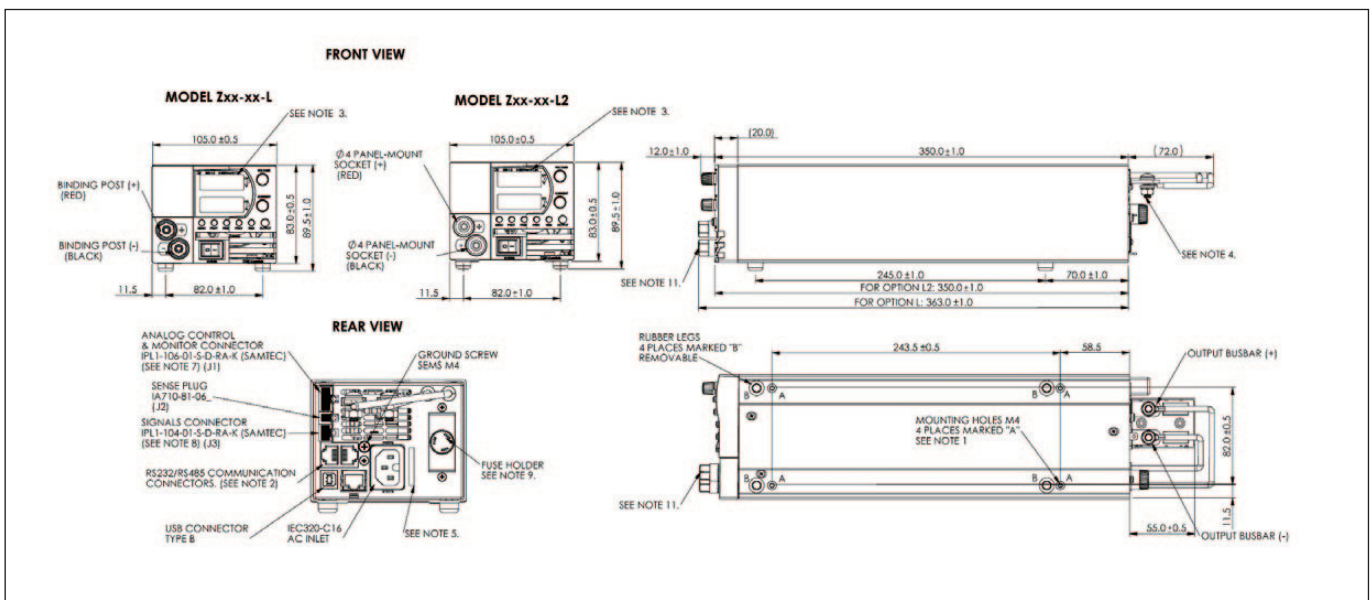
Accessories

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

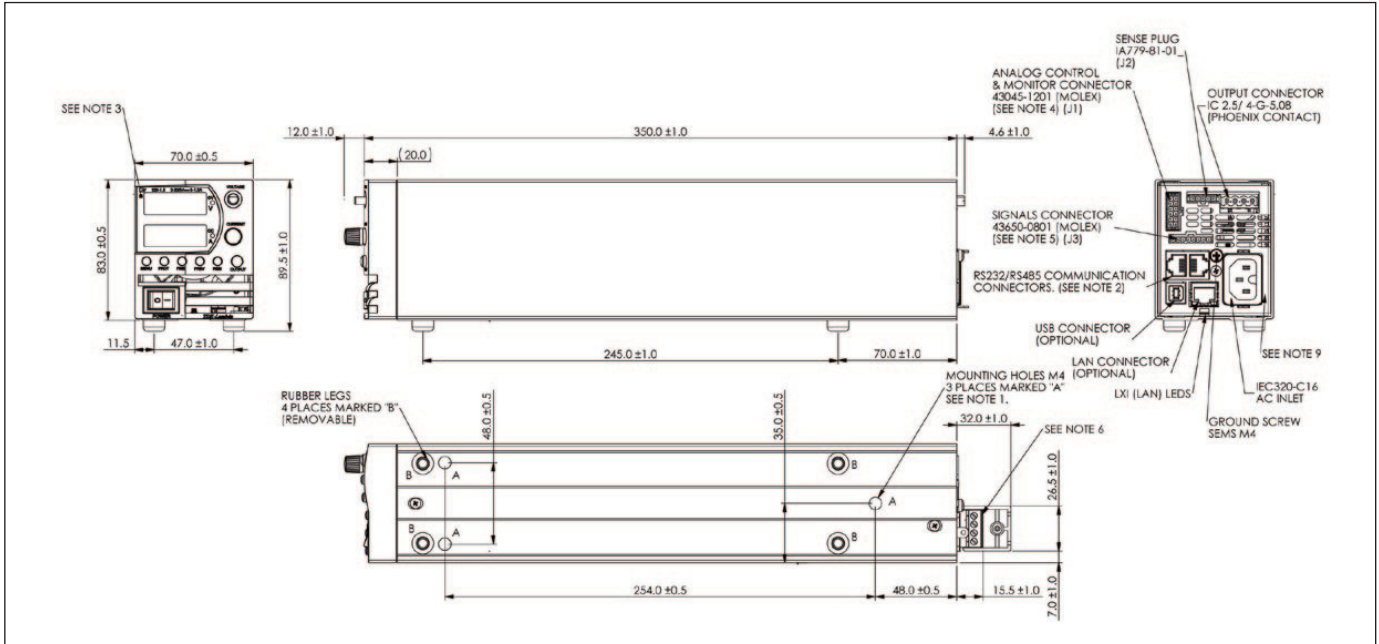
Z+ Outline Drawing



Z+ with L or L2 Option Outline Drawing

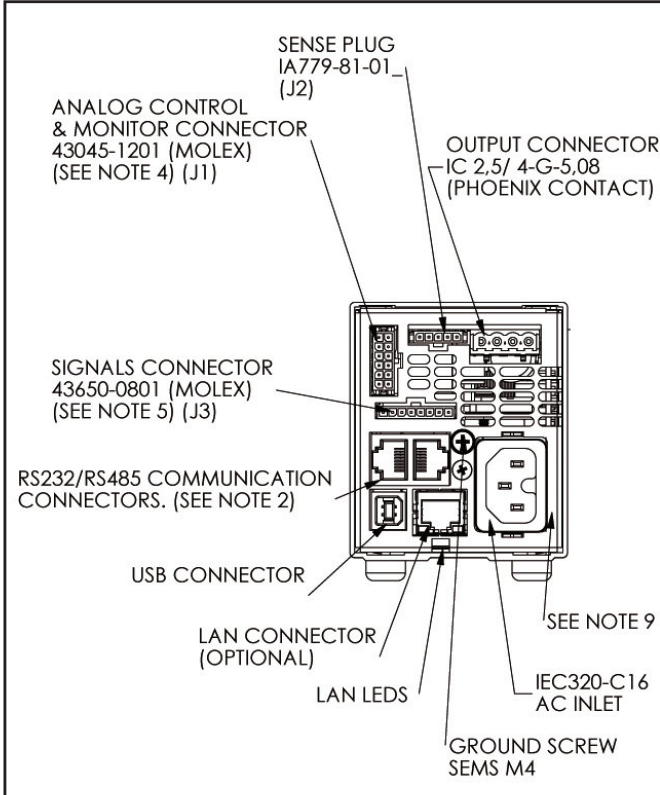


Z+ HV Outline Drawing

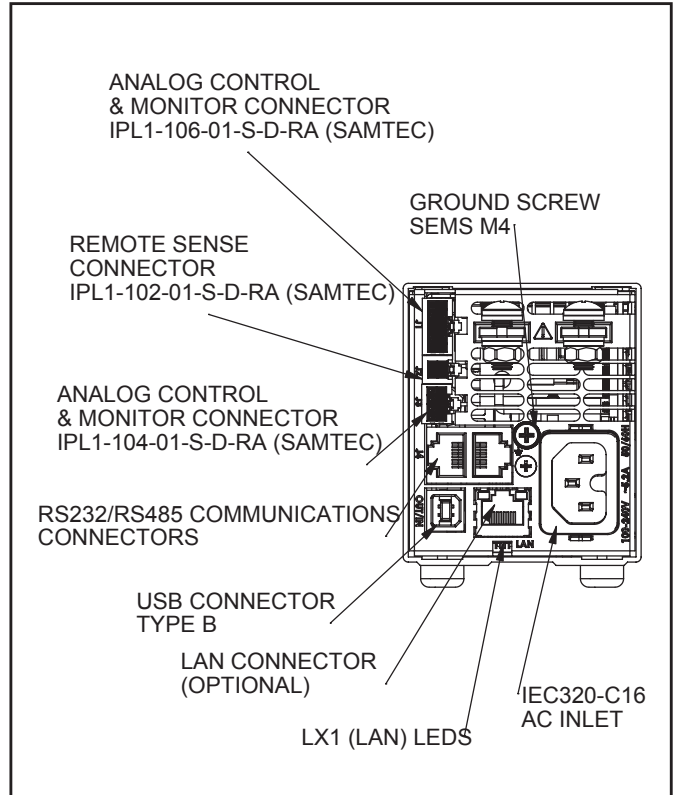


See Longform Datasheet for rack & wide body dimensions www.emea.tdk-lambda.com/zplus

Z+ Connections high voltage models 160V and above



Z+ Connections low voltage models up to 100V





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

ZUP Series

Zero Up Programmable Power Supplies

Specifications								
ITEMS	MODELS	ZUP6	ZUP10	ZUP20	ZUP36	ZUP60	ZUP80	ZUP120
	Cond.							
Load Regulation	CV	2mV + 0.005% over 0 - 100% load change						
Line Regulation	CV	1mV + 0.005% over 85 - 132 or 170 - 265VAC constant load						
Recovery Time (1)	CV	1ms	0.5ms	0.2ms				
Temperature Coefficient	CV	30ppm/°C following 30 minute warm up						
Temperature Drift (2)	CV	0.01% + 2mV change in output						
Up programming response time	CV	50 - 60ms					80ms	120ms
Down prog. resp. time (CV)	Full	50ms (70ms ZUP60-14)						
Down prog. resp. time (CV)	Zero	250ms	350ms	400ms	500ms	750ms	800ms	1000ms
