EUROTHERM
DRIVES

ConfigEd Lite Plus

Instruction Manual

for use with ConfigEd Lite Plus Ver. 2.X

Printed in the USA HA470795 Issue 2

Safety Information

PLEASE READ THIS INFORMATION BEFORE INSTALLING THE SOFTWARE.

Personnel

Qualified personnel should carry out installation, operation and maintenance of the software. A qualified person is someone who is technically competent and familiar with the installation process, operation and maintenance of this software.

Procedures in this manual may contain Warnings and Notes. A Warning gives the reader the information, which, if disregarded, could cause injury or death. A Note furnishes additional information for added emphasis or clarity.

The customer is responsible for assessing his or her ability to carry out the procedures in this manual. Make sure you understand a procedure or the precautions necessary to carry it out safely before beginning. If you are unsure of your ability to perform a function, or have questions about the procedures listed in the manual, contact Eurotherm Drives, Inc. customer service at (704) 588-3246.

WARNING!

This software is used specifically to configure the control of potentially dangerous motor control. The user assumes all liability and risk for the performance, application, and reliability of all control systems configured with this software. It is the users responsibility to understand thoroughly and to check independently all configurations before commissioning any equipment controlled by this software. Eurotherm Drives, Inc. accepts no liability for the application of the software.

FOR USE WITH CONFIGED LITE PLUS VER. 2.X

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Chapter 1 Introduction

WHAT IS CONFIGED LITE PLUS

ConfigEd Lite Plus (CELite+) is Eurotherm Drives' newest configuration editor software suite for drives. This enhanced software package supports all current-production Eurotherm Drive products.

Windows-based CELite+ provides you with the ability to adjust all drive parameters, autotune your application and chart key variables while on-line! It's like having a built-in chart recorder where you can monitor trends in load, speed, and other operating conditions. You will benefit by your ability to monitor conditions as changes are made to production rates, process and material changes.

The actual application programming still uses the ConfigED Lite (CELite) software tool which will run in the background of CELite+.

DRIVE COMPATIBILITY

590+ Series Digital DC Drives, All Firmware versions.

650V Series Digital AC Drives, Firmware 4.2 or newer.

690+ Series Digital AC Drives, Firmware 4.6 or newer.

Note

All unlisted drives are only compatible with CELite, except for 650 series which does not support either.

MINUMUM SYSTEM REQUIREMENTS

CELite + is designed to be used with PC's equipped with:

- Pentium II 233MHz or better
- 800x600 screen resolution, supported by Microsoft Windows
- Microsoft Windows 98 or later, or Microsoft Windows NT 4.0 or later
- 24 MB RAM for Windows 98, 32 MB for Windows NT
- Microsoft Internet Explorer version 4.01 or later (version 4.01 Service Pack 1 or later for DHTML application developers, and 4.x for end-users of these applications).
- 12 MB hard drive space required.
- Standard RS232 Serial port with 9 pin male connector. (Special adapters for USB serial ports are available from Eurotherm Drives.)

NOISE

Ground noise may disturb the P3 serial communications link. It is created by ground loops caused when both the computer and the drive are grounded. CELite+ has a built-in retry routine to deal with occasional electrical noise. Continuous noise, however, will cause extremely slow communications between the computer and the drive.

In systems with large amount of electrical noise (for example, systems containing AC drives) it may be necessary to break the ground loop to achieve usable communications. The ground loop can be broken by:

- Using a battery-powered notebook computer rather than a plug-in model since most notebook computers are not grounded.
- Installing an RS232 isolator module between the computer and the P3 socket.
- Wrapping the UDP cable through ferrite rings on both ends of the cable.

WARNING!

Do not use any connectors, adapters, and/or cables other than those supplied by Eurotherm Drives. Failure to use materials supplied by Eurotherm Drives can result in severe damage to equipment and injury to personnel and will void the Eurotherm Drives warranty.

Chapter 2 Handling

UNPACKING INSTRUCTIONS

Before you install and use CELite+, verify the completeness of your package. It should include:

- CELite+ user manual (Part Number HA470795U000)
- Installation CDROM and case (Part Number RD470795)
- UDP cable and adapter (Part Number CM351909)
- User License for CELite+

If any item on this list is missing, contact the Eurotherm Drives Customer Service at 704-588-3246.

SPECIAL HANDLING

Proper care must be shown in the handling of the materials used for the program. The installation disk should be kept in a clean, dry environment within a relatively constant range of temperature and humidity. Keep the CELite+ disk far from any sources of extreme heat, magnetism and electrical fields, including permanent magnet motors, as the magnetic or electrical fields may erase the information on the disk.

WARNING!

CELite+ is a powerful software tool specifically designed to configure drives. It is possible to create potentially dangerous drive configurations. The user assumes all liability and risk for the performance, application, reliability, and safety of drives implemented using this tool. It is the responsibility of that user to understand the configurations thoroughly and check them independently prior to installations and operation of any equipment. Eurotherm Drives can accept no liability for the application of this software.

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Chapter 3 Installation & Setup

WARNING!

Please Uninstall (remove) all previous versions of CELite+ prior to Installation. This may include the manual removal of a DeskTop Icon.

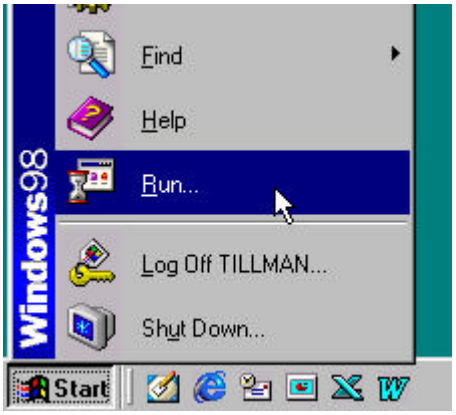
INSTALLATION PROCEDURE

Autorun Install

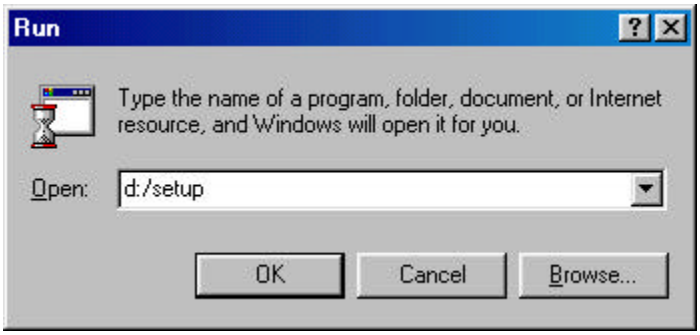
With Windows launched, insert the CELite+ CDROM disk into your CD Drive. The install program should launch automatically, if not follow the manual installation procedure.

Manual Install

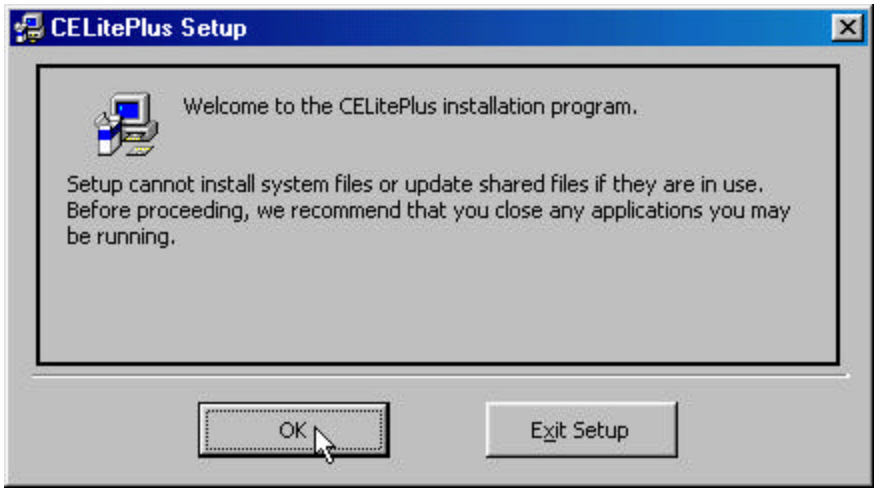
Using the cursor click on the `Start` button on the desktop, then click on `RUN`.



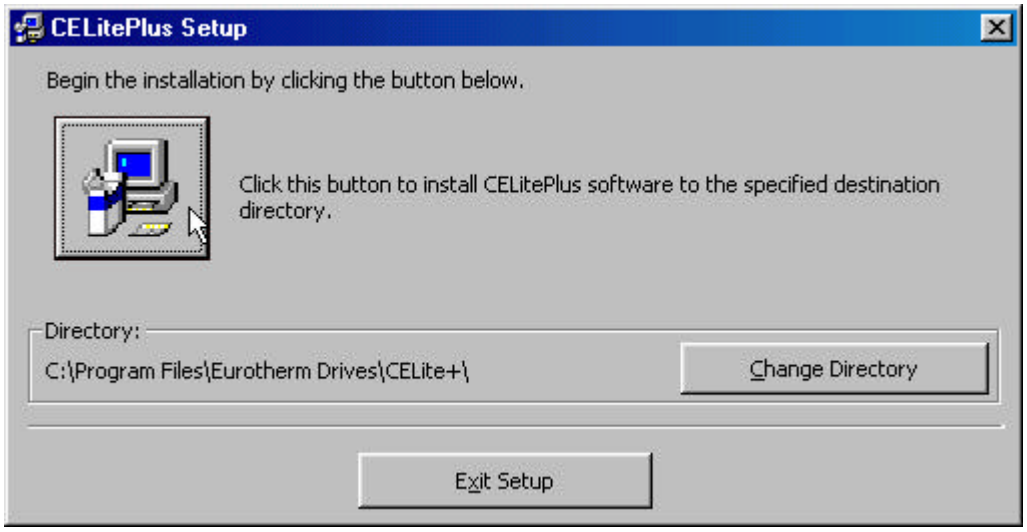
When the run dialog box appears, type in the drive letter for your CD Drive. If you do not know your CD Drive letter, click on browse to search for it. In this example the CD drive letter is D. Type `d:\setup` and then click `OK`.



The following window will appear to show you that the CELite+ installation has begun, click on `OK` to continue.



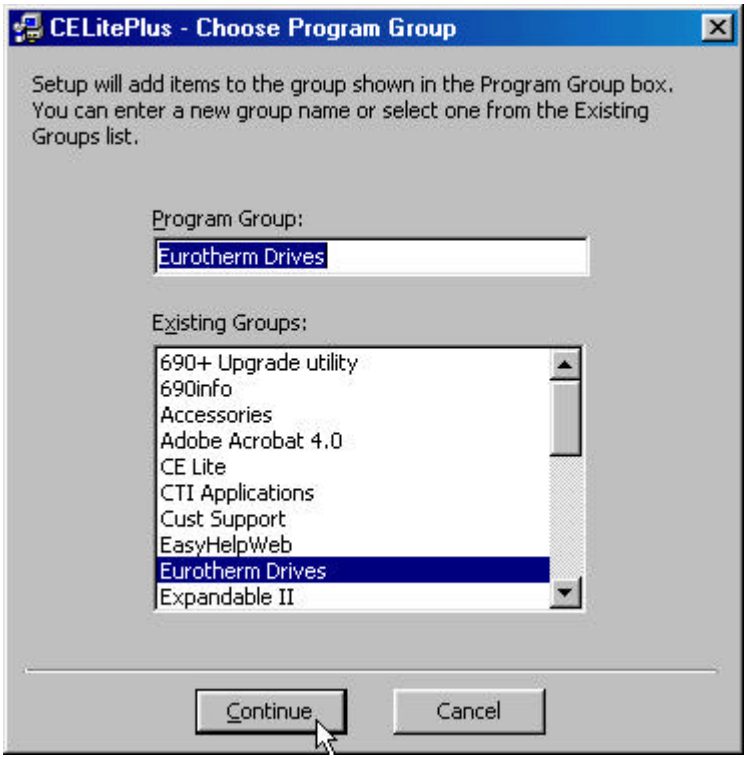
This window will show the folder where the program will be installed on the hard drive. Click on the `Computer` button to proceed to the next step of installation.



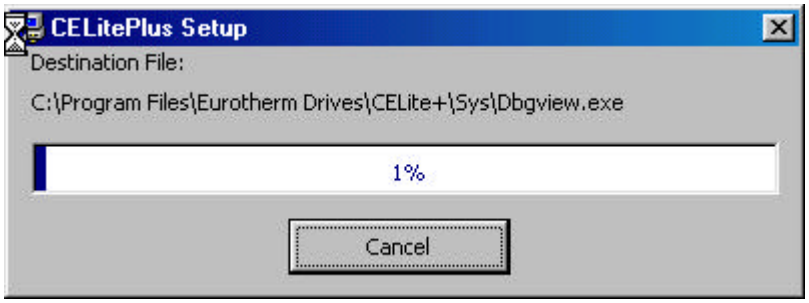
IMPORTANT

Please do not change the installation directory.

The following window will appear to show the program group where the CELite+ shortcut will be installed. Click on the `Continue` button to proceed to the next step of installation.



After the program group has been selected, the program will start copying files to your hard drive. The following status window will appear to show you the progress of the installation. It is not uncommon for error messages or file copy messages to appear during this procedure. Error messages should be copied in the unlikely event they need to be reported although they should be otherwise ignored. As long as the application being deployed is known to be the "latest", always replace an existing file if prompted.

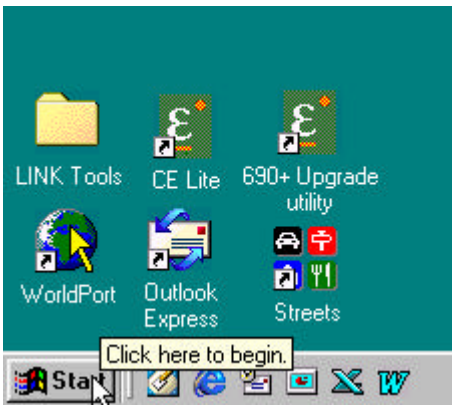


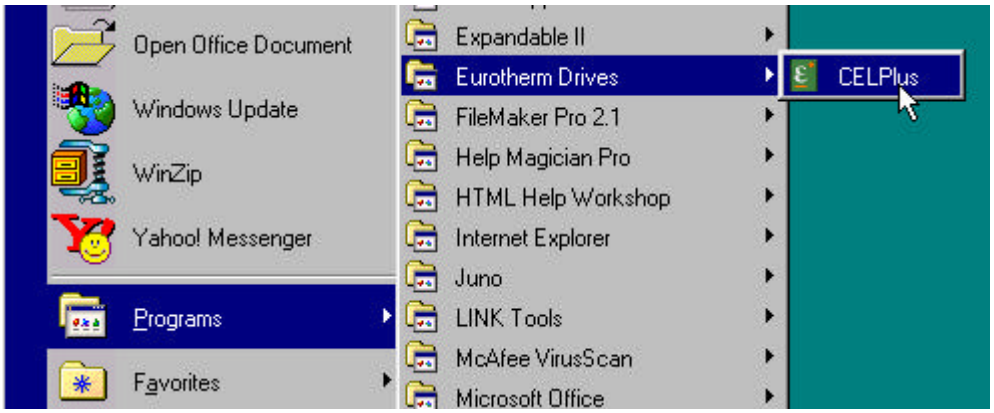
After the program is finished loading the files, the following window will appear. Click on `OK` to finish the installation.

STARTING THE PROGRAM

Start the program by either clicking on the CELite+ shortcut on the desktop or using the start menu.

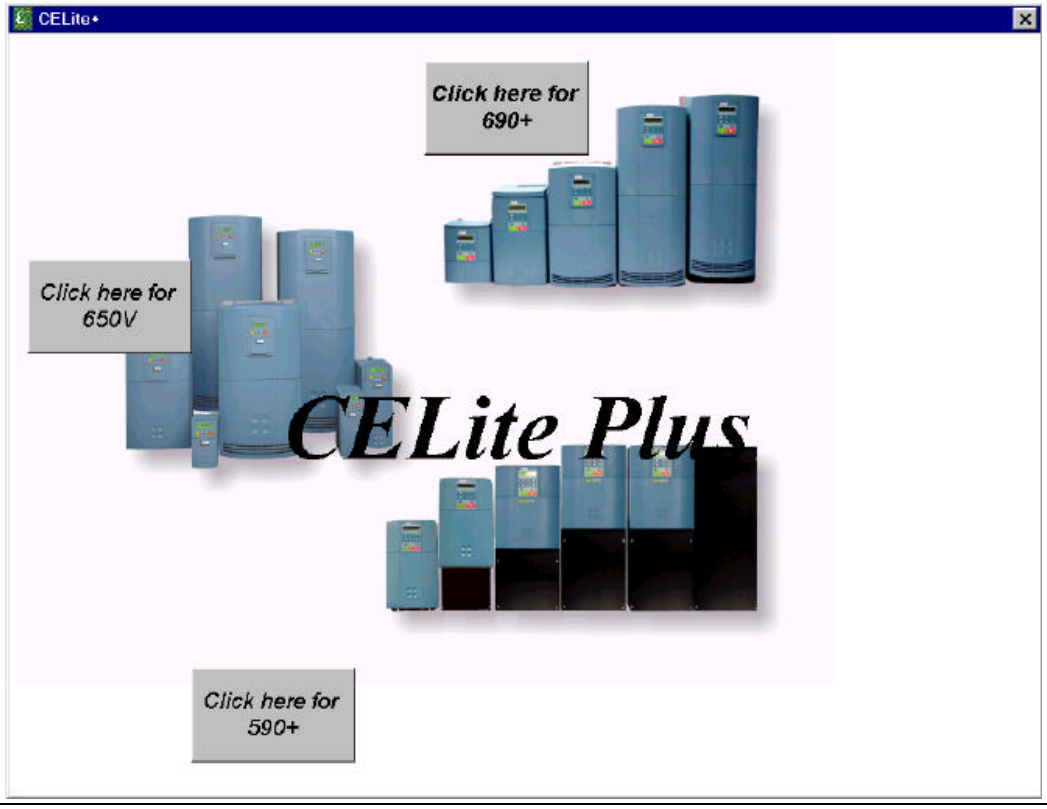
To use the start menu, click on `Start`, then `Programs`, then the `Eurotherm Drives` program group, then on the `CELPlus` shortcut





CHOOSING THE DRIVE

After launching the program, click on the button for the desired drive series. The initial loading of data may take a few minutes on slower systems.



DRIVE COMMUNICATION SETUP

Eurotherm Drives contain a serial port socket, similar to a telephone handset socket, for RS232 communication to the CELite+ software. This port is commonly referred to as the P3 port. Please refer to the drive manual for location and setup of the port on the drive.

TIP

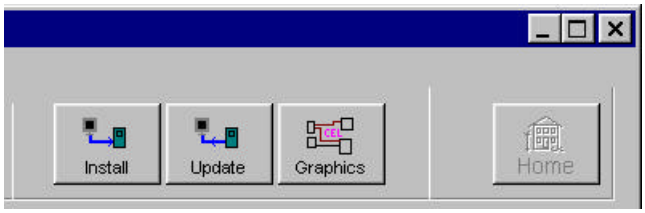
On smaller horsepower AC drives, 5 hp and below, the keypad must be removed and the serial cable plugged into the keypad serial port. Larger horsepower AC drives 7.5 hp and above, have a separate P3 serial port. All DC drives have a separate P3 serial port.

