



**FTP Server for Fadal CNC Controls** 

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# Introduction

This manual is intended to provide a description of the Calmotion LANUSB-FAD FTP file server for Fadal CNC's. The LANUSB-FAD version has two new directory commands DU and DS to change to either USB or SD.

Some knowledge of LAN is required to setup the device onto a network. Some examples of possible network scenarios are provide later in this manual.

# Requirements

The device will work with any Fadal CNC control versions with an available DB25 serial connection located at the back of the machine. Only service personnel with appropriate knowledge should install this device. Contacting a Fadal distributor for installation is recommended, but not required.

# Installation

1. Power off machine.



- 2. Connect the power wires to a 120 VAC supply in the electrical cabinet. The 1100-1 board usually has open terminal connections that are convenient to find 120VAC. The black wire should be connected to a 120 VAC source and the white wire connected to neutral. The device is current protected with a fuse and a MOV for surge protection.
- 3. Locate a position for the Din rail.

- 4. Insert SD card and mount the Calmotion board to the DIN rail using the supplied clips.
- 5. Route the networks CAT5 cable into the electrical cabinet.
- 6. Plug in the power to the board. A green power LED should light up.
- 7. Plug in the networks Ethernet cable into the RJ45 on the top board.
- 8. Plug the DB25 cable coming from the **Fadal 1030 card in slot 8** into the LANUSB-FAD DB25.





- 9. At ENTER NEXT COMMAND, execute the INI+ command See the command section below. Verify that the communication to the Fadal CNC is in working order before continuing.
  - $\circ$  CD,10<enter>
  - INI+
- 10. Set up network as desired to connect to the LANUSB-FAD/LANUSB FTP server.

## **Description of Operation**

The LANUSB-FAD.INI file on the SD card **MUST** be edited with the settings to be used. This includes the CD,# to be used as well as the IP address to be used. Edit this file before using the unit with the Fadal machine. Do not change the file name, it must be LANUSB-FAD.INI to work.

This device acts as an FTP server for file storage that in turn can be accessed by a Fadal CNC. Connection to the FTP server can be done with standard software tools that are provided with most PC's. A logon is not required as the LANUSB-FAD FTP server accepts anonymous logins. Special software is not required. The most popular of these are Explorer and Internet Explorer from Microsoft. Anyone on the network can drag and drop files to the CNC server where they can be transferred to machine memory or drip fed (DNC). Conversely, files residing in CNC memory can be sent to the data server where they can be accessed by anyone on the network.

File information is stored on an SD card resident on the board. In the event of a network outage, the SD card may be removed and inserted into a PC.

Note: Files should follow the 8.3 format for proper operation. E.g. File name should not exceed 8 characters and the suffix should not exceed 3 characters.

The operator interface to the data server on the CNC side is done on the pendant of the Fadal CNC. Special '+' commands are used to active the data server on the CNC side. The correct CD,# must be used for proper operation.

The CNC command CD,8 sets a baud rate of 9600 The CNC command CD,10 sets a baud rate of 38400

(The above assumes that the version of Fadal control supports the baud rates listed, check SETP on page 1 the **maximum** available baud rate for the Fadal. Match the baud rate set for Calmotion in the **LANCNC.INI** file on the SD card.)

Once a CD command is entered, a Calmotion "plus" command may be used. A plus command activates the Calmotion device and allows it to take control of the CNC machine. Another CD,# will be **always** be needed **before** another plus command can be used. The following demonstrates the order of operation to execute a "+" command:

- 1. Enter the CD,# command (example: CD,10 or CD,8 as in the LANUSB-FAD.INI).
- 2. Type the plus command desired, ending the entry with a + sign and not a carriage return (enter key).
- 3. Wait for command to be processed (a couple of seconds if a SD card has just inserted).
- 4. Command is finished after the BYE command returns.

