

# OmniDRIVE™

## 8-Channel 80W LED Current Source with PWM and Monitor Capability



### Computer controlled pulse width modulated (PWM) current source for LEDs with $V_f$ and temperature monitoring.

- 0-2 Amps / 0-7V Per Channel
- 8 Independently Controlled Current Sources
- 4 Wire Voltage Monitoring
- DCor Pulsed up to 1kHz
- 2 External Temperature Inputs
- USB 2.0 and Ethernet
- Software Control (SCPI Compatible)
- Intuitive software control
- Versatile, easy to use

### Applications

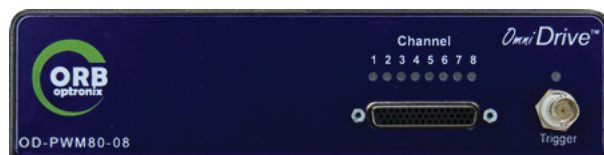
- LED Product Prototypes
- LED Burn-In Racks and Systems
- RGB LED Color Mixing

The versatile OmniDrive™ programmable power supply from Orb Optronix is specifically designed for LED based lighting applications, prototyping, and laboratory testing use. Shipped with intuitive, easy-to-use software, the OmniDrive™ is fully programmable from a Windows XP, Windows Vista, or Windows 7 PC over USB, making control of its eight independent power channels a breeze. Software control allows the user to easily set up multi-LED tests by assigning current and measurement sequences to each channel. This makes the OmniDrive™ ideal for working on general purpose LED lighting development, color mixing applications, and color control experiments. Customers who have an Orb Optronix' Electrical-Thermal-Optical (ETO) measurement system can share data sets with the OmniDrive™ to create models of thermal compensation for changes in flux and color over temperature.

Each OmniDrive™ has eight separate current output channels. Each output channel can be independently assigned a current amplitude through the included PC interface. Four

internal pulse generators can be programmed to control frequency, duty cycle, and phase. Each output channel may be configured to use one of the four internal pulse generators or one of two external waveforms.

The synchronized measurement capabilities of the OmniDrive™ include current and 4-wire forward voltage monitoring for accurate power measurements at each LED. When operating in Pulse Width Modulation (PWM) mode, current and voltage measurements are synchronized to the on-time of the LED. Additional external thermistor or RTD temperature inputs allow measurement of LED or Thermal Electric Cooler (TEC) temperatures of LEDs for many types of laboratory testing applications. The voltage, current and temperature monitors can be configured to shut off specific channels if out of range. For LED testing applications that require turning some LEDs completely off during optical measurement sequences, the OmniDrive™ ensures no light is emitted by HB LEDs with an off-state leakage current of less than 10 microamps.



### Preliminary Specifications

#### Operating Modes

Single Pulse	8 independent adjustable output pulse channels synchronized to an internal or external trigger for single pulse $V_f$ and $I_f$ measurements
PWM	8 independent current amplitudes driven by 4 independent pulse generators synchronized for measurements of pulse $V_f$ and $I_f$
CW Mode:	8 independent DC output channels with $V_f$ and $I_f$ measurement

#### Output

Connector	44 Pin High Density D-sub
Output Power Max	80 Watts
Number of Output Channels	8
Maximum Output Voltage (per channel)	7.0 V (DC and PWM)
Maximum Output Current (per channel)	2.0 A (DC and PWM)
Current Resolution	1 mA
Current Accuracy	2 mA (or +/- 0.25% whichever is larger)
Current Ripple Max	20mA peak-to-peak
Power Per Chanel Max	10 W
Pulse Frequency Max	1 kHz
Pulse width Resolution	1 $\mu$ s
Pulse Width Min	100 $\mu$ s (measured from mid level of rise time)
Diode Configuration	Drive and return line must float with respect to other channels and/or ground. (i.e. no common-cathode, common-anode, grounded cathode, grounded anode)

#### Input

Temperature Monitoring Input	Thermistor or RTD
Number of Temperature Monitor Channels	2
Temperature Measurement Resolution	0.4 C (with 10k RTD)
Voltage Monitoring per Channel	4 wire, synchronized in pulse mode
Trigger / Sync Connector	1 BNC (Trigger In and Sync Out)
Trigger In	3.3V CMOS or 5V Tolerant
Sync Out	3.3V CMOS
Voltage Range	85-132 VAC (47-44Hz)
Inrush Current	15 A
Input Power Max	150W
Shut-Down	Programmable software fault based on current, voltage, or temperature measurement limts.

#### Environmental

Operating Temperature Range	15 to 50C
Storage Temperature	-25 to 65C
Cooling	Forced Air (enters sides , exits back)

#### Computer Interface and Software

USB 2.0 Full Speed and Ethernet Port
Windows Software with GUI for independent channel control and sequencing for up to 256 channels
SCPI Compatible
.NET Controls Available