WARNING!

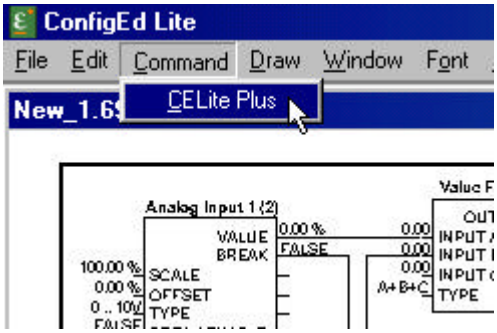
Do not use any connectors, adapters, and/or cables other than those supplied by Eurotherm Drives. Failure to use materials supplied by Eurotherm Drives can result in severe damage to equipment and injury to personnel, and will void the Eurotherm Drives warranty.

TOGGLING BETWEEN THE PROGRAMS

The following figures show the proper way to switch between CELite+ and CELite. Just click on the button or menu shown to switch between the programs.



GO TO CELite



GO TO CELite+

WARNING!

Do not use the Windows task bar to switch between the programs. If the task bar is used, the programs will not work properly.

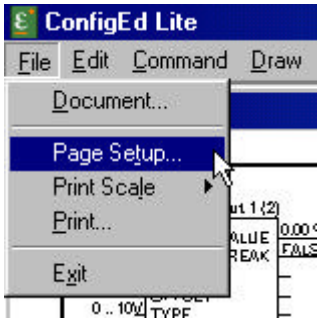
PRINTER SETUP

Before using CELite+, the program needs to be setup for printing the configurations.

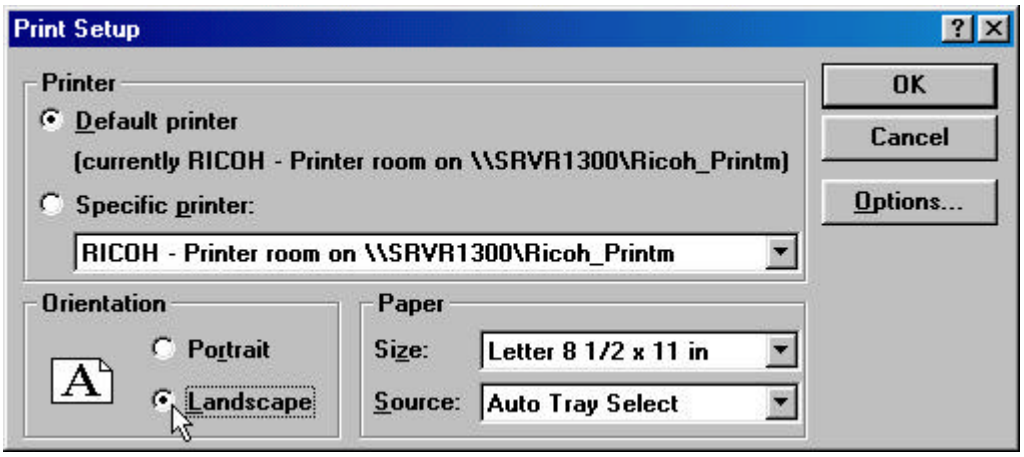
Caution

If the only printer configured on the computer is a network printer, the program will not work properly when not connected to the network. A local printer has to be configured on the computer and set as default, when no network connection is available.

Click on the Graphics button to go to CELite, then on File, then Page Setup.



The following window will show the default printer and allow a different printer and other printing options to be selected.



Since CELite creates drawings in a horizontal format, make sure your page is set for Landscape mode. When you are finished click the OK button.

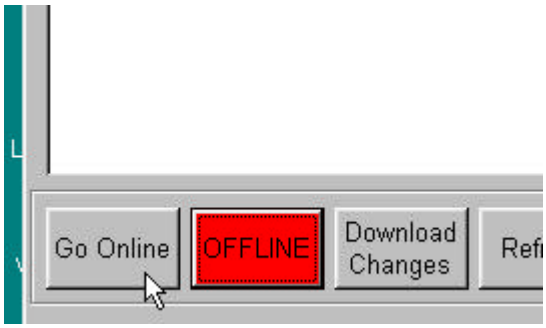
Chapter 4 Creating a Drive Configuration

PREPARING THE DRIVE

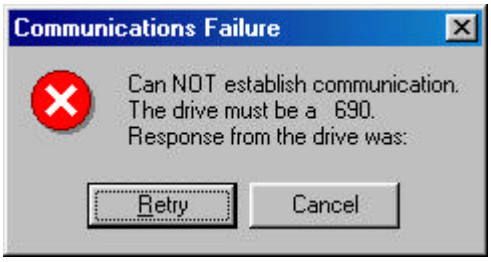
Before launching the program, verify that the drive is set to factory defaults. Refer to the drive manual for instructions on how to reset the drive. Resetting the drive will ensure there are no left over parameters that may effect operation.

OPENING A DEFAULT CONFIGURATION

To begin, launch the program and open a default configuration (refer to Chapter 3). Once the home screen appears in CELite+, click on the `Online` button. If CELite+ is connected to the proper drive and communicating, the status bar below will appear.



If CELite+ is not connected to the proper drive or if the communications are not setup, the following error message will appear. Click on `Retry`, if unsuccessful, Click on Reset under the Comms menu. If still unsuccessful, review the communications setup in chapter 3.

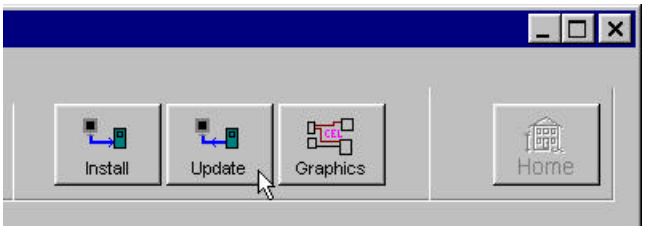


After CELite+ is done retrieving the tags from the drive, the `Online` button should turn green.

NOTE

If the `Online` is yellow, which means cautions, check the status bar for faults.

Now, the default CELite configuration needs to be updated, click on the `Update` button shown below.



CELite+ will go offline temporarily, and then upload the drive information to the CELite configuration.

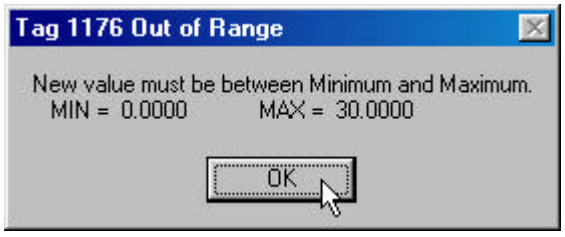
IMPORTANT

Do not click on anything until CELite+ is done updating the CELite configuration. The program will go back online once it is finished.

NOTE

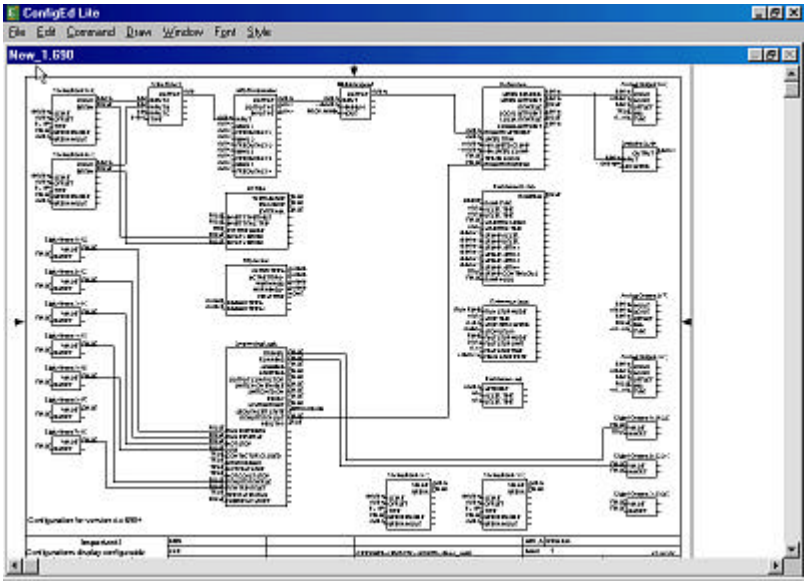
The configuration in CELite must be updated before proceeding. Updating the configuration will pull in drive specific parameters that set the size of the power section of the drive. Updating the CELite configuration must be completed, if creating a new configuration or editing an existing configuration.

If any of the parameters are out of range, the following message will appear. Write down the parameter number so it can be changed while editing the configuration in CELite. Click on `OK` to continue.



EDITING A DEFAULT CONFIGURATION

Now that the configuration has been updated, click on the `Graphics` button to edit the default configuration in CELite. Each series of drive will have minor differences in the way the configurations look and the blocks used, but the editing is done in the same manner. This example shows a 690+ drive.



This is a graphical diagram of the default 690+ drive configuration containing the standard drive functions blocks and connections. The second title bar shows the name of the configuration file.

DISPLAYING THE CONFIGURATION

There are a variety of Windows™ controls available to enhance viewing of the configurations. To enlarge the CELite window to fill the monitor screen, click on the zoom box in the upper right corner of the window. Clicking again on the box will return the window to its previous size.

Notice the gray outline frame near the bottom and right side of the CELite window. If the gray outline is not visible, try scrolling down or to the right until it appears. This frame marks the limits of the "page" on which the configuration is drawn. There must be an extra margin inside the gray outline for the edges of the paper where the printer cannot print. Items extending beyond the gray outline will not print.

The CELite window can be re-sized by moving the mouse pointer to either an edge or a corner of the window until it changes into a two-pointed arrow. Then hold the left mouse key down and drag the window edge to the size wanted.

To get the configuration window to appear in the CELite window, press the `Shift` key while selecting the appropriate configuration from the `Window` menu. This is especially useful if using a small screen and the configuration desired gets "lost" on the desktop.

The view inside the window can be enlarged or reduced from the keyboard by using the number keys (either at the top of the keyboard or on the numeric keypad), the `+` or `-` keys, or by choosing a different `Scale` size in the `Draw` menu. The arrow keys and the `Page Up` and `Page Down` keys modify the view of and/or move the drawing within the CELite window. For a complete list of keyboard commands, see the following table.

Keyboard Commands

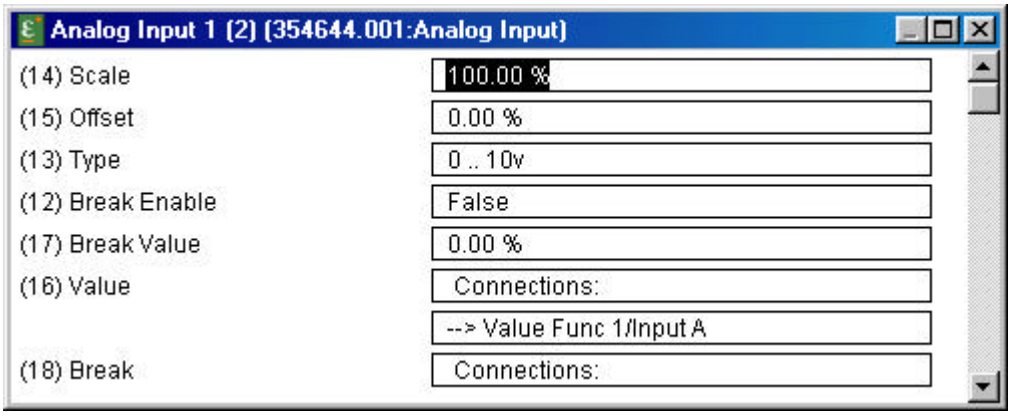
Keystroke	Result
3	Scales to 3pt. font (0.50x drawing); homes drawing to upper left corner
4	Scales to 4pt. font (0.67x drawing); homes drawing to upper left corner
5	Scales to 5pt. font (0.83x drawing)
6	Scales to 6pt. font (1.00x drawing)
7	Scales to 7pt. font (1.17x drawing)
8	Scales to 8pt. font (1.33x drawing)
9	Scales to 9pt. font (1.50x drawing)
0	Scales to 10pt. font (1.67x drawing)
1	Scales to 11pt. font (1.83x drawing)
2	Scales to 12pt. font (2.00x drawing)
+	Increases scaling by factor of 1.33
-	Decreases scaling by factor of 1.33
Home	Sets origin of view to upper left corner
Page Up	Moves view of drawing up by 7 / 8 of current size
Page Down	Moves view of drawing down by 7 / 8 of current size
Up arrow	Nudges view of drawing up
Down arrow	Nudges view of drawing down
Left arrow	Nudges view of drawing to the left
Right arrow	Nudges view of drawing to the right
Shift Page Up	Moves view of drawing to previous sheet
Shift Page Down	Moves view of drawing to next sheet
Backspace	Deletes currently-selected item

The mouse pointer can be used to select an area of the drawing to enlarge. Determine the area of the drawing desired to be enlarged, then hold down the mouse key and "draw" a box around that area. When the mouse key is released, the area selected will fill the window. A function block must be included somewhere in the area selected for this feature to work.

CONFIGURATION PARAMETERS

Displaying Parameters

To display the parameters of a particular function block, double-click on the desired block with the left mouse button. This brings up a window listing all the parameters for that function block and its connections.



NOTE

Since all connections will be made on screen in graphical mode, the fields for connections are there for informational purposes only. Connections may not be set in this window.

Changing Parameters

To change non-numeric parameters (for example, `on/off` or `positive/negative`), double-click on the appropriate field in the parameter list window. A list of optional choices will appear to choose from.

For a numeric field (for example, `0.500` seconds or `0.50%`), click once on the field to highlight the numeric figure, then type in the new value to assign to the field. When finished entering the changes, close the parameter window to update and return to the configuration drawing.

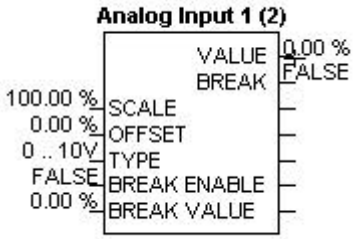
MAKING CONNECTIONS

NOTE

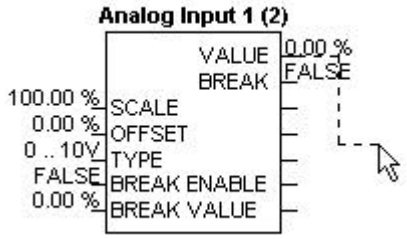
Before creating any new or changing any existing connections in the default configuration, refer to the product manual for your drive.

Connections between function blocks (or in special cases between outputs and inputs on the same function block) are made by “drawing” the connection from an output on one block to input on the other. To see how this is done, use the mouse to select and then enlarge the view of a pair of function blocks.

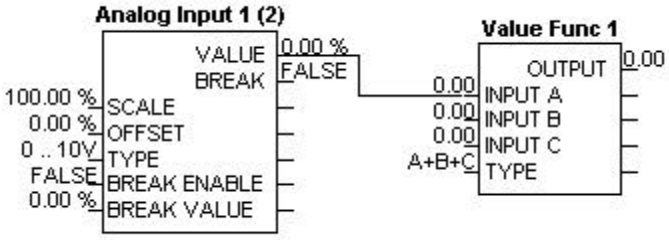
As the mouse pointer is moved close to an output on one of the blocks, it will turn into a crosshair.



With the crosshair showing, click the left mouse button once to make the initial connection with the output of the first function block. As the mouse is moved away from the output connection, the crosshair turns back into a pointer and a dashed line follows the mouse's movement.



Move in the direction of the input connection on the second function block (or, in special cases, to the same function block). When approaching the input connection, the pointer will once again turn into a crosshair. Click on the input connection and the now solid line will extend from the output connection to the input connection.

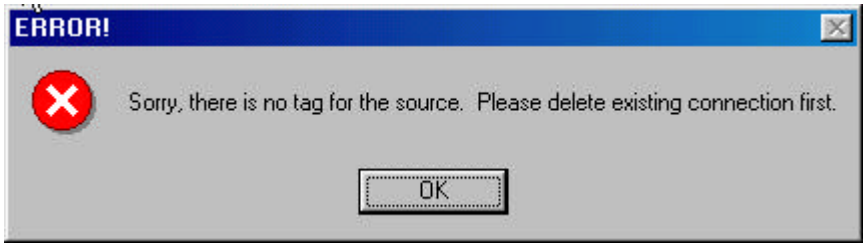


If a connection is made incorrectly, click on the connecting line. The line will become dashed. Press the `Delete` or `Backspace` key to delete the connection.

The routing of connection lines may also be adjusted to make the configurations easier to read. Click on the line desired to be moved and drag the segment to the desired location. Its connections will remain intact but the line will follow the new path.

NOTE

Some function blocks (for example, analog and digital inputs) support only one connection per output. If more than one connection is drawn from one of their outputs, the following error message will appear.

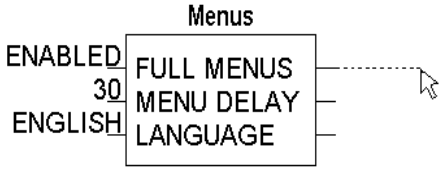


Delete a connection and proceed. This message may also appear if the number of common connections allowed in a drive configuration, currently ten, has been exceeded. Special or dedicated connections are not included in this limit.

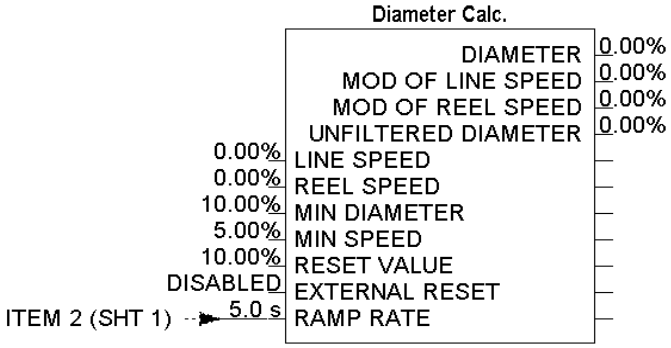
INTER-SHEET CONNECTIONS

CELite allows drawing connections between function blocks on different sheets. This is an important and valuable feature since drive configurations cover more than one sheet. To make inter-sheet connections:

1. Begin a connection from an output terminal of a function block on sheet1.
2. Move the mouse pointer to the `Draw` menu and select `Next Sheet`. A dashed line for the connection will appear attached to your mouse pointer.

