



Enabling Your Ideas

Technical Document

TD_31127

Title: Spindle Upgrade Machine Control Software, Installation, Calibration and Revision Information.

Date: 11/17/08 **Document revision:** A

Current Software Install Release: 1.1a

Product Identification: Spindle Upgrade (31090)

Background:

This document discusses the installation of M3 for use with the Spindle Upgrade Kit, the speed calibration routine called XMLTweakW, and also contains software revision information.

The software can be downloaded from the Tormach web site or delivered on CD (CD is PN 31127). Do not use Mach3 as delivered from the Mach3 web site, use only Tormach installation routines.

Owners of PCNC1100's with serial numbers 1325 and lower can now add the benefits of the new PCNC1100-Series II mills (serial numbers 1326 and higher) in the form of a Spindle Upgrade Kit (31090). This has also come to be known as the "Wide Speed Range Spindle". PCNC owners are familiar with M3, Tormach's version of Mach 3, but the Spindle upgrade requires a modified version of M3 and XML Tweak (called XMLTweakW) in order to run the new digital Variable Frequency Drive (VFD) for the spindle. This software differs from the original PCNC 1100 software in that the spindle speed range has been modified along with some other "behind-the-scenes" functions. The XMLTweakW, used to fine tune the speed calibration, has also been modified for the new drive. This control software is not to be used for any other Tormach Machine configurations.

General Distribution & License:

This document assumes the user has already loaded the latest mill control software at <http://www.tormach.com/documents.htm#> (reference TD30620).

Instructions to Install:

Please note: If users are updating their control software from our website TORMACH.COM, and if an updated version of **XMLTweakW** will be selected to be installed with this software, then it may be necessary to delete the folder C:\Program Files\XMLTweakW prior to installation.

Also note: This software is intended to be installed over an existing version of M3. If this is a fresh install, than install the latest version of M3 (PCNC3Relx.xx.exe) prior to installing this software.



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1. Download from <http://www.tormach.com/documents.htm>, open the “CAD, CAM & MACHINE SOFTWARE” section, and selecting **PCNCWideSpeedx.xx.exe**, or load the Software CD (31127) that came with the upgrade kit.
2. Run the executable accepting the default installation directories.
3. **Reboot** the computer after installation.
4. Some systems will, by default, open the original software for the PCNC Mill (this is not deleted during the install process). One can verify this by checking version listed just above the Settings Alt-6 button. This should say “PCNC-M3-W”. To change the default start up program, simply go to the “Start Up” folder/menu (at “C:\Documents and Settings**user name**\Start Menu\Programs\Startup” for XP) and delete the existing PCNC icon and paste in a copy of the new icon that was created on your desktop.



PCNC3 Wide range spindle.lnk

Do not run 2 Machine Control Software’s at the same time.

Instructions to use XMLTweakW

This procedure is not necessary for operation of a machine, it is only recommended as in improvement to spindle speed accuracy. The variations among PC’s will affect the precision of the computer generated spindle speed. To improve spindle speed accuracy, your computer needs to be calibrated to your PCNC1100 Spindle Upgrade Kit.

