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

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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, 1ø (230VAC) & 3ø (208VAC)
- Active Power Factor Correction (Single-Phase & Three-Phase AC Input)
- Output Voltage up to 600V, Current up to 300A
- Auxiliary 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.
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 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.
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.
9. Optional Interface Position for IEEE 488.2 SCPI (shown) or Isolated Analog Interface or LAN Interface.
10. Auxiliary Output Voltage Connector. Phoenix P/N: IMC1.5/7-ST-3.81
### Genesys™ 2.4kW Specifications

#### 1.0 MODEL

<table>
<thead>
<tr>
<th>Specifications</th>
<th>480V</th>
<th>10-240</th>
<th>16-150</th>
<th>20-120</th>
<th>30-80</th>
<th>40-60</th>
<th>60-40</th>
<th>80-30</th>
<th>100-24</th>
<th>150-30</th>
<th>300-100</th>
<th>600-150</th>
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<tbody>
<tr>
<td>Genesys™</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<tr>
<td>Power rating</td>
<td>2.4kW</td>
<td>2.4kW</td>
<td>2.4kW</td>
<td>2.4kW</td>
<td>2.4kW</td>
<td>2.4kW</td>
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<td>2.4kW</td>
<td>2.4kW</td>
<td>2.4kW</td>
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</tbody>
</table>

#### 1.1 CONSTANT VOLTAGE MODE

<table>
<thead>
<tr>
<th>Voltage Setting</th>
<th>480V</th>
<th>10-240</th>
<th>16-150</th>
<th>20-120</th>
<th>30-80</th>
<th>40-60</th>
<th>60-40</th>
<th>80-30</th>
<th>100-24</th>
<th>150-30</th>
<th>300-100</th>
<th>600-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated output voltage(*)</td>
<td>8</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>150</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>Remote output power</td>
<td>2400</td>
<td>2400</td>
<td>2400</td>
<td>2400</td>
<td>2400</td>
<td>2400</td>
<td>2400</td>
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#### 1.2 CONSTANT CURRENT MODE

<table>
<thead>
<tr>
<th>Setting</th>
<th>480V</th>
<th>10-240</th>
<th>16-150</th>
<th>20-120</th>
<th>30-80</th>
<th>40-60</th>
<th>60-40</th>
<th>80-30</th>
<th>100-24</th>
<th>150-30</th>
<th>300-100</th>
<th>600-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. load regulation (0.02% of rated Io+5mA)</td>
<td>65</td>
<td>53</td>
<td>35</td>
<td>29</td>
<td>21</td>
<td>17</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Resolution (% of Io Rated)</td>
<td>0.002</td>
<td>0.002</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.004</td>
<td>0.005</td>
<td>0.006</td>
<td>0.007</td>
<td>0.008</td>
<td>0.009</td>
<td>0.010</td>
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#### 1.3 PROTECTIVE FUNCTIONS

<table>
<thead>
<tr>
<th>Setting</th>
<th>480V</th>
<th>10-240</th>
<th>16-150</th>
<th>20-120</th>
<th>30-80</th>
<th>40-60</th>
<th>60-40</th>
<th>80-30</th>
<th>100-24</th>
<th>150-30</th>
<th>300-100</th>
<th>600-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCP Foldback</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
<td>0~10% current limit</td>
</tr>
<tr>
<td>OVP type</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
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<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
<td>Inverter shutdown, manual reset by AC input reset or by CUE button, or by communication port command.</td>
</tr>
</tbody>
</table>

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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. For 8V~16V models: At 10VDC input voltage. With rated output power.
5. Not including EMI filter inrush current, less than 0.2mSec.
6. From No-Load to Full-Load, constant input voltage. Maximum drop in Remote Sense.
2.1 INPUT CHARACTERISTICS

<table>
<thead>
<tr>
<th>GEN</th>
<th>8-300</th>
<th>10-240</th>
<th>16-150</th>
<th>20-120</th>
<th>30-80</th>
<th>40-60</th>
<th>60-40</th>
<th>80-30</th>
<th>100-24</th>
<th>150-16</th>
<th>300-8</th>
<th>600-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Input voltage/freq. (*3) VAC</td>
<td>Single Phase, 230V models: 170<del>265Vac, 47</del>63Hz</td>
<td>3-Phase, 208V models: 170<del>265Vac, 47</del>63Hz</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2. Maximum Input current at 100% load</td>
<td>A</td>
<td>17.3</td>
<td>17.3</td>
<td>17.3</td>
<td>16.8</td>
<td>16.6</td>
<td>16.6</td>
<td>16.6</td>
<td>16.6</td>
<td>16.6</td>
<td>16.6</td>
<td>16.6</td>
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<tr>
<td>3. Efficiency (%)</td>
<td>%</td>
<td>84</td>
<td>84</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>88</td>
<td>88</td>
<td>88</td>
<td>88</td>
<td>87</td>
</tr>
<tr>
<td>4. Inrush Current (*)</td>
<td>A</td>
<td>Single-Phase and 3-Phase 208V models: Less than 50A</td>
<td></td>
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</tr>
</tbody>
</table>

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℃, 100% load.
2. Storage temp -20~85℃
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 1ºC/100m above 2000m. Non operating: 40000ft (12000m).
8. RoHS Compliance Complies with the requirements of RoHS directive.