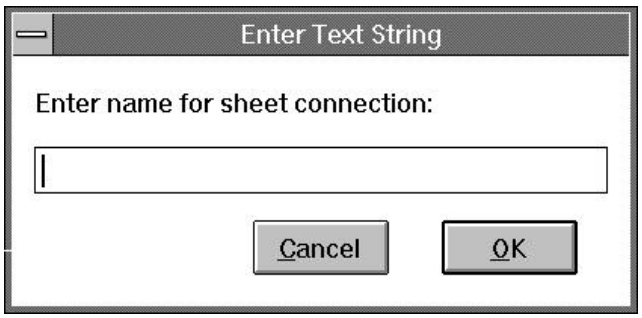


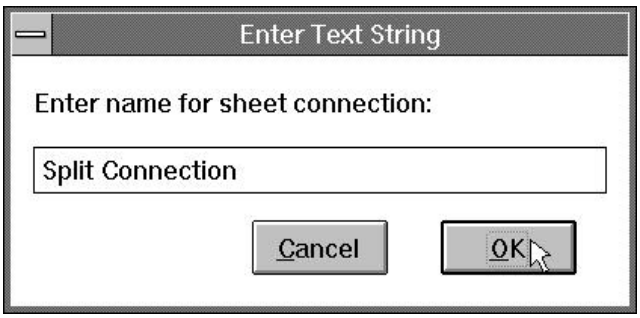
3. Complete the connection to an input terminal on the second function block. The dashed line will change to a solid line. It will be labeled with generic text identifying the connection and the source sheets (for example, `ITEM 1 SHT 1`).



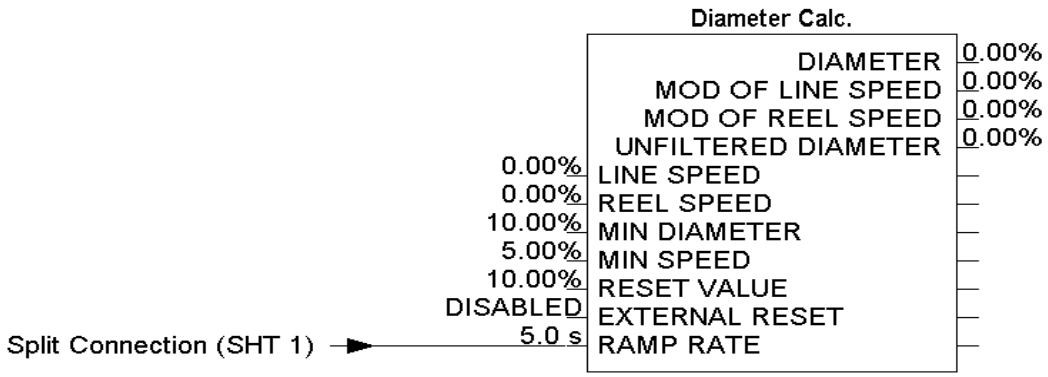
On the previous sheet, the text will show the destination sheet for the connection (for example, `ITEM 1 SHT 2`).

4. Rename the connection by double-clicking on the arrow or the descriptive text to bring up a dialog box.





Enter the preferred label name. The new information will appear on both sheets.

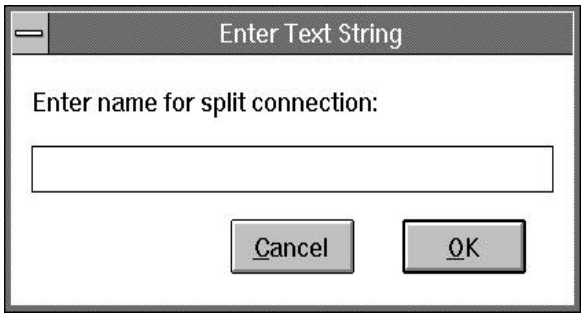


SPLIT CONNECTIONS

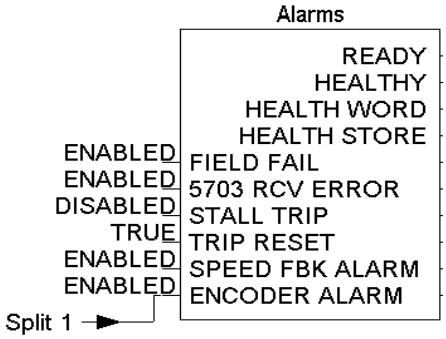
Similar to inter-sheet connections, split connections can help keep complex configurations from being cluttered with an abundance of crossing lines. Split connections resemble inter-sheet connections in that they include labels identifying their source and destination. Split connections may also be made in read-only configurations, since only the on-screen appearance has been modified and the connection itself has not been changed. To draw a split connection:

1. Choose a connection between two distant function blocks.

2. Double-click on the connection with the mouse pointer or click once and press the `Enter` key. A dialog box will ask for a name for the connection.



3. Enter the name and click the `OK` button. The connection will be split and labels will be attached to each end identifying the source and destination of the connection.



To change the connection name, double-click on either the connection or the label and enter the new information in the dialog box.

ALIGNING FUNCTION BLOCKS

Function blocks can be moved in the drawing to straighten out and neaten the appearance of the configuration, even when they are connected. Place the mouse pointer on the object to be moved, hold down the mouse button, and drag it to its new location. When satisfied with its position, release the mouse button.

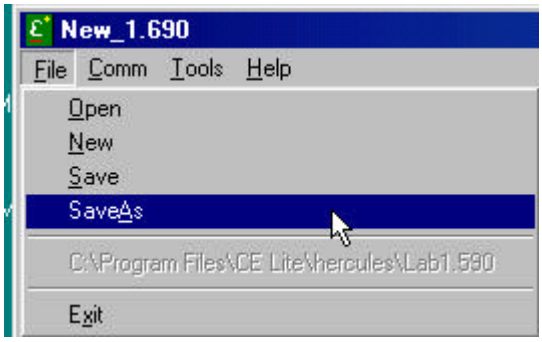
Aligning elements within the configuration drawing can be easily accomplished. To align a series of function blocks, either vertically or horizontally, click on the one in the position planed to be used as a master. Go to the `Draw` menu and select `Align`.

A check mark will appear next to `Align` to show that the alignment feature is operational. The alignment feature works on only the top or left side of the objects being aligned.

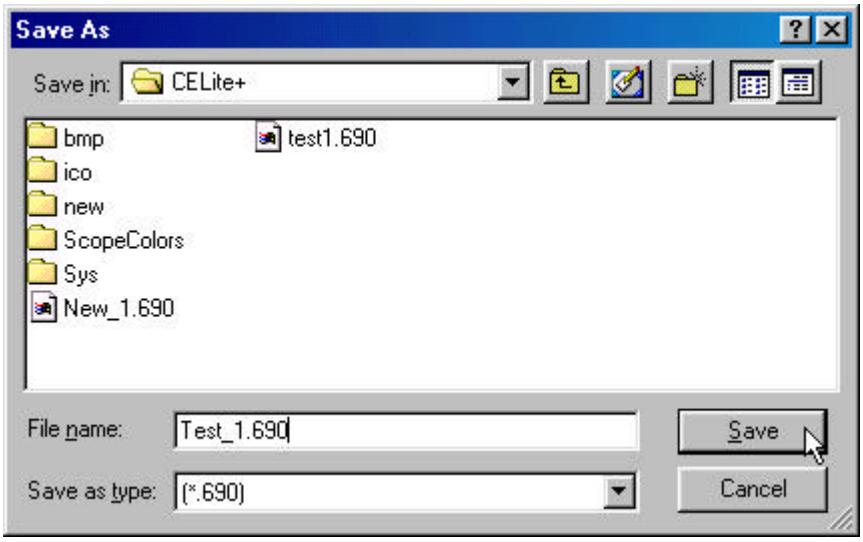
Select each element desired to be aligned with the master, drag it to the general location desired, and release the mouse button. CELite will automatically snap it into alignment with the original element. CELite "senses" whether the most appropriate alignment is in the vertical or horizontal plane and moves the element accordingly. The alignment feature can be turned off by clicking on an empty section of the drawing (so no function block is selected) and selecting `Align` again. The check mark will now be gone, showing that the alignment feature is toggled off.

SAVING A CONFIGURATION

Once all changes and adjustments have been made to the configuration it should be saved. The configuration can only be saved in CELite+, so switch back to CELite+ by clicking on `CELite+` then `CELite+`. To save the configuration to the same name, click on `File` then `Save`. If this is the first time saving the configuration (for example, `New` was selected from the `File` menu to open the default configuration), select `Save As` from the `File` menu.



This brings up a dialog box in which the name of the configuration, being saved, is typed.



The default directory for saving new configurations is the CELite+ directory. Additional directories should be created to organize the configurations according to particular job needs. In this example, a subdirectory called `New` has been created in which the `test_1.590` configuration will be saved. Consult the Windows™ manual for further instructions.

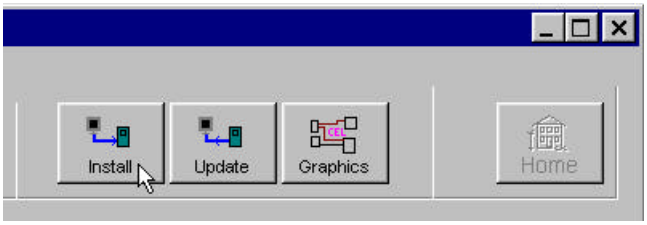
A primary reason to organize the configurations in separate directories is to keep the appropriate database with them. Copy the `celite.dat` file (the ConfigEd Lite database) into the same directory as the configurations at the same time the configuration is saved to the directory. This will preserve a copy of the database as it existed when the configuration was created and avoid possible incompatibilities between older and updated `.dat` files.

Once the correct directory has been located, type in the new name for the configuration without changing the extension and click on the `OK` button to save it to that directory.

INSTALL A CONFIGURATION

In order to install the configuration into the drive, the computer being used must be connected to that drive's P3 port. Once your configuration is completed, saved and checked, it is ready to be installed into the drive. The configuration

can only be installed from CELite+, so switch back to CELite+ by clicking on `CELite+` then `CELite+`. Go Online by clicking on ONLINE. After going online, click on the `Install` button to begin the installation process to the drive.



When the configuration is downloaded into the drive it replaces those parameters existing in the drive. A status box displays the progress of the `Install` procedure.

WARNING!

Installing new configurations into a drive must only be done when the drive is in a stopped and safe condition. Errors in the configuration may cause unexpected and/or dangerous consequences in the control system. It is imperative that all configurations be checked and tested by a qualified engineer BEFORE installing them into drives and putting them into service.

Note

All other serial ports in the controller must be disabled before communicating through the P3 port.

CREATING CONFIGURATION TEMPLATES

Template files are useful for reusing configurations and creating standard graphical presentations. They are not overwritten when saving a configuration.

To create a template, open a configuration and modify it as needed. Select `Save As` in the `File` menu. Change the destination directory to `\CELite+\new` and choose `OK` to close the configuration file. This file will appear in the pop down menu when selecting `New` in the `File` menu.

OPENING AN EXISTING CONFIGURATION

Once a configuration has been saved, CELite+ will display the configuration name in the `File Open` menu list as long as the proper directory is selected. To open an existing configuration, click on `File` then `Open` and the name of the desired configuration.

UPDATING A CONFIGURATION

To retrieve a copy of the drive's parameter settings or configuration, use the update function on the CELite+ home screen. Open the configuration file to be updated, if it is not already open. After going Online, click the `Update` button from the CELite+ `Home` screen, to replace the configuration parameters with those from the drive. A status box displays the progress of the update procedure.

NOTE

The Update function will overwrite all the connections and parameter settings of the currently selected configuration. Make sure you do not accidentally overwrite an unsaved configuration.

When the update procedure is completed, save the configuration to preserve the updated parameters using either Save or Save As from the File menu.

PRINTING A CONFIGURATION

The configuration can only be printed out in the CELite program. Verify that the page and printer settings are correct, then click on File, then Print. For further instructions refer to chapter 3.

DOCUMENT YOUR CONFIGURATION

To generate a listing of all parameters and connections in a configuration, first make sure the desired configuration is opened in the CELite program and selected. Then select Document from the File menu.

This brings up a dialog box in which you name the documentation file and assign it to a directory.

The default name is the same as the selected configuration with a .doc extension attached. The default directory is the same one that holds the selected configuration. Ensure that the name and directory are correct and click on the OK button to create the .doc file.

Review Your Documentation

The .doc file containing the configuration documentation may be opened by any word processor or text editor, including the Notepad® application bundled with Windows™.

Note

You can set up File Manager® to launch Notepad® (or another text editor) automatically when you select a .doc file. See your Windows™ manual for instructions on how to do this.

Launch your word processor or text editor and then select the .doc file for your configuration.

A listing of the configuration parameters will appear on screen.

Print Your Documentation List

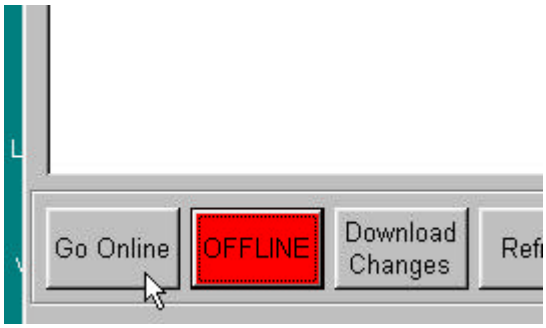
Once you have your configuration documentation open in a word processor or text editor, printing your configurations is simply a matter of sending it to a printer connected to your computer. Select Print from the File menu to send the .doc file to your printer.

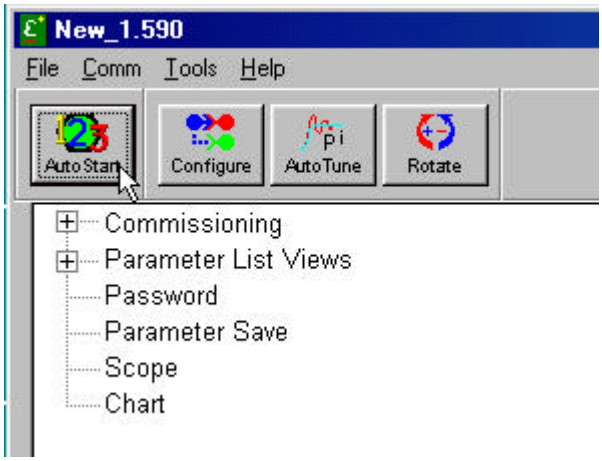
Chapter 5 Starting up a 590+ Drive

COMMISSIONING THE DRIVE

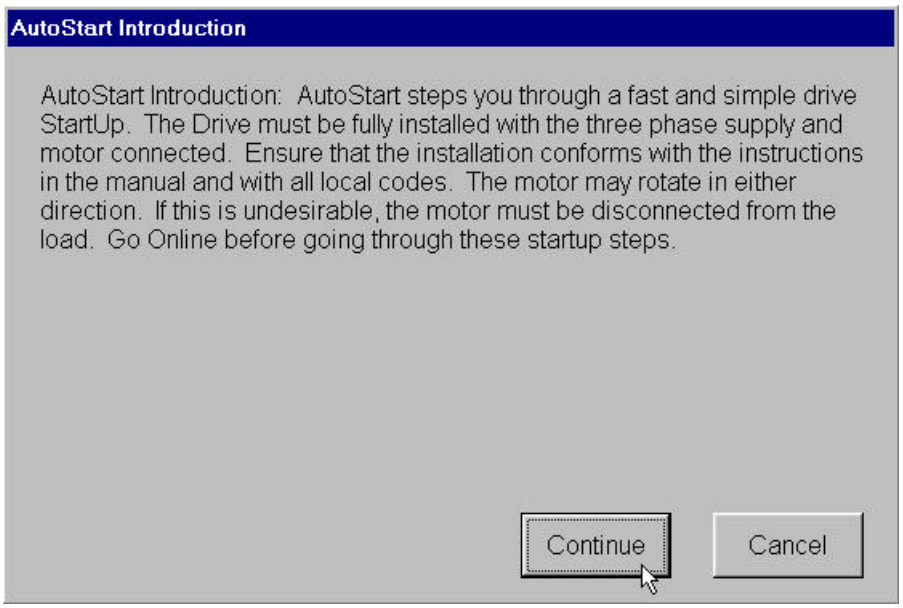
Once the configuration has been created and installed in the drive as described in the previous chapters, the drive is ready to be commissioned. If starting with a drive that has a previous configuration installed, go Online then Update the CELite configuration first before proceeding. For more details, refer to the previous chapters.

The CELite+ program guides through the startup process, starting with entering the motor information, entering control setup information, performing an autotune and a motor rotation check. Start by going online with the drive. Click the `Go Online` button on the CELite+ home screen. After the `Go Online` button is green, click on the `AutoStart123` button.



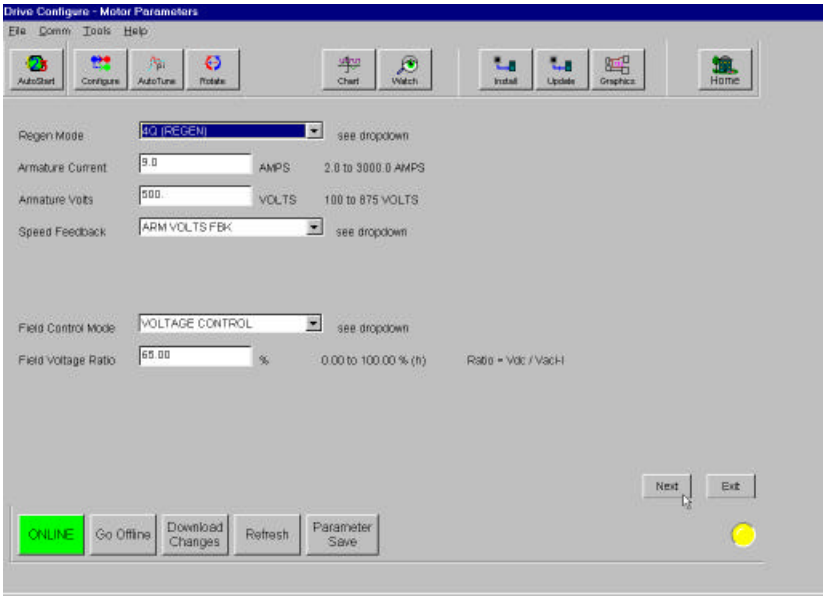


When this screen appears, read the note and click on `Continue`.



MOTOR PARAMETERS

The motor parameter screen, shown below, shows up next. If the motor information was entered in the configuration in CELite, just verify the information. After verifying the entered information, click on `Next`. Refer to the drive manual if you have any questions about the parameters.



WARNING

Make sure all information entered for the motor is exactly as it is shown on the motor nameplate. DO NOT enter any information you are not sure is accurate. Contact the motor manufacture if the motor information is not available.

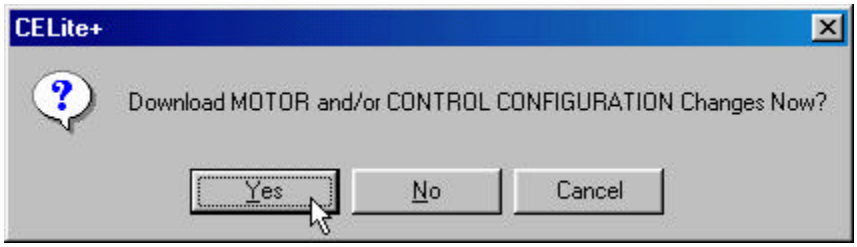
WARNING

If the drive is setup for either tachometer or encoder feedback, verify that the tachometer or encoder is connected and appropriately calibrated to the drive.

