ConfigEd Lite Plus

SSD DRIVES

Instruction Manual

RG470795

ConfigEd Lite Plus

Instruction Manual

for use with ConfigEd Lite Plus Ver. 3.x

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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 SSD 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. SSD Drives, Inc. accepts no liability for the application of the software.

FOR USE WITH CONFIGED LITE PLUS VER. 3.X

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Chapter 1 Introduction

WHAT IS CONFIGED LITE PLUS

ConfigEd Lite Plus (CELite+) is newest addition to SSD Drives' software suite for drives. This enhanced software package supports all current-production SSD 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.

IMPORTANT

Previous versions of CELite+ contained CELite for drive configurations. This component is no longer contained in CELite+. Use the separate version of CELite for drive configurations. CELite is freely available on our web site at:

www.ssddrives.com

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.

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 SSD 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 SSD Drives. Failure to use materials supplied by SSD Drives can result in severe damage to equipment and injury to personnel and will void the SSD 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 SSD 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. SSD 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.

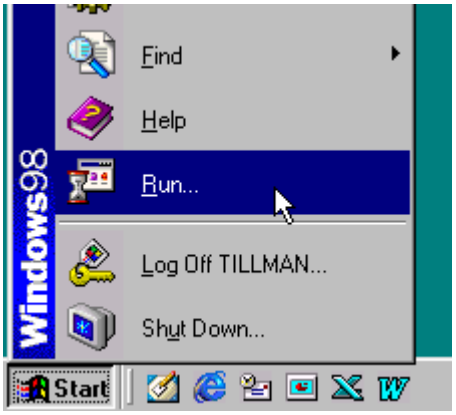
INSTALLATION PROCEDURE

Autorun Install

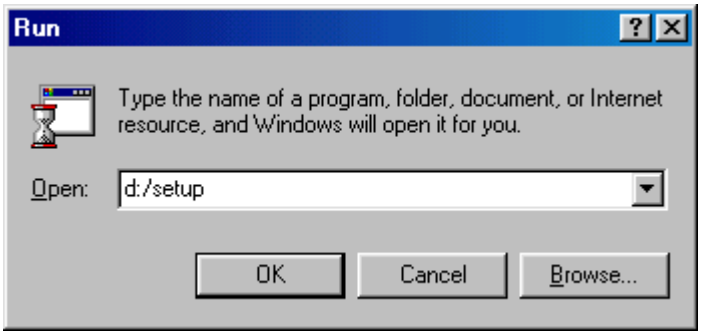
With Windows launched, insert the CELite+ CDROM disk into your CD Drive. The install program should launch automatically, if not follow the manual installation procedure.

Manual Install

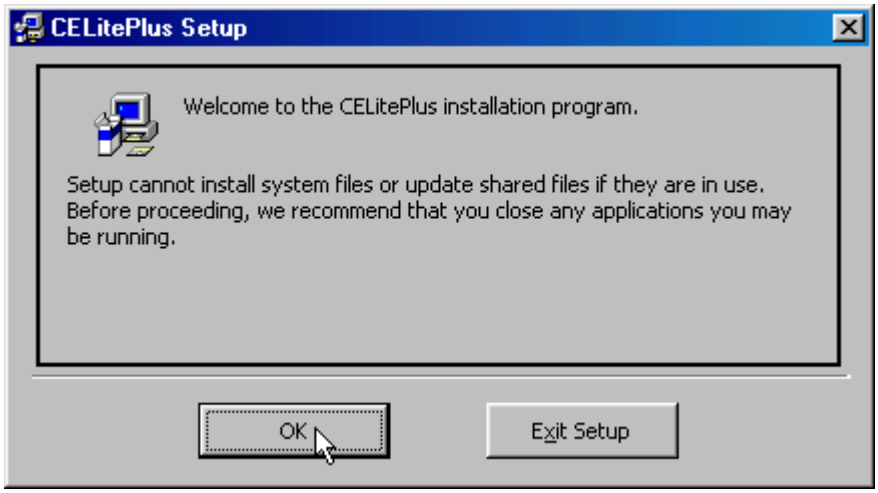
Using the cursor click on the `Start` button on the desktop, then click on `RUN`.



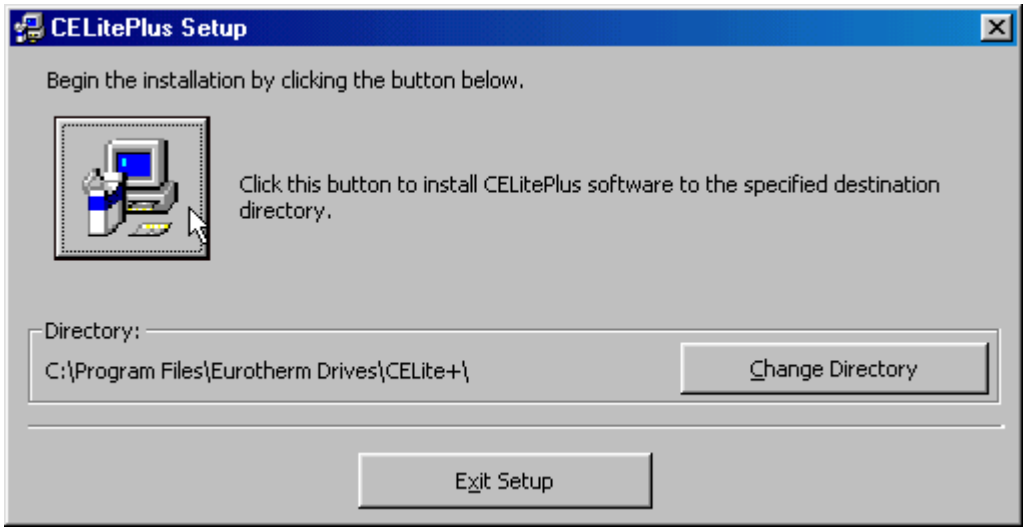
When the run dialog box appears, type in the drive letter for your CD Drive. If you do not know your CD Drive letter, click on browse to search for it. In this example the CD drive letter is D. Type `d:\setup` and then click `OK.`



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



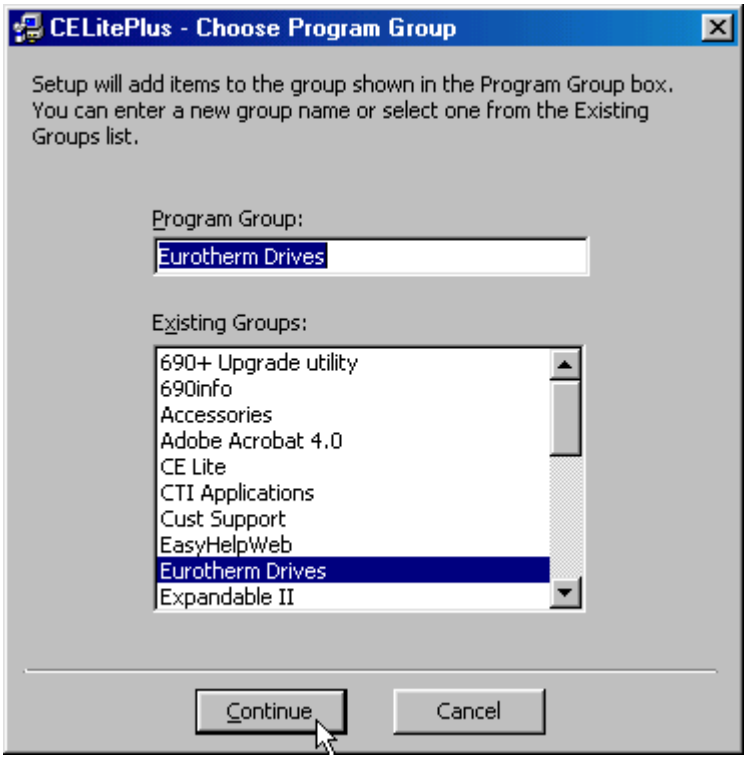
This window will show the folder where the program will be installed on the hard drive. Click on the Computer button to proceed to the next step of installation.



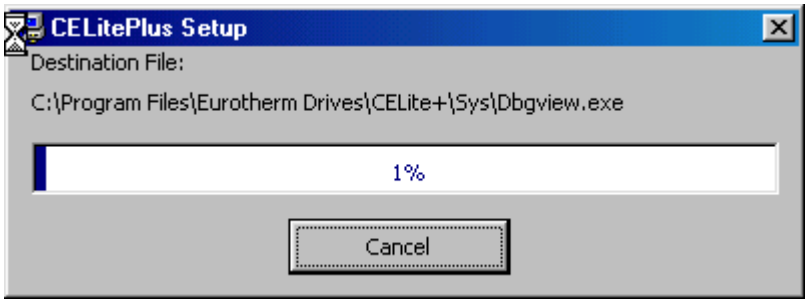
IMPORTANT

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.

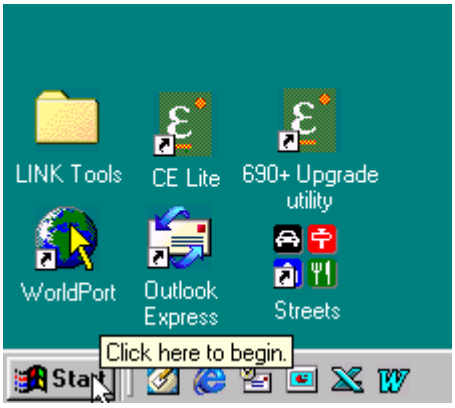


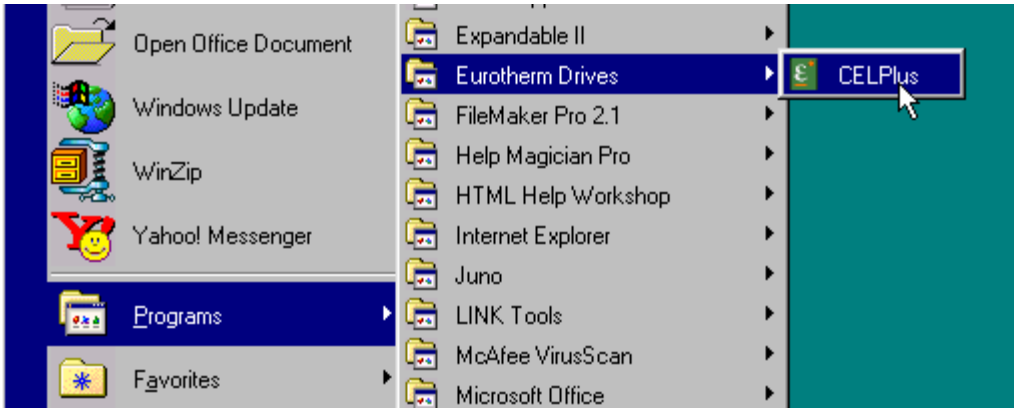
After the program is finished loading the files, the following window will appear. Click on `OK` to finish the installation.