Load Regulation	CC	0.01% + 5mA on 200W and 400W models, 0.07% + 10mA on 800W models						
Line Regulation	CC	0.01% + 2mA on 200W and 400W models, 0.01% + 5mA on 800W models						
Temperature Coefficient	CC	100ppm/°C from rated current after 30 minute warm up time						
Temperature Drift (2)	CC	0.02% + 5mA, 200W and 400W models, 0.05% + 10mA, 800W models						
Prog Voltage resolution	-	Better than 0.028% of rated voltage						
Prog Voltage accuracy	-	.02%+5mV	.02%+8mV	.02%+12mV	.02%+20mV	.02%+35mV	.02%+50mV	.02%+80mV
Prog Current resolution	-	Better than 0.03% of rated current						
Prog Current accuracy	-	0.4% + 40mA						
Overvoltage Shutdown	V	0 - 7.5	0 - 13	0 - 24	0 - 40	0 - 66	0 - 88	0 - 132
Thermal Protection	-	Over temperature protected						
Display - Voltage	-	3 digits (6, 20, 36, 60, 80V models), 3.5 digits (10, 120V models). Accuracy 0.2% ± 2 digits						
Display - Current	-	3 digits, (3.5 digits 132A model). Accuracy 0.5% ± 3 digits						
Display - Status	-	CV / CC, Alarm, Foldback, Local/Remote, On/Off						
Remote On/Off	-	TTL signal or dry contact relay						
Output Good	-	Open Collector						
Voltage & Current Programming	-	By either Voltage (0-4V) or Resistance (0-4k)						
