

AxDNC — Direct Numerical Control Software Feature Sheet

Improve your machines Operational Performance — Increase Shop Floor Productivity
 Communications and file management system allowing simultaneous upload and download of CNC part programs to multiple CNC controls.

Value Proposition

CNC Machine Tool Productivity by optimizing part program loading to the machine in real-time with file management tools for **increased profitability**.

Communicate Shop Floor to Management Floor; CAD/CAM and part program management **efficiency**.

Benefits

- Keep your CNC running at maximum utilization
- Remotely manage uploads and downloads or Direct Control from the CNC
- Ethernet-based Hardware for faster speeds
- Know your current Machine Status
- Easy access with Graphical Toolbars
- Quick adjustments with Preset/Protocol Editor
- File Optimization for efficiency
- Redundant file storage for backup security
- Auto-naming for quick and reliable work
- File messaging to know exact status
- Industry standard editor for ease of use
- Compare files automatically to know exactly
- Plot the tool path to “See” the part picture
- Utilities and Tools for aid efficiency
- Large file support to make it easy to operate
- Audit Log for security and review
- Monitor and track all changes to files for security
- Automatically adjust programs for specific results
- Operator Productivity increases

Payback to bottom line measured in months

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Ax-DNC Terminal for machine [Machine 1]
File Help
001 %
002 O0001
003 (This is a comment line)
004 N010 T101 M06
005 N015 G00 X0.754 Y0.190 Z1.C
006 N020 G02 X0.733 Y0.053 I=0.
    