STARTING THE PROGRAM

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

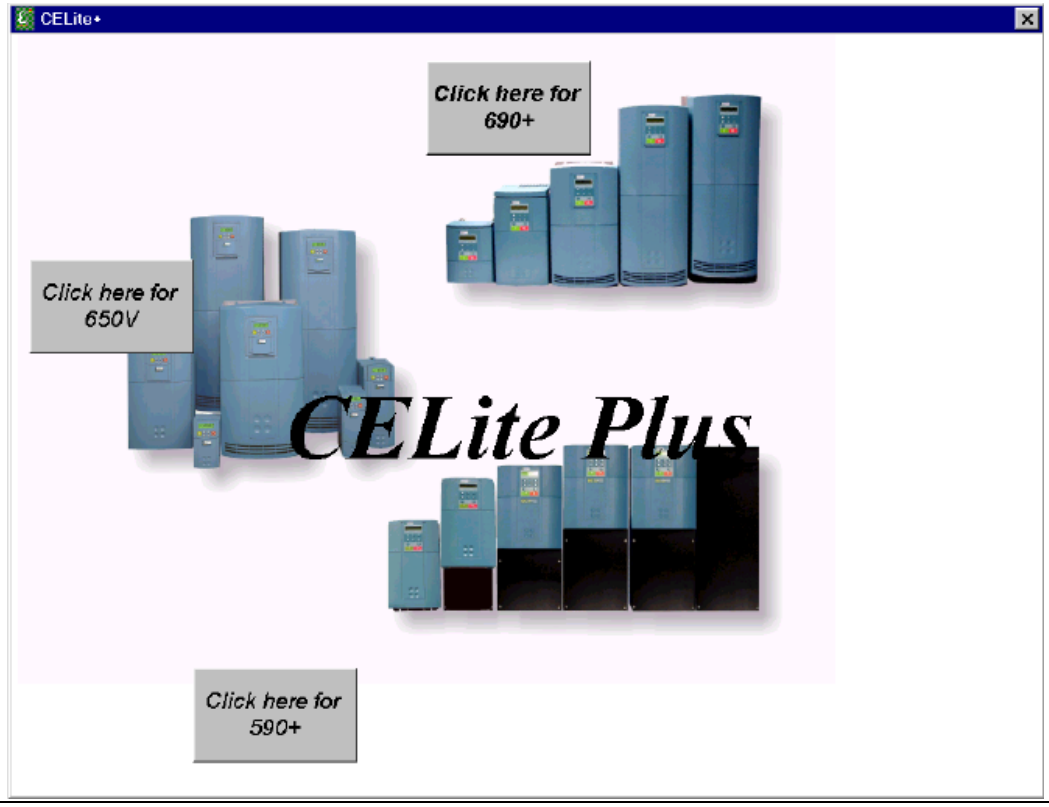
To use the start menu, click on `Start`, then `Programs`, then the `SSD Drives` program group, then on the `CELPlus` shortcut





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

SSD 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 SSD Drives. Failure to use materials supplied by SSD Drives can result in severe damage to equipment and injury to personnel, and will void the SSD Drives warranty.

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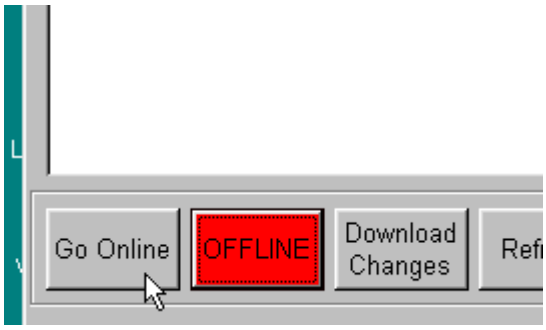
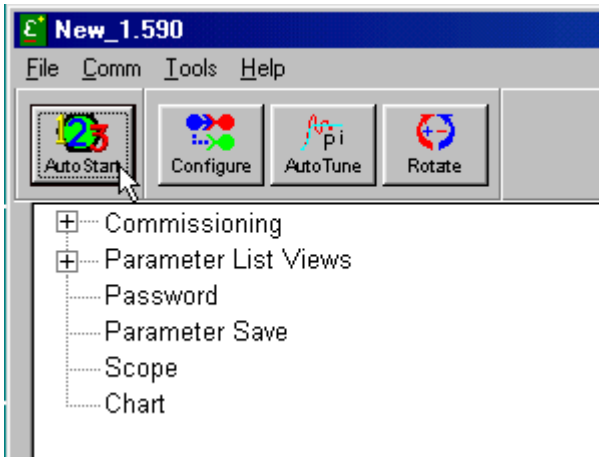
Chapter 4 Starting up a 590+ Drive

COMMISSIONING THE DRIVE

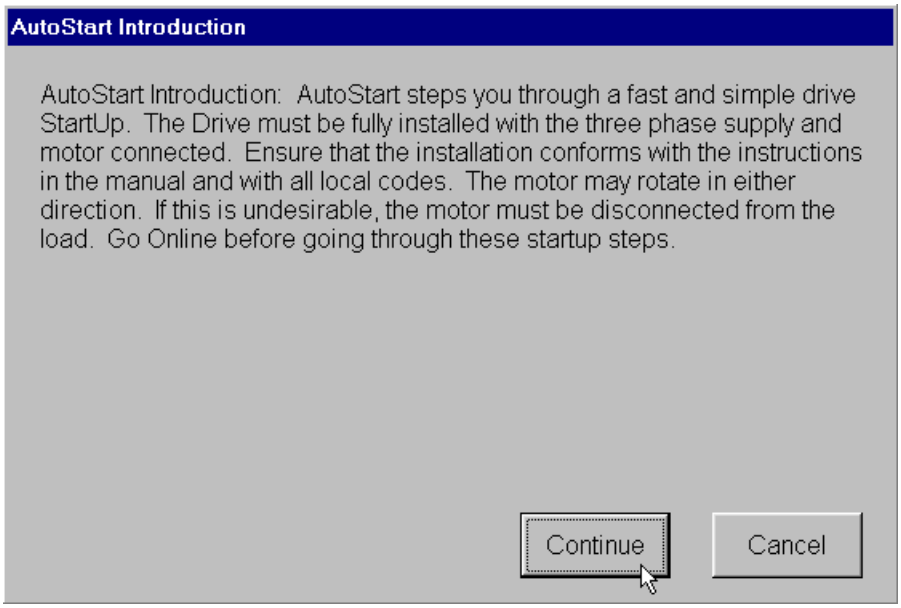
Once the configuration has been created and installed in the drive as described in the previous chapters, the drive is ready to be commissioned. If starting with a drive that has a previous configuration installed, go Online then Update the CELite configuration first before proceeding. For more details,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



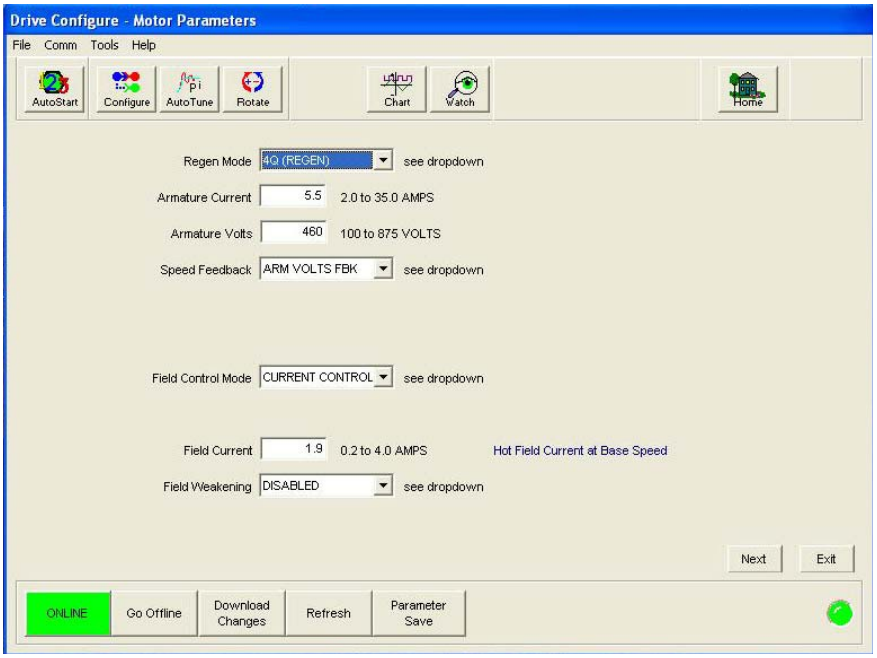


When this screen appears, read the note and click on `Continue`.



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.

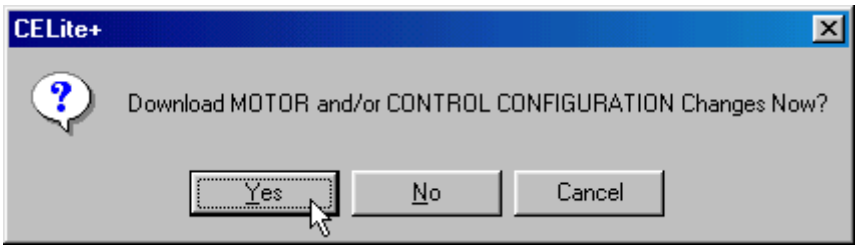
WARNING

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.

