# Genesys™

**Programmable DC Power Supplies**
**10/15kW in 3U**
**Built in RS-232 & RS-485 Interface**
**Parallel Current Summing**
**Optional Interfaces: USB**
**LXI 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 |

**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 Test & Measurement, Industrial and OEM applications.*

## Features include:

- **High Power Density 10/15kW in 3U**
- **High Current up to 1,000ADC**
- **Wide Range of popular worldwide 3ϕ AC inputs, (208VAC, 400VAC, 480VAC)**
- **Power Factor 0.88 (Passive Correction on all Inputs)**
- **Output Voltage up to 600V, Current up to 1,000A**
- **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; UL Recognized and CE Mark for LVD and EMC Regulation (208VAC and 400VAC Input)

## 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. 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.

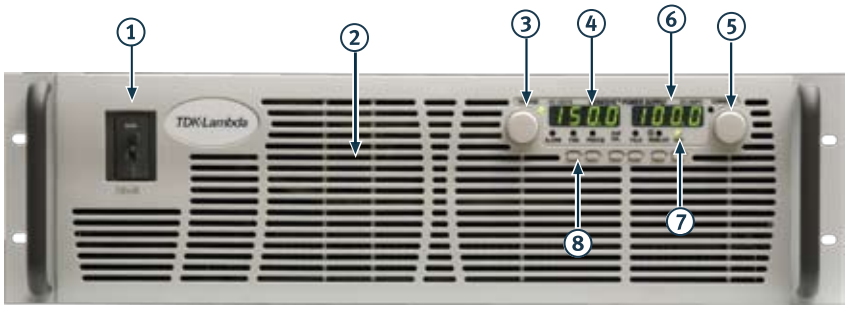
**Aerospace & Satellite Testing** systems use the complete Genesys™ Family: 1U 750W Half Rack, 1U 750W or 1500W Full-Rack, 2U 3.3kW and 3U 10/15kW. All are identical in Front Panel, Rear Panel Analog and Digital Interface Commands. A wide variety of outputs allows testing of many different devices.

**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.

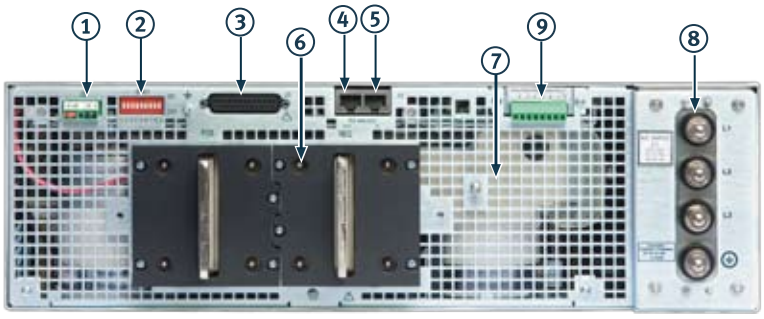
**Semiconductor Processing & Burn-in** equipment designers appreciate the wide variety of worldwide Inputs and Outputs from which to select depending on application. Selectable Safe and Auto Re-start protects loads and process integrity. Typical applications include Magnets, Filaments and Heaters.

## 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 Baudrate. 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 Baudrate
   - 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 2 hole busbars (shown) for up to 80V Output, single hole busbars 100 to 300V Output, threaded stud terminals above 300V Output
7. Exit air assures reliable operation when zero stacked
8. Input Terminals L1, L2, L3, Ground, threaded studs.
9. Optional Interfaces Position for IEEE 488.2 (GPIB), Isolated Analog Interface, LAN Interface or USB Interface

**LAN Interface complies with LXI Class C Specification**

# Genesys™ 10/15kW Specifications

| 1.0 MODEL | GEN | 7.5-1000 | 10-1000 | 12.5-800 | 20-500 | 25-400 | 30-333 | 40-250 | 50-200 | 60-167 | 10kW | 15kW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Rated output voltage | V | 7.5 | 10 | 12.5 | 20 | 25 | 30 | 40 | 50 | 60 | X | |
| 2.Rated output current | A | 1000 | 1000 | 800 | 500 | 400 | 333 | 250 | 200 | 167 | X | |
| 3.Rated output power | kW | 7.5 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | X | |
| 4.Efficiency (min) at low line, 100% Rated Load | % | 77 | 83 | | | | | | | | X | |

| 1.0 MODEL | | | | | | | | | | 60-250 | | 15kW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Rated output voltage | V | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 60 | | X |
| 2.Rated output current | A | | | | | | | | | 250 | | X |
| 3.Rated output power | kW | | | | | | | | | 15.0 | | X |
| 4.Efficiency (min) at low line, 100% Rated Load | % | | | | | | | | | 88 | | X |
| | Contact factory for other models | | | | | | | | | | | |

