User's Guide Revised 2/01/93

COMM PLUS

Danfoss Automatic Controls Graphic Interface System

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Danfoss Automatic Controls

Comm Plus

IT IS RECOMMENDED THAT THE USER READ THIS ENTIRE MANUAL

BEFORE USING THIS PROGRAM.

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1.0 INTRODUCTION

1.1 SYSTEM REQUIREMENTS

Comm

- **IBM PC/XT/AT/PS2 or compatible.**
- **640 K RAM.**
- **Color Monitor Recommended, (not Required)**
- **MS DOS/PC DOS 2.0 or Higher**

Comm Plus

- **IBM XT/AT/PS2 or compatible with hard disk.**
- **640 K RAM.**
- **EGA (256K)/VGA Color Graphics Adapter and Monitor**
- **MS DOS/PC DOS 2.0 or Higher.**
- **Microsoft Compatible Mouse. Using mouse.con or mouse.sys (see your mouse documention)**
- **Serial Port other than port used for mouse.**

If communication over the phone line is desired, a Hayes Compatible Modem is also required.

1.2 INSTALLING COMM ON A HARD DISK

- **Insert Disk in Drive A:**
- **Type "cd\"**
- **Type "A:CINST"**

The "cinst" program defaults to installing the comm files in C:\DAC and the graphics files to C:\DAC\GRAPH if you respond "Y" to the "OK to continue" prompt. If you respond "N", "cinst" will prompt you for the desired directories. If you answer "Q", the program will abort. If you continue the install, "cinst" will create the directories if they don't already exist.

1.3 CONVERTING TAMS COLLECT DIR TO COMM

If you have a collect file ("collect.dir") that was created using DAC TAMS, the cnvrt utility ('cnvrt.exe') can be used to convert the information to COMM's group format. The following steps should be taken to convert your collect file.

- **Insert Disk in Drive A:**
- **Copy your TAMS "collect.dir" to your COMM directory**
- **Change directory to your COMM directory**
- **"copy a:cnvrt.exe"**

- **"cnvrt"**

The convert utility will rename your TAMS "collect.dir" to "collect.old". The names will be copied from "collect.old" into "collect.dir" - your COMM group file. A "collect.cmd" file will be created for performing the collect. If your old collect file had a timer, this will be copied into your command file and whatever types of collects (i.e. DATS) were performed in your old collect will be copied into your collect command file ("collect.cmd"). To perform a collect, all you need to do within COMM is to execute the command file "collect.cmd"

2.0 GENERAL INFORMATION

2.1 CONFIGURATION

The first time COMM is loaded, the Configuration window appears. Using the up and down arrow keys, position the flashing underscore to the proper mouse configuration, either no mouse or the mouse connection used with your system. Press [return]to highlight the desired configuration. Press the right arrow to position the flashing underscore to OK and press [return] to continue. The first time COMM is loaded is the only time the Configuration window will automatically appear. If you wish to bring up this window at a later time, "COMM/r" or "COMM -i" from the DOS prompt will allow you to re-enter your mouse configuration.

2.2 COMM ENVIRONMENT

When DANFOSS ' COMMunication System (COMM), is loaded (by typing COMM and pressing [return] at the DOS prompt), you will see two lines on the screen, one each at the top and the bottom of the screen with a window in between. The top line is the command line and the bottom line is the status line (Section 2.4 and 2.3). The version window contains the release number of your program. The window will remain on the screen until either a key is pressed or the mouse is moved.

2.3 STATUS LINE

The status line appears on the bottom of the screen. It contains current settings including the com port, the baud rate, the communication/status mode, the output mode, and the timer. These settings have default values which are determined in the COMM Settings Menu (Section 8.0). They can be changed for the current session through either the Settings Options or through special alt keys (Section 2.5). These settings can also be saved permanently through the settings drop-down menu, option "Save Defaults" (Section 8.11). The status line is updated to always contain the current settings.

2.4 COMMAND LINE

The command line (main menu) is located at the top of the screen. It allows you access to all of COMM's commands through the use of drop-down windows. These drop-down windows can be accessed by using the left and right arrow keys to highlight the desired option and pressing [return] to select or if your using a mouse, simply point to the desired drop-down window and press the left button to select.

2.5 SPECIAL KEYS & MOUSE BUTTONS

Special keys are keys setup as "shortcuts" to certain commands. These keys perform the same functions as the corresponding commands in the drop-down menu, but these special keys will save you in the number of keystrokes it takes to access the function. A list of these special keys can be displayed in COMM by pressing the Alt-H keys.

Alt-B : Toggle Baud Rate	Alt-P : Toggle Printer
Alt-C : Toggle Com Port	Alt-Q : Redial Last Number
Alt-D : Dial Window	Alt-R : Receive File
Alt-E : Execute Commands	Alt-S : Send Database / Software
Alt-F : Toggle Output to file	Alt-T : Transmit File
Alt-G : Get Database	Alt-U : Toggle Duplex
Alt-I : Clears Timer	Alt-X : Exits the Program
Alt-K : Suspend Log to File	Alt-Z : DOS Shell
Alt-N : Clear Screen	Ctrl-D : Disconnect Phone Line
Alt-O : Print File	Esc : Exit All Windows

When using the mouse, two buttons have meaning. If your mouse has three buttons, the two active buttons are the left and right buttons. The left button is the select button and the right button is the abort button.

2.6 MENUS & WINDOWS

Once a drop-down menu has been selected from the command line, you can move the pointer up and down the menu. The pointer highlights the menu item that the pointer is currently on. Press the mouse left button or the [return] key to select the highlighted menu item. If you press the left button when not point ing at a menu item or the right button the drop-down menu will disappear.

Most drop-down menu items result in an input window. An input window requires input, sometimes selecting one of several options (i.e. Com Port) or perhaps entering (typing) in a response (i.e. Directories). In either case, you will see OK and CANCEL boxes. COMM will not continue until you select either OK to proceed with the input or CANCEL to abort the input. Escape can also be used to abort out of the input window.