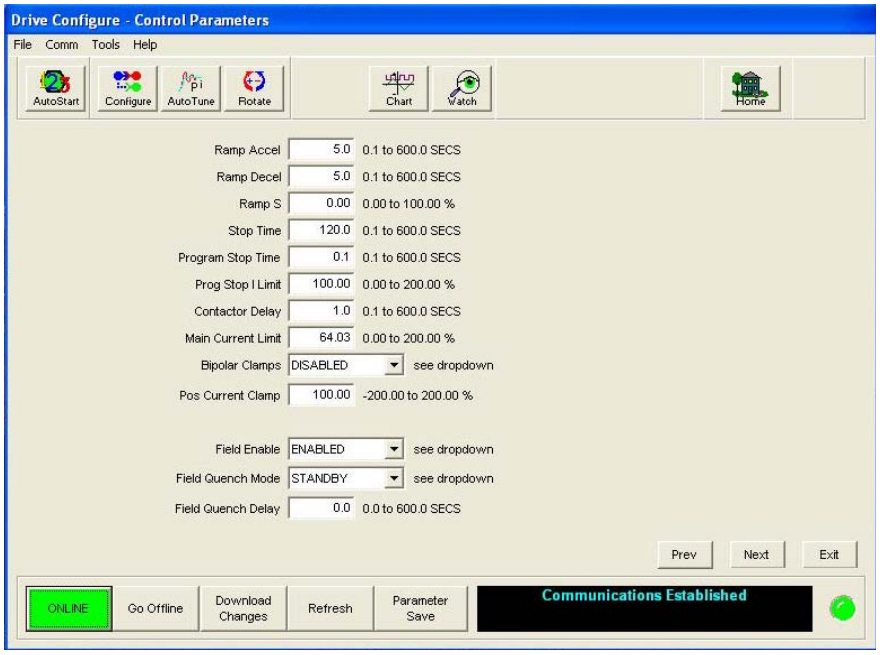


Note

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

CONTROL PARAMETERS

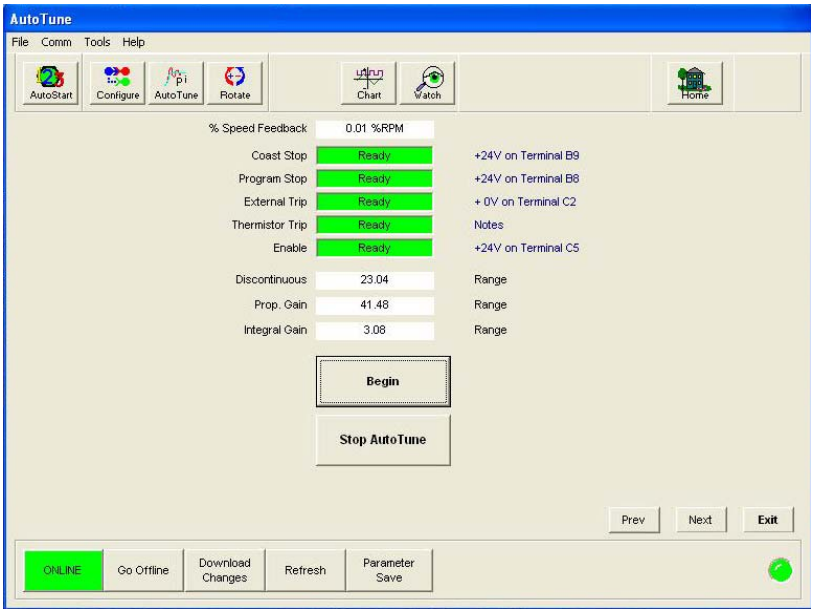
The following display shows the Control Parameters screen. After the information has been entered or verified, click on the `Next` button. Refer to the drive manual for questions on the parameters.



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.

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.

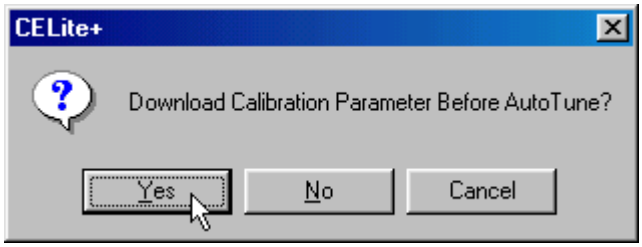
This window displays four diagnostic parameters, Coast Stop, Program Stop, External Trip and Enable. These parameters are the primary logic inputs on the drive and all must be in a Ready state for the autotune to begin. You can click the `Refresh` button to update the status of these diagnostic values. 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.

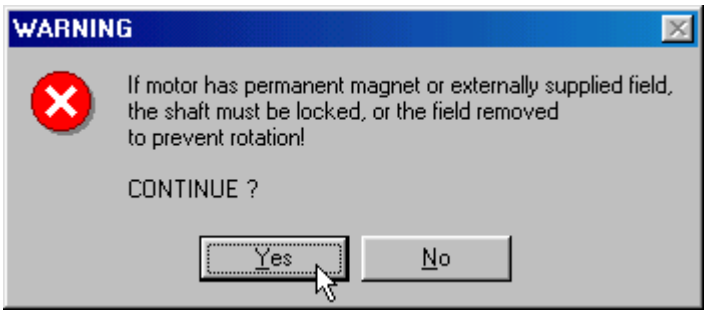
WARNING

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.

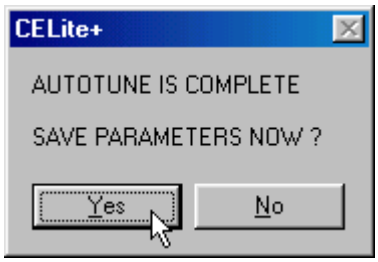
Click on `Begin` to start the autotune process. After the autotune process begins, the program will prompt to download changes to the drive. If the changes have already been downloaded, click `No` otherwise click `Yes`.



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.

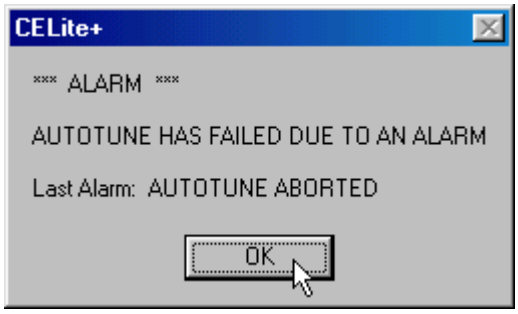
If this error appears, check that the:

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.

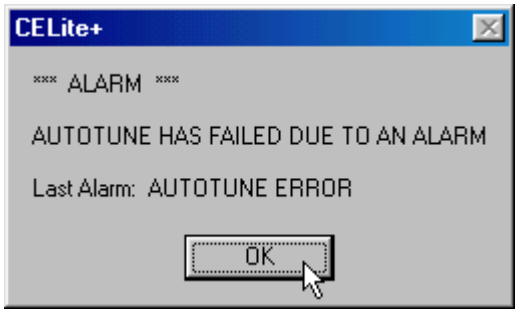
Click on OK to acknowledge error, and retry autotune.



If this error appears, check for:

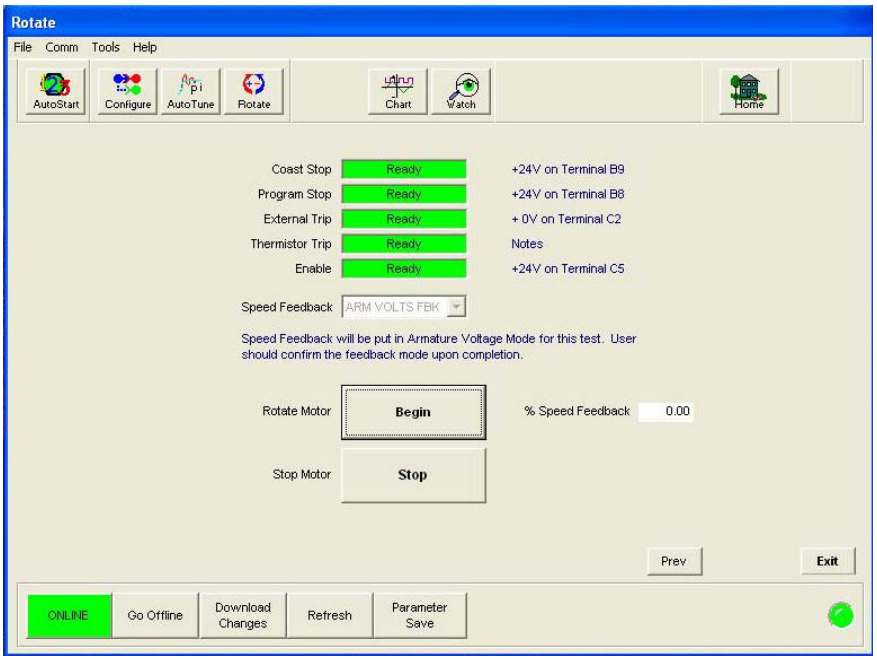
1. Motor rotation more than 20% with encoder or tachometer feedback.
2. Improper calibration for the encoder or tachometer.
3. Improper calibration for armature voltage.

Click on OK to acknowledge error, and retry autotune.



MOTOR ROTATE CHECK

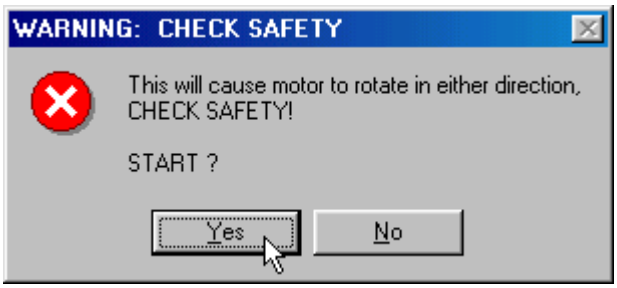
Now, you are now ready to check the direction of rotation of the motor and the polarity between the motor and the feedback.



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.

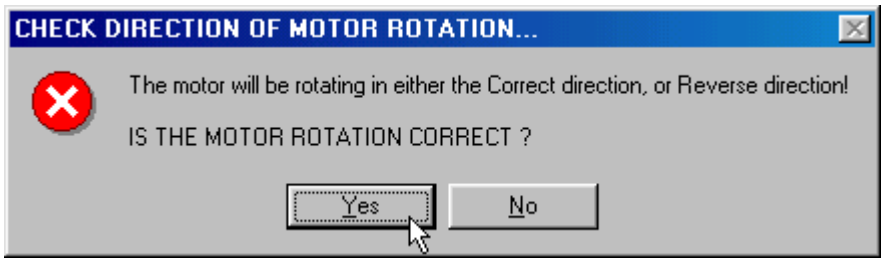


The program memorizes the selected speed feedback and then sets the drive to armature voltage feedback. Then it sends a run command to the drive with a 5% speed demand. After the drive starts, the program compares the initial feedback source for polarity and scaling to that of the 5% speed demand.

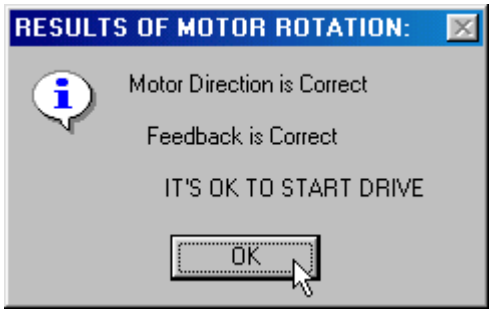
IMPORTANT

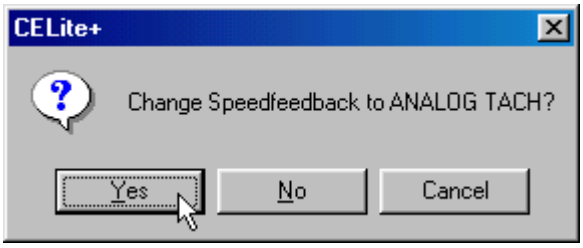
Do not leave the rotate screen until the test is completed. If the screen is left, the drive will remain in Armature voltage feedback and will have to be manually reset.