**1.1 CONSTANT VOLTAGE MODE**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Max. line regulation (0.1% Vo Max =<30V; 0.01%>30V) | mV | 7.5 | 10 | 12.5 | 20 | 25 | 30 | 4 | 5 | 6 | X | X |
| 2. Max. load regulation (0.1% Vo Max =<30V; 0.02%>30V) | mV | 7.5 | 10 | 12.5 | 20 | 25 | 30 | 8 | 10 | 12 | X | X |
| 3. Ripple r.m.s 5Hz~1MHz c.v (*1) | mV | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | X | X |
| 4. Output noise p-p(20MHz) c.v (*1) | mV | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 75 | 75 | X | X |
| 5. Remote sense compensation/wire | V | 1 | 1 | 1 | 1 | 1 | 1.5 | 2 | 3 | 3 | X | X |
| 6. Temperature Stability c.v. | --- | +/-0.05% of Vo Rated Over 8 hours, after 30 minute warm up, constant Line, Load & Temperature | | | | | | | | | X | X |
| 7. Temperature Coefficient c.v. | PPM/C | 200 (0.02% Vo Rated)/Degree C | | | | | | | | | X | X |
| 8. Up-prog. response time, 0~Vomax full-load | mS | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | X | X |
| 9. Up-prog. response time, 0~Vomax, no load | mS | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | X | X |
| 10. Transient response time (cv mode) (*2) | mS | less than 3. | | | | | | | | | X | X |

**1.2 CONSTANT CURRENT MODE**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Max. line regulation (0.1% Io Max =>333A; 0.05%<333A) | mA | 1000 | 1000 | 800 | 500 | 400 | 333 | 125 | 100 | 83.5 | X | |
| 2. Max. load regulation (0.1% Io Max =>333A; 0.075%<333A) | mA | 1000 | 1000 | 800 | 500 | 400 | 333 | 188 | 150 | 125 | X | |
| 1. Max. line regulation (0.1% Io Max =>333A; 0.05%<333A) | mA | | | | | | | | | 125 | | X |
| 2. Max. load regulation (0.1% Io Max =>333A; 0.075%<333A) | mA | | | | | | | | | 188 | | X |
| 3. Ripple r.m.s 5Hz~1MHz c.c | mA | 5100 | 5100 | 2600 | 2600 | 1700 | 1700 | 100 | 80 | 67 | X | |
| 3. Ripple r.m.s 5Hz~1MHz c.c | mA | | | | | | | | | 100 | | X |
| 4. Temperature Stability c.c. | --- | +/-0.05% of Io Rated Over 8 hours, after 30 minute warm up, constant Line, Load & Temperature | | | | | | | | | X | X |
| 5. Temperature Coefficient c.c. | PPM/C | 300 (0.03% Full Scale)/ Degree C | | | | | | | | | X | X |

**1.3 PROTECTIVE FUNCTIONS**

| | | | | |
|---|---|---|---|---|
| 1. OCP | % | 0~100 | X | X |
| 2. OCP type | --- | Constant current | X | X |
| 3. Foldback protection | --- | Output shut down, manual reset by front panel OUT button. | X | X |
| 4. Foldback response time | S | Less than 1 | X | X |
| 5. OVP type | --- | Inverter shut-down, manual reset by On/Off recycle or by OUT button | X | X |
| 6. OVP programming accuracy | % | 5% Full Scale | X | X |
| 7. OVP trip point | V | 0.05 to (1.02-1.05) x Rated Output Voltage | X | X |
| 8. OVP response time | mS | Less than 10mS for Output to begin to drop. | X | X |
| 9. Max. OVP reset time | S | 7 from Turn On. | X | X |
| 10. Over temperature protection | --- | Shut down if internal temperature exceeds safe operating levels. (Latched in Safe Mode/ Unlatched in Auto Mode). | X | X |
| 11. Phase Loss Protection | --- | Yes | X | X |

