ETH-15xx series – PZxx option

Introduction

Laser modules with the PZT tuning option come with a twinaxial connection (Trompeter model BJ157) on the module box where the PZT tuning voltage should be applied. This replaces the SMA power setting connector on standard model laser modules. A shielded twisted pair cable pigtail is provided for making this connection. The laser power can still be controlled through the appropriate pins on the 25-pin Micro-D connector on the laser module or the 9-pin D-sub connector on the back of the PS-1 power supply unit (for details refer to the ETH-15xx series manual).

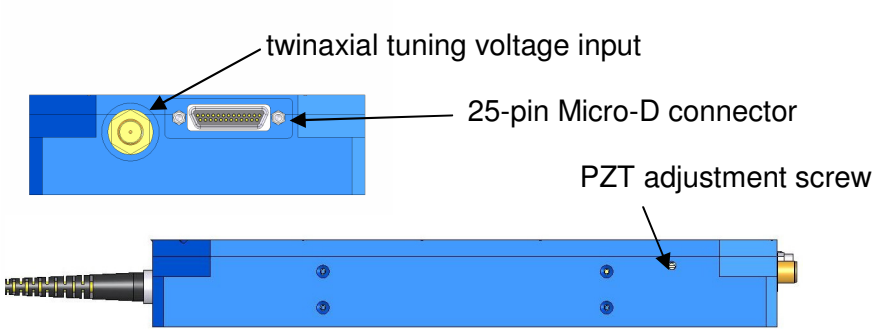

Figure 1 - ETH-series laser module - PZT option

Tuning fine adjustment

Tuning circuitry has been factory preset to provide a wide modehop free tuning range at the preset operating current. However, like all PZT devices, there is significant hysteresis which can give rise to mode hops, particularly when the voltage has been varied over a wide voltage range and at high slew rate. Mode hops may also occur when the laser is operated at different power levels and during the initial warmup period of the laser module.

A fine adjustment potentiometer is located on the side of the laser which controls the relative tuning of various portions of the laser cavity and therefore allows a mode hop to be moved in the tuning range of the laser. Mode hops are most easily identified with the use of a high precision wavemeter or by a significant drop in the laser output power. Power variation of less than 0.5dB over the tuning range is a good indication of mode hop free operation. Turning this adjustment clockwise increases the tuning slope (frequency versus voltage) of the laser.

Please contact our technical support with any questions at (626-584-5994).

Table 1 - PZT voltage specifications

PZT voltage range	-30 to 180V	
Lowest PZT resonance	> 20kHz	
Cable assembly:	Red	Positive
	Black	Negative
	Shield	Case

HV load equivalent circuit – PZ1

The PZT tuning load for the PZ1 option will appear as a pure capacitive load of approximately 100nF.

HV load equivalent circuit – PZ10

The PZT tuning load for the PZ10 option will appear as the equivalent circuit shown in Figure 2. Capacitance values are all the same and nominally 100nF ±15%. R1 is the PZT adjustment screw shown in Figure 1 and is typically preset such that the voltage at the wiper is approximately 90% of the input voltage. R2 is set internally such that the voltage at the wiper is approximately 80% of the input voltage.

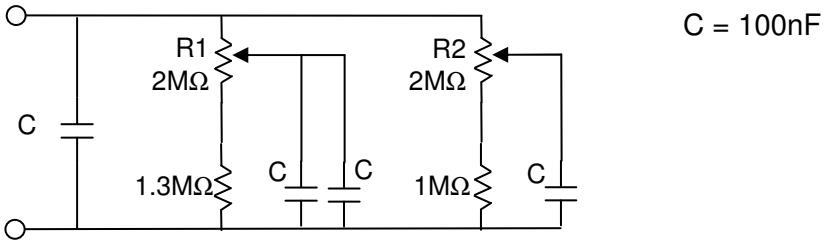

Figure 2 - PZT load equivalent circuit