Genesys™
Programmable DC Power Supplies
3.3 kW in 2U
Built in RS-232 & RS-485 Interface
Parallel Current Summing
Optional Interfaces:  USB
Compliant LAN
IEEE488.2 SCPI Multi-Drop
Isolated Analog Interface

Genesys™ Family
GEN H  750W Half Rack
GEN 1U  750/1500W Full Rack
GEN 2U  3.3/5kW
GEN 3U  10/15kW

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 Test & Measurement, Industrial and Laboratory applications.

**Features include:**

- High Power Density 3.3kW in 2U
- Wide Range of popular worldwide AC inputs, 1φ (230VAC) & 3φ (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
- Last Setting Memory; Front Panel Lockout
- Advanced Parallel reports total current up to four identical units
- Global Commands for Serial RS-232/RS-485 Interface
- Reliable Encoders for Voltage and Current Adjustment
- Independent Remote ON/OFF and Remote ENABLE/DISABLE
- Reliable Modular and SMT Design
- 19" Rack Mounted for ATE and OEM Applications, zero stack
- Optional Interfaces
  - Isolated Analog Programming and Monitoring
  - IEEE Multi-Drop - SCPI
  - LXI Compliant LAN Interface
  - USB Interface
- Labview™ and LabWindows™ drivers
- Five Year Warranty

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

**Applications**

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

**Test & Measurement systems** using GPIB control save significant costs by incorporating the optional IEEE Multi-Drop Interface (IEMD) in the Master. Then up to 30 Slaves may be equipped with the less expensive Optional RS-485 Multi-Drop (MD) 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 RS-485 bus as well as optional LAN (LXI compliant) or USB Interfaces.

**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 can be configured by the user to report total current of the combination. Applications include Heaters, Magnets and Laser Diodes.

**Aerospace & Satellite Testing** systems use the complete Genesys™ Family: 1U 750W Half Rack, 1U 750W or 1500W Full-Rack, 2U 3.3kW and 3U 10/15kW. All are identical in Front Panel, Rear Panel Analog and Digital Interface Commands. A wide variety of outputs allows testing of many different devices.

**Component Device Testing** is simplified because of the many user-friendly control options in 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 Inputs and Outputs from which to select depending on application. Selectable Safe and Auto Re-start protects loads and process integrity. Typical applications include Magnets, Filaments and Heaters.
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The Genesys™ family of programmable power supplies sets a new standard for flexible, reliable, AC/DC power systems in Test & Measurement, Industrial and Laboratory applications.

**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 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.
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 Interfaces Position for IEEE 488.2 (GPIB) (shown), Isolated Analog Interface, LAN Interface or USB Interface.

LAN Interface complies with LXI Class C Specification
1.0 MODEL

1.1 CONSTANT VOLTAGE MODE

1.1.1 Input voltage/freq. (*3)

1.2 CONSTANT CURRENT MODE

1.2.1 Output voltage monitor

1.3 PROTECTIVE FUNCTIONS

1.3.1 OCP

1.4 ANALOG PROGRAMMING AND MONITORING

1.4.1 Voltage Programming

1.4.2 Vout Resistor Programming

1.4.3 Ripple r.m.s 5Hz~1MHz . (*12)

1.4.4 OVP/UVL Programming

1.5 OUTPUT CHARACTERISTICS

1.5.1 Rated Output Current(*2)

1.5.2 Remote Current Programming (16 bit)

1.5.3 Remote Current Output (near panel)

1.5.4 Power Supply OK signal

1.6 Interface RS232&RS485 or Optional GPIB Interface

1.6.1 Remote Voltage Programming (16 bit)

1.6.2 Remote Current Programming (16 bit)

1.6.3 Readback Voltage

1.6.4 OVP/UVL Programming

1.6.5 Accuracy of (0.5% of Vo Rated+0.1% of Io Actual Output) (%)

2.0 GENESYS ™ 3.3kW Specifications

3.0 GENESYS ™ GEN 3.3kW 2U
General Specifications Genesys™ 3.3kW

2.1 INPUT CHARACTERISTICS

1. Input voltage/freq. (*3)
   - 1.0-120V: Rated, resistive load.
   - 110V: Rated, resistance load.
   - 120V: Rated, ultra-low distortion.
   - 20~400V: Rated, output power.
   VAC

2. Maximum
   - Input current at 100% load
   - Single Phase: 208V models: 170~265Vac, constant load.
   - Single Phase: 400V models: 342~600Vac, 47~63Hz
   - 3-Phase: 208V models: 170~265Vac, 47~63Hz
   - 3-Phase: 400V models: 948~1908Vac, 47~63Hz

3. Power Factor (Typ)
   - Single Phase models: 0.998±2%Vac, rated output power.
   - 3-Phase models: 0.948±2%Vac, rated output power.