**1.4 REMOTE ANALOG CONTROLS & SIGNALS**

| | | | |
|---|---|---|---|
| 1. Vout voltage programming | 0~100%, 0~5V or 0~10V, user selectable. Accuracy & Linearity +/-1% of Rated Vo. | X | X |
| 2. Iout voltage programming | 0~100%, 0~5V or 0~10V, user selectable. Accuracy & Linearity +/-1% of Rated Io. | X | X |
| 3. Vout resistor programming | 0~100%, 0~5/10kohm full scale, user selectable. Accuracy & Linearity +/-1% of Rated Vo. | X | X |
| 4. Iout resistor programming | 0~100%, 0~5/10kohm full scale, user selectable. Accuracy & Linearity +/-1% of Rated Io. | X | X |
| 5. On/Off control (rear panel) | By Voltage: 0.6V = Disable, 2-15V = enable (default) or dry contact, user selectable logic | X | X |
| 6. Output current monitor | 0~5V or 0~10V , accuracy:1% , user selectable | X | X |
| 7. Output voltage monitor | 0~5V or 0~10V , accuracy:1% , user selectable | X | X |
| 8. Power supply OK signal | Yes. TTL high-OK, 0V (500ohm impedance)-Fail | X | X |
| 9. CV/CC signal | CV: TTL high (4~5V) source: 10mA, CC: TTL low (0~04V):10mA | X | X |
| 10. Enable/Disable | Dry contact. Open: Off , Short: On. Max. voltage at Enable/Disable Contacts 6V | X | X |
| 11. Remote/Local selection | Selects Remote or Local operation by Voltage: 0~0.6V/2~15V, <0.6V = Local 2-15V = Remote | X | X |
| 12. Remote/Local signal | Signals operating mode in use. | X | X |

**1.5 FRONT PANEL**

| | | | |
|---|---|---|---|
| 1. Control functions | Vout/ Iout manual adjust by separate encoders, Fine and Coarse selectable. | X | X |
| | OVP/UVL manual adjust by Voltage Adjust encoder, Front Panel Lock/Unlock | X | X |
| | Address selection by Voltage Adjust encoder. No of addresses:31 | X | X |
| | AC On/Off, Output On/Off, Restart Modes (Auto/Safe), Foldback Control (CV to CC), Go to Local | X | X |
| | RS232/485 and IEEE488.2 selection by IEEE enable switch and DIP switch | X | X |
| | Baudrate selection by Current adjust encoder. | X | X |
| | Parallel Master Slave:Hx, where x = Slaves 0 up to four. | X | X |
| 2. Display | Vout: 4 Digits, Accuracy: 0.5% +/- 1 Count | X | X |
| | Iout: 4 Digits, Accuracy: 0.5% +/- 1 Count | X | X |
| | Voltmeter is user selectable to read either local voltage (at power supply) or remote voltage (at the load). | X | X |
| 3. Indications | ADDR., OVP/UVL , V/A , FOLD, REM./LOCAL, OUT ON/OFF, LFP/UFP, CC/CV : GREEN LED's. ALRM (OVP,OTP,FOLD,AC FAIL): RED LED | X | X |

**1.6 DIGITAL PROGRAMMING & READBACK**

| | | | |
|---|---|---|---|
| 1. Vout programming accuracy | +/-0.5% of rated output voltage | X | X |
| 2. Iout programming accuracy | +/-0.5% of rated output current for units with Io<187.5; +/-0.7% of rated output current for Io ≥187.5 | X | X |
| 3. Vout programming resolution | 0.02% of full scale | X | X |
| 4. Iout programming resolution | 0.04% of full scale | X | X |
| 5. Vout readback accuracy | 0.1%+0.2% of rated output voltage | X | X |
| 6. Iout readback accuracy | 0.1%+0.4% of rated output current | X | X |
| 7. Vout readback resolution | 0.02% of full scale | X | X |
| 8. Iout readback resolution | 0.02% of full scale | X | X |
| 9. OV Response time | 20 mS maximum between output V exceeding IEEE Limit and supply inhibit turning on. | X | X |
| 10. Other Functions | Set Over-Voltage Limit, Set Local/Remote | X | X |

*1. Ripple and Noise at Full Rated Voltage & Load at 25C, Nominal Line. Per EIJ R9002A
*2. Time for the rated output voltage to recover within 2% for a load change of 50~100% or 100~50% of rated output.

