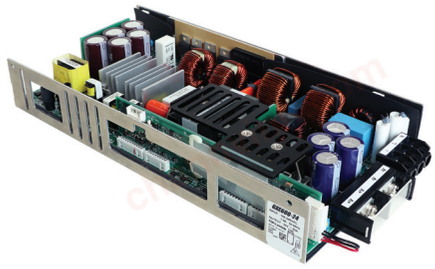
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# TDK·Lambda

# GXE600 Series

https://product.tdk.com/en/power/gxe
www.emea.lambda.tdk.com/gxe600

## Single Output 600W Programmable Medical and Industrial Power Supplies



Medical Industrial Test Broadcast COMM

With efficiencies up to 95%, the medical and industrial certified GXE600 is rated at 600W with convection cooling for low audible noise. The output voltage and current can be programmed and set for constant current or constant voltage characteristics. The Modbus RTU serial protocol is used for data transmission due its high interference immunity within noisy industrial environments. The parameters for fault programming (protection level and recovery characteristics) and the slew rate timing can be changed. Remaining electrolytic capacitor life, operating hours and alarm history can be read through the RS-485 interface, aiding remote preventative maintenance. As standard the GXE600 has a 5V 1A standby voltage, isolated DC Good and AC Fail signals, remote on/off and paralleling capability for up to five units.

| Features | Benefits |
|---|---|
| • Convection Cooled | • Quiet Operation |
| • Up to 95% Efficient | • Lower Operating Costs |
| • RS-485 Read-Write Communication (Modbus RTU protocol) | • Applicable for Communication in Industrial Applications |
| • Constant Voltage & Constant Current Modes | • Versatile Use |
| • Monitoring & Programming Functions | • Allows Remote Monitoring and Operation |
| • Digital or Analog Programming | • Easier System Integration |
| • Seven Year Warranty(1) | • Low Cost of Ownership |

## Model Selector

| Model | Nominal Output Voltage (V) | Output Adjustment Manual (V) | Output Adjustment Programming(2) (V) | Maximum Current (A) | Maximum Power (W) | Efficiency (typ %) 115 / 230Vac |
|---|---|---|---|---|---|---|
| GXE600-24 | 24 | 19.2 - 28.8 | 4.8 - 28.8 | 25 | 600 | 92 / 95 |
| GXE600-48 | 48 | 38.4 - 57.6 | 9.6 - 57.6 | 12.5 | 600 | 92 / 95 |

| GXE600- | 24 | / | A |
|---|---|---|---|

Output voltage 24, 48

| | |
|---|---|
| blank | U channel chassis |
| /A | U channel chassis with cover |
| /HD | U channel chassis, ruggedized & pcb coating |
| /HDA | U channel chassis with cover, ruggedized & pcb coating |

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## Specifications

| Model | | GXE600-24 | GXE600-48 |
|---|---|---|---|
| **Input** | | | |
| Input Voltage Range [3] (Operating) | Vac | 85 - 265. Withstands 300 for 5s | |
| Nominal Input Voltage Range | Vac | 100 - 240 (Note: Safety certified for 90-264Vac) | |
| Input Frequency | Hz | 47 - 63 | |
| Input Current (typ) (115/230Vac) | A | 6.1 / 3.1 | |
| Inrush Current (typ 100/200Vac) (Cold Start) | A | 40 / 40 | |
| Leakage Current (Maximum) | mA | <0.3 | |
| Power Factor (115/230Vac) | - | 0.99 / 0.95 | |
| Harmonic Compliance | - | Meets EN61000-3-2 | |
| No Load Power Consumption | W | 3.4 at 100Vac. 1.2 at 200Vac when remote on/off is activated and no load on 5Vsb | |
| Hold Up Time (typ) at 115 / 230Vac Input | ms | 20 | |
| Efficiency | - | See model selector | |
| Conducted & Radiated EMI | - | EN55011-B, EN55032-B, FCC Class B | |
| Immunity | - | IEC61000-4-2, IEC60601-1-2 Ed4. See immunity table | |
| Insulation Class | - | Class I | |
| Safety Certifications and Markings | - | IEC/UL/ES/CSA/EN60601-1, IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark | |

