eNETDNC

For Windows XP/Vista/7/8/8.1/10
DNC / Monitoring Through your Ethernet Network

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Port CNC

CNC Editing &
DNC Solutions

Table of Contents

Introduction
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This manual is only a summary of the various features of the eNETDNC software. The eNETDNC software has a built in context sensitive help system, which can help the user find an answer to any question which may arise while using the program. Pressing the F1 key at any point will activate the help system when the user needs answers. (Only up to Windows 7).

The eNETDNC program is primarily a part program distribution system. It also has a built in text editor tailored for NC/CNC part program editing, and it supports up to ten standard COM ports for "Manual" send and receive. Its real strength comes from working with the eNETDNC Hardware to RS232, USB or Ethernet interface units. This operation allows an "Automatic" transmit and receive operation, all initiated from the machines control. The software will run on computers having a Windows XP/Vista/7/8.1/10 operating system.

Installing the eNETDNC program

The user should "Run" the Install program and follow the simple installation instructions.

Upgrading eNETDNC From A Prior Version

The new version of eNETDNC will be installed into a sub-directory called "C:_eNETDNC", your old version will be overwritten. The new eNETDNC will use all of the configurations used in the previous version.

Backing up an installation

The eNETDNC software, once installed, should be periodically backed up. The eNETDNC system is a 'Portable Application', meaning that the entire eNETDNC folder can be moved to a new computer and simply running the executable will run the program. The following directory should be backed up:
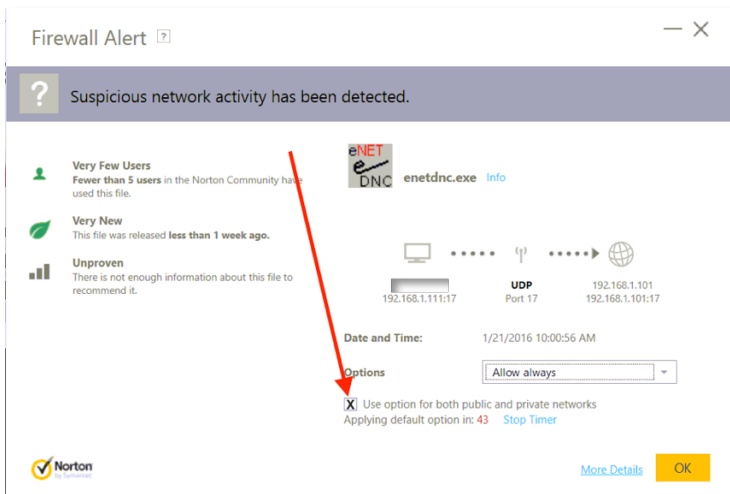
C:_eNETDNC

eNETDNC must always be installed on the C: drive of the computer, and only ONE instance of eNETDNC with hardware configuration can run at a site. If more than 128 machines are configured, a separate computer must be set up to run eNETDNC and it's configuration must not have any of the same IP addresses from the previous configuration.

How eNETDNC communicates on the network

The eNETDNC software communicates data packets on UDP Port 17. The computer that eNETDNC is running on must have this Port available and listening. Other known ports that should be open are 21(for Fanuc FTP) and 8002 (for Mori-Seiki Mapps/Capps). Ensure all firewalls/antivirus have exceptions for these Ports, and it is even possible that antivirus/firewalls must be totally turned off.

In the following example, using Windows 8, you should allow UDP Port 17 for both PUBLIC and PRIVATE networks. Allowing only one may cause issues.

Firewall Alert ⚙

Suspicious network activity has been detected.

👤 **Very Few Users**
Fewer than 5 users in the Norton Community have used this file.

🌱 **Very New**
This file was released **less than 1 week ago**.

📊 **Unproven**
There is not enough information about this file to recommend it.

eNET
e~
DNC   **enetdnc.exe** Info

💻 • • • • • 〽 • • • • ▶ 🌐

192.168.1.111:17   **UDP**   192.168.1.101
                      Port 17   192.168.1.101:17

Date and Time: 1/21/2016 10:00:56 AM

Options   [Allow always   ▾]

[X] Use option for both public and private networks
Applying default option in: 43   Stop Timer

✔ Norton   More Details   OK

Read/Write Administrative Privileges

The C:_eNETDNC folder must have Read/Write privileges enabled for all users of the computer it is running on. The reason is that eNETDNC constantly reads/writes data to all of it's sub-directories. If eNETDNC-LT is used, it needs to be able to read the information from these folders.

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Setting up the software

IP address auto detecting

- The eNETDNC software can automatically detect the computer's IP address. The detected IP address briefly flashes on the screen upon running the software.
- If the eNETDNC software has difficulties detecting the IP address, please follow the manual setup procedure.
- If the eNETDNC software detects multiple IP addresses on the computer, it will display the available choices. In this case, it is the user's responsibility to choose the one which belongs to the Ethernet card controlling the connected eNETDNC Hardware. If the user picks one from the list, the eNETDNC program will automatically fill out the IP address, and from that point on it will use it as a static IP.
- If the IP address is set to all zero's, the eNETDNC program always tries to detect a single IP address on the computer.
- If the IP address is filled out, the eNETDNC program will always use that address – auto detection is disabled.
- If the user "Zeroes" the IP, the computer will go back to auto detect mode next time the eNETDNC program is activated.

Manual IP address setting

After installation, only the eHUB/xlConnect, Settings and Help menus are enabled. The installer should set up the eNETDNC software so that it communicates with the eNETDNC hardware via your Ethernet network. To do that, the installer should go through the following steps:

1) Connect a eHUB or xlConnect unit to your network. Once an eNETDNC device is connected and power is turned on, its green light should come on. The red light will be flashing briefly, about once a second.

2) In the eNETDNC software in eHUB/xlConnect - Configure menu, select the type of device your connecting to (eHUB, xlConnect, etc..) set the Address item to the same as the IP address on the back of the eNETDNC device. If there are multiple eNETDNC devices, select a different Group and set the next address, and so on. Clicking on the "OK" button will save the setting. As many new windows will pop up as the number of eNETDNC devices that were set. The red light on all the connected eNETDNC devices should now change from brief flashing to even blinking. The newly popped up windows should display an Hardware version number other than 0.0. This now means that the devices are communicating with the computer via the Ethernet network.

Changing the eWIRELESS® IP address

(See Page: 102)

Changing the xlCONNECT / -2 / -U2® (wireless) IP address

(See Page: 103)

Changing the xlCONNECT-U® IP address

(See Page: 104)

Changing the eHUB / xlHUB IP address

(See Page: 105)

File menu commands
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The File menu offers the following commands:

New	Creates a new document.
Open	Opens an existing document.
Close	Closes an opened document.
Save	Saves an opened document using the same file name.
Save As	Saves an opened document to a specified file name.
Save All	Saves all open documents using their own names.
Last received file	Invokes the editor for the last received file from an eHUB/eWIRELESS units RS232 port.
Last transmitted file	Invokes the editor for the last transmitted file to an eHUB/eWIRELESS units RS232 port.
View up/download log file	Invokes the editor to view the log file for up/download activity.
Print	Prints a document.
Print Preview	Displays the document on the screen as it would appear printed.
Print Setup	Selects a printer and printer connection.
Exit	Exits the application.

Edit menu commands
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The Edit menu offers the following commands:

Undo	Reverses the previous editing operation if possible.
Redo	Reverses the previous undo operation if possible.
Cut	Deletes data from the file and moves it to the clipboard.
Copy	Copies data from the file to the clipboard.
Paste	Pastes data from the clipboard into the file
Insert file as text	Inserts a file as text.
Find	Searches the current file for the specified string and places the cursor there.
Replace	Replaces the specified string with another one in the active file.
Find next	Finds the next – already specified – string and places the cursor there.
Find previous	Finds the previous – already specified – string and places the cursor there.
Toggle bookmark	Toggles bookmark at current line.
Next bookmark	Jumps to the next bookmarked line.
Previous bookmark	Jumps to the previous bookmarked line.

Utilities menu commands
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The Utilities menu offers the following commands:

Compare/Raw	Compare two text files and highlight the differences.
Compare/Smart	Compare two G-code files and highlight the differences.
Remove Compare results	Remove all the highlights due to compare results.
Enable 'Undo' for Utility functions	Enable/disable "Undo" for "Utility" functions. If enabled, some utility functions may appear slower for large files.
Renumber	Create/modify block (N) numbers.
Remove Blocknumbers	Remove block (N) numbers.
Compress	Eliminate spaces in the edited file
Expand	Insert spaces between different address labels.
Modify	Multiply, divide or add a number to a selected address (X, Y or Z).
Rotate	Rotates up to three address labels as specified (X, Y or Z).
Min/Max	Calculates the minimum/maximum coordinates for X, Y and Z addresses.
2D Plotting	2D graphical presentation of the currently edited file.
2D Step by Step	2D graphical presentation of the currently edited file, plotting step by step.
3D Plotting	3D graphical presentation of the currently edited file.
3D Step by Step	3D graphical presentation of the currently edited file, plotting step by step.
Cycle time	Calculates the cycle time of a part program.

eHUB/eWIRELESS menu commands
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The eHUB menu offers the following commands:

Display eHUB(s)	Make eHUB window(s) visible.
Display/All	Display the status of all machines.
Move Upload to Download	Move files from Upload directory into Download directory.
Change eHUB IP	Allows the user to define full static IP addresses for eHUBs.

Manual DNC menu commands
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The Manual DNC menu offers the following commands:

Manual transmit	Transmit a file out via an RS232 port.
Manual transmit / REPOS	Specifying the starting transmit position and transmit the rest of the file out via an RS232 port.
Manual receive	Receive a file coming in via an RS232 port.
View	View the incoming data on an RS232 port and also send out typed characters.

View menu commands
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The View menu offers the following commands:

Toolbar	Shows or hides the toolbar.
Status Bar	Shows or hides the status bar.
Directory Window	Shows or hides the Directory window.
Mouse wheel scrolls all	Enables/disables scrolling all of the edit windows at the same time with the mouse wheel.
Scroll Bar scrolls all	Enables/disables scrolling all of the edit windows at the same time by one of the scroll bars.
Show Line numbers	Shows or hides the line numbers in the editor on the left margin (not to be confused with block numbers).
Show Spaces	Shows or hides spaces indicated by color underlined characters.
Show EOB	Shows or hides End Of Block characters by color visible characters.
Colorize editor	Switches between black or color characters. Color characters show the different address codes (X,Y,M, etc..) with the preconfigured colors.

Tools menu commands
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The Tools menu offers the following commands:

Compare Up/Down/New files   Compares an uploaded file to the original..
Right Angle Triangle   Basic right angle triangle calculations.
Bolt Hole Circle   Basic bolt hole circle calculations.
Surface Speed   Basic surface speed calculations.
Calculator   Activate system calculator.
Directory log - Create   Create directory log file.
Directory log - View   View directory log file.
File cleanup - EOB   End of block character cleanup.
File cleanup - Blank line   Blank line cleanup at the beginning of file.
File cleanup - Comment format   Comment cleanup.
File cleanup - Reverse Comment format Reverse comment cleanup.
File cleanup - % Sign search   % Sign cleanup.
File cleanup - Okuma format   Okuma format cleanup.
File cleanup - Fanuc Style Rename   Fanuc Style cleanup.
File cleanup - OS Name change   OS Name change cleanup.
File cleanup - PC2100 format   PC2100 format cleanup.
File cleanup - Cincinnati850 format   Cincinnati850 format cleanup.

Window menu commands

The Window menu offers the following commands, which enable you to arrange the views of multiple files in the application window:

<u>Tile vertical</u>	Arranges windows in vertical non-overlapped fashion.
<u>Tile horizontal</u>	Arranges windows in horizontal non-overlapped fashion.
<u>Cascade</u>	Arranges windows in an overlapped fashion.
<u>Window 1, 2, ...</u>	Goes to specified window.

Monitoring menu commands

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The Monitoring menu offers the following commands:

Display machines/Detailed	Display machines being monitored/Detailed.
Display machines/Icons	Display machines being monitored/Icon View.
Display machines/All	Display All machines being monitored.
Create list to Display	User can create a machine list for the Detailed Monitor Display.
View report - Graph	View generated report as a graph.
View report - Pie chart	View generated report as a pie chart.
View report - using Excel	View generated report activating the Excel spreadsheet program.
View report - OEE/Machine	View generated OEE report per machine.
View report - OEE - Overall	View generated OEE report for the whole shop.
View detailed shift - Graph	View detailed shift data as a graph.
View detailed shift - Piechart	View detailed shift data as a Pie chart.
View detailed shift - Current shift	View current detailed shift data.
View detailed shift - Start of current shift	View detailed shift data - at start of current shift.
View detailed shift - Start of previous shift	View detailed shift data - at start of previous shift.
Generate Report	Machine monitoring related report generation.
Re-generate - Scan .MON files	Re-generate monitoring data files for a specific year.
Re-generate - Database_DAT	Re-generate database file from the saved monitoring files for a specific year.
Re-generate - Machine .CSV file	Re-generate machine report files from database file for a specific year.
Re-generate - Part number .CSV file	Re-generate part number report files from database file for a specific year.
Re-generate - Operator .CSV file	Re-generate operator report files from database file for a specific year.
Re-generate - All machine reports	Re-generate all report files from database file for the current year.

Data Collection menu commands
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The Data Collection menu offers the following commands:

Generate Report   Generate a report from the collected data.

Settings menu commands
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The Settings menu offers the following commands:

DNC eHUB/eWIRELESS	Specify parameters for DNC.
Monitoring - General..	Specify monitoring settings.
Monitoring - Report	Specify monitoring report settings.
Monitoring - Department/shift	Specify department and shift settings.
Data Collection - General..	Specify data collection settings.
Data Collection - Data Validation	Specify data validation settings.
Email - Server	Specify email server settings.
Email - Recepients	Specify email recipient settings.
Colors - Edit	Specify text colors for editor if it is colorized.
Colors - Backplot	Specify various colors for 2D and 3D back plotting functions.
Fonts - Edit	Specify font style and size for the editor.
Fonts - Printer	Specify font style and size for the printer.
Fonts - eHUB/RS232	Specify font style and size for the RS232 port communication windows.
RS232 parameters	Various parameter settings regarding the RS232 port (baud rate, code, etc..).
Other options	Various settings regarding printing, the editor and optional IP address.
eNETDNC remote	IP address, path settings to communicate with the eNETDNC software (optional).

File menu
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New command (File menu)

Use this command to create a new file.
You can open an existing file with the <u>Open command</u>.

Shortcuts
    Toolbar: ☐
    Keys: CTRL+N

Open command (File menu)

Use this command to open an existing file in a new window. You can have multiple files open at the same time.

You can create new files with the <u>New command</u>.

Shortcuts
    Toolbar: 📂
    Keys: CTRL+O

File Open dialog box

The following options allow you to specify which file to open:

File Name
    Type or select the filename you want to open. This box lists files with the extension you select in the List Files of Type box.

List Files of Type
    Select the type of file you want to open:

Use this dialog box to specify a location and name of the file to be opened. The user can navigate through all accessible drives, including ones on a connected network.

Close command (File menu)

Use this command to close a window containing the active file. You will be asked to save changes to your file before you close it. If you close a file without saving, you lose all changes made since the last time you saved it. Before closing an untitled file, the Save As dialog box will be shown to prompt for a filename to save the file.

You can also close a file by using the Close icon on the file's window, as shown below:

Save command (File menu)

Use this command to save the active file to its current name and directory. When you save a file for the first time, the Save As dialog box will be displayed so you can name your file. If you want to change the name and directory of an existing file before you save it, choose the Save As command.

Shortcuts
   Toolbar:
   Keys: CTRL+S

Save As command (File menu)

Use this command to save and name the active file. The Save As dialog box will be displayed so you can name your file.

To save a file with its existing name and directory, use the Save command.

Shortcuts
   Keys: SHIFT+ALT+S

File Save As dialog box

Use this dialog box to specify a location and name of the file to be saved. The user can navigate through all accessible drives, including the ones on the connected network.

Save all command (File menu)

Use this command to save all files currently opened. You will not be prompted about overwriting any existing files – all existing files (if any) will be overwritten.

Shortcuts
Toolbar:

Print command (File menu)

Use this command to print a document. Depending on the Settings menu, under Other options , the file will be printed with a header and page number or without them. The user can also choose whether to print normal or print two columns on the same page (paper saving).
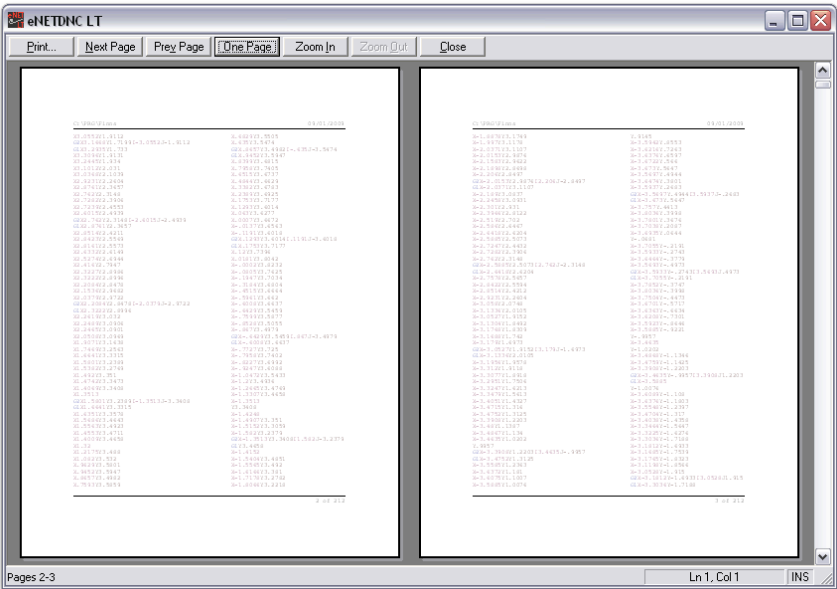If multiple lines of the file are highlighted, the user can decide during the printer selection to print the selected lines only or the whole file.

Shortcuts
Toolbar:
Keys: CTRL+P

Print Preview command (File menu)

Use this command to display the active document as it would appear when printed. When you choose this command, the main window will be replaced with a print preview window in which one or two pages will be displayed in their printed format.

Print

Bring up the print dialog box, to start printing a job.

Next Page

Preview the next printed page.

Prev Page

Preview the previous printed page.

One Page / Two Page

Preview one or two printed pages at a time.

Zoom In

Take a closer look at the printed page.

Zoom Out

Take a larger look at the printed page.

Close
　　Return from print preview to the editing window.

Shortcuts
　　Toolbar:　　　
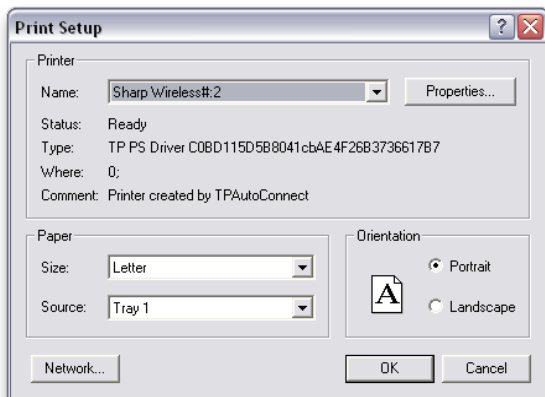　　Keys:　　　　SHIFT+ALT+P

Print Setup command (File menu)

Use this command to
select a printer and a
printer connection.
This command presents
a <u>Print Setup dialog
box</u>, where you specify
the printer and its
connection.

**Print Setup dialog
box**
The following options
allow you to select the
destination printer and
its connection.

Printer
　　Select the printer you want to use. Choose the Default Printer or choose a
　　different printer from one of the current installed printers shown in the box.
　　You can install printers and configure ports using the Windows Control
　　Panel.
Orientation
　　Choose Portrait or Landscape.
Paper Size
　　Select the size of paper that the document is to be printed on.
Paper Source
　　Some printers offer multiple trays for different paper sources. Specify the
　　tray here.
Properties
　　Displays a dialog box where you can make additional choices about
　　printing, specific to the type of printer you have selected.

Exit command (File menu)

Use this command to end the application. You can also use the Close command on the application Control menu. If any file is open, it will be automatically saved.

Shortcuts
    Mouse: Double-click the application's Control menu button.

    Keys: ALT+F4

Edit Menu
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Undo command (Edit menu)

Use this command to reverse the last editing action, if possible.

Shortcuts
    Toolbar: ⟲
    Keys: CTRL+Z or
        ALT-BACKSPACE

Redo command (Edit menu)

Use this command to reverse the last undo action, if possible.

Shortcuts
    Toolbar: ↻
    Keys: CTRL+Y

Cut command (Edit menu)

Use this command to remove the currently selected data from the file and put it on the clipboard. This command is unavailable if there is no data currently selected.

Cutting data to the clipboard replaces the contents previously stored there.

Shortcuts
    Toolbar: ✄
    Keys: CTRL+X

Copy command (Edit menu)

Use this command to copy selected data onto the clipboard. This command is unavailable if there is no data currently selected. Copying data to the clipboard replaces the contents previously stored there.

Shortcuts
    Toolbar: 🖹
    Keys: CTRL+C

Paste command (Edit menu)

Use this command to insert a copy of the clipboard contents at the insertion point. This command is unavailable if the clipboard is empty.
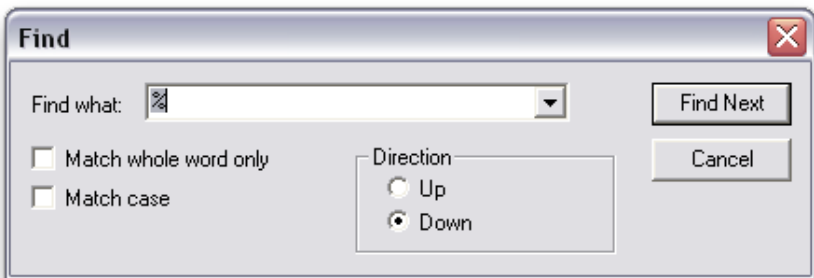
Shortcuts
   Toolbar:
   Keys: CTRL+V

Insert File as text (Edit menu)

Use this command to insert a text file into the active file at the current cursor position.

Shortcuts
   Keys: ALT+SHIFT+F

Find command (Edit menu)

Use this command to search the edited file for a specified string. Search can be performed from the current location going forward or backward. It also can be made case sensitive or case insensitive, and to match the whole word or any part of it. After the initial search, repeated search can be performed from the current location trying to find the next (Find next command) or previous (Find previous command) occurrence.

**Shortcuts**
   Toolbar:
   Keys: CTRL+F

Find dialog box (Find command)

Specify a string to search for. The search can be specified "Up" (going backward) or "Down" (going forward). You can specify a whole word replacement only, or any portion of it. Also, the string to be searched for can be case sensitive or insensitive.

Find next button will advance to the next string to be searched for. It will also quit the Find dialog box. The user then can search for the next (Find next command) or previous (Find previous command) occurrence

The Cancel button will exit the dialog box.

Replace command (Edit menu)
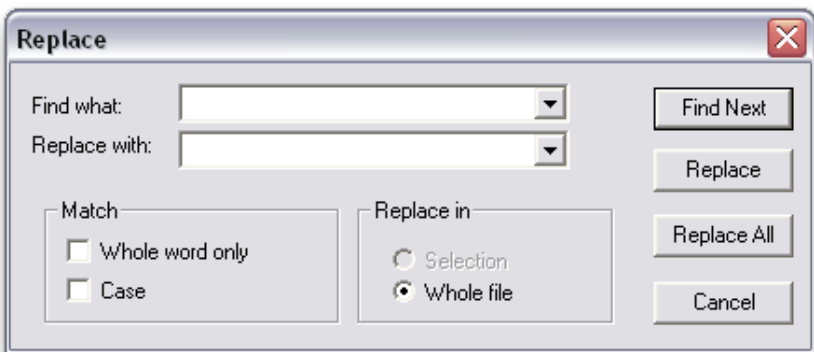
Use this command to search for a specified string and replace it with another one. The replacement can be limited to a highlighted portion of the edited file, or it can be performed for the entire file. See all the options at the Replace dialog box

Shortcuts
    Toolbar:
    Keys: CTRL+H

Replace dialog box (Replace command

Specify a string to search for and specify a string to replace it. The replacement can be limited to a highlighted portion of the edited file, or it can be performed for the entire file. You can specify a whole word replacement only, or any portion of it. Also, the string to be searched for can be case sensitive or insensitive.

Find next button will advance to the next string to be searched for.

Replace button will replace the last found string and it will automatically search for the next one.

Replace all will find and replace all occurrences. It will also report back how many replacements were done by the "Replace All" operation.

The Cancel button will exit the dialog box.

Find next command (Edit menu)

Use this command to find the next occurrence of the same string, which was previously set by the Search command.

Shortcuts
    Toolbar:
    Keys: F3

Find previous command (Edit menu)

Use this command to find the previous occurrence of the same string, which was already set by the Search command.

Shortcuts
    Toolbar:
    Keys: SHIFT+F3

Toggle bookmark (Edit menu)

Use this command to toggle a bookmark at the current cursor position.
If there was no bookmark there before, one will be placed (rectangular mark on the left margin). If there was a bookmark there before, it will be removed. Bookmarks are marked lines, where the user can directly navigate to see "Next bookmark" or "Previous bookmark".

Shortcuts
    Keys: CTRL+F2

Next bookmark (Edit menu)

Use this command to jump to the next bookmark. For how to set a bookmark see – Toggle bookmark .

Shortcuts
    Keys: F2

Previous bookmark (Edit menu)

Use this command to jump to the previous bookmark. For how to set a bookmark see – Toggle bookmark .

Shortcuts
    Keys: SHIFT+F2

Editor
Up/down/left/right arrow keys: move the cursor in the appropriate direction
PgUp/PgDn: move the cursor a page up/down
Home: moves the cursor to the beginning of the line
End: moves the cursor to the end of the line
Enter: opens a new line (in insert mode)
Del: deletes a character at the cursor position
Backspace: deletes the character prior to the cursor and moves the cursor left one space
Insert: toggles "Insert" and "Over type" mode.
Ctrl+Home: moves the cursor to the beginning of the file
Ctrl+End: moves the cursor to the end of the file

Highlighting or text selection can be done either holding down the mouse button and moving the mouse, or holding down the shift key on the keyboard and moving the cursor with the arrow or PgUp/PgDn keys.

Utilities Menu

Compare/Raw (Utilities menu)
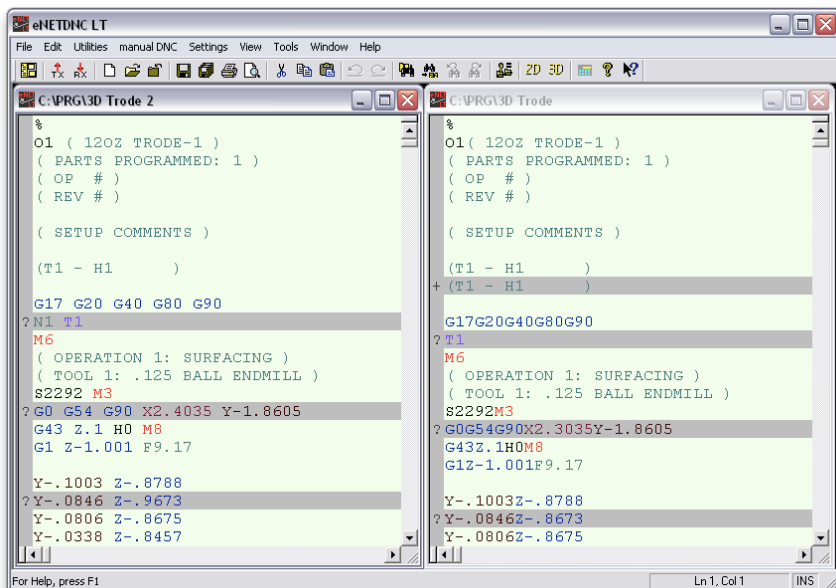
Use this command to compare two text files and highlight the differences. The "+" sign on the left margin indicates an extra line, "-" sign indicates a missing line. The "?" mark shows that both lines are there, except they are different.

To remove from the left margin the result of the Compare command, use the Remove Compare result command.

Compare/Smart (Utilities menu)

Use this command to compare two G-code files and highlight the differences. The "+" sign on the left margin indicates an extra line. The "-" sign indicates a missing line. The "?" mark shows that both lines are there, except they are different. The content of comments are ignored.

To remove from the left margin the result of the Compare command, use the Remove Compare result command.

Shortcuts
    Toolbar:

Remove Compare result (Utilities menu)

Use this command to remove the Compare/Smart or Compare/Raw commands result from the left margin, as well as eliminate the highlights created by the compare results.

Enable "Undo" for Utility functions (Utilities menu)

If checked, the "Undo" is enabled for utility functions. Normally it should be checked. The only time you may want to consider un-checking while editing several megabytes or even bigger files.

Renumber command (Utilities menu)

Use this command to perform re-sequencing the G code program being edited. The user can specify the starting block number, the block number increment, the number of digits, whether to include leading zeroes or not. Also, the user can specify whether to renumber the blocks, which start with the letter "O", a column, or an opening parenthesis. The user can specify a special character to not renumber those lines, which start with that character.

Configure renumbering method

Block number info

Starting	Increment	No. of digits
1	1	3

☐ Include leading zeroes

DON'T RENUMBER if line starts with: !

RENUMBER if line starts with:

☐ letter O   ☐ column   ☐ opening parenthesis

[Cancel]   [OK]

Configure Renumbering dialog box (Renumbering operation)

The Starting block number, the Block number increment and the Number of digits along with the Include leading zeroes checkbox will determine how the renumbering is performed.

Examples:	
N0001	Starting block number: 1, Increment: 1, Digits: 4, Include leading
N0002	zeroes: checked
N10	Starting block number: 10, Increment: 5, Include leading zeroes:
N15	not checked

If the renumbering process exhausts its last number according to the number of digits set, than renumbering will wrap around and starts again with the Starting block number.

Example:	
N998	Starting block number: 10, Increment: 1, Digits: 3, Include leading
N999	zeroes: checked
N010	

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Normally blocks starting with the letter "O'", column or an opening parenthesis are not renumbered, unless the appropriate check boxes are checked. The user can also specify a special character to not renumber those lines, which start with that character.

Clicking on OK will advance to perform the actual renumbering.

The Cancel button will abort renumbering.

Remove Blocknumbers command (Utilities menu)

Use this command to remove existing block numbers (N) at the start of each line from the file being edited.

Expand command (Utilities menu)

Use this command to insert spaces between different G code addresses (X, Y, M, etc..) in the edited file. This will improve readability.

Modify command (Utilities menu)

Use this command to modify the selected address (X,Y,Z). The modification will be done with the set value, according to the operation selected (multiply, divide or add). If subtract operation is required, simply set the value to a negative number and use the Add function. Blocks with a specified string can be excluded. The user also can specify the format of the result (to use three or four digits after the decimal point, or no decimal point at all).
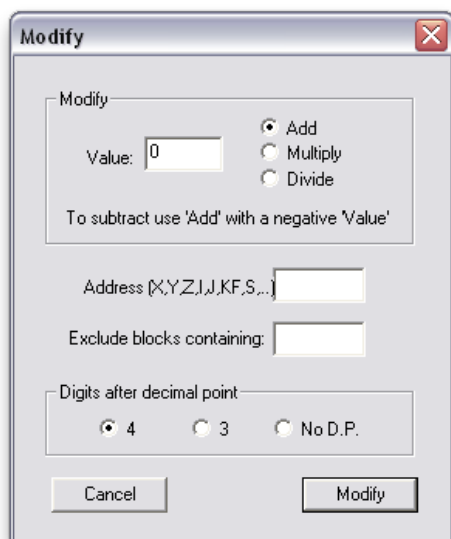
Modify dialog box (Utilities operation)

Set the Value, and select the required operation: Add, Multiply or Divide.
Set the Address to X,Y,Z, etc.., for whichever values need to be changed.
Specify the Exclude blocks containing string value. If this string is present in a block, the modification will not take place for that block.
Select the decimal point format for the particular control.
Click on Modify to execute the operation.

If a portion of the file is highlighted, the modification will be done only for that portion. Otherwise the modification will be done for the whole file.

Example: setting Value to **–1.0**, the operation to Add, Address to **X**, Exclude blocks containing to **G00**, the modify operation will subtract one inch from each X value, except the blocks with the G00 in them.

The Cancel button will quit the operation.

Rotate command (Utilities menu)

Use this command to rotate address labels among up to three labels. For example, the user can rotate the X value into Y, the Y value into Z, and the Z value into X. If swapping is required, simply set to rotate for example X to Y and Y to X, and leave the third line empty.
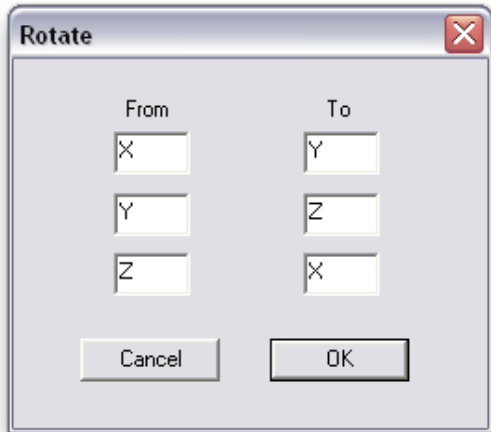
Rotate dialog box (Utilities operation)

Fill out the From and To values in pairs. In the From column specify the name of the axis the value is taken away, and in the To column specify the axis name the same value is given to.

Example: From is set to X and To is set to Y:
X1.0 Z2.0 code will change to Y1.0 Z2.0 after rotation.

To perform a swap between X and Y, set:

From	To
X	Y
Y	X

Example:
X1.0 Y2.0 code will change to Y1.0 X2.0, To do a full rotation, set:
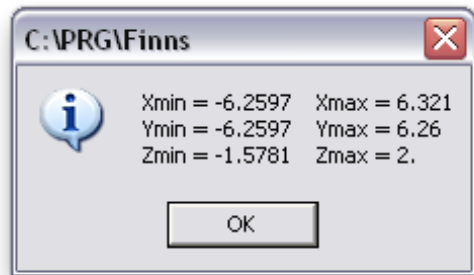
From	To
X	Y
Y	Z
Z	X

The Cancel button will quit the operation.