# Genesys™ 10/15kW Specifications

| 1.0 MODEL | GEN | 80-125 | 100-100 | 125-80 | 150-66 | 200-50 | 250-40 | 300-33 | 400-25 | 500-20 | 600-17 | 10kW | 15kW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Rated output voltage | V | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | X | |
| 2.Rated output current | A | 125 | 100 | 80 | 66 | 50 | 40 | 33 | 25 | 20 | 17 | X | |
| 3.Rated output power | kW | 10.0 | 10.0 | 10.0 | 9.9 | 10.0 | 10.0 | 9.9 | 10.0 | 10.0 | 10.2 | X | |
| 4.Efficiency (min) at low line, 100% Rated Load | % | 83 | | | | | | | | | | X | |

| 1.0 MODEL | | 80-187.5 | 100-150 | 125-120 | 150-100 | 200-75 | 250-60 | 300-50 | 400-37.5 | 500-30 | 600-25 | 10kW | 15kW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Rated output voltage | V | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | | X |
| 2.Rated output current | A | 187.5 | 150 | 120 | 100 | 75 | 60 | 50 | 37.5 | 30 | 25 | | X |
| 3.Rated output power | kW | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | | X |
| 4.Efficiency (min) at low line, 100% Rated Load | % | 88 | | | | | | | | | | | X |
| | | Contact factory for other models | | | | | | | | | | | |

**1.1 CONSTANT VOLTAGE MODE**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Max. line regulation (0.1% Vo Max =<30V; 0.01%>30V) | mV | 8 | 10 | 12.5 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | X | X |
| 2. Max. load regulation (0.1% Vo Max =<30V; 0.02%>30V) | mV | 16 | 20 | 25 | 30 | 40 | 50 | 60 | 80 | 100 | 120 | X | X |
| 3. Ripple r.m.s 5Hz~1MHz c.v (*1) | mV | 25 | 25 | 25 | 25 | 35 | 35 | 60 | 60 | 60 | 60 | X | X |
| 4. Output noise p-p(20MHz) c.v (*1) | mV | 100 | 100 | 125 | 150 | 175 | 200 | 200 | 300 | 350 | 350 | X | X |
| 5. Remote sense compensation/wire | V | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | X | X |
| 6. Temp. drift c.v | --- | +/-0.05% of Vo Rated Over 8 hours, after 30 minute warm up, constant Line, Load & Temperature | | | | | | | | | | X | X |
| 7. Stability c.v | PPM/C | 200 (0.02% Vo Rated)/Degree C | | | | | | | | | | X | X |
| 8. Up-prog. response time, 0~Vomax full-load | mS | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | X | X |
| 9. Up-prog. response time, 0~Vomax, no load | mS | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | X | X |
| 10. Transient response time (cv mode) (*2) | mS | less than 3. | | | | | | | | | | X | X |

**1.2 CONSTANT CURRENT MODE**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Max. line regulation (0.1% Io Max =>333A; 0.05%<333A) | mA | 62.5 | 50 | 40 | 33 | 25 | 20 | 17 | 13 | 10 | 9 | X | |
| 2. Max. load regulation (0.1% Io Max =>333A; 0.075%<333A) | mA | 94 | 75 | 60 | 50 | 38 | 30 | 25 | 19 | 15 | 13 | X | |
| 1. Max. line regulation (0.1% Io Max =>333A; 0.05%<333A) | mA | 94 | 75 | 60 | 50 | 38 | 30 | 25 | 19 | 15 | 13 | | X |
| 2. Max. load regulation (0.1% Io Max =>333A; 0.075%<333A) | mA | 141 | 113 | 90 | 75 | 56 | 45 | 38 | 28 | 23 | 19 | | X |
| 3. Ripple r.m.s 5Hz~1MHz c.c | mA | 50 | 40 | 32 | 26 | 20 | 16 | 13 | 10 | 8 | 7 | X | |
| 3. Ripple r.m.s 5Hz~1MHz c.c | mA | 100 | 100 | 50 | 50 | 20 | 20 | 20 | 10 | 10 | 10 | | X |
| 4. Temp. drift c.c | --- | +/-0.05% of Io Rated Over 8 hours, after 30 minute warm up, constant Line, | | | | | | | | | | X | X |
| 5. Stability c.c | PPM/C | 300 (0.03% Full Scale)/ Degree C | | | | | | | | | | X | X |