Note

CELite+ does not support Field weakening setup at this time. It will have to be setup manually after all tests have been successfully completed in CELite+.

The following screen will prompt to download the changes. Click on `Yes` if any changes have been made or `No` if not.

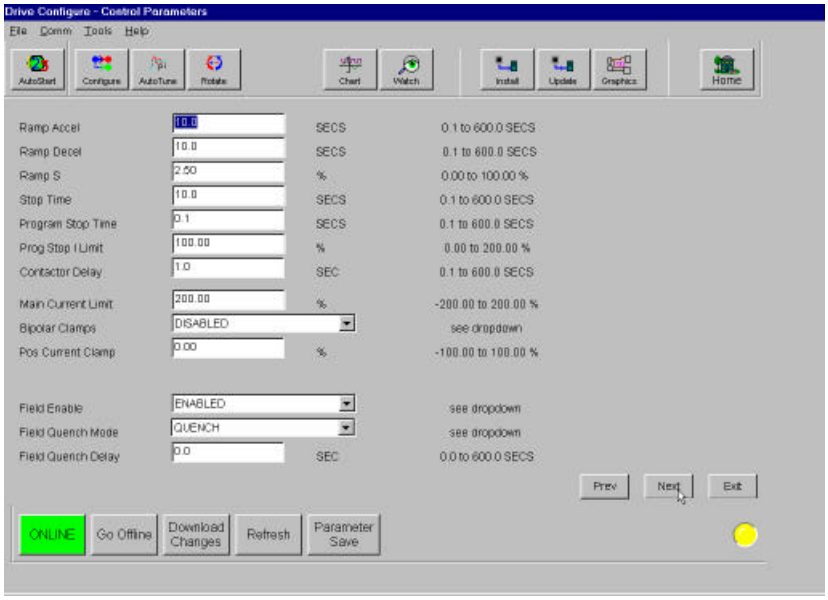


Note

The changes can be downloaded after entering the information in the next section.

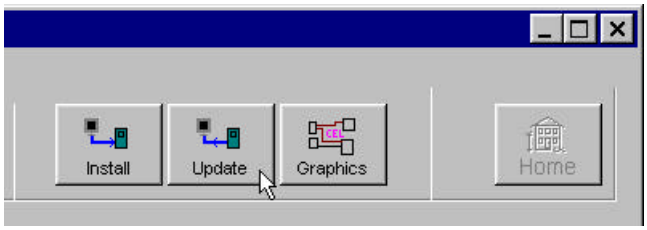
CONTROL PARAMETERS

The following display shows the Control Parameters screen. After the information has been entered or verified, click on the `Next` button. Refer to the drive manual for questions on the parameters.



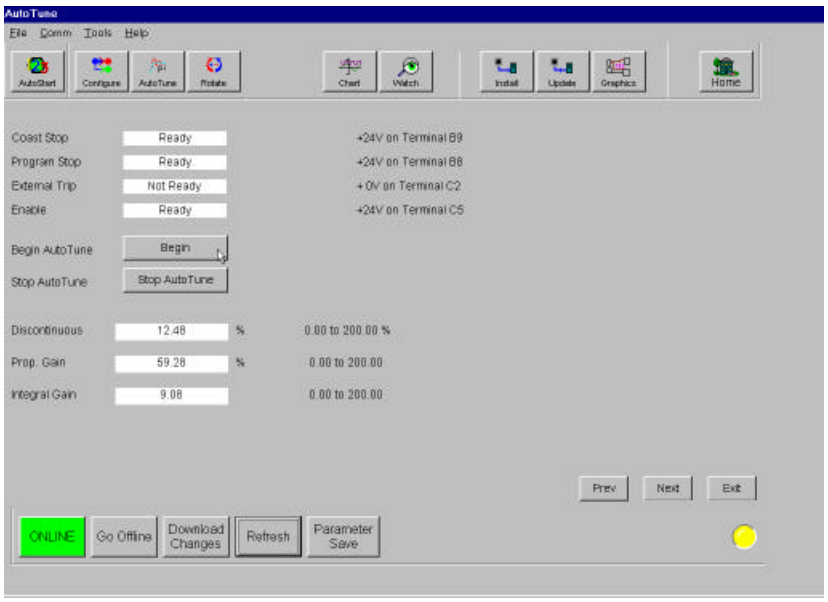
Click on the `Yes` button in the following window to download the changes into the drive. It will download only new information entered in the Motor and Control parameter screens.

After this information is downloaded to the drive, update the CELite configuration by clicking on the `Update` button shown below.



AUTOTUNING

The Autotune screen appears next.



The autotune on a DC drive primarily calibrates the current loop parameters. It tunes the drive to the motor, and is very important for proper drive performance. All DC drives should be autotuned.

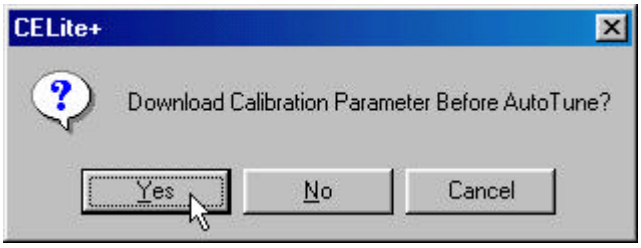
This window displays four diagnostic parameters, Coast Stop, Program Stop, External Trip and Enable. These parameters are the primary logic inputs on the drive and all must be in a Ready state for the autotune to begin. You can click the `Refresh` button to update the status of these diagnostic values. If any of these values are not ready, check the connections on the drive and any safety interlocks.

Autotune adjusts three current loop parameters Discontinuous current, Proportional gain, and Integral gain. The default values are 12.00%, 45.00, and 3.50 respectively. After the autotune has been completed successfully, these values should change and must be saved in the drive. CELite+ will prompt to save the parameters after the autotune is finished.

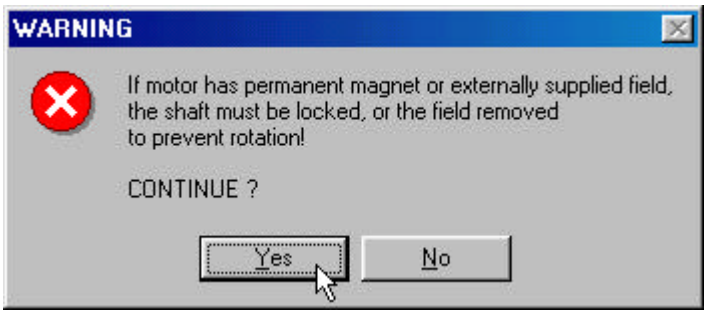
WARNING

During an autotune the shaft may turn, but for more accurate performance the armature should remain stationary. If you are tuning a Shunt wound DC motor the shaft should not turn; but it may have enough residual magnetism to cause the shaft to turn. If it turns very slowly, the tuning will not be affected. If it turns above 10% speed, the shaft must be locked. Stabilized shunt, compound, and permanent magnet DC motors all need to have their shafts locked. The locking device should be strong enough to hold the full torque of the motor.

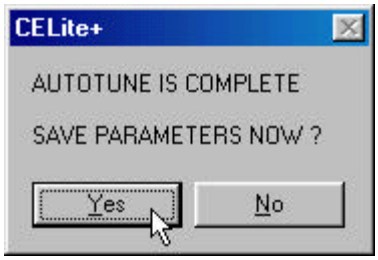
Click on `Begin` to start the autotune process. After the autotune process begins, the program will prompt to download changes to the drive. If the changes have already been downloaded, click `No` otherwise click `Yes`.



When this warning screen appears, click Yes to continue.



The drive will now try to start the AutoOpen process by pulling in the drive contractor and pulsing the armature with current. The process will take about 30 seconds. If it completes successfully, the following screen will appear, click Yes to continue to the rotate screen.



The following screens are some of the errors that can pop up during an autotune.

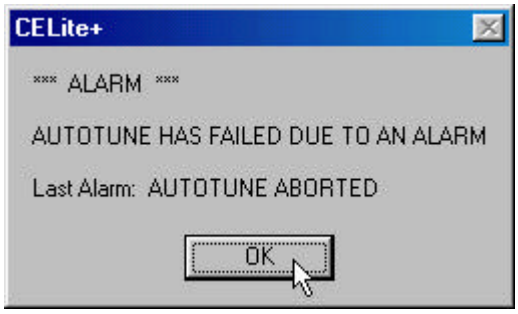
If this error appears, check that the:

1. Armature leads are connected.
2. Jumper present between drive terminals B3 and A6 is in place.

Click on OK to acknowledge error, and retry autotune.

This error will only appear if you stopped the autotune using the program or the drive terminals.

Click on OK to acknowledge error, and retry autotune.



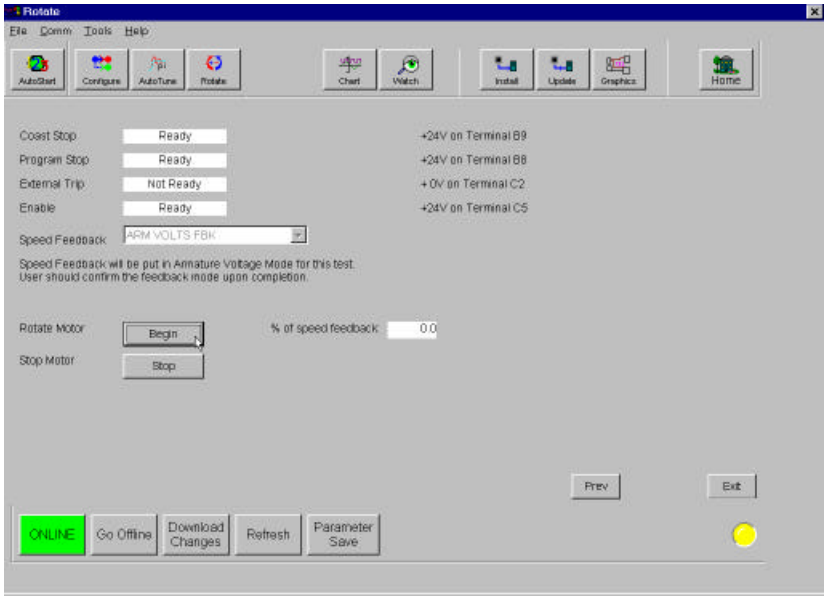
If this error appears, check for:

1. Motor rotation more than 20% with encoder or tachometer feedback.
2. Improper calibration for the encoder or tachometer.
3. Improper calibration for armature voltage.

Click on OK to acknowledge error, and retry autotune.

MOTOR ROTATE CHECK

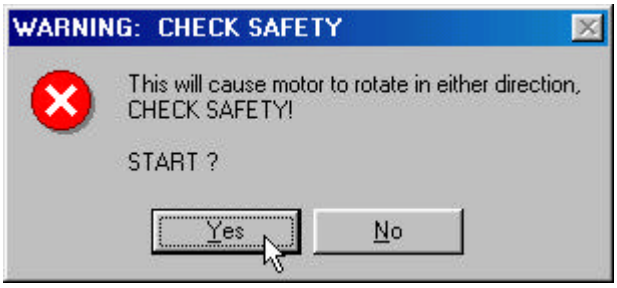
Now, you are now ready to check the direction of rotation of the motor and the polarity between the motor and the feedback.



This window displays four diagnostic parameters, Coast Stop, Program Stop, External Trip and Enable. These parameters are the primary logic inputs on the drive and all must be in a Ready state for the rotate test to begin. Click the `Refresh` button to update the status of these diagnostic values. If any of these values are not Ready, check the drive connections and any safety interlocks.

The speed feedback window reflects the choice set on the motor parameter screen. During this test the program sets force the drive to armature voltage feedback to prevent the motor from running away. After the rotate test has been completed successfully, the program will prompt to reset the speed feedback back to the original choice.

Click `Begin` to start the rotate test. The following screen is to warn that the motor is about to turn. Click `Yes` to continue.

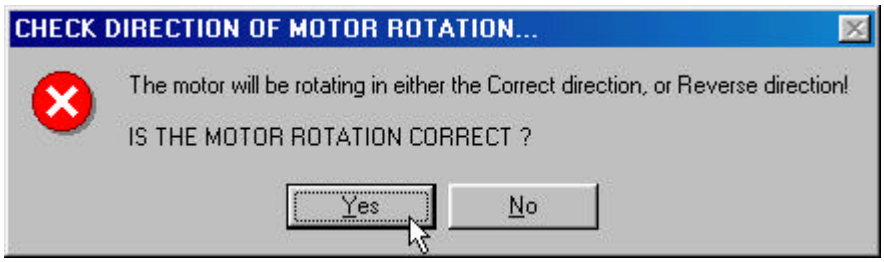


The program memorizes the selected speed feedback and then sets the drive to armature voltage feedback. Then it sends a run command to the drive with a 5% speed demand. After the drive starts, the program compares the initial feedback source for polarity and scaling to that of the 5% speed demand.

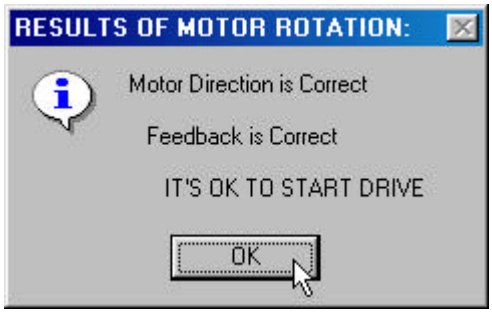
IMPORTANT

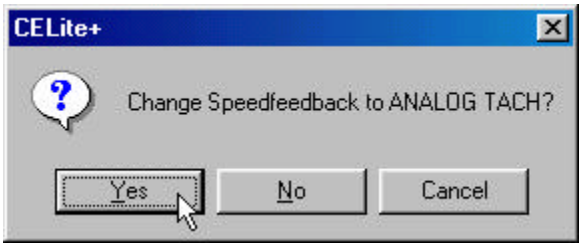
Do not leave the rotate screen until the test is completed. If the screen is left, the drive will remain in Armature voltage feedback and will have to be manually reset.

The drive should run for a few seconds and then ask if the direction is correct. The direction of the motor is based on a forward (positive) speed demand to the drive. If the direction of the motor is correct for forward, click Yes otherwise click No.



Next the program displays one of six messages. If the following message appears, continue with the rotate test. Skip to the "Rotation Error" section if any other message appears. Click on OK to continue. A Start button will appear on the rotate screen. Click on Start to start the drive. Last the program will prompt to change the speed feedback to the initial setting. Click on Yes to switch back to the initial setting, or No to stay in armature voltage feedback.





Rotation Error

If one of the following messages appear, follow the directions to correct the problem. Then repeat the rotate test again.

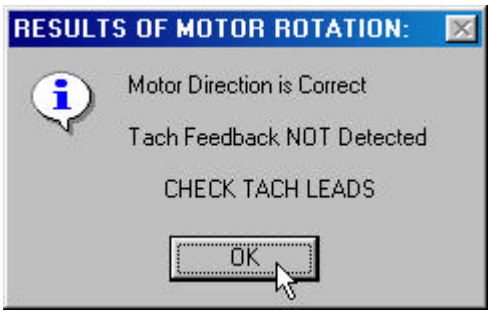
Motor direction is ok, but the feedback is missing.

Check the following:

1. Tachometer or Encoder feedback board missing or not connected.
2. Feedback source missing or misconnected.

Check connections, feedback boards, tachs and encoders.

Click on OK and retry rotating test.

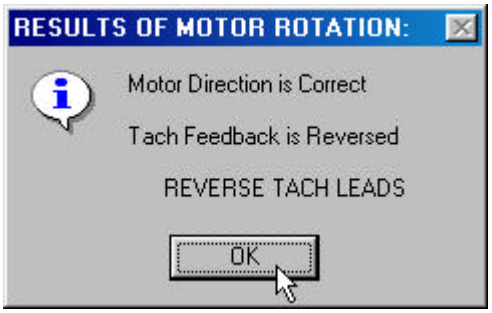


Motor direction is ok, but the feedback polarity is reversed.

The following actions are required:

1. Tachometer feedback – Reverse the two tachometer leads.
2. Encoder feedback – CELite+ will automatically invert the encoder sign bit to correct the polarity.

Click on OK and retry rotating test.

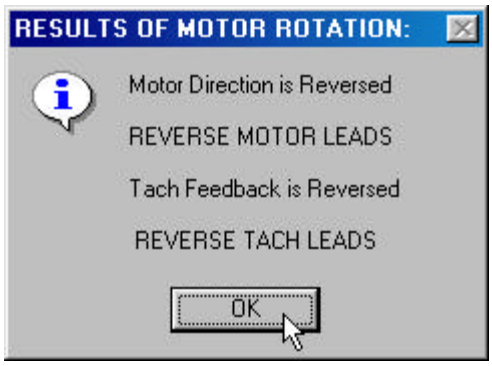


Motor direction is reversed and feedback polarity is reversed.

The following actions are required:

1. Reverse the two armature leads.
2. Tachometer feedback – Reverse the two tachometer leads.
3. Encoder feedback – CELite+ will automatically invert the encoder sign bit to correct the polarity.

Click on OK and retry rotating test.



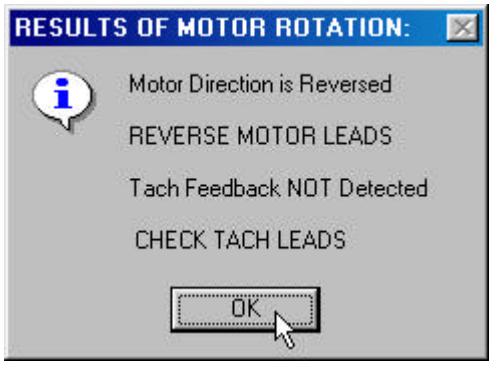
Motor direction is reversed and feedback is missing.

Check the following:

1. Reverse the two armature leads.
2. Tachometer or Encoder feedback board missing or not connected.
3. Feedback source missing or misconnected.

Check connections, feedback boards, tachs and encoders.

Click on OK and retry rotating test.

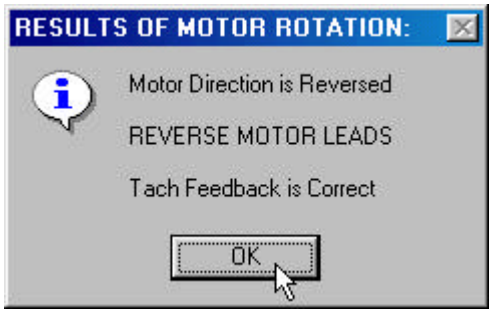


Motor direction is reversed and feedback is correct.

The following action is required:

1. Reverse the two armature leads.

Click on OK and retry rotating test.

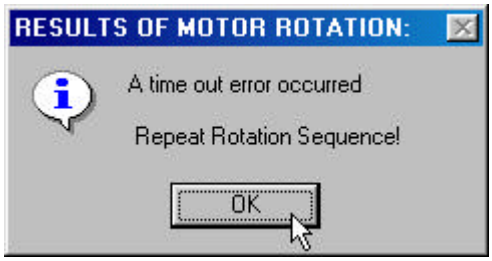


Motor current not detected or feedback out of range.

