



## Taking control of your PC based controls



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### Overview

PC based controls have become the standard for new CNC machines and for good reason. For the first time, PC based controls allow CNCs to be truly integrated into a manufacture's overall enterprise in the same way that other PCs already are. The advantages of integrating CNC controls into an enterprise's network are many, but so are the possible issues.

### *Advantages*

**Increased communication speed** – Most PC based controls can be directly interfaced into a standard 10/100/1000 mbs network. In comparison to the older RS232 standard, even a 10 mbs network offers transmission speeds that are at least 100 times faster. As NC files continue to grow in size, the time\money saved loading NC files is often enough to justify the purchase of new controls.

**Built in data collection** – With older style CNCs, collecting data on CNC performance has been fairly difficult; basic data could be collected through CNC macros and add-on PLCs, but more detailed information was almost impossible to collect. Almost all PC based controls provide an interface to request the current status of almost any data point on the control.

**Running add-on software** – While early PC based controls ran on a variety of Operating System, almost all current models run on some variant of Windows XP. Because of this, a whole variety of add-on software packages can not be run directly from the CNC control (for example, an ERP or data collection client).

### *Possible Issues*

**Viruses** – The loss of any PC due to a virus is an issue, but the loss of one controlling a CNC can be catastrophic. PC based controls can be even more vulnerable to viruses if they are running an older version of Windows (Win98, Win NT, etc) for which a modern antivirus software may not be available. In addition, some control manufactures warn that installation of any third party software will void the control's warranty (many specifically warn against installing anti-virus software).

**Loss of file\rev control** – Many PC based control interface to your network simply amounts to defining a network drive to use. While a very simple way to gain access to your NC files, this method give you very little control over what files are accessed, and by whom.

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**Multiple network standards** – While a large part of the appeal of PC based controls is their higher level of standardization, the reality is that a number of different types of network connections are utilized by different manufactures. Many use a standard WIN\IP method, but others use FTP (either server, client or both) and some even use a UNIX style file structure (requiring an NFS server to work with Windows). These various standards add additional levels of complexity when utilizing controls from different manufactures (or sometimes even different models from the same manufacture).

### ***Recommendations***

**Standardize controls** – While it is rarely an option to replace every control in an enterprise with a single brand/model, the fewer variations present, the easier it will be to connect your CNCs

**Network capable DNC software** – While many have seen the rise of the PC based control as the heralding the death of DNC software, in many cases, the issues we have listed mean that a modern, network capable DNC software can be at least as valuable to PC based controls as it is to older style controls.

**Bar Code Readers** – A number of the issues we have listed can be resolved when bar code readers are utilized in conjunction with modern DNC software. Functions such as rev control, data collection and even part serialization can all integrated into a file move triggered by a bar code reader. Bar code readers can also mask (to a certain extent) the differences between different control types and their particular loading procedures.

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### **Summary**

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