**1.3 PROTECTIVE FUNCTIONS**

| | | | | |
|---|---|---|---|---|
| 1. OCP | % | 0~100 | X | X |
| 2. OCP type | --- | Constant current | X | X |
| 3. Foldback protection | | Output shut down, manual reset by front panel OUT button. | X | X |
| 4. Foldback response time | S | Less than 1 | X | X |
| 5. OVP type | --- | Inverter shut-down, manual reset by On/Off recycle or by OUT button | X | X |
| 6. OVP programming accuracy | % | 5% Full Scale | X | X |
| 7. OVP trip point | V | 0.05 to (1.02-1.05) x Rated Output Voltage | X | X |
| 8. OVP response time | mS | Less than 10mS for Output to begin to drop. | X | X |
| 9. Max. OVP reset time | S | 7 from Turn On. | X | X |
| 10. Over temperature protection | --- | Shut down if internal temperature exceeds safe operating levels. (Latched in Safe Mode/ Unlatched in Auto | X | X |
| 11. Phase Loss Protection | | Yes | X | X |

**1.4 REMOTE ANALOG CONTROLS & SIGNALS**

| | | | |
|---|---|---|---|
| 1. Vout voltage programming | 0~100%, 0~5V or 0~10V, user selectable. Accuracy & Linearity +/-1% of Rated Vo. | X | X |
| 2. Iout voltage programming | 0~100%, 0~5V or 0~10V, user selectable. Accuracy & Linearity +/-1% of Rated Io. | X | X |
| 3. Vout resistor programming | 0~100%, 0~5/10kohm full scale, user selectable. Accuracy & Linearity +/-1% of Rated Vo. | X | X |
| 4. Iout resistor programming | 0~100%, 0~5/10kohm full scale, user selectable. Accuracy & Linearity +/-1% of Rated Io. | X | X |
| 5. On/Off control (rear panel) | By Voltage: 0.6V = Disable, 2-15V = enable (default) or dry contact, user selectable logic | X | X |
| 6. Output current monitor | 0~5V or 0~10V , accuracy:1% , user selectable | X | X |
| 7. Output voltage monitor | 0~5V or 0~10V , accuracy:1% , user selectable | X | X |
| 8. Power supply OK signal | Yes. TTL high-OK, 0V (500ohm impedance)-Fail | X | X |
| 9. CV/CC signal | CV: TTL high (4~5V) source: 10mA, CC: TTL low (0~04V):10mA | X | X |
| 10. Enable/Disable | Dry contact. Open: Off , Short: On. Max. voltage at Enable/Disable Contacts 6V | X | X |
| 11. Remote/Local selection | Selects Remote or Local operation by Voltage: 0~0.6V/2~15V, <0.6V = Local 2-15V = Remote | X | X |
| 12. Remote/Local signal | Signals operating mode in use. | X | X |

**1.5 FRONT PANEL**

| | | | |
|---|---|---|---|
| 1. Control functions | Vout/ Iout manual adjust by separate encoders, Fine and Coarse selectable. | X | X |
| | OVP/UVL manual adjust by Voltage Adjust encoder, Front Panel Lock/Unlock | X | X |
| | Address selection by Voltage adjust encoder. No of addresses:31 | X | X |
| | AC On/Off, Output On/Off, Restart Modes (Auto/Safe), Foldback Control (CV to CC), Go to Local | X | X |
| | RS232/485 and IEEE488.2 selection by IEEE enable switch and DIP switch | X | X |
| | Baud rate selection by Current adjust encoder. | X | X |
| | Parallel Master Slave:Hx, where x = Slaves 0 up to four. | X | X |
| 2. Display | Vout: 4 Digits, Accuracy: 0.5% +/- 1 Count | X | X |
| | Iout: 4 Digits, Accuracy: 0.5% +/- 1 Count | X | X |
| | Voltmeter is user selectable to read either local voltage (at power supply) or remote voltage (at the load). | X | X |
| 3. Indications | ADDR., OVP/UVL , V/A , FOLD, REM./LOCAL, OUT ON/OFF, LFP/UFP, CC/CV : GREEN LED's. ALRM (OVP,OTP,FOLD,AC FAIL): RED LED | X | X |

**1.6 DIGITAL PROGRAMMING & READBACK**

| | | | |
|---|---|---|---|
| 1. Vout programming accuracy | +/-0.5% of rated output voltage | X | X |
| 2. Iout programming accuracy | +/-0.5% of rated output current for units with Io<187.5; +/-0.7% of rated output current for Io ≥187.5 | X | X |
| 3. Vout programming resolution | 0.02% of full scale | X | X |
| 4. Iout programming resolution | 0.04% of full scale | X | X |
| 5. Vout readback accuracy | 0.1%+0.2% of rated output voltage | X | X |
| 6. Iout readback accuracy | 0.1%+0.4% of rated output current | X | X |
| 7. Vout readback resolution | 0.02% of full scale | X | X |
| 8. Iout readback resolution | 0.02% of full scale | X | X |
| 9. OV Response time | 20 mS maximum between output V exceeding IEEE Limit and supply inhibit turning on. | X | X |
| 10. Other Functions | Set Over-Voltage Limit, Set Local/Remote | X | X |

*1. Ripple and Noise at Full Rated Voltage & Load at 25C, Nominal Line. Per EIJ R9002A
*2. Time for the rated output voltage to recover within 2% for a load change of 50~100% or 100~50% of rated output.