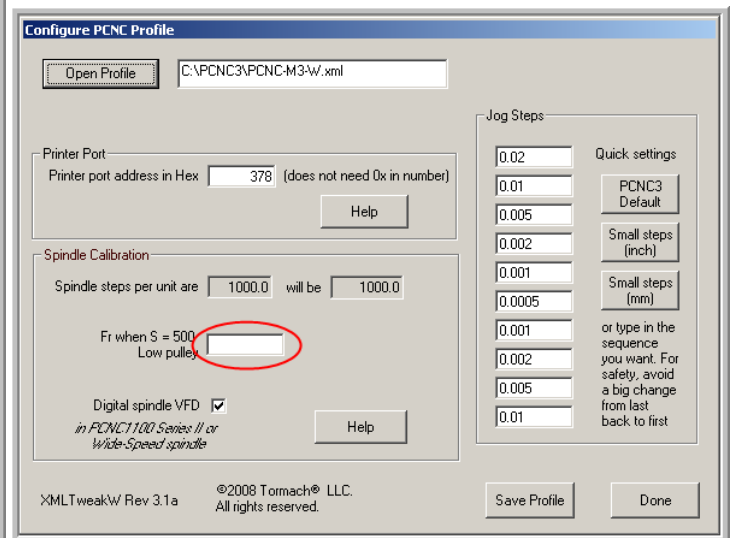
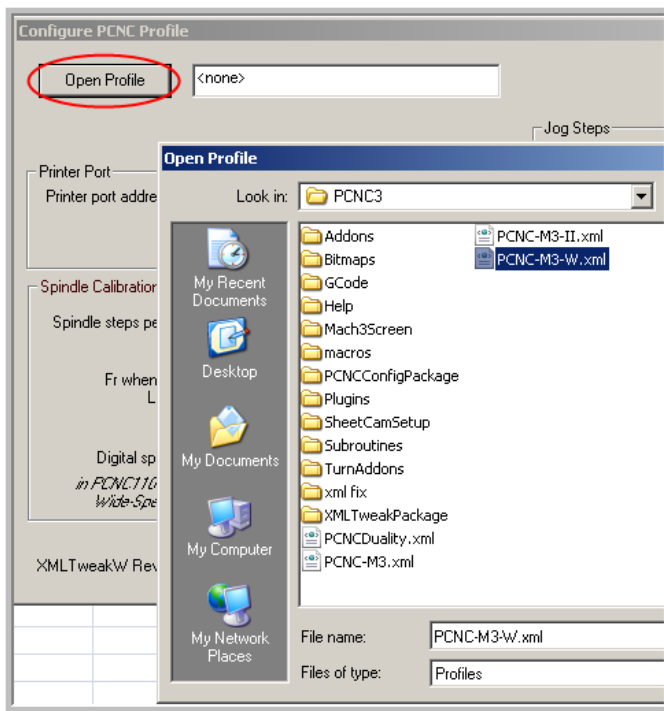
The PCNC1100 uses a printer port of a standard PC for its machine control. The procedure described below will calibrate the PCNC to a specific computer. The procedure should be repeated any time the machine control computer is replaced.

While there is no electrical work involved, the procedure does require access to the electrical cabinet while under power. Points within the cabinet will contain high voltage. Exercise caution whenever opening the cabinet if the machine is under power.

1. Turn on the machine and control computer and then open the PCNC-wide range spindle control program. Be sure the Spindle is set to “AUTO” on the manual control panel.
2. Set the belt to LOW speed range and set the Speed to 500 either by MDI of “S500” or typing the value into the S DRO followed by *Enter*.
3. Start the Spindle.
4. Inspect the value displayed on the panel of the VFD. It should be around 35 Hz. See figure below. Record the value shown. Shut down the spindle, and then shut down the control software.



5. Open the **XMLTweakW** software program located in the C:\Program Files\XMLTweakW\ . This will have been installed when you installed the control software. Click “Open Profile” button and Choose the machine profile you wish to modify, in this case “PCNC-M3-W” The profile can be found at “C:\PCNC3”. See image below left.
6. Next, under the “speed Calibration” heading enter the frequency you recorded earlier. The software will display a new “spindle steps per unit” value. See image below right.



7. At this point you should click the “Save Profile” button. If you are sure all the information is correct, click the “Done” button. Close the XMLTweakW software program.
8. Open the PCNC control software program again and confirm that the computer is calibrated with the machine by repeating step 4 and checking that the frequency is **34.6 +/- 1.2 Hz**.



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9. These steps can be repeated to try and home in on 34.6 Hz, but some computers may not do better than +/-1.2 Hz.

Note:

Since each computer is different, it is important to re-run the XMLTweakW program whenever you connect a new computer to your PCNC1100.

Revision log:

Current Release:

Release Title	Date	What's Changed
1.0c	8/11/08	Initial Release
1.1c	11/3/08	Update Pulse width in .xml to 16000, add new XMLTweakW.