
arroyo instruments

# APPLICATION NOTE AN-008

# Interlocking a Laser Driver and Temperature Controller with a Relay

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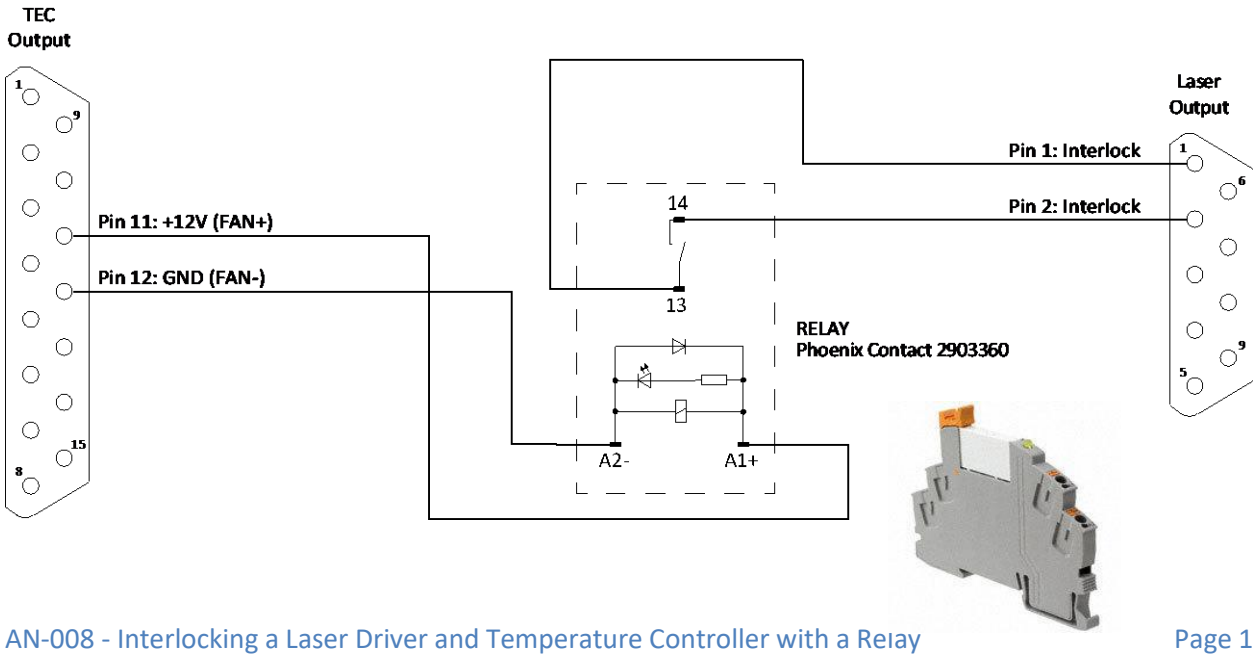
In some applications it is beneficial to prevent the laser driver from operating when the temperature controller is off, typically to prevent overheating of the laser. Below is a way of using the fan power supply built into the temperature controller to operate a relay that controls the interlock function of the laser driver.

**Implementation**

The following circuit uses a relay to provide an isolated contact closure for the interlock pins of the laser driver's output connector. The suggested relay is a DIN-mountable relay, but is only a suggestion. Any SPST-NO relay (or similar configuration) would work.

You will need to select a relay that is suitable for your controller's fan voltage. For 5300 controllers, the fan can operate at 12VDC, which is a more common relay voltage. For the 5240, 585-04-08, and other lower-voltage controllers, a lower voltage relay may be needed, as they can only produce up to 9VDC on the fan output. Ensure that the relay will operate at the lower fan voltage produced by these models. These relays can be harder to find in a DIN or panel mount configuration.

Below is a drawing of a wiring configuration using a Phoenix Contact 2903360:



Next, configure the TEC controller to turn on the fan whenever the output is on. To do this, change the following menu settings:

**Ext Fan** to *Custom*
**Ext Fan Pwr** to the voltage of your relay
**Ext Fan Mode** to *Auto*

This will cause the fan power supply to be turned on whenever the TEC output is turned on, closing the relay, and allowing the laser driver to operate. If the TEC turns off, then the relay will open and shut down the laser driver.

If your mount has a fan, you can connect the fan and relay in parallel, but make sure the fan is the same voltage as the relay.