The OK button will perform the rotation.
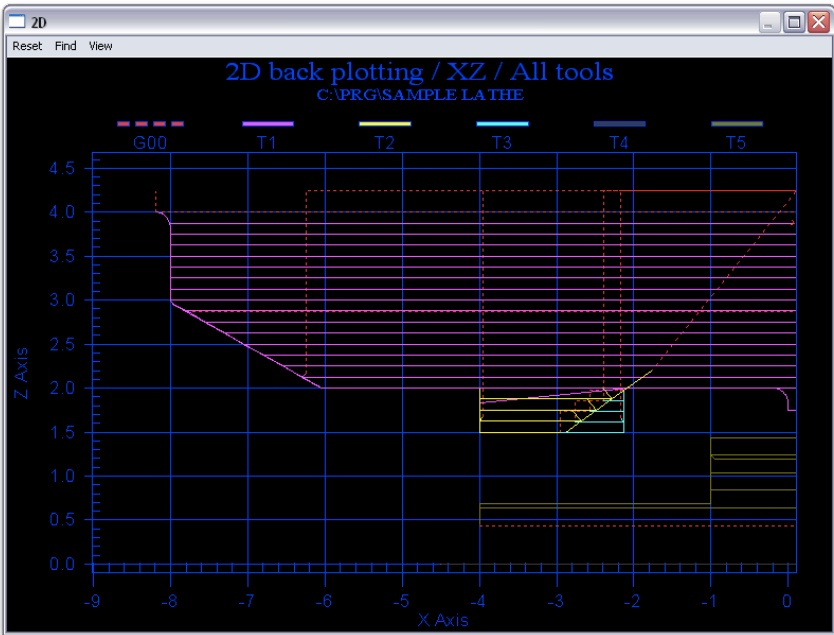

Min/Max Calculation command (Utilities menu)

Use this command to calculate the Minimum/Maximum dimensions for the X, Y and Z values in the active file.

C:\PRG\Finns

Xmin = -6.2597   Xmax = 6.321
Ymin = -6.2597   Ymax = 6.26
Zmin = -1.5781   Zmax = 2.

OK

Compress command (Utilities menu)

Use this command to eliminate spaces from the edited file. This may be useful to reduce the size of the file (allowing it to fit better into the control's memory) and to reduce transfer time to the control.

2D Plotting command (Utilities menu)

Use this command to create a 2D graphical representation of the currently edited file. All the tools (up to 15) and the G00 lines will be shown with different colors, specified in <u>Plot Colors</u> command. Left clicking on the tool name at the top will show that particular tool only. Clicking on the "Reset" menu item will bring all the tools back. The end of a move is identified by the hand shape of the cursor. Left clicking on such a point will highlight the block in the editor, which created that particular move. Right clicking on the graph will bring up another menu, where the user can modify additional configuration options regarding the representation of the graph, plus find additional help. With the "<u>Find</u>" command on the menu the user can highlight a segment of the graph, which corresponds to the line where the cursor is in the editor. By holding down a <u>Shift key</u> and the <u>left mouse button</u> while defining a rectangle area, the user can zoom in on that area and view the graph in detail.
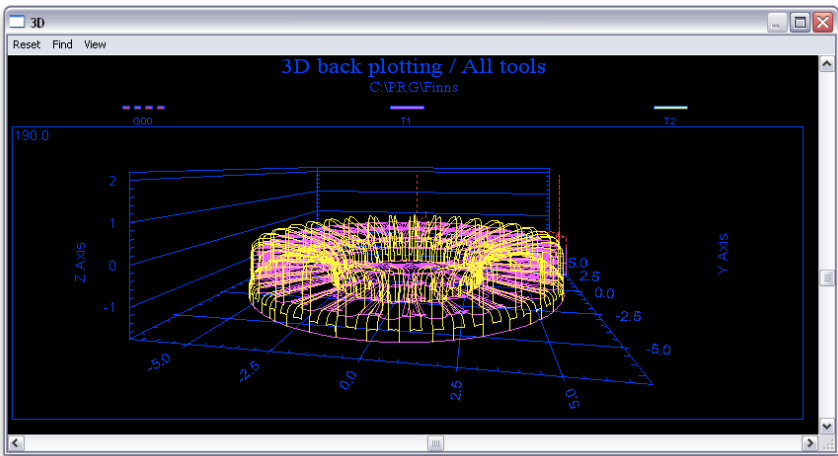

Shortcuts

Toolbar: 2D

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2D Step by step command (Utilities menu)

Use this command to create a 2D graphical representation of the currently edited file. All the tools (up to 15) and the G00 lines will be shown with different colors, specified in Plot Colors command. The user has to start back plotting by clicking on the Start command. Once back plotting is started, it can be stopped with the Stop command. The user can also single step with the Next command. The plotting speed can be controlled with the "<<" and ">>" menu items. The number in between shows the number of lines plotted in one shot. It is also an indication of the plotting speed: setting 10 will plot approximately 10 times as fast as setting 1. Left clicking on the tool name at the top will show that particular tool only. Clicking on the "Reset" menu item will bring all the tools back. The end of a move is identified by the "hand shaped" cursor. Left clicking on such a point will highlight the block in the editor, which created that particular move. Right click on the graph will bring up another menu, where the user can modify additional configuration options regarding the representation of the graph, plus find additional help. With the Find command on the menu the user can highlight a segment of the graph, which corresponds to the line where the cursor is at in the editor. By holding down a Shift key and the left mouse button while defining a rectangle area, the user can zoom in on that area and view the graph in detail.

3D Plotting command (Utilities menu)

Use this command to create a 3D graphical representation of the currently edited file. All the tools (up to 15) and the G00 lines will be shown with different colors, specified in Plot Colors command. Left clicking on the tool name at the top will show that particular tool only. Clicking on the "Reset" menu item will bring all the tools back. The "end of a move" is identified by the hand shape of the cursor. Left clicking on such a point will highlight the block in the editor which created that particular move. Right clicking on the graph will bring up another menu, where the user can modify additional configuration options regarding the representation of the graph, plus find additional help. With the Find command on the menu, the user can highlight the segment of the graph which corresponds to the line where the cursor is blinking in the editor.

Shortcuts
   Toolbar:

3D Step by step command (Utilities menu)

Use this command to create a 3D graphical representation of the currently edited file. All the tools (up to 15) and the G00 lines will be shown with different colors, specified in Plot Colors command. The user has to start back plotting by clicking on the Start command. Once back plotting started, it can be stopped with the Stop command. The user also can single step with the Next command.

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The plotting speed can be controlled with the "<<" and ">>" menu items. The number in between shows the number of lines plotted in one shot. It is also an indication of the plotting speed: setting 10 will plot approximately 10 times as fast as setting 1. Left clicking on the tool name at the top will show that particular tool only. Clicking on the "Reset" menu item will bring all the tools back. The "end of a move" is identified by the hand shape of the cursor. Left clicking on such a point will highlight the block in the editor, which created that particular move. Right clicking on the graph will bring up another menu, where the user can modify additional configuration options regarding the representation of the graph, plus find additional help. With the Find command on the menu the user can highlight a segment of the graph, which corresponds to the line where the cursor is at in the editor.

Editor and 2D/3D back plotting additional help

2D/3D back plotting
For 2D or 3D back plotting additional help is available by right clicking on the background of the graph and selecting Help from the new menu.
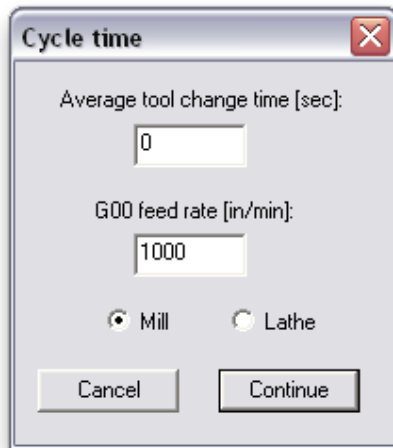
Cycle time command (Utilities menu)

Use this command to calculate the cycle time of the G code program you are editing. The cycle time is returned in HH:MM:SS (HOUR:MINUTE:SECOND) format. See the Cycle time dialog for additional information.

Cycle time dialog box (Utilities operation)

The user is asked to specify the rapid feed rate (G00) in inch/min and the average tool change time in sec. Also, the user needs to specify whether the G code program is for Mill or Lathe.
The Cancel button will cancel the cycle time operation and will take the user back to the editor.
The Continue button will start the cycle time calculation and will display the results in HH:MM:SS format.

eHUB/xlConnect Menu

Display eHUB/xlConnect(s) command (eHUB/xlConnect menu)

Use this command to display hidden eNETDNC devices windows. The visible device windows can be made hidden by right clicking on them. Having the device windows hidden or visible has no effect on their actual operation. See <u>Scan eHUB/xlConnect dialog</u>.

Display/All command (eHUB/xlConnect menu)

Use this command to display the status of all machines. The machines are grouped by 8 the same way as they are in <u>eHUB/xlConnect Configuration Common dialog</u>. The name of the machine is shown as a green push button if the machine is on-line, red if it is off-line or windows desktop color if it is not configured. By clicking on a machine name the detailed machine window will pop up displaying the machine clicked on (see <u>Scan eHUB/xlConnect dialog</u>). The Group push button will be green if all connected machines in its group are on line. It will be red if any of the connected machines are off line. By clicking on the Group1…Group16 push button the particular group configuration page will pop up (see <u>eHUB/xlConnect Configuration Common dialog</u>.)

Move Upload to Download command (eHUB/xlConnect menu)

Use this command to move all files from the upload directory into the download directory for the selected machine. At the end of the move a message will tell how many files were moved. If a file already exists in the download directory with the same name, it will be renamed to ".ORG" and the new upload file is moved. If ".ORG" is already present, the new file will be moved and the old ".ORG" files remains unchanged. This way always the oldest and newest file will be present. If the upload and download directories are the same, no move is performed.

Scan device dialog (eHUB, xlConnect, FTP, CAPPS operation)

The title bar displays the name of the device.

The View button steps through three different dialog sizes.

St: shows Ethernet status and RS232 related error messages. The Ethernet related status messages are self-correcting, they are shown for information only.

Tx button: will toggle between showing the full path or showing the name only for the last transmitted file for the selected port.

Rx button: will toggle between showing the full path or showing the name only for the last received file for the selected port.

Message: shows the last received message from the eHUB. Information only.

Version: displays the version of the connected device. If the device lost connection with the computer for some reason, the DEVICE WAS RESET message appear as the continuation of the version message.

Clear button clears error messages and Rx and Tx names. If the DEVICE WAS RESET message is displayed, it will be cleared as well. The Clear button sets the device message to None. If the device is still connected to the computer, a message other than None should appear within 3 seconds coming from the eNETDNC device.

The progress bar shows the actually transmitted percentage of the Tx program.

The top window displays the Tx program going out on the selected serial port.

The bottom window displays the Rx program coming in from the selected serial port.

The radio buttons on the right serve to select one of the eight devices connected to the group for display purposes. They are labeled by the names of the machines.

The Load 1 file push button will let the user to get ready one part program to be downloaded into the control without issuing the remote download command. If the Fanuc DNC is enabled for the selected port, the name of the push button changes to Dir/Del to be able to execute a directory/delete program operation (see also Fanuc dialog).

The Receive push button is used to manually initiate a receive process at the computer on the currently selected port.

The Edit Queue push button is used to manually queue one or several part programs at the computer on the selected port, and have it ready to be read or sent into the machine tool control. See Edit Queue dialog.

The View Queue push button is used to view the list of the queued part programs. If there are no part programs queued, nothing will be shown.

Right click on the Scan eHUB/xlConnect dialog box or pressing the ESC key will hide it. Whether the dialog box is visible or hidden, does not have any effect on the operation of the connected eHUB/xlConnect.

If FTP server is enabled, this dialog box becomes simpler. Only the View, Clear, Tx and Rx pushbuttons remain, with similar functionality as stated above. Since the eNETDNC program is acting as a server, there is no local load or receive capability. Those operations are controlled by the machine tool. The Tx and Rx windows will show the received and transmitted FTP commands. The content of the actual file is not shown.

Edit Queue dialog (eHUB/xlConnect scan)
This dialog box lets the user queue up CNC part programs to be loaded into the machine. The files are downloaded to the machine in the order as they are shown in the list. The user can Add to the list or Delete the highlighted item from the list. Also, the selected item can be moved Up or Down in the list. Once the list is correct, the user can click on the Done button, or Cancel the whole operation. If the particular port is configured as Fanuc DNC, the Done button becomes a Send button, as the selected files will be downloaded immediately to the control (see Fanuc dialog).

To see the rules of activating the queue, see the Configure Transmit/Download dialog for the Queue Next CMD, Queue All CMD, Insert PRG number and Last program CMD items.

Fanuc dialog (eHUB/xlConnect scan)

This dialog box lets the user communicate with a Fanuc control in Fanuc DNC mode. This dialog automatically pops up when the user is executing a Fanuc Directory, Delete, Send(queue) or Receive operation. When this dialog is active, it is assumed that the connected Fanuc control is also active and able to communicate. In the window of this dialog the remote directory, the file being sent or the file being received is shown.

For Delete or Receive operation the user should highlight the file name to operate on and initiate the Delete or Receive operation with the respective push button. For Receive operation the user is asked to specify the name and directory of the file on the computer. The name of the file on the computer is independent of the name of the file on the control.

For Send operation the user should queue up multiple programs with the Edit Queue operation (see Edit Queue dialog) and send them at once. The internal "O" program name of each file will be automatically given as the program number on the control. If the program number on the control already exists, that program will be automatically skipped.

If Receive or Send operations are finished, the Fanuc dialog will be automatically closed.

For Directory and Delete operations the user will have to press the Exit button once the operation is complete.
During all operations the title bar of the Fanuc dialog will show various messages regarding to the ongoing operation. If an error message is shown, the user can Exit and attempt the operation again.

Change eHUB IP dialog (eHUB menu)

Only eHUB units with version number 2.5 or higher support the fully static IP addressing.

The eHUBs come with lowest byte IP numbers varying from 1 through 254. No two eHUBs can have the same lowest byte IP on the same network. The eHUB can have only its low byte IP address defined (printed on its back plate), or it can have a fully static IP address assigned to it. Most of the time the low-byte-only IP address will work just fine (see the Options dialog box.) In situations when the low-byte-only IP addressing is not satisfactory, then a fully static IP address needs to be assigned to it.

When the eHUB uses the low-byte-only setting, it assumes a 255.255.255.0 subnet mask on the network. It will dynamically create its own IP address by using its computer's three most significant bytes, plus its own lowest byte IP address. If the network for example is using a 255.255.0.0 subnet mask, there are two possibilities:

1) no other device on the network should use the same low-byte IP address that the particular eHUB is using
2) the user can set a fully static IP address for the eHUB. If – staying with the example – the subnet mask is 255.255.0.0, the user needs to make sure, that the two most significant bytes of the computer and the eHUB are set the same.

The IP management dialog box has two columns. The first one can never be directly edited, and it shows the currently set IP address for the eHUB units. Any eHUB, which does not have an IP address defined is shown as blank. The second column can be edited if the particular eHUB is off-line, or if its version number is higher than 2.5. If the second column is filled with a value other than zeroes, the connected eHUB will have a fully static IP address. If the second column is filled with zeroes, the particular eHUB will have the low-byte-only case.

It is recommended, that the fully static IP address be set when the eHUB is on-line. When the eHUB is on-line, it will store the full IP address in its EEPROM immediately, and it will use that from that point on. Similarly, if the eHUB's fully static IP address is changed back to all zeroes, the on-line eHUB will update immediately, and it will go back to the low-byte-only mode. However, the eHUB's IP address can also be changed when it is off-line via its first RS232 port.

To change the IP address Off-line perform the following steps:

1) Turn power on to the eHUB unit. Do NOT connect to the Ethernet network.

2) Connect a computer RS232 port or an E-TERMINAL to port 1 of the eHUB unit. Use 9600 baud rate on the computer or E-TERMINAL.

3) On the computer using a communication software terminal mode type:

> (Note: the following examples use "32" for the low-byte-only and use "192.68.24.32" for the fully static IP setting. Substitute the correct values for your system when making changes.)

   a)   SET 32 for low-byte-only setting, or
   b)   SET 192.68.24.32 for fully static IP address setting.
       and hit enter.
       Note: The Space is important between SET and the number.

On E-TERMINAL: select DOWNLOAD, type in SET 32 or SET 192.68.24.32 and press enter. The eHUB should respond with:
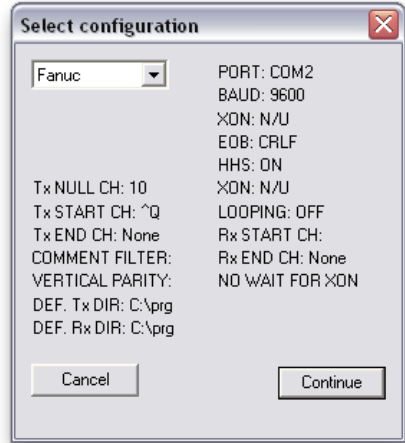> either IP: 32
> or IP: 192.68.24.32

To check the currently set IP address, type: ADR followed by space and enter, and the eHUB unit responds with the currently set IP address.
If the eHUB's IP address was changed off-line, make sure, that the necessary change was made in the eNETDNC software as well.

Manual DNC Menu
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Transmit command (Manual DNC menu)

Use this command to initiate a file transfer via an RS232 port. The user can choose a particular setting (see Configure Port Parameters). This setting determines, which COM port is used for the operation. If the chosen COM port is in use by another program, the user will be warned that the port is busy, and the operation will be aborted. Once a transfer is in progress, the user can initiate another transfer on a different COM port; therefore all COM ports of the computer (up to ten) can be utilized simultaneously. Note: the user can simultaneously mix Transmit , Receive and View operations on different COM ports.

Select configuration

Fanuc ▼

Tx NULL CH: 10
Tx START CH: ^Q
Tx END CH: None
COMMENT FILTER:
VERTICAL PARITY:
DEF. Tx DIR: C:\prg
DEF. Rx DIR: C:\prg

PORT: COM2
BAUD: 9600
XON: N/U
EOB: CRLF
HHS: ON
XON: N/U
LOOPING: OFF
Rx START CH:
Rx END CH: None
NO WAIT FOR XON

Cancel   Continue

Shortcuts
Toolbar: Tx

Transmit command (Toolbar Tx button)

Use the toolbar Tx button to initiate a file transfer via an RS232 port. The last used COM port will be automatically selected. If the COM port is in use by another program, the user will be warned that the port is busy, and the operation will be aborted. Once a transfer is in progress, the user can initiate another transfer on a different COM port (menu command only); therefore all COM ports of the computer (up to ten) can be utilized simultaneously. Note: the user can simultaneously mix Transmit , Receive and View operations on different COM ports (using the menu commands).

Transmit with Repositioning command (Manual DNC menu)

Use this command to initiate a file transfer via an RS232 port, with the transmission starting other than the beginning of the file. The user can choose a particular setting (see Configure Port Parameters). This setting determines which COM port is used for the operation. If the chosen COM port is in use by another program, the user will be warned that the port is busy, and the operation will be aborted.   After selecting the file to be transmitted, the user should move the cursor to the line which should be transmitted as a first line. The user can navigate in the file either with the regular navigation keys, or can search with the CTRL+F key combination. Once a transfer is in progress, the user can initiate another transfer on a different COM port; therefore all COM ports of the computer (up to ten) can be utilized simultaneously. Note: the user can simultaneously mix Transmit , Receive and View operations on different COM ports.

Transmit dialog box (Manual DNC operation)

The title bar shows the full path of the file being transmitted and the name of the configuration. The progress bar shows the percentage of the file already transmitted. For small files the progress bar is not very accurate. The transmit window displays the file as it is transmitted. Note: Part of the file is already in the operating system's buffer – and that part is considered to have been sent, as far as the display is concerned. (This is the reason for progress bar inaccuracy for small files). The Exit button will interrupt the current Transmit process, but not until the user acknowledges it.

Receive command (Manual DNC menu)

Use this command to initiate a file transfer from an RS232 port. The user can choose a particular setting (see Configure Port Parameters). This setting determines, which COM port used for the operation. If the chosen COM port is in use by another program, the user will be warned that the port is busy, and the operation will be aborted. Once a transfer is in progress, the user can initiate another transfer on a different COM port; therefore all COM ports of the computer (up to ten) can be utilized simultaneously. Note: the user can simultaneously mix Transmit, Receive and View operations on different COM ports.

Shortcuts
    Toolbar: RX

Receive command (Toolbar Rx button)

Use this button to initiate a file transfer from an RS232 port. The last used COM port will be automatically selected. If the COM port is in use by another program, the user will be warned that the port is busy, and the operation will be aborted. Once a transfer is in progress, the user can initiate another transfer on a different COM port (menu command only); therefore all COM ports of the computer (up to ten) can be utilized simultaneously. Note: the user can simultaneously mix Transmit, Receive and View operations on different COM ports (using menu commands)

Receive dialog box (Manual DNC operation)

The title bar shows the full path of the file being received and the name of the configuration. The receive window displays the file as it is being received. There is a line counter under the receive window. The Exit button will interrupt the current Receive process, but not until the user acknowledges it.

View command (Manual DNC menu)

Use this command to view data traffic on an RS232 port. The user can choose a particular setting (see Configure Port Parameters). This setting determines which COM port is used for the operation. If the chosen COM port is in use by another program, the user will be warned that the port is busy, and the operation will be aborted. Besides viewing the incoming data traffic on the selected RS232 port, the user can also send character(s) out by typing them in the Tx window at the bottom. The characters typed into the window transmit out as they are. To send out control characters, the user should type in the ^ character (shift 6) followed by the appropriate capital letter. For example: typing ^S will transmit the control S character, (which is XOFF). Once viewing is in progress, the user can initiate another view operation on a different COM port; therefore all COM ports of the computer (up to ten) can be utilized simultaneously. Note: the user can simultaneously mix Transmit, Receive and View operations on different COM ports.

View dialog box (Manual DNC operation)

The title bar shows the name of the configuration. The top window displays the incoming data on the RS232 port being viewed. The user can type characters into the bottom window. Ordinary characters are transmitted out the RS232 port as they are typed in. Control keys (backspace, delete key, etc..) are not sent out. To send a control character, the user needs to type in the ^ character first (shift 6) followed by a capitalized alpha character. For example ^Q will send out XON, ^S is XOFF. ^A will send out character 1.

Exit button will exit view mode.

Select Configuration dialog box (Manual DNC operation)

The drop-down list box shows the available configurations by name. The configuration of a port can be done in Manual DNC Configure Port Parameters. By selecting a different configuration, the port setting is automatically updated in the dialog box. Once the correct configuration is selected, click on the Continue button to proceed.

Cancel button will abort the selection process.

***The Remote Command options are used only when an eNETDNC LT
installation is configured to work remotely with an eNETDNC installation.***

Remote Load (Manual DNC menu – For eNETDNC-LT)

The user first needs to select
the machine to be loaded
from the drop-down list.
Next, the user needs to either
type in the program name to
be loaded, or select it using
the Browse push button.
Only programs from the
assigned directory
(eNETDNC
Transmit/Download setup)
can be loaded. Loading from
another directory will not be
successful. If the download
operation cannot be executed
for some reason, the user
will be warned about the nature of the obstacle.
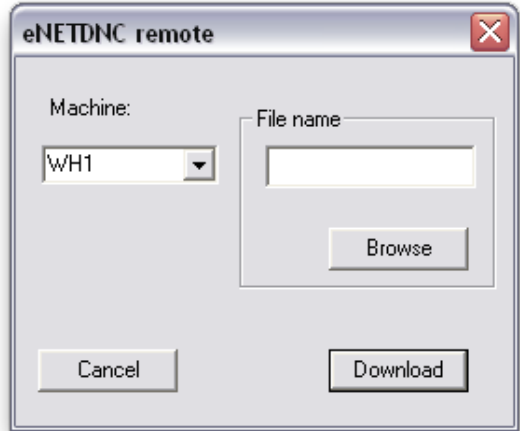
eNETDNC-LT show here 1

Cancel button will quit.

Download button will initiate the download process.

Remote Load dialog box(Manual DNC menu – For eNETDNC-LT)

The user first needs to select the machine to be loaded from the drop-down list.
Next, the user needs to either type in the program name to be loaded, or select it
using the Browse push button. Only programs from the assigned directory
(eNETDNC Transmit/Download setup) can be loaded. Loading from another
directory will not be successful. If the download operation cannot be executed
for some reason, the user will be warned about the nature of the obstacle.

Download button will initiate the download process.

Cancel button will quit.

Remote load configuration (Manual DNC Configure menu – eNET-LT)

The Full path for eNETDNC setup needs to be specified. By clicking on the push button the user can navigate and click on a file in the directory on the network which runs the eNETDNC software. The computer with the _eNETDNC directory has to be accessible and the eNETDNC software user should have both read/write rights to the directory.

The eNETDNC Computer Name should be set to the name of the computer on the network which runs the eNETDNC software.

The IP Address of the eNETDNC computer can be filled out manually, or by clicking on the push button, the eNETDNC software will find the eNETDNC computer on the network and fill out the IP address automatically.

Cancel button will quit without saving any changes.

OK button will save the settings.

Remote load configuration dialog box (Manual DNC Configure menu eNETDNC-LT)

The Full path for eNETDNC setup needs to be specified. By clicking on the push button the user can navigate and click on a file in the directory on the network which runs the eNETDNC software. The computer with the _eNETDNC directory must be accessible and the eNETDNC software user should have both read/write rights to the directory.

The eNETDNC Computer Name should be set to the name of the computer on the network which runs the eNETDNC software.

The IP Address of the eNETDNC computer can be filled out manually, or by clicking on the push button the eNETDNC software will find the eNETDNC computer on the network and fill out the IP address automatically.

OK button will save the settings.

Cancel button will quit without saving any changes

View Menu

Toolbar command (View menu)

Use this command to display or hide the Toolbar, which includes buttons for some of the most common commands, such as File Open. A check mark appears next to the menu item when the Toolbar is displayed.

See <u>Toolbar</u> for help on using the toolbar

Status Bar command (View menu)

Use this command to display or hide the Status Bar. The Status Bar describes the action to be executed by the selected menu item, or the depressed toolbar button, and also the keyboard latch state. A check mark appears next to the menu item when the Status Bar is displayed.

See <u>Status Bar</u> for help on using the status bar

Status Bar

The status bar is displayed at the bottom of the main window. To display or hide the status bar, use the Status Bar command in the View menu.

The left area of the status bar describes the actions of menu items as you use the arrow keys to navigate through menus. This area also shows messages that describe the actions of toolbar buttons as you depress them, before releasing them. If after viewing the description of the toolbar button command you wish not to execute the command, then move the pointer off of the toolbar button prior to releasing the mouse button.

The right areas of the status bar indicate which of the following keyboard keys are latched:

Indicator	Description
CAP	The Caps Lock key is latched
NUM	The Num Lock key is latched
SCRL	The Scroll Lock key is latched

Directory window command (View menu)

Use the "Directory window" command to open/close a directory window on the left side of the "Application window". By double clicking on a file name in the Directory window, it will be opened in the editor.

Shortcuts
Toolbar:

Mouse wheel scrolls all command (View menu)

This option will enable/disable scrolling all edit windows at the same time by scrolling the mouse wheel. This will temporarily override the default setting under the "Settings" menu - Other options location. However, when the program is launched again, the default program setting will be in effect.

Scroll bar scrolls all command (View menu)

This option will enable/disable scrolling all edit windows at the same time by scrolling one of the scroll bars. This will temporarily override the default program setting under the "Settings" menu - Other options location. However, when the program is launched again, the default program setting will be in effect.

Show line numbers command (View menu)

This option shows or hides the line numbers in the editor (not to be confused with block numbers). The line numbers are shown in the left margin area.

Show spaces command (View menu)

This option shows or hides spaces which are indicated by color-coded underline characters. The color is the same as the margin color.

Show End Of Block characters command (View menu)

This option shows or hides End Of Block characters indicated by color-coded characters. The color is the same as the margin color.

Colorize editor command (View menu)

Use this command to toggle between colorizing or showing black letters in the editor. When colorized, the different addresses (N, X, Y..) will show up with colors as specified in the "Settings" menu - <u>Edit colors</u> location.

Tools Menu
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Smart Compare Up/Down/New files command (Tools menu)

Use this command to compare uploaded files to original ones. The comparison will happen only if the up and download directories are different, or if the "New directory" flag is set for the particular machine. Also, the comparison will happen only for the active machines. The comparison can be configured with the Smart Compare dialog box.

Right Angle Triangle command (Tools menu)
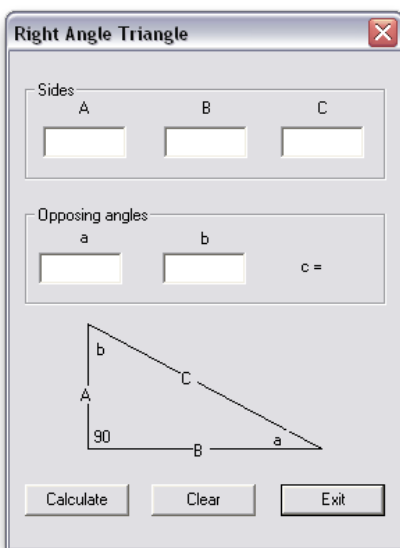
Use this command to perform basic calculations with a right angle triangle. The user can specify two of the known data fields for the two angles and three sides. By pressing the calculate button the program will fill the three other missing data. If the user does not supply enough information, or supplies too much information, the program will issue a warning.

Right Angle Triangle dialog box (Tools operation)

There are five blank values related to the right angle triangle calculation: three sides and two angles. Fill out two known values, click on the Calculate button and the missing values will be filled. The calculation will be performed only if two fields are filled with data.

Clear button will erase all data.

Exit button will quit the operation.

Bolt Hole Circle command (Tools menu)

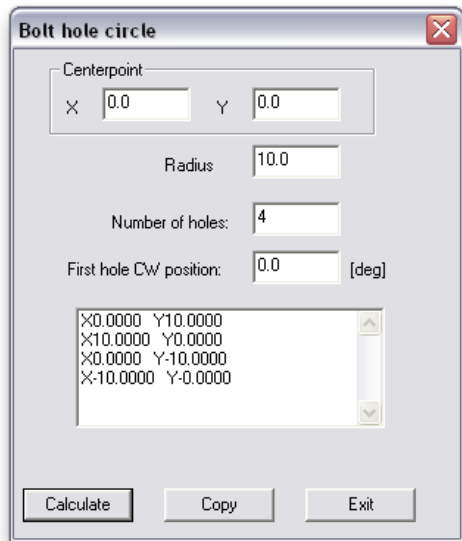Use this command to calculate X and Y center point coordinates for holes arranged on the circumference of a circle. The user should supply the center point coordinates and the radius of the circle, the number of holes, and the position of the first hole in degrees starting at 12 o'clock position (assuming a CW positive direction). After pressing the calculate button the results will be shown. The results can be copied on the clipboard, and pasted into an opened G-code file.

Bolt hole circle

Centerpoint
X 0.0   Y 0.0

Radius: 10.0

Number of holes: 4

First hole CW position: 0.0 [deg]

```
X0.0000   Y10.0000
X10.0000  Y0.0000
X0.0000   Y-10.0000
X-10.0000  Y-0.0000
```

[Calculate] [Copy] [Exit]

Bolt Hole Circle dialog box (Tools operation)

Center point X and Y position: the center point coordinates of the circle.

Radius: the radius of the circle.

No. of holes: the number of holes evenly divided on the circumference of the circle.

First hole CW position: the position of the first hole starting at 12 o'clock, positive direction is clockwise, measured in degrees.
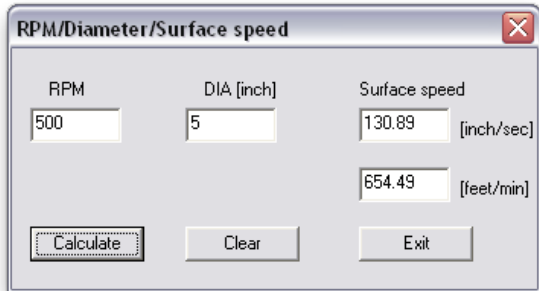
After pressing Calculate, the results will be shown in the window. Click on Copy to copy the results onto the Clipboard. Use paste in the editor to paste the results in at the cursor position.

Exit button will quit the operation.

Surface Speed command (Tools menu)

Use this command to perform basic surface speed calculations. The three variables are the RPM, Diameter and Surface Speed (inch/sec and feet/min). If the user supplies information for any of the two data fields, the program will calculate the missing information. Note: The Surface Speed fields in [inch/sec] and [feet/min] count as one input data field. Therefore, when supplying the Surface Speed, specify only one.

Surface Speed dialog box (Tools operation)

RPM: the revolution per minute value.

DIA: the diameter value in inches.

Surface speed: the surface speed represented both in inch/sec and feet/min.

Supply any two data fields, press the Calculate button, and the program will calculate the missing information. Note: the Surface speed fields in [inch/sec] and [feet/min] count as one input data fields. Therefore, when supplying the Surface speed, specify only one. The Clear button clears all entries.

Exit button will quit the operation.

Calculator command (Tools menu)

Use this command to activate the system calculator.

Shortcuts
    Toolbar:

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Directory Log - Create command (Tools menu)

Use this command to Create a new Directory Log file. In the dialog box select a file in the target directory. This utility will scan the directory, and create a _DirLog.sys file in it. The file will contain the first line of every file in the directory plus up to six additional lines, as long as those lines begin with an opening parenthesis.

Directory Log - View command (Tools menu)

Use this command to view the Directory Log file created with the "Create" Command.

