

J1 Connector Pin Functions

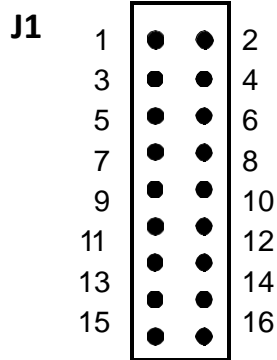


Figure 5 Laser Driver 16-pin Controller Connector J1

Table 1 lists the descriptions of the J1 connector pin-outs.

Table 1. J1 Connector Pin-Outs Descriptions

Pin	Descriptions
1	Power Control (Input # 1)
2	Ground
3	Power Control (Input # 2)
4	Ground
5, 6	Not Used (leave open)
7, 8, 9, 10	-5VDC (Use well regulated external power supply. Less than 50mV ripple).
11	Current monitor from an internal 0.15 ohm resistor
12	Not Used (leave open)
13, 14, 15, 16	Ground

Powering and Controlling Laser Output

A power source needs to be connected to the appropriate PINS to supply power. Negative 5V (-5V) to PINS 7 through 10 and ground potential to PINS 13 through 16. Control of laser operation is achieved by supplying a voltage to PIN 1 and PIN 3 at the same time, e.g. through a potentiometer. Using this technique, the amount of electrical current flowing through the laser is controlled; and as a result, the laser power. The laser current is zero when -5V is applied to both PIN 1 and 3 at the same time. The laser current is at its maximum, approx 3A, when 0V is applied to both PIN 1 and PIN 3 at the same time. The electrical current value is linearly changed between -5V and 0V. An intermediate current value of approx 1A is achieved by connecting either PIN 1 or PIN 3 to 0V. This results in approx 500mW of laser output and is the absolute maximum current at which the OPM can be operated without additional heat sinking to the OPM aluminum enclosure.

It is recommended that a potentiometer with a rating of 10k ohms and 0.5W or greater be used for controlling purposes. The laser module can be modulated at PIN 1 or PIN 3 when the laser is biased well above its threshold current (see L-I curve attached for each laser). To avoid overdriving the laser, it is recommended that the modulation rate does not exceed 1 kHz.

Monitoring Laser Current

The actual laser current can be monitored at PIN 11 by reading its voltage referred to ground potential. This way the laser power can be estimated by referring to the L-I curve by reading the voltage of PIN 11. The voltage value of PIN 11 is the current value multiplied by 0.15 ohm above -5V. For example on the OPM, the PIN 11 will read -5V when the laser current is zero, -4.85V when the laser current is 1.0A, and -4.70V when the laser current is 2A.

Technical Specifications

Laser Module

Physical Specifications

Dimensions	(H x W x D) 2.235 in x 1.875 in x 1.0 in 56.769 mm x 47.625 mm x 25.4 mm
Weight	2.75 oz.

Environmental Specifications

Operating Temperature	0° C to 50° C (32° F to 122° F)
Storage Temperature	-40° C to 80° C (-40° F to 176° F) (prevent humidity condensation)
Operating Humidity	0 to 80% non-condensing
Storage Humidity	0 to 80% non-condensing

Power Specifications

Optical Power Module Manual

Power Input Voltage
(OPM) -5VDC @ 3 A max;
all +/-5%, (less than 50 mV ripple)

Laser Safety

Laser Class IV Laser Product
Conformance 21 CFR 1040.10
21 CFR 1040.11