## Immunity

| Test | Standard | Test Level | Criteria | Notes |
|---|---|---|---|---|
| ESD | EN61000-4-2 | Air ±8kV and contact ±4kV | A | See website for immunity test report |
| Radiated Susceptibility | EN61000-4-3 | 80M -1GHz: 10V/m<br>1.4 - 2.0GHz: 3V/m<br>2.0 - 2.7GHz: 1V/m | A | |
| Electrical Fast Transient Burst | EN61000-4-4 | ± 2kV | A | |
| Surge | EN61000-4-5 | Normal ± 1kV | A | |
| Conducted Susceptibility | EN61000-4-6 | 10Vrms | A | |
| Magnetic Fields | EN61000-4-8 | 30A/m | A | |
| Voltage Dips | EN61000-4-11 | 30% 500ms | A | |
| Voltage Dips | EN60601-1-2 | 30% 500ms | A | |
| SEMI F47 Line Dip | SEMI F47 | - | - | At input voltages > 200Vac |

## Specifications

| Model | | GXE600-24 | GXE600-48 |
|---|---|---|---|
| **Output** | | | |
| Switching Frequency | kHz | 134, PFC 100 | |
| Line Regulation | mV | 96 | 192 |
| Load Regulation | mV | 144 | 288 |
| External Load Capacitance | uF | 10,000 | |
| Ripple & Noise | mV | 150 | 350 |
| Temperature Coefficient | %/°C | <0.02%/°C | |
| Minimum Load | - | No minimum load required | |
| Overcurrent Protection (Factory Set) | A | >27.5 | >13.8 |
| Overcurrent Protection (Via Programming) [2,4] | A | 5 - 28.8 | 2.5 - 14.4 |
| Overvoltage Protection (Via Programming) [4] | V | 28.8 - 31.2 | 57.6 - 62.4 |
| Remote Sense | - | Yes | |
| Remote On/Off | - | Isolated opto-coupler. Unit off when current is flowing through the opto diode | |
| Power Fail Signal | - | Signal is high when the output voltage drops due to AC loss or OCP, OVP, OTP | |
| AC Fail Signal | - | Signal goes high when the AC input is not present | |
| Standby Voltage | V / A | 4.8V - 5.2V 1A | |
| Indicators | - | DC OK | |
| Parallel Operation | - | Up to five units | |

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## Specifications

| Model | | GXE600-24 | GXE600-48 |
|---|---|---|---|
| **Environmental** | | | |
| Operating Temperature | °C | -20 to +70. Derate linearly to 50% load from +50 to +70 (5) | |
| Storage Temperature | °C | -40 to +85 | |
| Humidity (non condensing) | %RH | Operating: 20 - 90 Storage: 10 - 90 | |
| Pollution Degree | - | PD 2 | |
| Cooling | - | Convection or Forced Air Cooled | |
| Altitude | m | 5000 (IEC 62368-1), 4000 (IEC 60601-1) | |
| Withstand Voltage (For 1 minute) | Vac | Input to Ground 2,000 (1xMOPP), Input to Output 4,000 (2xMOPPs), Output to Ground 1,500 (1xMOPP) | |
| Isolation Resistance | MΩ | >100 at 25°C, 70%RH & 500Vdc | |
| Vibration (Non Operating) | - | 10 - 55Hz: 19.6m/s$^2$ constant sweep 1 min X, Y, Z for 1 hour<br>/HD version: Designed to meet MIL-STD-810G 514.7 Category 4, 10 | |
| Shock | - | < 196.1 m/s$^2$, /HD version: Designed to meet MIL-STD-810G 516.7 Procedure I, VI | |
| **Other** | | | |
| Weight (Typ) | g | 1300, 1400 with cover | |
| Size (LxWxH) | mm | 254 x 127 x 41, /A model 254 x 127.5 x 50 | |
| Size (LxWxH) | Inches | 10 x 5 x 1.61, /A model: 10 x 5.02 x 1.97 | |
| Case Material | - | Aluminum | |
| Connectors | - | Screw Terminals. See detailed outline drawings on website for signal connectors | |
| MTBF - Telcordia SR-332 issue 3* | Hours | 511,677 | |
| Warranty | Years | 7 (1) | |

Notes

See website for detailed specifications, test methods and installation manual

(1) The Americas and EMEA regions: 7 years. Other regions: 5 years. See applicable regional terms of sale.