Check the following:

1. Motor not connected or not properly connected.
2. Feedback not scaled correctly.
3. CELite+ timed out or computer resources low.

Click on OK and retry rotating test.



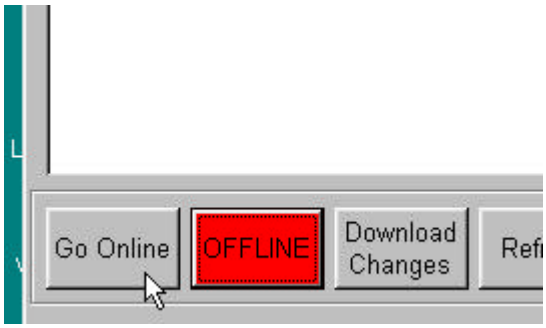
After the rotate test is completed successfully, click the Parameters Save button, click the Update button, and then continue running the drive in local mode using the Home screen. If the motor runs satisfactory, commissioning is complete.

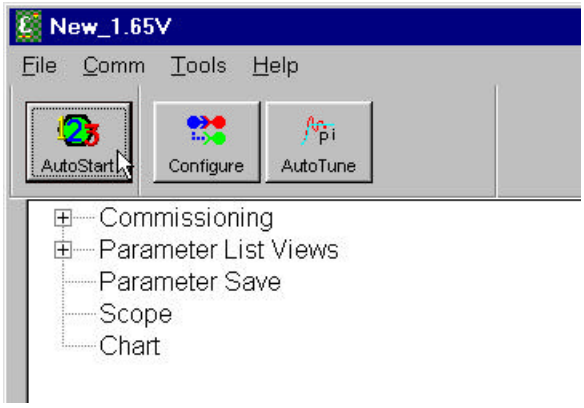
Chapter 6 Starting up a 650V Drive

COMMISSIONING THE DRIVE

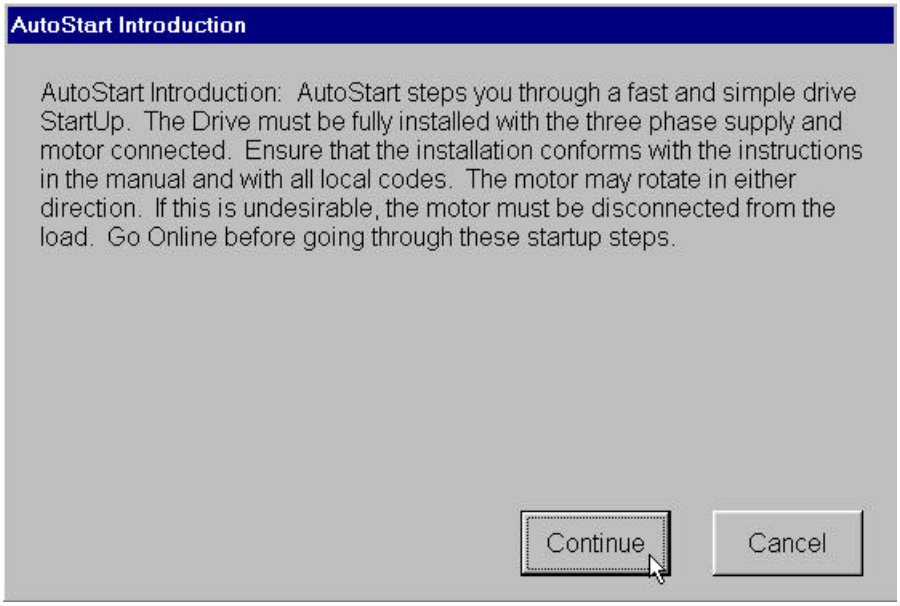
Once the configuration has been created and installed in the drive as describe in the previous chapters, the drive is now ready to be commissioned. If starting with a drive that has a previous configuration installed, go Online then Update the CELite configuration first before proceeding. For more details, refer to the previous chapters.

The CELite+ program guides through the startup process, starting with entering the motor information, entering control setup information, performing an autotune and a motor rotation check. Start by going online with the drive. Click the `Go Online` button on the CELite+ home screen. After the `Go Online` button is green, click on the `AutoStart123` button.



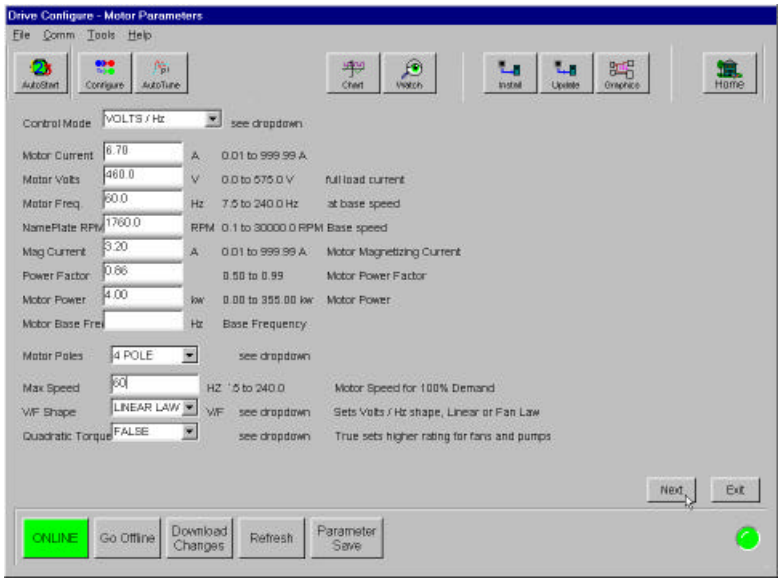


When this screen appears read the note and click on `Continue`.



MOTOR PARAMETERS

The motor parameter screen, shown below, shows up next. If the motor information was entered in the configuration in CELite, just verify the information. After verifying the entered information, click on `Next`. Refer to the drive manual for questions on the parameters.



WARNING!

Make sure all information entered for the motor is exactly as it is shown on the motor nameplate. DO NOT enter any information you are not sure is accurate. Contact the motor manufacture if the motor information is not available.

There are two different modes of operation the 650V can be setup for, Volts/Hz, and Sensorless Vector. Each one of the modes has specific parameters that need to be entered. After choosing one of the modes, CELite+ will show the parameters needed for the specific control mode.

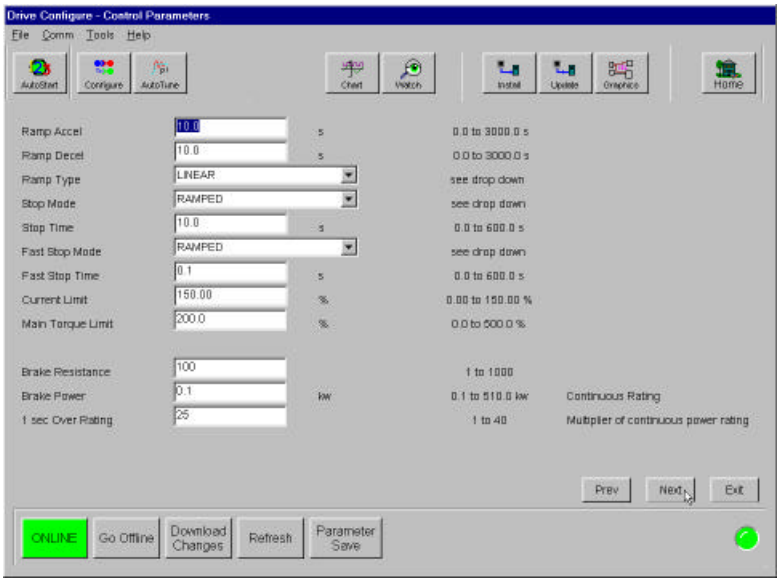
The following is a brief description of the three control modes:

- The Volts/Hz mode is open loop and requires no speed feedback. Enter in the appropriate information and go on to the control parameter section.
- The Sensorless Vector mode is also open loop, but it has better torque and speed regulation. Enter in the appropriate information and go on to the control parameter section.

For more information on the different options and control modes refer to the drive manual.

CONTROL PARAMETERS

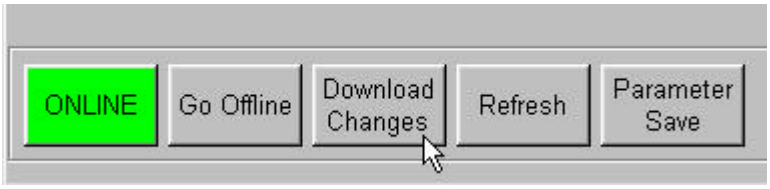
The following display shows the Control Parameters screen. After the information has been entered or verified, click on the `Next` button. Refer to the drive manual for questions on the parameters.



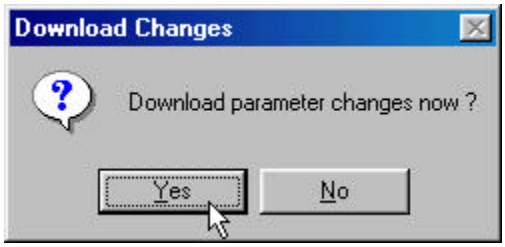
In the vector mode, the motor current is equal to the Magnetizing current and the load current; Torque is equal to the load only.

The dynamic braking can only be setup on drives that have been fitted with the braking transistor. Refer the to the model number and the drive manual to verify if the drive has this option.

After the information has been entered, click on the `Download Changes` button to download to the drive.



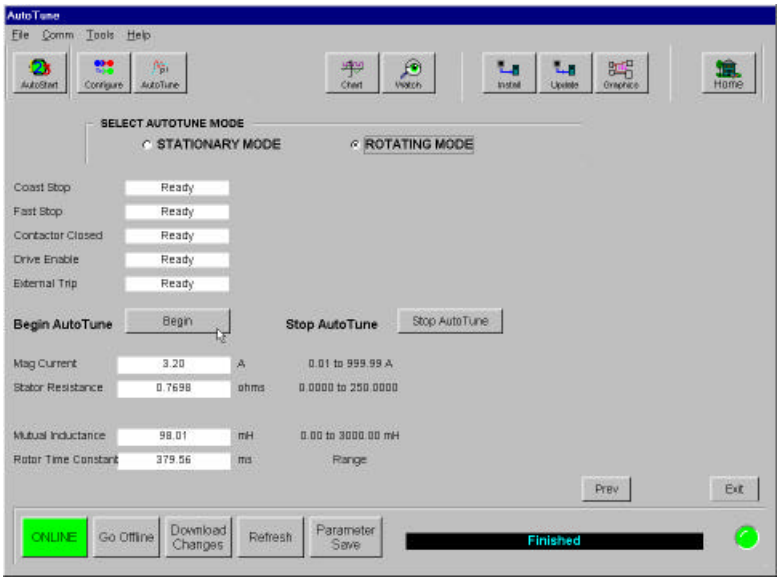
The `Download Changes` button will only change the information entered in the two parameter screens. The program may automatically prompt to download changes, if so click on `Yes`.



If the drive is setup for Volts/Hz mode, the program will skip the autotune screen.

AUTOTUNE

The Autotune screen appears next. The autotune is only required for the vector mode.



Warning!

To perform an autotune on an AC drive, the motor has to be able to turn freely. To achieve the best results the motor shaft must not be connected to any device (Like Gearboxes, pulleys, couplings, etc.). Before attempting an autotune, all motor parameters MUST be entered into the drive.

This window displays four diagnostic parameters, Coast Stop, Fast Stop, Contactor Closed, and Enable. These parameters are the primary logic inputs on the drive and all must be in a Ready state for the autotune to begin. Click the `Refresh` button to update the status of these diagnostic values. If any of these values are not Ready, check the connections on the drive and any safety interlocks.

There are two modes of autotuning on an AC drive, Stationary and Rotating. The preferred mode is the rotating autotune. There are many parameters the autotune will adjust in the drive, only five of those parameters are shown on the autotune screen. After the autotune has been completed successfully, these values should change and must be saved to the drive.

Click on the white circle next to the mode of autotuning to be preformed. A black dot should appear in the circle and a warning window will appear. Skip to the appropriate section below.

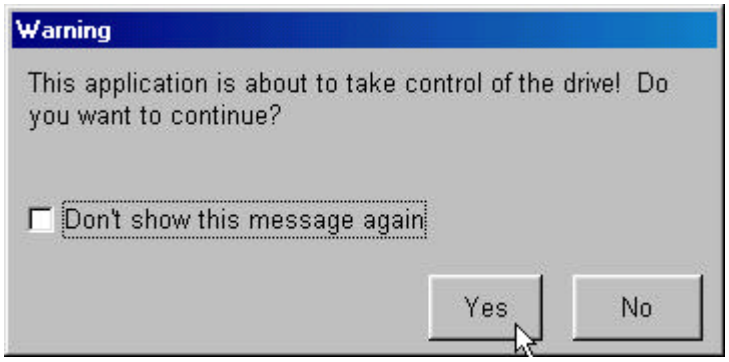
Stationary Autotune

The Stationary Autotune should only be used if the motor cannot spin freely. During this autotune the motor will not spin, and it will only identify a limited set of motor characteristics. The following are some of the drawbacks to a stationary autotune:

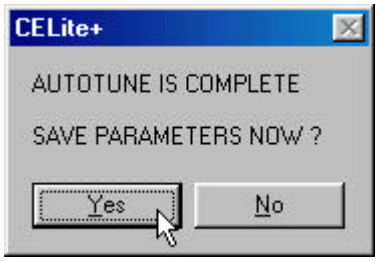
- User has to enter the correct value of magnetizing current.
- Cannot operate the motor above base speed.
- User has to manually check the encoder polarity and adjust if necessary.

If Stationary Autotune is chosen, the following window will appear. Click on `OK`, and compare the Magnetizing current value shown on the screen to that on the motor nameplate. If the value is wrong, enter the proper value and continue.

Click on `Begin` to start the autotune process. The following window will appear to warn that the program will assume control of the drive. Click on `Yes` to continue.



CELite+ will now perform an autotune on the drive. If the autotune completes successfully the following window will appear. Click on `Yes`, and proceed to the Home screen to run the drive. If an error occurs skip to the Autotune error section.



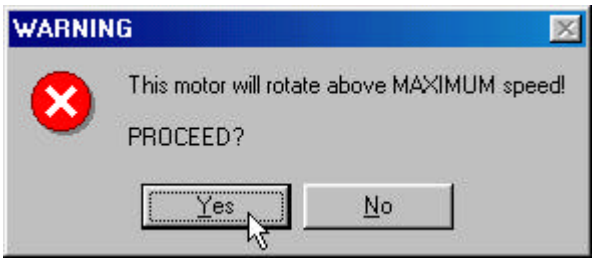
Rotating Autotune

The Rotating Autotune mode of tuning will give the best performance of the drive. The motor shaft will spin from zero to base speed and then to maximum speed. This mode of tuning will also check the encoder feedback polarity, and toggle the encoder polarity if necessary. The following are some drawbacks to a rotating autotune:

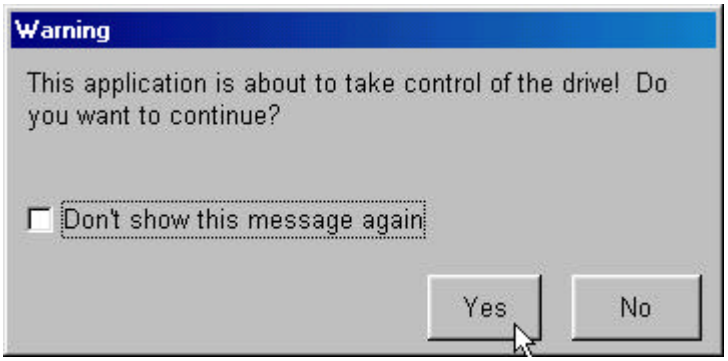
- The motor shaft cannot be connected to anything.
- The tuning process can only characterize the motor up to 30% above the Max speed. If you need to go faster than this speed, perform another autotune.

If Rotating Autotune is chosen, the following window will appear, Click on `OK` to continue.

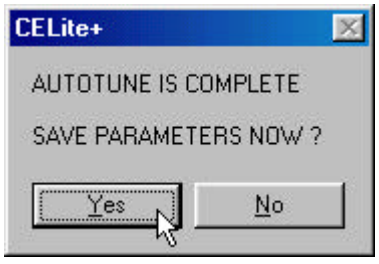
Click on `Begin` to start the autotune process. The following window will appear. Click on `Yes` to continue.



Next the program displays a warning that it will assume control of the drive. Click on `Yes` to continue.



CELite+ will now perform an autotune on the drive. If the autotune completes successfully the following message will appear. Click on `Yes` and proceed to the Home screen to run the drive. If an error occurs skip to the Autotune error section.



Autotune Errors

Below are some of the errors that can occur during an autotune.

This error will only appear if you stopped the autotune using the program or the drive terminals.

Click on OK to acknowledge error and retry autotune.

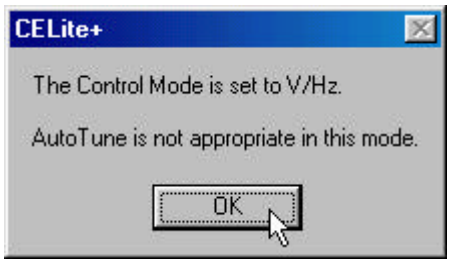
If this error appears, check the following:

1. Coast stop, fast stop, enable, external trip, and motor thermal are all high.
2. CELite+ is still in control of the drive.

Click on OK to acknowledge error and retry autotune.

If this window appears you do not need to preform an autotune

Click on OK and proceed to the home screen section.



There are multiple errors that can appear in this window, please refer to the 650 installation manual, Trips and Fault Finding chapter, for more information.

Click on OK to acknowledge error and retry autotune.

After autotune has completed successfully, continue to the home screen section.