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.

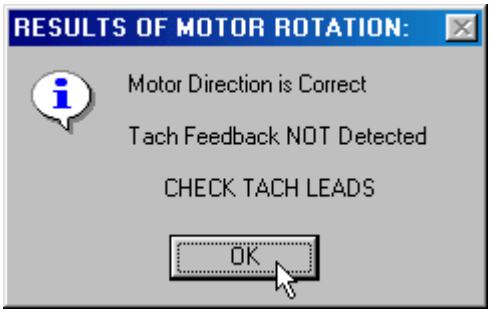
Motor direction is ok, but the feedback is missing.

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.

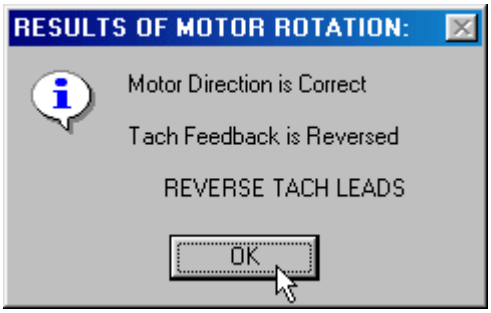


Motor direction is ok, but the feedback polarity is reversed.

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.

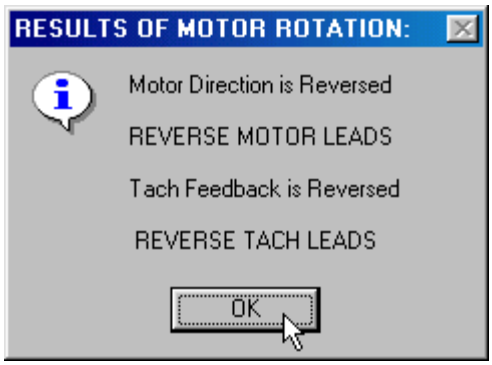


Motor direction is reversed and feedback polarity is reversed.

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.



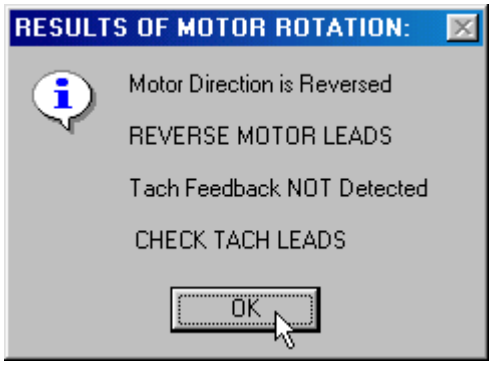
Motor direction is reversed and feedback is missing.

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.

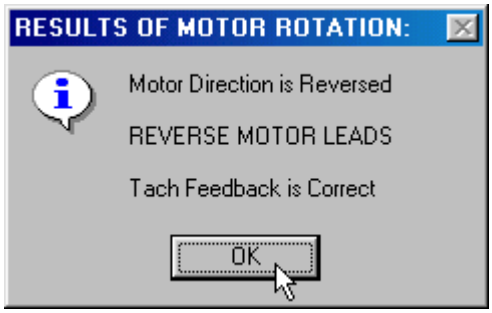


Motor direction is reversed and feedback is correct.

The following action is required:

1. Reverse the two armature leads.

Click on OK and retry rotating test.

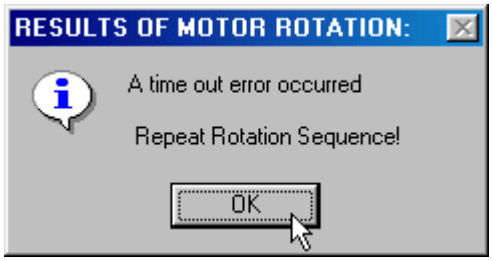


Motor current not detected or feedback out of range.

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.



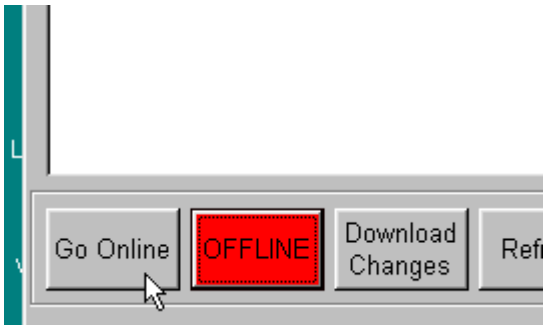
After the rotate test is completed successfully, click the Parameters Save button, click the Update button, and then continue running the drive in local mode using the Home screen. If the motor runs satisfactory, commissioning is complete.

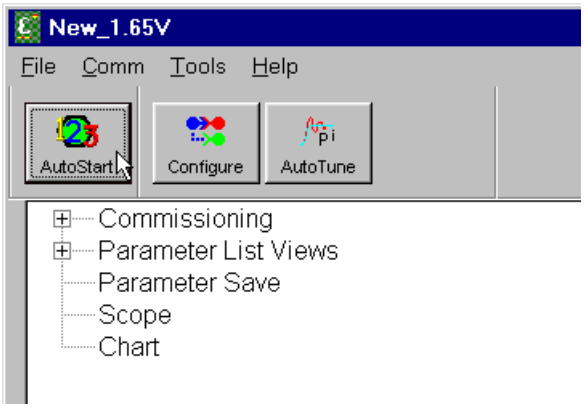
Chapter 5 Starting up a 650V Drive

COMMISSIONING THE DRIVE

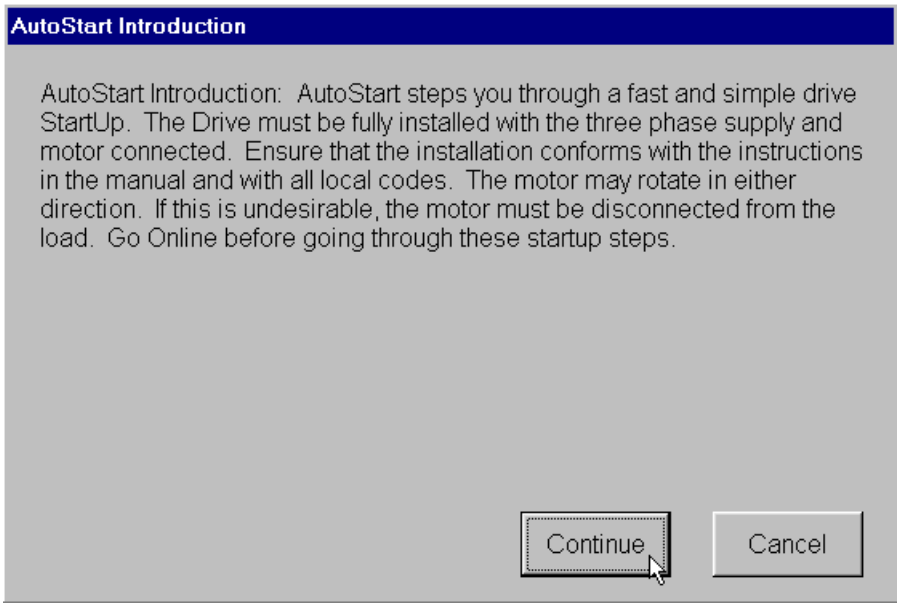
Once the configuration has been created and installed in the drive as describe in the previous chapters, the drive is now ready to be commissioned. If starting with a drive that has a previous configuration installed, go Online then Update the CELite configuration first before proceeding. For more details,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



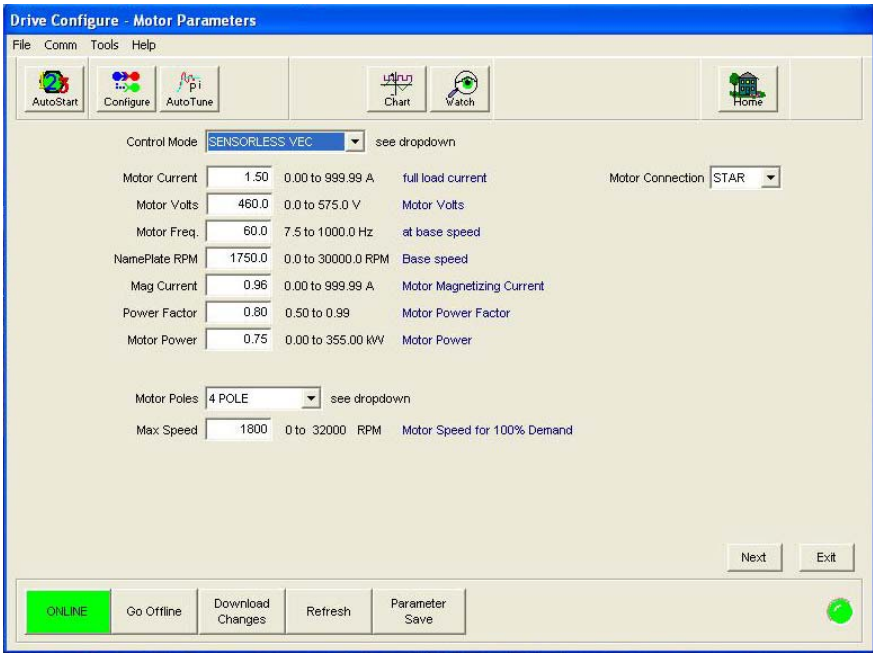


When this screen appears read the note and click on `Continue`.



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.

