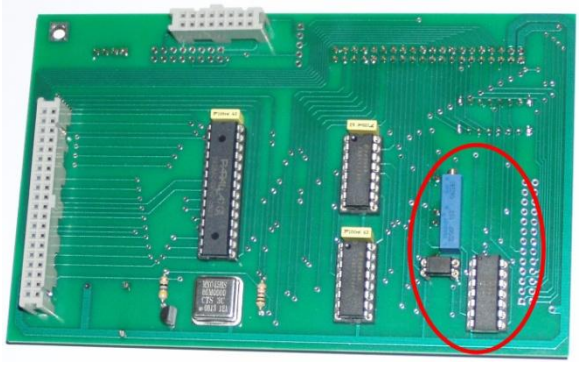
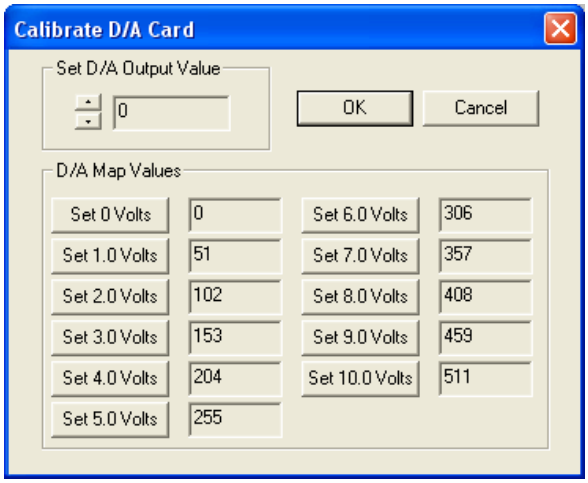
Spindle Speed Control Calibration Instructions

There are two things you must have in order for the D/A spindle speed control to work. First, the correct components must be on your daughterboard (see below - if components are not on the board, the board must be sent in to have them installed). Second, the D/A feature must be enabled in the software (there is an additional fee for this option).



Once the board has been properly modified, and the option has been added to your software, the next step is to calibrate the D/A potentiometer. To do this, follow the steps below:

1. Install your PCI card and daughterboard into the PC. Make sure to leave the side of the PC off for access to the daughterboard. (There are more detailed instructions on our web site if needed).
2. Install the WinCNC software.
3. Make sure the wiring to the inverter is done. Power needs to be wired to pin 14 of the daughterboard, ground to pin 12, and the signal (voltage return) to pin 13.
4. Attach a voltmeter so that you can measure the voltage output from the daughterboard. The ground should be on pin 12 of the daughterboard (or a wire connected to that pin), and the positive should be on pin 13, which is the output from the potentiometer. Set your voltmeter so that it will read 0-10 volts.
5. At this point, you need to know what voltage range your spindle requires…0-5v, or 0-10v. This must be reflected in the WinCNC.ini “da=” line. An example of the da= line would be “da=t1 v5 i0” (the v5 being your voltage – if 10 v, it would be set to v10).
6. Open WinCNC, click “Configuration”, and then click “D/A Calibration”. You should see a screen like the one below.



7. Use the arrow keys on your keyboard to move the “Set D/A Output Value” up to 255.
8. Now adjust the potentiometer so that the voltmeter reads ½ of your spindle output voltage (either 2.5 for 5v, or 5 for 10v).
9. The following is the 5V example for mapping the voltage to WinCNC.

   Use the arrow key until the voltage on the meter reads 0 v. Click “Set 0 Volts”.
   Use the arrow key until the voltage on the meter reads 0.5v. Click “Set 0.5 Volts”.
   Use the arrow key until the voltage on the meter reads 1 v. Click “Set 1 Volts”.
   Use the arrow key until the voltage on the meter reads 1.5v. Click “Set 1.5 Volts”.
   Use the arrow key until the voltage on the meter reads 2v. Click “Set 2 Volts”.
   Use the arrow key until the voltage on the meter reads 2.5v. Click “Set 2.5 Volts”.
   Use the arrow key until the voltage on the meter reads 3v. Click “Set 3 Volts”.
   Use the arrow key until the voltage on the meter reads 3.5v. Click “Set 3.5 Volts”.
   Use the arrow key until the voltage on the meter reads 4v. Click “Set 4 Volts”.
   Use the arrow key until the voltage on the meter reads 4.5v. Click “Set 4.5 Volts”.
   Use the arrow key until the voltage on the meter reads 5v. Click “Set 5 Volts”.

   **Important – Every time a board is subjected to a different power supply, it needs to be re-calibrated. It is important to calibrate it using these steps exactly.