Remote Sense	-	Up to 0.5V compensation per output cable						
Communication Interface	-	RS232 & RS485 standard						
Series & Parallel Operation	-	Series: Up to two units; Parallel: Up to five units in master-slave configuration						
AC Input Voltage range	-	85-265VAC (47-63Hz)						
Inrush Current (100/200VAC) (3)	-	15/30A, 200W models, 15A, 400W models, 30A, 800W models						
Hold Up Time (Typ) at 100VAC	ms	20						
Power Factor Correction	-	Complies with EN61000-3 Class A (0.99 typ)						
Temperature Range	-	Operating: 0°C - 50°C; Storage: -20°C to +70°C						
Humidity (non condensing)	-	Operating: 30°C - 90% RH, Storage 10°C - 95%RH						
Cooling	-	Internal fan						
Withstand Voltage	-	Input to Ground 2kVAC, Input to Output 3kVAC, Output to Ground 500VAC for 1 min.						
Isolation Resistance	Ω	>100MΩ at 25°C & 70%RH						
Vibration & Shock (non-op.)	-	Vibration:10-55Hz(1 min.) 2G constant X, Y, Z, when correctly mounted; Shock: <20G						
Safety Agency Approvals	-	UL3111-1, EN61010-1, CE Mark						
Conducted & Radiated EMI	-	EN55022-B conducted, A radiated, FCC Class B conducted, A radiated, VCCI-B conducted, -A radiated						
Warranty	yrs	3						