2.4 EMC

1. Applicable Standards:
   1.1 ESD IEC1000-4-2, Air-disch.-8KV, contact disch.-4KV
   1.2 Fast transients IEC1000-4-4, 2KV
   1.3 Surge immunity IEC1000-4-5, 1KV line to line, 2KV line to ground
   1.4 Conducted immunity IEC1000-4-6, 3V
   1.5 Magnetic field immunity EN61000-4-8, 1A/m
   1.6 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, Sense, 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
   3.1 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): 1900VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -1900VDC 1min, Input-Output/communication/control/5V d.c. auxiliary output (SELV): 1900VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -1900VDC 1min
   3.2 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): -4242VDC 1min, Input-Output/communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control/circuitry (Hazardous): -4242VDC 1min, Input-Output/communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control (Hazardous): -4242VDC 1min, Input-Output/communication/control/5V d.c. auxiliary output (SELV): 4242VDC 1min, Output/15V d.c. auxiliary output/communication/control/5V d.c. auxiliary output (SELV): 3550VDC 1min, Output/15V d.c. auxiliary output/communication/control/5V d.c. auxiliary output (SELV): 3550VDC 1min, Output/15V d.c. auxiliary output/communication/control/5V d.c. auxiliary output (SELV): 3550VDC 1min

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.

2.7 AUXILIARY OUTPUTS

1. 15V Output (*6) 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.
**TDK-Lambda**

*Genesys™ Power Parallel and Series Configurations*

**Parallel operation - Master/Slave:**
Active current sharing allows up to four identical units to be connected in an auto-parallel configuration for four times the output power.

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

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

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

**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 to be equipped with IEEE Interface
- IEEE 488.2 SCPI Compliant
  - Program Voltage
  - Measure Voltage
  - Over Voltage setting and shutdown
  - Error and Status Messages

**Isolated Analog Programming**
Four Channels to Program and Monitor Voltage and Current.
Isolation allows operation with floating references in harsh electrical environments.
Choose between programming with Voltage or Current.
Connection via removable terminal block: Phoenix MC1,5/8-ST-3.81.
- Voltage Programming, user-selectable 0-5V or 0-10V signal.  
  Power supply Voltage and Current Programming Accuracy ±1%
  Power supply Voltage and Current Monitoring Accuracy ±1.5%
- Current Programming with 4-20mA signal.
  Power supply Voltage and Current Programming Accuracy ±1%
  Power supply Voltage and Current Monitoring Accuracy ±1.5%

**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**

<table>
<thead>
<tr>
<th>GEN</th>
<th>8</th>
<th>300</th>
<th>Factory Options:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Output Voltage (0~8V)</td>
<td>Output Current (0~300A)</td>
<td>Option: IEEE IS510 IS420 LAN</td>
</tr>
<tr>
<td>GEN 8</td>
<td>300</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Factory AC Input Options:**
- 1P230 (Single Phase 170~265VAC)
- 3P208 (Three Phase 170~265VAC)

**Models 2.4kW**

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Voltage (VDC)</th>
<th>Output Current (A)</th>
<th>Output Power (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 8-300</td>
<td>0~8V</td>
<td>0~300</td>
<td>2400</td>
</tr>
<tr>
<td>GEN 10-240</td>
<td>0~10V</td>
<td>0~240</td>
<td>2400</td>
</tr>
<tr>
<td>GEN 16-150</td>
<td>0~16V</td>
<td>0~150</td>
<td>2400</td>
</tr>
<tr>
<td>GEN 20-120</td>
<td>0~20V</td>
<td>0~120</td>
<td>2400</td>
</tr>
<tr>
<td>GEN 30-80</td>
<td>0~30V</td>
<td>0~80</td>
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</tr>
<tr>
<td>GEN 40-60</td>
<td>0~40V</td>
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</tr>
<tr>
<td>GEN 60-40</td>
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<td>GEN 80-30</td>
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<td>GEN 100-24</td>
<td>0~100V</td>
<td>0~24</td>
<td>2400</td>
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<tr>
<td>GEN 150-16</td>
<td>0~150V</td>
<td>0~16</td>
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<tr>
<td>GEN 300-8</td>
<td>0~300V</td>
<td>0~8</td>
<td>2400</td>
</tr>
<tr>
<td>GEN 600-4</td>
<td>0~600V</td>
<td>0~4</td>
<td>2400</td>
</tr>
</tbody>
</table>

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

**Accessories**

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

<table>
<thead>
<tr>
<th>Mode</th>
<th>Power Supply Connector</th>
<th>Communication Cable</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-485</td>
<td>EIA/TIA-568A (RJ-45)</td>
<td>Shield Ground L=50cm</td>
<td>GEN/RJ45</td>
</tr>
<tr>
<td>RS-232</td>
<td>EIA/TIA-568A (RJ-45)</td>
<td>Shield Ground L=2m</td>
<td>GEN/232-9</td>
</tr>
<tr>
<td>RS-232</td>
<td>EIA/TIA-568A (RJ-45)</td>
<td>Shield Ground L=2m</td>
<td>GEN/232-25</td>
</tr>
</tbody>
</table>

2. **Serial link cable**
   Daisy-chain up to 31 Genesys™ power supplies.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Power Supply Connector</th>
<th>Communication Cable</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-485</td>
<td>EIA/TIA-568A (RJ-45)</td>
<td>Shield Ground L=50cm</td>
<td>GEN/RJ45</td>
</tr>
</tbody>
</table>

* Included with power supply

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