



# THE 8200-B CNC CONTROL DESIGNED FOR THE OPERATOR



**MILLTRONICS USA**  
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# About Milltronics USA

Milltronics has designed and manufactured quality CNC machines for the metal cutting industry for over 40 years. Milltronics markets its 50+ diverse product models in over 40 markets worldwide.

## About the 8200-B Control

The heart of our success is our long history of control development. The Milltronics CNC control blends ease of use with features and

performance demanded by the most sophisticated workshops. New operators can be quickly trained and productive in little time with the Conversational programming, on screen help, intuitive menus, color graphics, prompted tool setting routines and more. A unique and powerful "Trig Help" feature eliminates the need for shop floor calculations. Sophisticated workshops will welcome

networking capability, large program storage, USB port, DXF import, probing cycles and industry standard G & M code format.

The 8200-B Series CNC is our standard high-speed milling and turning control. It's a PC-based control which allows for advanced processing speeds that are imperative for high speed and multi-axis machining.



Milltronics' 8200-B High Speed CNC Control

## 8200-B Control Features

- PC-based 8200-B CNC includes 1 GB of memory
- Enhanced CPU with block processing speed of 2000 bps with enhanced jerk control and look ahead
- 12" LCD active matrix color display
- Conversational plus G & M code programming including coordinate rotating, Scaling, mirror image, thread mill engraving, helical interpolation, auto routines, and user definable macros with trig assist and irregular pocket clearing
- Auto DXF file import
- 3D part and wire frame tool path graphics plus solid model graphics
- Large program management software (allows editing of 10 MB files)
- High torque AC digital servo drives
- Spindle load meter
- USB connectivity
- MTConnect compliant
- Networking
- FastCam or LatheCam off-line software

## A Front Panel Designed For the Operator

An operator will spend thousands of hours working with the front panel of any CNC. This is why we have designed our front panel around an oversized high resolution LCD color screen. Machine function buttons such as flood, mist and spindle illuminate when selected. In fact, buttons that require operator response, such as Cycle Start, flash as needed to prompt the operator through the task at hand.

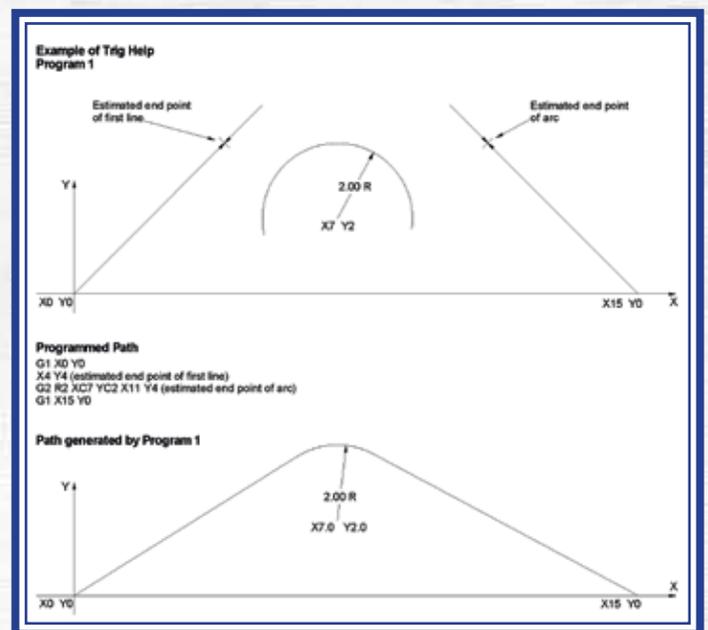
## Dual Processor Control Utilizes Latest Computer Technology

The Milltronics control takes advantage of a PC based Pentium processor to handle the operator interface and a robust 32 bit Motorola processor to handle the motion control. Because Milltronics controls are based on a PC platform, flexible data storage of 1 GB, networking and communications are possible.

## Advanced Trigonometry Assist

"Trig Help" as we call it, is much more than a calculator. It is a concept where the programmer can use the CNC's

computing power to calculate arc start and end points without the need for trigonometry. The programmer only needs to estimate the end point of the line or arc and the CNC connects the geometry to the nearest intersection on its own. There is no need to have exact intersection calculations.



Example of Trig Help allowing the control to calculate complex geometry with simpler, estimated coordinates.