```

Monitor Results

Cost effective — Saves you Money!
Support for the majority of CNC protocols
Reliability & Industrial Strength

Latest Technology in DNC software

Feature Overview Summary

- The **CNC operator** can upload, download, or run the CNC control in a direct (“drip feed”) DNC mode right from the control itself without requiring any add-on hardware.
- The NC part programs can be on a local DNC computer or on **any accessible network drive**.
- This **Windows** Vista, XP/2000/2003/NT4/N5 compatible 32-bit multi-threaded software includes a CNC Editor and Back Plotter. AxDNC can easily connect to CAD/CAM systems over industry standard networks.
- **Connectivity support** is possible using direct Ethernet (TCP/IP) communications over a LAN to our embedded OEE monitoring system.
- AxDNC **includes an FTP client** for downloading/uploading to shop floor FTP Data Servers. Optional features such as file modification tracking/notification and custom DPRINT inserting are also available.

CNC Machine Name	State	Operation	Port Settings	File Send Progress	File Receive Progress	Machine Type
FANUC	In Remote	TCP Sending File 0136.nc	10.10.1.126, 4444	6 %	0 Bytes Received	MILL
SNK	In Remote	TCP Connection Failed	10.10.1.57, 4444	0 %	0 Bytes Received	GANTRY
HAAS	In Remote	Idle	COM8, 9600, N, 8, 1	0 %	0 Bytes Received	TEST
MAKINO	Off Line	TCP None	10.10.1.111, 4444	0 %	0 Bytes Received	MILL

Control File Transfer

Machine Properties for MAKINO

Main Program Settings: Keep on Open/Close of ports, Auto screen resizing

File Optimization: Remove spaces, Remove block numbers, Remove comment lines

Imagine loading CNC part programs as fast as the machine tool can accept and process them.

Enable Lean at Every CNC Machine

Memex's new Direct Numerical Control software increases efficiency in part program management.

AxDNC — DNC Software Features:



Communications & File Management system for CNC controls

Remote uploads and downloads directly from the CNC control

The CNC operator can upload, download, or run the CNC control in a direct ("drip feed") DNC mode right from the control itself without requiring any add-on hardware. The NC part programs can be on a local DNC computer or on any accessible network drive.

Ease of use for the CNC operator

The CNC operator can "punch" out a file containing the NC part program name and then AxDNC reads the file contents, and the requested part program is automatically sent to the CNC. To upload files from the CNC control to the DNC computer, the operator simply punches the CNC's file, which is then automatically named and saved.

Simultaneous Communication up to 256 Ports

Support for simultaneous communication sessions with up to 1,000 CNC machines from a single PC at very high speed. *Actual number of simultaneous connections and maximum transmission speeds depends on the PC/Server's system resources and cabling lengths.

Ethernet (TCP/IP) Communications, Universal Machine Interface Hardware

Ethernet connectivity can tap into an existing LAN infrastructure, to the shop floor without the additional layers of software and hardware required in the more conventional Serial-to-Ethernet implementations.

Machine Status in Real Time

The main screen clearly shows the current status of all Ethernet and Serial connected machines. Colours are used to allow for quick identification of the machines being loaded, idle or running. A terminal window, launched from the main toolbar, shows a selected machine's file transfer in real time.

Graphical Toolbars

Easy access to many of the commonly used functions such as: adding/removing machines, turning on/off selected connections, sending/receiving, opening the editor, and access to the selected machine's configuration screen.

Machine Preset/Protocol Editor

Built-in editor for creating/editing protocols/presets for various serial settings and/or assign special communication protocols. This also provides a notes section for any special cabling or CNC settings required.

These presets auto fill/assign the desired settings for a CNC machine type. Templates of some common controls are included with their suggested manufacturer's settings.

File Optimization

Selectable options per machine for auto-stripping unwanted data stored within the files being transmitted and/or received, stripping comments, blank lines, spaces and block numbers, when sending or receiving files. File Optimization dynamically reduces file sizes, thus providing faster download times.

File Management

Primary & Secondary Send & Receive directories used with network drives. If the primary drive goes down then the secondary drive is automatically activated. Ability to configure an auto naming scheme (special comment or "O" line) within the part program files. Any file "punched" from the CNC is automatically saved with a file name, without needing to prepare the DNC software to receive every time.

File Messaging

Automatic, configurable Error Responses to remote commands (send or receive requests) can be defined per machine. If an error occurs at the DNC side, an automatic response is sent to the CNC as a tiny file, which notifies the operator that something has gone wrong. Available responses are "File not found", "Path not found", "Unknown File received" and "Unknown Command". The contents of each response can be tailored to match the file format for that machine and/or to be modified for custom messages.

Business Drivers:

- Maximum utilization of your machines = Profits
CEO's are demanding plant/machine level efficiency!

Editor Features:

Standard Windows Layout

Editor uses all of the standard Windows interface functions, making it easy to learn and use. Specialized functions for editing CNC code have been added such as Back Plotting, Renumbering, and Colorizing, viewing/editing multiple files at once and split a file's view to four sub views.

Auto Space Insert / Remove Spacing

Insert spaces between CNC code "words" for easier editing. Remove/strip spaces to reduce download time to the machine. Quickly add spaces back into CNC programs received from machine tools that typically strip all spaces on output.

File Compare

Engineered to make the tedious process of comparing "Changed" files uploaded from the CNC control with their "Original" files on the DNC system much easier.

2D Back Plotting

Display CNC code and plot a 2D view of the tool path. Both can be single block stepped through or slow motion block step. Support for dynamic zoom and pan. Drawing aids such as Axis lines, Rapid line, Rapid points and Cross hairs can be selected. Rapid moves are shown as dashed lines and up to 10 tools can be configured to display in a different colour.

Macro Support

Record custom key macros to auto add/edit text within a file.

Plug-Ins and Accessories

Additional calculators and unit conversion utilities are included to aid in editing CNC part programs.

Utilities:

File Monitor Application — Net Multi-Pol

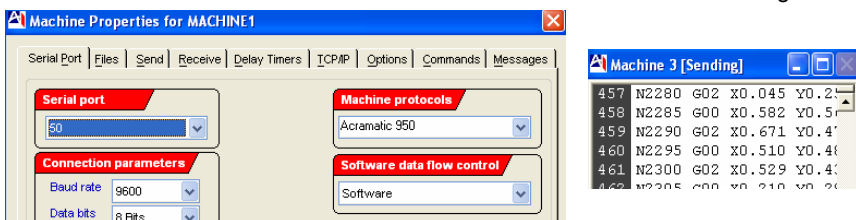
Tracks when files are modified with notifications & email. Simple easy to use User Interface. Monitor multiple directories, and sub-directories. Auto print and Auto email a file change. System tray application that runs in the background. Multi-threaded for increase performance. Custom settings. Detailed results list.

File Monitor Application — AxFMServer

Background file morphing application that scans directories for part programs. Upon finding a part program, AxFMServer can auto strip unwanted characters to speed up file transfers or morph a file from one control type to another. Auto insert custom DPRNT commands, enhance OEE monitoring. Different parameters. Customizable DPRNT command/message syntax. Logging.

FTP File Processing — AxFTPClient

FTP client for downloading and uploading part program files to Data Servers. Simple easy to use User Interface. Site Manager and Transfer Queue. Drag & Drop support. Transfers large files of up to 2 GB. User Accounts with custom privileges: uploading, downloading, deleting, renaming files. Logs direction and user.



An integral part of remotely structured and managed CNC operations program.

If your bottom line depends on CNC part program management then this application is for you.



Manufacturing Connectivity Solutions

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