# General Specifications Genesys™ 10/15kW

**2.1 INPUT CHARACTERISTICS**

| | | |
|---|---|---|
| 1. Input voltage/freq.(range) | --- | 208VAC (180-253); 400VAC (360/440); 480VAC (432-528), all 47-63Hz. |
| 2. No. of phases | --- | 3 Phase (Wye or Delta) 4 wire total (3 Phase and 1 protective earth ground) |
| 3. Dropout voltage | V | 180/360/432 |
| 4. Input current 180/360/432Vac | A | 10kW - 45/23/20; 15kW - 64/32/27 All at full rated output power. |
| 5. Inrush current | A | Not to exceed full rated Input current See Para. 2.4 |
| 6. Power Factor | --- | 0.88 Passive |
| 7. Leakage current | mA | 3.5 (EN60950) max. |
| 8. Input Protection | --- | 208 VAC Circuit Breaker; 400VAC, 480VAC - Line Fuse |
| 9. Input Overvoltage Protection | | Unit shall not be damaged by line overvoltage with max. duration of 100uSec. Up to 120% of nominal AC input voltage. |
| 10. Phase Imbalance | % | = < 5% on Three Phase Input |

**2.2 POWER SUPPLY CONNECTION**

| | | |
|---|---|---|
| 1. Parallel operation | | Up to Four (4) identical units may be connected in Master/Slave Mode with 'Single' wire connection. In Advanced parallel feature, the current of Master Unit, multiplied by number of units connected in parallel, is made available on digital interface and displayed on front panel of Master unit. Remote analog current monitor of the Master is scaled to output current of the Master unit (only). |
| 2. Series operation | | Possible (with external diodes) , up to identical 2 units with total output not to exceed +/-600V from chassis ground. |

**2.3 ENVIRONMENTAL CONDITIONS**

| | | |
|---|---|---|
| 1. Operating temp | C | 0~50 C, 100% load. |
| 2. Storage temp | C | -20C to +70C |
| 3. Operating humidity | % | 20~80% RH Non-condensing |
| 4. Storage humidity | % | 10~90% RH Non-condensing |
| 5. Vibration & Shock (208/400VAC) | G | 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:50º C up to 7500 ft. (2500m), 45º C from 7501 to 10,000ft (2501m - 3000m) |
| | | Non Operating 40,000 ft (12,000m) |
| 7. Audible Noise | db | 65dBA at Full Load, measured 1m from Front Panel |

**2.4 EMC**

| | | |
|---|---|---|
| **1. 208 Volts Input Models** | | CE Mark |
| 1. ESD | --- | EN61000-4-2 (IEC 801-2) Air-disch.+/-8kV , contact disch.+/-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 emission | --- | EN55011A, FCC part 15J-A |
| 8. Radiated emission | --- | EN55011A, FCC part 15J-A |
| **2. 400 Volts Input Models** | | CE Mark |
| 1. ESD | --- | EN61000-4-2 (IEC 801-2) Air-disch.+/-8kV , contact disch.+/-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 Tests (400VAC Only). | --- | IEC 61000-4-11 |
| 8. Conducted emission | --- | EN55011A, FCC part 15J-A |
| 9. Radiated emission | --- | EN55011A, FCC part 15J-A |

**2.5 SAFETY**

| | | |
|---|---|---|
| 1. Applicable standards | --- | UL/CUL 60950-1, EN60950-1 recognized. All Outputs are Hazardous. (Units with IEMD or ISOL option are Recognized up to 400 volts output). CE Mark 208 & 400VAC Inputs only (CB Scheme). |
| 2. Insulation resistance | --- | 100Mohm at 500Vdc |