List of Available Commands

Calmotion <i>plus</i>	Description	
Command		
DE,FILENAME+	Delete the FILENAME	
DNCX,FILENAME+	DNC the FILENAME using X-modem (Preferred method)	
DNC,FILENAME+	DNC the FILENAME (Dash 2 systems)	
DNC,FILENAME,?+	DNC the FILENAME starting at line with ? text	
DNC,FILENAME,,?+	DNC the FILENAME. Add ? text before the file data is sent	
HELP+	Display the HELP menu	

PU,0,FILENAME+	Punch tooling data and current program	
PU,1,FILENAME+	Punch tooling data only	
PU,2,FILENAME+	Punch current program only	
PU,3,FILENAME+	Punch all programs	
TA,FILENAME+	Tape input FILENAME	
VW,FILENAME+	View FILENAME	

#### **Example of Use**

The Calmotion utilizes a new set of commands that are based on existing Fadal commands. These new commands are called Calmotion "plus" commands. These new commands are called plus commands because a + is used at the end of the commands to tell the Calmotion device to operate on these commands. The enter key is not used at the end of the + commands.

Command: DIR+ DU+ (LANUSB-FAD units only) DS+ (LANUSB-FAD units only) Description: Displays the root directory of the current disk device, SD or USB. When viewing the SD card, it will be the same directory if viewed from the FTP client on a computer. For LANUSB-FAD units, the DU+ command will switch the current disk device to display the USB directory. Subsequent DIR+ commands will continue to display from the USB. The DS+ command will switch to the SD card device and display the directory. Example:

ENTER NEXT COMMA	ND CD,10	
ENTER NEXT COMMA	ND DIR+	
Q		
0		
O1.TXT	01234.TXT	0111.TXT@
TOOLDATA.TXT	JOB7.	BACKUP.NC@
JOB1.TXT@		

```
Command: TA,FILENAME+
Description: Tape input command. Loads the file named into the CNC
memory.
Example:
ENTER NEXT COMMAND CD,10
ENTER NEXT COMMAND TA,JOB1.TXT+
M2
TAPE INPUT TERMINATED
ENTER NEXT COMMAND <
```

Command: PU,0,FILENAME+

Description: Punch command. Saves program and tooling data to the SD card from the CNC memory. Refresh the computers FTP software to view this new file.

Example: ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND PU,0,PRG2.NC+ % O2 (PRG2 X1. M2 T0,1,2.11 T0,2,3. F0,1,1.,1.,2. %

#### Command: **PU,1,FILENAME+**

Description: Punch command. Saves only tooling data to the SD card from the CNC memory. Refresh the computers FTP software to view this new file.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND PU,1,TOOL2.NC+ % TO,1,2.11 TO,2,3. FO,1,1.,1.,2. % ENTER NEXT COMMAND <

#### Command: PU,2,FILENAME+

Description: Punch command. Saves program data only to the SD card from the CNC memory. Refresh the computers FTP software to view this new file.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND PU,2,PRG3.TXT+ % O3 (PRG3 X1.Y2.G1 M2 % ENTER NEXT COMMAND <

#### Command: **PU,3,FILENAME+**

Description: Punch command. This saves all programs in CNC to the SD card from the CNC memory. Refresh the computers FTP software to view this new file.

```
Example:
```

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND PU,3,ALL.TXT+ % O2 (PRG2 X1. M2 O3 (PRG3 X1.Y2.G1 M2 %

#### Command: DNC, FILENAME+

Description: DNC, direct Numerical Control, command. This command will run a program from the SD card on the CNC machine. Use **DNCX** if possible.

An end of program must be included at the end of the program being sent via DNC so that the control will enter the WAITING mode at the end of the program.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND DNC,JOB1.TXT+

#### Command: DNCX, FILENAME+

Description: This is the **preferred** DNC method if the Fadal supports the command. DNCX, Direct Numerical Control with X-modem. This command will run a program from the SD card on the CNC machine. The X-modem version of DNC requires the option to be available on the Fadal control. If the

 $\ensuremath{\mathsf{DNCX}}$  feature exists on the Fadal control then this version of  $\ensuremath{\mathsf{DNC}}$  can be used.

It is important to note that with version 3.0 and later, the file being sent via DNC will continuously repeat. An end of program must be included at the end of the program being sent via DNC so that the control will enter the WAITING mode at the end of the program.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND DNCX,JOB1.TXT+

Command: DNC, FILENAME, ?+

Description: DNC, Direct Numerical Control with block search. The DNC command has an optional parameter to start at a specific block of data within the file to be sent via DNC. Type the desired search text following the file name. The Calmotion then will search the file until it matches the specified text. For example, suppose the operator were to type in DNC,MOLD.TXT,N1000.2. DNC will begin when a block that contains "N1000.2" is found.