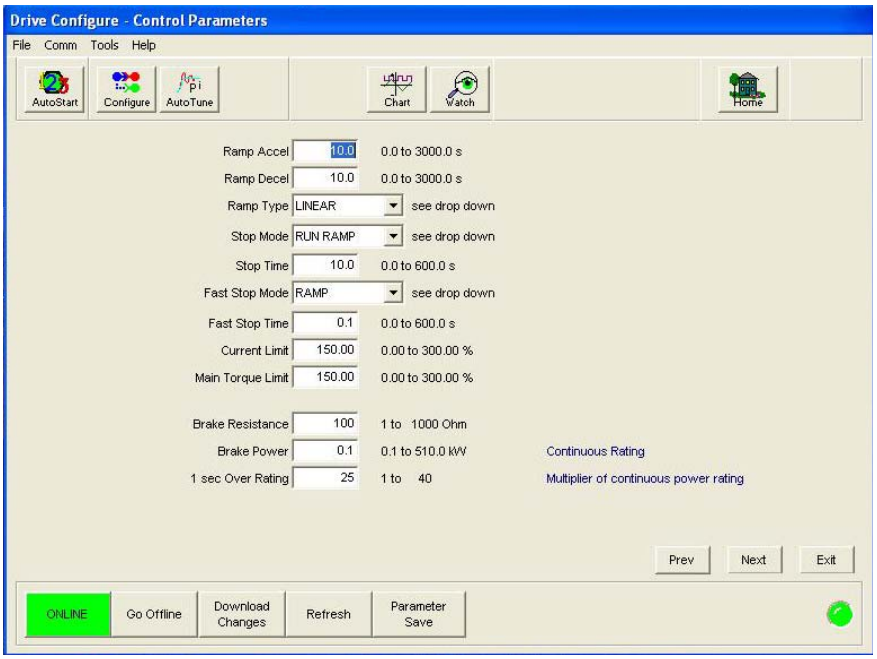
The following is a brief description of the three control modes:

- 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

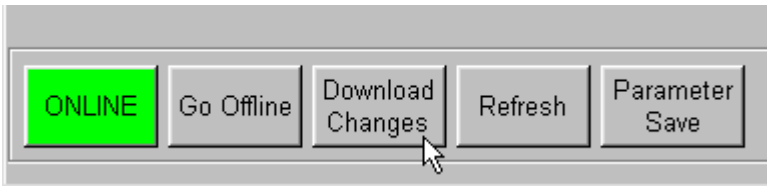
The following display shows the Control Parameters screen. After the information has been entered or verified, click on the `Next` button. Refer to the drive manual for questions on the parameters.



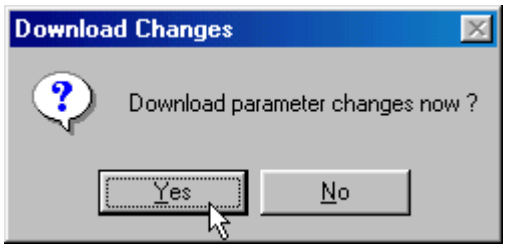
In the vector mode, the motor current is equal to the Magnetizing current and the load current; Torque is equal to the load only.

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.



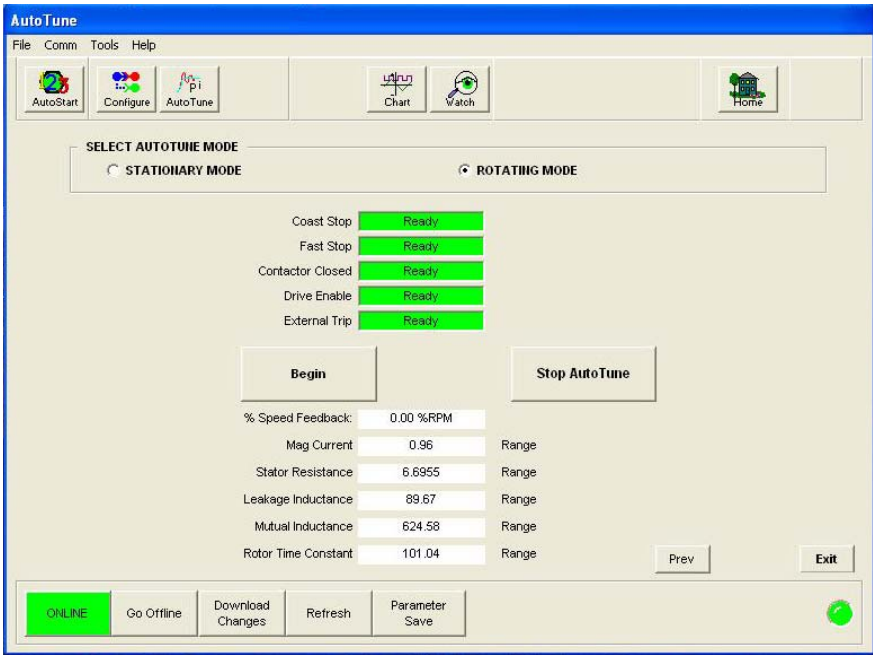
The `Download Changes` button will only change the information entered in the two parameter screens. The program may automatically prompt to download changes, if so click on `Yes`.



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.

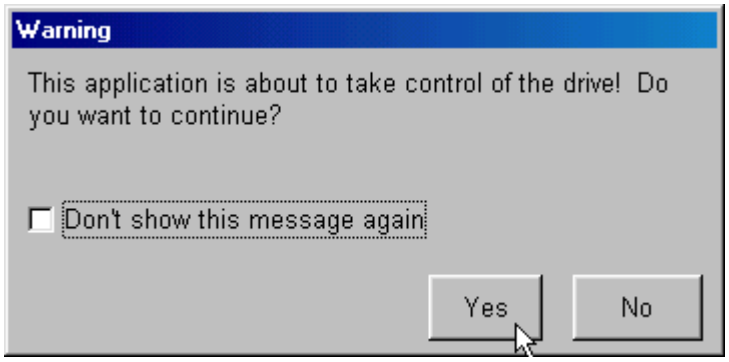
Stationary Autotune

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:

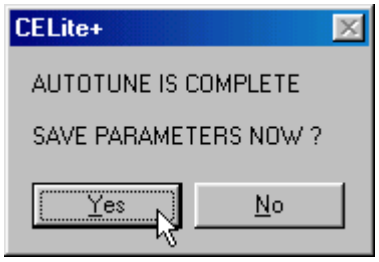
- User has to enter the correct value of magnetizing current.
- Cannot operate the motor above base speed.
- User has to manually check the encoder polarity and adjust if necessary.

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.



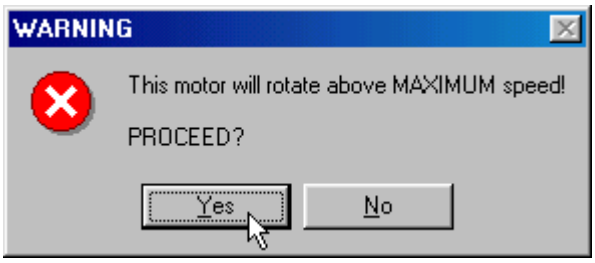
Rotating Autotune

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:

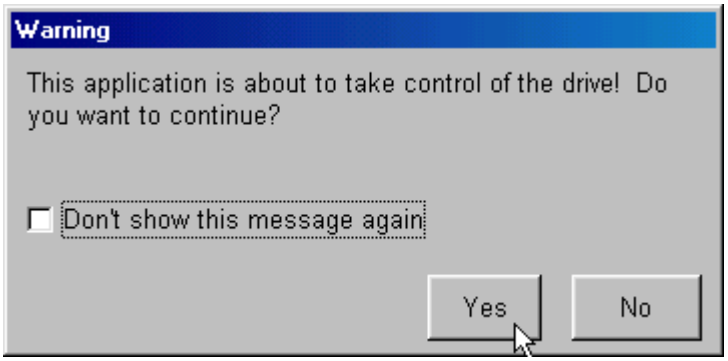
- The motor shaft cannot be connected to anything.
- The tuning process can only characterize the motor up to 30% above the Max speed. If you need to go faster than this speed, perform another autotune.

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

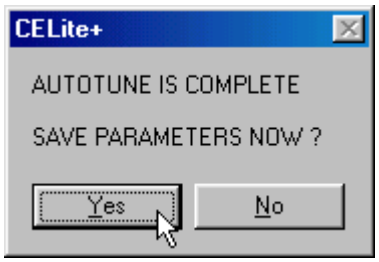
Click on `Begin` to start the autotune process. The following window will appear. Click on `Yes` to continue.



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.

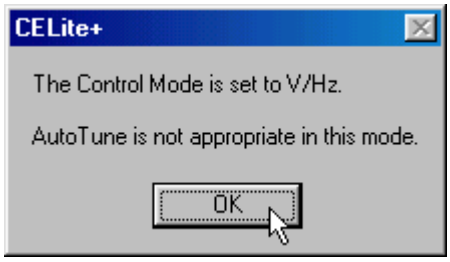
If this error appears, check the following:

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.

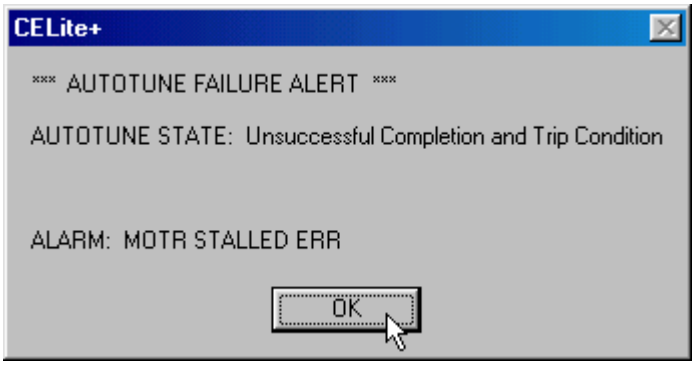
If this window appears you do not need to preform an autotune

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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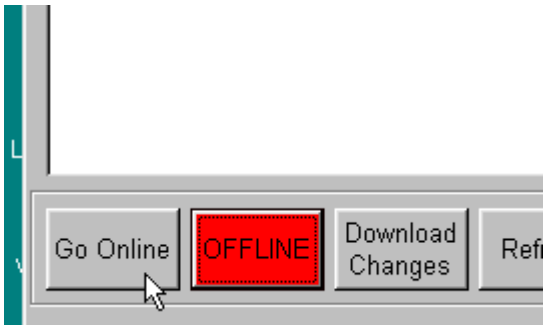
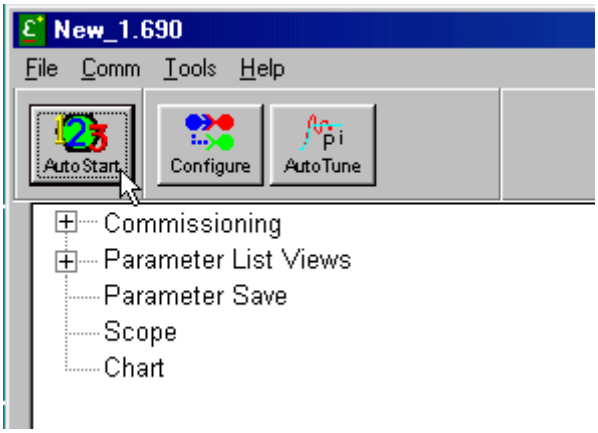
Chapter 6 Starting up a 690+ Drive

