



## HPL-2400 Datasheet

### HPL-2400 Series High Power Loads



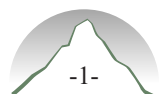
#### Features:

- 2400 W resistive load
- Very low inductance allows fast rise and fall times in pulsed applications
- Fault detection
- RoHS compliant

The HPL-2400 product line features allow flexible, reliable, high-power loads that meet demanding needs with a standard product. Seven standard load values including .125, .250, .500, 1, 2, 5 and 10 ohms are available. Custom values from .125 to 125K ohms can be configured at the factory in order to directly match specific load characteristics (i.e. laser diode). The status monitor allows users to monitor the temperature of the heat sink and provides a warning when the temperature exceeds 60C. The module is enclosed to protect the components and ensure reliable, long-term use. Liquid cooling and a 2400 watt load rating allow for use in a wide variety of applications from very low power to the full rating of the module. The low-inductance design enables the testing of high-speed pulsed applications.

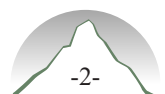
Using the load is simple utilizing either the DB-37 connector or ring terminals. The DB-37 connector allows the load to be used in pulsed applications with less than 100 ns rise and fall times. Ring terminals can be used for DC applications.

Load Values	Part Number
0.125 $\Omega$	HPL-2400-0.125
0.250 $\Omega$	HPL-2400-0.250
0.500 $\Omega$	HPL-2400-0.500
1.00 $\Omega$	HPL-2400-1.00
2.00 $\Omega$	HPL-2400-2.00
5.00 $\Omega$	HPL-2400-5.00
10.00 $\Omega$	HPL-2400-10.00
Custom resistances from 0.125 $\Omega$ to 250K $\Omega$ available upon request.	Please contact customer service. 970-493-1901 <a href="mailto:sales@directedenergy.com">sales@directedenergy.com</a>