Note: An N word can be added to a single line of the file in order to establish a starting block number. This is true even if there are no other block numbers in the file. N words cannot exceed 99,999. For large files, increments other than 1 can be used.

Example #1:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND DNC,MOLD.TXT,N1000.2+

Example #2: Search for "X-12.375" in file MOLD.TXT

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND DNC,MOLD.TXT,X-12.375+

Command: DNC, FILENAME, , ?+

Description: DNC, Direct Numerical Control with preparatory text. This runs a program from the SD card on the CNC machine. Preparatory data can be sent prior to running the file. For example, the operator might want to make a tool change prior to running a file.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND DNC,MOLD.TXT,,M6T1+ Command: **DE,FILENAME+** 

Description: This command will delete the file specified from the SD card inside the LANUSB-FAD.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND DE,JOB1.TXT+ FILE JOB1.TXT DELETED @

Command: **HELP+** Description: Display the commands available for use with the device. Example:

ENTER NEXT COMMAND	CD,10	
ENTER NEXT COMMAND	HELP+	
* LANUS	B-FAD VERSION 3.0 *	
		g
DIR+	DISPLAY ROOT DIRECTORY	Ø
DE, FILENAME+	DELETE FILENAME	Q
TA, FILENAME+	LOAD FILENAME INTO CNC MEMORY	Q
PU,0,FILENAME+	SAVE PROGRAM AND TOOLING DATA TO FILENAME	9
PU,1,FILENAME+	SAVE TOOLING DATA ONLY TO FILENAME	9
PU,2,FILENAME+	SAVE PROGRAM ONLY TO FILENAME	9
PU, 3, FILENAME+	SAVE ALL PROGRAMS IN MEMORY TO FILENAME	9
DNC, FILENAME+	DNC FILENAME (USE DNCX FOR XMODEM)	9
DNC, FILENAME, ?+	DNC FILENAME STARTING AT LINE WITH ? TEXT	9
DNC, FILENAME,, ?+	DNC FILENAME SEND ? TEXT BEFORE FILE DATA	9
VW, FILENAME+	VIEW FILENAME WITHOUT LOADING	9

Command: **INI+** Description: Displays the current IP settings used by the LANUSB-FAD these IP settings are set by the LANUSB-FAD.INI file.

Example:

ENTER	NEXT	COMMAND CD,10	
ENTER	NEXT	COMMAND INI+	
IP ADI	DRESS	= 192.168.1.113	Ø
IP MAS	SK = 2	255.255.255.0 @	
IP GAT	TEWAY	= 0.0.0.0	
IP DNS	S = 0.	.0.0.0	

Command: **RESET+** 

Description: Resets the LANUSB-FAD. This is required if the SD card is ever removed or a new INI file has been saved to the LANUSB-FAD FTP Server.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND INI+ RESETTING CALMOTION LANUSB-FAD... @

Command: VW,FILENAME+

Description: Displays the first 12 lines of the file specified. This can be used before loading or deleting files to verify the contents of a file.

Example:

ENTER NEXT COMMAND CD,10 ENTER NEXT COMMAND VW,ALL.TXT+ %@ O2 (PRG2@ X1.@ M2@ O3 (PRG3@ X1.Y2.G1@ M2@

# Deciding on a network configuration

There are several ways to design a network. Some knowledge and experience with setting up networks is highly suggested. The simplest example shown below is of a peer-to-peer network where there are only two devices connected. The other examples shown below expand the number of computers and LANUSB-FAD possible on the network.

Using the simple peer-to-peer network is a good starting point when setting up a new network or before integrating the LANUSB-FAD and the Fadal CNC into a larger company network.

The following are the suggested manufacturers of routers and access points:

Belkin 4-Port Cable/DSL Gateway Router F5D5231-4 Belkin Wireless G Router F5D7230-4 (this can be configured as an access point) Belkin Wireless G Router P57612-G (this can be configured as an access point)

# Example 1, Simple Peer-to-peer Network connection

The diagram below shows a simple peer-to-peer configuration of integrating a computer (i.e. desktop or laptop computer running Windows, MAC or Linux OS), the Calmotion LANUSB-FAD controller and a Fadal CNC. This simple setup is good starting point when setting up a new network or before integrating it into a larger company network.