COMMISSIONING THE DRIVE

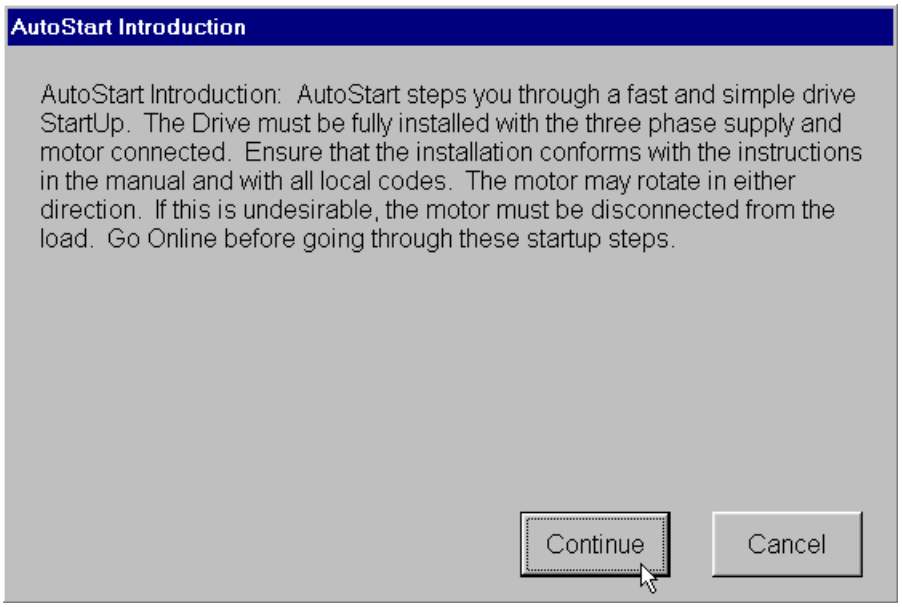
Once the configuration has been created and installed in the drive as describe in the previous chapters, the drive is now ready to be commissioned. If starting with a drive that has a previous configuration installed, go Online then Update the CELite configuration first before proceeding. For more details,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



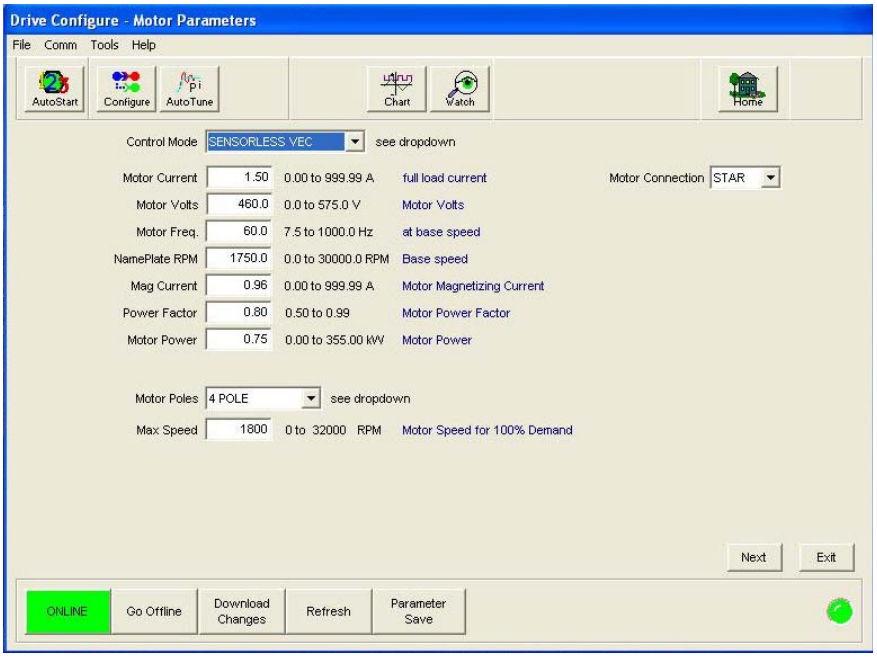


When this screen appears read the note and click on `Continue`.



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.

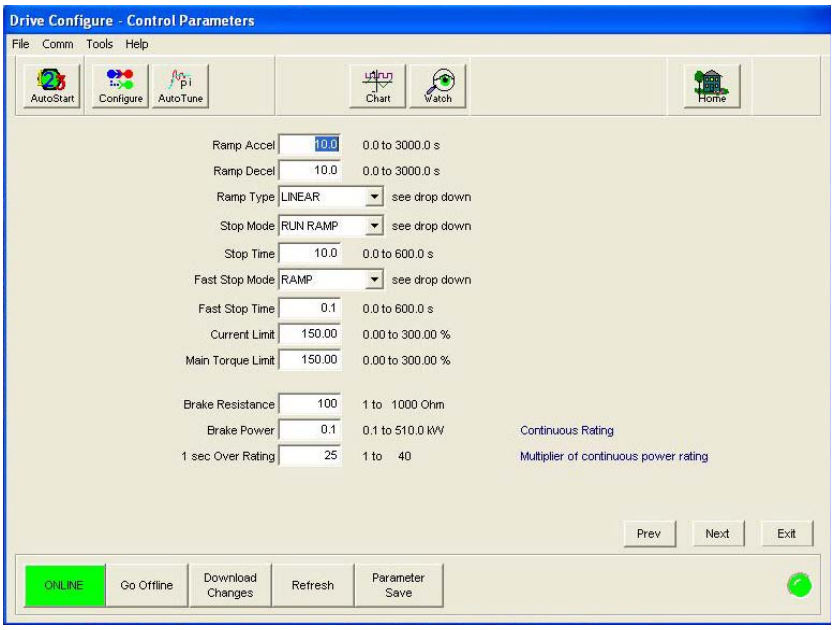
The following is a brief description of the three control modes:

- 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

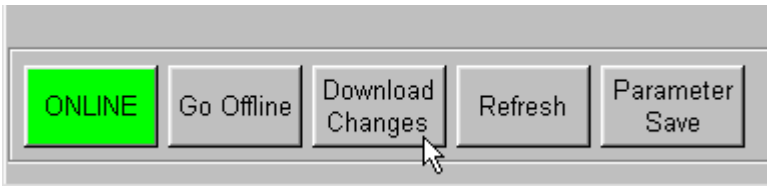
The following display shows the Control Parameters screen. After the information has been entered or verified, click on the `Next` button. Refer to the drive manual for questions on the parameters.



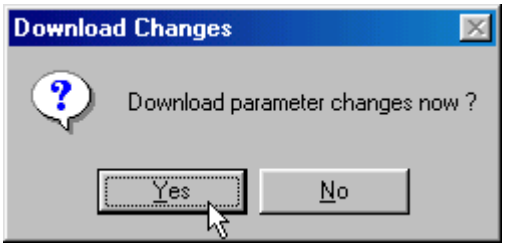
In the vector modes, the motor current is equal to the Magnetizing current and the load current; Torque is equal to the load only.

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.



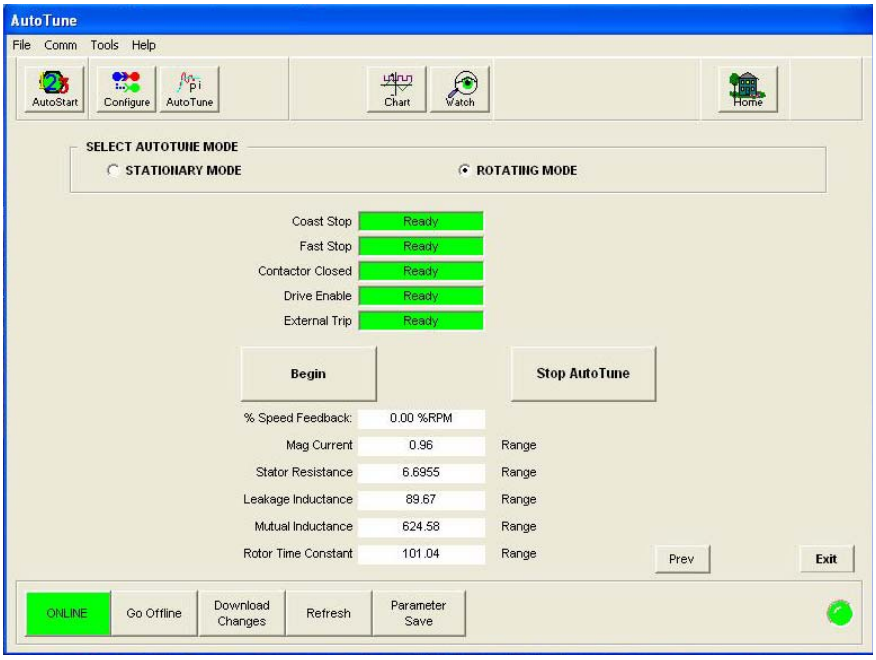
The `Download Changes` button will only change the information entered in the two parameter screens. The program may prompt to download changes, if so click `Yes.`



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.

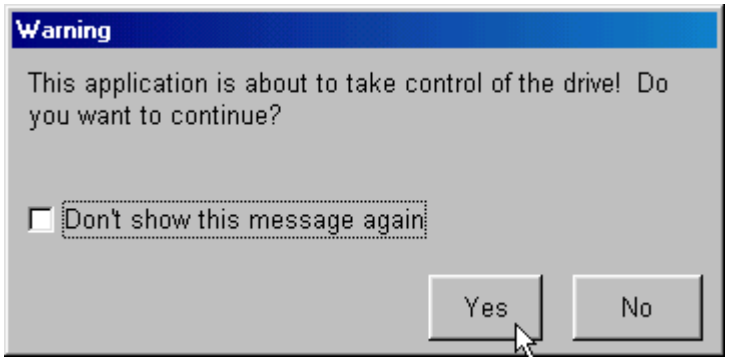
Stationary Autotune

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:

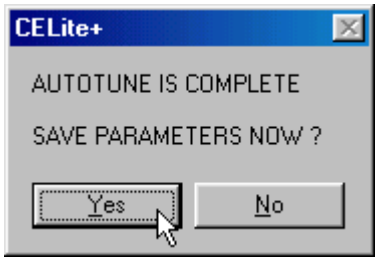
- User has to enter the correct value of magnetizing current.
- Cannot operate the motor above base speed.
- User has to manually check the encoder polarity and adjust if necessary.

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.