(2) Using RS-485 communications or external 1-6V voltage source. See installation manual for details

(3) 85Vac: 360W, 100 to <170Vac: 500W, 170V to 265Vac: 600W (Convection cooled). 600W when forced air is applied (see installation manual)

(4) Overcurrent & Overvoltage limits and recovery modes can be set using the RS-485 communications

(5) Models with cover (/A option) have additional derating. See derating curves in the instruction manual

*24V output model, 25°C ambient, full load, 230Vac input

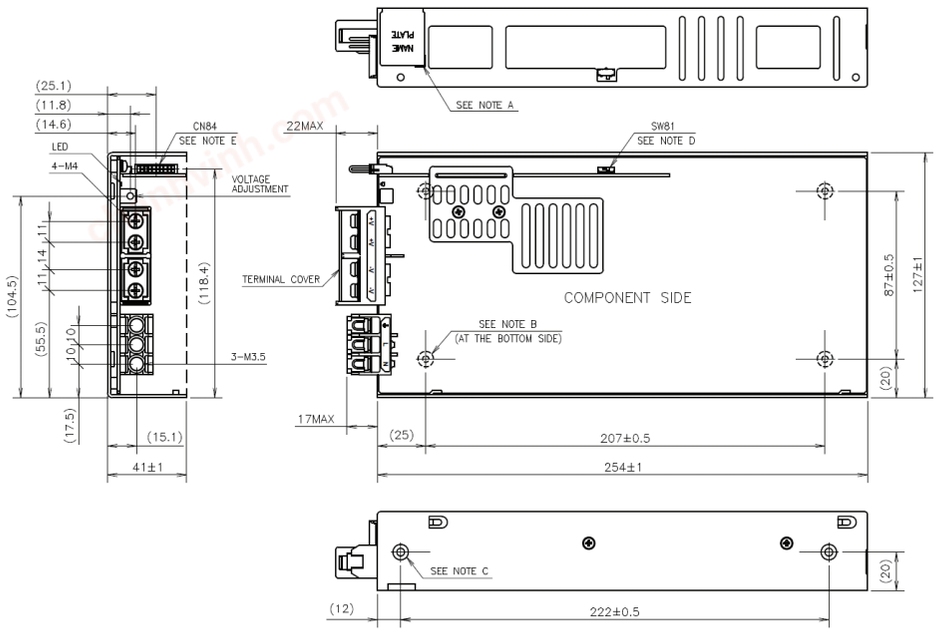
## Monitoring and Programming Functions

| Function | Digital (RS-485) Control | Analog Control |
|---|---|---|
| Output Voltage Monitor | Read back | No |
| Output Current Monitor | Read back | No |
| Output Voltage Programming | Adjustable | Adjustable, use a 1-6V external voltage source |
| Output Current Programming | Adjustable | Adjustable, use a 1-6V external voltage source |
| Over Voltage Protection Set Point | Adjustable | Fixed |
| Over Voltage Recovery | Auto-recovery or manual settings | Cycle AC input or use the remote on/off |
| Over Current Set Point | Adjustable | Fixed |
| Over Current Recovery | Auto recovery: Constant current, hiccup or foldback<br>Latching: Constant current or foldback | Constant current, auto-recovery |
| Over Temperature Recovery | Cycle AC input or use the remote on/off | Cycle AC input or use the remote on/off |
| Remote On/Off | Yes, enable or inhibit type | Yes, enable or inhibit type |
| Internal Temperature Monitoring | Yes, -20 to +100°C | No |
| Operating Run Time Log | Records more than 20 years of data | No |
| Remaining Electrolytic Capacitor Life | Indicates hours left | No |
| Alarm History | OCP, OVP, OTP, remote on/off, system error | No |
| Slew Rate (Rise-time) Control | Voltage and current | No |
| Communication Configuration | ID, Baud Rate, Parity | Not applicable |
| Product Information | Model #, serial #, lot #, firmware version | Not applicable |
| Power Fail Signal Threshold | Adjustable for either output voltage or current | Fixed (voltage only) |