The SD card sets the IP address, for example it could be 192.168.1.111. Use the INI+ command to display on Fadal or edit the **LANUSB-FAD.INI** file on the SD card. Direct connection to a Windows XP PC out of the box with an Ethernet cable can be achieved by following the subsequent procedures:

1. Select Control Panel from the Windows Start button. The screen should look like Figure 3 below.





2. Select "Network Connections" and the following screen should appear.



3. Highlight the "Local Area Connection" and right click the mouse. A box should appear. Select "Properties" and a new box should appear.

🛎 Local	Area Connec	tion Properties	
General	Authentication	Advanced	
Conne	ct using:		
	Broadcom 440x 1	0/100 Integrated C	Con
This co	onnection uses th	e following items:	
	Client for Micro	soft Networks	
	QoS Packet S	Cheduler ol (TCP/IP)	t Networks
	QoS Packet So Internet Protoc	Sharing for Microsol cheduler ol (TCP/IP) Uninstall	t Networks
	QoS Packet So Internet Protoc	Sharing for Microsol cheduler ol (TCP/IP) Uninstall	rt Networks
Desc Trar wide acro	Install sription area network pro- ss diverse interce	Sharing for Microsol cheduler ol (TCP/IP) Uninstall Protocol/Internet Pro otocol that provides onnected networks.	Prop Prop Ditocol. The communicat

Figure 5

4. Select "Internet Protocol (TCP/IP)" so that it is highlighted and click the "Properties" button.

A new screen will pop up. Select the button "Use the following IP address:" and type in an address of 192.168.1.101. The sub-net mask should be 255.255.255.0. Click "OK". The "Local Area Connection Properties" menu will be displayed. Click "Close". There will be a slight delay while your PC applies these new settings.

Internet Protocol (TCP/IP) Prop	erties		
General			
You can get IP settings assigned auto this capability. Otherwise, you need to the appropriate IP settings.	omatically i o ask your	f your r networ	network s kadminis
🔘 Obtain an IP address automatica	ally		
🔞 Use the following IP address: —			
IP address:	192.	168.	2.10
Subnet mask:	255	255 .	255.0
Default gateway:			
Obtain DNS server address auto	omatically		
→ Use the following DNS server a	ddresses: -		
Preferred DNS server:		÷	•
Alternate DNS server:			•

5. You may exit from the Control Panel. Start Internet Explorer and type ftp://192.168.1.111 in the address bar. A screen similar to the one shown in Figure 8 should appear. A number of files are loaded on the SD card when shipped for testing purposes. A message will appear "To view this FTP site in Windows Explorer, click Page, and then click Open FTP Site in Windows Explorer".

6 FTP root at 192.168.2.1	11 - Windows Int	rnet Explorer		
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites	<u>T</u> ools <u>H</u> elp			
😭 🏟 🌈 FTP root at 192.16	58.2.111		🙆 · 🔊	
FT Proot at 192	.168.2.111 indows Explorer,	lick Page, and then click Open FTP	Site in Windows Explorer.	
06/14/2074 12:00AM	Directory	NCFF		
06/14/2074 12:00AM	Directory	NCFF1 TESTETIE TYT		
01/01/2008 12:06AM	26 075 336	23456 NC2		
01/01/2008 12:08AM	26,075,336	23456 NC1		
01/01/2008 12:11AM	26,075,336	23456.NC6		
01/01/2008 12:13AM	26,075,336	23456.NC5		
01/01/2008 12:16AM	26,075,336	23456.NC4		
01/01/2008 12:18AM	26,075,336	23456.NC3		
01/01/2008 12:00AM	11	CNC11.TXT		
01/01/2008 12:00AM	296	CNC12.TXT		
01/01/2008 12:00AM	280	CNC13.TXT		
01/01/2008 12:00AM	280	CNC14.TXT		
01/01/2008 12:00AM	280	CNC15.TXT		
01/01/2008 12:00AM	45,958	CNC16.TXT		
01/01/2008 12:01AM	45,958	CNC17.TXT		
01/01/2008 12:01AM	0	CNC1.TXT		
01/01/2008 12:01AM	280	CNC2.TXT		
01/01/2008 12:01AM	280	CNC3.TXT		
01/01/2008 12:01AM	280	CNC4.TXT		
01/01/2008 12:01AM	280	CNC5.TXT		
01/01/2008 12:01AM	1,002,804	CNC6.TXT		

Follow the instructions that come up in Internet Explorer to view the files in an ftp viewer window. (Click "**Page**", and then click "**Open FTP Site in Windows Explorer**" in the drop down box.)