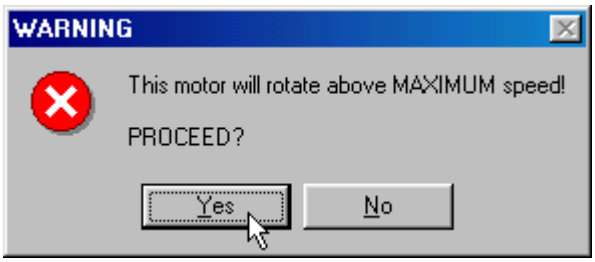
Rotating Autotune

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:

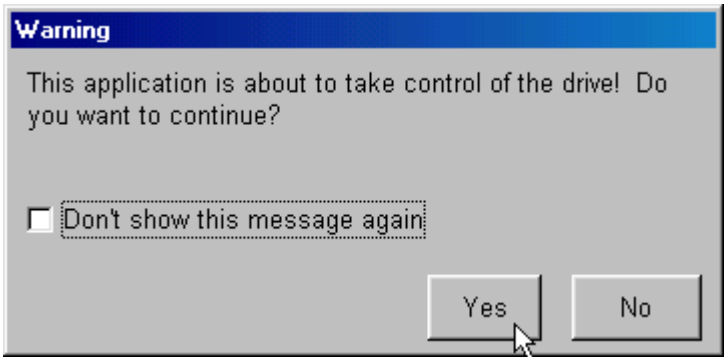
- The motor shaft cannot be connected to anything.
- The tuning process can only characterize the motor up to 30% above the Max speed. If you need to go faster than this speed, perform another autotune.

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

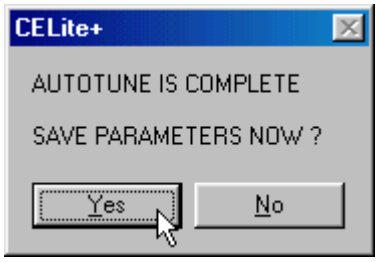
Click on `Begin` to start the autotune process. The following window will appear. Click on `Yes` to continue.



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.

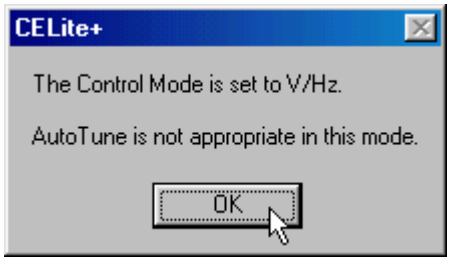
If this error appears, check the following:

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.

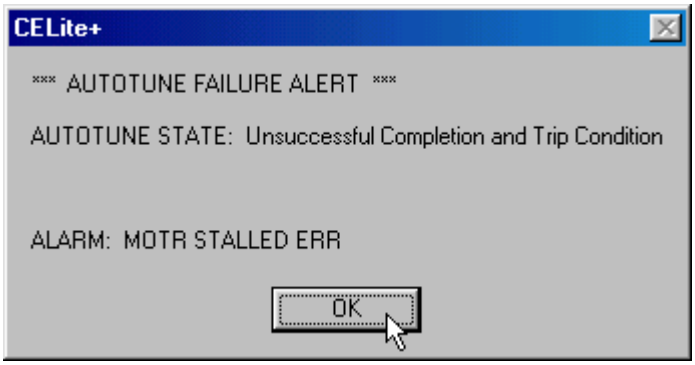
If this window appears you do not need to perform an autotune

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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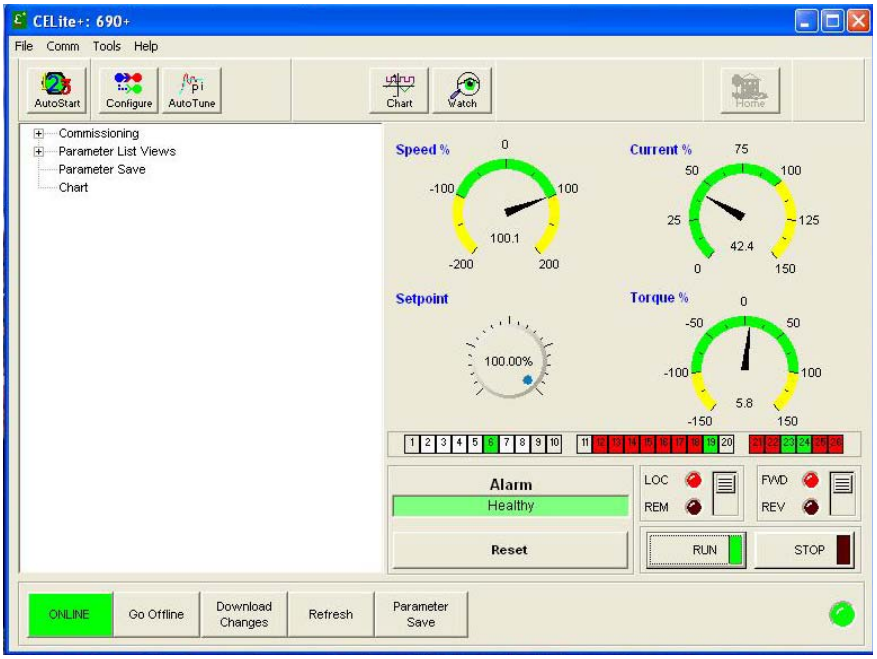
Chapter 7 Home Screen

After setting up and autotuning the drive, use the Home screen to control the drive. 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 and set the drive to local (LOC) mode.



Below the gauges and pots is a representation of the drive IO terminals. Analog terminals will be white with a 0.0 value, green when positive, and light blue when negative. As the value approaches 100 percent the color brightens. The digital terminals show green when ON and red when OFF. The illustration above shows the drive running at 100% forward with terminal 6 on at 100%, and terminals 19, 23, and 24 ON.

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.

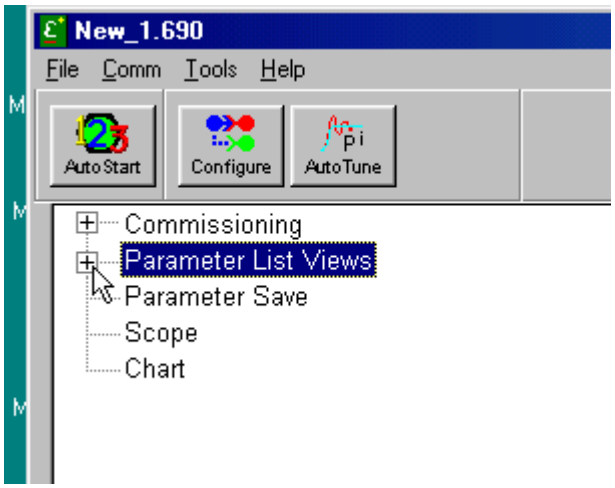
WARNING!

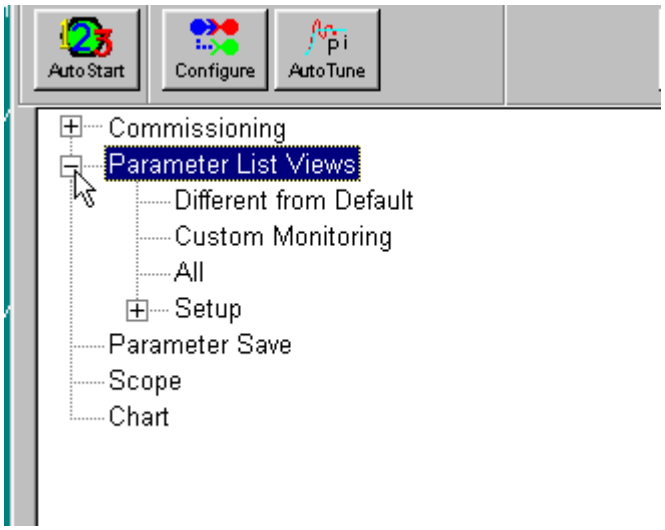
Do not click the `OFFLINE` button or close the software while running the drive with the Home screen.

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.



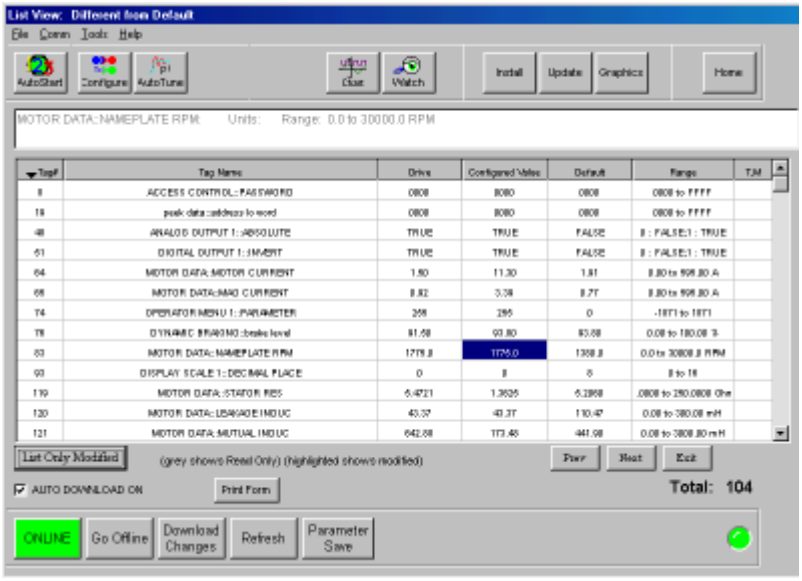


There are four basic lists of parameters, Different from Default, Custom Monitoring, All and Setup. The parameter lists are defined as follows:

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.

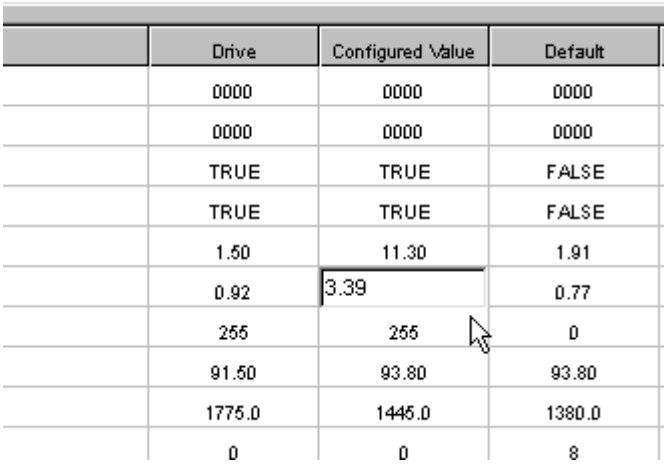
The following is a listing of the information in the window.