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## Outline Drawing GXE600




== SIGNAL CONNECTOR USED ==

| PART DESCRIPTION | PART NAME | MANUFACT |
|---|---|---|
| PIN HEADER | S20B-PHDSS | JST |

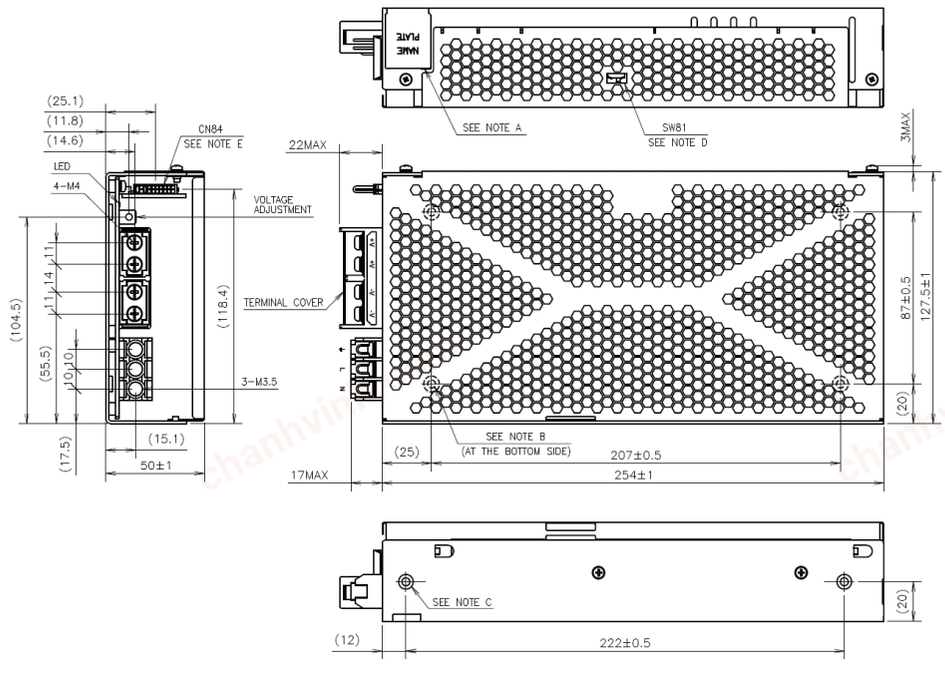
== MATCHING HOUSINGS, PIN & TOOL ==

| PART DESCRIPTION | PART NAME | MANUFACT |
|---|---|---|
| SOCKET HOUSING | PHDR-20VS | JST |
| TERMINAL PINS | SPHD-002T-P0.5(AWG28~24)<br>SPHD-001T-P0.5(AWG26~22) | JST |
| HAND CRIMPING TOOL | YRS-620(SPHD-002T-P0.5)<br>YC-610R(SPHD-001T-P0.5) | JST |

== ACCESSORIES ==

* TERMINAL COVER ----------1
(ATTACHED ON TERMINAL AT SHIPMENT)
* SHORT PIECE ----------1
SHORTING +Vm — +S, -Vm — -S
(ATTACHED ON CN84 AT SHIPMENT)

## Outline Drawing GXE600/A




== SIGNAL CONNECTOR USED ==

| PART DESCRIPTION | PART NAME | MANUFACT |
|---|---|---|
| PIN HEADER | S20B-PHDSS | JST |

== MATCHING HOUSINGS, PIN & TOOL ==

| PART DESCRIPTION | PART NAME | MANUFACT |
|---|---|---|
| SOCKET HOUSING | PHDR-20VS | JST |
| TERMINAL PINS | SPHD-002T-P0.5(AWG28~24)<br>SPHD-001T-P0.5(AWG26~22) | JST |
| HAND CRIMPING TOOL | YRS-620(SPHD-002T-P0.5)<br>YC-610R(SPHD-001T-P0.5) | JST |

== ACCESSORIES ==

* TERMINAL COVER ----------1
(ATTACHED ON TERMINAL AT SHIPMENT)
* SHORT PIECE ----------1
SHORTING +Vm — +S, -Vm — -S
(ATTACHED ON CN84 AT SHIPMENT)

== NOTES ==

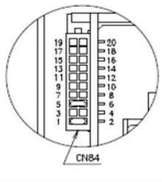
A : MODEL NAME, INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT, COUNTRY OF MANUFACTURE AND SAFETY MARKING (FOR ONLY APPROVED PRODUCTS) ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

B : 4-M4 TAPPED & STANDOFF ARE FOR CUSTOMER'S CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 4mm MAX.)

C : 2-M4 TAPPED & STANDOFF ARE FOR CUSTOMER'S CHASSIS MOUNTING. *NOT ENSURED SPECIFICATION OF VIBRATION AND SHOCK. (SCREW PENETRATION DEPTH 4mm MAX.)

D : SW81 IS "EN" SIDE POSITION AT SHIPMENT.

E : SIGNAL CONNECTOR INFORMATION
PIN CONFIGURATION AND FUNCTION OF CN84.



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