**2.6 MECHANICAL CONSTRUCTION**

| | | |
|---|---|---|
| 1. Cooling | --- | Fan driven, Airflow from Front to Rear. Supplemental vents on side that shall not be blocked. EIA Rack mounting, stackable. "Zero Stackable" top and bottom. Slides or suitable rear support required. |
| 2. Weight | Kg/Lb | 43/97 |
| 3. Dimensions (W x H x D) | --- | W: 19" Rack, H:3U - 5.22"(133mm), D - 22.2" (564mm) without connectors. |
| 4. Types of connectors | --- | 1) Input: Threaded Studs and terminal cover. Strain relief optional.<br>2) Output: Up to and including 300V Models: bus-bars. Greater than 300V Models: threaded stud terminals<br>3) Analog programming: DB25, plastic connector, AMP, 747461-5, Female on Power Supply, Male on Mating connector 747321. Standard 25 pin D connector. |
| 5. Mounting method | --- | Standard 19" Rack Mount, provision for standard slides. Side/Rear Support is required; do not mount by F/P only. |
| 6. Output ground connection | ---- | M5 Stud |

**2.7 RELIABILITY**

| | | |
|---|---|---|
| 1. Warranty | Yrs. | 5 years |

# 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.

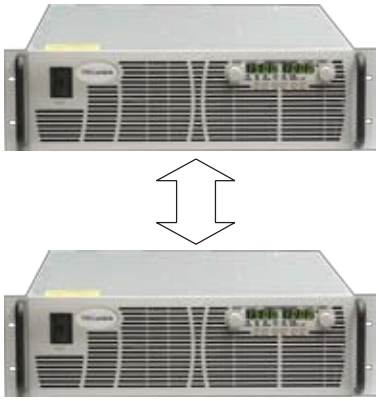
In Advanced Parallel Master/Slave Mode, total current is programmed and reported by the Master. Up to four supplies act as one.

**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
- Program Current
- Measure Current
- Current Foldback shutdown

## 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.

**P/N: IS510**

- 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**

- 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**

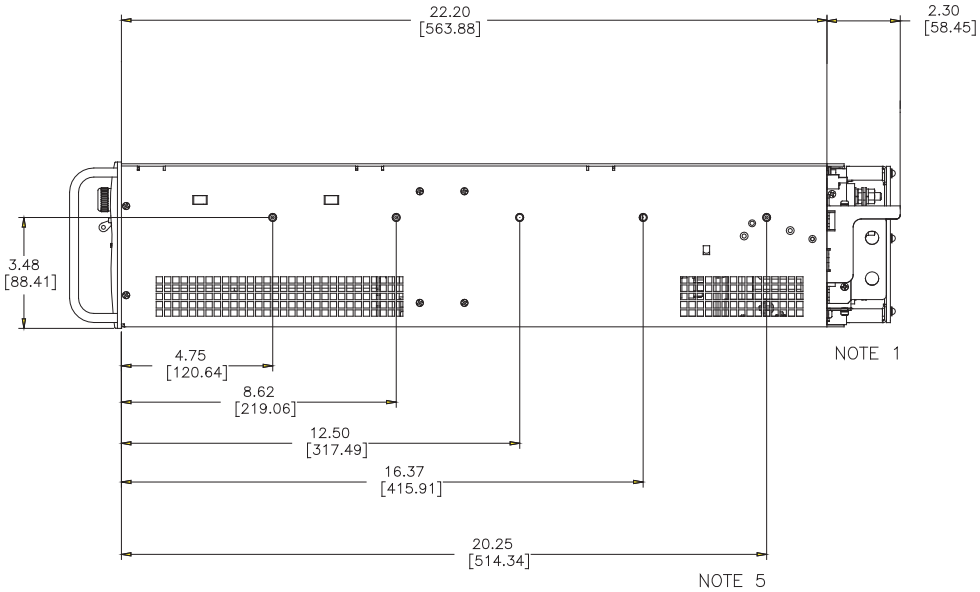
- Meets all LXI-C Requirements
- Address Viewable on Front Panel
- Fixed and Dynamic Addressing
- Fast Startup
- VISA & SCPI Compatible
- LAN Fault Indicators
- Auto-detects LAN Cross-over Cable
- Compatible with most standard Networks