😫 ftp://192.168.2.111/ - Microsoft Internet Explorer					
File Edit View Favorites	Tools Help				
🕝 Back 👻 🕥 👻 🥬	Search 💭	Folders	≫ 🗙 🍤 🛄-		
Name 🔺	Size	Туре	Modified		
		File Folder	6/14/2074 12:00 AM		
CFF1		File Folder	6/14/2074 12:00 AM		
<b>1968</b>	272 KB	File	1/1/2008 12:01 AM		
🔤 23456.NC1	24.8 MB	NC1 File	1/1/2008 12:08 AM		
🔤 23456.NC2	24.8 MB	NC2 File	1/1/2008 12:06 AM		
🗖 23456.NC3	24.8 MB	NC3 File	1/1/2008 12:18 AM		
23456.NC4	24.8 MB	NC4 File	1/1/2008 12:16 AM		
🔤 23456.NC5	24.8 MB	NC5 File	1/1/2008 12:13 AM		
🔤 23456.NC6	24.8 MB	NC6 File	1/1/2008 12:11 AM		
E CNC1.TXT	0 bytes	Text Document	1/1/2008 12:01 AM		
E CNC10.TXT	112 bytes	Text Document	1/1/2008 12:01 AM		
E CNC11.TXT	11 bytes	Text Document	1/1/2008 12:00 AM		
CNC12.TXT	296 bytes	Text Document	1/1/2008 12:00 AM		
CNC13.TXT	280 bytes	Text Document	1/1/2008 12:00 AM		
E CNC14.TXT	280 bytes	Text Document	1/1/2008 12:00 AM		
E CNC15.TXT	280 bytes	Text Document	1/1/2008 12:00 AM		
E CNC16.TXT	44.8 KB	Text Document	1/1/2008 12:00 AM		
E CNC17.TXT	44.8 KB	Text Document	1/1/2008 12:01 AM		
CNC2.TXT	280 bytes	Text Document	1/1/2008 12:01 AM		
E CNC3.TXT	280 bytes	Text Document	1/1/2008 12:01 AM		
E CNC4.TXT	280 bytes	Text Document	1/1/2008 12:01 AM		
E CNC5.TXT	280 bytes	Text Document	1/1/2008 12:01 AM		
CNC6.TXT	979 KB	Text Document	1/1/2008 12:01 AM		
CNC7.TXT	0 bytes	Text Document	1/1/2008 12:01 AM		
CNC8.TXT	280 bytes	Text Document	1/1/2008 12:01 AM		
E CNC9.TXT	280 bytes	Text Document	1/1/2008 12:01 AM		
KING-L4.NC	8.61 MB	NC File	1/1/2008 12:03 AM		
MANCNC.INI	104 bytes	Configuration Settings	1/1/2008 12:10 AM		
E TECTERE TVT	75	Tout Descent	C11 4 10074 10.00 AM		

The figure above shows the display on a PC when the ftp site has been opened from the previous step. At this screen, files can transferred from any file folder on your PC and the FTP site. If you wish to create a new directory on the FTP site, create a file folder somewhere on your PC such as "My Documents". Select the folder and drag and drop with your mouse to the ftp window shown above. The file directory as well as any files inside the directory will be copied to the Calmotion ftp site on the SD.

As an alternate, there are a number of ftp software programs that are available that offer additional ftp options for managing your files. Additional features offered are logging file transfer activity, data rate transfer, and comparisons of directory data.

# Example 2, Wired Network connection using a router

The diagram below shows a wired network configuration using a network router. The router connects multiple networking devices together.



The IP address of the router is required to setup the LANUSB-FAD. There maybe some changes on the router also. The following are the suggested settings on the router:

DHCP enabled (On) IP Address: 192.168.2.1 Subnet Mask 255.255.255.0 IP Pool Starting Address 192.168.2.2 IP Pool Ending Address 192.168.2.100

Using these settings on the router will allow computers on the network to automatically get their own IP addresses in the range of 192.168.2.2 to 192.168.2.100. And it leaves 192.168.2.101 and above to be available to static IP address like the LANUSB-FAD devices. It is important to note that only one device can use an IP address at a time. The router, computers, printers, and LANUSB-FAD devices need to have their own number in the network range provided by the IP address and Subnet Mask. In the suggested settings above the only address available to the network devices is between 192.168.2.1 and 192.168.2.254. The following is and example of IP addresses that could exist:

192.168.2.1 is the Belkin Routers IP address (fixed in the router settings)
192.168.2.2 is a desktop computer IP address (automatically provided by the DHCP)
192.168.2.3 is a laptop computer IP address (automatically provided by the DHCP)
192.168.2.4 is a printer IP address (automatically provided by the DHCP)
192.168.2.101 is a Calmotion LANUSB-FAD IP address (set in LANUSB-FAD.INI on the SD card)
192.168.2.103 is a Calmotion LANUSB-FAD IP address (set in LANUSB-FAD.INI on the SD card)
192.168.2.103 is a Calmotion LANUSB-FAD IP address (set in LANUSB-FAD.INI on the SD card)

The following is an example of what a network router LAN configuration page should look like. You typically access the LAN settings via a web browser and type in the routers IP address, in this example it is 192.168.2.1. This is a typical IP address of routers. (Consult manufacturers documentation)





Α

Β

This is the IP address of the router. If you type in 192.168.2.1 into a web browser, the displayed router settings shown above should be displayed. The first three numbers will need to be the same on the connected Calmotion LANUSB-FAD devices. The last number is essentially the device number. The router is 1, the computers will be provided a number from 2 to 100, and the Calmotion LANUSB-FAD will need to have a number from 101 to 254.

- This is the subnet mask. This should never be changed.
- **C** Basically, these settings will provide 99 IP addresses to the DHCP, so that 99 computers can automatically get an IP address from the router's DHCP. It also frees up IP addresses from 101 to 254 to static IP address devices, i.e. Calmotion LANUSB-FAD.

## Example 3, Wireless Network connection and a Wireless Bridge

The diagram below shows a Wireless Network connection to the Calmotion using a router and a Wireless Bridge. It is suggested to use the router settings shown in the previous section. This configuration will use the wireless router with wireless bridging turned on to connect to another wireless router set up as an access point.



Use the following step-by-step procedure to setup the router and then the access point. These settings are based on using a Belkin Wireless G router and access point:

Router Configuration (check manufacturers documentation for the correct IP and method).

- 1. Open a Web Browser
- 2. In the address bar, type http://192.168.2.1
- 3. Click on Wireless Bridge in the left hand column under Wireless
- 4. Enter your password if any and click Submit
- 5. Check the box that says Enable Wireless Bridging, click Apply Changes.
- 6. Click Home, note the WLAN MAC address under LAN settings

Access Point Configuration (check manufacturers documentation for the correct IP and method).

- 1. Open a Web Browser
- 2. In the address bar type http://192.168.2.254
- 3. Click on Wireless Bridge in the left hand column under Wireless
- 4. Enter your password if any and click Submit
- 5. Check the box that says, Enable Wireless Bridging

6. Check the box that says, Enable ONLY specific Access Points to connect and enter the WLAN MAC address from the router, click Apply Changes. Note: The channel must be identical on both the router and the access point.

It is important that the router and access point use the same Channel, SSID, and security settings. The access point will become another device on the routers network. When both devices are using the same wireless communication parameters, they will be able to communicate with each other.

# Changing the IP address on the Calmotion device

A typical setup can be an IP address 192.168.1.111 and 38400 baud, use INI+ command to display current IP address, or view the LANUSB-FAD.INI file on SD card.

If a different IP address is desired, use a PC to create a text file on SD card with the file name LANUSB-FAD.INI in the root directory. *This file must be text only and have carriage returns at end of each line*.

Change the baud rate after the CNC= in the LANUSB-FAD.INI file. Check the available baud rates in the SETP of your Fadal control.

In order to change the IP address of the LANUSB-FAD to 241, the contents of the LANUSB-FAD.INI file should contain the following:

```
CNC=38400
BYE=ON
IP address=192.168.1.241
IP mask=255.255.255.0
IP gateway=0.0.0.0
IP dns=0.0.0.0
```

Remember the last number on the IP address will be that Fadal's "number." To access the files on that Fadal LANUSB-FAD file server, type in "ftp:192.168.1.241" in Windows File Explorer browser to view the directory contents stored on the machines 1GB SD card.