File Cleanup - EOB command (Tools menu)

Use this command to clean up end of block characters in a file. This command is useful when the whole program file appears as one line in the text editor. In a normal text file the end of block character is a carriage-return/linefeed combination. If either one is missing this utility will fix the problem.

CAUTION! Backup your directory first! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and corrected. Do NOT try to clean a directory which has any files in it other than G-code or text files.

File Cleanup - Blank line command (Tools menu)

Use this command to clean up blank lines at the beginning of a file.

CAUTION! Backup your directory first! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and corrected. Do NOT try to clean a directory which has any files in it other than G-code or text files.

File Cleanup - Comment format command (Tools menu)

Use this command to add/change comments in the file to match the file name itself. The utility will search the first 5 lines in the program for existing comments. If it finds one, it will change it to the file name. If it does not find one, it will insert it after the "O" program number.

CAUTION! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and changed. Do NOT try to clean a directory which has any files in it other than "O" or ":" style program names in it.

File Cleanup - Reverse Comment format command (Tools menu)

Use this command to rename the files to the first comment. The utility will search the first 5 lines in the program for existing comments. If it finds one, it will rename the file to it.

CAUTION! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and renamed.

File Cleanup - % Sign search command (Tools menu)

Use this command to search for % sign symbols in program files to determine which files are missing them. The command will search the first 20 lines in each file in the selected directory. A text file is generated which lists all files in the directory that don't have % sign symbols in the first 20 lines.

File Cleanup - OKUMA format (Tools menu)

Use this command to create OKUMA style internal file names. This internal name will be similar to the Operating System file name with the following rules: The name will start with the "$" sign, followed by the OS name (spaces are filtered), appending the ".MIN" extension and terminated by a "%" sign. Any other lines with the "$" or "%" sign in it will be eliminated.

CAUTION! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and changed. Do NOT try to clean a directory which has any files in it other than OKUMA G-code files.

File Cleanup - Fanuc style rename command (Tools menu)

Use this command to rename all files in the selected directory to the 'O' or ':' number found within each file.

CAUTION! Backup your directory first! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and corrected. Do NOT try to clean a directory which has any files in it other than G-code or text files.

File Cleanup - OS Name change command (Tools menu)

Use this command to remove specific text string from each file name in the selected directory.

CAUTION! Backup your directory first! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and corrected. Do NOT try to clean a directory which has any files in it other than G-code or text files.

File Cleanup - PC2100 format command (Tools menu)

Use this command to search through the selected directory to name the files internally PC2100 style to the same as the filename.

CAUTION! Backup your directory first! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and corrected. Do NOT try to clean a directory which has any files in it other than G-code or text files.

File Cleanup - Cincinnati850 format command (Tools menu)

Use this command to search through the selected directory to name the files internally Cincinnati 850 style to the same as the filename.

CAUTION! Backup your directory first! This utility will clean an entire directory. You need to click on one file of the specified directory and ALL the files in that directory will be scanned and corrected. Do NOT try to clean a directory which has any files in it other than G-code or text files.

Window Menu
_____

Tile Horizontal command (Window menu)
Use this command to arrange multiple opened windows side by side.

Tile Vertical command (Window menu)
Use this command to arrange multiple opened windows vertically in a non-overlapped fashion.

Cascade command (Window menu)
Use this command to arrange multiple opened windows in an overlapped fashion.

Monitoring Menu
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See the **eNET_Monitoring** Manual, which can be found at:
'http://www.enetdnc.com/downloads/eNET_Monitoring.pdf'

Data Collection Menu
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See the **[eNET_Monitoring](http://www.enetdnc.com/downloads/eNET_Monitoring.pdf)** Manual, which can be found at:
'http://www.enetdnc.com/downloads/eNET_Monitoring.pdf'

Settings Menu
_____

DNC eHUB/eWIRELESS Setup dialog - (Settings menu)

[Common Tab]

See [Computer->MCH/Tx/Download Tab] and [MCH->Computer/Rx/Upload Tab] for more settings.

The Configure/eHUB dialog is used to configure the eHUB serial ports for remote DNC operation.

If the eHUB box is checked for all configurations, the eNETDNC program can handle up to sixteen eHUBs with eight serial ports each, for a total of 128 serial ports. The eNETDNC software will try to connect to an eHUB, if the Address is set to other than zero (between 1 and 255 or if full IP is set in a 000.000.000.000 format). For each eHUB the user can select up to eight serial ports, and each serial port can have different setting.

As an option the user can also check the eWIRELESS/eNETShell option. If the eRS port is checked, the user could connect up to eight eRS232 units as a group instead of an eHUB. While one IP address and eight ports belong to one eHUB, each eRS232 units takes up one IP address. The user may want to set 0 IP for those eRS232 units in the group which are not used. An IP address can be assigned only to an eHUB or an eRS232 unit - once an IP address is filled for at least one eRS232 unit, that group can not be assigned to an eHUB any longer. Other than that, the user can freely mix and match eHUB and eRS232 units on the same network. The rest of the setup is not affected by whether it is an eHUB or eRS232 unit.

If the FTP server option is checked, then the group of eight machines will be served via direct Ethernet, with the eNETDNC program acting as an FTP server. The server name (HOST name) is ENETDNC. The user name is the same as the machine name. The FTP password can be set in Settings/Other Options. This password is common for all machines.

Handshake: Xon/Xoff is software handshaking. The hardware handshaking uses the CTS/RTS signal pair. With "None" selected there is no handshaking method. The Heidenhain method matches the Heidenhain control block-by-block checksum protected transfer mechanism. The Fanuc DNC will allow the user to up/download programs, list control directory and delete a program in the FANUC control using the eNETDNC program (see Scan eHUB dialog queue operations, and Fanuc dialog). Kermit implements the Kermit protocol, and the eNETDNC software acts as a Kermit sever. NC9EX will let the user to communicate with the Amada NC9X controls, provided that those have serial ports installed. Autosheet allows communication with Cincinnati Autosheet machines. Autobend 7 allows communication with an Autobend 7 break press. Xmodem is used where the machine control uses the Xmodem communication protocol.

Code: ISO (even parity seven bits), EIA (odd parity), BIN (no parity 8 bits) or ISO 9 (even parity, 8 bits) can be set.

EOB: the end of block character can be set to linefeed, carriage return, carriage return followed by linefeed or linefeed followed by carriage return.

Baud rate: a matching baud rate for the machine tool should be set here.

XOFF even parity: if checked, the XOFF character has even parity, otherwise it has odd parity.

Low signal level: select for a more sensitive Ethernet mode for the eHUB – at the same time it is more sensitive for noise.

Modem port: if checked, the port is assumed to be connected to a phone modem. This provides a link to a remote eNETDNC system. The remote eNETDNC system would directly have access to part program files. See Appendix B (Page 113) of the manual.

Continuous XON: if checked, the port issues an XON character every 10 seconds if there is no transmit or receive activity.

Convert ':' to 'O': if checked, the upload process will convert all column character to capital O.

Convert '/' to '\': if checked, the upload process will convert all forward slash characters to back slash characters.

FTP: no CWD: is used only with FTP installations. If checked it prevents the user from changing the working directory at the machine.

FTP: OKK is used only with FTP installations. If checked it formats the directory for OKK format.

FTP: Unix is used only with FTP installations. If checked it formats the directory for a Unix format.

Filter leading zeroes: eliminates the leading zeroes from a program name for both up and downloading. Example: 0001234 will become 1234. However, L0002 will stay L0002 (leading L). This filtering is effective only if Auto directory (in the SPECIALS selection) is not checked.

Space in file name: if checked, the upload and download file names will keep spaces, otherwise if checked, spaces will be filtered out.

Names only in directory: if checked, the remote directory download will include only the file names.

Accept alphanumeric only: only numbers, letters and the "-" sign is accepted in the file name – other characters will be used as terminating characters.

Mazak: the user can specify here the type of MAZAK control connected to the specific port. This setting has no effect if no Mazatrol file transfer is used. If Mazatrol file transfer is used on the port, always choose Xon/Xoff handshake method.

Default printer: if clicked, a list of the available printers pops up, and the user can choose a printer from the list which will be used for both up and downloading.

Reset to default: if clicked, the default printer will be restored as the printing device for up/download files.

Print 2 columns: if checked, both up and download printing will be printing 2 columns on the same page (paper saving).

SPECIALS: By selecting this push button, the user can set special communication methods:
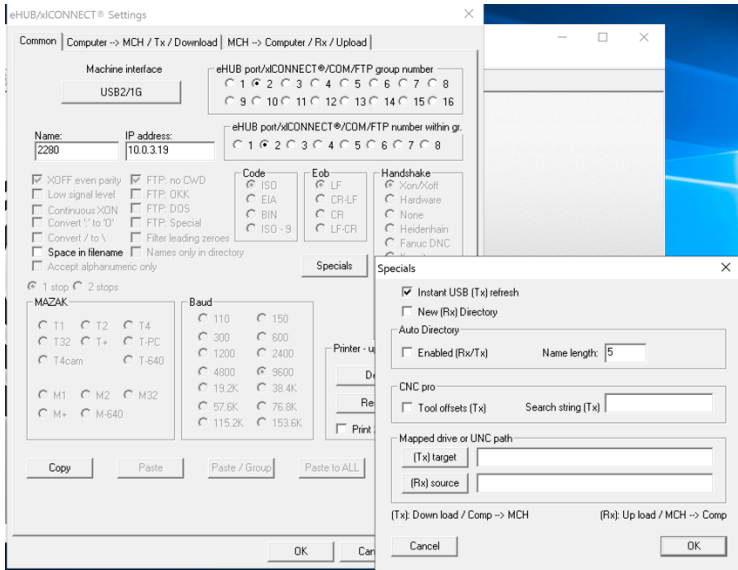
Instand USB (Tx) Refresh: If selected, this will allow the USB Tx directory to refresh on the Machine's directory when a file(s) is added to the directory on the computer. ***If drip-feeding, this should remain un-checked because adding a file(s) to the directory will cause a refresh and stop the drip-feed.***

New Rx directory: the eNETDNC program will automatically place the .NEW extension after the Upload/Receive directory name (also creates it if it does not exist).

Auto directory: the eNETDNC program will automatically place the uploaded program into a directory, created from the program name itself. Example: O1234 part program will be saved as "Default receive directory\O1\1234". Auto directory setting also requires the user to set the Subdir ID item (for the above example, set it to letter O).

CNC Pro Tool offsets (Tx): Added for a specific Customer.

Search string (Tx): if specified, the eNETDNC will search for the exact match in the download (Tx) program and start downloading from that point.

New Rx directory: This setting includes the following:
-(Tx) Target:
Download / Comp -> MCH

-(Rx) Source
Upload / MCH -> Computer

OK: will record the new settings.

Cancel: discards all changes made.

Copy: copies the current setup on the clipboard.

Paste/Group: copies the clipboard into the current group of 8, except the name and IP address.

Paste to ALL: copies the clipboard into all setups, except the name and IP address.

Find name: searches for a machine name and displays configuration if finds it. The search is case sensitive.

OK: will record the new setup, and it will be effective for all Remote DNC operations initiated after that.

Cancel: discards all changes made.

DNC eHUB/eWIRELESS Setup dialog - (Settings menu)

[Computer->MCH/Tx/Download Tab]

See [Common Tab] and [MCH->Computer/Rx/Upload Tab] for more settings.

File size: Line #/EOB/Corr: Default setting is 0,0,0

If used this field is used to check the file size when transmitting to the machine.

The first value is the line number after which the file size will be inserted. For example if set to 5, a comment with the file size will be inserted after line #5. Value can be set from 0 to 10.

The second value configures how the file size will be calculated based on three configuration choices. This setting is based on the file system of the machine. Value can be set to 0, 1, or 2.

If set to 0 the file size is calculated with the assumption that the machine does not store the EOB characters. The file size is calculated as follows:
(Machine file size) = (DOS file size) - (2*Number of Lines)

If set to 1 the file size is calculated with the assumption that the machine stores the EOB as a line feed. The file size is calculated as follows:
(Machine file size) = (DOS file size) - (Number of Lines)

If set to 2 the file size is calculated with the assumption that the machine stores the EOB as a Carriage Return + Line Feed. (same as DOS format).
The file size is calculated as follows:
(Machine file size = DOS file size)

The third value is used as an offset adjustment to compensate for any differences in file size specific to a machine. This value is subtracted from the total and can be determined through testing. Value can be set from 0 to 100.

Numbers only in Subdir: if checked, the system will filter out any non-numeric character from the sub-directory portion of the call file. It is effective only if the Dir CMD is specified (see below).

Convert to UPPER case: if checked, the ISO file will transmit uppercase letters only. Numbers and other characters are not affected.

<u>Detect 2nd Dir/Name ID:</u> if checked, the requested program directory/name will be determined from the 2nd occurrence of the Name ID and (optional) Subdirectory ID.

<u>Looping</u>: if checked, the program to be downloaded will be looped in a circular manner in memory, and can be downloaded any number of times. If not checked, the requested program can be downloaded only once. A new download can be initiated by issuing a new request.

<u>Add ^Z</u>: if checked, adds a <Ctrl>Z at the end of the file

<u>Copy to C-drive</u>: is used for spoonfeeding machines when the source file is saved on a network drive. If checked, eNET will keep a copy of the program on the local drive to minimize network file communication problems.

<u>Vert. parity/Even</u>: is used only when "TV Check" is enabled on the machine control. If checked it checks each transmitted line for Even parity

<u>Vert. parity/Odd</u>: is used only when "TV Check" is enabled on the machine control. If checked it checks each transmitted line for Odd parity

<u>Directory</u>: a full valid path of the default transmit directory. Only this directory is available for the operator. By clicking on the push button, the user can browse and pick a directory to be the default one.

<u>Directory replace</u>: by clicking on this push button the user can specify a <u>"From"</u> and <u>"To"</u> string. If the <u>"From"</u> string is part of ANY machine's download path, it will be replaced with the "To" string. This operation is separate for both the download and up load directories. Note here, that the "To" string can be empty – this will eliminate the "From" string from the path.

<u>Call CMD - Single:</u> up to a fifteen character long ID. If this string of characters are detected within the first five lines of the incoming program, it is interpreted as a call program.

Example: O5555

Call CMD - Multiple: up to a fifteen character long ID. If this string of characters is detected within the first five lines of the incoming program, it is interpreted as a call program. The difference as compared to the "Single" version, is that it may be followed by multiple name Ids.

Example (name ID is N):
O5555
N1234
N2345
N4321
Will line up to download programs 1234, 2345 and 4321.

Name ID: up to fifteen characters long ID. Acts as the ID to determine the beginning of the program name.

Example: if it is defined as P, then P123456 will specify program name 123456. Name ID is searched for up to the first ten lines.

1st in line: if checked, the Name ID is required to be the starting string (or character) on the line, else it is ignored.

Subdir. ID Same level: up to fifteen characters long ID. Acts as the ID to determine the sub directory that is on the same level as the Default Directory is.

Example:
 if it is defined as Q (and the Call CMD is O5555, Name ID is P)
O5555
Q12P2345 ….
then Q12 will specify sub directory 12. The download program will be:
….\"Default transmit directory"
.…\12\2345

Subdir. ID Level below: up to fifteen characters long ID. Acts as the ID to determine the sub directory for the program opened from the same level as the Default Directory is.

Start: this character string will be added automatically at the beginning of the part program on sending. Setting ^J will add a linefeed, ^M adds carriage return. If it is set to % sign, then the first line of the file to be sent will be searched for the %, and if it is found, the first line of the file will be ignored and an end of block character will automatically be sent after the % sign.

Prefix: up to twelve characters will be automatically added in front of the file name. This does not apply for sub-programs.

Dir CMD: up to fifteen characters long ID. Acts as the ID to instruct the computer to send back a listing of the transmit directory. If Dir Header is specified, it will be sent first, followed by the file name, the file length and file date, enclosed in parentheses. If the Names only in directory is checked in Configure Common dialog then only the file names will be sent enclosed in parenthesis.

No. of null.: This acts like a tape leader. 10 specified null characters will make up one inch of tape. Limited to the maximum value of 100.

Extension: Up to twelve characters will be automatically added to the requested file name when it is searched for.

Dir header: This exact header message will be sent back to the control as a header before the actual directory listing. Setting ^J will add a linefeed, ^M adds carriage return.

End: This character string will be added automatically at the end of the part program on sending. Setting ^J will add a linefeed, ^M adds carriage return.

Example:
.TXT If the extension is set to ".*", a requested file with any extension will be sent back to the machine. If the extension is set to *.TXT, then the first file found which starts with the requested name and having the TXT extension will be downloaded. However, if the requested file is found exactly as it is typed in, the wild card(s) in the extension setting are ignored and the file as requested is downloaded. The extension rule does not apply for sub programs.

<u>Search</u>: if specified, the user is able to perform a remote search operation from the machine tool while requesting a program.

Example (assuming that the Search is specified as letter S):
%
O5555
P12345,SN1000
%

In this example O5555 is the call program, P is the name ID. Therefore, the requested program name is <u>12345</u> (Note the comma as a program name delimiter - space also can be used.) S signals the start of the search string, which is <u>N1000</u>. Upon downloading, the eNETDNC program will make an attempt to find N1000 in the requested program. If it is found, it will start downloading from that line. If it is not found, it will download from the beginning. If <u>Looping</u> is checked, consecutive looped downloads will start from the beginning of the file.

<u>Pause:</u> If set to zero, the computer will wait for the XON character to come in after a call request. If set to a number between 1 and 99, the computer will wait that many seconds, before it starts sending the response program. XON will always activate sending immediately.

<u>Quit char.</u> If specified, the download will stop when this character is detected in the download file.

<u>Err msg.:</u> This exact message will be sent back to the control, if a part program was not found upon request. Setting ^J will add a linefeed, ^M adds carriage return.

<u>Sub program M98/G65</u>: if checked, enables sub program search. If an M98 or G65 sub program call is detected in the called main program, the eNETDNC software will search for the specified sub program. The expected format: *M98 P1000* will search for program 1000 in the same directory where the main program is in. The <u>Subprogram Prefix</u> and <u>Subprogram Extension</u> will be added to the program number if they are specified. If the main program contains several M98 calls, all will be searched. If the sub program itself contains M98 call, they too will be searched for. In case of multiple references for the same sub program only one copy is downloaded. If sub programs are found, the main program is downloaded last. If the sub program referenced via a macro call, the user needs to comment that line as follows: *#I=1000 (M98)* The comment needs to indicate that this macro assignment is a program number. Wild card * characters cannot be used in sub program extension.

Filter/Character: The user can specify a character. If this character is detected in any line outside of a comment, the character itself will not be transmitted out.

Filter/Comment: The user can specify a character as the beginning of a comment to be filtered from the transmission. If this character is detected in any line, the rest of the line will not be transmitted out. If the character happens to be "(", than the line is not transmitted until the end of the line or until the ")" is detected – whichever comes first.

Mazak call work no.: the eNETDNC software automatically detects the Mazatrol communication protocol. The user can specify the work number to act as a call program. This setting has no effect, if no Mazatrol file transfer is used.

Scan one dir. level up: If checked, the system will first check the default or specified directory (via Subdir. ID command) for available file. If file is not found, than it will check one directory level up.

Scan one dir. level down: If checked, the system will first check the default or specified directory (via Subdir. ID command) for available file. If file is not found, than it will check all directories one directory level down and the first file found will be sent.

Print ID: If the specified string is detected in the Call Program on the same line where the Name ID is at, the download file (or just the comment portion of it – see next) will be printed.

Print comments only: If checked and printing is taking place for the download file (see above) then only the comment lines will be printed.

Queue/Next CMD: This command is active only if there are programs in the queue (see Edit Queue dialog.). Upon receiving this command from the CNC machine, the eNETDNC program will get ready to download the next program in the queue, and it also removes this program from the top of the list.

Example: "O1111".

Queue/All CMD: This command is active only if there are programs in the queue (see Edit Queue dialog.). Upon receiving this command from the CNC machine, the eNETDNC program will get ready to download all the programs in the queue, and it also empties the queue.

Example: "O2222".

Queue/Last program CMD: If this ID string is received within the first four lines of an incoming program, it will be interpreted as to activate the last download program again. If the last program happened to be downloading all the queued programs, this command will re-activate the whole queue again.

Example: "O3333".

Queue/Insert PRG number: Active only for queue operations. The definition should start with the letter or character which identifies the program name for the particular CNC control (such as the letter O or column), followed by a number. This will insert the following at the top of the program:

Example:
%
:xxxx   ……..rest of program

The program name ID is the column, and xxxx is the next program number. The program number will be incremented up to the defined number as the Insert PRG number item, and then it starts at 1 again.

Replace in name (from/to): the user can define these from/to strings to replace certain missing characters on the control's keypad.

Example: From is defined as # To is defined as: .TXT
If the upload name is punched out from the control as
1234#
the effective name will be:
1234.TXT

Replace in File (from/to): the user can define these from/to strings to replace the specified string in the download file with another one.

Email to: A valid email address must be specified in this field. Each time a download occurs an email will be sent to notify the recipient. A valid email server must be setup in the Settings-Email-Server dialog work this to work properly.

Name length: When used the field value is set to the number of characters in the name of the file This can save time when typing file names that contain zeros as eNET will add the necessary zeros in order to keep the file name length correct. For example: if the "Name length" field value is entered as "5" and the user wants to call out program 4, eNET would change 4 to 00004 to keep the file name length at 5 characters.

E-Terminal directory ID: The user can specify an ID string if the E-TERMINAL is used. If this ID string is detected, the eNETDNC software will download a directory of available files into the E-TERMINAL, where the user can pick which one to download.

 _LOOKUP.TXT ID: Used in conjunction with a _LOOKUP.TXT file. If a value is entered into this field, the character or string is used to check the content of _LOOKUP.TXT file as described below. If this field is left empty, the lookup operation described is not applicable. When the character or string is detected during a download operation, the program will look for the _LOOKUP.TXT file in the machine specific Transmit/Download directory. This file defines the correlation between a call ID, the requested program number and various monitoring parameters.

Example:

988766,P2233,PART 1,12,24,2
988766,P2233Q100,PART 1,12,24,2
988766,P100\2\2233,PART 1,12,24,2

In the above example 988766 is the call ID, which can be a drawing number. The 2233 is the actual program name to be downloaded. The letter "P" must be defined as the download Name ID (see below).The program to be downloaded will be assumed to be in the default transmit directory (see above). This can be over written two different ways: line two assumes that the Subdir ID (see below) is defined as Q, so program 2233 will be in the "10" sub directory (opened from the default transmit directory). Line three specifies that program 2233 will be in the "100\2" sub directory, opened again from the default transmit directory.

Assuming that the Call CMD is set to O5555 and the _LOOKUP.TXT ID is set to (, the operator could call program 2233 down by punching the program from the control:

O5555
(98766)

The program name is followed by an optional part number, a minimum and maximum cycle time and a head/pallet number. The head/pallet number can be set to 1, 2 or none. The specified part number and cycle time limits are given to the specified head/pallet, or to both if head number is not specified (assuming of course multiple head/pallet operation). Please, note here that this file based head number can optionally be over written by the operator if the Head/Pallet ID is defined in <u>Monitoring Setup dialog.</u> The _LOOKUP.TXT file needs to be placed into all Transmit/Download directories where this feature is utilized. If all machines use the same call ID – program name correlation, then these files are all the same. Machine specific definitions can also be easily incorporated.

DNC eHUB/eWIRELESS Setup dialog – (Settings menu)

[MCH->Computer/Rx/Upload Tab]

See [Common Tab] and [Computer->MCH/Tx/Download Tab] for more settings.

No parity error detection: if checked, parity error is ignored upon receiving a file.

Separate programs: if checked, the uploaded program will be evaluated, and program end will be executed after M2, M02, M30 and M99 codes. Once a program end is executed, a new search begins using the above program naming rules to name the remainder of the program. If no valid program name is found, the rest of the program is discarded. If a valid program name is detected, the rest is evaluated again for the above M codes. This procedure continues throughout all of the uploaded files. This function is useful if the user regularly uploads multiple or all programs with one punch operation.

Ignore M99: if checked, M99 will be ignored as the end of program code while separating programs.

Numbers only in name: if checked, the file names are treated differently. If the file name is specified in a comment: (), then a valid file name – containing only numbers – will be searched for within the first 6 lines of received code. Comments containing other than numbers will be ignored. If the file name is not specified within a comment, the file name will be terminated on the first non-numeric character. If the numbers only option is not checked, these two rules do not apply.

Strip extension: if checked and the upload name coming from the machine includes an extension, it will be stripped from the name.

Send response after 'pause': if checked, the generated good or bad message will be automatically sent back to the machine after an upload is finished and the specified pause time is expired.

Detect 2nd Dir/Name ID: if checked, the directory and/or program name will be detected when they occur the 2nd time in the uploaded program. If the ID occurs only one time, the upload will be discarded and a downloadable error message will be generated.

Detect 'End ch': if checked, and the end character is not detected in the uploaded file, an error message is generated as a response.

FTP to Rx Directory: if checked, FTP will download from the TX directory and upload to the Receive/RX directory. Normally FTP will upload and download to/from the Download/TX directory.

Directory: a full valid path for the default receive directory. The operator is unable to send a program to the computer other than to this directory.

Directory replace: by clicking on this push button the user can specify a "From" and "To" string. If the "From" string is part of ANY machine's download path, it will be replaced with the "To" string. This operation is separate for both the download and up load directories. Note here, that the "To" string can be empty – this will eliminate the "From" string from the path.

Orphan directory: if a valid received program name cannot automatically be detected, the eNETDNC program will place that program into this directory. The name of the program will be the name of the machine, followed by the date (separated by dashes) and time (separated by a colon). Additionally if enabled, (see next) a message will pop-up notifying that a new orphan file had been received. If the directory definition is left empty, no orphan file is created and no message is generated.

Do not notify about orphan file if checked, the orphan message (see above) will not pop up.

Name ID: up to fifteen characters long ID. Acts as the ID to determine the beginning of the program name. Example: if it is defined as P, then P123456 will specify program name 123456.

1st in line: if checked, the Name ID should start the upload line, else it is ignored.

Extra CMD: (ID up to fifteen characters long). Acts as an ID to instruct the eNETDNC software that an upload operation will follow. The upload name itself will be identified by the Extra ID. There should be a time delay between sending the command file and the actual upload file. This time delay should be at least two seconds long by default. This feature is useful if the actual upload file can not include the name (example: tool offset files).

Extra ID: (ID up to fifteen characters long). Acts as the ID to determine the beginning of the program name in the same command file, which specifies the Extra CMD.

Example for a command file:
O6666
P123456
where Extra CMD would be defined as O6666, and Extra ID would be defined as P. After uploading this command file the next incoming file would be automatically named as 123456 and saved no matter what its content would be.

Subdir. ID: value can be up to fifteen characters long. Acts as the ID to determine the sub directory for the program.

Example: if Subdir.ID is defined as Q (and the name ID is O), then Q12 will specify sub directory 12. The following program: O1111 Q01 will be saved as "Default receive directory"\01\1111. Note: if Auto directory is checked, the Subdir. ID setting acts slightly different: in that case the first character of program name will be incorporated as well.

Name len.: a number between 4 and 32. Specifies the maximum number of characters for the program name length.

Start: the received part program will be ignored until this character is detected on receiving.

Pause[sec]: a number between 0 and 20. The computer will wait the specified value in seconds before it closes an incoming file – whether it is a call file or receive file. If the Pause value is set to 0, an End character must be specified. In such a case the receiving program is not closed until the end character is detected. This feature is useful for digitizing upload – there might be any time passed between digitizing interruption and resumption.

Dir CMD: value can be up to fifteen characters long. Acts as the ID to instruct the computer to send back a listing of the receive directory. If Dir Header is specified, it will be sent first, followed by the file name, the file length and file date, enclosed in parentheses.

Terminate Name: the user can specify a character to terminate the upload name.

End ch: receiving will be terminated when this character is detected.

No.of null.: the specified number of null characters will be automatically added to the beginning of the received file.

Dir header: this exact header message will be sent back to the control as a header before the actual directory listing. Setting ^J will add a linefeed, ^M adds carriage return.

Good msg.: this exact message will be sent back to the control, if a part program was saved with no error. Setting ^J will add a linefeed, ^M adds carriage return. In place of ^L the number of received characters will be inserted. In place of ^N the name of the received program will be inserted. In place of ^K the date of the received program will be inserted.

Err msg.: this exact message will be sent back to the control, if the eNETDNC program detected an error while uploading.

Prefix: up to twelve characters will be automatically added in front of the uploaded file name.

Ext: value of up to four characters will be automatically added to the uploaded file name when it is saved. (For example: .TXT) If the Always add is checked, the extension will always be added to the upload file name. If it is not checked, and the upload file name has an extension already, it will be left as it is – if the uploaded name has no extension, then the defined extension will be added.

Mazak: the eNETDNC software automatically detects the Mazatrol communication protocol. The Work No. selection specifies, that the uploaded Mazatrol file will be saved by its work number, the Prg. Name selection specifies, that it will be saved by its program number. This setting has no effect, if the Mazatrol file transfer is not used.

Griffo compatible if checked, the Mazatrol file will be saved in Griffo compatible format. "Griffo" is a trademark of Griffo Brothers Inc.

SW compatible if checked, the Mazatrol file will be saved in Solution Ware compatible format. "Solution Ware" is a trademark of Solution Ware Inc.

Multiple .ORG files: if checked, the received files will be given .ORG1….ORG99 extensions in case the rest of the file name matches an existing file name. This way up to a 100 upload files can be kept in the same upload directory with the same file name.

Okuma flag: if checked, it will allow the handling of the regular program files and tool offset files separately for an Okuma control.

Print ID: if the specified string is detected in the uploaded program on the same line where the Name ID is, the just uploaded file will be printed.

Print compare result: if checked, the just uploaded file will be compared to its download counterpart (in the TX directory) and the differences (if any) will be printed. If there is no download file with the same name or the two files are the same, nothing will be printed.

Email to: a valid email address needs to be specified. Every time an upload takes place, a brief email will be sent. For the email to work correctly, an email server needs to be set up in *Settings-Email-Server* menu

Replace in Name From/To: Specify a From and To string. The replacement takes place in the upload file name before the upload file is saved.

Include '()': if checked, the upload name will keep the parenthesis, otherwise it will be regarded as a name terminator.

Line filter: a string – the upload line has to start with this string for the whole line to be filtered out.

Convert character: two characters – the first one is the "From" character, the second one is the "To" character. Replacement takes place within the whole upload file.

Monitoring - General... Dialog box - (Settings menu)

See the eNET_Monitoring Manual, which can be found at:
'http://www.enetdnc.com/downloads/eNET_Monitoring.pdf'

Colors - Edit command (Settings menu)

Use this command to specify the various colors for the various addresses for G code programs in the editor. The user can specify what color the N block numbers, the M auxiliary functions, etc. should appear. See Edit Colors dialog box.

Edit Colors dialog box (Editor colors command)

Set the text color of the various codes here for the editor. The currently set colors are shown next to the push buttons. To change a color, click on the appropriate push button, and select it from the palette of the basic colors, or create a custom color.
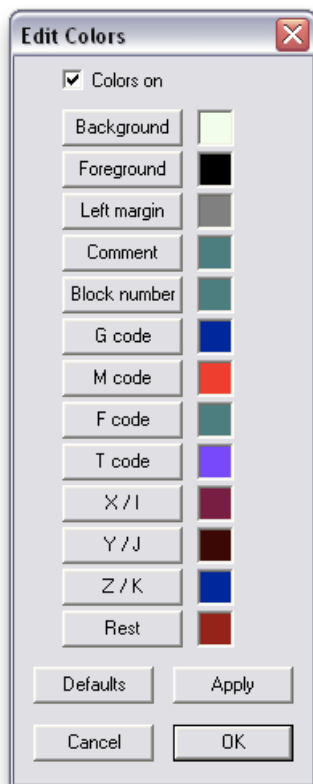
Uncheck the Colors on check box if monochrome operation is required.

Default will set the colors to the original factory setting.

Apply will apply the current settings to the edit window while leaving the dialog box open.

OK saves the current color setting and updates the edit window.

Cancel will quit the operation and leave the colors unchanged.

Colors - Backplot command (Settings menu)

Use this command to set the colors for the background, the G00 blocks plus the various tools for 3D Backplotting and 2D Backplotting .
See also the Backplot Colors dialog box.

Backplot Colors dialog box (Backplot colors command)

Set the background, the text, the G00 and the 15 tool colors here for 3D or 2D back plotting operation. The currently set colors are shown next to the push buttons. To change a color, click on the appropriate push button, and select it from the palette of the basic colors, or create a custom color.

Default will set the colors to the original factory setting.

OK saves the current color setting.

Cancel quits the operation and leaves the colors unchanged.

Dialog				
Background	■	Text	■	
G00	■	8th TOOL	■	
1st TOOL	■	9th TOOL	■	
2nd TOOL	■	10th TOOL	■	
3rd TOOL	■	11th TOOL	■	
4th TOOL	■	12th TOOL	■	
5th TOOL	■	13th TOOL	■	
6th TOOL	■	14th TOOL	■	
7th TOOL	■	15th TOOL	■	
Cancel		Defaults		OK
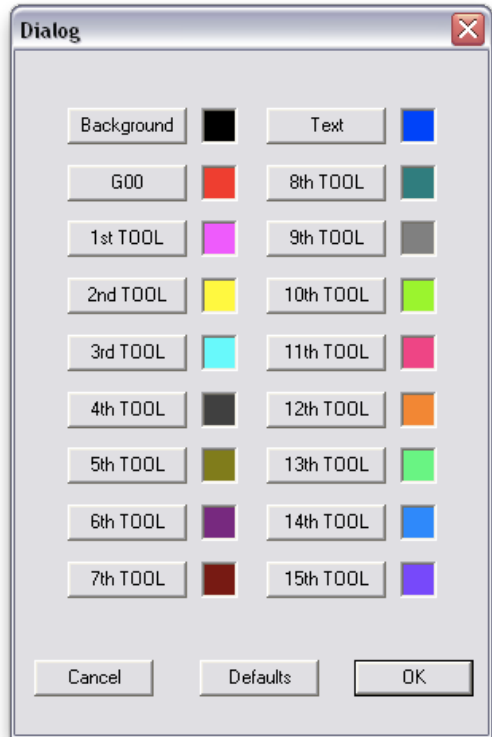
Fonts - Edit command (Settings menu)
Use this command to specify the font size and style for the editor.

