

## Sample schematic diagrams

4. Relay A needs one NO contact. It must have a 5 volt coil that is at least 150 ohms (i.e. not require more than 33 milliamps to operate). Omron G6H-2100-5 is suitable with contacts rated at 1 amp 30 volts DC
5. Relay B needs 1 NC and 2 NO contacts. It can have any convenient coil voltage to suit an available supply. The common of this should, ideally, not be the PC 0 volt rail to avoid the long wiring of the limit and EStop switches inducing noise. The Omron MY4 series is suitable having four contacts rated at 5 amps 220 volts AC.
6. The LEDs are optional but useful as an indication of what is happening. The current limiting resistor for the Interface OK LED needs to be 1.8 kilohms if a 24 volt supply is used.
7. If the coil voltages are suitable then the contactors can use the "Control" positive and common supply.
8. The arrangement of contactors (Coils shown as C1, C2, C3) depends on your drive power supply arrangements and the wiring of the motors in the machine tool. You should aim to switch the DC supply to the steppers and/or servos after the smoothing capacitor to ensure a prompt stop. You may wish to rewire the spindle and coolant motors so that the control contactor does not trip the no-volt release circuitry (i.e. you may wish to switch the motor leads **after** the main machine contactors. Do not share contacts on a given contactor between AC mains and the stepper/servo DC supply on account of the greatly increased risk of a short circuit between these supplies. **Seek advice if you are unsure, especially before working with 230/415 volt 3-phase circuits.**
9. The catching diodes across the relay and contactor coils are needed to absorb the back emf when switching the current off in the coils. Contactors may come with suitable coil suppression circuits built in.

## 12.2 Torch Height Control interface

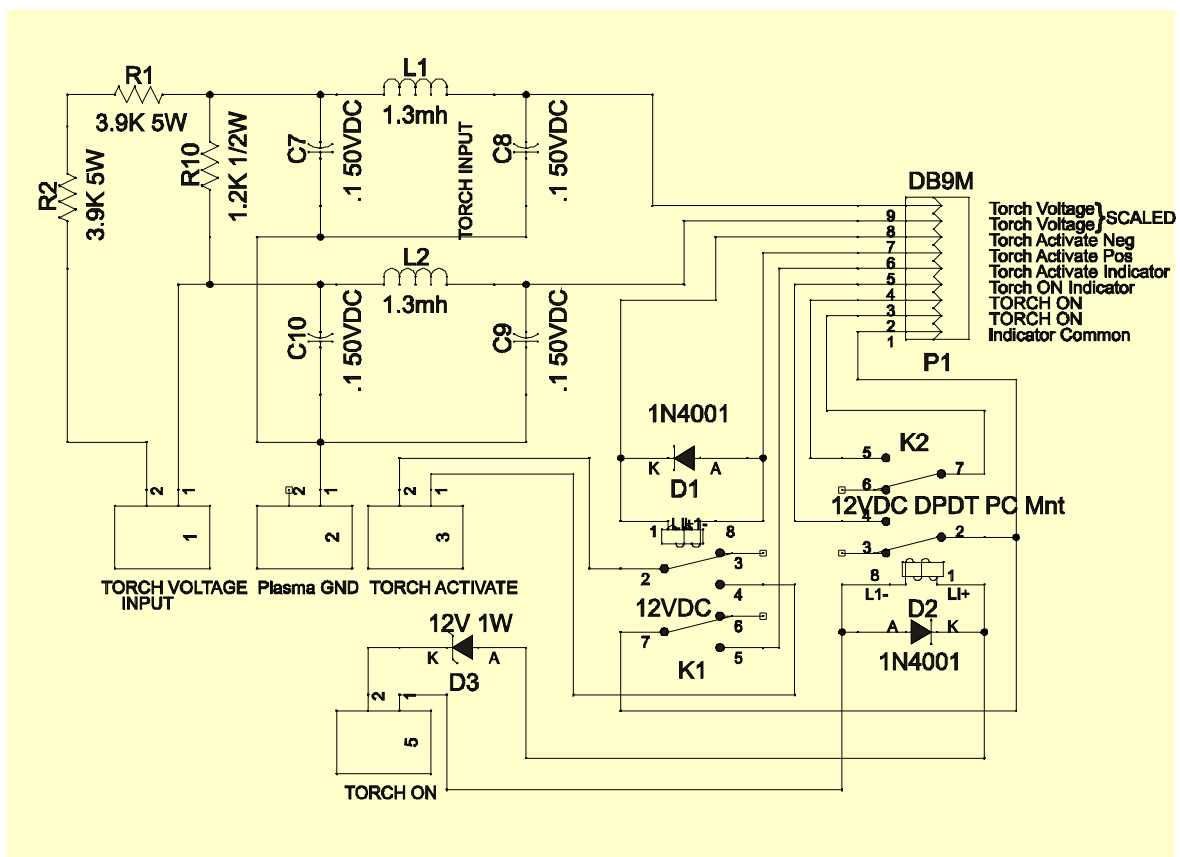


Figure 12.2 – Sample interface for Miller plasma cutter unit