# Changing the baud rate on the Calmotion device

The typical default is to 38,400 baud. If a different baud rate is desired, verify that the CNC can support the new baud rate. To change the Calmotion device baud rate, the LANUSB-FAD.INI file must be changed on the SD card. Use a PC to create/edit a text file on a SD card with the file name LANUSB-FAD.INI in the root directory. *This file must be text only and have carriage returns at end of each line*. To change the baud rate to 9600 baud, type CNC=9600 in the first line of the LANUSB-FAD.INI file. The LANUSB-FAD.INI file must be text only. The maximum the Fadal performs best at is 38400. Check Fadal SETP for bauds available.

Example how to change the Calmotion ftp address to 192.1678.2.113 and the baud rate to 9600:

```
CNC=9600
BYE=ON
IP address=192.168.2.113
IP mask=255.255.255.0
IP gateway=0.0.0.0
IP dns=0.0.0.0
```

To complete the baud rate change, cycle power. Enter the correct baud rate on the CNC with the corresponding CD,#.

# Using the BYE= parameter

The BYE=OFF is for older CNC's that clear the screen after receiving the BYE command. The BYE command is important because it closes the serial port and allows the keyboard of the Control to start functioning again. If the BYE is not sent, press the MANUAL key or the ENTER key to regain keyboard control. Set the BYE=OFF in the INI file only if the control version clears the screen after a BYE command. Otherwise keep it at the default of BYE=ON.

# **Trouble Shooting Guide**

# Problem: There is no response from the device.

- 1. Verify the +7 to +30 VDC power supply is plugged into the device.
- 2. With power applied, at least one LED should be lit on the device indicating power.
- 3. The straight through DB25 cable provided should be connected directly into the machine. Do not use any extra cables. Fadal 1030 should connect directly to DB25 on Calmotion.
- 4. Verify that the machine version supports the baud rate being used. CD,10 is for 38,400 baud machines. CD,8 is for 9600 baud machines. To verify the machine's capability, use the MU command at the ENTER NEXT COMMAND prompt and go to page for Change Device.

- 5. Verify the device matches the baud rate expected. The LANUSB-FAD.INI file sets the baud rate on the device. Otherwise, 38,400 is the default.
- 6. The Calmotion command set requires a plus to be used instead of the enter key. After entering a command, end the command with a plus and do not press the enter key or return key.
- 7. The CD,10 and CD,8 commands are Fadal CNC commands, not "plus" commands. Press the enter key after the CD commands, do not press + key at the end of this command.

# Problem: The CNC gives an error that the command is not recognized.

- 1. The Calmotion command set requires a + to be used instead of the enter key. After entering a command, end the command with a plus and do not press the enter key or return key.
- 2. The CD,10 and CD,8 commands are Fadal CNC commands, not "plus" commands. Press the enter key after the CD commands, do not press + key at the end of this command.

# Problem: The CNC gives message "PRESS ANY KEY TO CONTINUE"

**1.** In SETP on Fadal, change the CMD MENU parameter to either OFF or SPACE. Parameter can not be set to ON.

# **Problem: DNC stops with an error or for no apparent reason when using DNC mode.**

- 1. Use the **DNCX** when the X-modem feature if available on the Fadal.
- 2. Lower the baud rate on the Calmotion and Fadal.
- **3.** Certain Fadal versions require comment block lines to have an N word on the comment line. If they do not have the N word, the CNC will give an error. Delete the comments or add N words to the comment lines. The same comment line can be used if desired. The LANUSB-FAD dynamically adds an N1 before a comment character. The comment character must be the first character in the line.

## Problem: Part of the file is missing.

- 1. When using a PC, always use the "Safely remove hardware" icon before removing the SD card from a computer.
- 2. Wait for the file to be completely saved after punching.
- 3. There is not enough room on the SD card to save the file completely.

# **Revision History:**

# **Rev 2.4 Initial release**

# Rev 2.5

1. Added INI+ and the RESET+ commands

# **Rev 2.9**

1. Added retry on FTP transfers

# **Rev 3.0**

**1.** DNC repeats same file. NC file must have a M2 or M30 at end of program to return the machine to WAITING at end of program otherwise file will continuously repeat.

2. Files with only line feeds can be used for DNC without having to add carriage returns to the file.

# Rev 8LU

1. Initial version supporting USB

# Rev 9.4LU

1. USB directories not functioning in some situations.

# **Rev 9.42LU**

1. there was no way to turn off DNC=ONE TIME, now it defaults to 0 before checking for command in INI