Fonts - Printer command (Settings menu)
Use this command to specify the font size and style for the printer.

Fonts - eHUB/RS232 command (Settings menu)
Use this command to specify the font size and style for the COM (RS232) port Receive, Transmit and View windows.
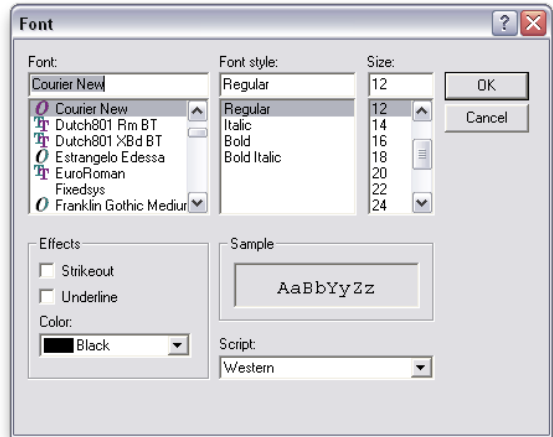
RS232 Parameters command (Settings menu)

Use this command to specify COM (RS232) port settings. The port settings can be named. The name is used to identify the specific configuration when a Transmit , Receive or View operation is initiated. See also Configure Port Parameters dialog

Configure Port dialog box (Manual DNC operation)

Depending on the purchased version, a maximum of four or ten COM port configurations can be defined. They can all have different names.
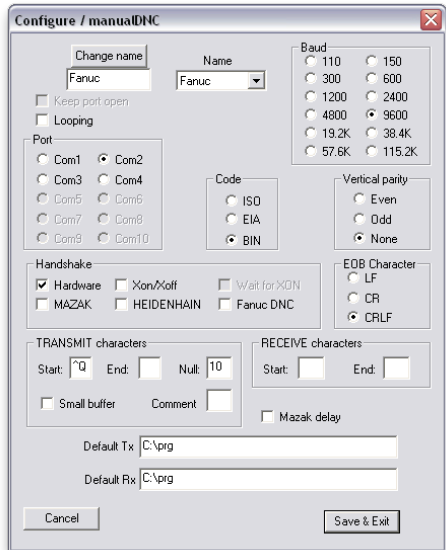
Name: helps to identify each specific configuration. The user can assign one by typing in a new name under the Change name button and then clicking on the button.

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Keep port open: if checked, the specific COM port will be unavailable to other programs, however this provides a safer operation for manual DNC. If there are more than two COM ports installed on the computer it is recommended to have this option checked.

Port: COM1..COM10 defines the physical RS-232 port.

Baud: the matching baud rate for the NC/CNC control should be set here.

Vertical parity: checks the number of characters in each block during transmission. If set to none, the file is sent as is. An odd or even setting may result in the insertion of a space character at the end of the block to make the number of characters odd/even accordingly for the block.

Code: ISO, EIA or Binary can be selected to match the control's setting.

Handshake: select the handshake method to match the control's requirement. The selection of Wait for XON requires that the control sends an XON first before the actual transmit operation begins. The MAZAK, HEIDENHAIN and Fanuc DNC methods are used with the corresponding controls. Each of these methods also requires that the controls use the appropriate transfer protocol. For MAZAK and HEIDENHAIN set ISO code, while for Fanuc DNC set BIN code.

End of block: the end of block characters can be set to LF (line feed), CR (carriage return) or both.

Transmit start: this character will be added automatically, followed by an end of block character, at the front of the part program before sending.

Transmit end: this character will be added automatically, followed by an end of block character, at the end of the part program when transmitting.

Transmit Null chars.: this option acts like a tape leader. For reference: 10 null characters will make up one inch of tape.

Small buffer: if checked, a small system buffer is maintained to match a very old control's slow response. Normally this should be left unchecked.

Comment filter: if the specified character is detected while transmitting, the rest of the line will not be transmitted. If the character is "(", then the line is not transmitted until the end of the line or until the ")" is detected – whichever comes first.

<u>Receive start</u>: the part program contents will be ignored until this character is detected during a receive operation. Leave this field blank to receive everything.

<u>Receive end:</u> the receiving process will be terminated when this character is detected within the part program contents. Leave this field blank to receive all.

<u>Looping:</u> if checked, the program will be sent over and over again, acting like a looped tape.

<u>Mazak delay</u>: when receiving a part program from a Mazak using a laptop computer control may require this setting to be checked.

<u>Default Rx directory:</u> the full valid path of the default receive directory.

<u>Default Tx directory:</u> the full valid path of the default transmit directory.

<u>Cancel</u>: disregards all changes done.

<u>Save and Exit</u>: Clicking on this button will record any new settings, which will be effective for all Manual DNC operations initiated after that.

Other Options dialog box (Setting menu)

If Print header is checked, the print operation will print the file name, print date as a header for each page.

If Print page numbers is checked, then the page numbers are also printed.

If Print full path is checked, the full path of the particular file will be printed in the header of every page. If it is not checked, only the name of the file will be printed.

If Print two columns is checked, the printer will print two columns on the same page (paper saving).

The Page margins refer to print operations, and are measured in inches.

If the Scroll all windows for mouse wheel is checked, then the text in all open edit windows will be scrolled by rolling the mouse wheel.

If the Scroll all windows with scroll bar is checked, then the text in all open edit windows will be scrolled by scrolling any of the scroll bars.

The Full path for temporary files specifies where the temporary files will be saved during eHUB related transmit and receive operations. This is shown for information only.

The IP address for eHUBs should normally be set to all zero, unless the computer has multiple Ethernet cards. In such a case this should specify the static IP address of the Ethernet card which controls the connected eHUB(s)/eWIRELESS units.

If a group of machines is configured using the eNETDNC program as the FTP server, (see eHUB/Configure dialog), then the FTP IP address and the FTP password become effective. The FTP IP address should normally be set to zero, unless the DNC computer has two Ethernet ports installed. If the DNC computer does have two Ethernet ports, this IP address setting is for the port which connects directly to the machines.

The FTP password is used when initiating FTP communications from the CNC machine. This password needs to be specified in the control.

The Editor default file path specifies the default directory for the editor.

The Remember editor directory specifies if the editor remembers the last edited directory (checked), or always defaults to the above default path (un-checked).

If Start minimized checked, the program will start running minimized after activation.

EHUB/eRS update applies only to 10/100 Mbits/s V.4.0 or later eHUBs. If checked, the program running inside the eHUB will be updated to the current version.

Monitoring applies only to systems equipped with machine monitoring cards, and should be checked only for those systems.

Monthly CSV file applies only to systems equipped with machine monitoring cards. If checked, the _MACHINE_YYYY.CSV file in the C:_eNETDNC_REPORTS directory will be broken up into files per month instead files per year.

OPC server applies only to systems equipped with machine monitoring cards. If checked, the monitoring system acts as an OPC server.

SQL client applies only to systems equipped with machine monitoring cards. If checked, the monitoring system acts as an SQL client.

Remote up/down load works with connection of eNETDNC-LT systems. If checked, it allows remote machine loading using eNETDNC-LT program(s) running on the same network.

Remote status applies only to systems equipped with machine monitoring cards. If checked, the monitoring system will let a remote eNETDNC-LT to change the monitoring status of a machine.

If Detailed file open window is checked will show files in detailed view in the "File -Open" dialog box.

If Data Collection is checked the Data Collection option is enabled. It uses additional memory and should only be turned on if it is configured to be used.

If Option to "Load" machine with edited file is checked eNET will cue up the last edited file when selecting a file to manually send to the machine.

HTTP Server

The HTTP Server can display the Monitoring dashboard on a Webpage; on any computer or connected device (cellphone, tablet, etc.) that is connected to the site's LOCAL network. A VPN type connection can be set up by your site's IT department that can allow remote connections to this LOCAL network, so that the dashboards can be viewed remotely.

There are two types of viewable web pages: Basic and Advanced. Basic gives a very basic display, and is included free of charge with every eNETDNC installation. Advanced is a purchasable option, and must have a USB dongle to enable the option.

The Ethernet IP address for HTTP: Should normally be set to zero, unless the DNC computer has two network cards installed. If the DNC computer does have two network cards, this IP address setting is for the network port which connects to the network.

Cancel quits without saving.

OK saves the current setting.

BASIC
Enable HTTP Basic Server: If checked, the machine up/download and machine monitoring actions can be viewed with a WEB browser. The only criteria is that the DNC computer should be reachable by the WEB browser. (For example: both computers are on the same network. The DNC computer's IP address is 192.168.1.100. On the browser computer the user should type into the address bar: http://192.168.1.100 and issue the request. The DNC computer will respond with a password request, and from there on the user can choose what to view. The DNC computer can serve up to 5 viewing requests the same time.)

Refresh interval specifies the browser refresh rate in seconds if the browser user clicks on the Auto Refresh button.

Timeout specifies in minutes the Auto refresh timeout.

Password specifies the browser password.

ADVANCED (Currently in Beta)
Enable Advanced HTTP Server: If checked, the machine up/download and machine monitoring actions can be viewed with a WEB browser. Furthermore,

the Timeline view of selected machines can be viewed as well. The Advanced acts exactly the same as the Basic in regards to being on a LOCAL network.

Entry into Advanced is accomplished by one of two ways (A licensed USB Dongle must be installed prior to starting eNETDNC):

1. Enter the IP address that eNETDNC is running on into your browser (or enter the IP address that is input into the 'Ethernet IP Address' if using multiple network cards on the eNETDNC computer). The format MUST be like this: **10.0.0.99/Adv.html** or **10.0.0.99:xx/Adv.html** (If a different Port is used than the default '80', where 'xx' is the Port number).
Once the IP address is entered, there are two selections; Monitoring and Timeline. Select the radio button that you would like to view, and then enter a pre-set Username and Password, then press Enter.

2. Enter the following strings, depending on the display to view:

-For Monitoring Dashboard:
http://YOURIPADDRESS/Adv.html/User=**USER1**&Password=**1234**&SEL=-1

-For Timeline:
http://YOURIPADDRESS/Adv.html/User=**USER1**&Password=**1234**&SEL=-2

USER1 = Replace with the actual Username
1234 = Replace with the actual Password

User Logins: Once a User is logged in, eNETDNC will not allow two Users logged in with the same name, whether it is on the same computer, or a different computer. To log out, the User needs to close the browser window(s). If eNETDNC determines there is more than one of the same User trying to log in, it will 'bump' the first User off, and send a message that a new User has logged on, and ask to try logging on again. Generally the new User would need to try logging in again. If a User switches from the Dashboard, to the Timeline view, two attempts will be needed to 'bump' the original login, and then the 2nd attempt will actually log that User in.

Machines Monitored: Displays a list of available machines that can be displayed.

User Machine List: The user can select a machine from the 'Machines Monitored', and then press 'Add Machine', 'Insert Machine', or 'Delete Machine', to be added to the 'User Machine List.

Selected User: A Drop-down list of created Users.

Add/Update User: Type in a Name and Password and then press this button to create a new/update User.

Delete User: Select a User and then press this to delete that User.

Password: Enter a password for logging into the Advanced webpage.

Refresh Interval (seconds): Sets the refresh rate of the webpage.

Machines per page: Select 0 for all, or a specific number for how many machines to be viewed per page.

Font Multiplier (50-200%): Sets the font size for the numbers/letters that are displayed.

Title: Allows to set a Title for the webpage display.

Logo: Allows to set a logo to be displayed on the webpage.

Currently Connected User List: Displays a list of all currently connected Users.
        -Refresh: Refreshes the Currently Connected User List.

        -Remove: Select a Currently Connected User and then press 'Remove' to remove that current User.

Help Menu
——

Settings - Help - Help Topics

Displays the opening screen of the Help menu. From the opening screen, you can jump to step-by-step instructions for using the program, as well as various other types of reference information. Once Help is opened, click the Contents button to return to the opening screen.

Note: Help files are not supported by Microsoft from Windows 8.1 to current versions, so Help files are unavailable for these newer versions, although everything documented in the Help file can be found in this manual (which is more current).

Settings - Help – Version

This displays the current version of the eNETDNC software, followed by all hardware. This is helpful if viewing current hardware versions, and will indicate (by comparing to the version of the hardware itself to what is documented here) if an update is needed.

DNC Password Setup
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In the DNC sub-directory " C:/_eNETDNC" create a file called either:

PSW.SYS (This password will password protect all aspects of eNETDNC).
      or
PSWE.SYS (This password will password protect the Shutdown and Configuration of eNETDNC).

(Use notepad or another text editor to create this file).

In the file, you can have one alpha-numeric word for the password. The password function works as follows:

When prompted, the password entered is incremented by one character for each character shown in the text file.

      EX: For – 12345   you would enter – 23456

      EX: For – ABC123   you would enter – BCD234

      EX: For – password   you would enter – qbttxpse

Customizing End of Transfer Characters

eNETDNC doesn't send out any characters at the end of a file except for the ones shown in the "Transmit End" field. The specific order the characters are in can make a substantial difference on how the machines will react at the end of the transmission. Below is a list of ASCII Characters for reference, the value you want to use is shown in the "Key" column.

```
Some known characters are –
      % for Fanuc if there isn't one in the file.
      ^D for Cincinnati Controls.
      ^J is a Line Feed also needed on some controls.
      Example of Line = %^J^D
```
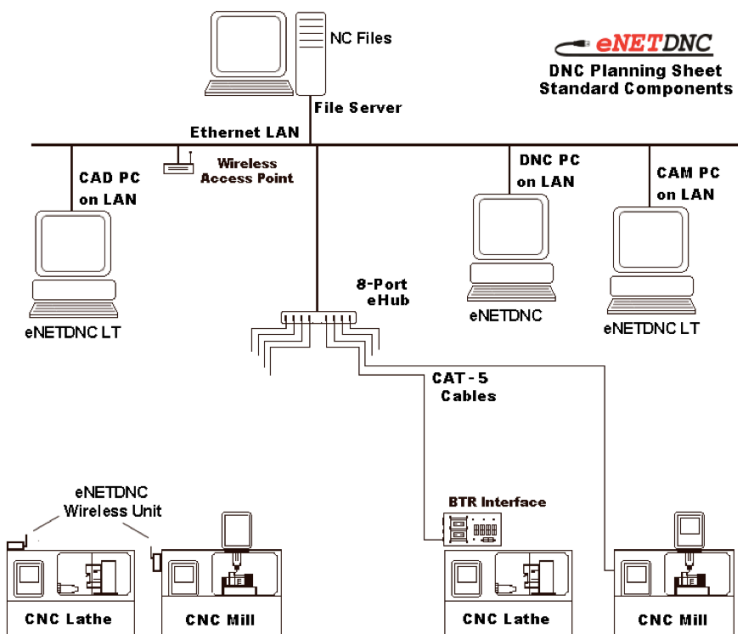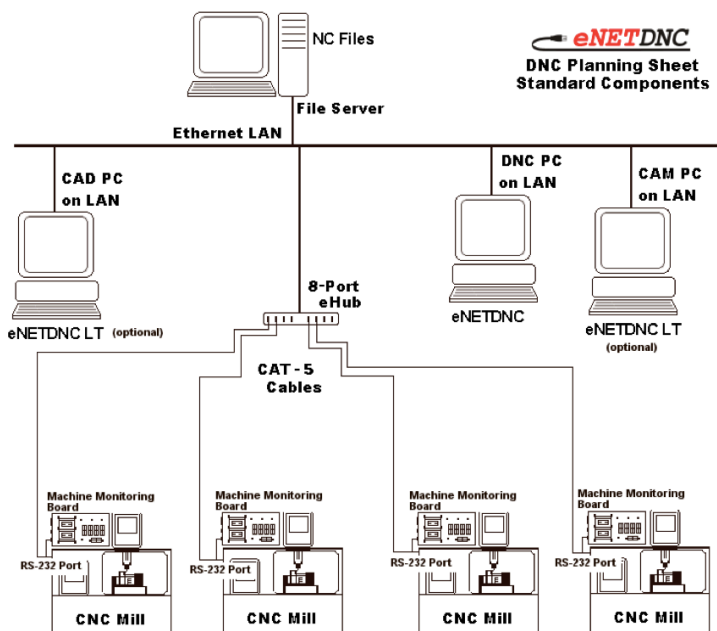
ASCII Character Set

Hex	Dec	Screen	Ctrl	Key	Hex	Dec	Screen	Ctrl	Key
00h	0		NUL	^@	1Ah	26	→	SUB	^Z
01h	1	☺	SOH	^A	1Bh	27	←	ESC	^[
02h	2	●	STX	^B	1Ch	28	∟	FS	^\
03h	3	♥	ETX	^C	1Dh	29	↔	GS	^]
04h	4	♦	EOT	^D	1Eh	30	▲	RS	^^
05h	5	♣	ENQ	^E	1Fh	31	▼	US	^_
06h	6	♠	ACK	^F	20h	32			
07h	7	●	BEL	^G	21h	33	!		
08h	8	◘	BS	^H	22h	34	"		
09h	9	○	HT	^I	23h	35	#		
0Ah	10	◙	LF	^J	24h	36	$		
0Bh	11	♂	VT	^K	25h	37	%		
0Ch	12	♀	FF	^L	26h	38	&		
0Dh	13	♪	CR	^M	27h	39	'		
0Eh	14	♫	SO	^N	28h	40	(		
0Fh	15	☼	SI	^O	29h	41	)		
10h	16	►	DLE	^P	2Ah	42	*		
11h	17	◄	DC1	^Q	2Bh	43	+		
12h	18	↕	DC2	^R	2Ch	44	,		
13h	19	‼	DC3	^S	2Dh	45	–		
14h	20	¶	DC4	^T	2Eh	46	.		
15h	21	§	NAK	^U	2Fh	47	/		
16h	22	▬	SYN	^V	30h	48	0		
17h	23	↨	ETB	^W	31h	49	1		
18h	24	↑	CAN	^X	32h	50	2		
19h	25	↓	EM	^Y	33h	51	3		

Monitoring (optional)

See the eNET_Monitoring Manual, which can be found at: 'http://www.enetdnc.com/downloads/eNET_Monitoring.pdf'

Hardware Installation

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eNETDNC
DNC Planning Sheet
Standard Components

NC Files
File Server
Ethernet LAN

CAD PC on LAN
DNC PC on LAN
CAM PC on LAN

8-Port eHub

eNETDNC LT (optional)
eNETDNC
eNETDNC LT (optional)

CAT-5 Cables

Machine Monitoring Board
RS-232 Port
CNC Mill

Machine Monitoring Board
RS-232 Port
CNC Mill

Machine Monitoring Board
RS-232 Port
CNC Mill

Machine Monitoring Board
RS-232 Port
CNC Mill

eNETDNC
DNC Planning Sheet
Standard Components

NC Files
File Server
Ethernet LAN

CAD PC on LAN
Wireless Access Point
DNC PC on LAN
CAM PC on LAN

8-Port eHub

eNETDNC LT
eNETDNC
eNETDNC LT

CAT-5 Cables

eNETDNC Wireless Unit
CNC Lathe
CNC Mill

BTR Interface
CNC Lathe
CNC Mill

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How to Wire eNETDNC Jacks DB25 or DB9 To RJ45

```
1 ---- TD---------- Blue ------------- 3          2
8 ---- RD---------- White ------------ 2          3
4 ---- GN---------- Red -------------- 7          5
6 ---- CTS -------- Yellow ---------- 4--|   7--|
       RTS ------------------------- 5--|   8--|
       DSR ------------------------- 6--|   1--|
       DCD ------------------------- 8--|   4--|
       DTR ------------------------- 20-|   6--|
```

RS232
Function

Jumpers
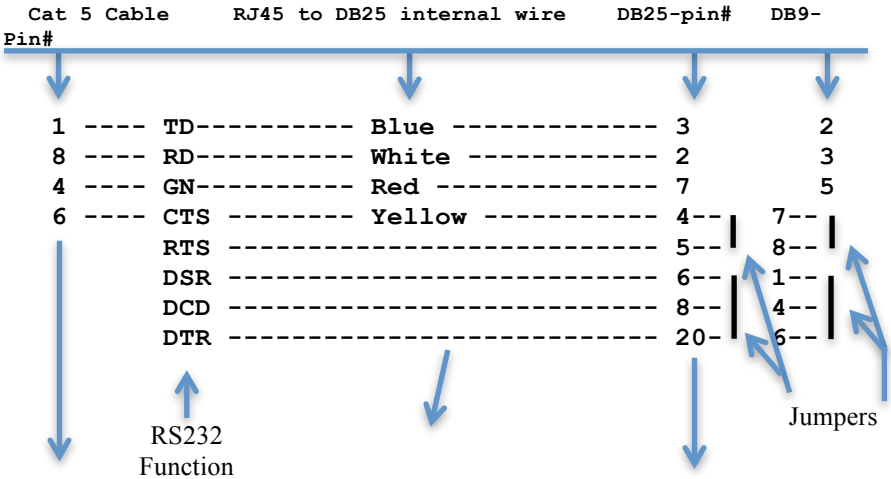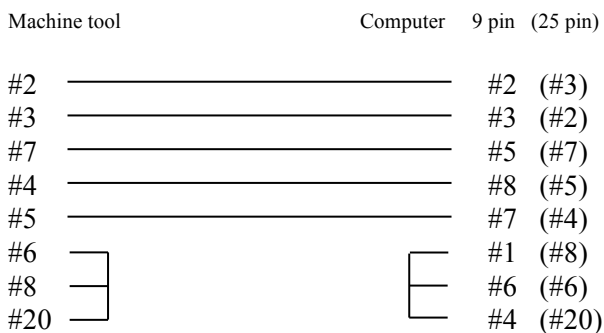
Notes:
Pins 2 & 3 sometimes will need to be reversed; the best way to test if they need to be reversed is by using an RS232 mini tester and checking for the TD & RD signals. To use a mini tester first connect the tester to just the CNC control and see if RD or TD lights up. Next unplug from the CNC and plug in to the DB25 on the cable you should get the opposite light. Now plug in both sides of the tester to the CNC and the cable both RD & TD should light up. If you received RD on both sides or a TD on both sides you will need to reverse pins 2 & 3 in the DB25 jack using a pin extractor tool. Below is a picture of a RS232 mini tester and a pin extractor tool.

```
Machine tool                    Computer   9 pin  (25 pin)

#2    ————————————————————       #2   (#3)
#3    ————————————————————       #3   (#2)
#7    ————————————————————       #5   (#7)
#4   ⌐                      ⌐     #8   (#5)
#5   ⌐                      ⌐     #7   (#4)
#6   ⌐                      ⌐     #1   (#8)
#8   ⌐                      ⌐     #6   (#6)
#20  ⌐                      ⌐     #4   (#20)
```
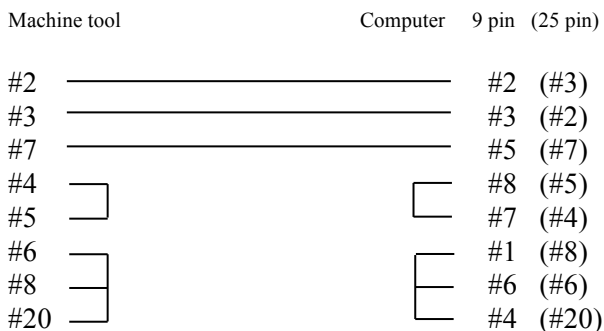
RS232 connection (RTS/CTS hardware handshake)

```
Machine tool                    Computer   9 pin  (25 pin)

#2    ————————————————————       #2   (#3)
#3    ————————————————————       #3   (#2)
#7    ————————————————————       #5   (#7)
#4    ————————————————————       #8   (#5)
#5    ————————————————————       #7   (#4)
#6   ⌐                      ⌐     #1   (#8)
#8   ⌐                      ⌐     #6   (#6)
#20  ⌐                      ⌐     #4   (#20)
```

Some machines will need to be wired a little different. On a Siemens control you
do not want to jump 4,5 & 6,8,20. On some other machines you do not want to
cross pins 2 & 3 you would run them straight through. On some Cincinnati
controls you must jumper only 5,6 & 20.

For further information on how to wire your machine, review the CNC manual
for that particular machine.

RJ45 (Ethernet) Cable Recommended Color Code
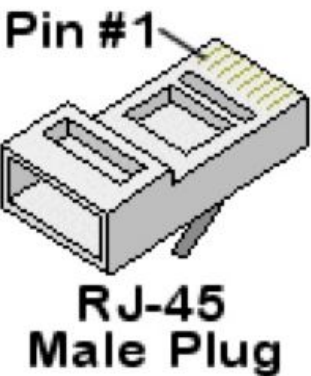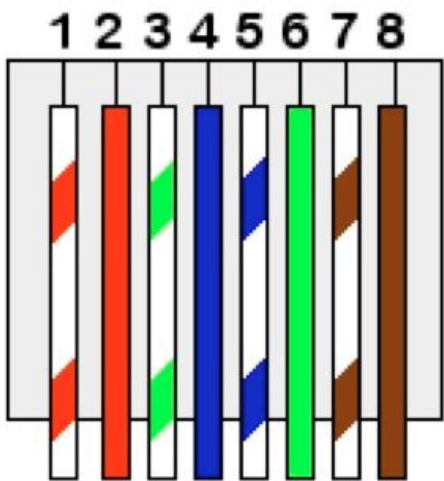
NOTE: Port CNC uses the 'B' Standard for terminating CAT5 ends.

How to configure an eNETDNC Wireless Unit (Model eWIRELESS)

1) If the unit has a RJ-45 port, connect the wireless unit to your computer using the computers serial port connection, an ethernet cable and a RJ-45 to serial adapter. If the unit has a DB-25 port, connect the wireless unit to your computer using the computers serial port connection, an ethernet cable and two RJ-45 to serial adapters. (If the computer doesn't have a built-in serial port a USB to serial port adapter can be used.)

2) Connect the power supply to the wireless unit and power it up.

3) Open wapsetup.exe on the computer.

4) Click on the Refresh button and wait for the unit to refresh. Some fields should fill in with the data read from the unit. (If the fields do not fill in from the Refresh action, check the cables and adapters for a good connection and try again.)

5) After verifying a good connection, fill in the correct IP addresses, SSID, Channel & Encryption fields.

6) After all of the fields are filled in, click on the Update button. (The programming step takes about one minute.)

7) Wait for the unit to finish updating, (approximately one minute), and confirm that the configured values are correct.

When the unit is on-line the LED's should indicate as follows:

Green = solid

Yellow (x2) = blinking in response to traffic

Red = blinking at a steady rate

How to configure an eNETDNC Wireless Unit (Model xlCONNECT / - 2 [Serial/RS232])

1) Connect the wireless unit's **MONITOR** port to your computer using the computer's serial port connection, an Ethernet cable and a RJ-45 to serial adapter. (If the computer doesn't have a built-in serial port, a USB to serial port adapter can be used.)

2) Connect the power supply to the wireless unit to power it on.

3) Open xlSetup.exe on the computer (Most current Version= 1.54).

4) Press the 'Refresh' button and then fill in the **SSID**, **Encryption**, **Key value**, **IP Address**, **Subnet mask** and **Default gateway** settings. For DHCP, Set the IP Area Fields to all zeroes.

5) Once the above fields have been entered, press the 'Program New Settings' button. Verify that the 'Last Command' shows a string of data with the SSID information. Wait approx. 30-45 seconds until you see the 'Last Message' change from "No response from xlCONNECT unit" to: **I/OK** or it may go green: **I/OK** in which case skip to Step 8 (this may be the case if unit was previously programmed).

6) Repeat Step 5 and verify the 'Last Command' shows a string of data with the encryption 'Key Value' information. Wait approx. 30-45 seconds until you see the 'Last Message' change from "No response from xlCONNECT unit" to: **I/OK.**

7) Repeat Step 5 once more and verify the 'Last Command' shows a string of data which includes all of the 'IP Area' settings. Wait approx.. 30-45 seconds until you see the 'Last Message' change from "No response from xlCONNECT unit" to: a green colored **I/OK.**
   (**Regarding steps 5-7:** *Depending on firmware version, the Red LED on the device will either go out while updating settings, or will blink rapidly. Be patient until you see the I/OK, which generally takes 30-45 seconds per step*).

8) Unplug power from unit and plug back in to restart. Once restarted, Press the 'Refresh' button, and verify data on the xlSetup refreshes.

WARNING: CLICKING ON THE UPDATE BUTTON WHEN THE GREEN LED IS NOT ILLUMINATED CAN DISRUPT THE PROGRAMMING PROCEDURE, WHICH MAY DISABLE THE UNIT. IF THE UNIT BECOMES DISABLED, IT MUST BE RETURNED TO PORT CNC FOR A FACTORY REFRESH, AND CHARGES MAY APPLY.

How to configure an eNETDNC Wireless Unit (Model xlCONNECT-U (U1) [Serial/RS232])

1) Unscrew the Antenna from the device and then connect the wireless unit's **RJ45** port to your computer using the computer's serial port connection, an Ethernet cable and a RJ-45 to serial adapter. (If the computer doesn't have a built-in serial port, a USB to serial port adapter can be used.)

2) Open xlSetup-U.exe on the computer (Most current Version= 1.5x).

3) With power OFF on the device, press the 'Refresh' button on the xlSetup. Then connect power to turn the device ON.

4) Wait a few seconds for the refresh to occur. Once 'Current Connection' area is populated, then fill in the **SSID**, **Encryption**, **Key value**, **IP Address**, **Subnet mask** and **Default gateway** settings. For DHCP, Set the IP Area Fields to all zeroes.

5) Once the above fields have been entered, press the 'Update' button. Verify that the 'Last Command' shows a string of data with the SSID information. Wait approx. 30-45 seconds until you see the 'Last Message' change from "No response from xlCONNECT unit" to: **I/OK,** or it may go green: **I/OK** in which case skip to Step 8 (this may be the case if unit was previously programmed).

6) Repeat Step 5 and verify the 'Last Command' shows a string of data with the encryption 'Key Value' information. Wait approx. 30-45 seconds until you see the 'Last Message' change from "No response from xlCONNECT unit" to: **I/OK.**

7) Repeat Step 5 once more and verify the 'Last Command' shows a string of data which includes all of the 'IP Area' settings. Wait approx.. 30-45 seconds until you see the 'Last Message' change from "No response from xlCONNECT unit" to: a green colored **I/OK.**

   (**Regarding steps 5-7:** *Depending on firmware version, the Red LED on the device will either go out while updating settings, or will blink rapidly. Be patient until you see the I/OK, which generally takes 30-45 seconds per step*).

8) Press 'Refresh' button and then cycle Power OFF/ON, then put antenna on.

How to configure an eHUB/xlHUB/xlConnect-UE (Wired Devices)

1) Connect the eHUB's **Port #1** (DO *NOT* use the far left Ethernet Port!) / **OR** device Serial Port (RJ45 jack [labeled: **RS232** on unit]) to your computer using the computer's serial port connection, an ethernet cable and a RJ-45 to serial adapter. (If the computer doesn't have a built-in serial port, a USB to serial port adapter can be used.)
2) Connect the power supply to the wired unit so that it powers on.
3) Open the **xlSetup.exe**.
4) Select what type of device you are setting up.
5) Fill in the **IP address**, and **Default Gateway** (if required). If Default Gateway is not used then set this to all zeroes.
6) Press the '**SET**' button. If the option is greyed out, then there is no need to add it.
7) Under 'Last Command' and 'Last Message' you should see some information pass across and then the 'Last Message' should show 'I/OK', similar to the example below. You can then press the 'GET' button to verify the unit's IP address. The devices' MAC address will be displayed as well.

xlSetup Utility:

This utility can be used for the following devices:

-xlConnect-E
-xlConnect
-xlConnect-2
-xlConnect-W
-xlConnect-U2
-eHUB
-xlHUB

xlSetup-U Utility:

This Utility can be used for the following device:

-xlConnect-U (U1)

FTP Instructions

FANUC FTP Setup

Machine Set-up

1) Put machine in MDI Mode
1) Press the SETTING hard key
2) Set PWE to 1 and the I/O CHANNEL to 9
3) Press the SYSTEM hard key
4) Press the right arrow soft key till you see ETHPRM on the screen
5) Press the ETHPRM soft key, Press the ORPT soft key, Press the EMBEDD soft key
6) You should be looking at Page 1/7 for the Ethernet parameters
   - IP ADDRESS = Create a IP address specific for that machine
   - SUBNET MASK =
   - ROUTER IP ADDRESS = Host computer's address
7) Page down till you get to page 3/7
   - PORT NUMBER = 21
   - IP ADDRESS = Host computer's address
   - USER NAME = Give it a name
   - PASSWORD = give it a password
   - LOGIN DIR = /
8) Set PWE back to 0 and reset the alarm

eNETDNC Set-up

1) Under the common tab put the machine user name (step 7) in the machine name
2) Set the directory in Transmit and Receive
3) Under eHub options set the FTP IP Address to the host computers address or leave at 0.0.0.0, and the password to the machine's password (step 7)

To start the Ethernet on the machine

1) Go to EDIT, Press the PROGRAM hard key
2) Press the right arrow soft key till you see HOST and CONECT
3) Press the HOST soft key
4) Press the OPRT soft key
5) Press the EMBEDD soft key, search should be flashing in the lower left corner of the screen
6) If it flashes searching, then comes up with the "display error" Press the SWITCH soft key.
7) To download a program, Press the right arrow soft key till you see READ and PUNCH
8) Type in the number on the left of the screen that corresponds to the program that you want to download, you do not have to type the 0's. EX: 0001 is 1
9) Press READ soft key, then the EXEC soft key.
   To send a program to the host computer all you do is type in the program name EX: O1234 and press PUNCH soft key, and EXEC soft key
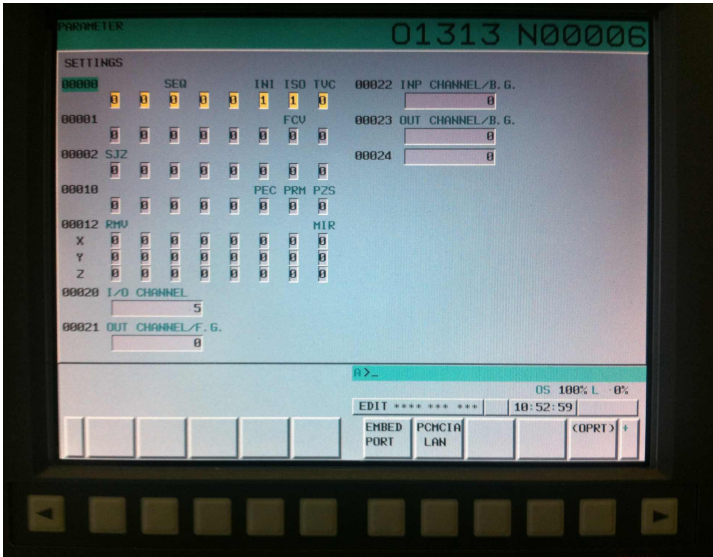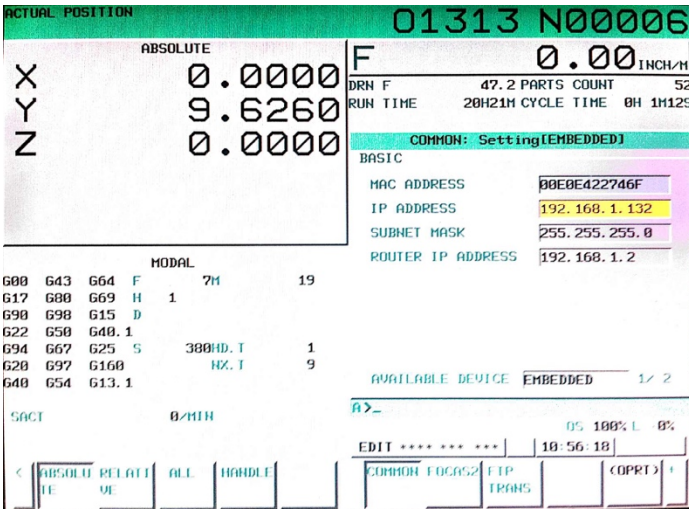
Fanuc i Series FTP Setup (31i / 32i)

Step 1: Plug Cat-5 Cable Here

Step 2: Press Setting Button and Change I/O to 9

Step 3: Press right arrow key 6 times until you see EMBED PORT then press EMBED PORT soft button press COMMON button Enter only the IP, Sub Net, Router IP

Step 4: After entering common data press FTP TRANS button and enter Host IP (This is eNETDNC's IP) User Name, password, and put a / in Login Folder

Step 5: Press OPRT button make sure it says EMBEDDED on top if not then press EMB/PCMCIA button then EXECUTE button otherwise press RESTART button. Then press HOST SELECT and press CONNECT 1

Go to Edit mode, Press PROG then DIR press OPRT, DEVICE CHANGE, EMBED ETHER, if you directory comes up your done

eNETDNC:
On the computer side make sure eNETDNC is configured for FTP the Name field is your user name, the password is under Settings\Other Settings then FTP password. There is only one password used for all FTP machines. The last thing to setup is the path to send & receive from.