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

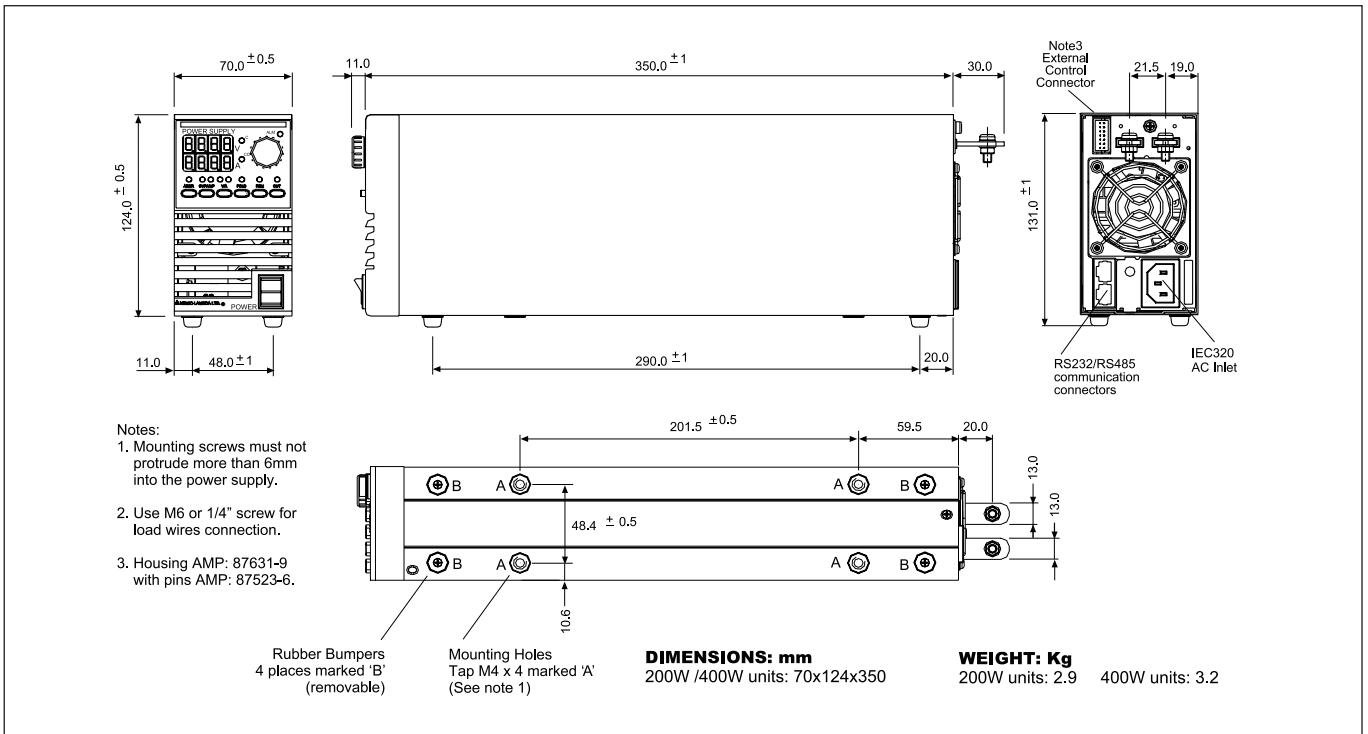


Model Selector								
Model	Voltage Adjust Range	Current Adjust Range	Max Power	Ripple 5Hz-1MHz mV	Noise 20MHz BW mV	Ripple 5Hz-1MHz mA	Efficiency % (100/200VAC)	Weight kg
ZUP6-33	0-6V	0-33	198	5	50	50	69 / 72	2.9
ZUP6-66	0-6V	0-66	396	5	50	100	74 / 77	3.2
ZUP6-132	0-6V	0-132	792	8	100	200	74 / 77	5.8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