In addition to the OK and CANCEL boxes, occasionally the OK and CANCEL boxes and functions will change to accurately reflect your options. In general, the boxes have the following meanings :

- **OK - proceed with selected item**
- **CANCEL - cancel window**
- **ADD - add selected item**

- **DELETE - delete selected item**
- **ABORT - abort current add/delete function**
- **DONE - finished changes, close window**

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3.0 DIALING

3.1 INITIATING DIAL-OUT (Alt-D) Menu "Dial", Option "Dial"

The dial window has two entry fields, "Building" and "Phone #". Only one entry is required. If you have a phone file ("phone.dir") (see Section 9.2), simply enter the phone file entry as the Building Name, otherwise the phone # must be entered. The up and down arrow keys or the mouse can be used to placed the cursor within the box desired, either "Building" or "Phone #". If using a phone file, enter the name of the building as listed in the phone file. If entering the phone #, remember to include a long distance "1" and area code if applicable.

For example :

local number -- 123-4567

long distance number -- 1-234-567-8901

If the phone file entry was used to dial, then following the completed phone call, the building phone number as stored in the phone file will be displayed. This is just for information purposes if for some reason you wished to contact someone at the building.

3.2 REDIALING (Alt-Q) Menu "Dial", Option "Redial"

Redialing simply redials the last number dialed. If no number has been dialed, a message is displayed notifying the user.

3.3 DISCONNECTING (Ctrl-D) Menu "Dial", Option "Disconnect"

Disconnect will disconnect you from the Remote Unit. A window will appear notifying you of the disconnection and the status mode will change from "remote" to "local".

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4.0 TRANSMITTING DATABASES / SOFTWARE

The Get and Send functions of DAC's COMM enable a database/software to be transmitted to or retrieved from a DAC control system.

4.1 GET DATABASE (Alt-G) Menu "Get/Send", Option "Get"

Get Database can be initiated either with an Alt-G or through the menu. You should have already either dialed up the unit or be directly connected with the control unit before doing a get database. A Retrieval Menu will appear which allows you to select the type of retrieval you will doing. Use the up and down arrow keys, pgup and pgdn or the mouse to position the highlighted bar to the desired type . Use the [return] key or the mouse left button to select.

Retrieval Menu

NC25 versions 1.A through 1.L (NA)	Z version 5 (5X)
NC25 versions 1.7 through 3.X (NN)	Z50 versions 9F (50)
Z55 version 1 (55)	Z versions 8 and 9 (8X)
Z versions 2.5 and 2.6 (25)	Z version 10 (1X)
Z versions 2 & 3 (except 2.5, 2.6) (2X)	NC25 version 3, through Z version 10 (AX)

Once you've selected the type, the Retrieval Menu is replaced with the Retrieval Window. If you select NC25 version 3, through Z version 10, a special window will appear (before the Retrieval Window) which allows you to specify which NC25s to pullback. See Section 4.3 for directions on selecting NC25s to pullback.

Retrieval Window

Database Name : _____

File Status :

Transmitter Status :

Database Status :

Here you will enter the Database Name, this is the filename that will be stored on your disk. You may enter an extension if you want, however, if you do not, a default extension will be supplied. COMM will notify you under File Status if the file already exists and allow you to continue or re-enter.

If there is a parameter file, filename.prm on the disk, the parameter file will specify what information to pullback and how much. The File Status will specify if the pullback is according to the parameter file or if the entire database will automatically be pulled back. In version 8,9 and 10, a parameter file is always used and is automatically created when pulling back and when assembling a database. In that case, the parameter file is set up to pull back the entire database.

As the pullback progresses, the Receiver Status and Database Status will contain the current status of the pullback. The overall Status will display the final result ("Success" or "Abort"). If you wish to abort the procedure, press ESC or the mouse right button.

4.2 SEND DATABASE/SOFTWARE (Alt-S) : Menu "Get/Send", Option "Send"

Send Database/Software can be initiated either with an Alt-S or through the menu. You should have already either dialed up the unit or be directly connected with the control unit before doing a send database. A Transmit Menu will appear which allows you to select the type of transmittal you will be doing. Use the up and down arrow keys, pgup and pgdn or the mouse position the highlighted bar to the desired type. Use the [return] key or mouse left button to select.

Transmit Menu

NC25 versions 1.A through 1.L (NA)	Z50 versions 9F (50)
NC25 versions 1.7 through 3.X (NN)	Z versions 8 and 9 (8X)
Z55 version 1 (55)	Z version 10 (1X)
Z versions 2.5 and 2.6 (25)	NC25 version 3, through Z version 10 (AX)
Z versions 2 & 3 (except 2.5, 2.6) (2X)	Z program load (versions 8, 9 & 10) (PG)
Z version 5 (5X)	Z load memory failure msg, ver 8,9,10 (EX)

Once you've selected the type, the Transmit Menu is replaced with the Transmit Window. The following prompts will appear for all types except the "load memory failure msg". If you select NC25 version 3, through Z version 10, a special window will appear (before the Transmit Window) which allows you to specify which NC25s to transmit. See Section 4.3 for directions on selecting NC25s to transmit.

Transmit Window

Database Name : _____

File Status :

Transmitter Status :

Database Status :

Overall Status :

Here you will enter the Database Name, this is the filename that is be stored on your disk. You may enter an extension if you want, however, if you do not, a default extension will be supplied. COMM will notify you under File Status if the file does not exist and prompt you to re-enter.

If there is a parameter file, filename.prm on the disk, the parameter file will specify what information to transmit and how much. The File Status will specify if the transmit is according to the parameter file or if the entire database will automatically be sent. In version 8,9 and 10, a parameter file is always used and is automatically created when assembling a database. In that case, the parameter file is set up to transmit the entire database.

As the transmit progresses, the Transmitter Status and Database Status will contain the current status of the transmit. The overall Status will display the final result ("Success" or "Abort"). If you are loading software, the Transmit Window references to database are changed to program. If you wish to abort the procedure for database or program transmit, press ESC or the mouse right button.

