Questions, answers and tips

Questions concerning *WinPC-NC Light* and *Economy*

What are the innovations with version 2.0 ?

From version 2.0 on WinPC-NC is available in three different variants. By variant Light and variant Economy the machine and the drives are directly controlled by the LPT printer port of the Windows PC. This innovation requires no additional expensive hardware and can be aquired exclusively by our firm and a few other producers.

The Professional variant is operating as usual with a serial axes controller for all realtime tasks, is absolutely applicable for industrial purposes and supplies many professional functions. The axes controller is available in various models and equipments.

What makes the direct LPT control possible ?

Controlling stepper motors is an absolutely realtime application. Formerly these applications under Window required additional hardware and to get the necessary precision in signal timings. Modern processors and computer concepts together with new Windows operating systems make it possible to obtain exact timing. We benefit from these possibilities to create innovative solutions.

Give me more details concerning realtime capacity under Windows !

By special programming and using functions of the lowest plane of the operating system it is possible to achieve considerable stable and fast timing. Exactness better than 1µ sec. is achievable with our CNC realtime module. This parameter is absolutely sufficient for controlling steppermotor drives.

Tests with a Athlon 1 GHz computer have shown that is possible to run the steppermotor with 20 kHz and simultanuously starting the Internet Explorer and MS Word by network without causing any noticable motor problems. Other products with direct controlling are possibly causing audible faults during the motor run by moving quickly the mouse.

Unfortunately with Windows there are always processes and background programs that can have effect on the realtime program. So it is not possible to give guarantee for a faultless application for each system.

What are the details concerning LPT controlling limits ?

Using the LPT printer port under Windows there are practically no limits. It is even possible for the Economy variant to operate with a second printer port and disposes of altogether 10 input and 8 additional output lines.

It is essential that your computer disposes of a real LPT port, either onboard or by ISA or PCI board. A simulated LPT port is not suitable for operation, e.g. an USB-LPT adapter.

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What are the requirements for the PC ?

Comprehensive tests have shown that realtime operation is possible with many computers. Basic requirements are processors equipped with at least 1 GHz and an operating system of Windows2000 or WindowsXP.

Unfortunately it has to be pointed out that notebooks often cause operating problems. Contrary to desktop computers a lot of other processes and functions run directly in BIOS or under Windows. This often leads to considerable disturbances of the realtime process. Problems are mainly caused by constant measuring and supervising the battery capacity, searching for network connections, mousepad drivers, integrated modems and other components.

Furthermore tests with customers have shown that generally processors of AMD (Athlon, Sempron) are more suitable than those of INTEL.

Can I use my notebook anyway ?

After testing a lot of various notebooks, we can state that nearly half of the tested units have shown practically no relevant disturbances and the motor run has been carried out satisfyingly. In case if it should not work, following actions can be made in order to improve motor run :

- Switching off the function for current savings as SpeedStep® and PowerNow®
- Interruption of loading function by removing the battery, use constant power supply instead
- Switching off all components in BIOS which are actually not required, e.g. modem, wireless adapter, mousepad
- Switching off all background programs under Windows which are actually not required

What are interferencing factors ?

Under Windows it is basically possible that all programs and processes running in the background are interfering with the realtime control of the drives. Running stepper motors with e.g. 8 kHz, clock signals are issued each 125µ sec. If further commands are delayed from other Window programs by only a few milliseconds, faults with the stepper or interruptions of the motor are the results. This would not be noticed by standard operations.

To guarantee a faultfree operation, all background programs which are actually not required should be closed, e.g. cd writer, office index administration, virus scanners, firewalls, automatic updates, media player as QuickTime etc. Furthermore it is essential that no function for current saving is activated and the function of changing the processor speed is deactivated.

What are differences between the individual versions

The three variants are produced in the way to be suitable for beginners with basic requirements but also for semi-professional users or for absolutely reliable and re-producable industrial requirements.

All necessary functions for engraving, milling, PCB drilling and manufacturing modelling parts are offered by the lowcost Light variant. The Economy variant is equipped with additional functions and able to import more data, especially 3D data. This variant is constructed for users with higher demands as well as for extended mechanically machine components.

The Professional variant stands out for many technical functions required for industrial purposes. Furthermore it can easily be completed by more input/output modules, keypads and additional components.

A detailed function table indicating differences of the three variants is available as WinPC-NC function matrix.

Is it possible to use WinPC-NC with the SMC stepper card ?

The variants WinPC-NC Light and Economy are also available for SMC stepper motor cards. WinPC-NC Professional and the axes controller is only available for clock/direction electronics.

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How can I test it ?

Despite some possible operating problems, we are quite sure that the program will run on many PCs and modern desktop computers. In order to test the motor run in advance and without any obligation, you have the possibility to download a test version from our homepage www.Lewetz.de

I am actually using *PC-NC*. Can I upgrade to *WinPC-NC Light* or *Economy* ?

Upgrading from PC-NC to WinPC-NC Light or Economy is quit easy. The pin assignments of the LPT printer ports are quite identical to those of PC-NC. At best you just have to switch the cable of your machine from the old DOS PC to the printer port of the Windows computer and to install the software program. Then it can be started .

Possibly the limit and reference switches have to be re-defined. This action can easily be carried out by the integrated signal wizzard. Reduced upgrades can be obtained by customers changing from PC-NC to one of the three WinPC-NC versions.

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