



CW Laser Diode Module with Line Generator

RS Stock No. 213-3613

Introduction

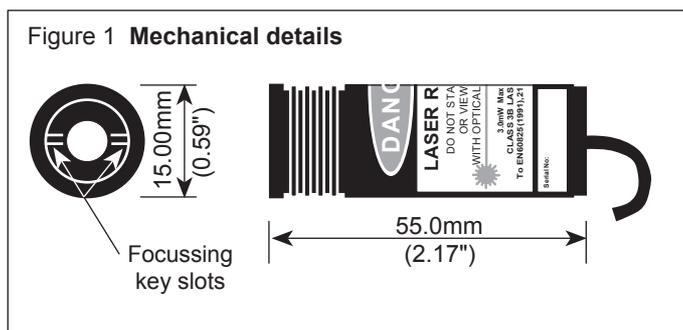
This device has been designed as a complete laser diode system for O.E.M. use and the power output has been set to meet the requirements of a Class III R laser product as specified in BS(EN)60825. However, when incorporated in a piece of equipment, it may be necessary for additional safety features to be added before the equipment complies fully with the standard. Details of the laser safety requirements governing Class III R products are given in the latest RS Laser Data Sheet.

Description

The laser modules consist of a laser diode, lens and driver circuit housed in a metal case. Electrical connections are made via flying leads. The lens system consists of a single element of an aspheric design which focuses the beam and a cylindrical lens which converts it to a fine line of light. By rotating the front cell, the beam can be focussed or collimated. A locking ring is used to secure the final position. The line generating lens is rotated using the key supplied with the laser module to produce the best line.

Optical characteristics

Parameter	Value			Units
	Min	Typ	Max	
Power output		3		mW
Wavelength		670		nm
Power output stability (@ 20°C)		<0.5		%
Power output temperature dependence		0.003		µW/°C
Beam angle (half angle)		53		Deg
Polarisation ratio		10:1		
Pointing stability			0.05	mRad



Electrical characteristics

Parameter	Value			Units
	Min	Typ	Max	
Operating voltage	-5		-12	volts
Operating current @-8V	25	45	70	mA
TTL Disable voltage	+1.2	+1.6	+2.0	volts
TTL pulse rate		10		Hz
Connections	250mm Flying Leads			

Absolute maximum ratings

Supply voltage _____ -12.7V
 TTL Disable input voltage _____ -3 to +5V
 Operating temperature _____ -10 to +55°C
 Storage temperature _____ -40 to +85°C

Optical adjustment

To adjust the lens to the working conditions, unscrew the line generating lens from the front using the key provided. Rotate the front cell in order to focus the laser beam to a spot at the operating distance required and tighten the locking ring against the main body. Replace the line generator lens so that it is flush with the end of the front cell and rotate it to produce the best line.

Power supply and earthing

The operating voltage is specified as being -5 volts to -12 volts, this simply means that 0 volts is connected to the more positive terminal and the -ve supply to the more negative terminal of your power supply. It is advisable for any floating power supplies to have the '0' volts connection (and if used, the heatsink) taken to ground. If this is not done, then in electrically noisy environments, the power supply leads can act as aerials. Under these conditions any noise picked up can damage the laser module. If a heatsink is not used, then the barrel of the laser module should be grounded.

TTL Disable

A TTL input of 2.5 volts will turn the laser "off" and an input of 0 volts will turn it 'on'. If it is not in use, it may be left floating. The laser may be pulsed on and off using this input at a maximum rate of at least 10Hz.

Electrical Connections

Electrical connections are made via the flying leads as follows:

Green _____ 0 volts
 Black _____ -ve Supply
 Blue _____ TTL Disable

Heatsinking requirements

When operating above their minimum supply voltage and/or at elevated temperatures above 30°C ambient, additional heat sinking must be used. If the case temperature of the embedded laser diode should exceed its maximum specification, premature or even catastrophic failure may occur.

The latest RS Datasheet gives full details on how to determine the optimum heatsink requirements for the particular model and operating conditions.

Figure 2 Laser warning label