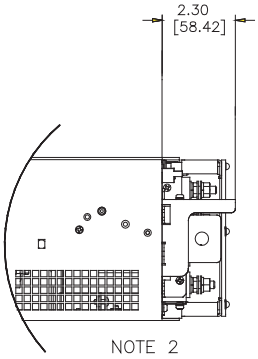
## USB Interface

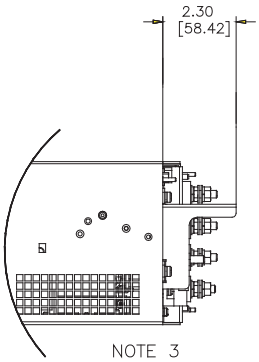
**P/N: USB**

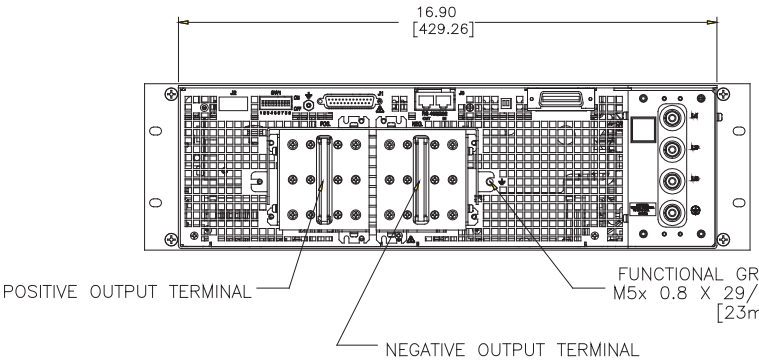
- Allows Serial Connection to USB Port on computer
- Serial commands same as (standard) RS-232/RS-485 Interface

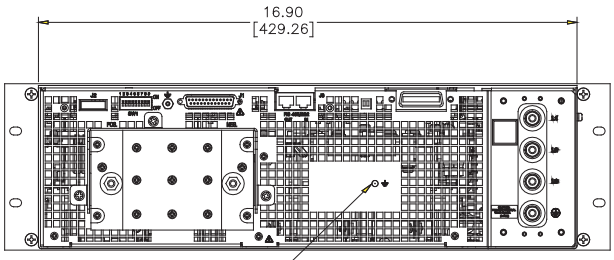
# Outline Drawings Genesys™ 3U - 10/15kW

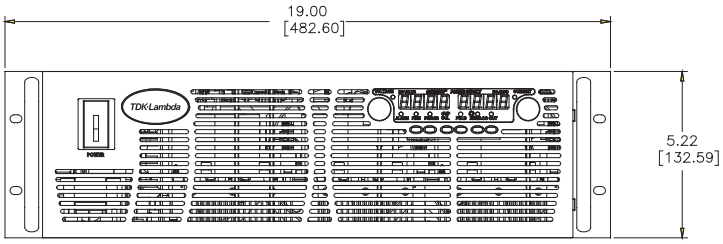



NOTES:

1. For models up to 30VDC Output two holes 0.42" Dia (10.72mm)
2. For models 40-300VDC Output one hole 0.42" Dia (10.72mm)
3. For models above 300V Output threaded stud terminal
4. Input Terminals M6x1 (3 + GND)
5. Mounting for Slide Mounts (not included).
   Recommend General Devices, Chassis Trak P/N C230-S-122.
   Secure with pan head screw M5x0.8-8mm long MAX.

# Power Supply Identification / Accessories

## How to order

**GEN** **10** - **1000** - _____ - _____

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

### Models 10/15kW

| Model | Output Voltage VDC | Output Current ( A ) | 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 40-250 | 0~40 | 0~250 | 10 |
| GEN 50-200 | 0~50 | 0~200 | 10 |
| 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 |

| Model | Output Voltage VDC | Output Current ( A ) | Output Power ( kW ) |
|---|---|---|---|
| GEN 150-66 | 0~150 | 0~66 | 10 |
| GEN 150-100 | | 0~100 | 15 |
| 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 |

### Factory options

| | P/N |
|---|---|
| RS-232/RS-485 Interface built-in Standard | - |
| GPIB (Multi-Drop Master) Interface | IEMD |
| Multi-Drop Slave Interface | MD |
| Voltage Programming Isolated Analog Interface | IS510 |
| Current Programming Isolated Analog Interface | IS420 |
| LAN Interface (Complies with LXI Class C) | LAN |
| USB Interface | USB |

## 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<br>Communication Cable<br>Power Supply Connector | DB-9F<br>Shield Ground L=2m<br>EIA/TIA-568A (RJ-45) | DB-9F<br>Shield Ground L=2m<br>EIA/TIA-568A (RJ-45) | DB-25F<br>Shield Ground L=2m<br>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 750/1500W***
***2U 3.3/5kW***

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