If you are loading the memory failure msg, you will be prompted for two phone numbers, a building name, and location. You must enter at least one phone number, a building name, and location. You will not be able to continue until those fields are entered. After you have entered those values, COMM will begin to transmit the memory failure msg. The overall status will display the final result ("Success" or "Abort").

4.3 NC25 Get/Send Selection

The window will list NC25 # 1 through NC25 # 8. You can specify which of the 8 slots should be retrieved or sent. You should specify all eight NC25s or a single NC25. The NC25 databases should already have been pulled back to the Z if doing a retrieval. Now you are selecting those slots that contain databases you wish to retrieve from the Z or those slots to which you are going to load. Move the highlighted bar to the desired slot and press the Space bar to select. The background color will change indicating the selection. Continue selecting slots desired. The Space bar will toggle the slots between selected and not selected if you change your mind. Press the [return] key when finished. The Retrieval/Transmit Window will now appear. Note that when entering the database name you will only enter one seven character name, COMM automatically appends a digit '1'-'8' corresponding to the NC25 slot selected and thus pulls back/transmits all selected NC25s using slightly different names. i.e.

Selected Slots : 5

Entered : testdb

Files Created : testdb5

If sending the NC25 databases to the Zx slots, you will then need to load the NC25s from the Zx to the NC25s.

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5.0 GENERAL FILE TRANSFER

5.1 TRANSMIT FILE (Alt-T) Menu "Transfer", Option "Transmit"

Transmit File can be initiated either with an Alt-T or through the menu. You should have already either dialed up the unit or be directly connected with the remote unit before doing a transmit file. A window will appear prompting you for the filename to transmit. The filename can contain wildcard characters for sending multiple files. If no filenames can be found that match the input, "No file found" is displayed. Any key can be pressed which will close the window and take you back to menu status. If at least one file match was found, the file transfer window appears.

File Transfer

Name : _____

Status :

Blocks :

Bytes :

Errors :

The name of the file being transferred appears by the Name. The Block Size starts at 1024, if multiple errors occur, the block size will change to 128 bytes. If any errors occur, they will appear on the bottom line or if the file transfer completes successfully, any key can be pressed to close the window and return to the menu.

Compatible COMMs need to be used on either side of the transfer. Check the following table for compatible COMMs.

Transmit	Receive
Comm 1.3	Comm 1.3
Comm 1.5	Comm 1.5
Comm 2.x	Comm 2.x

5.2 RECEIVE FILE (Alt-R) Menu "Transfer", Option "Receive"

Receive File can be initiated either with an Alt-R or through the menu. You should have already either dialed up the unit or be directly connected with the remote unit before doing a transmit file. A window will appear prompting you for the filename to transmit. The filename can contain wildcard characters for receiving multiple files. If no filenames can be found that match the input, "No file found" is displayed. Any key can be pressed which will close the window and take you back to menu status. If at least one file match was found, the file transfer window appears.

File Transfer

Name : _____

Status :

Blocks :

Bytes :

Errors :

The name of the file being received appears by the Name. The Block Size starts at 1024, if multiple errors occur, the block size will change to 128 bytes. If any errors occur, they will appear on the bottom line or if the file transfer completes successfully, any key can be pressed to close the window and return to the menu.

Compatible COMMs need to be used on either side of the transfer. Check the following table for compatible COMMs.

Transmit	Receive
Comm 1.3	Comm 1.3
Comm 1.5	Comm 1.5
Comm 2.x	Comm 2.x

6.0 GRAPHICS (COMM PLUS ONLY)

6.1 LOAD SITE : Menu "Graphics", Option "Load Site"

Load Site allows you to group your graphics views according to the building or site. See Sections 6.3 and 6.4 for creating and modifying the site contents. When dialing a remote unit, if the phone file entry was used, COMM will automatically search the graphics directory for a site with the same name. Site files have the extension '.inf'. For example, if in the dial window you entered 'HERE' for the building name, COMM will search for 'HERE.INF', if found, site 'HERE' is loaded and you will only see those views associated with 'HERE' when you do the 'Pick View'. Whether or not you dial the phone building name, you can always do a "Load Site" which allows you to choose between all the sites found in the graphics directory. In addition, there is a 'No Site' which you can choose that will unload the current site. If no site is loaded, 'Pick View' will allow you to choose from all views.

6.2 PICK VIEW (Alt-F1) : Menu "Graphics", Option "Pick View"

Pick View puts you in Graphics Mode and then attempts to log you into the Remote Unit. COMM will attempt each of the 4 graphics auth codes until successfully logged in. Whether or not you are logged in, COMM will continue to the Pick View window. In this window you can select any of the views, pgup or pgdn to other views, or enter the name of the desired view in the red box. The red box will show the name of the selected view. The left button of the mouse should be used to select. Select OK to draw the view or CANCEL to abort graphics.

If you select OK, an hour glass will appear indicating that the view is being generated. Once the view is drawn, you have several options as follow :

- **<u>Exit Graphics</u> - Press the right mouse button.**

- **<u>Zoom to another View</u> - If you see a dotted box position the arrow to point inside the box, then press the left button to zoom to the next view. Which view is determined by how the views were setup (See Appendix A, "COMM/AUTOSKETCH Interface").**

- **<u>Pick an Icon</u> - If you see an icon in the upper left hand corner of the screen, you can select it using the mouse left button. The top white icon containing the solid black box merely returns you to the previous view. The icon containing 'CP' allows you to change the control point mode. After choosing the control point from the list of names, a push button box will appear as described below.**

- **<u>Return to a previous View</u> - Once you have zoomed to another view, you can return to the previous view by pressing the left button. As long as you are not pointing into a zoom box or a push button box, you will return to the previous view.**

- **<u>Zoom to a Text File</u> - If you see a symbol , position the cursor to point inside the box, then press the left button to zoom to the text file. Which text file is determined by how the views were setup (See Appendix A, "COMM/AUTOSKETCH Interface").**

- **<u>Change Control Point Mode</u> - The Control Point Mode push button box not only allows you to change the control point mode, but it also shows you the current mode indicated by the border color of the box. The color of the border matches the color of the push button for the current mode (green - manual ON, red - manual OFF, blue - COMputer control). If you see a push button box position the cursor to point inside the desired control point mode, "manual off", "manual on", or "computer control". Press the left button. The border color will change reflecting the control point mode change.**

6.3 ADD VIEW : Menu "Graphics", Option "Add View"

Add View can only be selected if a site has been loaded. The Add View window displays a list of all available views. In this window you can select any of the views, pgup or pgdn to other views, or enter the name of the desired view in the red box. The red box will show the name of the selected view. The left button of the mouse should be used to select. Select OK to add the view to the currently selected site or CANCEL to abort the function.