## Concurrent Programming and More

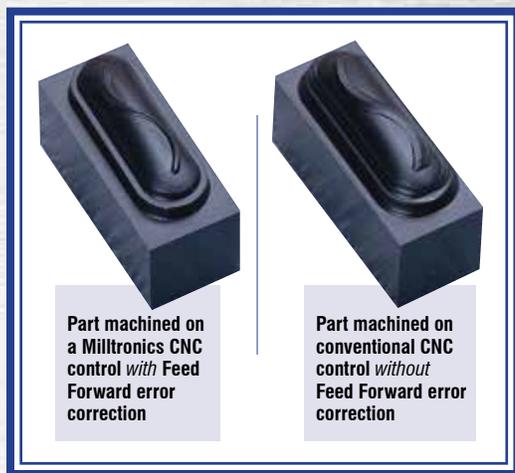
Maximize productivity by programming while the machine is in operation. Create new programs, modify existing programs, or edit the program in operation, all while the machine is cutting. Editing of tool and fixture offsets, copying of programs to/from USB or the network while the machine is cutting is all possible.

## Conversational Programming

A menu based question and answer format prompts the operator through program creation. While G and M codes are retained, in most applications there is no need to utilize them. Conversational programming is not only quick and easy, it is extremely powerful. In fact, many operations available with conversational programming are nearly impossible to duplicate with G and M code programming. The simple task of incrementing a tool to depth with G and M codes usually involves complex looping of subprograms or many redundant commands. With conversational programming this task is reduced to simple statements where only the cut increment and depths need to be entered.

## Accuracy

Milltronics CNC control utilizes a complex "Feed Forward" error correction algorithm that reduces inaccuracy caused by corner rounding and following error without compromising speed. This is an essential ingredient for performing high speed milling.



## Handwheel Controlled Program Execution

This useful feature allows an operator to take total control of machine movement and run programs with confidence. With this feature enabled, program movement only occurs while the handwheel is being turned; stop turning the handwheel and machine movement stops immediately. The faster the handwheel is turned the faster the feedrate. Ask any experienced CNC operator if they have ever crashed a machine and the answer most likely will be yes. With this feature an operator can avoid crashes and safely work near rotating lathe chucks or expensive fixtures.

## Unique Graphics Based Mid Program Start Feature

Starting in the middle of a program is often one of the more challenging tasks facing a CNC operator. Milltronics has solved this problem with a unique process where the operator can verify a program graphically up to the point where starting is desired and then simply switch over to the Run mode. This ensures that modal codes are executed completely and in sequence.

## Intelligent Axis Acceleration and Deceleration

Controlling how an axis decelerates and accelerates is one of the most crucial factors relating to machine speed. Understanding that it is impossible for a servo motor to stop and start a heavy machine slide close to 1,000 times per second leaves the only hope of achieving speed through greater intelligence of the acceleration and deceleration slopes. The Milltronics control searches as much as 255 moves ahead into a program to determine the directional changes that lay ahead, and incorporate a "S" curve accel/dec ramp modifier. Once these directional changes are known the CNC dynamically adjusts the acceleration and deceleration slopes to minimize stopping and starting.

## Flexible Communications

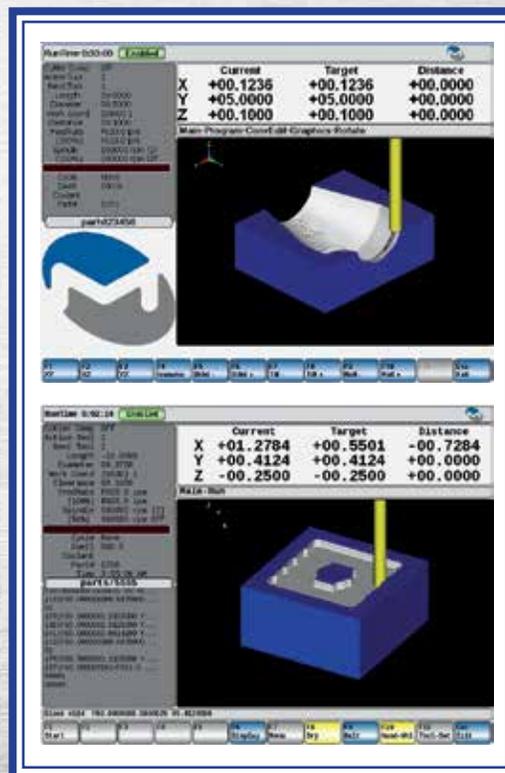
Anyone who has struggled transferring programs to a CNC will appreciate the USB and networking. Networking offers numerous advantages over RS232 communications as it provides transparent transfer of data at speeds surpassing 1,000,000 baud — more than 100 times faster than typical RS232 communications.