Makino FTP Setup

Machine Set-up

1) Select Makino Data Center
2) Press Host Settings
3) Configure Host 1 "See example below"
   HOST NAME = eNETDNC computer's address
   USER NAME = This is the Name field in eNETDNC the you chose
   PASSWORD = This is the FTP password in eNETDNC under other options

For the next part of the setup you must go to the Fanuc side of the control
1) Click on the windows Start button in the lower left corner of the screen.
2) Click on Programs.
3) Click on CNC Screen Display and the Fanuc interface will launch.
4) Next follow the eNETDNC instructions on the Fanuc i Series FTP Setup document in this manual to finish the machine side of the configurations.

Notes:
1) In eNETDNC you must use a mapped drive not a UNC name for the path.
2) On the Makino you must copy from the memory to the internal card then from the internal card to the FTP you can not go direct. The same applies for downloading.

NOTE: If you see a network hub/switch in the back (always look before starting install), you will need to request a separate document on connecting to this, as it can interfere with special connections such as tooling, etc.

Mitsubishi FTP Setup

A) Software setup

1) In eNETDNC software in eHUB/Configure menu select the first available (0 IP) eHUB/eRS/FTP group
2) Click on the FTP radio button. Name each machine different in the group. Click on the Transmit/Download tab for each machine and set the correct download directory.
3) Go to eHUB/Options menu and specify FTP password (case sensitive, use capitals).
4) Exit and re-enter the eNETDNC program.

B) Machine setup

1) In Data IN/OUT and PARAM screen go to Ethernet setup screen (6/8 or 4/5)
2) Data #1: set TCP/IP address for the machine

 Data #2: set empty
 Data #3: set 0
 Data #4: set 0
 Data #5: set 0

 Data #11: set to eNETDNC
 Data #12: set to the machine name set earlier in the eNETDNC program.
   Note that each machine has to be named different.
 Data #13: set password the same as it was set earlier in the eNETDNC software.
 Data #14: set to /
 Data #15: set the computer TCP/IP address which is running the eNETDNC software. Note here, that on most networks the first three sections have to match the machine TCP/IP address.
 Data #16: set to 01
 Data #17: set to 0000
 Data #18: set to 0000
 Data #19: set to 2950
 Data #20: set to 0

C) Machine operation

1) To log in to the Ethernet network, go to Data IN/OUT and PARAM screen go to Ethernet setup screen (6/8 or 4/5) and set Data #5 to 0, then set Data #5 to 1. If no error message, log in is successful.
2) Select "Search" with hard key, select "Remote" with hard key. For L type in program number of the computer, for device set (5) for Ethernet and press "Input" hard key. If Ethernet error shows up, repeat 2). If error is consistent, go back to 1). If error still exists, there is a network problem.
3) Select "Position" hard key. Beginning of program should display. Press "Cycle Start" to execute the program.

D) Program format

 Ethernet operation requires that the program name on the computer are numbers only, otherwise no L search is possible. The program can not have extension either. The program should start the following way:

 (COMMENT)
 N001 G00….etc..
 That is: no % sign at the beginning, first line is a comment line. The program requires a % sign at the very end.

DNC Instructions

Default Terms
_____

Call Program on all examples are 7777 or O7777
Confirmation file on all examples are O8888

All examples show the <u>Name ID:</u> = (

<u>Name ID:</u> can also be = P or any other character or string.

Example:
O7777   (1st line is call program "O7777")
P2-5521   (Program number you want to receive is after the "P".)

Using an eTERMINAL to Upload/Download Programs

The eTerminal can be used to take the place of a Call Program in nearly any CNC Machine Tool Control (using Serial Communications). The following guide is an example using a Fanuc control. The eTerminal queues the program to be downloaded, saving the Operator having to modify the call program at the control and then sending out each time. Following this example, the Operator should be able to substitute their machine for this instruction (see 'Your Machine' on the next page).

Fanuc Example:

To send a "Proven" program to the computer

1) On the eTerminal, press the **UPLOAD** button, or select **Option 2: UPLOAD** and press **ENTER**.
2) On the Fanuc Control, select **EDIT** mode.
3) On the Fanuc Control, press the **PROGRAM** button.
4) On the Fanuc Control, type your Program Number; Example: (1234).
5) On the Fanuc Control, press **PUNCH – EXEC** buttons.
6) On the eTerminal, wait for the Program to scroll through the display and finally display a '%'. Press **ESC** key which will verify whether the Upload was successful.

To Download a Program from Computer to Machine

1) On the eTerminal, press the **DOWNLOAD** button, or select **Option 1: DOWNLOAD**, and then press **ENTER**.
2) On the eTerminal, type the Program Number to be downloaded to the machine, and then press **ENTER**.
3) On the Machine, press **READ – EXEC** buttons.
4) The Program should begin loading in. You will see the Program loading, line-by-line, on the eTerminal display and then a '%%' when the Program has successfully downloaded. The Program should then be displayed on the Machine Control.

Your Machine:
(With an eTerminal)

To Send a Proven Program to the Computer:

1) (Follow the first instruction from the example)

NOW: …Follow the instructions for your machine, leaving out the CALL instruction portion until you get to the example's Step 6…

6) (Follow this instruction to complete the 'SEND')

To Download a Program from Computer to Machine:

1) (Follow the first instruction from the example)

NOW: …Follow the instructions for your machine, leaving out the CALL instruction portion…

4) (Follow this instruction to complete the 'DOWNLOAD')

Acramatic 850/950 Control

To send a "Proven" program to the computer

1) Press **Program Mgmt Button**.
2) Press **Transfer** Button.
3) Highlight the file you want to with the up/down arrows.
4) Select From **Store** then to **Line**.
5) Press **Start** Button.
6) When program is done sending wait 5 Seconds.
7) Select From **Line** then to **Store**.
8) Press **Start** Button.
9) Program #O7778 should begin loading in within 6 seconds.
10) Program O7778 verifies the program just saved.
11) Delete program O7778 after verifying.

To bring a new program into control from computer

1) Edit the O7777 call file with the file you want to receive.
2) Press Program **Mgmt Button**.
3) press **Transfer** Button.
4) Highlight the file O7777 with the up/down arrows.
5) Select From **Store** then to **Line**.
6) Press **Start** Button.
7) When program is done sending wait 5 Seconds.
8) Select From **Line** then to **Store**.
9) Highlight a Blank spot or a file to over write.
10) Press **Start** Button.
11) Your program should begin loading in within 6 seconds.

Call Program Format

```
O7777;
(0012343.10B);   (Program # Needed.)
%            (Normal end of file marker)
```

Allen Bradley Control Example 1

To send a "Proven" program to the computer

1) Press **Program Manage** button**.**
2) Highlight **Program to save.**
3) Press Copy Program.
4) Press **MEM to Port B** Button.
5) Press **Single Program** Button.
6) Arrow key to top.
7) Type in O7778 (Msg file Number).
8) Press **Copy Program** Button.
9) Press **From Port B to MEM** Button.
10) Press **Single Program** Button.
11) Program O7778 will begin loading and will verify file save status.

To bring a new program into control from computer

1) Press **Program Manage** button**.**
2) Highlight **O7777** then press **Edit Program** Button.
3) Change the comment to the file to receive then press **Exit Editor** Button.
4) Press Copy Program.
5) Press **MEM to Port B** Button.
6) Press **Single Program** Button.
7) Arrow key to top.
8) Type in new program number.
9) Press **Copy Program** Button.
10) Press **From Port B to MEM** Button.
11) Press **Single Program** Button.
12) Your program will begin loading.

Call Program Format

  O7777;
  (1000);   (Program Number Requesting)

Allen Bradley 7370 Control

To send a "Proven" program to the computer

1) Select **Keyboard** mode
2) Make sure reader switch is set for **DNC**.
3) Type: CS,CY,Program #   (Example - CS,CY,5151)
4) Press **Transmit** key.   (a bracket "]" should appear after your program #)

To bring a new program into control from computer

1) Select **Keyboard** mode
2) Make sure reader switch is set for **DNC**.
3) Edit the program #7777 to reflect below example.
4) Type: CS,CY,7777   (to send out the "Call" program)
5) Press **Transmit** key.   (a bracket "]" should appear after your program #)
6) Type: CS,TA,Program #   (Example - CS,TA,111)
7) Press **Transmit** key.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

ANILAM Control

To send a "Proven" program to the computer

1) Get the Program ready to send in eNETDNC-LT.
2) Press the **PROGRAM** soft key.
3) Press the **UTILITY** soft key.
4) Arrow to **COMMUNICATION** and press **ENTER**.
5) Press the **RECEIVE** soft key.
6) Type the New File Name to receive and press **ENTER**.
7) The File will begin to load.

To bring a new program into control from computer

1) Press the **PROGRAM** soft key.
2) Press the **UTILITY** soft key.
3) Arrow to **COMMUNICATION** and press **ENTER**.
4) Press the **SEND** soft key.
5) Type the Active file that will be sent.
6) The file will send to the computer under the Machine Name, Time, and Date sent.

Bridge Port Control

To send a "Proven" program to the computer

1)   Press the **9** Key for Utils.
2)   Press the **4** Key for Comm.
3)   Press the **2** Key to send a pgm file.
4)   Select the file to send and press **enter**.
5)   The file will send to the computer under machine number, Time and Date **Sent**.
6)   Press the **7** key to return to the Bridge Port interface.

To bring a new program into control from computer

1)   Press the **9** Key for Utils.
2)   Press the **4** Key for Comm.
3)   Press the **5** Key to Receive a pgm file.
4)   Type the file Name to receive and press **enter**.
5)   The file will begin loading shortly.
6)   Press the **7** key to return to the Bridge Port interface.

Brother Control (Old and New)

To Send A "Proven" Program To The Computer:

1) Press the **EDIT** Mode Button
2) Press the **PRGRM** Display Button
3) Press the **3** key {External Program I/O}
4) Press the {save data to computer} Button then **ENTER**
5) Press the **1** key {Program} then press **ENTER**
6) Type the File name {ex:2244} then **EDIT/START** Button.

Program Format for old Brother:

P1234Q2;(Program # and Sub Dir.)
 \
 / (Normal CNC Program)
 \
%   (Normal end of file marker)

* Note:
Old Style Brother
has 3 RS232 Ports

New Style Brother
has 1 RS232 Port

Program Format for new Brother:

(This Line Can Be a Comment);
P1234Q2;(Program # and Sub Dir.)
 \
 / (Normal CNC Program)
 \
%   (Normal end of file marker)

Brother Control – *Continued from previous page*

To bring a new program into control from computer

1) Edit the 7777 file to have the program number to receive {see Below}
2) Press the **EDIT** Mode Button
3) Press the **PRGRM** Display Button
4) Press the **3** key {External Program I/O}
5) Press the {save data to computer} Button then **ENTER**
6) Press the **1** key {Program} then press **ENTER**
7) Type "**7777**", Then press **EDIT/START** Button.
8) *** After the program is sent press **F0 F0** Button {Twice}.
9) ***Press **1** key {Program} then press **ENTER**
10) ***Type the File name {ex:2244} then **EDIT/START** Button.
     ***Optional on new Style machines

Call Program Format for old Brother:

P1234Q2;(Program # and Sub Dir.)
%   (Normal end of file marker)

Call Program Format for new Brother:

O7777;
P1234Q2;(Program # and Sub Dir.)
%   (Normal end of file marker)

Brother Machine 501 and 502 Control

To send a "Proven" program to the computer

8) Press the **EDIT** Mode Button
9) Press the **PRGRM** Display Button
10) Press the **3** key {External Program I/O}
11) Press the {save data to computer} Button then **ENTER**
12) Press the **1** key {Program} then press **ENTER**
13) Type the File name {ex:2244} then **EDIT/START** Button.

To bring a new program into control from computer

7) Edit the 7777 file to have the program number to receive {see Below}
8) Press the **EDIT** Mode Button
9) Press the **PRGRM** Display Button
10) Press the 3 key {External Program I/O}
11) Press the {save data to computer} Button then **ENTER**
12) Press the 1 key {Program} then press **ENTER**
13) Type "7777", Then press **EDIT/START** Button.
14) After the program is sent press **F0** Button **{Twice).**
15) Press 1 key {Program} then press **ENTER**
16) Type the File name {ex:2244} then **EDIT/START** Button.
    Your Program should begin loading within 6 seconds.

Call Program Format

O7777;
(Program Number Requesting)

* Note: Old Style Brother has 3 RS232 Ports
New Style Brother has 1 RS232 Port

Centurion I (Milltronics) Control

To send a "Proven" program to the computer

1) F10 (UTIL)
2) F4 (RS232)
3) F5 (SEND)
4) F7 (MENU)
5) Arrow Down to the File to Send
6) F2 (SET)
7) F1 (START)
8) F1 (BEGIN)
9) After sending hit ESC
10) F6 (RECV)
11) Type in Program #
12) Hit Enter and your Conformation File will load in.

To bring a new program into control from computer

1) Alter O7777 (Call out program)
   a. F8 (PROG.)
   b. F1 (TEXT)
   c. F7 (MENU)
   d. Arrow Down to O7777 and Hit Enter
   e. Change P# to Program Desired
   f. ESC out to beginning Menu
   g. F10 (UTIL)

2) F4 (RS232)
3) F5 (SEND)
4) F7 (MENU)
5) Arrow Down to O7777
6) F2 (SET)
7) F1 (START)
8) F1 (BEGIN)
9) After sending hit ESC
10) F6 (RECV)
11) Type in Program #
12) Hit Enter and your program will come in.

Centurion 5 (Milltronics) Control

To send a "Proven" program to the computer

1) From Main, press **F10** for the utility menu.
2) Press **F4** for the RS-232 menu.
3) Press **F6** for the receive menu.
4) Press **F1** for text and optionally type the program number.
5) Send **CNC** File to Control
6) Press **ESC** once transfer is complete.

To bring a new program into control from computer

1) Send File to CNC Control.
2) From Main, press **F10** for the utility menu.
3) Press **F4** for the RS-232 menu.
4) Press **F5** for the send menu.
5) Press **F1** for text.
6) Press **F1** to begin sending the current program or F7

DNC Commands

1) From Main, press **F10** for the utility menu.
2) Press **F6** for the DNC menu.
3) Press **F3** for fast mode of F4 for run mode.
4) Press **F1** for RS-232.
5) Send CNC File to Control
6) Press **cycle start**.

Charmilles Robo 30, 40, 280

To Bring A New Program Into Control From Computer:

1) Go to **computer** and select **machine**.
2) Select **load file** and choose the program you want to send to the machine and press **OK**. You will see program start loading.
3) Go to machine select the **EXE** screen and to the **com>**
4) Type in CPY,DNC:Program Name.Ext,MEM:Program Name.ext and hit enter.

To Send A "Proven" Program To The Computer:

1) Go to **computer** and select **machine**.
2) Select **Receive file** and type the name that you want the program to be saved under. Than go to machine and type the following
3) Got to machine and go to the EXE screen and to the **com>**
4) Type in CPY,MEM:Program Name.Ext,DNC:Program Name.ext and press **enter**.
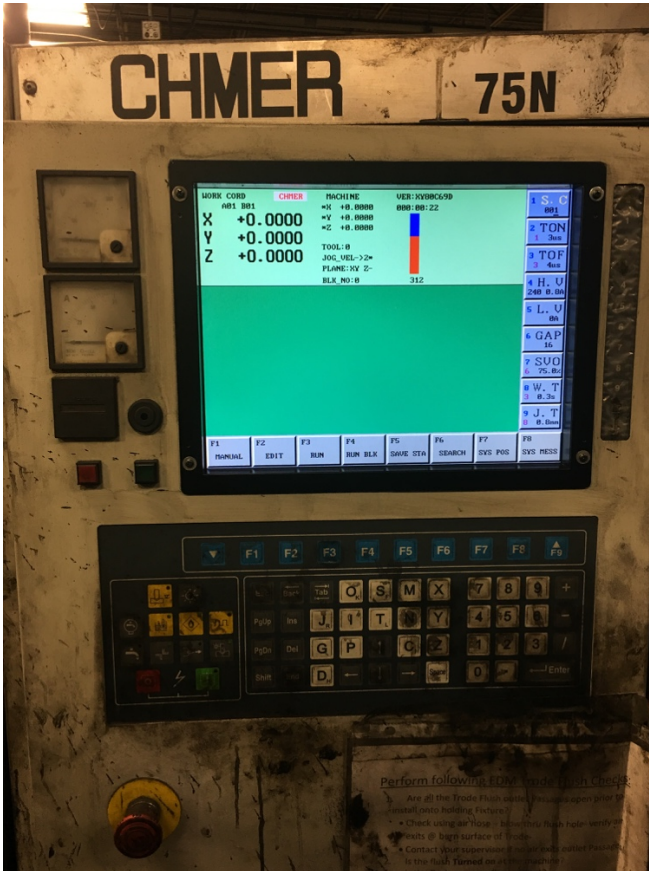5) Got to computer and select stop and program will be saved.

Chmer 75N

To Bring A New Program Into Control From Computer:

1) Unknown

To Send A "Proven" Program To The Computer:

1) Unknown

Cincinnati with BTR Control

To send a "Proven" program to the computer

1) On the E-TERMINAL (at the side of the machine) press the **ESC** key until back to Main Menu, then press the **UPLOAD** key followed by **ENT**.

2) At the machine press **TERMINATE**, (press **PGM CONT** if necessary), then **STORE**, **SEARCH**, select **O** and type in **1** (this makes searching for O1), finally press **START**. The program now is aligned.

3) Press **TERMINATE**, then **PUNCH PFG**. Make sure that RS-358 and NO TABS are selected, then press **START**.

4) At the E-TERMINAL observe the G-code program being punched (it will start with few seconds delay).

Once done, wait 2-3 seconds then press the **ESC** key on the E-TERMINAL. An OK message should show up.

then press the **DOWNLOAD** key. Type in the program name EXACTLY as it appears on the computer, then press the ENT key. Wait 2-3 seconds and press the **ENT** key again.

To bring a new program into control from computer

On the E-TERMINAL (at the side of the machine) press the **ESC** key until back to Main Menu, -code program will start scrolling on the screen. Walk to the control and observe that the red LED light flickers as the program loads from the computer into the BTR memory. Once done, in about five seconds a solid blink will indicate that the BTR received the program. On the E-TERMINAL press the ESC key.

At the CONTROL:

Press **TERMINATE** (then PGM CONT if necessary)

Press **TAPE, SEARCH**, select **O** and type in **1** (this makes searching for O1), make sure that FRWD is selected, then press **START**. 'COMMAND O00001' should appear within few seconds.

Press **TERMINATE**.

Press **LD STORE**.

Type in PROGRAM ID the press **ENTER**.

Press **START**. Program should load in.

NOTE: When the control is reading from the BTR, the red LED light flickers. If the red RESET button is pressed once (next to the red LED), the LED will blink 3 times and the program will 'rewind' to the beginning in the BTR memory.

ACTIVATE A PROGRAM

At the CONTROL:

Press TERMINATE (then PGM CONT if necessary)

Press STORE, SEARCH, PROGRAM ID. With the ADVANCE button select the required program number, type in the name again.

Press ENTER and TERMINATE. The program ID should pop in on the screen.

Cincinnati (113,118,119)

Execute a G-CODE Program from the computer:

1) Go to the DNC computer, bring up the eNETDNC program on the screen.
2) On the Tool Bar click on the 'Display all' icon – this will show all the machine names. Click on either 113,118 or 119, whichever machine needs to be run.
   A new 'Machine Window' will appear. Double check on the side of the window that the proper machine is selected. Then click on the 'LOAD 1 FILE' push button. This brings up a File Selection window. Double click on the file to be run, this will show the beginning of the program at the top half of the 'Machine Window'. Right click on an empty portion of the 'Machine Window' this will hide it – go to the machine tool and execute the program as usual.

Citizen Control

To send a "Proven" program to the computer

1) Select **EDIT**.
2) Press **I/O** Button.
3) **Arrow** down to OUTPUT and press **Input**.
4) When Output screen is up press **Input** button **3 times**.
5) **Arrow** down to the file you want to send and hit **Input 5 times**.
6) As Soon As you see Output Completed.
7) Press the **ESC** Button.
8) **Arrow** up to Input and press **Input**.
9) When Input screen is up press **Input** button **6 times**.
10) Program Number 8888 should begin loading in.
11) The 2nd Line In Program 8888 verifies the program just saved.
12) Delete program 8888.

To bring a new program into control from computer

1) Select **EDIT**
2) Edit the 7777 Program to have the Customer and part number Needed.
3) Press **I/O** Button.
4) **Arrow** down to **OUTPUT** and press **Input**.
5) When Output screen is up press **Input** button **3 times**.
6) Arrow down to the 7777 file and hit **Input 5 times**.
7) As Soon As you see Output Complete.
8) Press the **ESC** Button.
9) Arrow up to Input and press **Input**.
10) When Input screen is up press **Input** button **6 times**.
11) The program should begin loading in.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Citizen A20-A32 Fanuc Control

To send a "Proven" program to the computer

1) Select **EDIT**.
2) Press **I/O** Button.
3) Press the **OUTPUT** Soft Button.
4) Arrow down to the file you want to send and press the **Input** Button.
5) When output is Completed wait 5 seconds then go to next step.
6) Press the **Input** Soft Button.
7) Then press the **Input** Button.
8) Program Number O8888 should begin loading in.
9) The Program O8888 verifies the program just saved.
10) Delete program O8888.

To bring a new program into control from computer

1) Select **EDIT**
2) Edit the 7777 Program to have the program number needed.
3) Press the **I/O** Button.
4) Press the **OUTPUT** Soft Button.
5) Arrow down to the O7777 file and press the **Input** Button.
6) When output is Completed wait 5 seconds then go to next step.
7) Press the **Input** Soft Button.
8) Then press the **Input** Button.
9) You program should begin loading in.

Call Program Format

        7777;
        (P1234ABC);   (Program Number)
        %   (Normal end of file marker)

Citizen L16 Control

To send a "Proven" program to the computer

1) Select **Edit**.
2) Press **PROGRAM** button.
3) Type your 4-digit Program Number (Example "O1234")
4) Press **OUT** button.
5) Wait 5 Seconds then Press **IN**.
6) Your conformation file will load.
7) Delete **O8888** Conformation File.

To bring a new program into control from computer

1) Select **Edit**.
2) Press **PROGRAM** button.
3) Type **O7777** then press **Cursor Down Key**.
4) Alter "(FileName)" to (Program Number to be loaded).
5) Press **OUT** Button.
6) When Out Light quits flashing press **IN** button.
7) Your Program should begin loading within 6 seconds.

Call Program Format

O7777;
P123456 A1; (Program Number & Rev. to receive)

Citizen L20 Control

To send a "Proven" program to the computer

1) Select **EDIT**.
2) Press **I/O** Button.
3) Press **RS232C** then **OUTPUT** Soft Buttons.
4) When Output screen is up press **Input** button **3 times**.
5) Type in file you want to send and press **Input 2 times**.
6) As soon as you see Output Completed.
7) Press **Input** Soft Button.
8) When Input screen is up press **Input** button **3 times**.
9) Program Number 8888 should begin loading in.
10) The Program 8888 verifies the program just saved.
11) Delete program 8888.

To bring a new program into control from computer

1) Select **EDIT**
2) Highlight Program 7777 and press **Rename**.
3) Edit the Comment to the File to Receive.
4) Highlight Execute and press **Input**
5) Hit **I/O** Button.
6) **Press RS232C** then Press OUTPUT Soft Buttons.
7) When Output screen is up press **Input** button **3 times**.
8) Type in 7777 and hit **Input 2 times**.
9) As Soon As you see Output Complete.
10) Press **Input** Soft Button.
11) When Input screen is up press **Input** button **3 times**.
12) Your program should begin loading in.

Call Program Example

```
7777;
(1000);   (Program Number & Rev. to receive)
%             ( Normal end of file marker )
```

Deckel Maho Control

To send a "Proven" program to the computer

1) Go to ID List and select the Program to Upload.
2) Press '**Start Output'**.

To bring a new program into control from computer

1) Edit the 7777.PM Program so that the Comment has the file to Receive.
2) Go to ID List and select the 7777.PM Program.
3) Press '**Start Output**'.
4) Type the Program Number you want to Download.
5) Press '**Start Input**'.
6) Verify Program is in ID List.

To Delete a Program from the Machine:

1) Press '**Menu'**.
2) Use Right arrow key and select '**Hard Disk**', and then '**Delete File**'.
3) Select the Program from the ID List.
4) Press the '**Delete Program**' and then select '**Yes'**.

Call Program Format

%PM7777
N1 (ABCD12345)

DMG Mori Milltap 700 – (USB Communication)

To send a "Proven" program to the computer

1) Select '**MENU SELECT'** and then '**PROGRAM MANAGER**'. You may need to select until you see 'NC' / 'Local Drive' / 'USB1'.
2) Select **NC** and then '**Part Programs**'.
3) Highlight the Program(s) that you want to Send. Press the '**Select'** button inside of the arrow keys, and use the arrows and then press the '**Select'** key each time to select multiple files.
4) Press the '**COPY'** soft button.
5) Select '**USB1'** soft button.
6) Highlight the '**_ToComp_**' and press the '**Select'** button. You will see the folder icon open.
7) Press the '**PASTE'** soft button. You will see the file upload progress bar and it will then disappear. After 8-10 seconds, the 'USB1' will grey out, and then come back bold. While it is greyed out, files cannot be uploaded/downloaded, as the USB unit is refreshing.

To bring a new program into control from computer

1) Press '**USB1'** soft key.
2) Highlight the file you want to download to the machine and press the '**Select'** button..
3) Press the '**COPY'** soft button.
4) Select the '**NC'** soft button and then press the '**PASTE'** soft button. You should now see the file in the 'NC' directory.

Dynapath Control Example 1

To send a "Proven" program to the computer

1) Prog. to send needs to be Active Prog.
2) Press [**MODE SELECT**], then [**8**].
3) Type **S4**, press [**ENTER**], type **T1**, press [**ENTER**].
4) Press "**Start Operation**".
5) When done, type **S1**, press [**ENTER**], type **T4**, press [**ENTER**].
6) Press "**Start Operation**".
7) Press [**MODE SELECT**], then [**4**] (Verify that file was saved).
8) Delete 6666 file.

To bring a new program into control from computer

1) Edit Prog. 7777 to have the Prog. you want to recieve.
2) Press [**MODE SELECT**], then [**8**].
3) Type **S4**, press [**ENTER**], type **T1**, press [**ENTER**].
4) Press "**Start Operation**".
5) When done, type **S1**, press [**ENTER**], type **T4**, press [**ENTER**].
6) Press "**Start Operation**".
7) Your program will be the Active File.

Call Program Example

N00001(T)FileName$ (FileName = file to recieve)

Dynapath Delta 20 and 30

NOTE: Some Dynapath controls require wiring pins 2&3 Wired Straight Through.

To send a "Proven" program to the computer

1)   Send CNC file to CNC Control.
2)   From the main menu, select **9 (LOAD)**
3)   Press the **START LOAD** soft key

To bring a new program into control from computer

1)   From the main menu, select **C (CATALOG)**
2)   Type the name of the program
3)   Select mode **8 (RECORD)**
4)   Select mode **8 (RECORD)**
5)   Press the **START RECORD** soft key

DNC Commands

1)   Send CNC file to CNC Control.
2)   Type **RS232C** from the Catalog mode.
3)   In Load Mode choose and **R** option and **P1** for parity on.
4)   Move to Auto or Single mode and press **Cycle Start**.

NOTE: The file may not contain subroutines or repeat events.

Dynapath Delta *Autocon* Control

To bring a new program into control from computer

1) Mode Select
2) 8 (Transmit / Receive)
3) O3 (Transmit Program) ENTER
4) START OPERATION
5) O1 ENTER
6) START OPERATION
7) Program should begin loading.

Call Program Example

EDIT Program # O7777

N0001 (T) O7777$
N0002 (T) P123ABCQSUB$
N0003 (9) M30

Dyna Mechtronics 2200 – 4400

To send a "Proven" program to the computer

1) Select Line Mode and specify the starting sequence number.
2) Press the **SHIFT**, **READ/WRITE** keys.
3) Select **YES** to the **RS-232 COM** message.
4) Select **YES** to the Upload message.
5) Select **NO** to the Line Execute message.
6) Select **YES** to the start immediately to the Program Execute message.
7) Send **CNC** file to Control

NOTE: The Dyna Mechtronics control can send or receive CNC programs up to 900 lines in length. In addition the Dyna Mechtronics can DNC a CNC program with an unlimited number of lines.

DNC Commands

1) Select Line Mode and specify the starting sequence number.
2) Press the **SHIFT, READ/WRITE** keys.
3) Select **YES** to the RS-232 COM message.
4) Select **YES** to the Upload message.
5) Select **YES** to the Line Execute message.
6) Select **YES** to the start immediately to the Program Execute message.
7) Send **CNC** file to Control

NOTE: DNC mode on the Dyna Mechtronics does not support subroutines, looping and block skip commands.

Enco Control

To send a "Proven" program to the computer

3) Select **EDIT** Button.
4) Then press the "**Store Next**" Button.
5) Press the "**Int**" Button then **1 Enter**.
6) Press **Shift O**???? **Enter**.
7) Press "**Out**" Button.
8) Press **1 Enter** then **Shift O0008 Enter**
9) Press "**Imp**" Button.

To bring a new program into control from computer

5) Select **EDIT** Button.
6) Press **Shift O7777 Enter**.
7) Press "**Store Next**" Button.
8) Press "**CE**" Button.
9) Type in program # to Receive then press **Enter**.
10) Then press the "**Store Next**" Button.
11) Press the "**Int**" Button then **1 Enter**.
12) Press **Shift O7777 Enter**.
13) Press "**Out**" Button.
14) Press **1 Enter** then **Shift O???? Enter**
15) Press "**Imp**" Button.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Note: ???? = your file number to send or receive

Fadal Control Example 1

Send to CNC - Menu System:
1) Call up program 7777 Using (Program) then (Select Program).
2) Press **D** to move down to the second Line.
3) Edit the comment on the second line to the file to receive.
4) Press **9** for **Punch** then **1** to begin.
5) When done press any key to get back to the menu.
6) Press **8** for **Read** then **1** to begin.

Receive from Computer - Menu System:
1) Make sure the program to save is active.
2) Press **9** for **Punch** then **1** to **begin**.
3) When done press **any key** to get back to the menu.
4) Press **8** for **Read** then **1** to **begin**.
5) Delete the conformation file when done.

Send to CNC – Commands Mode:
1) Make sure the program to save is active.
2) Type **PU,2 ENTER** to start the Send transfer.

Receive from Computer – Commands Mode:
1) Call up program 7777 and edit the file to receive.
2) Type **PU,2 ENTER** to start the Send transfer.
3) Type **TA,1 ENTER** to start the Receive transfer.

DNC Commands:
1) Type **DNC ENTER** to start the transfer.

Fadal CNC 88, HS and MP-32

To send a "Proven" program to the computer

Type TA,1 **ENTER** to start the transfer.