6.4 DELETE VIEW : Menu "Graphics", Option "Delete View"

Delete View can only be selected if a site has been loaded. The Delete View window displays a list of all views currently selected for the current site. In this window you can select any of the views, pgup or pgdn to other views, or enter the name of the desired view in the red box. The red box will show the name of the selected view. The left button of the mouse should be used to select. Select OK to remove the view from the current site or CANCEL to abort the function.

6.5 GRAPH HISTORY : Menu "Graphics", Option "Graph History"

Graph History allows the user to graph history data files that have been collected and stored in a disk file. Selecting Graph History will display a window prompting you for a file name. Enter the name, selecting OK to proceed, or CANCEL to abort. If the directory is not specified as part of the filename, COMM will look for the file in the collect directory. If the file exists, COMM will parce the file searching for all groups. A window will appear containing all groups found in the file. Only one group can be graphed at a time. Select the desired group using the left button of the mouse, then OK to continue, CANCEL to abort.

The next window will contain a list of all sensors that are in the selected group. Any combination of these sensors may be graphed. When the window first appears, notice that all the sensors are highlighted because COMM defaults to all the sensors. Clicking the left button on any of the sensors will toggle the sensor between selected and not selected. When you are finished choosing the desired sensors, click OK.

The final window before graphing, allows the user to modify the graphing parameters. The following parameters can be modified :

	End Date :	Day Time (calculated)
Parameters	**Defaults**	**Valid Inputs**
Grid :	ON	ON / OFF
Minimum :	#### (calculated)	#### > = #### (calc.)
Maximum :	#### (calculated)	#### < = #### (calc.)
Begin Date :	Day Time (calculated)	Day Time > = Day Time (calc.)

Those parameters with (calc.) next to them indicate that when the DAT file is processed, those values are calculated from the data to be graphed. In other words, the minimum is the minimum value read for all the sensors being graphed. If the minimum and maximum values are unchanged all values will be visible on the graph.

"Day" in the above table should be a 3 character field from the following table :

- **SUN**
- **MON**
- **TUE**
- **WED**
- **THU**
- **FRI**
- **SAT**

"Time" in the above table is a 4 digit number indicating the time in military format. For example:

12:00 a.m.

Time of Day	Entry
9:00 a.m.	0900
1:30 p.m.	1330
10:30 p.m.	2230

Therefore the DAY TIME combination should appear similar to the following examples :

MON 0900

FRI 1700

Select OK when finished modifying the graphing parameters. The Graph will appear with the most recent data on the screen. If the data is not all visible on the screen, the time line bar on the bottom of the screen can be used to move to a different time slice.

The time line represents the amount of data selected to graph. When the graph is first drawn, the time block is all the way on the right side of the time line, indicating that you are looking at the most recent data. Use the left button of the mouse to move the red colored block in the bottom time line anywhere between the two arrows by pointing to the relative position desired and clicking the left mouse button, this allows you to specify which data appears in the graph.

The red block represents which data within the total amount of data, is being viewed. All the way to the left (between the two arrows) is the beginning of the data selected to graph, all the way to the right (between the two arrows) is the end or more recent data in the DAT file. From left to right is increasing in time. If you select the left arrow, the data will be shifted one interval sample to the left or decreasing in time. If you select the right arrow, the data will be shifted one interval sample to the right or increasing in time.

In the top right hand corner of the screen, is an icon containing the word "Stat" which allows you to view the graph statistics. The graph statistics contains data about the date and time of the data being graphed along with data about each of the sensors graphed including minimum, maximum, averages and run-time.

If you wish to print the graph, type Alt-P and COMM will begin to print the entire graph. This can be a very long process depending on the type of printer you have. You can approximate the maximum time to print by the following formula :

$$(((\#\ of\ samples) + 2) / 70) * 5\ minutes$$

You can print a single page of the graph, by positioning the screen contents to the data you wish to graph. Press [ctrl- PrintScreen] and a single page containing the current screen contents will be printed.

If you wish to abort the printout, press the [escape] key. See Appendix B for Graph History Print Examples.

When the graph is finished printing, the Group Window will be displayed and you can either choose another group or select CANCEL to exit Graph History.

If you do not print the graph, click the right button to return to the Sensor Window where you can either choose different sensors or select CANCEL to return to the Group Window where another group can be chosen, or select CANCEL to exit Graphing History.

7.0 UTILITIES

7.1 LOG TO FILE (Alt-F) : Menu "Util", Option "Log to File"

The menu option or [Alt-F] toggles the output to a file. This means that any data coming to the screen will be output to the filename specified. When selected, you are prompted for the filename. If the filename does NOT exist, the file will be created and all data received in COMM will be copied into the file. If the filename entered does exist, a window will appear asking if you wish to append or overwrite the file. Append will add all data received in COMM to the end of the file, thus retaining the previous contents of the file. If you select overwrite, COMM will place all data received in COMM starting at the beginning of the file, LOSING the old contents of the file.

The status line will indicate the Log to File status by placing the word File next to "Output :". See Section 7.2 on how to momentarily suspend the data output if desired.

When you type [Alt-F] or use the menu option again, the output will toggle to none and close the file. The output cannot be toggled to a file, if it is already being printed (Printer toggled ON).