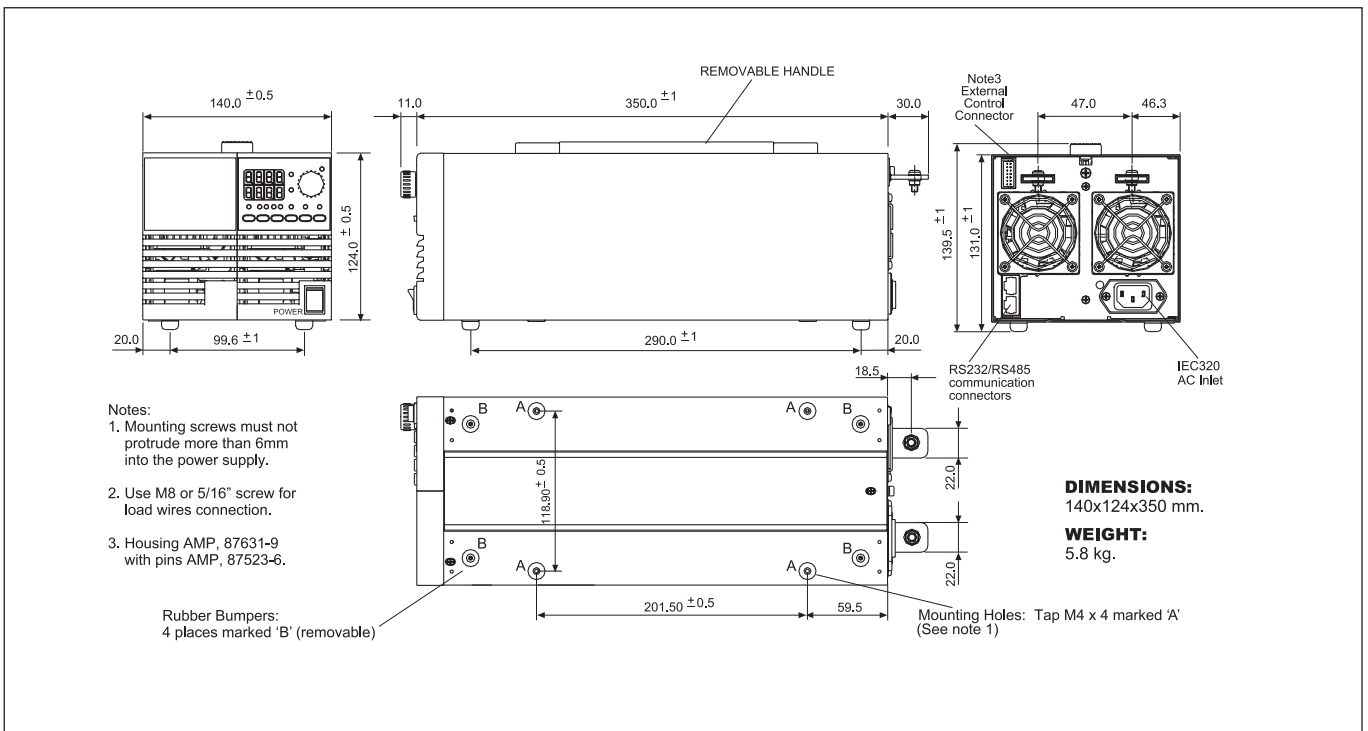
Options and Accessories		
Option	Model Suffix	Part Number
Front panel terminals (20A max) ⁵	/L ⁴	ZUP200/400/L ⁴
Front panel terminals (20A max) ⁶	/L ⁴	ZUP800/L ⁴
IEC320 cable Europe plug	/E	ZUP/E
Serial link cable RJ-45	/W	ZUP/W
Dual Unit Assembly		NL200*
(accepts 200W or 400W models)		
19" 3U rack (accepts up to 6 200/400W models)	NL100*	
Blanking panels for NL100 (19 in. rack)	NL101*	
RS232 Communications Cable DB-9F	ZUP/NC401	
RS232 Communications Cable DB-25F	ZUP/NC403	
RS485 Communications Cable DB-9F	ZUP/NC402	
RS485 Communications Cable DB-25F	ZUP/NC404	
User Manual		NL102
* (See website for more details)		
⁴ Not available with ZUP80 or ZUP120 models.		
⁵ 200W and 400W models		
⁶ 800W models		



Outline Drawing 200/400W



Outline Drawing 800W





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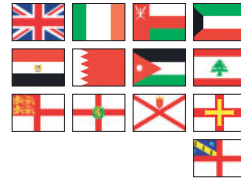
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