NOTE: The TA,1 command can be added to the send start in the eNETDNC Configuration to automate the sending of CNC programs

To bring a new program into control from computer

Type PU,,,1 **ENTER** to start the transfer.

DNC Commands

Type **DNC ENTER** to start the transfer.

NOTE: Do not add the TA,1 command to the send start because it will cause errors on the Fadal control in DNC Mode. This Method is done by using the command prompt mode, but you can also use the Fadal menus for sending and receiving.

Fagor Control (1)

To send a "Proven" program to the computer

1) Press **OP MODE** button.
2) Press **7**: **PERIPHERALS** button.
3) Make sure DNC is off by pressing **6**.
4) Press **3: SEND** button.
5) Type Program Number to save, and then press **ENTER**.
6) Press **CONTINUE** button.
7) Press **2: RECEIVE** button.
8) Type in the new Program number and press **ENTER**.

To bring a new program into control from computer

1) Press **OP MODE** button.
2) Press **6: EDITING** button.
3) Select Program 7777 and press **ENTER**.
4) Change the Comment to desired Program.
5) Press **OP MODE** button.
6) Press **7: PERIPHERALS** button.
7) Make sure DNC is off by pressing **6: DNC**.
8) Press **3: SEND** button.
9) Type Program 7777 and press **ENTER**.
10) Press **CONTINUE** button.
11) Press **2: RECEIVE** button.
12) Type in the new Program Number and press **ENTER**.

Call Program Format

O7777;
(AB54S350)

Fagor Control (2)

To send a "Proven" program to the computer

1) Press Main Menu button.
2) Press Utilities Button.
3) Press copy then select the file to send and press enter.
4) Press "TO" then "Serial 2" then enter.

To bring a new program into control from computer

1) Press **Main Menu** button, then **Edit** button.
2) Select Program 5555 and press **enter**.
3) Edit the 4th line "PROG-PartNumber/Opp/ProgramName.ext" to the file needed.
4) Press **Main Menu** button.
5) Press **Utilities** button.
6) Press **copy** then select program 5555 and press **enter**.
7) Press "**TO**" then "**Serial 2**" then **enter**.
8) Press **copy** then "**Serial 2**", type in the new program number then press
   memory, type the same program number and press **enter**.

Call Program Format

 O7777;
 (1000);   (Program Number Requesting)

Fanuc Oi Series Control

TO SEND A "PROVEN" PROGRAM TO THE COMPUTER:

1) Select **EDIT**
2) Hit **I/O** Button
3) Press **[F Output]**
4) Type Your Fanuc Program Number ("1234"-Example)
5) Press **[O SET]** then **[EXEC]** Buttons.
6) As Soon As Output Light Quits Flashing
7) Wait 3 seconds.
8) Press **[F Input]** then **[EXEC]** Buttons.
9) Program number O8888 should begin loading in.
10) The Program O8888 verifies the program just saved.
11) Delete program O8888 by typing: "O8888" and press
    the **DEL** button.

TO CALL OUT A PROGRAM FROM THE COMPUTER:

1) Select EDIT
2) Call up Program O9999
3) Edit the N number in O9999 to the file you want.
4) Press **I/O** Button
5) Press **[F Output]**
6) Type Program Number 9999
7) Press **[O SET]** then **[EXEC]** Buttons.
8) As Soon As Output Light Quits Flashing Hit **I/O** Button
9) Wait 3 seconds
10) Press **[F Input]** then **[EXEC]** Buttons.
11) Your Program should begin loading in.

Call Program Format:

O9999;
N1000;   (Program Number Requesting)

Fanuc 0-T or 0-M Control

To send a "Proven" program to the computer

1) Select **EDIT**
2) Press **[PROGRAM]** Button
3) Type Your 4-Digit Program Number ("O1234"-Example)
4) Then Hit **[OUTPUT] – [START]** Button.
5) As Soon As Edit Light Quits Flashing
6) Wait 3 seconds then press **[INPUT]** Button.
7) Program #O8888 should begin loading in.
8) The 2nd Line In Program O8888 verifies the program just saved.
9) Delete program O8888 by typing: **O8888** & Hitting the **[DEL]** button.

To bring a new program into control from computer

1) Select **EDIT**
2) Press **[PROGRAM]** Button
3) Type **O7777** Cursor down Key to search for it.
4) Edit the comment in O7777 to the file you want.
5) Type **O7777** Then press **[OUTPUT] – [START]** Button.
6) As Soon As Edit Light Quits Flashing.
7) Wait 3 Seconds, then Hit **[INPUT]** Button.
8) Your Program should begin loading in.

Call Program Format

  O7777;
  (1000);   (Program Number Requesting)

DNC Commands:
1 Select Tape mode
2 Press Cycle Start

Fanuc 6-T or 6-M Control
- This Information is for 3-T and 3-M also.

To send a "Proven" program to the computer

1) Select **Edit**
2) Press **Program** Button
3) Type Your 4-Digit Program Number ("O1234"-Example)
4) Then press the **Punch** Button.
5) As Soon As Edit Light Quits Flashing, wait 5 seconds and then press the **Read** Button.
6) Program #O8888 should begin loading in the 2nd line verifying program saved.
7) Delete O8888 after receiving it, or it conflicts with next verify.

To bring a new program into control from computer

1) Select **Edit**
2) Press **Program** Button
3) Type "O7777" and press **Insert** Key (or Cursor Down Key to Search for it)
4) Press **EOB** Key, then edit the Comment to the file number you want loaded.
5) Press **EOB** Key, then **Insert**.   (or alter Comment to program needed)
6) Type "O7777", then press **Punch** Button.
7) As Soon As Edit Light Quits Flashing press **Read** Button.
8) Your Program should begin loading within 6 seconds.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Fanuc 6-TF Control

To send a "Proven" program to the computer

1) Select **#2 Soft Key** (EDIT THE PROCESSING PROGRAM) - From EDIT mode.
2) **Cursor** to the program you want to send ("1234" - Example)
3) Press **PUNCH** Button.
4) Press **EXEC** Button.

To bring a new program into control from computer

1) Select **EDIT MODE END** (From main CAP1 menu) - From EDIT mode.
2) **Alter the N#** in program number O7777 to Program desired as shown below.
3) Press **+** (*far right soft key*)
4) Press **PUNCH** Button.
5) Then Press **EXEC** Button.
6) As soon as "Output" quits flashing hit **Far left < soft key .**
7) Press **CAP1** soft key.
8) Press **READ** soft key.
9) Press **EXEC** soft key.
10) The Program should begin loading within 6 seconds.

Call Program Format

  O7777;
  (1000);   (Program Number Requesting)

Fanuc 10-T or 10-M Control
- This Information is also for M1, M3, 11 & 15-T and 11 & 15-M

To send a "Proven" program to the computer

1) Select **EDIT**
2) Press **PROGRAM** Button
3) Type Your Fanuc Program Number ("O1234"-Example)
4) Press **PUNCH -THIS** Button.
5) As Soon As Edit Light Quits Flashing, press **READ - ALL** Button.
6) Program #O8888 should begin loading within 6 seconds.
7) The 2nd Line In Program O8888 verifies the program just saved.
8) Delete program O8888 by typing: "O8888" press the **DEL** button.

To bring a new program into control from computer

1) Select **EDIT**
2) Press **PROGRAM** Button
3) Type Your Fanuc Program Number ("O7777"-Example)
4) Press **PUNCH -THIS** Button.
5) As Soon As Edit Light Quits Flashing Hit **READ - ALL** Button.
6) The Program should begin loading within 6 seconds.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Fanuc 15-T or 15-M Control

To Send A "Proven" Program To The Computer:

1) Go to the eTerminal and Press Download button.
2) Type in the file name you want and press **ENT** key.
3) On the CNC Select **EDIT** and turn on the edit key.
4) Press the right arrow key below the monitor.
5) Until you see the Punch and Read buttons.
6) Press **READ** then **All** Buttons.
7) The Program should begin loading in.

To Bring A New Program Into Control From Computer:

1) Go to the eTerminal and Press Upload button.
2) Press **ENT** key on the eTerminal.
3) On the CNC Select **EDIT**.
4) Press the right arrow key below the monitor.
5) Until you see the Punch and Read buttons.
6) Hit **PUNCH - THIS** Buttons on the CNC.
7) When the program is done sending.
8) Go to the eTerminal and press **ESC** key
9) The REC GOOD or BAD message will come in.

Fanuc 16-T / 16-M, MSC-518 & MSC (MSX) -850 Control
- This Information is for 18 & 21-T and 18 & 21-M also.

To send a "Proven" program to the computer

1) Select **EDIT**
2) Press **PROGRAM** Button
3) Type Your Fanuc Program Number ("O1234"-Example)
4) Press **PUNCH - EXEC** Buttons.
5) As Soon As Output Light Quits Flashing Press **STOP**
6) Wait 3 seconds then Press **READ - EXEC** Buttons.
7) Program number O8888 should begin loading in.
8) The 2nd Line in Program O8888 verifies the program just saved.
9) Delete program O8888 by typing: "O8888" press the **DEL** button.

To bring a new program into control from computer

1) Select **EDIT**
2) Call up Program O7777
3) Edit the comment in O7777 to the file you want.
4) Press **PUNCH - EXEC** Buttons.
5) As Soon As Edit Light Quits Flashing press **STOP**
6) Wait 3 seconds then Press **READ - EXEC** Buttons.
7) The Program should begin loading in.

Call Program Format

 O7777;
 (1000);   (Program Number Requesting)

Fanuc 16i/18i Series Control (Serial Communications)

To send a "Proven" program to the computer

1) Select **EDIT**
2) Press **PROGRAM** Button
3) Type Your Fanuc Program Number ("O1234"-Example)
4) Press **PUNCH - EXEC** Buttons.
5) As Soon As Output Light Quits Flashing press **STOP**
6) Wait 3 seconds then Press **READ - EXEC** Buttons.
7) Program number O6666 should begin loading in.
8) The 2nd Line in Program O6666 verifies the program just saved.
9) Delete program O6666 by typing: "O6666" & Hitting the DEL button.

To bring a new program into control from computer

1) Select **EDIT**
2) Call up Program O7777
3) Edit the comment in O7777 to the file you want.
4) Press **PUNCH - EXEC** Buttons.
5) As Soon As Edit Light Quits Flashing press **STOP**
6) Wait 3 seconds then press **READ - EXEC** Buttons.
7) The Program should begin loading in.

Call Program Format:

```
O7777;
(1000);     ( Program Number Requesting )
```

Fanuc 18i or 21i (FTP Communications)

TO CALL OUT A PROGRAM FROM THE COMPUTER:

1) Go to **EDIT**, Press the **PROGRAM** hard key
2) Press the right arrow soft key till you see **HOST** and **CONNECT**
3) Press the **HOST** soft key
4) Press the **OPRT** soft key
5) Press the **EMBEDD** soft key, search should be flashing in the lower left corner of the screen
6) To download a program, Press the right arrow soft key till you see **READ** and **PUNCH**
7) Type in the number on the left of the screen that corresponds to the program that you want to download, you do not have to type the 0's. EX: 0001 is 1
8) Press **READ** soft key, then the **EXEC** soft key.

TO SEND A "PROVEN" PROGRAM TO THE COMPUTER:

1) Go to **EDIT**, Press the **PROGRAM** hard key
2) Type in the program name EX: O1234 and press **PUNCH** soft key, and **EXEC** soft key

Fanuc 31 Series Control (Serial Communications)

To bring a new program into control from computer

Call up Call Program 7777.
In the program (1234) enter the file name you want to receive.

1) Press **DIR** Button
2) Press the **OPERATOR** Button
3) Press **F OUTPUT**
4) Type O7777
5) Press **Execute** Button
6) Press **DIR** Button
7) Press (**OPRT**)Button then F-Input.
8) Press **Execute** Button

To send a "Proven" program to the computer

1) Press **DIR** Button
2) Type in (O1234) program number
3) Press **F-Output**
4) Press **Execute** Button
5) Press **DIR** Button
6) Press (**OPRT**)Button then **F-Input**.
7) Press **Execute** Button

Call Program Format:

O7777;
(1000);   (Program Number Requesting)

Fanuc 30i, 31i, 32i Style (FTP Communications)

To Send A "Proven" Program To The Computer:

1) Go to **EDIT** mode and then go to your Directory
2) Type in the file to save "EX:1234" then press **PSet** then Execute.

To Bring A New Program Into Control From Computer:

1) Go to **EDIT** mode and then go to your Directory
2) Press **Change Device** and select **Ethernet**.
3) Cursor to the file to save "EX:1234" then press FGet then press FSet then Execute.
4) The file will load in to the CNC Memory.
5) Press **Change Device** and select **CNC Memory**.

Fanuc 310i Series Control

To send a "Proven" program to the computer

1) Select **EDIT**
2) Press **PROGRAM** Button
3) Type Your Fanuc Program Number ("O1234"-Example)
4) Press **[PUNCH]** then **[P SET]** then **[EXEC]** Buttons.
5) As Soon As Output Light Quits Flashing press **STOP**
6) Wait 3 seconds then press **[READ]** – **[EXEC]** Buttons.
7) Program number O6666 should begin loading in.
8) The 2nd Line in Program O6666 verifies the program just saved.
9) Delete program O6666 by typing: "O6666", and press the **DEL** button.

To bring a new program into control from computer

1) Select **EDIT**
2) Call up Program O7777
3) Edit the comment in O7777 to the file you want.
4) Press **[PUNCH]** then **[P SET]** then **[EXEC]** Buttons.
5) As Soon As Edit Light Quits Flashing press **STOP**
6) Wait 3 seconds then press **READ - EXEC** Buttons.
7) The Program should begin loading in.

Call Program Format:

O7777;
(1000);   (Program Number Requesting)

Fanuc New Style FTP (i Series, etc)

To send a "Proven" program to the computer

1) Go to **EDIT** mode and then go to your Directory
2) Type in the file to save "EX:O1234" then press **PSet** then **Execute**.

To bring a new program into control from computer

1) Go to **EDIT** mode and then go to your Directory
2) Press **Change Device** and select **Ethernet**.
3) Cursor to the file to save "EX:O1234" then press **FGet** then press **FSet** then **Execute**.
4) The file will load in to the CNC memoy.
5) Press **Change Device** and select **CNC Memory**.

Fanuc Lathe

To Bring A New Program Into Control From Computer:

1) Put CNC in **EDIT** Mode**.**
2) Hit **PROG** Button
3) Highlight "**O0123**" & Hit Edit Button.
4) Change the "P**1234**" (N=Program Number to be loaded)
5) Hit the **Alter** Key. Press **List** Button.
6) Highlight "**O1234**", Then Press **Punch** Button.
7) Press **1** Button, press Left Softkey then Right Softkey.
8) Press **Read** Button, Your Program should begin loading in within 6 seconds.

Call Program Format:

O0123 P1234; (Program #)

To Send A "Proven" Program To The Computer:

1) Put CNC in **EDIT** Mode**.**
2) Hit **PROG** Button Press Right Softkey.
3) Type program # to send EX: O0001, Then Press **Punch** Button.
4) Press **1** Button, File will be Outputted.

5) Optional Check
6) Press Left Softkey then Right Softkey.
7) Wait 3 Seconds, Press **Read** Button.
8) Program #O8888 should loading in.
9) The Comment shows if the file was saved.
10) Delete program O8888 by typing: "**O8888**" & Hitting the **DEL** button.

Fanuc MSC518 or MFT8 Control

TO SEND A "PROVEN" PROGRAM TO THE COMPUTER:

1) Select **EDIT**.
2) Hit **PROGRAM** Button.
3) Type Your Fanuc Program Number ("O1234"-Example).
4) Hit **PUNCH - EXEC** Buttons.
5) As Soon As Output Light Quits Flashing Hit **STOP**.
6) Wait 5 Seconds then press **READ - EXEC** Buttons.
7) Program #O6666 should begin loading in.
8) The 2nd Line In Program O6666 verifies the program just saved.
9) Delete program **O6666** by typing: "O6666" & Hitting the **DEL** button.

TO CALL OUT A PROGRAM FROM THE COMPUTER:

1) Select **EDIT**.
2) Hit **PROGRAM** Button.
3) Type Your Fanuc Program Number **O7777**.
4) Alter The P Number to the file you want to receive "EX = P1234"
5) Hit **PUNCH - EXEC** Buttons.
6) As Soon As Edit Light Quits Flashing Hit **STOP**.
7) Press **READ - EXEC** Buttons.
8) The Program should begin loading in within 6 seconds.

<div align="center">Call Program Format:</div>

O7777;
P1234;   (Customer - Partnumber)
%   (Normal end of file marker)

Fanuc MSD-501, 516 Control

To send a "Proven" program to the computer

1)   Select **EDIT** and press the **PROGRAM** button.
2)   Press **'<'**, press **CAP-I**, press **2**, select the program to be punched and press PUNCH. The program should go out.
3)   Press **'<'** and END. Press **READ** from the menu, followed by **EXEC**.
4)   Program O6666 should load. O6666 verifies the program just saved.
5)   After reading the message, delete program O6666.

To bring a new program into control from computer

1)   Select **EDIT** and press the **PROGRAM** button.
2)   Call up program O9999
3)   Edit the program to the following format:

O9999
(O1234);

Where: O1234 is the required program.
Make sure O (letter) is there

---

4)   Find **PUNCH** on the menu, press it and press **EXEC**.
5)   Press **'<'**, press **CAP-I**, press **2** and **READ**. The requested program should load.

Fanuc MSG-501 Control

To send a "Proven" program to the computer

1) Select **EDIT**
2) Press **PROGRAM LIST**, cursor down to program to be uploaded.
3) Press '**>', PUNCH**, **EXEC**
4) Wait until program punches out. Wait 2 seconds. Press READ.
5) Program O6666 should load. O6666 verifies the program just saved.
6) After reading the message, delete program O6666.

To bring a new program into control from computer

1) Select **EDIT**
2) Type 1 and press '**O'-Search**
3) Edit the program to the following format:

O0001(PROGRAMNAME);
        Where: PROGRAMNAME is the required program

---

4) Press **PROGRAM LIST**, cursor to O0001
5) Press '**>**', **PUNCH**, **EXEC**
6) Press **READ**. The requested program should load.

G & L machines

To send a "Proven" program to the computer

Make sure that default device is set to Com1:

1) Press black **PUNCH** key. Make sure that SINGLE is highlighted.
2) Type in:
    COM1:PROGRAMNAME
Where PROGRAMNAME is the program to be uploaded. Press S1 to Begin Output.

3) After TRNSFER IS COMPLETE message press black LOAD/DELETE key.

Type in:
    COM1:
    and press **S1** to Begin Load.

O8888 message should appear - read the result by pressing the black EDIT key. If ERROR message appears, repeat procedure from Step 1). If no message appears, press S6 to Abort, and go to Step 1).

To bring a new program into control from computer

Make sure that default device is set to Com1:

1) Press black **EDIT** key, type in:
    O7777
    And press S3 to Edit Program
2) Place cursor on second line and press **S3** to Replace Block. Correct line so it looks like: (NAME-PROGRAMNAME) where PROGRAMNAME is the program to be downloaded (example: 705HB) Press S3 again, and S8 to exit editor.

Press black **PUNCH** key. Type in:
    O7777
    And press **S1** to Begin Output.
3) After TRNSFER IS COMPLETE message press black **LOAD/DELETE** key. Type in:
    COM1:
    And press **S1** to Begin Load.

Program name should pop up – wait until TRANSFER COMPLETE message. If name doesn't pop up, press S6 to Abort and go to Step 3

HAAS Control

To send a "Proven" program to the computer

1) Press the **LIST PROG** key.
2) Highlight Program Number to send.
3) Press the **SEND RS-232** key.
4) As Soon As Output is Done then Wait 3 Seconds.
5) Select the **ALL** option (By pressing **END** Key).
6) Press the **RECV RS-232** key.
7) Program #O8888 should begin loading in.
8) The 2nd Line In Program. O8888 verifies the program just saved.

To bring a new program into control from computer

1) Press the **LIST PROG** key.
2) Highlight Program Number O7777.
3) Edit the Comment to the file you want.
4) Press the **LIST PROG** key.
5) Press the **SEND RS-232** key.
6) When Output is Done.
7) Wait 3 Seconds then Select the **ALL** option (By pressing END Key).
8) Press the **RECV RS-232** key.
9) The Program should begin loading in.

Call Program Format

O7777;
(xxxxx);   (Program Number Requesting)

Heidenhein Control Example 1

To send a "Proven" program to the computer

1) Select **EDIT** button.

2) Press the **EXT** button.

3) On the left side make sure that the program number to be sent back is highlighted.
   At the bottom of the screen press the **TNC->EXT** button. The program will be sent.

To bring a new program into control from computer

1) Select **EDIT** button.
2) Press the **EXT** button.
3) Move the selection to the right side of the screen with the (right arrow) key. Type in
   the program number to be received and press the **ENTER** key.

Heidenhain Control on Polaris EDM Machine

Prerequisite for the Heidenhain control IF using an eTerminal/Monitoring:

-In the eNETDNC software, Go to 'Settings' – 'DNC eHUB/xlConnect', and change the 'Handshake' from Xon/Xoff to Heidenhain. Then press the OK button. Then, on the Heidenhain control, unplug the eTerminal MCH and COMP ports and jumper them with an RJ45 coupler…this bypasses the eTerminal.
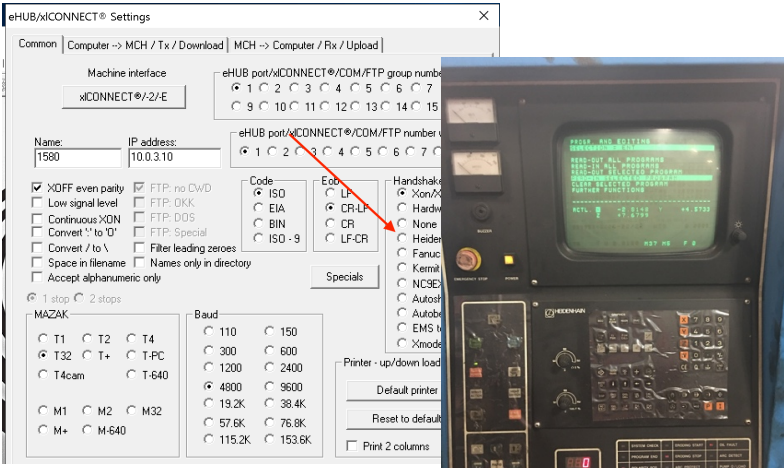
If not using an eTerminal, continue to next page:

To send a "Proven" program to the computer

4)   Select **EDIT** button.

5)   Press the **EXT** button.   (If unable to get here, press the 'END' button).
6)   Press '**READ OUT SELECTED PROGRAM**'
7)   On the eTerminal, press the **UPLOAD** button (or Option 1) and then the **ENTER** key.
8)   On the control, press the **ENTER** key, then select the program and press the **ENTER** key again.

To bring a new program into control from computer

3)   Select **EDIT** button.
4)   Press the **EXT** button. (If unable to get here, press the 'END' button).
4)   On the eTerminal, press the **DOWNLOAD** button (or Option 2), and then type the Program number you want to download to the machine, then press the **ENTER** key. This will queue the program to be downloaded in the eNETDNC software.
5)   On the control, select '**READ IN SELECTED PROGRAM**', and then press the **ENTER** key.

Once DNC is completed, change the 'Handshake' from Heidenhain BACK to Xon/Xoff…this is required so that the Monitoring will function correctly. Then, remove coupler from eTerminal. If the eTerminal does not power on, swap the two cables. It gets the power through the COMP port (far right).

(This may possibly be updated in a future eTerminal firmware update).

Heidenhein IT Control

To send a "Proven" program to the computer

1) Press the "**F4-Control**" key until you see Output/Input.
2) Press **Output/Input** key.
3) Under "**Select Device**", make sure that Device1 is selected
4) Press "**ID List**" key and select the program you want to save.
5) Press "**Start Output**" key.

To bring a new program into control from computer

1) Press "**F3-Program**" key until you see "File Management".
2) Press "**File Management**" key.
3) Select 5555 and press **enter**.
4) Edit the comment to the file you want to receive.
5) Press "**Save on Disk**" key then "**Edit Exit**" key.
6) Press the "**F4-Control**" key until you see Output/Input.
7) Press **Output/Input** key.
8) Under "**Select Device**", make sure that Device1 is selected
9) Press "ID List" key and select program 5555.
10) Press "**Start Output**" key.
11) Type in new program name and press "**Start Input**" key.

Heidenhein TNC530 Control

To send a "Proven" program to the computer

1) Press **program editing** key.
2) Press **PGM-MGT** key.
3) Press Window key "Note: Make sure to have your directory on the left and RS232 on the right.
4) Select the program you want to save and press **Copy** then **Execute** key.

To bring a new program into control from computer

1) Press **program editing** key.
2) Press **PGM-MGT** key.
3) Go to program 5555 and press enter.
4) Edit line #2 PROG-PartNumber/Opp/ProgramName.ext to file to receive.
5) Press **PGM-MGT** key.
6) Press **Window** key "Note: Make sure to have your directory on the left and RS232 on the right.
7) Select program 5555 and press **Copy** then **Execute** key.
8) Arrow over to RS232 side and press **copy** then arrow to end of the file path and type in the new file name, Then press **Execute** key.

Hitachi Seiki Controls: (SEICOS-2)

To send a "Proven" program to the computer

1) Select **Edit**
2) Press **Program** Button
3) Press "**OUT**" Key
4) Type Your 4-Digit Program Number ("O1234"-Example)
5) Then Press **Input** Button.

To bring a new program into control from computer

1) Select **Edit**
2) Press **Program** Button
3) Press **F5** (**Edit**) Key
4) Type "O7777" & press **Insert Key** (or Cursor Down Key to Search for it)
5) Press **EOB** Key, then "**N12345678**" (8 digit Part Number To Be Loaded)
6) Press **EOB** Key, then **Insert**.   (or alter 8-digit "N" Number as needed)
7) Select "**OUT**" Key.
8) Type "O7777", then press **Input** Button.
9) As Soon As Screen Says Finish Hit **F6** - "**IN**" Button, then **Input** Key.
10) Your Program should begin loading within 6 seconds.

Call Program Format

 O7777;
 (1000);   (Program Number Requesting)

Hitachi Seiki Controls (SEICOS-10M)

To send a "Proven" program to the computer

1) Press "**IN/OUT**" Button.
2) Type Program Number to send then press **Output** Button.
3) When Done wait 5 Seconds then press **Input** Button.
4) Program #O8888 should begin loading within 6 seconds.
5) The 2nd Line In Program O8888 verifies the program just saved.
6) Delete program O8888.

To bring a new program into control from computer

1) Select **Edit**.
2) Edit Program "O7777".
3) Change Comment to the file you want EX:(14765-7.SC).
4) Press "**IN/OUT**" Button.
5) Type 7777 then press **Output** Button.
6) When done press **Input** Button.
7) Your Program should begin loading within 6 seconds.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Hitachi Seiki Controls (SEICOS-Lathe)

To send a "Proven" program to the computer

1) Select **Edit** Mode.
2) Press **Editing** Button.
3) Highlight "**OUT**" Screen and press **Input**, then **Yes**.
4) Type Your 4-Digit Program Number ("1234"-Example).
5) Then press **Input** Button.
6) As Soon As file is done sending press "**END**" Key.
7) Highlight "Input" Screen and press **Input**, then **Yes**.
8) Type 7778 and press **Input** Twice.
9) Program #O7778 should begin loading within 6 seconds.
10) The 2nd Line in Program O7778 verifies the program just saved.
11) Delete program O7778.

To bring a new program into control from computer

1) Select **Edit**.
2) Press "**Program NO. Edit**" Button.
3) Type "7777" & press **Input** Key.
4) Then Change Comment to the file you want EX:(14765-7.SC).
5) Press **Editing** Button.
6) Highlight "OUT" Screen and press **Input**, then **Yes**.
7) Type 7777 Then press **Input** Button.
8) As Soon As file is done sending press "**END**" Key.
9) Highlight "Input" Screen and press **Input**, then **Yes**.
10) Type File number and press **Input** Twice.
11) Your Program should begin loading within 6 seconds.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Hitachi Seiki Controls (SEICOS-Lathe) Conversational-Side

TO SEND A "PROVEN" PROGRAM TO THE COMPUTER

1) Press **F3** (for Operation).
2) Press **F7** (for Editing).
3) Press **Input** to select (NC Program Punch Out).
4) Press **F1** (for Yes).
5) Type Your 4-Digit Program Number to Save ("1234"-Example).
6) Then press **Input** button.
7) Press **F9** (for End).
8) **Arrow** up once to (NC Program Input) and press **Input** button.
9) Press **F1** (for Yes)
10) Type **7778** and press **Input** twice.
11) Program #O7778 should begin loading in.
12) The Program O7778 verifies the program just saved.
13) Delete program O7778 by typing **7778** and pressing **Del** Button.

TO BRING A NEW PROGRAM INTO CONTROL FROM THE COMPUTER

1) Press **F3** (for Operation).
2) Press **F7** (for Editing).
3) **Arrow** up to Background Editing and press **Input** button.
4) Press F6 (Prog. No. Edit) then Type **7777** and Press **Input** button.
5) Edit comment on second line to the program # you want to receive.
6) Press **F9** (for End).
7) **Arrow** down to (NC Program Punch Out) and press **Input** button.
8) Press **F1** (for Yes).
9) Type program number 7777 and press **Input** button.
10) Press **F9** (for End).
11) **Arrow** up once to (NC Program Input) and press **Input** button.
12) Press **F1** (for Yes)
13) Type your new program # to receive and press **Input** twice.
14) Your Program should begin loading in.

Hurco Control

To send a "Proven" program to the computer

1) Have the Program you want to send as the Active Program.
2) Press **AUXILIARY** button.
3) Press **DOWNLOAD/UPLOAD** button.
4) Press **DOWNLOAD SEND** button.
5) Press **SERIAL PORT 1** button.
6) Wait until you see (**NC Part Program Written**).
7) Press **UPLOAD/RECEIVE** button.
8) Press **SERIAL PORT 1** button.
9) Press **YES** button.
10) Press **REVIEW** to see if the file was saved.

To bring a new program into control from computer

1) Press **AUXILIARY** button.
2) Press **STORAGE FUNCTION** button.
3) Press **READ Program from Disk** button.
4) Cursor to the DNC File and press **ENTER**.
5) Press **REVIEW** button.
6) Edit the Comment to the file to Receive.
7) Press **AUXILIARY** button.
8) Press **DOWNLOAD/UPLOAD** button.
9) Press **DOWNLOAD SEND** button.
10) Press **SERIAL PORT 1** button.
11) Wait until you see NC Part Program Written.
12) Press **UPLOAD/RECEIVE** button.
13) Press **Serial Port 1** button.
14) Press **YES** button.
15) Press **REVIEW** to see the file you just loaded.

Call Program Format

O7777;
(1234567);   (Program Number Requesting)

K&T GEMINI-C Control

To send a "Proven" program to the computer

11) Set Mode Select Switch to **MANUAL**
12) Set Readout MDI to **MEM ACCESS**
13) Set Punch Code to **ASCII**
14) Set Program to **MEM**
15) Type in PP,O1234   (For File #O1234 on Disk Drive) & Transmit Key
16) Turn The Punch Switch to **PUNCH**
17) When screen says ready your program is saved in the computer

To bring a new program into control from computer

16) Set Mode Select Switch to **MANUAL**
17) Set Readout MDI to **MEM ACCESS**
18) Set Punch Code to **ASCII**
19) Set Program to **MEM**
20) Type in PP,O7777   (For File #O7777 on Disk Drive) & Transmit Key
21) Turn The Punch Switch to **PUNCH**
22) Wait for the screen to say READY
23) Set Program to **LOAD**
24) Type in LD,Part Name then press Transmit Key
25) When screen says ready your program is loaded

Call Program Format

 O7777;
 (1000);   (Program Number Requesting)

K&T GEMINI-D Control

To send a "Proven" program to the computer

1) Press **SELECT** Button
2) Type F   (For File Handler)
3) Enter Command Number: 1   (For Copy) & Enter Key
4) Original File: 20700-1/6   (For File #20700-1 on Disk Drive) & Enter Key
5) Copy File: 20700-1/14   (For File #20700-1 to Serial Punch) & Enter Key
6) (Ascii=0 Eia=1): 0   (For Ascii)
7) Press **Enter** Key.

To bring a new program into control from computer

1) Press it **SELECT** Button
2) Type F   (For File Handler)
3) Enter Command Number: 1   (For Copy) & Enter Key
4) Original File: O7777/6   (For File #O7777 on Disk Drive) & Enter Key
5) Copy File: O7777/14   (For File #O7777 to Serial Punch) & Enter Key
6) (Ascii=0 Eia=1): 0   (For Ascii)
7) Press **Enter** Key.
8) Enter Command Number: 1   (For Copy) & Enter Key
9) Original File: /1   (For File at Tape Reader) & Enter Key
10) Copy File: /6   (Copy To Disk Drive) & Enter Key

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Leadwell Control

To bring a new program into control from computer

1) Press program source "**AUTO**".
2) Press "**RESET**".
3) Press program source "**EDIT**".
4) Press "**RESET**".
5) Press the letter "**O**".
6) Press "**7777**".
7) Press cursor "**DOWN**".
8) Modify P_____ = Program Number & Q_____ = SUB Directory.
9) Press "**ALTER**".
10) Press the letter "**O**".
11) Press "**7777**".
12) Press "**OUTPUT START**". Wait for "output" to Stop flashing.
13) Enter "**INPUT**".
14) Press "**RESET**".
15) Press "**PRGRM**".
16) Press Program source "**AUTO**".
17) Press "**RESET**"

Makino Edge 2 Control

To Bring a new Program into control from Computer:

1) Get the Program ready to send in eNETDNC-LT.
2) Press the EDIT key.
3) Type the new File Name to receive and press TAPE INPUT.

To Send a "Proven" Program to the Computer:

1) Press the EDIT key.
2) Type the File Name to send and press TAPE OUTPUT.
3) The file will send to the computer under the machine Name, Time, and Date sent.