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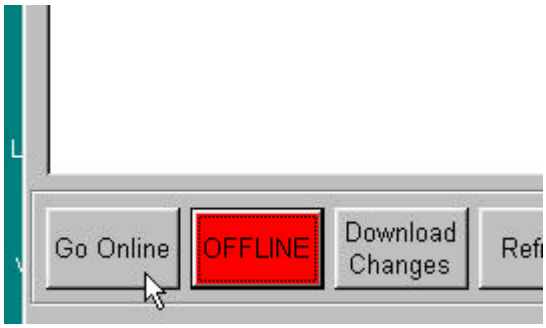
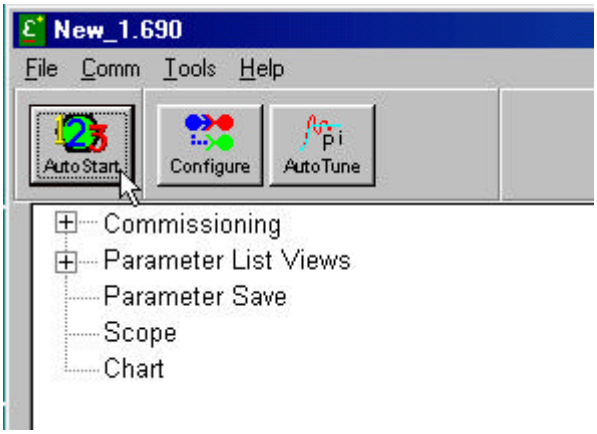
Chapter 7 Starting up a 690+ Drive

COMMISSIONING THE DRIVE

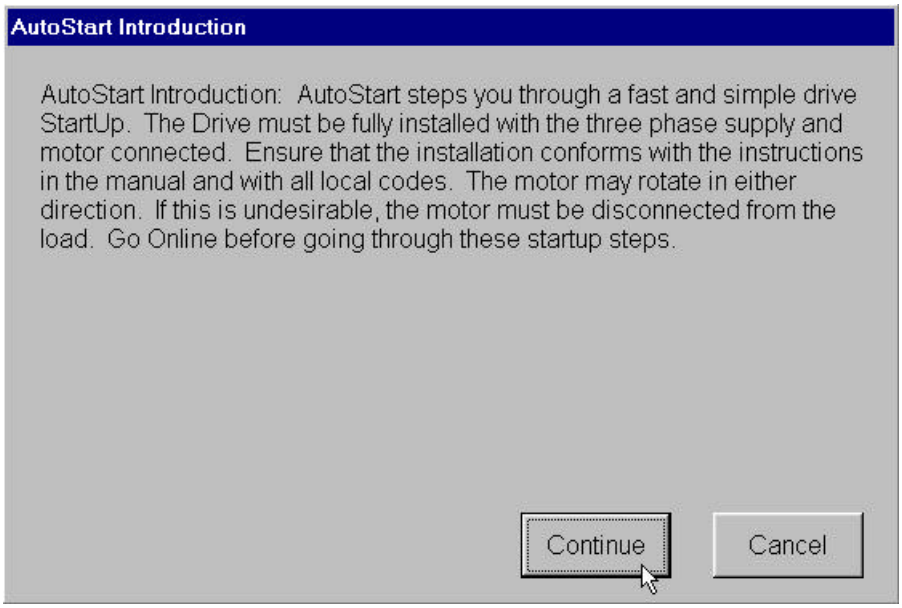
Once the configuration has been created and installed in the drive as describe in the previous chapters, the drive is now ready to be commissioned. If starting with a drive that has a previous configuration installed, go Online then Update the CELite configuration first before proceeding. For more details, refer to the previous chapters.

The CELite+ program guides through the startup process, starting with entering the motor information, entering control setup information, performing an autotune and a motor rotation check. Start by going online with the drive. Click the `Go Online` button on the CELite+ home screen. After the `Go Online` button is green, click on the `AutoStart123` button.



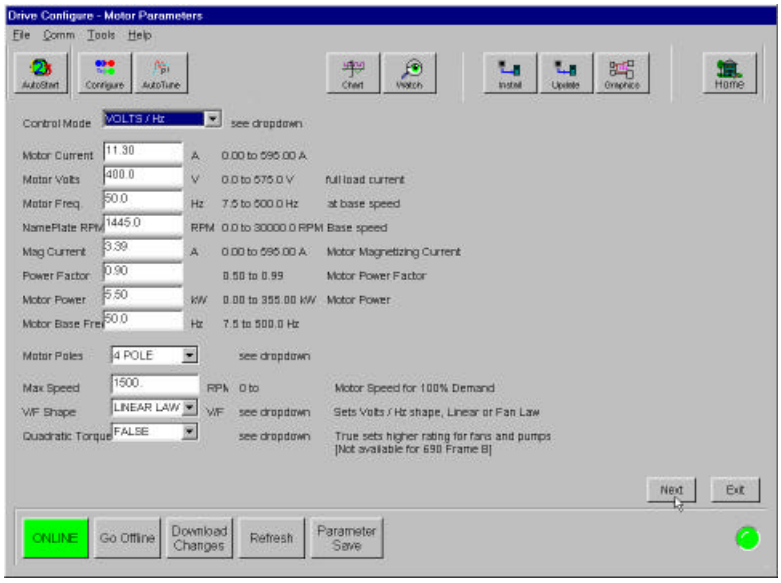


When this screen appears read the note and click on `Continue`.



MOTOR PARAMETERS

The motor parameter screen, shown below, shows up next. If the motor information was entered in the configuration in CELite, just verify the information. After verifying the entered information, click on `Next`. Refer to the drive manual for questions on the parameters.



WARNING!

Make sure all information entered for the motor is exactly as it is shown on the motor nameplate. DO NOT enter any information you are not sure is accurate. Contact the motor manufacture if the motor information is not available.

There are three different modes of operation the 690+, Volts/Hz, Sensorless Vector, and Closed Loop Vector. Each one of the modes has specific parameters that need to be entered. After choosing one of the modes, CELite+ will show the parameters needed for the specific control mode.

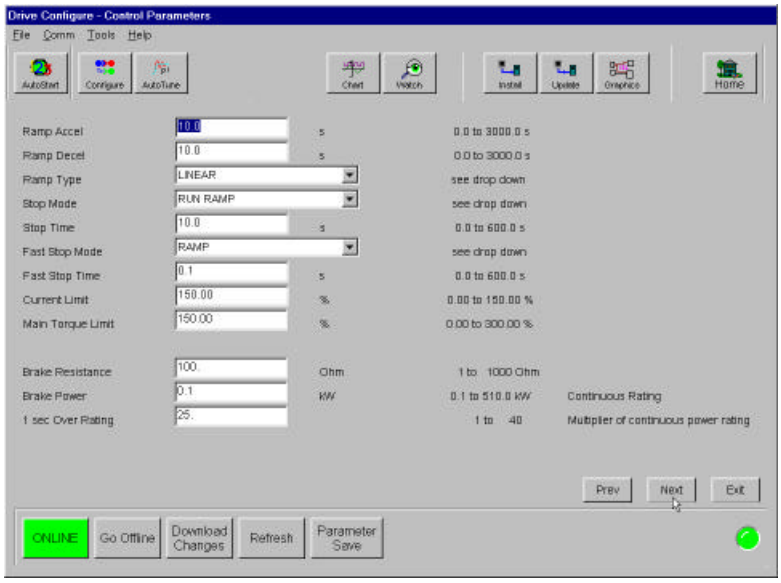
The following is a brief description of the three control modes:

- The Volts/Hz mode is open loop and requires no speed feedback. Enter in the appropriate information and go on to the control parameter section.
- The Sensorless Vector mode is also open loop, but it has better torque and speed regulation. Enter in the appropriate information and go on to the control parameter section.
- The Closed Loop Vector mode requires encoder feedback to close the speed loop. It has very good torque and speed regulation. The encoder feedback can be connected through an Encoder techbox or system board. Enter in the appropriate information and go on to the control parameter section.

For more information on the different options and control modes refer to the drive manual.

CONTROL PARAMETERS

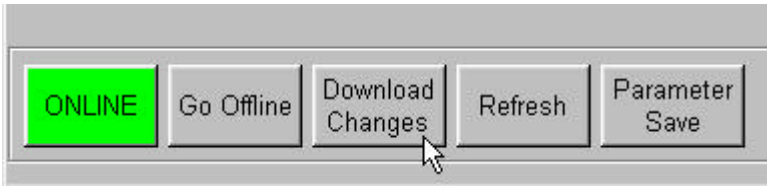
The following display shows the Control Parameters screen. After the information has been entered or verified, click on the `Next` button. Refer to the drive manual for questions on the parameters.



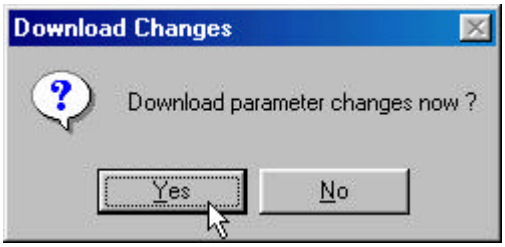
In the vector modes, the motor current is equal to the Magnetizing current and the load current; Torque is equal to the load only.

The dynamic braking can only be setup on drives that have been fitted with the braking transistor. Refer the to the model number and the drive manual to verify if the drive has this option.

After you are finished with this screen you should download the information you have entered. Click on the `Download Changes` button to accomplish this.



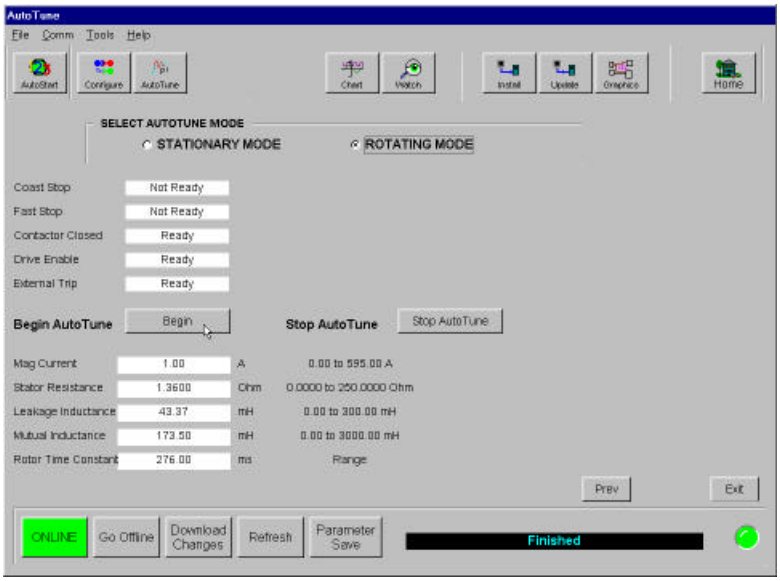
The `Download Changes` button will only change the information entered in the two parameter screens. The program may prompt to download changes, if so click `Yes.`



If the drive is setup for Volts/Hz mode, the program will skip the autotune screen.

AUTOTUNE

The Autotune screen appears next. The autotune is only required for the vector modes.



WARNING!

To perform an autotune on an AC drive, the motor has to be able to turn freely. To achieve the best results the motor shaft must not be connected to any device (Like Gearboxes, pulleys, couplings, etc.). Before attempting an autotune, all motor parameters MUST be entered into the drive.

This window displays four diagnostic parameters, Coast Stop, Fast Stop, Contactor Closed, and Enable. These parameters are the primary logic inputs on the drive and all must be in a Ready state for the autotune to begin. You can click the `Refresh` button to update the status of these diagnostic values. If any of these values are not Ready, check the connections on the drive and any safety interlocks.

There are two modes of autotuning on an AC drive, Stationary and Rotating. The preferred mode is the rotating autotune. There are many parameters the autotune will adjust in the drive, only five of those parameters are shown on the autotune screen. After the autotune has been completed successfully, these values should change and must be saved to the drive.

Click on the white circle next to the mode of autotuning to be preformed. A black dot should appear in the circle and a warning window will appear. Skip to the appropriate section below.

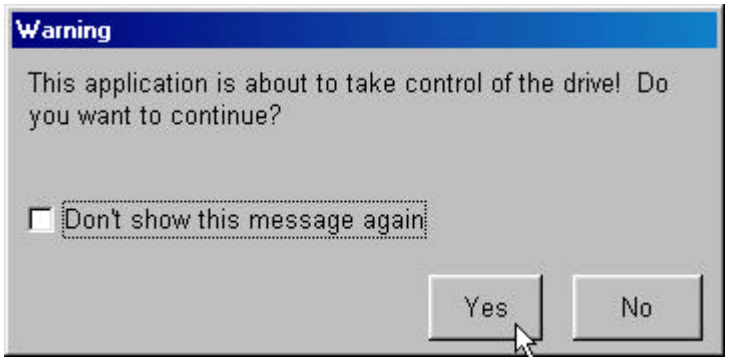
Stationary Autotune

The Stationary Autotune should only be used if the motor can not spin freely. During this autotune the motor will not spin, and it will only identify a limited set of motor characteristics. The following are some of the drawbacks to a stationary autotune:

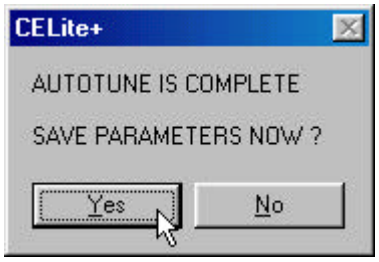
- User has to enter the correct value of magnetizing current.
- Cannot operate the motor above base speed.
- User has to manually check the encoder polarity and adjust if necessary.

If Stationary Autotune is chosen, the following window will appear. Click on `OK`, and compare the Magnetizing current value shown on the screen to that on the motor nameplate. If the value is wrong, enter the proper value and continue.

Click on `Begin` to start the autotune process. The following window will appear to warn that the program will assume control of the drive. Click on `Yes` to continue.



CELite+ will now perform an autotune on the drive. If the autotune completes successfully the following window will appear. Click on `Yes`, and proceed to the Home screen to run the drive. If an error occurs skip to the Autotune error section.



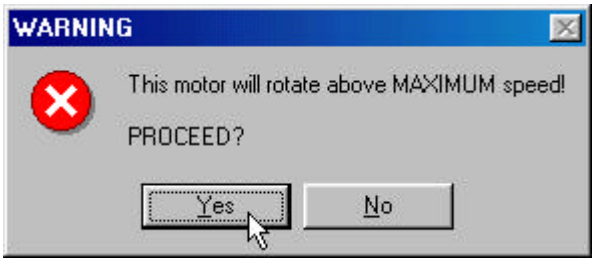
Rotating Autotune

The Rotating Autotune mode of tuning will give the best performance of the drive, especially in closed loop vector mode. The motor shaft will spin from zero to base speed and then to maximum speed. This mode of tuning will also check the encoder feedback polarity and toggle the encoder polarity if necessary. The following are some drawbacks to a rotating autotune:

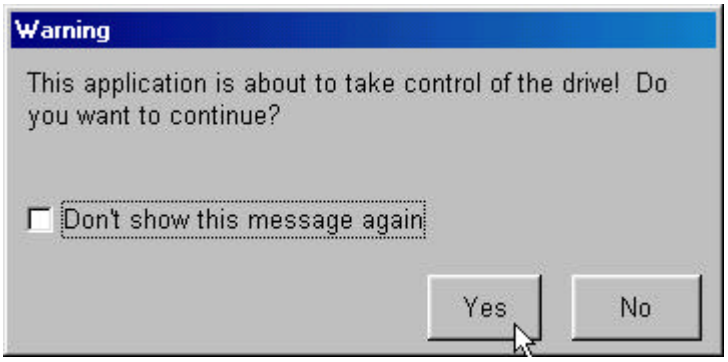
- The motor shaft cannot be connected to anything.
- The tuning process can only characterize the motor up to 30% above the Max speed. If you need to go faster than this speed, perform another autotune.

If Rotating Autotune is chosen, the following window will appear, Click on `OK` to continue.

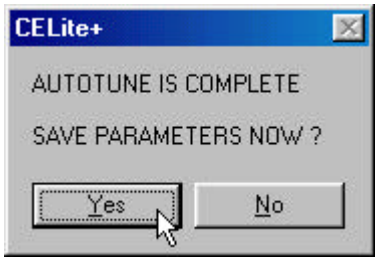
Click on `Begin` to start the autotune process. The following window will appear. Click on `Yes` to continue.



Next the program displays a warning that it will assume control of the drive. Click on `Yes` to continue.



CELite+ will now perform an autotune on the drive. If the autotune completes successfully the following message will appear. Click on `Yes` and proceed to the Home screen to run the drive. If an error occurs skip to the Autotune error section.



Autotune Errors

Below are some of the errors that can occur during an autotune.

This error will only appear if you stopped the autotune using the program or the drive terminals.

Click on OK to acknowledge error and retry autotune.

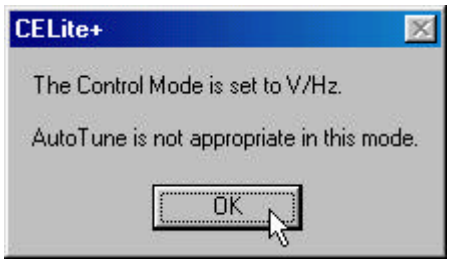
If this error appears, check the following:

3. Coast stop, fast stop, enable, external trip, and motor thermal are all high.
4. CELite+ is still in control of the drive.

Click on OK to acknowledge error and retry autotune.

If this window appears you do not need to perform an autotune

Click on OK and proceed to the home screen section.



There are multiple errors that can appear in this window, please refer to the 690+ installation manual, Trips and Fault Finding chapter, for more information.

Click on OK to acknowledge error and retry autotune.

After autotune has completed successfully, continue to the home screen section.

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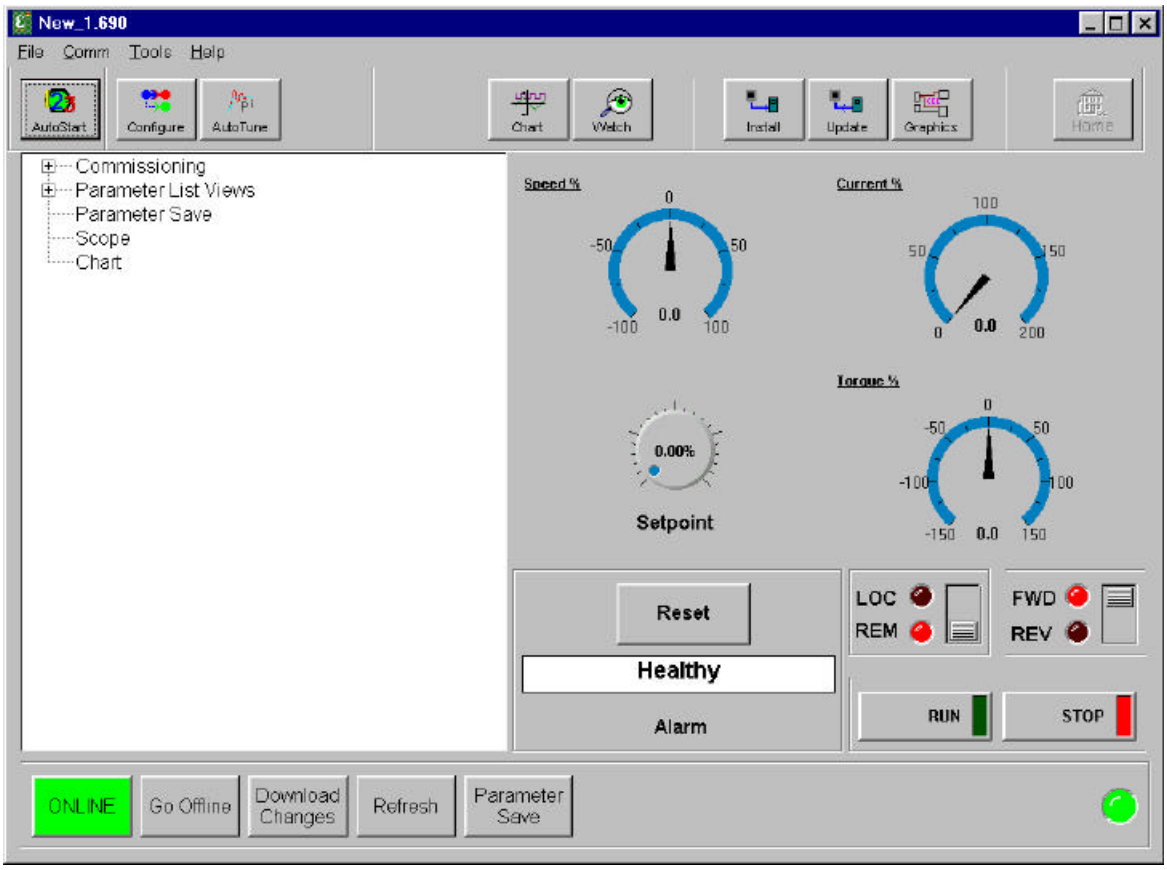
Chapter 8 Home Screen

After the drive has been configured, setup, and autotuned, it is ready to be run using the Home screen. It is basically a software version of the keypad on the drive. CELite+ will control the drive through the serial port on the drive. To use this screen, you will have to be ONLINE.