7.2 SUSPEND LOG TO FILE (Alt-K) : Menu "Util", Option "Suspend Log"

Suspend Log to File allows you to momentarily suspend the output of data to the log file. This menu item is only applicable if the Output has been set to Log to File. Using either the menu option or Alt-K will suspend the output of data, indicated by the letter "S" appearing on the status line at the bottom of your screen as follows : "Output : File S". This is a toggle command meaning that once the output has been suspended, it can be resumed by using the same command (i.e. either the menu option or alt-k). Once resumed, all subsequent data will be logged to the file and the letter "S" will disappear on the bottom status line.

7.3 LOG TO PRINTER (Alt-P) : Menu "Util", Option "Log to Printer"

The menu option or [Alt-P] allows you to turn the printer on, which means any data coming to the screen is also printed. The status line will indicate the change by placing the word Printer next to "Output :". If you type [Alt-P] or use the menu option again, the output will toggle to none and the printer will no longer print the data coming to the screen. The Printer cannot be toggled on if the output is already toggled to a file.

7.4 CLEAR TIMER (Alt-I) : Menu "Util", Option "Clear Timer"

The timer is for information purposes. It begins counting when you connect to a remote unit. As long as you are connected remotely, the timer will be counting. The timer can be reset to zero with the [Alt-I] keys or through the menu option.

7.5 CLEAR SCREEN (Alt-N) : Menu "Util", Option "Clear Screen"

The menu option or [Alt-N] simply clears the screen between the command line and the status line.

7.6 EXECUTE COMMAND (Alt-E) : Menu "Util", Option "Execute Command"

The menu option or [Alt-E] allows you to execute a series of COMM commands that are located in a command file ('*.cmd'). See Section 9.5 on creating or editing a command file. Execute Command will initiate the command file either immediately or at a specified time according to the command file. If the Command File is time delayed then the Information Window will display the name and time of the execution file. See Section 9.7.

The Execute Command Window displays a list of all available command files ('*.cmd'). In this window you can select any of the views, pgup or pgdn to other command files, or enter the name of the desired command file in the red box. The red box will show the name of the selected command file. The left button of the mouse should be used to select. Select OK to execute the command file or CANCEL to abort the function.

8.0 SETTINGS

8.1 TOGGLE COM PORT (Alt-C) : Menu "Settings", Option "Com Port"

The Com Port should be set to whichever port your modem or the direct cable is connected to. The Com Port values simply toggle between '1', '2', '3', and '4'. A window will appear when changing ports to indicate that the new port is being initialized.

8.2 TOGGLE BAUD RATE (Alt-B) : Menu "Settings", Option "Baud Rate"

The baud rate is the transmission rate between the host computer and the remote device. COMM offers five baud rates : 300, 1200, 2400, 9600, and 19200. The baud rates should be used as follows:

Setup	Baud Rate
	Direct communication with NC25
Communication over phone line	1200
Direct communication with Zx	9600

If you are experiencing severe phone line noise, then 300 baud should be used.

8.3 TOGGLE DUPLEX (Alt-U) : Menu "Settings", Option "Toggle Duplex"

There are two choices for duplex, full duplex (no echo) and half duplex (local echo). As you type, if you do not see the characters on the screen, try half duplex. On the other hand, if you see two of every character typed, set duplex to full.

8.4 WAIT TIME : Menu "Settings", Option "Wait Time"

Wait Time is the amount of time to wait for carrier detect when dialing a remote unit. The input is in seconds.

8.5 ALARM INTERVAL : Menu "Settings", Option "Alarm Interval"

Alarm Interval is used in the graphics views. If an alarm occurs and the view has been set up to check for alarms, COMM will beep periodically to indicate the alarm condition. The alarm interval determines how often to beep. The interval is in seconds. If you set the alarm interval to 0, COMM will only beep once when the alarm first occurs.

8.6 DIRECTORIES : Menu "Settings", Option "Directories"

Directories allows you to tell COMM the configuration of your disk directories. There are four directories that should be set up.

- **COMM : the location of the "COMM.exe" and "COMM.ovr" files and fonts (*.chr, *.glf)**

- **PHONE : the location of the "PHONE.dir" and "INDEX.dir" files**
- **DATA : the location of your group files ("*.dir") & command files ("*.cmd")**
- **GRAPHICS : the location of your graphics sites ("*.inf"), views ("*.dxf")**

8.7 FUNCTION KEYS : Menu "Settings", Option "Function Keys"

The function keys are essentially keyboard macros. You can assign character strings up to 20 characters in length including control characters and carriage returns. Control characters appear as two characters (i.e. ^P) although they only take up 1 character in the string. A carriage return must be entered as two separate characters (^ and M) because typing a carriage return signifies the end of the input string, otherwise the other control characters can be entered by holding the control key down and typing the letter desired. Any time a function key is pressed, it is equivalent to typing in the string.

8.8 AUTH CODES : Menu "Settings", Option "Auth Codes"

The four Get/Send auth codes (Auth Level -2 in the DAC control system) are used when logging on to an DAC control system to get or send databases/software. The first auth code is used, if unsuccessful, the next auth code will be attempted. If all four auth codes are tried and no success, the user is notified.

The four Graphics auth codes (Auth Level 3 in the DAC control system) are used when logging into an DAC control system for a graphics view. When you do a pick view, COMM will send the first auth code. If unsuccessful, the next auth code will be attempted and so on. If all four auth codes are tried and no success, the user is notified. If you do NOT wish COMM to log you into the DAC control system when doing a Pick View, simply set the first graphics Auth Code to a null string ". COMM will not even attempt a login.

8.9 PRINTER : Menu "Settings", Option "Printer"

Printer allows you to specify what kind of printer you have. This is necessary for printing history graphs. Supported printers include the following :

- **Epson 9-pin (generic 9-pin printer)**
- **Epson MX**
- **Epson RX**
- **Epson FX**
- **Epson EX**
- **Epson LX**
- **Epson LQ**
- **IBM ProPrinter**
- **IBM QuietWriter**
- **NEC 24-pin**

- **Toshiba 24-pin**
- **HP LaserJet (the HP Family of LaserJet Printers)**

After selecting your printer, select OK to save or CANCEL to abort.