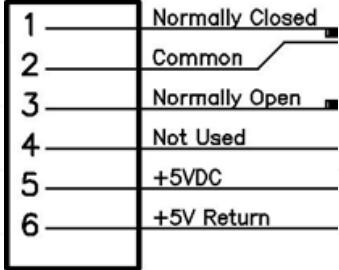


# Specifications

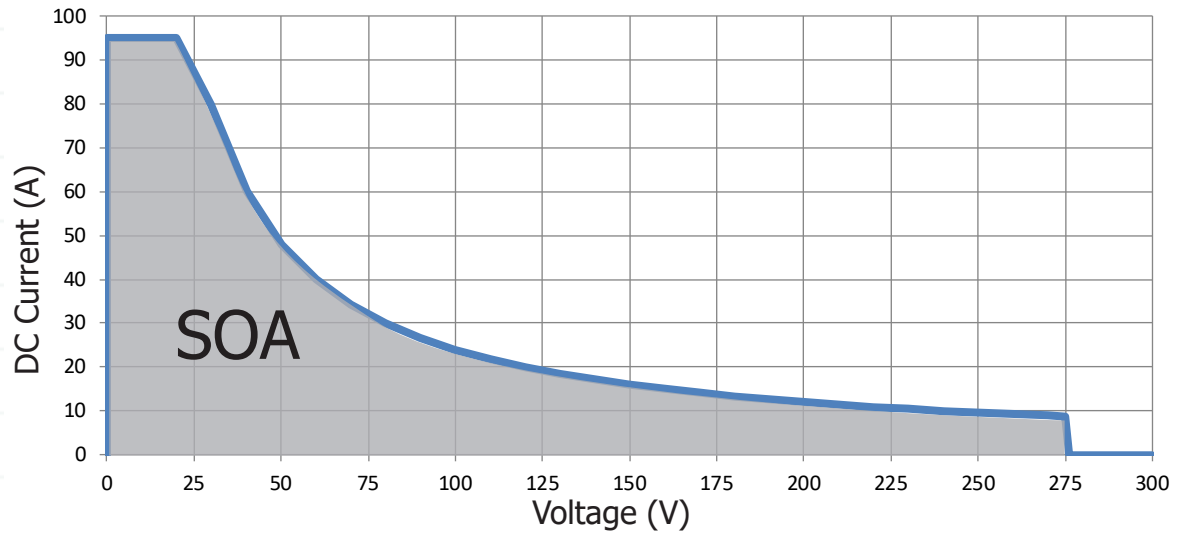
PARAMETER	VALUE
<b>LOAD CHARACTERISTICS</b>	
Load Inductance	≤ 20 nH
Load Capacitance	≤ 160 pF
Temperature Coefficient	± 150 ppm/°C
Resistance Tolerance	± 5%
Resistance Tolerance Calibrated	± 1.0%
Voltage Range	0 to 275 VDC * See SOA graph
DC Current Range	0 A to 95 A * See SOA graph
Pulsed Current Range	0 A to 600 A
Maximum Duty Cycle (for Pulsed Current Applications)	<p>Maximum duty cycle is dependant on input voltage and maximum DC current as constrained in the SOA graph.</p> <p>Duty Cycle Maximum = (DC Current Maximum SOA graph) / (Pulse Current)</p> <p>Example: Input Voltage = 125 V (user requirement)            DC Current Maximum = 20 A (taken from SOA graph)            Desired Pulsed Current = 600 A (user requirement)            Duty Cycle Maximum = 3.33% (as calculated below)</p> <p>Duty Cycle Maximum = (DC Current SOA graph) / (Pulsed Current)            Duty Cycle Maximum = (20 A) / (600 A) = 3.33% Duty Cycle Maximum</p>
Recommended DB37 Input Connector for pulsed applications	Female, A # L77DC37S
DB-37 Pinout	Positive Pins 1 to 16 Negative Pins 20 to 35 No Connection Pins 17, 18, 19, 36, 37
Recommended Ring Terminal Hardware	M5 or US #10 to 32
Recommended Ring Terminals	<ul style="list-style-type: none"> <li>•AWG 16 to 14 TE Connectivity # 2-34861-1</li> <li>•AWG 10 to 12 TE Connectivity # 2-34854-1</li> </ul>
Recommended for DC applications	<ul style="list-style-type: none"> <li>•AWG 8 TE Connectivity # 52263</li> <li>•AWG 6 TE Connectivity # 52265-3</li> </ul>
<b>COOLING</b>	
Water flow rate	Review graph for safe operating area specifics.
Outside diameter	6.35mm ( ¼ ") outer diameter copper tube ends.
Recommended hose clamp	McMaster-Carr # 5407K57
Recommended hose type	Flexible Polyethylene tubing; McMaster-Carr # 9336T1



## STATUS MONITOR

Description	Uses Molex SL modular connector. Monitors cold plate temperature. Switch activates at 60°C ± 5°C . Does NOT disconnect the load. The status monitor connection is not required, but is recommended.		
DC Voltage	+5VDC ± 5%		
DC Ripple Voltage	<= 1% of regulated voltage		
DC Current	125 mA		
Pinout	<ul style="list-style-type: none"> <li>•Pin 1=Normally Closed</li> <li>•Pin 2=Common</li> <li>•Pin 3=Normally Open</li> <li>•Pin 4=Not used</li> <li>•Pin 5=+5VDC</li> <li>•Pin 6=+5VReturn</li> </ul>		
Truth Table	Cold Plate Temperature	Pin 1	Pin 3
	< 55°C (Normal condition)	Shorted to 2	Open
	>65°C (Fault condition)	Open	Shorted to 2
NO/NC Contact Current	250 mA *into a resistive load		
NO/NC Contact Voltage	0 V to 75 V		
Recommended Connector	Molex # 50-57-9406		
Recommended Connector Crimp Pins	Molex # 16-02-1113		
<b>GENERAL</b>			
Operating Ambient Temperature	15°C to 35°C		
Weight	~1.8 kg (3.8 pounds)		
Dimensions (H X W X D)	~6.7 cm x 33 cm x 9.5 cm (2.625 in x 13.0 in x 3.75 in)		

### Safe operating area



### Recommended water flow