WARNING!

Before running the drive make sure everyone is clear of the motor. Make sure all interlocks and emergency stops are wired and operational, and that the motor is properly mounted.

RUNNING THE DRIVE

The following functions are needed to run the drive. To activate a function, click on the desired button with the cursor.

- `RUN` – Send a run command to the drive.
- `STOP` – Send a stop command to the drive.
- `LOC` – In this switch position, the drive will be in Local mode and is controlled by CELite+ or the keypad on the drive.
- `REM` - In this switch position, the drive will be in Remote mode and is controlled by terminals on the drive.
- `FWD` – In this switch position, the drive will rotate in a forward direction.

- REV – In this switch position, the drive will rotate in a reverse direction.
- RESET – To reset the drive if a fault occurs. Fault information will be shown below the RESET button.
- Setpoint – Send a speed demand to the drive. Drag the dial with the cursor to increase or decrease the speed setpoint or double-click inside the dial to type in a speed setpoint.
- Current Setpoint – Send a current demand to the drive. Drag the dial with the cursor to increase or decrease the current setpoint or double-click inside the dial to type in a current setpoint.
- Meters – These meters have a digital and a needle readout.
  - Speed % - Speed feedback on the drive.
  - Current % - Current feedback on the drive.
  - Torque % - Torque feedback on the AC drives only.

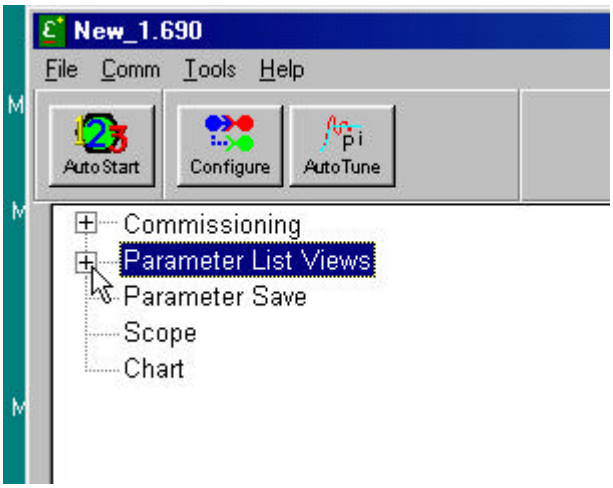
WARNING!

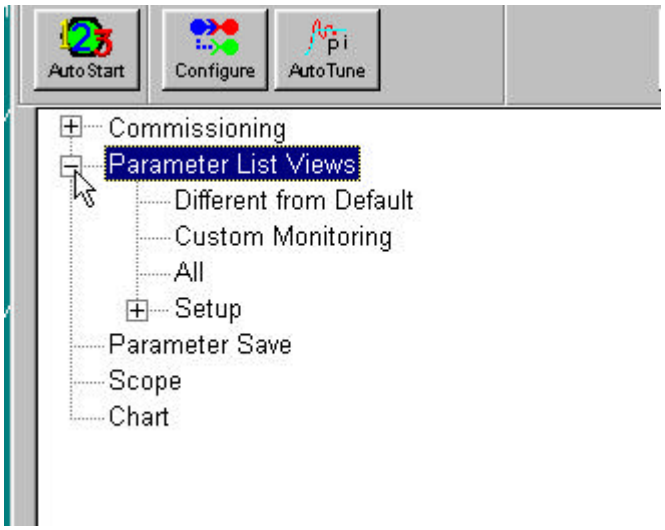
Do not click the OFFLINE button or close the software while running the drive with the Home screen.

To run the drive, simply click on the RUN button and dial in the desired speed demand. Watch the meters for speed feedback and current feedback to ensure proper performance.

PARAMETER LIST VIEWS

The parameter list views show the drive parameters in a spreadsheet format. Click on the + sign to expand the Parameter List Views in the tree view window.



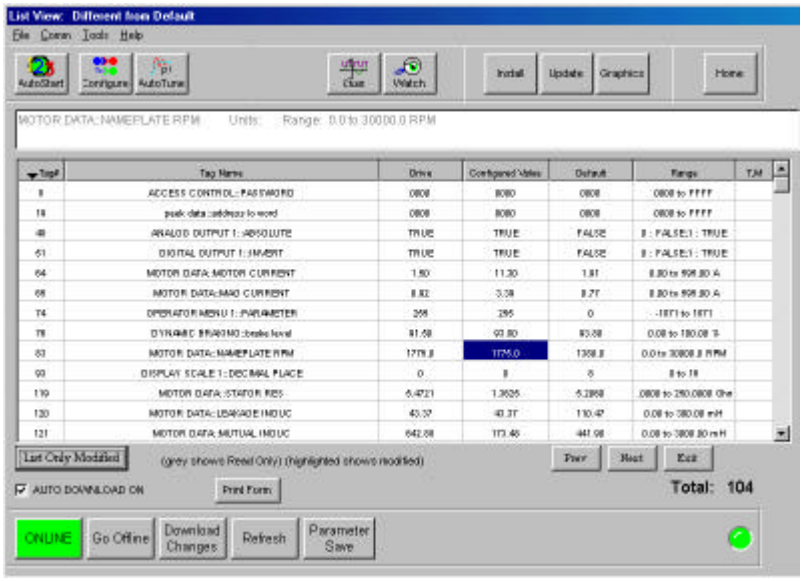


There are four basic lists of parameters, Different from Default, Custom Monitoring, All and Setup. The parameter lists are defined as follows:

1. Different from Default – a listing of only the parameters different from the factory default values.
2. Custom Monitoring – a listing of only the parameters chosen by the user to be displayed.
3. All – a listing of all the drive parameters.
4. Setup – the parameters listed in the appropriate function they perform in the drive.

Click on the + sign to expand a list in the above tree view window and – to compress a list.

To open a List view, click the desired list view in the tree view window. The Parameter List View window appears as the following:



The top task bar shows which list view is being shown. The following buttons can be used to move between the list views:

1. `Prev` – Go to the previous list view. If you are at the first list view, it will go to the last list view.
2. `Next` - Go to the next list view. If you are at the last it will go to the first list view.
3. `Exit` – Return to the home screen.

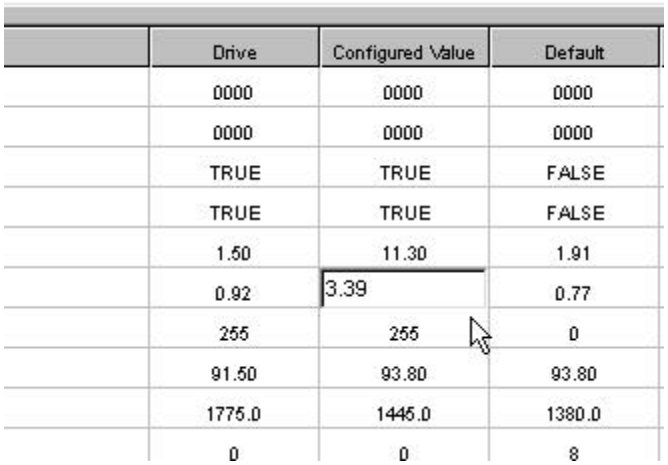
The following is a listing of the information in the window.

1. Description window – detailed information on the highlighted parameter.
2. Parameter list window- multiple columns of information listed from left to right below:
    1. Tag – Parameter number in the drive
    2. Tag Name – Parameter name
    3. Drive – Parameter value from the drive
    4. Configured Value – Parameter value from the CELite configuration
    5. Default – Parameter value factory default
    6. Range – Range for the given parameter
    7. T, M – Trace on Chart or Monitor this parameter. ONLY the parameters on the Monitor list will be modifiable while Charting.
3. `List Only Modified` – Only shows the parameters changed and pending Download which are viewable on the current list view
4. `Auto Download on` – Automatically download any changed value in the list view after this function is checked.
5. `Print Form` – print all parameters in the current list view. If the user is on the “All” Listview, this is a large amount of documentation.

6. `Total` – Total number of parameters in the current list view.

By default the list views display the information sorted by the tag number. The list view can be toggled between ascending and descending order by clicking on the `Tag#` button and changing the direction of the arrow. The list view can also be toggled between alphabetical or reverse alphabetical order by clicking on the `Tag Name` button.

Any parameter can be changed by clicking on it in the `Configured Value` column and entering in the value.

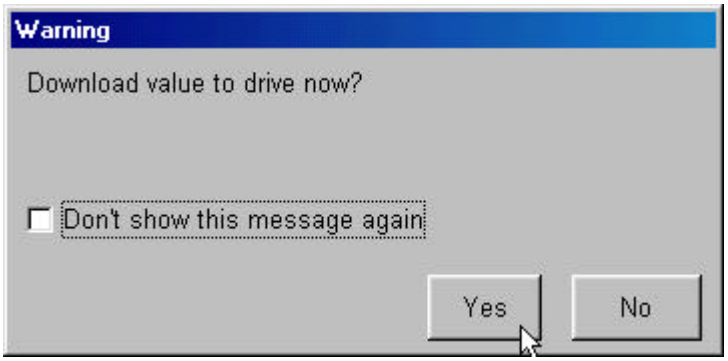


	Drive	Configured Value	Default
	0000	0000	0000
	0000	0000	0000
	TRUE	TRUE	FALSE
	TRUE	TRUE	FALSE
	1.50	11.30	1.91
	0.92	3.39	0.77
	255	255	0
	91.50	93.80	93.80
	1775.0	1445.0	1380.0
	0	0	8

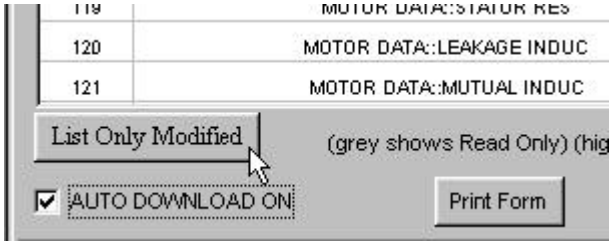
Once a value has been changed it will be highlighted until it is downloaded into the drive. The new information will not be downloaded to the drive until the `Download Changes` button is clicked, unless the `AUTO DOWNLOAD ON` has been checked. The following window will appear to warn that the program is about to download the information to the drive.

Note

Any parameters that were changed before this function is checked must be downloaded with the `Download Changes` button.



To view a list of all the parameters that have been changed in the list views, click on the `List Only Modified` button. The button will only appear after a parameter has been modified in the list views.



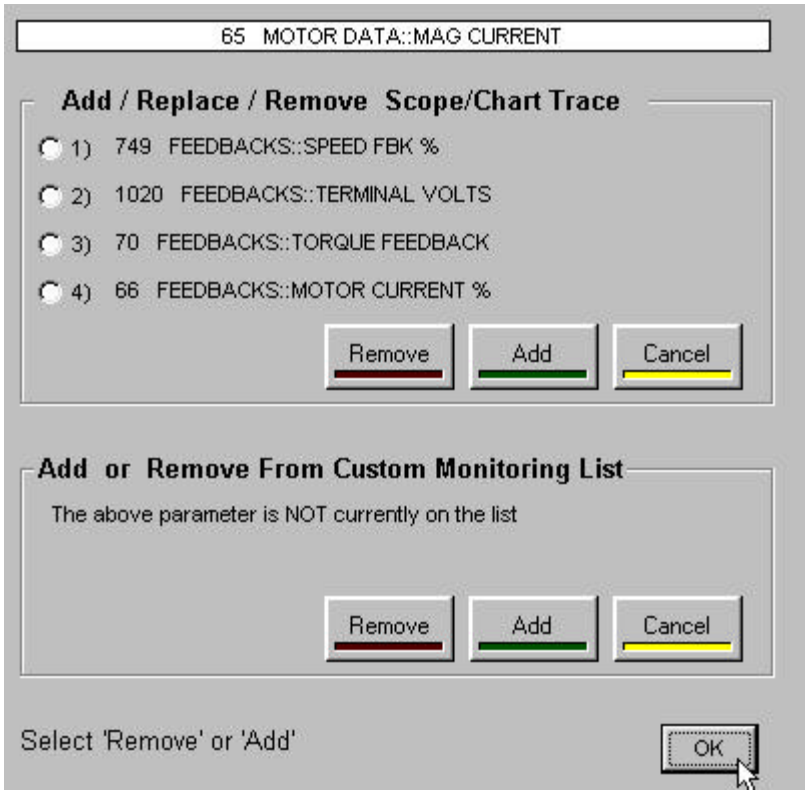
The Print Form button will print all the parameters in the current list view only. It will print in a landscape page format, with approximately 29 parameters per page.

Note

Double clicking on the Tag Name will refresh the parameter value from the drive when online. Clicking on the Refresh button at the bottom of the screen will refresh the entire current List View.

ONLINE MONITORING

To send a parameter either to the online Chart or the Custom Monitoring list view, click on the T, M column for the given parameter. The following window will appear:

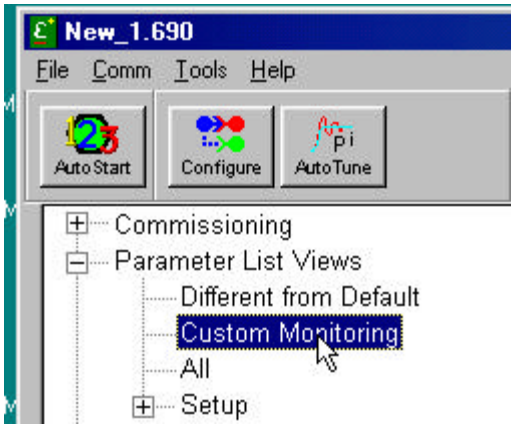


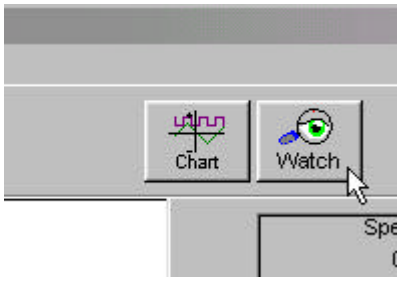
The Custom Monitoring List is a special list view that will scan the drive and update the parameter with each scan. Only these parameters may be modified when Charting. To add a parameter to the list, click on Add. To remove a parameter from the list, click on Remove. Once a choice has made, click on OK. After the above window is closed, there will be an M in the T,M column for the parameter added to the list. Skip to the Custom Monitoring section for more information.

The Chart function is a software version of a chart recorder. To add the parameter to the chart, first choose one of the channels, 1 – 4, for the parameter to be displayed, then click on Add. To remove a parameter from the chart, choose the channel to be removed and then click on Remove. Once a choice has made, click on OK. After the above window is closed, there should be a 1 - 4 in the T,M column for the parameter added to the list. This identifies the channel the parameter will be shown on the chart. Skip to the Chart section for more information.

Custom Monitoring List View

The `Custom Monitoring` window displays the parameters selected in the previous section. There are two ways to open the window. Click on `Custom Monitoring` on the tree view window or click on the `Watch` button on the home screen.





When the `Custom Monitoring` list view is open, CELite+ will continually update the parameters on the list. The parameter values appear in the `Drive` column of the window. The green `Scanning Drive LED` will flash on and off during normal operation.

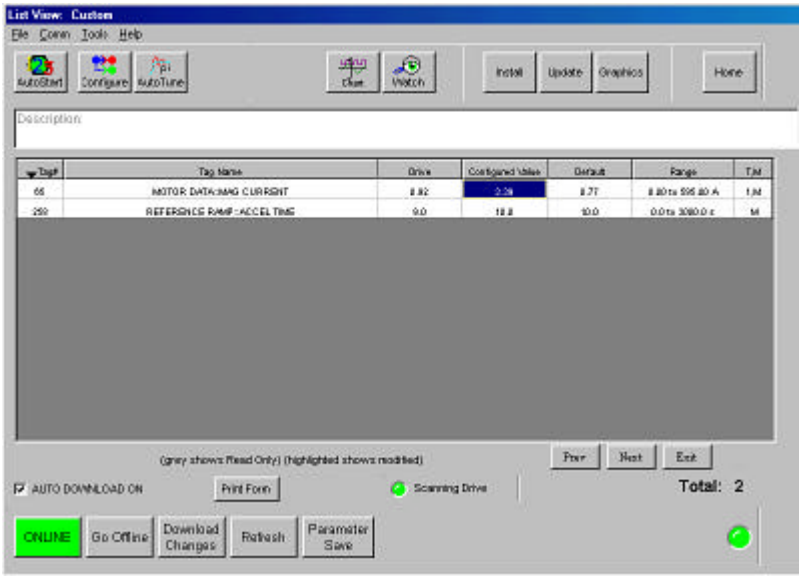
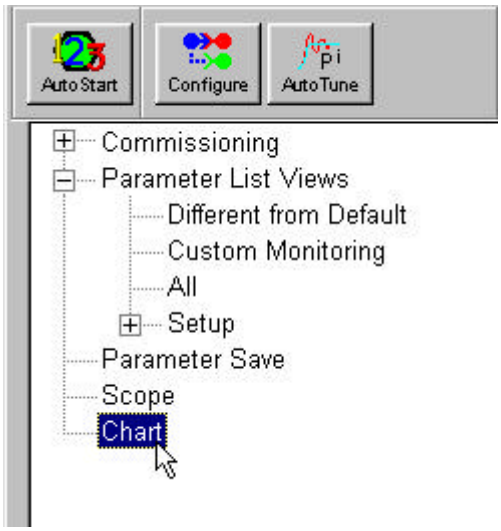


