D. GREEN ELECTRONICS

*Design and Manufacturing in Power Electronics*

# High Power Laser Diode Driver 'DPSS'

## Model 2050


## Description

The product is a 19" High power laser diode driver 'DPSS' in size 2U and is designed for operation from universal 1-ph, 50/60Hz line supply, for use to output power levels of 1000W in CW mode. The unit incorporates many safety features.
A flexible design approach incorporating microprocessor architecture has produced a unit that is robust and adaptable to customer requirements.

## Highlights

- Output power 1000W
- 23A to 200A maximum output current
- Isolated output (free floating)

- 2-stage output filter for low noise
- Flexible Microprocessor Design with
- Front panel and remote control
- Continuous and pulsed output

- Compliant with EMC standards;
  - EN61000-6-2, EN61000-6-4, EN61326-1, EN61000-4-(2, 3, 4, 5, 6, 8, 11), EN61000-3-(2, 3), ENV50204, EN55022 Class B

- Compliant with safety standard EN61010-1

- Fully RoHS compliant

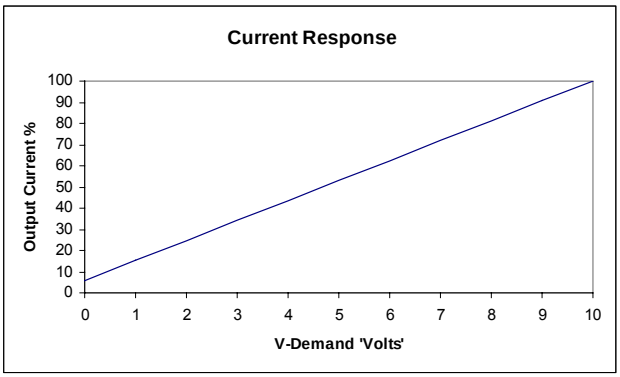
- Extensive fault protection including
  - Voltage Limit
  - Current Limit
  - Power Limit
  - Short Circuit protection
  - Open Circuit protection
  - Over Temperature protection
  - Run Timer

- Customer programmable features
  - Maximum Output Current
  - Standby Current
  - Current Ramp Rate
  - Open Circuit trip voltage

- After sales engineering support
- 2 year warranty

## Electrical Characteristics

| | |
|---|---|
| Line Input 1–Phase | 90 – 264 VAC |
| Frequency | 47 to 63Hz |
| Output Rating | 23A to 200A |
| Power Factor (Full Load) | ≥0.95 |
| Output Ripple (Full Load) | 75mV p-p (0 to 20MHz)<br><0.5% of maximum current |
| Pulse Rise/Fall Time | <2mSec, No overshoot |
| Line Regulation | 0.1% for ± 10% Line Voltage Change |
| Output Drift | ≤0.2% over 8 hour period (with constant temp, load & Line conditions) |
| Efficiency | ≥70% to 80% |
| Temperature Coefficient | ± 0.03% / ºC (0 to 50ºC) |
| Working Temperature | ambient of –20ºC to 60 ºC |
| Working Humidity | 20~90% RH non-condensing |



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*Driving the Laser Industry*

## Control Functions

- Interlock (link)
- Status (Volt free relay contact)
- Answer Back (Volt free relay contact)
- Remote /Local select of ON /OFF
- Output Current Demand Voltage 10V=100%
- Output Current Monitor Voltage 0.1Vdc =1Amp
- Output Voltage Monitor Voltage
- Pulse Gate (TTL level)

## Front Panel Control

- Key switch enable
- ON /OFF Rocker switch
- 10-turn potentiometer for output current control
- 31/2 Digit LED Display of lamp current and voltage
- Push Switch selecting Remote or potentiometer control of output current
- Fault and limit Indicators
- Customer can preset output limits

## Rear Panel Connection

The unit is fitted with a 15-way `D' (female) connector for remote operation. A 9-way 'D' (female) connector for RS232 programming and data logging is available.

## Connector Pinout

| | | | |
|---|---|---|---|
| Answer Back | 1 | | |
| | | 9 | Interlock |
| Answer Back | 2 | | |
| | | 10 | Interlock return |
| Status | 3 | | |
| | | 11 | Return |
| Status | 4 | | |
| | | 12 | Start (On/Off) |
| V-Monitor | 5 | | |
| | | 13 | Pulse Gate (TTL) |
| I-Monitor | 6 | | |
| | | 14 | Pulse Gate 0V |
| I-Demand | 7 | | |
| | | 15 | Chassis Earth |
| Common Return | 8 | | |

NOTE: Gated capability is typically limited to 25Hz.

## Contact Details


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## Diode Safety and protection

All control circuitry is low voltage and has full galvanic isolation from the line supply.

The output is floating. Either terminal may be connected to earth.

Output is disabled in the event of the fault conditions:-

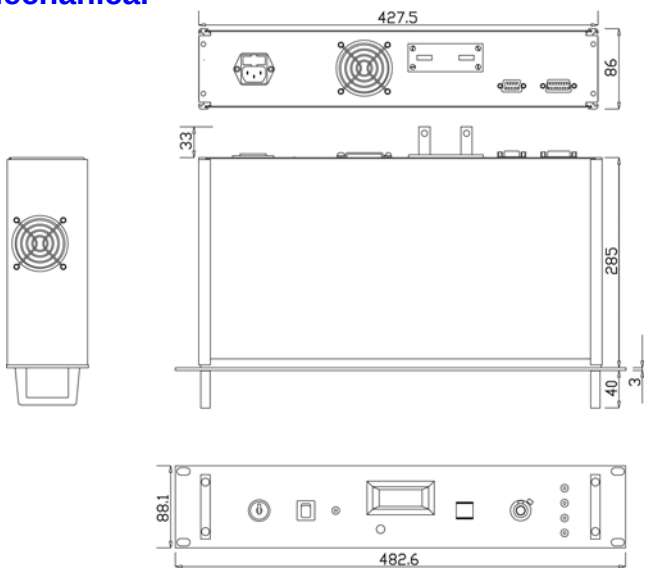
- o Short-circuit, open-circuit and unit over-temperature.

Output is clamped in the event of over load conditions :-

- o over-current, over-voltage or a power limit

The unit status is indicated by the Status & fault LED's.

## Mechanical




| | |
|---|---|
| Cooling | Forced air, entering at the sides and exiting at the rear. |
| Temperature | de-rate above 30ºC |

## To Order

| Model No. | Output Bias Voltage Limit | Output Current Limit |
|---|---|---|
| | Nominal | |
| 2050-R | 5 Volts | 210Amps |
| 2050-S | 12Volts | 60Amps |
| 2050-T | 16.5Volts | 50Amps |
| 2050-U | 24Volts | 40Amps |
| 2050-V | 30Volts | 37Amps |
| 2050-W | 42Volts | 21Amps |

1. **Maximum Output Bias Voltage must be greater than the Diode module voltage and cable drops**
2. **Output Voltage and current must be less than 1000Watts.**
3. **Also available in power ratings of 300W to 3kW.**

**Please contact the sales office to discuss your requirements.**