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.

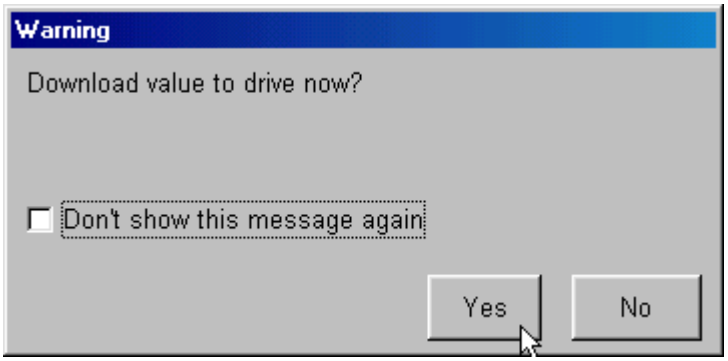


	Drive	Configured Value	Default
	0000	0000	0000
	0000	0000	0000
	TRUE	TRUE	FALSE
	TRUE	TRUE	FALSE
	1.50	11.30	1.91
	0.92	3.39	0.77
	255	255	0
	91.50	93.80	93.80
	1775.0	1445.0	1380.0
	0	0	8

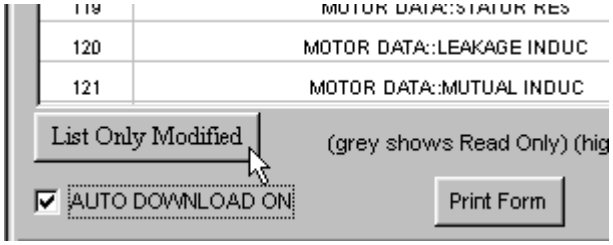
Once a value has been changed it will be highlighted until it is downloaded into the drive. The new information will not be downloaded to the drive until the `Download Changes` button is clicked, unless the `AUTO DOWNLOAD ON` has been checked. The following window will appear to warn that the program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

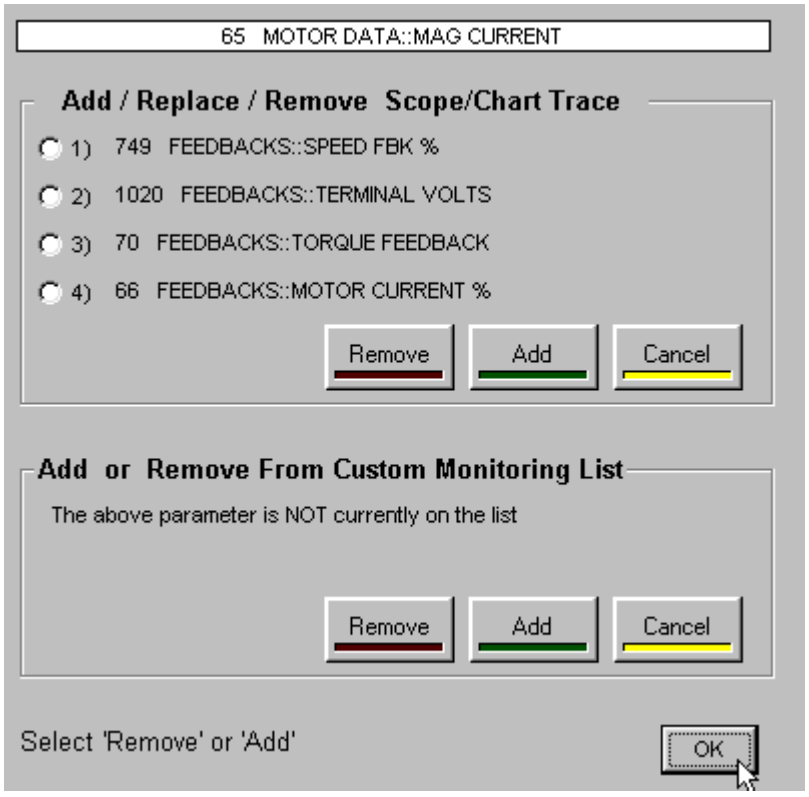
Warning !

When using the Online Chart function on a 590+ drive, the drives PNOs 112, 113, 114 & 115 are used for this Chart function. If these PNOs are being used for Serial Communications (i.e.DeviceNet, EtherNet and etc), the links to these PNOs will be temporarily disconnected during the operation of the Online Chart and loss of Serial Communications using these PNOs may occur.

These PNOs will be re connected when the drive power is removed and re applied. If a 'Parameter Save' is performed on the 590+ drive while these PNOs are disconnected, they will be permanently disconnected.

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:

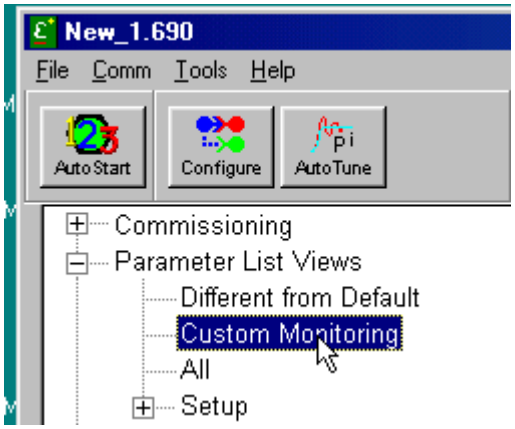


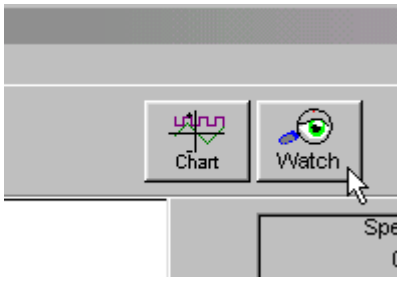
The Custom Monitoring List is a special list view that will scan the drive and update the parameter with each scan. Only these parameters may be modified when Charting. To add a parameter to the list, click on Add. To remove a parameter from the list, click on Remove. Once a choice has made, click on 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.





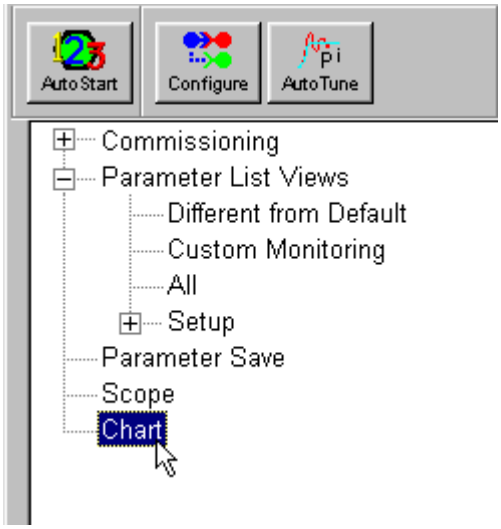
When the Custom Monitoring list view is open, CELite+ will continually update the parameters on the list. The parameter values appear in the Drive column of the window. The green Scanning Drive LED will flash on and off during normal operation.

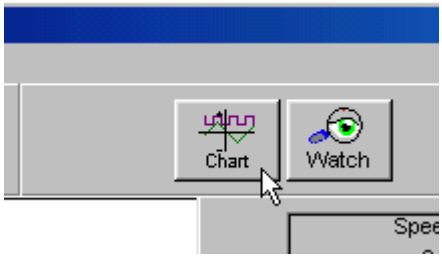
Chart Function

Note

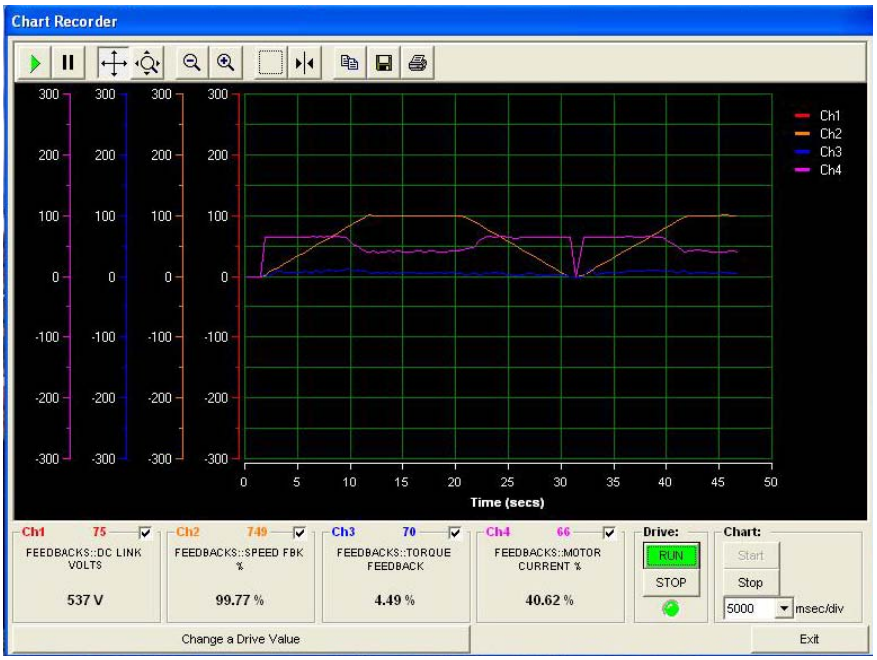
To chart drive values, go Online before opening the Chart window. To Run the drive from the Chart screen the application must also set the drive in Local before opening the Chart window.

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 information about the four parameters, channels, 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 checkbox. A popup dialog window appears which allows a new parameter to be selected, either directly typing a tag number or selecting from a list.

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.

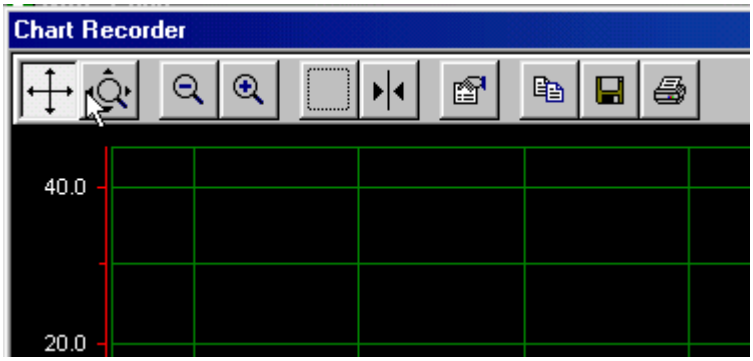
The time base of the chart can be change by clicking on the `sec/Div` arrow and selecting the desired time base. The time base should only be changed while the chart is stopped.

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 8 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 9 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.

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