

### OVERVIEW

The LDT-53500 Series Laser Diode Thermoelectric Chillers are designed to cool high power laser diodes. Incorporated into the LDT-53500 are two interlocks that change states if a chiller fault has occurred. The 53500 series monitors constantly for one of the following chiller faults: loss of power, output disabled, loss of flow, and over temperature.

### BACKGROUND

High power laser diodes are highly susceptible to damage if operated above normal operating temperatures. Waste heat can quickly accelerate the temperature above recommended operating conditions if the cooling equipment fails, including loss of the temperature controller/chiller. To prevent over temperature conditions, the LDT-53500 series can be interlocked to a high power laser diode driver such as the ILX Lightwave LDX-36000 or LDX-32420.

### INTERLOCK SETUP

The LDT-53500 provides two interlocks. One is normally open, and the other is normally closed. Both interlocks are implemented using a standard mechanical relay. The normally closed relay can be directly connected to the LDX-36000 or LDX-32420. Figure 1 shows a standard high power test setup using an ILX LDM-49860 High Power 2-pin Module Mount, LDX-36000, and LDT-53520. In this configuration the internal thermistor of the LDM-49860 is being used as the feedback sensor to the 53520 chiller. If a chiller fault occurs, the relay will change states and shut down the LDX-36000 driver.

- Current
- Thermistor
- Coolant
- Interlock

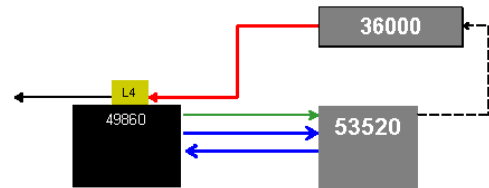


Figure 1

The LDX-36000 has two interlock inputs available on the rear panel of the instrument. In figure 2 the laser is enclosed in a safety box and a switch on the box door is connected to one of the interlocks of the LDX-36000. The other interlock is design to shut off if the LDT-53500 or TEC controller shuts down. This is accomplished by wiring the temperature controller and chiller interlocks in series.

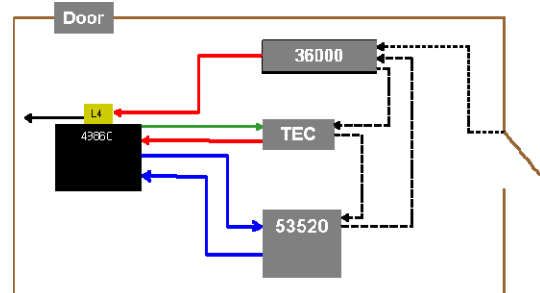


Figure 2