4. Efficiency (Typ)
   - 82% to 84% for single-phase models.
   - 88% to 88% for 3-phase models.

5. Input Current (Typ)
   - A for single-phase models. Less than 30A for 3-phase models.

6. Hold-up time (Typ)
   - ns for single-phase models.
   - 6mSec for 3-phase models. Rated output power.

2.2 POWER SUPPLY CONFIGURATION

1. Parallel Operation
   - Up to 4 identical units in master/slave mode with parallel current summing (Advanced Parallel)

2. Series Operation
   - Up to 2 identical units with external diodes. 650V Max to Chassis ground

2.3 ENVIRONMENTAL CONDITIONS

1. Operating temp
   - 0~50 °C, 100% load.

2. Storage temp
   - -30~85°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:
   - IEC1000-4-4. Air-disch., 8kV, contact disch., 4kV
   - IEC1000-4-4, 2kV
   - IEC1000-4-5. 5kV line to line, 2kV line to ground

2. ESD
   - IEC1000-4-2, Air-disch., 8kV, contact disch., 4kV

3. Fast transients
   - IEC1000-4-4, 2kV

4. Surge immunity
   - IEC1000-4-4, 5kV 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

10. Radiated emission

2.5 SAFETY

1. Applicable standards:
   - CE Mark, UL60950,EN60950 listed. Vout<40V/Output is SELV. IEEE/isolated analog are SELV.
   - 40<Vout<400V. Output is hazardous. IEEE/isolated analog are not SELV.
   - 400<Vout<4000V/Output is hazardous. IEEE/isolated analog are not SELV.

2. Withstand voltage
   - Vout<40V: Input-Outputs (SELV): 4242VDC 1min, Input-Ground: 2828VDC 1min.
   - Vout<100V: Input-Haz. Output: 2600VDC 1min, Input-SELV: 4242VDC 1min.
   - Vout<400V: Input-Ground: 2828VDC 1min.
   - 100<Vout<800V: Input-Ground: 2828VDC 1min, Input-SELV: 4242VDC 1min.
   - 800<Vout: Hazardous Output-SELV: 5550VDC 1min, Hazardous Output-Ground: 2670VDC 1min.
   - Input-Ground: 2828VDC 1min.

3. Insulation resistance
   - More than 10Mohm 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)
   - 16.65in, H: 3.46in, D: 17.42in (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 6-1644-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.

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-300-9-116 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 with or without Multi-Drop option.

Programming Options (Factory installed)

New IEEE Multi-Drop Interface P/N: IEMD
• Allows IEEE Master to control up to 30 (Multi-Drop equipped) 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

New Multi-Drop Slave Option P/N: MD
• Slaves need to be equipped with the MD Slave (RS-485) option

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 P/N: LAN
• Meets all LXI-C Requirements
• VISA & SCPI Compatible
• LAN Fault Indicators
• Auto-detects LAN Cross-over Cable
• Compatible with most standard Networks

USB Interface P/N: USB
• Allows Serial Connection to USB Port on computer
• Serial commands same as (standard) RS-232/RS-485 Interface
Remote Programming via RS-232 & RS-485 Interface

LAN Interface

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• Program Voltage
• Program Current
• Measure Voltage
• Measure Current
• Over Voltage setting and shutdown
• Current Foldback shutdown
• Error and Status Messages

Programming Options (Factory installed)

New IEEE Multi-Drop Interface
New Multi-Drop Slave Option

• Slaves need to be equipped with the MD Slave (RS-485) option
• 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%

P/N: IS420
P/N: IS510

• Meets all LXI-C Requirements
• Address Viewable on Front Panel
• Fixed and Dynamic Addressing
• Fast Startup

• Allows Serial Connection to USB Port on computer
• Serial commands same as (standard) RS-232/RS-485 Interface

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

Series Operation - Master/Slave:

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

USB Interface

Compliant to Class C

Also Available Genesys™
1U Half Rack 750W
1U 750W/1500W
2U 5kW
3U 10/15kW