8.10 PRINTER PORT : Menu "Settings", Option "Printer Port"

Printer Port should be set to wherever your printer resides. The default port is parallel port # 1. You may select from the following ports :

- **LPT1 (parallel port #1)**
- **LPT2 (parallel port #2)**
- **LPT3 (parallel port #3)**
- **COM1 (serial port #1)**
- **COM2 (serial port #2)**

After selecting the printer port, select OK to save or CANCEL to abort.

8.11 SAVE DEFAULTS : Menu "Settings", Option "Save Defaults"

Save Defaults allows you to save all the current Settings to the COMM.exe file so that the current Settings become the default settings in all future COMM sessions.

9.0 FILE FUNCTIONS

9.1 PRINT FILE (Alt-O) : Menu "File", Option "Print File"

The menu option or [Alt-O] simply prints whatever filename you enter. All other COMM functions are suspended until the file is finished printing.

9.2 EDIT PHONE : Menu "File", Option "Edit Phone"

Edit Phone allows you to add, delete or modify entries in the phone file. The edit window prompts you for the phone entry to be modified. In this window you can select any of the entries, pgup or pgdn to other phone entries, or enter the name of the desired entry in the red box. The red box will show the name of the selected phone entry.

If you enter a name in the red box that does not exist in the phone file, COMM will ask if you wish to add it to the phone file. The left button of the mouse should be used to select either the "ADD" or "ABORT" boxes which appear in the right lower corner of the window.

The left button of the mouse should then be used to select. Select OK to edit the currently selected phone entry for modification or DONE to end the function.

If you selected OK, a second window appears allowing you to enter all fields pertaining to the selected phone entry. This includes name, location, unit phone number, building phone number, installation date and software version. The Unit # is the phone number that COMM will use to dial, the Phone # field is used when the phone call is completed and is merely displayed for information purposes, if you wished to contact someone at the building.

Edit Phone Entry

Name : _____

Location : _____

Unit # : _____

Phone # : _____

Installed : _____

Software : _____

If you blank out the phone entry name (''), the entry will be deleted from the phone file.

When finished making changes, you can select OK to save the changes, CANCEL to abort the changes, or NEXT to save changes and continue to the modification window of the next phone entry (the next entry in alphabetical order). When selecting OK or CANCEL, you are returned to the Select Phone Entry window. Select a new phone entry if desired or DONE to end the function.

9.3 PRINT PHONE : Menu "File", Option "Print Phone"

Print Phone simply prints the the phone file. All other COMM functions are suspended until the file is finished printing.

9.4 EDIT GROUP : Menu "File", Option "Edit Group"

Edit group allows you to add, delete or modify entries in the group file of your choice. A group file consists of a list of buildings (i.e. phone entries) that you wish to group together so that data can be retrieved from all the buildings or sites at one time. The group file name is specified in the edit command file window along with the string to be sent to all the remote units (See Section 9.5, EDIT COMMAND). You can have multiple group files which is why this first window prompts you for the group file name that you wish to edit.

The edit window prompts you for the group file to be modified. Multiple group files allows you to divide your locations into logical units (i.e. different regions). In this window you can select any of the entries, pgup or pgdn to other files, or enter the name of the desired group in the red box. The red box will show the name of the selected group file.

If you enter a name in the red box that does not exist, COMM will ask you if you wish to create a new group file. The left button of the mouse should be used to select either the "ADD" or "ABORT" boxes which appear in the right lower corner of the window.

The left button of the mouse should then be used to select. Select OK to edit the currently selected group file or CANCEL to end the function.

If you selected OK, a second window appears allowing you to add or delete phone entries. You can only add entries which are already present in the phone file.

When finished, select DONE to end the function.

9.5 EDIT COMMAND : Menu "File", Option "Edit Command"

Edit Command allows you to set up a command file to do a automatic collect. The initial window displays a list of all available command files ('*.cmd'). In this window you can select any of the views, pgup or pgdn to other command files, or enter the name of the desired command file in the red box. The red box will show the name of the selected command file. The left button of the mouse should be used to select. Select OK to edit the command file or CANCEL to abort the function.

If you enter a name in the red box that does not exist, COMM will ask you if you wish to create the new command file. The left button of the mouse should be used to select either the "ADD" or "ABORT" boxes which appear in the right lower corner of the window.

The left button of the mouse should then be used to select. Select OK to edit the currently selected command file or CANCEL to end the function.

The second window allows you to enter the name of the command file, the name of the group file to be processed, the time to begin the command execution (if immediately) and the string to be sent to the remote unit (i.e. 'DATC').

Edit Command File

Command File Name : _____

Group to Process: _____

Time to Begin: _____

Send String: _____

OK Cancel

The Begin Time, if a timed group is desired, should be entered as a four digit military time without a colon. For example :

Time of Day	Entry
9:00 a.m.	0900
1:30 p.m.	1330
10:30 p.m.	2230
12:00 a.m.	0000

For immediate execution of the command file, blank out the Begin Time. Clicking the left button of the mouse twice on this field will blank out the time.

The Send String determines what data is retrieved from the remote unit. For example, the 'DATC' command with none of the optional parameters defaults to retrieving history data for all history groups, 150 samples per group starting with the current day and time. You could optionally specify the send string with parameters. 'DATC' has the following optional parameters :

DATC group# start_sensor# #samples start_day start_hour

where start_day is 1-7 (sun = 1). For example :

DATC 1 1 500

would gather 500 samples of group 1 starting with sensor 1 and starting with data from the current date and time from each building (site) listed in the group file. See the Operator's Guide for additional information about the DAT command.

If you blank out the group file name ('), the group file will be deleted when you select OK. When finished editing, select OK to save the changes or CANCEL to abort the changes.

See Appendix C for additional information on the command file format.

9.6 DOS SHELL : Menu "File", Option "DOS Shell"

[Alt-Z] or the menu option provides access to DOS allowing you to execute DOS commands or other programs without having to end the COMM session. Type "exit" from the command line to return to COMM.

9.7 INFORMATION : Menu "File", Option "Information"

Select Information to display the COMM version and configuration information. If a timed command file has been picked to execute, the command file name and time of execution will also be displayed.

