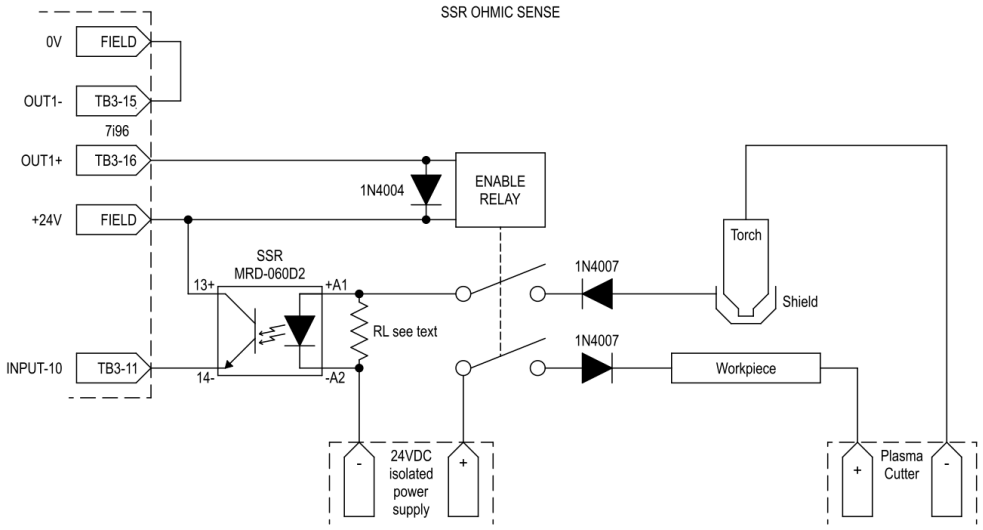
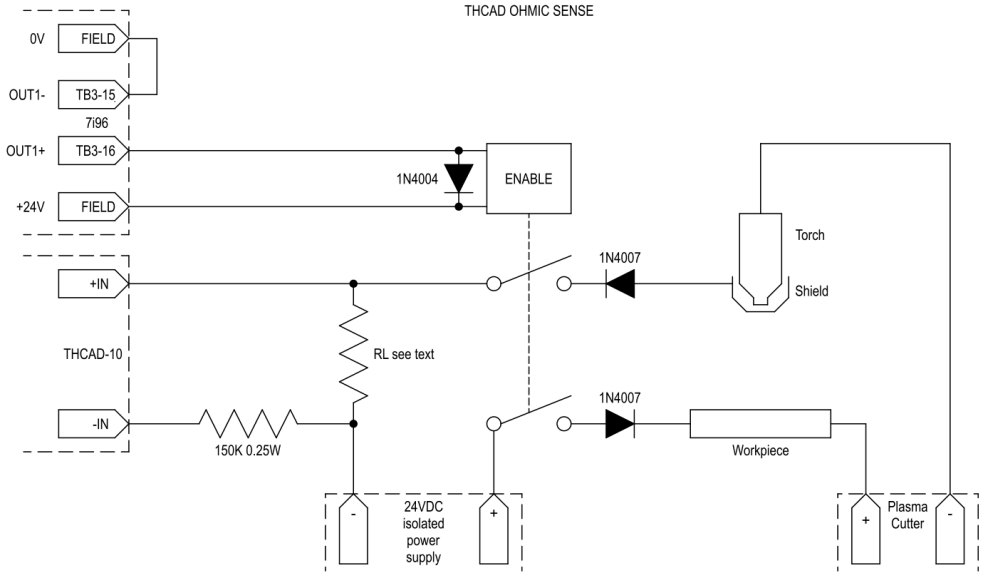
There are two different methods of ohmic sensing currently in use on LinuxCNC plasma tables, a relay method and a THCAD method. From a large amount of testing I have done over the past couple of months using both the relay method and the THCAD method there appears to be no discernable differences between the end results of both methods concerning consistency of probe height. All testing was done to suit my requirements and these may or may not be suitable for other users.

I have no need for the ohmic probe to be active while not probing so I have used slightly different wiring than the diagrams commonly seen on the forum and the "hypersense" diagram in the Plasma Primer. The wiring used in testing both methods is adapted from the schematic provided by islander261 in this post:
<https://forum.linuxcnc.org/plasma-laser/36420-inputs-outputs-relays-ohmic#131414>

The relay method schematic used for testing:



The THCAD method schematic used for testing:



The solid state sense relay is a MRD-060D2 and was chosen because it seemed quite common and low priced, I bought a five pack for 35 AUD.

The Enable relay is a Omron MY2 relay I had on hand, it has a dielectric stength of 1000V so is ample for my blowback start machine.

For resistor RL I ended up with 33.33Ω (3 x 100Ω 10W resistors in parallel) of resistance in parallel with both sense circuits as that gave almost a total immunity to water (tap water with no additives) and the probe results were consistant. I could succesfully probe underwater using both methods with this value. The resistance can be increased or even removed which then makes the result more sensitive and water in the torch head will eventually compromise probing so that a torch pulse would be required to clear the torch. I have not seen any adverse impact at this time from using 33.33Ω.
The maximum resistance I used for RL was 4700Ω which allows a 0.25W resistor. This value was sensitive to change but not terribly immune to water. Any value between 4700 and 33.33 will work fine and is dependent on the balance the user requires between sensitivity and immunity to water.

After the initial installation and any subsequent changing of the RL resistance values it does require probe testing and adjusting of the Ohmic Offset parameter so that the probe test waits at the Pierce Height of the currently selected material.

I mounted the Enable relay and the two 1N4007 diodes in the plasma power supply to keep any potential plasma voltages out of the control panel.

I plotted the operating and release times of the relay on my table with Halscope to ensure there were no delay issues and the expected contact state consistently showed correctly on the next servo thread cycle.

From the results of this testing I have decided to use the relay method on my table. Using the relay method with Mesa card (7i96 in my case) also has the benefit of not requiring a firmware change to the card. All the required pins/functions for this method will eventually be added to the plasmac component. There will be no renaming or removal of any existing pins so this will not interfere with nor affect any existing ohmic sensing configurations nor will it affect any future ohmic sensing configurations based on existing methods.