

**Improved
Specifications**

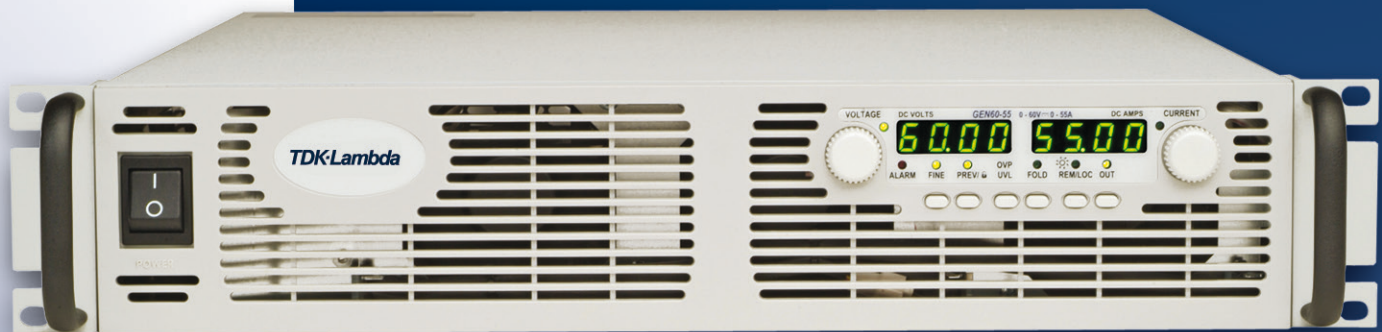
Genesys™

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

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



Applications

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

Test & Measurement systems, Component Device Testing.

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

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

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

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

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

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

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

Front Panel Description



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

Rear Panel Description



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

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) No-load (*10)	20	100		160		150		300		200		250	
	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. 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	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
Resolution (0.002% of Io Rated)	mA	1200	990	660	495	330	255	165	126	99	66	49.5	33	16.5
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	%	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 (% of Vo Rated)	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
Resolution (Readback Voltage)	mV	4	5	8	10	15	20	30	40	50	75	100	150	300
Accuracy (0.05% of Vo Rated)														
4. Readback Current	%	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 (% of Io Rated)	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
Resolution (Readback Current)	mA	1200	990	660	495	330	255	165	126	99	66	49.5	33.0	16.5
Accuracy (0.3% of Io Rated) (*13)														
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.

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.

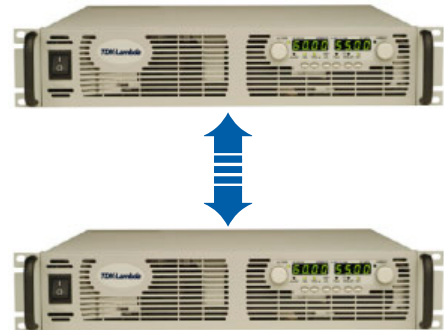


Series operation

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.
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

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

Models 3.3kW

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

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

Factory option P/N

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

GPIO Interface

Voltage Programming Isolated Analog Interface

Current Programming Isolated Analog Interface

LAN Interface (Complies with **LXI** Class C)

IEEE

IS510

IS420

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.