9.8 EXIT : Menu "File", Option "Exit"

COMM can be exited in one of two ways, either select the menu option or press [Alt-X].

10.0 COMMAND LINE PARAMETERS

When initiating COMM from the DOS command line, parameters can be given to COMM to begin executing immediately, bypassing several menus. The format of the command line parameters is as follows:

COMM [phone_dir_name] [command] [parameter] [type]

where

phone_dir_name is the name of the building in the phone file to dial

command can be one of six commands :

- **"-g" get**
- **"-s" send**
- **"-e" execute command**
- **"-p" pick view**
- **"-i" mouse installation configuration (window allows selection of com 1, com2, bus, PS/2, or no mouse)**
- **"-c" select com 3 and com 4 interrupts (window allows selection of interrupts 2,3,4)**

  - Only use IRQ2 on XT

  - Only use IRQ5 on AT with only 1 parallel port

parameter can be one of four items depending upon the command specified :

- **the name of the file to get or send**
- **the command file to execute**
- **the graphics view to display**

System	Enter
NC25 versions 1.A through 1.l	NA
NC25 versions 1.7 through 3.X	NN
Z 55 version 1	55
Z versions 2.5 and 2.6	25
Z versions 2 & 3 (except 2.5, 2.6)	2X
Z version 5	5X
Z 50 version 9F	50
Z versions 8 and 9	8X
Z version 10	1X
NC25 ver 3, through ZX version 10	AX
Z program load (versions 8,9 and 10)	PG
Z load memory failure msg, ver 8,9, & 10	EX

type corresponds to the type of get or send, enter the two character value (in capital letters) :

If any parameters are skipped or are in the wrong format, COMM will do as much of the command as possible and then prompt for the missing information.

APPENDIX A - COMM / AUTOSKETCH Interface

Layer 2 in Autosketch is reserved for the specification of data retrieval. The desired value "type" listed in the table below should be entered (in CAPS) in layer 2 at the location where the result obtained from the DAC unit should be displayed. Immediately following the type, a number or filename may be required indicated by a pound sign ('#') or by 'filename' respectively. The result will be displayed in the size and color of the text used to specify the value type.

Value Type	Result obtained from DAC Unit	Display
SA#	Set Point # A	numerical value
SB#	Set Point # B	numerical value
AI#	Analog Input #	numerical value
DI#	Digital Input #	ON / OFF
CP#	Control Point #	ON / OFF
AL#	Alarm Number #	stopsign with #
GA	Global Alarm, if any alarm TRUE	stopsign with ALM
DC#	Digital (Logical) Condition	TRUE / FALSE
AC#	Analog (Math) Condition (variance)	numerical value
LO#	Last On Time of Control Point #	time
LF#	Last Off Time of Control Point #	time
CN#	Control Point # Name	name
AN#	Analog Input # Name	name
DN#	Digital Input # Name	name
SN#	Set Point # Name	name
SI	Site Name	name
SD	Site Date	date
ST	Site Time	time
VWfilename	VieW (Zoom) to another file	Dotted Line Box

VW Parameters

- **The zoom to another view has several optional parameters. If your installation has a Zx with several NC25s you may want to move between the Zx and the NC25s. When you specify VWfilename, if you place a forward slash '/' immediately following the filename with either 'ZX' or 'NC#' where # is the NC25 address, COMM will log you into the appropriate remote unit and then bring up the next view. For example:**

To log into NC25 # 3 from the ZX, the value type should be specified:

VWnewview/NC3

where newview is the view filename (with no extension)

- **The second type of parameter that can be used with the VW value allows you to view a text screen. Any ASCII text file can be viewed within graphics by specifying VWfilename.txt. The '.txt' extension tells COMM to read a text file and that there are no value types. This allows you to have an easily modified text screen that can be displayed in COMM through a zoom command. This could be any type of information, for example maintainance records. The zoom box appears as a solid white box with a scroll symbol inside. The scroll is drawn in the color you used to specify the VW command. You can zoom to this text file and then simply return to the previous view by using the left button on the mouse.**

Manual Values

- **If an analog input, digital input, or control point is displayed in your view and it is in manual control, COMM will underline the value. To change the mode of a control point, see push button box.**

Push Button Box

- **Using the "CP#" value type in your view, in addition to displaying the control point value, allows you to change a control point mode. COMM will display an icon in the upper left hand corner with the letters 'CP'. Selecting this icon will then display a menu of all control points displayed in the current view. Select the control point desired using the left button. A push button box will appear which will contain three circles, containing 'OFF','ON', & 'COM'. Each button represents a mode: manual OFF, manual ON, and COMputer control respectively. The border of the push button box reflects the current mode (red - OFF, green - ON, blue - COM). The name of the control point is displayed immediately above the box. Simply point the mouse within the desired mode push button and click the left button on the mouse.**

Comm Plus Limits

- **75 retrieval values per file**
- **25 zooms per file**
- **zoom up to 75 levels deep**

Comm Plus / AutoSketch File Extensions

Extension	Application	Contents
*.skd	AutoSketch	Original Drawings
*.shx	AutoSketch	AutoSketch Font Files
*.dxf	AutoSketch / Comm Plus	Drawing Exchange Files
*.inf	Comm Plus	Relates views to a site
*.dir	Comm Plus	Phone, Index, & Collect Files
*.chr	Comm Plus	Comm Plus Font Files
*.cmd	Comm Plus	Comm Plus Command Files
*.glf	Comm Plus	Comm Plus Print Font File

AutoSketch Interface Hints

- **Zoom to limits to see the view as it will be displayed in Comm Plus.**
- **Do a redraw before making a DXF file to ensure that objects are drawn in the proper order so that all objects are seen.**
- **If objects are NOT drawn in the correct order, group the objects in the order that they should be drawn.**
- **For non-scaled drawings, the screen area is best utilized when the limits are set to:**

left: 0

right: 64

bottom: 0

top: 40

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APPENDIX B - Graph History Print Examples

Graph # 1

Graph # 1 is a sample of a RACK group graph.