## Text Programming/Compatibility

The Milltronics control accepts the G and M codes recognized as industry standard. If you currently program in code, utilize a CAD CAM system, or are considering adding a CAD CAM system in the future, you can rest assured that compatibility will not be an issue. A full word processor style editor is utilized on all CNC controls and offers helpful features such as search, search and replace, cut, copy and move.

## Full Color Graphics with Solid Model

Full color graphics allow verification of tool path and part profile prior to program execution. Zoom in/out, rotate or window on detail for a clearer view. Unlike graphic systems on other CNC controls the Milltronics graphics are intertwined with the motion control system of the machine. This provides synchronized display between the graphics and machine movement and guarantees that there will be no discrepancy between what is seen on screen and what the machine actually does.



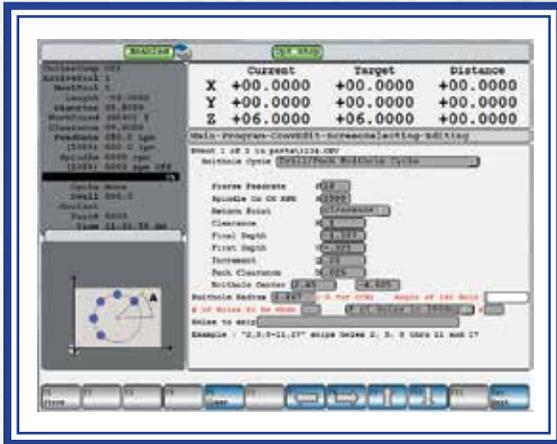
Powerful graphics of the Milltronics CNC control show the programmer the part geometry as it will look when completed. These graphic screens show the operator exactly where the tool is relative to the workpiece at all times.

## Large Program Execution

Programs up to 300 MB can be executed conventionally without the need for DNC. This large program execution capability not only frees you from restrictive DNC methods, it also permits subprogram calls – greatly enhancing multiple cavity work.

## Visual Aid Help Screens

In another effort to help the new operator, the Milltronics control is equipped with on-line help. These on-line help screens define the needed information required to accurately complete the selected conversational feature.

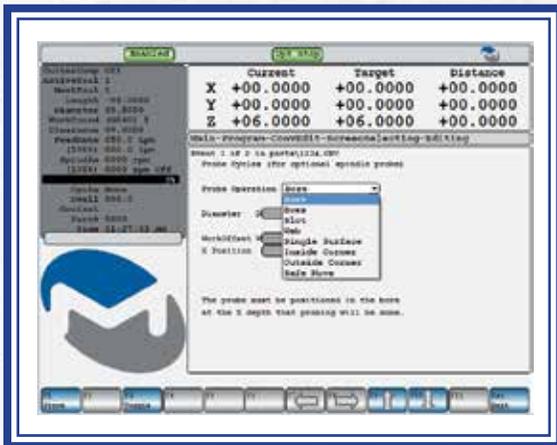


## Tool Offset Probing

A table mounted probe allows tool radius and length offsets to be set quickly and consistently. Probe can be used in-process to determine tool breakage.

## Workpiece Probing

The workpiece probing option aids in repeat setup of difficult parts. It provides the ability to automatically set and correct work coordinates, tool offsets, rotation angle and more after inspection of a fixtured part.



## Manual Operation/Teach Mode

The Milltronics control on ML series lathes fills the void between manual engine lathes and difficult to use CNC turning centers. Operation in full manual, simple MDI and fully automatic operation is standard. For full manual operation a conveniently located remote panel places the necessary controls at the operators' fingertips. Single operations that cannot be made by simply turning handwheels, such as tapers, radii and threading, can be made quickly and easily with conversationally prompted MDI screens. Typically teach systems only allow manual machine movements to be entered into a program. These systems are highly restrictive in that it is impossible to cut threads, radii and tapers by simply turning a handwheel. The Milltronics control allows not only manual moves to be entered directly into a program, but also a series of conversationally prompted MDI events including threading, tapers and arcs.



Optional workpiece probing available on all machines.



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