Makino Pro 5 Control

To send a "Proven" program to the computer

1) Activate the "CNC Screen Display" down on the start bar
      i. If not active start from windows Start button.
2) Select **EDITOR** CNC Screen side.
3) Hit **PROGRAM** Button until Directory shows.
4) Hit **OPRT** Button then + Button.
5) Type Your Fanuc Program Number ("O1234"-Example).
6) Hit **PUNCH** Button then **EXEC** Buttons.
      i. ***Note:** On some Pro 5 Controls
      ii. You need to type in the Program Number
      iii. Then Hit **P SET** then type in the Program Number again.
7) As Soon As Output Light Quits Flashing.
8) Wait 5 Seconds then press **READ** Button then **EXEC** Buttons.
9) Program **O7778** should begin loading in.
10) Program **O7778** verifies the program just saved.
11) Delete program **O7778** after verifying.

To bring a new program into control from computer

1) Activate the "Professional 5 Display" down on the start bar
2) Hit **PROGRAM** Button.
3) Type O7777 then press **O-Search**.
4) Edit the Comment to the file you want. - Ex:00445122.10A
5) Activate the "CNC Screen Display" down on the start bar
      i. If not active start from windows Start button.
6) Hit **PROGRAM** Button until Directory shows.
7) Type Your Fanuc Program Number O7777.
8) Hit **OPRT** Button then + Button.
9) Type Your Fanuc Program Number ("O1234"-Example).
10) Hit **PUNCH** Button then **EXEC** Buttons.
      i. ***Note:** On some Pro 5 Controls
      ii. You need to type in the Program Number
      iii. Then Hit **P SET** then type in the Program Number again.
11) As Soon As Output Light Quits Flashing.
12) Wait 5 Seconds then press **READ** Button then **EXEC** Buttons.
13) Your Program should begin loading.

Call Program Format

O7777;
(FileName); - Ex:00123552.10A

Makino Professional 5 Control

To send a "Proven" program to the computer

NOTE: if this is the first time going to the Makino 'Datacenter', press:
-Next, press the far right UP arrow
-Next, press the 'Connect to Hosts' button.

Standard Operations

1) On the Left-hand window, select '**CNC Memory Library**'.
2) Select a File to Copy.
3) Press far right **UP** arrow.
4) Press '**FILE OPEN**'.
5) Press '**COPY**'.
6) On the Left-hand window, select '**Internal Card: _Temp Space**'.
7) Press '**PASTE**'.
8) Press '**EXECUTE**'.
9) Select the same file in '**_Temp Space**'.
10) Press '**COPY**'.
11) On the Left-hand window scroll down and select '**ENET DNC**'.
12) Press '**PASTE**'.
13) Press '**EXECUTE**'.

To bring a new program into control from computer

Follow previous steps to Standard Operations.

1) On the Left-hand window, scroll down and select '**ENET DNC**'.
2) Select File to Download.
3) Press ⬆ until you see 'FILE OPEN' and select it.
4) Press '**COPY**'.
5) On Left-hand window, scroll to '**_Temp Space**'.
6) Press '**PASTE**'.
7) Press '**EXECUTE**'.
8) Copy file from '**_Temp Space**' to Library.

Mazak Control

To Bring G-CODE Program(s) Into Control From Computer:

1) Find and press **PROGRAM** key, then press **WORKNUMBER** key, type in 5555 and press the **INPUT** key.
2) Edit the program to the following format:
    1. (1234)
    2. Where 1234 is the required program number, then exit the editor.
3) Find and select **DATA I/O** and press it.
4) Press **TAPE I/O**, press the menu key **SAVE NC-TAPE.**
5) Type in 5555 and **INPUT**, then press the menu key **START** – this will output work number 5555.
    A) IF OPERATING FROM THE COMPUTER, THE PROGRAM IS READY – EXECUTE THE NECESSARY OPERATION ON THE MACHINE TO START RUNNING THE MACHINE
    B) LOADING TO MEMORY
6) Upon completion of data transfer wait a second, press **LOAD TAPE->NC**, type in work number to be received followed by the input key then the menu key **START**.

To Send G-CODE Program(s) To The Computer:

1) Find and select DATA I/O and press it.
2) Press TAPE I/O, press the menu key SAVE NCTAPE.
3) Enter the work number(s) to be saved and press INPUT.
4) Press the menu key START.
5) Upon completion of data transfer, wait 2 seconds, press the menu key at LOAD TAPENC. Program O6666 should show up verifying the success or failure of the operation.

Mazak 3T, 32T Control

To send a "Proven" program to the computer

1) Press the **DATA I/O** button.
2) Press **CMT I/O**, followed by **SAVE NC®CMT**.
3) Type in WORK NUMBER to be saved followed by the **INPUT** key, then menu key **START**.
4) Upon completion of data transfer wait 2 seconds, press the menu key **CONTENT CMT**, press the menu key at **START**.
5) This will list the just uploaded program
6) Press the menu key at **COMPARE**.
7) Press the menu key at **START**. File should compare with no error message.
   i. In case of ERROR message go to step 2)

Major steps: Save Work Number->CMT Content->Compare

To bring a new Mazatrol program into control from computer

Edit Work No. 7777 (Call Program) NAME field as follows:
1) Press **PROGRAMS** followed by **PROGRAM FILE**
2) With the down arrow key bring selection to Work Number 7777NAME field
3) Type in the desired WORK NUMBER. Example:
   i. 1503
   ii. (Make sure that there is no space after the last character)
   iii. and press the INPUT key

4) Press the **DATA I/O** button.
5) Press **CMT I/O**, followed by **SAVE NC®CMT**.
6) Type in 7777 and press **INPUT**, then press the **menu** key **START**.
7) Upon completion of data transfer wait 2 seconds, press the menu key **CONTENT CMT**, press the **menu** key at **START**. This will list the requested programs
8) Press the menu key LOAD CMT®NC, press the menu key START.

   Major steps: EDIT 7777 NAME FIELD->SAVE 7777->CMT CONTENT->LOAD

Mazak QTN450 Control – USB

To send a "Proven" program to the computer

1) Press **DATA I/O**.
2) Press **USB.**
3) Press **NC -> USB**.
4) Press **DIR.SELECT**.
5) Select **'_ToComp_'** and then **INPUT**, or select **OK**.
6) Press **START**. You should now see the program(s) populate in the list on the right.

To bring a new program into control from computer

1) Press **DATA I/O**.
2) Press **USB**
3) Press **NC <- USB**.
4) Press **USB DRIVE SELECT**.
   (The reason you must do this is because the drive letter can change since our device refreshes every time a transmission takes place).
5) Press **DIR.SELECT**.
6) Select the Directory you want to pull the files from (Most likely 'Computer to Machine').
7) Select **OK**
8) Press **START**. You should now see the program(s) populate the list on the left.

Mazatrol Control

To send a "Proven" Mazatrol program to the computer

1) Press the far left button to call up the menu containing **DATA I/O**.
2) Press the menu key **DATA I/O**.
3) Press the menu key **CMT I/O**.
4) Press the menu key **SAVE NC→CMT**.
5) Selecting the program to be saved and press input.
6) Press the menu key **START**.

To bring a new Mazatrol program into control from computer

1) Edit Work No. 7778 (Call Program) as follows:
2) Enter or alter comment (name input) to program desired.
3) Press the far **left** button to call up the menu containing **DATA I/O**.
4) Press the menu key **DATA I/O**.
5) Press the menu key **CMT I/O**.
6) Press the menu key **SAVE NC→CMT**.
7) Selecting program 7778 and press input.
8) Press the menu key **START**.
9) Upon completion of data transfer.
10) Press **CMT Contents**, and wait for work number to show up.
11) Press the menu key at **LOAD CMT→NC**.
12) Press the menu key at **START**.

To send a "Proven" G code program to the computer

1) Press **Green** - Furthest Left Button
2) Press **I/O** Button
3) Press **Tape I/O** Button
4) Press **Punch NC-Tape** Button
5) Type in File to send & Press **Input** Button
6) Press **Start** Button.
7) As Soon As Start Light Goes Out Hit All-Load Button

To bring a new G-Code program into control from computer

1) Call up Work Number 7777. In the name field enter the file name you want to receive.
2) Press **Green** - Furthest Left Button
3) Press **I/O** Button
4) Press **Tape I/O** Button
5) Press **Punch NC-Tape** Button
6) Type in File "7777" & Hit Input Button
7) Press **Start** Button.
8) As Soon As Start Light Goes Out Hit All-Load Button

Mazatrol Control (Mazak Format)

To Send A "Proven" Program to The Computer:

1) Press the menu key **DATA I/O**.
2) Press the menu key **CMT I/O**.
3) Press the menu key **SAVE NC(CMT).**
4) Selecting the program or programs to be saved and press input after each.
5) Press the menu key **START**.
6) When **Start** is no longer highlighted, the file's are saved.

To Bring a New Mazatrol Program into Control from Computer:

1) Go to **Program File** Screen.
2) Hi-Light Program 7778.
3) Press **Name Input** button.
4) Type in program number you want to receive and press **input**.
5) Press the menu key **DATA I/O** then Press the menu key **CMT I/O.**
6) Press the menu key **SAVE CMT**.
7) Type 7778 and press input.
8) Press the menu key **START**.
9) Upon completion of data transfer:
10) Press **CMT Contents** then **Start** Button. (Program #'s will show)
11) Press the menu key **LOAD CMT**.
12) Press the menu key at **START**.

Mazatrol Control (Smart)

To send a "Proven" Mazatrol program to the computer

1) Press the menu key **DATA I/O**.
2) Press the menu key **TAPE I/O**.
3) Press the menu key **PUNCH NC (TAPE)**.
4) Select the program to be saved and press input.
5) Press the menu key **START**.
6) When Start is no longer highlighted, the file is saved.

To bring a new Mazatrol program into control from computer

1) Go to the **Program file** screen.
2) Highlight Program 7778.
3) Press **NAME INPUT**.
4) Type in the file name you want to receive and press **INPUT**.
5) Press the menu key **DATA I/O**.
6) Press the menu key **TAPE I/O**.
7) Press the menu key **PUNCH NC**.
8) Type 7778 and press **INPUT**.
9) Press the menu key **START**.
10) Upon completion of the data transfer:
11) Press the menu key **ALL LOAD (TAPE)**.
12) Press the menu key **START**.

Mazatrol VQC-2040

TO SEND A PROGRAM TO THE COMPUTER

1) Press the far left button until you see "Program".
2) Press **Program**, then **Program File** soft keys**.**
3) Press the soft key **DATA I/O.**
4) Press the soft key **CMT I/O**.
5) Press the soft key **SAVE NC-CMT**.
6) Type in the work number to be saved and press **Input** key
7) Press the **START** soft key.

TO BRING A NEW PROGRAM INTO THE CONTROL

1) Go to eNet computer and press on the second icon from the left.
2) Press VQC-2040 from list, then press on bottom left.
3) Select file to send and press **Open**.
4) Go to CNC and press the far left button until you see "Program".
5) Press **Program**, then **Program File** soft keys**.**
6) Press the soft key **DATA I/O**.
7) Press the soft key **CMT I/O**.
8) Press the soft key **LOAD CMT-NC**.
9) Type in file number and press **Input** key.
10) Press the soft key **START**.

Miyano Fanuc Series Control

TO SEND A "PROVEN" PROGRAM TO THE COMPUTER:

1) Select **EDIT**
2) Hit **PROGRAM** Button
3) Type Your Fanuc Program Number ("1234"-Example)
4) Hit **[F Output]**, press **[F Name]** then **[EXEC]** Button.
5) When output is complete, Wait 3 seconds- then Press **[F Input], [EXEC]** Buttons.
6) Program number O4445 should begin loading in.
7) The 2nd Line in Program O4445 verifies the program just saved.
8) Delete program O4445 by typing: "O4445" and pressing the **DEL** button, and then **[EXEC]** Button.

TO CALL OUT A PROGRAM FROM THE COMPUTER:

1) Select EDIT
2) Call up Program O4444
3) Edit the comment in O4444 to the file you want.
4) Press **[OPRT]** then far right arrow soft button- then press **[I/O]** button.
5) Hit **[F Output]**, type 4444,press **[F Name]**then **[EXEC]** Button.
6) Wait 3 seconds then Press **[I/O]** button **[F Input]** and **[EXEC]**
7) The Program should begin loading in.

Call Program Format:

O4444;
(1000);   (Program Number Requesting)

Milltronics Control

To send a "Proven" program to the computer

1)   F10 (UTIL)
2)   F4 (RS232)
3)   F5 (SEND)
4)   F7 (MENU)
5)   Arrow Down to The File to Send
6)   F2 (SET)
7)   F1 (START)
8)   F1 (BEGIN)

To bring a new program into control from computer

1)   **Alter** O7777 (Call out program)
     a.   F8 (PROG.)
     b.   F1 (TEXT)
     c.   F7 (MENU)
     d.   Arrow down to O7777 and Hit Enter
2)   Change (????) to Program Desired
3)   **ESC** out to beginning Menu
4)   F10 (UTIL)
5)   F4 (RS232)
6)   F5 (SEND)
7)   F7 (MENU)
8)   Arrow Down to O7777
9)   F2 (SET)
10) F1 (START)
11) F1 (BEGIN)
12) After sending hit ESC
13) F6 (RECV)
14) Type in Program #
15) Hit Enter and your program will come in.

To bring a new program into control from computer and DNC

1)   Follow Steps 1 through 11 above
2)   When Done sending DNC Call File
3)   Press ESC to Go Back one Menu
4)   Press F6 for the DNC menu.
5)   Press F3 for fast mode of F4 for run mode.
6)   Press F1 for RS-232.
7)   Press cycle start to begin running.

Mitsubishi Control

To send a "Proven" program to the computer

1) Press the **IN/OUT** Button
2) Press the **MENU** Soft Button
3) Press the **OUTPUT** Button
4) Type **1** in the Type field then arrow key over to the data field
5) Type **????** Then press **INPUT/CALC** Button
6) After the program is sent
7) Press **INPUT** Soft Button
8) Type **1** in the Type Field then press **INPUT/CALC** Button.

To bring a new program into control from computer

1) Edit the O7777 file to have the program number to receive {see Below}
2) Press the **IN/OUT** Button
3) Press the **MENU** Soft Button
4) Press the **OUTPUT** Button
5) Type **1** in the Type field then arrow key over to the data field
6) Type **7777** press **INPUT/CALC** Button
7) After the program is sent
8) Press **INPUT** Soft Button
9) Type **1** in the Type Field then press **INPUT/CALC** Button.

Call Program Format

 O7777;
 (1000);   (Program Number Requesting)

* Note: ???? = Program Number to Send

Moric (YASNAC) T7Y Control

To send a "Proven" program to the computer

Note: The File to be saved must have the first comment with where to save.
Ex: (L3/2277722/WSL-15 2277722-000RV.J OP1)

1) Select **Edit**.
2) Press '**+**' Button.
3) Type Your Program Number ("O1234"-Example).
4) Then press **OUT** Button.
5) Wait 5 Seconds.
6) When Program is Done Sending.
7) Press the **READ,** then **ALL** Buttons.
8) View the O7778 program to verify that the file has been saved.
9) Delete Program O7778 after receiving it or it conflict with next verify.

Note: The first line in the program being saved must have a comment with the information on where to save the file.
Ex: (CUSTOMER/PARTNUMBER/FILENAME).

To group multiple files together you must send the main file first and then send each additional file within 20 seconds. Always wait at least 30 seconds before sending a new file to be saved as a different name if you don't it will be saved with the last file.

To bring a new program into control from computer

1) Select **Edit**.
2) Highlight Program O07777 and Press **Input**.
3) Modify the Call Program to Reflect the Program you want to Receive.
4) Press **Edit End** Key.
5) Press + Button.
6) Type "O7777" Then press **OUT** Button.
7) When Program is Done Sending.
8) Press the **READ** then ALL Buttons.
9) Your Program should begin loading within 6 seconds.

Call Program Format
O7777
(CUSTOMER/PARTNUMBER/FILENAME).
%
Ex: (L3/2277722/WSL-15 2277722-000RV.J OP1)

Moric -T6F Control

To send a "Proven" program to the computer

1) Select **EDIT** and press the **PROGRAM** button.
2) Press **<,** press **CAP-I**, press **2**, select the program to be punched and press **PUNCH**.
3) Press **<** and **END**. Find READ on the menu. Press it followed by **EXEC**.
4) Program O6666 should load. O6666 verifies the program just saved.
5) After reading the message, delete program O6666.

To bring a new program into control from computer

1) Select **EDIT** and press the **PROGRAM** button.
2) Call up program O0000
3) Edit the program to the following format:

O0000
      (O1234);

      Where: O1234 is the required program.
      Make sure O (letter) is there

4) Find **PUNCH** on the menu, press it and press **EXEC**.
5) Press **<,** press **CAP-I**, press **2** and **READ**. The requested program should load.

MORI SEIKI Control

TO CALL A PROGRAM FROM THE COMPUTER TO THE MACHINE:

1) Select **EDIT**
2) Type 7000 and press '**O'-Search**
3) Edit the program to the following format:

> O7000
> N1 R1234;
> Where: The number after the R is the name of the CNC
> file on the hard drive, minus the O

4) Press **PROGRAM LIST**, cursor to O7000
5) Press **>, PUNCH, EXEC** (Wait 3 Seconds)
6) Press **READ, EXEC** The requested program should load.

TO SEND A PROGRAM TO THE COMPUTER:

1) Select **EDIT**
2) Press **PROGRAM LIST**, cursor down to program to be uploaded.
3) Press **>, PUNCH, EXEC** - Wait until program punches out.
4) Wait 3 seconds, Press **READ, EXEC**.
5) Program O6666 should load.
   (O6666 verifies the program just saved.)
6) After reading the message, delete program O6666.

MORI-SEIKI M720BM (USB Communications)

I/O Device should be set to USB. To set it, go to:
 -'SETTING' – 'I/O PARAM' – 'USB MEMORY' – 'SET' – 'EXECUTE'

To send a "Proven" program to the computer

1) Select **EDIT**, press **PROG**, and then **PROG LIST**.
2) Press **PUNCH/READ**, then **PUNCH**.
3) Press **OUTPUT SETTING**, Navigate through folders by: arrow keys and **INPUT** key.
   -Select **'_ToComp_'** folder and press the **INPUT** key.
4) Return to LIST menu. Highlight program to be Uploaded. Press **SELECT ON/OFF** to select it.
5) Press **SET/EXECUTE**. The program should Punch out.

To bring a new program into control from computer

1) Select **EDIT**, press '**PROG'** - '**PROG LIST'**.
2) Select **PUNCH/READ**, then **READ**.
3) Navigate through folders by: arrow keys and **INPUT** key. INPUT enters a folder.
4) Once on the correct file, press the **EXECUTE** button. It should then read in.

MORI-SEIKI MSC-501 (Fanuc Control)

To send a "Proven" program to the computer

1) Select **EDIT** Mode.
2) Press **PROGRAM** Button.
3) Type Your Fanuc Program Number (O1234) -Example.
4) Press **PUNCH - EXEC** Buttons.
5) As Soon As Output Light Quits Flashing Hit **STOP**
6) Wait 3 seconds then Press **READ - EXEC** Buttons.
7) Program number #O8888 should begin loading in.
8) The 2nd Line in Program O8888 verifies the program just saved. (It should say something like "REC GOOD xxxxxxxxx").
9) Delete program O8888 by typing: "O8888" & Pressing the **DEL** button (Hard button, not the soft key under the display).

To bring a new program into control from computer

1) Select **EDIT** mode.
2) Press **PROGRAM** Button
3) Type O7777, and Press **Cursor Down** button to Select the Call Program.
4) Edit Comment to the file you want to receive:

   CALL PROGRAM FORMAT:
   07777;
   (1000); (Program # required)
   %

5) Press **PUNCH – EXEC** Buttons.
6) As soon as Edit Light quits flashing, Press **STOP**.
7) Wait 3 Seconds and then Press **READ – EXEC** Buttons.
8) The Program should begin loading in.

MORI SEIKI MSX-850III – (CAPPS Communication)

To send a "Proven" program to the computer

1) Select **EDIT MODE**.
2) Press Green **PROGRAM** button.
3) Press **PROG.LIST** (F1).
4) Press **PUNCH/READ** (F3).
5) Select the file you want to Punch out.
6) Press **PUNCH** (F1) – **EXEC** (F6) buttons.
7) You will see 'OUTPUTTING' and a file size, and finally 'OUTPUT COMPLETE'. If there is an error message, try again.

To bring a new program into control from computer

1) Select **EDIT MODE**.
2) Press green **PROGRAM** button.
3) Press **PROG.LIST** (F1).
4) Press **PUNCH/READ** (F3) button.
5) Press **READ** (F2) button.
6) Select the file you want to Download.
7) Press the **EXECUTE** (F6) button.
8) You see see 'INPUTTING', along with a filesize, and the file should load in and be displayed in the Directory on the Machine Control.

MORI SEIKI MSX-850IV

To send a "Proven" program to the computer

1) Select **EDIT MODE**.
2) Press **PROG LIST** button.
3) Arrow up or down to select O-No.
4) Press **PUNCH/READ** then **PUNCH Execute**.
5) Press **READ Execute** to receive message file.

To bring a new program into control from computer

1) Select **EDIT MODE**.
2) Press **PROG.LIST**.
3) Arrow up/down to select O7777.
4) Edit P1234, then press PROG LIST [1234 is the Program requested].
5) Press **PUNCH/READ** button.
6) Press **PUNCH Execute** button.
7) Press the **READ EXECUTE** button to receive the Program.

O.K.K. Control

To send a "Proven" program to the computer

1) Press The **IN/OUT** (Top-Right Yellow) Key.
2) Press The **OUTPUT** Soft Key.
3) Type 1; Then Arrow Right Key.
4) Type **1234** (4 Digit Prog. #).
5) Then **INPUT** (Bottom-Right Green) Key.
6) Screen Will Say: "DATA OUT COMPLETE"

To bring a new program into control from computer

1) Press the **EDIT** (Top-Right Yellow) Key.
2) Press the **SEARCH** Soft Key.
3) Type 7777 In The L(   ).
4) Use The Arrow Keys To Place Cursor Over Comment.
5) Alter The Comment To The Program Required.
6) Press **INPUT** (Bottom-Right Green) Key.
7) Press The **IN/OUT** (Top-Right Yellow) Key.
8) Press The **OUTPUT** Soft Key.
9) Type 1; Then Arrow Right Key.
10) Type 7777.
11) Then **INPUT** (Bottom-Right Green) Key.
12) Screen Will Show Data Go Across:
13) Press **INPUT** Soft Key.
14) Type 1; Then Arrow Right Key.
15) Press **INPUT** (Bottom-Right Green) Key.

Call Program Format:

 O7777;
 (1000);   (Program Number Requesting)

OKK Mitsubishi Control

To send a "Proven" program to the computer

1) Press the **Edit** Button and right **arrow key**
2) Press the **To Input Output** Button
3) Press the **Device select** Button
4) Press the **From Memory** Button
5) Press the **File Name** Button
6) Type **????????** press **INPUT** Button
7) Press the **Area Change** Button
8) Press the **Device select** Button
9) Press the **RS-232** Button
10) Press the **Transfer A to B** Button and select **Yes**
11) After the program is sent press the **Device select** Button
12) Press the **Memory** Button
13) Press the **Area Change** Button
14) Press the **Device select** Button
15) Press the **RS-232** Button
16) Press the **Transfer A to B** Button and select **Yes**
17) Select **Edit - 7778 program is now listed.**

To bring a new program into control from computer

1) Edit the O7777 DNC call program to the desired file #
   Example: (OKK/12345678)
2) Press the **To Input Output** Button
3) Press the **Device select** Button
4) Press the **From Memory** Button
5) Press the **File Name** Button
6) Type **7777** and press **INPUT** Button
7) Press the **Area Change** Button
8) Press the **Device select** Button
9) Press the **RS-232** Button
10) Press the **Transfer A to B** Button and select **Yes**
11) After the program is sent press the **Device select** Button
12) Press the **Memory** Button
13) Press the **Area Change** Button
14) Press the **Device select** Button
15) Press the **RS-232** Button
16) Press the **Transfer A to B** Button and select **Yes**
17) Select **Edit - requested program is listed.**
    Call Program Format
 O7777;
 (OKK/12345678);   (12345678 = Program Number Requesting
* Note: ???????? = Program Number to Send back to the computer

Okuma Control

To send a "Proven" program to the computer

1) Select **EDIT** Key
2) Press **[RS232]** Button.
3) Press **[OUTPUT]** Button
4) Highlight File to Send.
5) Press **PUNCH** button.
6) Press **WRITE** button.
7) When screen clears, wait 5 seconds to make sure file saved.
8) Press **INPUT** button, then press **WRITE** button.
9) Program 07778.MIN should begin loading in to verify program saved.
10) Delete Program 07778.MIN after receiving it, or it will conflict with the next verify.

To bring a new program into control from computer

1) Select **EDIT** Key.
2) Edit the O7777 (Call Program) as follows:
3) Change the Comment to the file to receive; EX: (M123ABC-10).
4) Press **RS232** button.
5) Press **OUTPUT** button.
6) Highlight Program O7777, then press **OK** button.
7) When screen clears, wait 5 seconds to make sure file is queued up.
8) Press **INPUT** button then press **OK** button.
9) The Program should begin loading in.

Call Program Format
O7777
(File Name to Receive)

DIRECTORY PROGRAM
O7777
(DIR)

The File will come back called O7778.MIN

Okuma 5000 Control

To send a "Proven" program to the computer

1) Select **EDIT** Key
2) Hit **[PIP]** Button.
3) Hit **[PUNCH]** Button
4) Type **FILE NAME** to Send   (Example = HHJ231-A)   then Hit **[WRITE]** Button
5) As Soon As Screen Clears Hit **[READ]** Button then Hit **[WRITE]** Button.
6) Program Number **O8888.MIN** should begin loading in verifying program saved.
7) Delete Program **O8888.MIN** after receiving it or it conflict with next verify.

To bring a new program into control from computer

1) Select **EDIT** Key
2) Edit the O7777 (Call Program) as follows:
3) Change the "P" per example (P= File Name To Be Loaded)
4) Hit **[QUIT EDIT]** Button.
5) Hit **[PIP]** Button.
6) Hit **[PUNCH]** Button - Type **O7777** then Hit **[WRITE]** Button
7) As Soon As Screen Clears Hit **[READ]** Button then Hit **[WRITE]** Button.
8) Your Program should begin loading within 6 seconds.

Call Program Format:

 O7777;
 (1000);   (Program Number Requesting)

PC2100 Control

To send a "Proven" program to the computer

1) Press **Home** Menu Button.
2) Press **Program** Button.
3) Press **Transfer Program** Button.
4) Select Program to Send.
5) Press **Transfer Program Out.**
6) Select **Com Port** Button.
7) Press **Start Transfer Button.**
8) Wait 5 Seconds Then Press **Transfer Program In.**
9) Select **Com Port** Button.
10) Press **Start Transfer** Button.
11) Program O7778 should begin loading.
12) View program O7778 to confirm transfer.
13) Delete program O7778 after conferming.

To bring a new program into control from computer

1) Edit Program **O7777.**
2) Change the program name to the one you want.
3) Press **Home** Menu Button.
4) Press **Program** Button.
5) Press **Transfer Program** Button.
6) Select Program O7777.
7) Press **Transfer Program Out.**
8) Select **Com Port** Button.
9) Press **Start Transfer** Button.
10) Press **Transfer Program In.**
11) Select **Com Port** Button.
12) Press **Start Transfer** Button.
13) Your program should begin loading.

Call Program Format
O7777;
(FileName); - Ex:00123552.10A

Seicos J Multi

To send a "Proven" program to the computer

1) From the Main Screen Press [**F8**]-**In/Out**.
2) Press [**F2**]-**Output**.
3) Cursor to the file to send, Press the **Space** button to select it.
4) Press [**F2**]-**Output**.
5) When done sending but within 7 seconds press [**F1**]-**Input** twice.
6) Press the "**Y**" button to confirm.
7) Program O77778 will load to verify the program was received.
8) Delete Program O77778 after receiving it.

To bring a new program into control from computer

1) Press the [**F2**]-**Prgrm** button and then Press [**F7**]-**Program List**.
2) Highlight O77777, then Press **Input**.
3) Edit the Comment to show the file you want to receive.
4) Press [**F4**]-**Save**, then Press the Return button.
5) Press [**F7**]-**In/Out** then Press [**F2**]-**Output**.
6) Cursor to O77777 and Press the **Space button** to select O77777.
7) Press [**F2**]-**Output** and wait until sending is complete.
8) Press [**F1**]-**Input** twice.
9) Press the "**Y**" button to confirm.
10) The Program should begin loading in.

Call Program Format

 O77777
 (1P1234)   (Program Number)

Seicos M Multi

To send a "Proven" program to the computer

1) Press the **EDIT** button.
2) Press [**F8**]-**Staf_M** button.
3) Press **Input** button to select **NC-232C**.
4) Type the Program # to send and press [**F9**]-**Execute** button.
5) When done sending press **Right** cursor key to move to Input.
6) Within 7 seconds Press [**F9**]-**Execute** button.
7) Program O8888 will load to verify the program was received.
8) Delete Program O8888 after receiving it.

To bring a new program into control from computer

1) Press the **EDIT** button.
2) Press O-Number Edit button and type 7777, then press **Cursor** down.
3) Edit the Comment to show the file you want to receive.
4) Press the **NEXT** button.
5) Press [**F8**]-**Staf_M** button then press the Input button.
6) Type 7777 and press [**F9**]-**Execute** button.
7) Press **Right** cursor key and press [**F9**]-**Execute** button.
8) The Program should begin loading in.

Call Program Format

O7777
(1P1234)   (Program Number)

Selca Control

To send a "Proven" program to the computer

1) Press **Menu** button twice.
2) Press "**Peripher**" key then press "**Hard Drive**" key.
3) Select program to save and press "**Copy Program**" key then "**Serial**" key.

To bring a new program into control from computer

1) Press **Edit** key.
2) Select "**Hard Drive**" then select program 5555 and press "**Edit Program**"
3) Edit line N4 to program to receive ex: [PartNumber/Opp/ProgramName.ext.
4) Press **Menu** button twice.
5) Press "**Peripher**" key then press "**Hard Drive**" key.
6) Select program 5555 and press "**Copy Program**" key then "**Serial**" key.
7) Press "**Serial**" key then "**Copy Program**" key.
8) Type in new program number and press "**Hard Drive**" key.

Siemens Control Example 1

To send a "Proven" program to the computer

1) Select **DATA-IN-OUT** Button.
2) Select **DATA-OUT** Button.
3) Select **PART-PROGRAM** Button.
4) Type in Program # to Send Out   (Example - BEGIN %1234   END %1234)
5) Hit **MAIN PRG START** key.   (a DIO word will appear on top of your screen)

To bring a new program into control from computer

1) Edit the program %7777 to reflect below example.
2) Select **DATA-IN-OUT** Button.
3) Select **DATA-OUT** Button.
4) Select **PART-PROGRAM** Button.
5) Type in Program #7777 to Send Out.   (Example - BEGIN %7777   END %7777)
6) Press **MAIN PRG START** key.   (a DIO word will appear on top of your screen)
7) Press the ^ Key Twice.   (Far left soft key)
8) Press **DATA-IN-START** Button. (your program should begin loading within 6 sec.)

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Siemens 840 D Control

To send a "Proven" program to the computer

1) Press **Menu Select** button on lower right side (Green Arrow in view below).
2) Press **Data I/O** button then Press **Services** button.
3) Press **Data Output** button.
4) Highlight Program to send then press **Start** button.
5) When done sending press **Data Input** button.
6) Press **OK** button.
7) Your message program will begin loading to confirm file saved.

To bring a new program into control from computer

1) Press **Menu Select** button on lower right side (Green Arrow in view below).
2) Press **Program** button
3) Highlight DNC_CALL then press the yellow **Input** button (Red Arrow below).
4) Change the Comment to the file to receive then press **Close Editor** button.
5) Press **Menu Select** button on right side of screen.
6) Press **Data I/O** button – Press **Services** button.
7) Press **Data Output** button.
8) Highlight DNC_CALL press **Start** button.
9) When done sending press **Data Input** button.
10) Press **OK** button and the program will begin loading.

Siemens (Hyundai) Control

To send a "Proven" program to the computer

1) Select **EDIT** mode.
2) Press the **DISPLAY** button until you see the **DATA I/O** soft key, then press **DATA I/O**.
3) Press **Data Output** soft key, then navigate with the arrow keys and yellow INPUT key to find the correct work piece in the USER\LOCAL directory. Once the work piece is highlighted, press the **Output start** key. The MPF program(s) for that work piece should transfer out.
4) Next press the **Up** arrow key ^ (display lower left corner). Select **Data Input** soft key, then '**Into New Work Piece**' soft key, type in a work piece name to be saved (for example REC) followed by the yellow **Input** key, then the **OK** soft key.
5) MPF7778 program should load into 'REC' work piece . To view the message, edit MPF7778 file in 'REC' work piece, read it and and delete it.

To bring a new program into control from computer

1) Select **EDIT** mode, press **DISPLAY** button
2) Press **Program** soft key. With the arrow keys and yellow **INPUT** key navigate to find MPF7777 program in the USER\LOCAL\07777 directory. Scroll down to program MPF7777 and press the **Edit** soft key. The one line program should look like this:

> (1004234) where the number in parenthesis is the required work piece number.

3) Once done, press the **Save** soft key.
4) Press the **DISPLAY** button (repeatedly) until you see **DATA I/O** - then press **DATA I/O**.
5) Press **Data Output** soft key, then navigate with the arrow keys and yellow INPUT key to find 07777 work piece in the USER\LOCAL directory. Once it is highlighted, press the **Output start** key. MPF7777 program should transfer out.
6) Next press the **Up** arrow key ^ (display lower left corner). Select **Data Input** soft key.
7) Select **'Into New Work Piece'** soft key, enter a name for it (need to press the yellow **INPUT** key at the end).
8) Press **OK** - program should load. If MPF7778 signals an error go back to step 1 and re-check everything.