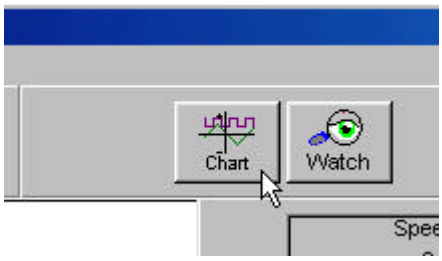
Chart Function

Note

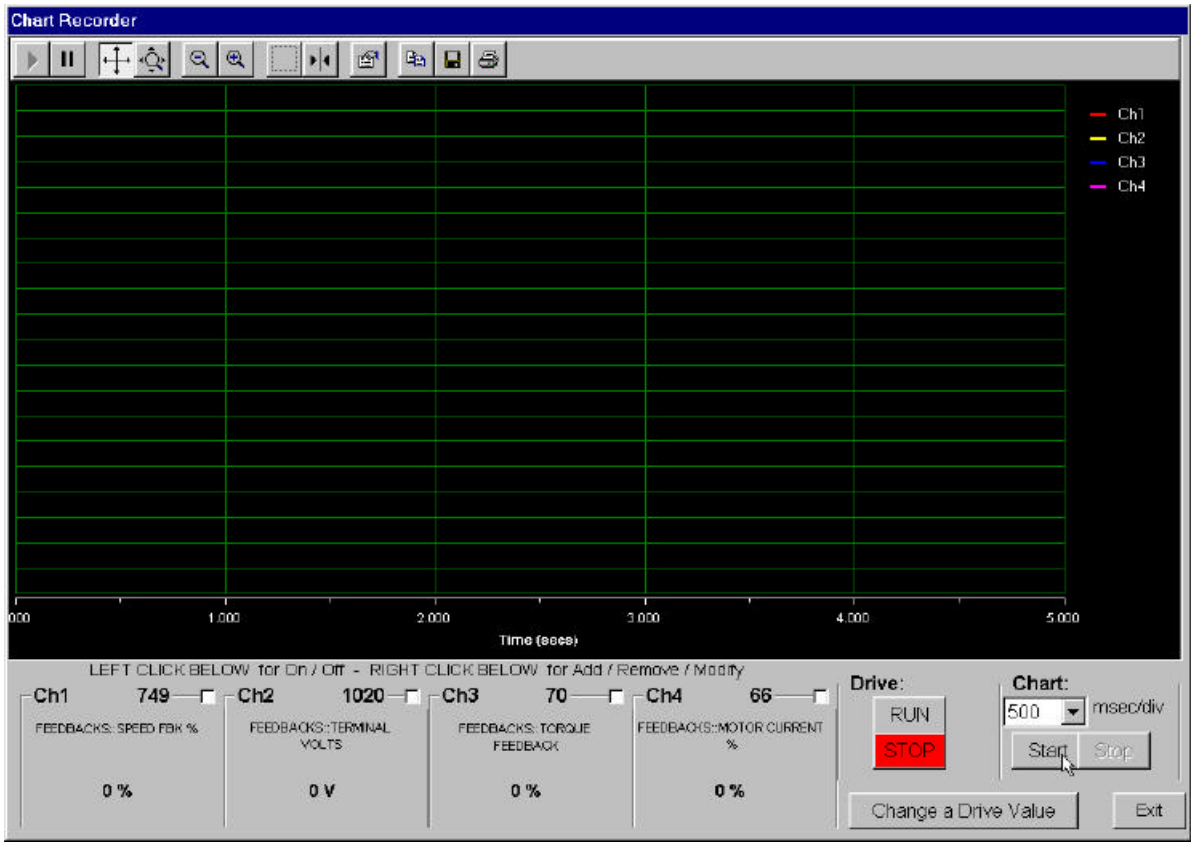
To chart drive values, go Online before opening the Chart window. To Run the drive from the Chart screen the application must also set the drive in Local before opening the Chart window.

The chart function allows the user to chart up to four drive parameters. There are two ways to start `Chart` function. Click on `Chart`, under the `Tree View` window or click on the `Chart` button in the home screen.





The following is the chart window:



The bottom of the chart window shows the 4 channels and the parameters chosen to be charted. Each channel will show the parameter number, parameter name and a digital readout of the parameter. The parameter being charted can be changed by clicking, with the right mouse button, on the channel to be changed and typing in the new parameter.

Each channel can be turned on or off by clicking, with the left mouse button, on the little white box to the right of the parameter number. The color legend for each channel is shown in the upper right hand corner of the chart window.

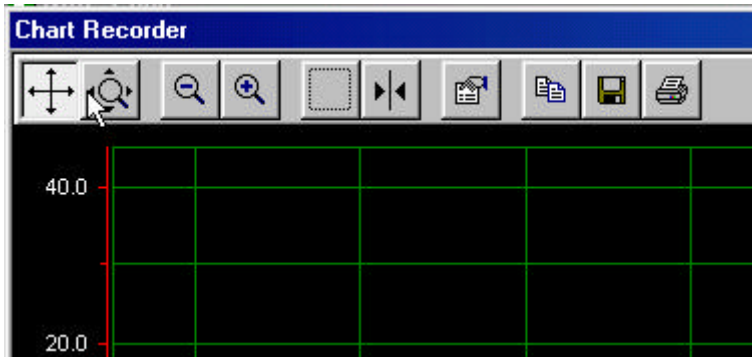
The time base of the chart can be change by clicking on the `sec/Div` arrow and selecting the desired time base. The time base should only be changed while the chart is stopped.

The `Start` and `Stop` buttons under the time base are used to start or stop the charting. Click on `Exit` to close the chart window.

The `Start` and `Stop` buttons under `Drive` are used to start and stop the drive while on the chart page. The highlight on the buttons will show the mode the drive is in, Red for stopped and Green for running.

The `Change a Drive Value` button is used for changing a parameter in the drive while on the chart page. The only stipulation is that the parameter to be change must be added to the `Custom Monitor` list view before running the chart function.

Once a channel has been turned on, a vertical scale will appear to the left of the chart window with the color of the channel turned on. An example is shown below, channel 1 was turned on so a red vertical scale appeared.



The buttons that appear on the top of the chart have the following functions, starting with the left most button and working to the right:

1. `Resume` – Resumes scrolling of chart.
2. `Pause` – Pauses scrolling of chart.
3. `Scroll mode` – Use the cursor to scroll through the axes on the channel highlighted.
4. `Zoom mode` – Use the cursor to Zoom through the axes on the channel highlighted.
5. `Zoom in` – Zoom all axes in by a factor of x2 on all channels.
6. `Zoom out` – Zoom all axes out by a factor of x2 on all channels.
7. `Zoom box` – Draw a box on chart data to Zoom in on all axes on all channels.
8. `Cursor` – Draw a line in the chart area to define a given point on the trace on the channel highlighted.
9. `Edit` – Change properties for all aspects of the chart. This button is only available when chart is stopped.
10. `Copy` – Copy the current chart data to the clipboard.
11. `Save` – Save current chart data to a file.
12. `Print` – Print current chart data to the printer.

To scale the y-axis, edit the chart by modifying the Min and the Span of the y-axis of the Channel in question.

For more information on the chart function, refer to the plot pack version 2.0 manual. A copy of the manual can be downloaded at www.iocomp.com.

Chapter 9 Troubleshooting

MISMATCHED BAUD RATES

The baud rates in the drive must match those in CELite+. Check the BAUD RATE setting on the drive under `SERIAL LINKS.` Clicking on Reset in the Comms menu will cause the application to reset the comms port and automatically try to find the correct baud rate required to communicate with the drive. CELite+ will only check COM1 and COM2 in this process. Using any other comm. Port will require the user to manually configure the setting in the Comms Menu::Settings.

BAUD RATE SET TOO HIGH

Some older IBM-compatible computers can experience difficulty with the 19200 baud rate. For those computers, reduce the baud rate until reliable communications occur or to 9600 on the drive and do a Comms::Reset in CELite+.

WRONG COMMUNICATIONS PORT

If the comm port is other than COM1 and COM2 go to the `Command Comms` menu, select another communications port, and ensure your drive is connected to that port.

DRIVE P3 MODE SET WRONG

For a **590+ series** drive, set:

SERIAL LINKS::SYSTEM PORT::P3 SETUP::MODE to IPS (ASCII)

SERIAL LINKS::SYSTEM PORT::P3 SETUP::P3 BAUD RATE to 19200.

For **650V** drives, no special settings are required to communicate with ConfigEd Lite Plus. Simply plug into the appropriate serial port on the drive.

> ***Note***
>
> Not all 650V drives are fitted with a P3 serial port, refer to drive manual for more information.

For a **690+ series** drive, set:

SETUP::COMMUNICATIONS::SYSTEM PORT (P3)::MODE to EI ASCII

The baud rate is fixed at 19200

ERROR MESSAGES

Error detection is designed into ConfigEd Lite to help prevent the execution of an inappropriate or dangerous command. ConfigEd Lite displays error messages when it discovers a problem. The messages contain an error number and a brief description. Some messages also have an error code expressed as PNO plus a two-character code identifying the type of error. In case of irreconcilable errors, the error and code numbers may help the service technician help solve the problem.

The most common error messages are as follows:

Code – `Error #6453 Serial Comms failed.` **Description** – Serial comms has not responded as expected. `PNO II`, indicates that it failed to read ID (`II`).	**Action –** • Ensure drive has power and the cable is plugged into the correct correct serial port. • Set port in ASCII mode and ensure that baud rate of drive matches that of ConfigEdLite. If not, communications will resume only if the baud rate setting in the drive MMI is reset to match ConfigEdLite. • Group ID and Unit ID must be set to "0" • CONFIGURE I/O parameter must be "Disabled"
Code – `Error #6449 Serial Comms failed.` **Description** – Marginal or interrupted communications	**Action –** • Reduce baud rate settings on drive and ConfigEdLite (This is not possible for 584S & 605 drives) • Reset the port by cycling power to the drive • Cable damaged? Cable should not be longer than 10 feet.
Code – `Error #6405 Could not access configuration.` **Description** – Could not find the ".dat" file in the directory.	**Action –** • Make sure the correct `celite.dat` file is in the same directory as your application .
Code – `Error #6459 Could not open Serial Comms Library.` **Description** – The Comms port on the computer is not active, turned off, or used by another device.	**Action –** • Check comms port allocation and settings

Caution

If CELite aborts during installation, it is possible that an "anti-virus" program is running on the computer. Close the program and try again.

Chapter 10 Appendix

CELITE+

Home Screen Buttons

`Online` will attempt to establish communications with the drive or indicate to the user, the application is already communicating with the drive

`Offline` will close communications with the drive or indicate to the user the application is already offline.

`Download Changes` will send pending changes to the drive if the application is Online. Downloading changes does not save the changes in the drive (Parameter Save) or to the configuration (File Save).

`Refresh` requests the immediate values on the current display (only) from the drive and then refreshes the current display.

`Parameter Save` sends the drive the parameter save command.

`AutoStart123` steps the user through a quick and simple setup of a drive. The sequence steps through the setup of motor, control parameters, and an autotune.

`Scope` is currently unavailable.

`Chart` utility allows the user to graphically monitor up to for values from the drive. Right-clicking on the Chart will allow the user to modify certain features. The Chart utility offers many features which are documented in the User Manual.

`Watch` is a digital display of drive values the user selected to monitor from a List View. The display is continuously refreshed from the drive when the application is online.

`Install` is a command to install the current CELite configuration into the drive. . This is only available when online.

`Update` is a command to update the current configuration from the drive into the CELite configuration. This is only available when online.

`Graphics` displays the current configuration in the ConfigEd Lite graphical format.

`Home` returns to the Home screen.

`LED` is a visual cue for the state of the drive and when on a screen other than the Main screen, clicking on the LED will allow the user to reset the drive.

`Tree View` allows the user an alternative means to operate the software.

`List Views` allow the user to view the drive value when online. The user may also view the default values of the drive parameters. The configured value represents the value the user has set either through a configuration file or immediate parameter change. A highlighted configured value indicates the user has modified the configured value and the modification has not been given to the drive. To view a list of parameters pending download to the drive, click on the List Only Modified button. Any pending change may be modified or removed from the pending download list *prior* to a Download Changes command. A List View also provides the user with a means to add a parameter to the Online Diagnostics display as well as the Chart and Scope display.

`System Messages/Alarms` are visible as the event occurs at the bottom of the screen. Some messages are classified as Alert messages which will be sent to the user unless the feature is disabled under the Tools-Options menu selection (Acknowledgement Requirements for Alerts). Many messages are simply informative and do not require action.

CELITE

Drawing

The ability to create configurations in a graphical display on screen is a key feature of ConfigEd Lite. The `Draw` menu contains a variety of tools to assist you in your work. It provides functions to move among multiple sheets of drawings, create custom outline forms, and annotate drawings with important information.

Additional commands in the `Draw` menu include `Oval`, `Color`, `Fill`, `Pattern`, and `Width`. These commands are used to modify objects drawn in or text added to the configuration. The color, fill, or width of the lines of function blocks and connecting lines cannot be modified. Only objects or lines you have drawn in a configuration can be modified with these tools.

To apply `Color`, `Fill`, `Pattern`, or `Width` commands to an existing object, select the object with the mouse pointer. As an example, we will use a box created in a blank configuration using the `Rectangle` tool. After creating the box, select it with the mouse pointer and then go to the draw menu and select `Pattern`.

A pop up list of pattern options will appear on screen; `Hollow` is the default pattern. Select a different pattern (for example, `Solid`) with the mouse and release the mouse key. The box will automatically be filled on screen. For illustration purposes, `Black` has been selected as the `Fill` color; the default fill is `White`.

The same sequence of steps can be used to modify the color of text or graphics, the width of lines (either alone or as part of a drawn object), and the fill of a drawn object.

Note

Pressing the `Ctrl` key after use of any drawing tool causes ConfigEd Lite to "remember" the last drawing action taken (whether drawing lines, arrows, or shapes, or adding text) and allows you to immediately repeat that action. This saves the time and effort of repeatedly selecting the tool from the `Draw` menu.

Drawing Tools

`Color`

The `Color` command is used to specify the outline color for rectangles and ovals and the display color for lines, arrows, and text you have added to your drawing.

To apply color to an object or text, either select a color and then a line or object to draw or text to place, or select an already-placed object or block of text and then change the color. The default color setting is `Black`.

`Fill`

The `Fill` command is used to color the contents of an object and highlight its appearance on a color display. To change the color for new objects, select `Fill` and choose the new color. All new objects will be drawn with that color.

To change the fill color of an existing object, select the object. Then select `Fill` and choose the new color. The default color is `White`.

`Pattern`

The `Pattern` command is used to set the fill pattern of an object. To change the fill pattern for new objects, select `Pattern` and choose the new style. All new objects will be drawn with that fill pattern.

To change the fill pattern of an existing object, select the object. Then select `Pattern` and choose the new fill pattern. The default `Pattern` setting is `Hollow`.

`Width`

The `Width` command is used to specify the thickness of lines created with the `Arrow`, `Line`, `Oval`, and `Rectangle` commands. One point is equal to $^{1}/_{72}$ of an inch. Line width ranges from 0.5 points to 16.0 points; the default line width is `0.5` points.

To get an idea of the differences in line widths, select the oval drawn previously and change the line using the `Width` tool. Notice the difference in the oval when the line is changed. The `Width` setting is also used for all newly-drawn objects.

`Arrow`

The `Arrow` command is a variant of the `Line` command. It is used to add lines with arrows to your drawings. Combined with text and other tools, arrows can be an effective tool to bring attention to a particular item.

`Line`

The `Line` command allows you to draw straight lines anywhere in your drawing. It can be used to create form outlines and text boxes, and to add highlighting to drawings. When you select `Line` from the `Draw` menu, your mouse pointer turns into an `X`, showing it is now a drawing tool. Place the `X` where you want to begin your line, press and hold the mouse key down, and drag a line to the desired end point.

Release the mouse key when your line is finished. To draw a series of connected lines, hold the `Ctrl` key down when you click the mouse the second time. A new line, starting where the first one finished, can then be dragged with the mouse.

`Oval`

The `Oval` command allows you to add an oval or circle to your drawing. When you create an oval on screen, the borders formed during the drawing process are rectangular. Only after you release the mouse key does the oval appear. When you select the oval to move it or modify its shape, it is highlighted by a rectangular gray box outlining its perimeter.

`Rectangle`

The `Rectangle` command allows you to add a rectangle to your drawing.

`Text`

The `Text` command allows you to add text to your drawing. It is covered in depth in Chapter 6.

Display Options

The `Scale` and `Black & White` display options are used to change the view of a configuration on your computer screen.

`Scale`

The `Scale` command is used to select the magnification ratio of your configuration display. The `Scale` menu presents a list of preset ratios as well as a `Variable` dialog function. The `Variable` dialog asks for a magnification setting within the range of `.34x` to `10x`. The default `Variable` setting is the current viewing scale.

Keyboard commands may also be used to change scaling. See page 4-2 for a list of keyboard scaling commands.

`Black & White`

The `Black & White` command is used to switch the display of your configuration from color to black and white mode. This is useful when taking a drawing created on a color monitor and viewing it on a black and white monitor. It is also used when sending a color or configuration to a black and white printer. With this command toggled on, it prevents printing the drawing in gray scale, which may result in poor printout quality.

Annotating Drawings

Objects and/or text may be added to your drawings in the same manner as is used for creating forms. The only difference is that such annotations are usually made on individual configuration sheets rather than on sheet 0.

Review the sections on using the drawing tools to add text or graphics to your configuration drawings.

Scratch Pad

The scratch pad provides a written record of your actions regarding the configurations, including loading, saving, and deleting drawings. That record is kept in the `celite.tex` file, which is created automatically when you first launch ConfigEd Lite. Every time the program is run, the information written to the scratch pad is added to the end of the `celite.tex` file. It is located in the working directory for the ConfigEd Lite icon, typically the `celite` directory. The `celite.tex` file may be edited using any text or word processing program that reads text files.

The scratch pad window appears on screen whenever ConfigEd Lite is launched. It responds to the same sizing commands and actions as any other Windows™ element.

The launch time for ConfigEd Lite is recorded automatically in the scratch pad when the program opens. You can manually insert the current time at any point by selecting `Paste Time` from the `Edit` menu.

You can select the typeface and size for the information in the scratch pad by first making sure it is the active window. Next, go to the `Font` and `Style` menus and select the typeface and size you prefer. The type in the scratch pad will change to the style you specified. The style selected for the scratch pad will also become the default for text you add to your configuration drawings, so choose it with care. A sans serif typeface, such as Helvetica, will be the clearest and easiest to read in your drawings and is recommended for that reason. Type that is automatically included with function blocks retains its default font regardless of the style chosen for the scratch pad.

To print out your ConfigEd Lite Scratch Pad records:

1.Launch a text editor or word processing program, such as the Windows™ Notepad®;

2.Select `Open` from the `File` menu;

3.Locate and open the `celite` directory;

4.Search for files with `.tex` in the file name;

5.Select `celite.tex` from the menu of files;

6.Select `Print` from the `File` menu once the file is opened.

You can also use the ConfigEd Lite Scratch Pad as a simple text editor to make notes on the actions recorded there. To add text manually, make sure that the scratch pad window is active and that you can see a blinking cursor. Then add whatever notations you wish by typing them in from the keyboard.

It is a good idea to edit your `celite.tex` file periodically, as it can grow quite large. Before deleting portions of the file or the entire file, make a copy (either printed or saved to a floppy disk) to retain for your records. This record is invaluable in tracking installations, modifications, and other actions regarding ConfigEd Lite.

You can either select portions of the file to delete while in your text editor or word processor or delete the entire file from your hard drive. If you delete the entire file, ConfigEd Lite will create a new `celite.tex` file the next time it is launched.

To clear the text displayed in the scratch pad window, make sure it is the active window and then choose `Save` from the `File` menu. This saves the text to disk and clears the on-screen display of the scratch pad information.