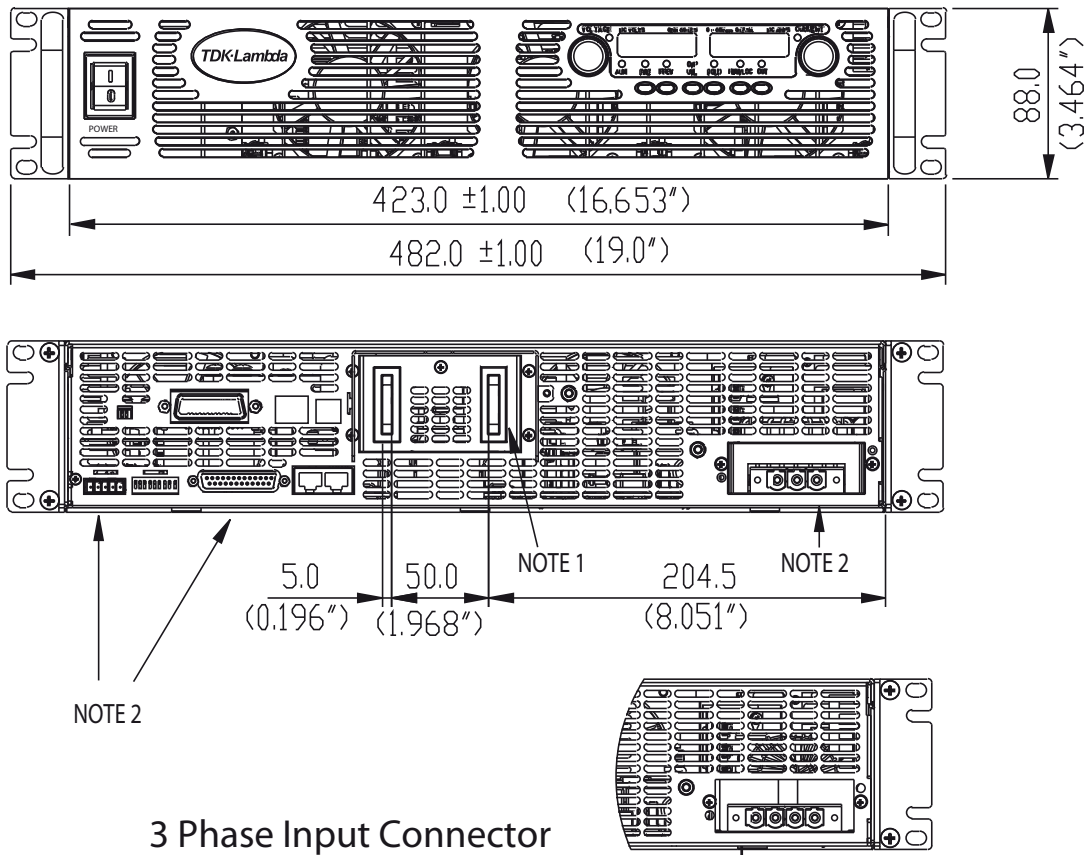
Mode	Power Supply Connector	Communication Cable	P/N
RS-485	EIA/TIA-568A (RJ-45)	Shield Ground L=50cm	GEN/RJ45

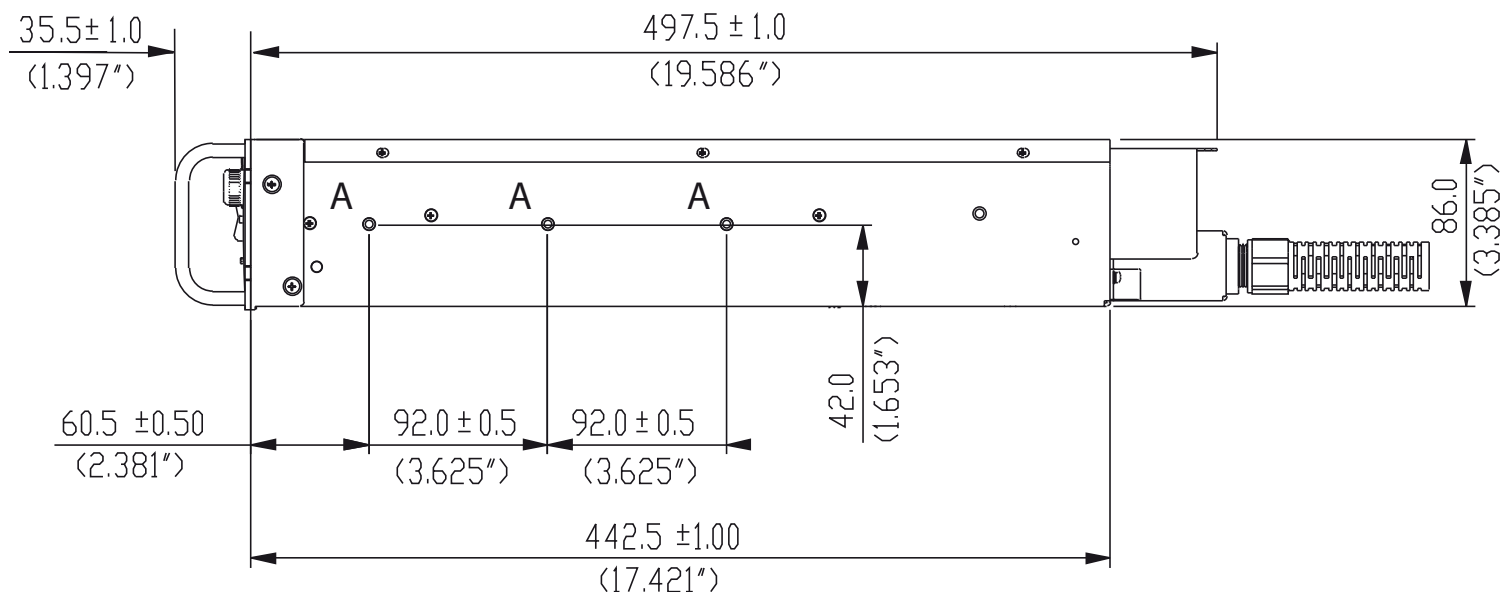
* Included with power supply



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

Outline Drawing Genesys™ 3.3kW Units





NOTE

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

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