Siemens-Leistritz

To send a "Proven" program to the computer

1) Press **Menu Select** button on right side of screen.
2) Press **PROGRAMS,** then **WORK PICES** and bring the cursor down to the correct work piece.
3) Press the **Menu Select** again, press **Services**, then **Data Output** button, then **RS232 (V24)** on the right side followed by OK.
4) The control will flicker messages as it punches out. Finally the control should display the 'Job Ready' message.
5) Wait two seconds, press DATA **IN**, press **RS232 (V24)**. After few seconds control should display the 'Job ready' message again.
6) Read the message in the O7777 work piece as program O7778.

To bring a new program into control from computer

1) Press **Menu Select** button on right side of screen.
2) Press **PROGRAMS,** then **WORK PICES** and bring the cursor down to the O7777 work piece, enter with the yellow input key, select O7777 and press the yellow input key again.
3) Change the comment to the file to receive then press **Save file** and **Close Editor.**
4) Press the **Menu Select** again, press **Services**, then **Data Output** button, make sure that program O7777 is selected, then **RS232 (V24)** on the right side followed by **OK**. The control will flicker messages as it punches out, then it displays the 'Job Ready' message.
5) Press DATA **IN**, press **RS232 (V24)**. After few seconds control should display various messages, finally the 'Job ready' message. The new work piece should load.

SIEMENS SINUMERIK (USB Communications)

To send a "Proven" program to the computer

1) Select **PROGRAM MANAGER**.

2) Use the Up/Down arrows to choose the Program, or push **MARK** and arrows for multiple Programs, and then push **SELECT**.
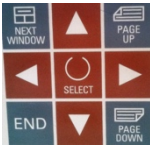
3) Press **COPY** and then press **USB**.
4) Arrow to the '**_ToComp_**' folder and then press **PASTE**.

To bring a new program into control from computer

1) Select **PROGRAM MANAGER**.
2) Press **USB**.
3) Use Up and Down arrows to choose Program or press **MARK** and arrows to select multiple Programs and then press **SELECT**.
4) Press **NC** and then **PASTE**.

Sodick EDM Control

To send a "Proven" program to the computer

1) Select **EDIT**.
2) Press **Next** Key so that **[serial In]/[Serial Out]** buttons show.
3) Have the cursor at the top of the file.
4) Hit **[Serial Out]** key then **OK**.
5) When done sending press **OK**.
6) Press **New** (next to load & save), then **OK**.
7) Press **[Serial In]** key then **OK**.
8) When numbers stop counting press **End** then **OK**.
9) Program Number 8888 should begin loading in.
10) The 2nd Line in Program 8888 verifies the program just saved.

To bring a new program into control from computer

1) Select **EDIT**.
2) At the top left side of the screen press the down arrow and pick o7777.
3) Edit the second line to show the customer and part number you want
4) Press **Next** Key so that **[serial In]/[Serial Out]** buttons show.
5) Have the cursor at the top of the file.
6) Press **[Serial Out]** key then **OK**.
7) When done sending press **OK**.
8) Press **New** (next to load & save), then **OK**.
9) Highlight all the data and press **DEL** key
10) Press **[Serial In]** key then **OK**.
11) When numbers stop counting press **End** then **OK**.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Syntec 21TA (xlConnect – U 'USB')

Note: You may need to press the 'e-Stop' on the machine control.

To send a "Proven" Program to the Computer:

1) Select PROGRAM, and then File Manager.
2) Select FILE TRANSFER
3) Select FILE EXPORT
4) Highlight the file and then press the SELECT button.
5) Switch to the FOCUS button.
6) Highlight '_ToComp_' Folder.
7) Press the ENTER hard key.
8) Press COPY.

To bring a new program into control from Computer:

1) Select PROGRAM, and then File Manager.
2) Select FILE TRANSFER.
3) Select FILE IMPORT.
4) Highlight the file and then press the SELECT button.
5) Press COPY.

TOSNUC Control

To send a "Proven" program to the computer

1) Press **DUMP** Button.
2) Type your program number to send.
3) Press **into** button then **Port A** Button.
4) Press –-**EXC**-- Button.
5) As soon as Outputting is done.
6) Wait 3 Seconds then press **LOAD** Button.
7) Press From button then press **Port A** button then –-**EXC**-- button.
8) Program O8888 should begin loading in.
9) Program O8888 verifies the program just saved.
10) Purge program O8888 after verifying.

To bring a new program into control from computer

1) Press **Edit** then **Program** then **Modify** Buttons.
2) Type 7777 then push -–**EXC**-- button.
3) Use blue keys [DEL CHR] & [INS CHR] to update number to receive.
4) Press **END** button then press –-**EXC**-- button.
5) Press **DUMP** Button.
6) Type 7777 then press into button then Port A Button.
7) Press –-**EXC**-- Button.
8) As soon as Outputting is done.
9) Wait 3 Seconds then press **LOAD** Button.
10) Press From button then press **Port A** button then –-**EXC**-- button.
11) Your program should begin loading in.

Call Program Format

 O7777;
 (FileName); - Ex:1000

TOSNUC 888 Control

To send a "Proven" program to the computer

1) Select **FILE ON/OFF** Key and Hit **YES** Key.
2) Press **OUTPUT** Key.
3) Select **PROGRAM** Key And Hit **YES** Key.
4) Arrow Down To: **2). RS232 (Port A): (0)** and press **YES** Key.
5) Type the File Name you wish to send and then press **YES** Key.

To bring a new program into control from computer

1) Alter The 2nd Line Of The Call Program 7777 To File Name Desired.
2) Select **FILE ON/OFF** Key and Hit **YES** Key.
3) Press **OUTPUT** Key.
4) Select **PROGRAM** Key And Hit **YES** Key.
5) Arrow Down To: **2). RS232 (Port A): (0)** And Hit **YES** Key.
6) Type 7777 And Hit **YES** Key.
7) Press **INPUT** Key.
8) Select **ALL PROGRAMS** And Hit **YES** Key.
9) Arrow Down To: **2). RS232 (Port A): (0)** And Hit **YES** Key.

Toyoda Control:

TO CALL OUT A PROGRAM FROM THE COMPUTER:

1) Go to **EDIT**, Press the **PROGRAM** hard key.
2) Press the right arrow soft key till you see **HOST** and **CONECT**.
3) Press the **HOST** soft key.
4) Press the **OPRT** soft key.
5) Press the **EMBEDD** soft key.
6) If it flashes searching, then comes up with the "display error" Press the **SWITCH** soft key. (You may have to repeat).
7) Press the right arrow soft key till you see **READ** and **PUNCH**.
8) Type in the number on the left of the screen that corresponds to the program that you want to download, you do not have to type the 0's. EX: 0001 is 1
9) Press **READ** soft key, then the **EXEC** soft key.

TO SEND A "PROVEN" PROGRAM TO THE COMPUTER:

1) Go to **EDIT**, Press the **PROGRAM** hard key.
2) Press the right arrow soft key till you see **READ** and **PUNCH**.
3) Type in the program name EX: O1234 and press **PUNCH** soft key, and **EXEC** soft key.

TO CHANGE FROM CARD TO ETHERNET OR BACK

1) Switch to **MDI** Mode and press Settings Button.
2) Change I/O Channel to **4** for the **Card.**
3) Change I/O Channel to **9** for the **Ethernet.**

Yasnac Control Example 1

To send a "Proven" program to the computer

1) Select Edit
2) Press **Program** Button
3) Type Your 4-Digit Program Number ("O1234"-Example)
4) Then Press **OUT** Button.

To bring a new program into control from computer

1) Select Edit
2) Hit Program Button
3) Type "O7777" & Hit Cursor Down Key
4) Then Alter "P1234Q123" To (Program Number and Sub Dir To Be Loaded)
5) Then press **OUT** Button.
6) As Soon As Out Light Quits Flashing Hit IN Button.
7) Your Program should begin loading within 6 seconds.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Yasnac I-80 Control

To send a "Proven" program to the computer

1) Press [**PROG**] Button
2) Press [**IN/OUT**] Soft Button
3) Press [**OUT**] Soft Button
4) Type Your Machines Program Number ("O0185" - Example)
5) Make sure that the Edit key is on
6) Press The [**WR**] Write Button
7) When The Screen Says Complete Press [**RETURN**] soft key
8) Press [**IN**] soft key
9) Press [**WR**] Write Button
10) When Screen says Complete then view the O8888 program
11) Delete Program O8888 after receiving it or it conflict with next verify

To bring a new program into control from computer

1) Edit your "O7777" program to Show the program you want
2) Press [**PROG**] Button
3) Press [**IN/OUT**] Soft Button
4) Press [**OUT**] Soft Button
5) Type "O7777"
6) Make sure that the Edit key is on
7) Press The [**WR**] Write Button
8) When The Screen Says Complete Press [**RETURN**] soft key
9) Press [**IN**] soft key
10) Press [**WR**] Write Button
11) When Screen says Complete then your program is loaded

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Yasnac Control Example 2

To send a "Proven" program to the computer

1) Select **Edit**.
2) Press **Program** Button.
3) Type Your 4-Digit Program Number ("O1234"-Example).
4) Then Press OUT Button.
5) Wait 5 Seconds.
6) When the Screen is done Flashing OUT, press the **IN** Button.
7) View the O7778 program to verify that the file has been saved.
8) Delete Prog.# O7778 after receiving it or it will conflict with next verify.

To bring a new program into control from computer

1) Select **Edit**.
2) Press **Program** Button.
3) Type "O7777" & press **Cursor Down** Key.
4) Then alter The First Comment
    Example:(CUSTOMER/PARTNUMBER/FILENAME).
5) Then press **OUT** Button.
6) As Soon As Out Light Quits Flashing, press **IN** Button.
7) The Program should begin loading within 6 seconds.

Call Program Format

O7777;
(1000);   (Program Number Requesting)

Note: The first line in the program being saved must have a comment with the
    information on where to save the file. Ex:
(CUSTOMER/PARTNUMBER/FILENAME).

To group multiple files together you must send the main file first and
    then send each additional file within 20 seconds. Always wait at least 30 seconds
before sending a new file to be saved as a different name if you don't it will be saved
with the last file.

Common CNC Parameters

CAUTION!!

Note: The following parameters have worked on controls of this type but you should always compare these changes to the manual that came with your machine before making any final changes.

Also, be sure to write down what your settings were before making any changes.

Acramatic 850 Control Parameters and Jack

Parameters on CNC to change:

1) Press **Program Mgmt** Button.
2) Press **Dev Prm** Button.
3) Configure #3 Dataline to:
   Protocol Level = RS-491 L2
   CTRL CHAR Parity = No
   Data Rate = 9600
   Data Bits = 8
   Data Parity = None
   Stop Bits = 1
   Add Cr = No
   LDR Count = No
   Form Feed = Yes

Setting to set in eNETDNC Software:

1) On the common screen set:
   Handshaking = Xon / Xoff
   EOB = CR-LF

2) On the Download screen set:
   Start = %
   End = ^J^D
   Name ID = (

All other settings are standard defaults.

eNETDNC RJ45 to RS232 Jack setup:

Standard eNETDNC Male or Female Jack

Note1: Sometimes the control has a male jack and other times it is a female.
Note2: Check signal with RS232 tester if you have to reverse pins 2&3

Acramatic 950 Control Parameters and Jack

Parameters on CNC to change:

1) Press **Program Mgmt** Button.
2) Press **Dev Prm** Button.
3) Configure #3 Dataline to:
   - Protocol Level = RS-491 L1
   - CTRL CHAR Parity = No
   - Serial Port = Aux0, Aux1, Aux2 (Depends on the port you are plug into)
   - Data Rate = 9600
   - Data Bits = ---
   - Data Parity = None
   - Stop Bits = 1
   - Add Cr = No

Setting to set in eNETDNC Software:

1) On the common screen set:
   - Handshaking = Hardware
2) On the Upload screen set:
   - Name ID = PGM,="
   - Terminate = "

All other settings are standard defaults.

eNETDNC RJ45 to RS232 Jack setup:
2 = Blue
3 = White
4 = Black also jump with pin 6 & 20
5 = Yellow
7 = Red

Note1: Sometimes the control has a male jack and other times it is a female.
Note2: Check signal with RS232 tester if you have to reverse pins 2&3 then also reverse pins 4&5.

Allen Bradley DB25 Pin out

Pin 2 - 2   Pin 3 – 3

Pin 7 - 7   Pin 18 to 21 (jump)

Bridgeport BOSS 3, 4, 5, and 6

Configure baud rates on the control by removing the ERS card and setting the following switches.
Switch   Status   Baud Rate

S2   ON   300
S3   ON   1200

Note: Turn off the 10K connector on the ERS card.

Note: CNC programs for the Bridgeport will not load if they contain a % at the beginning, E at the end of the program, or a $ at the end of the program.

Bridgeport BOSS 8, 9 and 10

Connect cabling to Port B. Use CR/LF when Sending

Send to CNC Commands:

The Bridgeport control will prompt for a program number.

Type a -, negative sign, to enable software flow control.

Parameter Settings For Brother Control

Baud Rate ---------------- 4 or 5 ?
Parity ---------------------- 2
Stop Bit -------------------- 2
Character ------------------ 0
Response Time ----------- 60
Communication Type -- 0
DC1 Code ---------------- 17
DC2 Code ---------------- 18
DC3 Code ---------------- 19
DC4 Code ---------------- 20
DR Signal Check --------- 0
Ending DC3 -------------- 0
Invalid Data -------------- 0
Trans Data Code --------- 0
End of Block ------------- 0
TV Check ---------------- 0
Heading Output ---------- 1
Reset in Slave ---------- 0
Recovery Time of Reset - 1
Data Overwrite ----------- 0

Parameter Settings for Brother TC-S2C Control

1501 = 0
1502 = 0
1503 = 0
1504 = 0
1505 = 0
1506 = 0
1507 = 0
1508 = 4
1509 = 2
1510 = 1
1511 = 0
1512 = 1
1513 = 60
1514 = 0
1515 = 0
1516 = 1
1517 = 0
1518 = 0
1519 = 1
1520 = 0
1521 = 173
1522 = 186
1523 = 194
1524 = 161
1525 = 162
1526 = 0
1527 = 0
1528 = 17
1529 = 18
1530 = 19
1531 = 20

Cincinnati Auto-Form Control Parameters and Jack

Parameters on CNC to change:

Go to Main Menu then select **File** Menu then **COM Setup**.

COMM SETUP
2 Lower
9600
None
8
2
Kermit –r
Kermit –s
Server
Off
Off

Setting to set in eNETDNC Software

1) On the common screen set:
    Code = BIN
    Eob = CR-LF
    Handshaking = Kermit

2) On the Upload and download screens set:
    Pause [sec] = 1

All other settings are standard defaults.

Connector Configuration
Use a DB9-Male to RJ45 Adapter

Put the White wire in loc 3
Put the Blue wire in loc 4
Put the Red wire in loc 5 and jumper to loc 6

Parameter Settings for Cincinnati 850 Control

```
Baud Rate ---------------- 9600
Data Bits ------------------ 8
Stop Bit ------------------- 1
Parity --------------------- None
Level ---------------------- 1
Type ----------------------- RS358
Add Rt. -------------------- YES
Form Feed ---------------- YES
LDR Count --------------- 0
```

Note: Use **Dataline** Port

Parameter for Cincinnati or Tree with PC2100 Control

Data Rate - 9600
Data Bits - 8
Stop Bits - 1
Parity - None
DTR - Disable
RTS - Handshake
CTS - Disable
DSR Out - Disable
DSR Out - Disable
XON-XOFF - D
XON - 17
XON - 19

Citizen A20-A32 Fanuc Parameters

Parameters on CNC to change:

1). Press **Edit** then **I/O Button.**
2). Press **PARAM** Button.
3). Set to Defaults - Press Page down to get to the other 3 screens

#1 DATA IN =	1	0
#2 DATA OUT =	1	0
#1 BAUD RATE =	Set same as eNETDNC	
#2 STOP BITS =	1	1
#3 PARITY BIT =	0	0
#4 PARITY =	1	1
#5 DATA LENGTH =	3	3
#6 HARD CONT =	1	1
#7 DC CODE CONT =	1	1
#8 DC CODE OUT =	1	1
#9 TV CHECK =	0	0
#10 EOB OUT =	1	1
#11 LIND FEED =	0	0
#12 TIMEOUT =	20	20
#13 DATA CODE =	1	1
#14 DC3 CODE =	1	1

Settings in eNETDNC Software:

All settings are standard defaults.

eNETDNC Jack:

 Use Standard DB25 Male eNet Jack

Parameter Settings for Centurion 1

9600

E/7/2

Tape Start = 018

Tape Stop = 020

RS232 Buffer Size = 010

LF = NO

EOB = YES

RS232 EOF Char. = 000

Parameter Settings for Dynapath 50

Catalog - RS232

Set Source

Parity = off

Xon = on

Echo = off

Parameter Settings for HAAS

Go to Settings Page

(11) Baud Rate Select = *Baud rate* (make sure eNET settings match)

(12) Parity Select = Even

(13) Stop Bit = 2

(14) Synchronization = DC Codes

(37) RS232 Data Bits = 7

(24) Leader to Punch = None

(25) EOB Pattern = LF

(41) Add Space RS232 Out = ON

The eNET DNC settings need to be configured as follows:

Under the Upload Tab for the Haas machine, put a **%** in the "Start" field.

DNC Parameters for Heidenhein Control

Parameters on CNC to change:

1) Select EDIT button.

2) Press the EXT button.

3) Press the **Mod** Button.
4) Press the **RS232 Setup** Button.
5) Set Mode to **FE-2** and Baud rate to match eNETDNC (See Photo below).

eNETDNC Settings
1) Select **Heidenhein** for Handshake method.
2) Select **CR-LF** for EOB.
3) Set **Baud Rate** to match machine

Parameter Settings for Fanuc 0-T or 0-M Control

1) Select MDI
2) To change parameter PWE must be set to "1"

```
TVON  = 0 (0:OFF  1:ON  )
ISO   = 1 (0:EIA  1:ISO )
I/O   = 0 (0:552  1:553  )
```
Parameters 552 & 553 = baud rates (See Below).

6 = 300	9 = 2400
7 = 600	10 = 4800
8 = 1200	11 = 9600

Parameters

#0002 7 6 5 4 3 2 1 0
-------- 0 ? ? ? ? 0 ? 1

#0012 7 6 5 4 3 2 1 0
-------- 0 ? ? ? ? 0 ? 1

#0018 7 6 5 4 3 2 1 0
-------- ? 0 ? ? ? ? ? ?

#0038 7 6 5 4 3 2 1 0
-------- 1 0 0 0 ? ? ? ?

#0050 7 6 5 4 3 2 1 0
-------- 0 0 0 0 0 0 0 0

#0051 7 6 5 4 3 2 1 0
-------- 0 0 0 0 0 0 0 0

#0055 7 6 5 4 3 2 1 0
-------- 0 ? ? ? 0 0 0 0

#0250 Baud Rate for Port #2
-------- See Baud Rate Chart Above

#0251 Baud Rate for Port #3
-------- See Baud Rate Chart Above

Parameter Settings for Fanuc 3-T or 3-M Control

1) Select MDI
2) Hit set button (Make sure memory protect switch is down)
3) Change screen configuration per below diagram by typing "P" first.

```
TV CHECK     = 0 (0:OFF  1:ON    )
PUNCH CODE = 1 (0:EIA  1:ISO    )
INPUT UNIT   = 1 (0:MM   1:INCH)
I/O             = 0 (Device Type    )
SEQ            = 0 (0:OFF  1:ON    )
```

Parameter 05 needs to be 0??000?1.
Parameter   0014 – ASR 33   0   RS-232 I/O

Parameter 68 & 69 is the baud rate.

2400 = 2400 baud

To change parameter 05 and 68 you must change a toggle switch on the master PCB board labeled parameter write enable of disable, the switch must be in the enable position.

Parameter Settings for Fanuc 6-T or 6-M Control
- This Information is for 9-T and 9-M also.

1) Select MDI
2) Hit Set Button (Make sure Memory Protect switch is down)
3) Change Screen Configuration per below diagram by typing "P" First.

```
TV CHECK        = 0 (0:OFF  1:ON    )
PUNCH CODE      = 1 (0:EIA  1:ISO    )
INPUT UNIT      = 1 (0:MM   1:INCH )
INPUT DEVICE 1 = 1 (0:TAPE 1:RMT )
INPUT DEVICE 2 = 1 (1:RS232C       )
```

Parameters 340 & 341 need to be changed to 2.

Parameters 310 & 311 will change the baud rate.

$$??010101 = 300$$
$$??010110 = 600$$
$$??010111 = 1200$$
$$??011000 = 2400$$
$$??011001 = 4800$$
$$??011010 = 9600$$

To change parameter 310 and 311 you must change a toggle switch on the master PCB board labeled parameter write enable of disable, the switch must be in the enable position.

Parameter Settings for Fanuc 10-T or 10-M Control
- This Information is for 11 & 15-T and 11 & 15-M also.

1) Select MDI
2) To change parameters PWE must be set to "1".

```
TV CHECK       = 0 (0:OFF  1:ON)
PUNCH CODE     = 1 (0:EIA  1:ISO)
INPUT DEVICE   = 2 (1-3:RS232C )
OUTPUT DEVICE  = 2 (1-3:RS232C )
INPUT DEVICE   = 2 (BG – EDIT  )
OUTPUT DEVICE  = 2 (BG – EDIT  )
```

Parameter 5000 must be set to all 0's.
Parameter 5001 must be set to 1.
Parameter 5002 must be set to 1.
Parameter 5003 must be set to 0.
Parameter 5011 must be set to 0.
Parameter 5013 must be set to 0.
Parameter 5090 must be set to 0.
Parameter 5091 must be set to 0.

Parameter 5110 must be set to 1. ------------\
Parameter 5111 must be set to 2. |Port #1
Parameter 5112 = baud rates (See below) ----/

$$6 = 300 \qquad 9 = 2400$$
$$7 = 600 \qquad 10 = 4800$$
$$8 = 1200 \qquad 11 = 9600$$

Parameter 5120 must be set to 1. --------\
Parameter 5121 must be set to 2. |Port #2
Parameter 5122 must be set to 10. --------/

Parameter 5130 must be set to 0. --------\
Parameter 5131 must be set to 0. |Port #3
Parameter 5132 must be set to 0. --------/

Parameter 5170,5171,5172 must be set to 0.
Parameter 5180,5181,5182 must be set to 0.
Parameter 5190,5191,5192 must be set to 0.

239

Parameter Settings for Fanuc 16, 18, 160 and 180

1) Select MDI
2) To change parameters PWE must be set to "1".

Parameter	Value	Description
#0000 Bit #0	0	TV Check Off
#0000 Bit #1	1	ISO Output
#0020	0	I/O Channel
#0100 Bit #1	0	Count TVC Off
#0100 Bit #3	1	NCR Output LF
#0100 Bit #5	1	ND3 DNC Buffer On
#0100 Bit #7	1	ENS Null Alarm Off
#0101 Bit #0	1	Use 2 Stop Bits
#0101 Bit #7	1	Feed Output Off
#0102	0	Use DC Codes
#0103	7	600 Baud or
#0103	8	1200 Baud or
#0103	9	2400 Baud or
#0103	9	2400 Baud or
#0103	10	4800 Baud or
#0103	11	9600 Baud or
#0103	12	19200 Baud
#3201 Bit #0	1	RDL Overwrite On

PARAMETER SETTINGS FOR Hitachi Seiki Controls:

Parameters To Change =   #305(10100110)
                         #306(10100110)
                         #315(10100110)
                         #316(10100110)

Parameter Settings for Mazatrol 640 Fusion or Nexus

BAUDRATE = 19200
DATA BITS = 8
PARITY = NONE
STOP BITS = 2
HANDSHAKE = DC CNTR
WAIT TIME = 50
FORMAT = ISO
SAME Wno = ALARM
PORT = COM1

TAP1= 1
TAP2= 0
TAP3= 0
TAP4= 0
TAPS= 1
TAP6= 0
TAP7= 0
TAP8= 0
TAP9= 76
TAPIO= 13
TAP11= 109
TAP12= 122
TAP13= 91
TAP14= 70
TAP15= 0
TAP16= 0
TAP17= 0
TAPI8= 0
TAP19= 0
TAP20= 0
TAP21= 0
TAP22= 0
TAP23= 0
TAP24= 0
TAP25= 0
TAP26= 00000001
TAP27= 00000000
TAP28= 00111010
TAP29= 10
TAP30= 30
TAP31= 0
TAP32= 0

Parameter Settings for Mazatrol T32-2 Control

Parameters For Download Settings

```
**I1=3 (DV #2)      I9 =3
  I2=3            I10=1
  I3=0          **I11=1
**I4=1            I12=0
  I5=3            I13=0
  I6=3            I14=10
**I7=0            I15=30
  I8=150          I16=5
```

Parameters For Tape Reader Settings

```
**I1=2 (DV #2)      I9 =3
  I2=3            I10=1
  I3=0          **I11=0
**I4=0            I12=0
  I5=3            I13=0
  I6=3            I14=10
**I7=1            I15=30
  I8=150          I16=5
```

Parameter Settings for Milltronics Control

Press Pram – F10(Util) – F9(Ctrl) – PGDN to Com1

Com1 = 9600 – E,7,2
Tape Start = 017
Tape Stop = 019
RS232 Buffer = 010
LF = No
EOB Send CR/LF = Yes
RS232 EOF = 000

Parameter Settings for Mitsubishi Control

Baud Rate --------------- 2
Stop Bit ------------------ 1
Parity --------------------- 0
Even Parity -------------- 0
Chr Length -------------- 3
Terminator --------------- 0
Code 1 -------------------- 00
Code 2 -------------------- 00
Rewind Code ------------ 00
Hand Shake -------------- 3
DC Code Parity --------- 0
DC2/DC4 Output ------- 1
CR Output --------------- 1
EIA Output -------------- 0
Title Feed Out ---------- 0
Feed Chr ----------------- 200
Data ASCII -------------- 0
EIA Code ---------------- 00
Link Type ---------------- 0
Link-A Check Sum ----- 0

Parameter Settings for O.K.K. Machine With M3 Control

Device Settings:

0	1	2	3
PTR	PTP	IN5	CMT
2	4	4	
3	3	3	
0	0	0	
0	0	1	
3	3	3	
0	0	0	
00	00	00	
00	00	00	
00	00	00	
3	3	2	
1	1	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	200	200	
0	1	1	

Parameter Settings for Okuma OSP-5000L/M Control

NC Optional Parameter Bits

LATHE	M/C	76543210
1	1	00001011
3	8	01$11$$$
4	-	1$$$$$$$

NC Optional Parameter Word

LATHE	M/C	SET	DESC.
1	1	1	Feedholes
10	6	16(2400)	Baud Rate
29	10 sec. fixed	30	Busy Time

Operation

PIP
PUNCH<File Name>,TT:
READ TT:

Hardware Handshaking Wiring Diagram

CNC		PC
FG	1-------1	FG
TXD	2-------3	RXD
RXD	3-------2	TXD
CTS	5-------4	RTS
REG	9-------5	CTS
DSR	6--||--6	DSR
DTR	20-||-20	DTR
SG	7-------7	SG

Parameter Settings for Old Okuma Control

File Name must start with a $ then a capital letter.

Operation

    PIP

    PUNCH<filename>,TT:

    READ TT:

        Hardware Handshaking

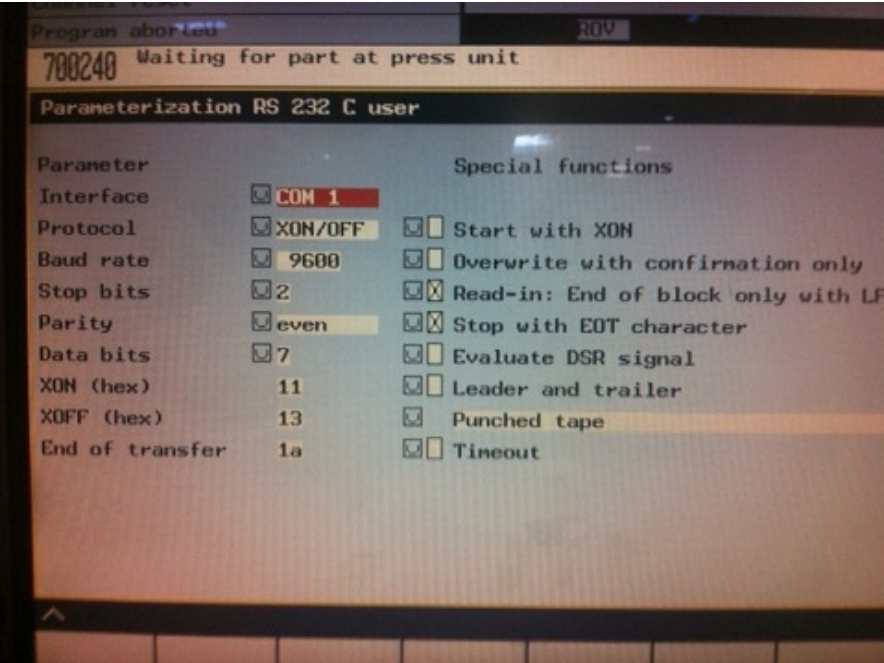   2-------3

                3-------2

                5-------4

                9-------5

                6--. .—6
                20-' '-20

                7-------7

Parameter Settings for Siemens 840 D Control / Sinumeric

Parameters on CNC to set:

1) You may need to start by pressing either the far left '**M**' button or the far right button next to the '>' key.
2) Select **MDI** from the right soft-key selection menu.
3) Select **SERVICES** from the bottom soft-key selection menu.
4) Select **RS232C USER** from the right soft-key selection menu.
5) Select **DATA OUT** from the bottom soft-key selection menu.
6) Make changes as shown below and then press the **SAVE SETTING** button.

eNETDNC Settings for Siemens 840 D Control

1) On the common screen set EOB = CR-LF

2) On the Download screen set:
     Start = %
     End = ^C
     Name ID = (

3) On the Upload screen set:
     Name ID to %_N_
     In the DIR header and Good msg field change just the **first** ^J to MPF
     (Example: %MPF08888^……….)
All other settings are standard defaults.

Parameter Settings for Traub Control

Name = V24
Reset = Yes
Baud = 4800/?
Par Bit = No
Stop Bit = 1
Char. Length = 8
Termination = EOR/EOB
Code 1 = 0
Code 2 = 0
I/O Start = 0
Hand Shaking = Xon/Xoff
Par DC = No
DC2 Output = 0
CR Output = Yes
Output Code = ISO
Title = Yes
Block Charter = 50
Parity V = N
Time Out = 0

Parameter Settings for Yasnac Control

NOTE: This works on SOME Yasnac's, but not all: Be sure to consult your machine manual before changing these settings and note previous settings!!

To Use The DNC (Computer) To Download

1) Select PARAM Button go to Parameter #6219 (It must be set to 1 to change Parameters).
2) Change Parameters below by going to them & hitting Insert Key.


```
#6002  7 6 5 4 3 2 1 0
-------- 1 0 ? ? ? ? ? ?        (7)–1=ISO, 0=EIA (6)–1=TV0N, 0=TVOFF


#6003  7 6 5 4 3 2 1 0
-------- ? ? 0 1 ? ? 0 1        (5&4)–01 = RS232 (1&0)–01 = RS232


#6021  7 6 5 4 3 2 1 0          (7)–0=Can punch 9000,9999 (6)-1=Replace File
-------- 0 0 0 0 1 ? ? ?        (5)–0=Keeps RS Signal On (4)-0=DR not recognize


#6026  7 6 5 4 3 2 1 0          (5)-0=Send Control Codes (4)-1= Stop Bits = "2"
-------- ? ? 0 1 1 0 0 0        (3,2,1,0) See Chart Below


#6028  7 6 5 4 3 2 1 0          (5)-0=Send Control Codes (4)-1= Stop Bits = "2"
-------- ? ? 0 1 1 0 0 0        (3,2,1,0) See Chart Below
```

Baud Rate	Bit - 3	Bit - 2	Bit - 1	Bit - 0
50	0	0	0	0
100	0	0	0	1
110	0	0	1	0
150	0	0	1	1
200	0	1	0	0
300	0	1	0	1
600	0	1	1	0
1200	0	1	1	1
2400	1	0	0	0
4800	1	0	0	1
9600	1	0	1	0

Common Fanuc Alarm Codes

Number	Meaning
000	Please turn off Power
001	TH Parity Alarm
002	TV Parity Alarm
008	Program has an error at End
070	No Program Space in Memory
071	Data Not Found
072	Too Many Programs
073	Program Number in Use
074	Illegal Program Number
085	Communication Error
086	DR Signal Off
087	Buffer Overflow
100	Parameter Write Enable
101	Please Clear Memory

TRANSIENT VOLTAGE SURGE SUPPRESSION

High technology is bringing more specialized and more sensitive electronic equipment into the workplace and the home. As products and components are produced smaller and smaller, they also use lower and more regulated voltage and are more vulnerable to surge-related over-voltage damage. These products are also getting more expensive and more difficult to repair. Sometimes the downtime of being without a certain piece of electronics is more expensive than the repairs to the voltage damaged equipment.
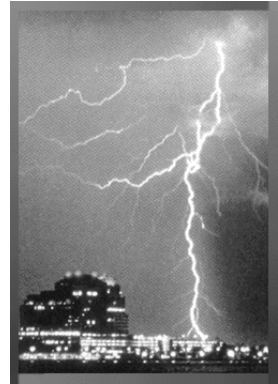
Transient voltage surges are voltage spikes that come into your facility from outside events such as lightning or power outages, or can even be generated from inside your facility by something as simple as turning on a light or motor. These voltage surges can be measured in nanoseconds, yet they can do great damage. Obviously large events such as lightning can do terrific immediate damage, while smaller spikes damage a little at a time. The small surges can cause seemingly minor damage to microprocessors that accumulates and will eventually cause a failure. Surge damage can cause computer data losses, scrambled data, excessive light and motor replacements, and may shorten the life of most any and all electrically operated equipment.

Port CNC strongly recommends protecting your eNETDNC system with surge suppressors.

Sincerely, *Port CNC Staff*