None of the default graphing parameters were modified.

Graph # 2

Graph # 2 is a sample of a AHU group graph.

Several graphing parameters were modified for example purposes :

- **The Begin Date was changed to THU 0554, so that no data prior to that date/time was graphed.**

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APPENDIX C - Command File Format

The Command File is an ASCII text file containing basic commands that COMM understands. The "Edit Command" option in COMM can be used to edit the command file, in addition to ASCII text editors. Each command is separated by a carriage return / line feed. The following commands are recognized by COMM :

COMM PLUS Default Command File Format

TIMER 14:30

PROCESS C:\DAC\COLLECT.dir

DIAL NAME

LOGTOFILE NAME

SEND DATC

CLOSE FILE

HANGUP

DONE

Other Command File Commands

PAUSE 20

SUSPEND

LOGOFF

EXIT

Command Descriptions

- **TIMER #### The first line is optional. If the command file should be executed immediately, then leave out the TIMER line. If you do want timed execution, insert the TIMER line. There should always be a four digit time after the word TIMER in military time format. If the time only requires three digits then insert a 0, for example 0900.**

- **PROCESS filename "PROCESS" specifies what group file should be used. This allows you to have different group files, for example for different regions. "PROCESS" sets up a loop whereby, all the commands between the "PROCESS" command and the "DONE" command will be executed for every entry in the group file. The word NAME is a way of specifying the current entry being processed in the group file.**

- **DIAL NAME Indicates that COMM should dial the current entry in the group file. NAME is dependent on the PROCESS command, an actual phone entry name could be used also.**

- **LOGTOFILE NAME will cause COMM to start logging to a filename. NAME is dependent on the PROCESS command and will log to the group entry name with an extension '.dat'. (i.e. the group entry is "building1", COMM will log to the file "building1.dat"). A literal filename could also be used here in lieu of NAME. If you wish to append to the log file instead of overwriting, enter "-a" after the filename. For example "LOGTOFILE testfile.dat -a". If the directory is not specified as part of the filename, COMM will automatically place the file in the data directory. "@" in name will be replaced by month day (a 4 character string , i.e. , June 17 = "0617")**

- **SEND DATC specifies the string that should be sent to the remote unit, in this case a "DATC" would be sent to the remote unit. Multiple SENDs could be used in a command file, there is not a limit.**

- **CLOSEFILE will close the previously opened file (LOGTOFILE command). Any data received in between the LOGTOFILE and the CLOSEFILE will be stored in the log file.**

- **HANGUP will cause COMM to disconnect from the remote unit.**

- **DONE marks the the end of the PROCESS commands. As long as there are additional entries in the group file, DONE will advance to the next entry and repeat the PROCESS commands for that entry.**

- **PAUSE ## allows you to pause command file execution for ## seconds. COMM will merely wait for the specified number of seconds before continuing execution of the command file.**

- **SUSPEND allows you to suspend logging to file. No other data will be placed in the log file until the SUSPEND command is used again which will toggle the log file back on (i.e. 'resume') and place data in the log file. The LOGTOFILE command must have been executed before the SUSPEND command will work.**

- **LOGOFF sends the sequence "@ < return > < ctrl-Z > @ < return > " to the remote unit thus forcing a logoff whether connected to a Zx, NC25, or through a Zx to a NC25.**

- **EXIT exits you out of the COMM program back to DOS.**

The command file format is variable when using a text editor, however to use COMM's Edit Command File function, the format must appear as listed above in the Comm Plus Default Command File. The Edit Command File is merely a simple edit function which allows you to enter the command file name, the group file name, the timer, and the send string, thus a quick and easy way to create a command file which simply dials all locations specifed in the group file sending the "SEND" string to each location.

APPENDIX D - Error Messages

- "deffont.glf not found" - the print history font file must be located in the graphics directory
- Runtime error #003 - Path not found.
- Runtime error #100 - Disk Read Error (attempted to read past the end of the file). If attempting to use the phone dir, this error probably indicates that the phone dir and index dir do not match. Run "index.exe" to reindex your phone dir and thus correct this problem
- Runtime error #150 - the disk is write protected
- Runtime error #152 - Drive not ready
- Runtime error #159 - Printer out of paper
- Runtime error #209 - Overlay file read error

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APPENDIX E - Commonly Asked Questions

Dial Building Name -

- **When I enter the building name, I get the message "Not found in Phone Dir", but I know I entered it?**

Make sure, first of all, that the building name is entered and spelled identical to the phone file entry. Second, make sure that your phone directory is setup correctly.

- **When attempting to dial I get a "connected" message before the remote unit answers?**

The carrier detect signal from the modem must follow true carrier detect. Some modems force carrier detect always true. Consult your modem's User Manual on how to correct this problem.

Graphics Pick View -

- **I created the view in AutoSketch, but COMM PLUS doesn't list the view when I do a "pick view"?**

You need to do "Make DXF" in AutoSketch under File and then enter the DXF filename making sure it is put in the COMM PLUS graphics directory.

- **All my text in the view is the same size even though I entered it in different sizes in AutoSketch?**

Perhaps the graphics fonts ('*.chr') are NOT located in your graphics directory. Check the directory setup under settings and make sure your font files are located in that directory.

- **I'm not getting any values pulled back from the remote unit, instead I see the actual text that I entered that was supposed to pullback the values?**

The text entered in AutoSketch must be in layer 2, otherwise COMM PLUS will just display the text and NOT pullback any values.

- **I don't see some text that I know I put in the view in AutoSketch?**

Perhaps the text was put in layer 2, if so it will try to interpret it and determine what to pullback from the remote unit. Normal text can be put in any layer EXCEPT layer 2.

- **My computer does not attempt to log on when I do a pick view?**

Graphics auth code #1 (under settings) must contain a valid authorization.

Graph History -

- **When I try to print out my graph, I get the message "deffont.glf not found", but that file is on my computer disk?**

The file may be on your disk, but it must be located in the graphics directory.

- **When I print out my graph, all I get is garbage on the printer?**

Check your printer setup under Settings.

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