

# DSE Lite

# Configuration Tool

Software Manual

HA471486U001 Issue 3



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# Chapter 1

# General Information

Getting started.



- ◆ [Introduction](#)
- ◆ [DSE Lite Installation](#)
- ◆ [Launching DSE Lite](#)
- ◆ [Connecting to the Drive](#)

## 1 Introduction

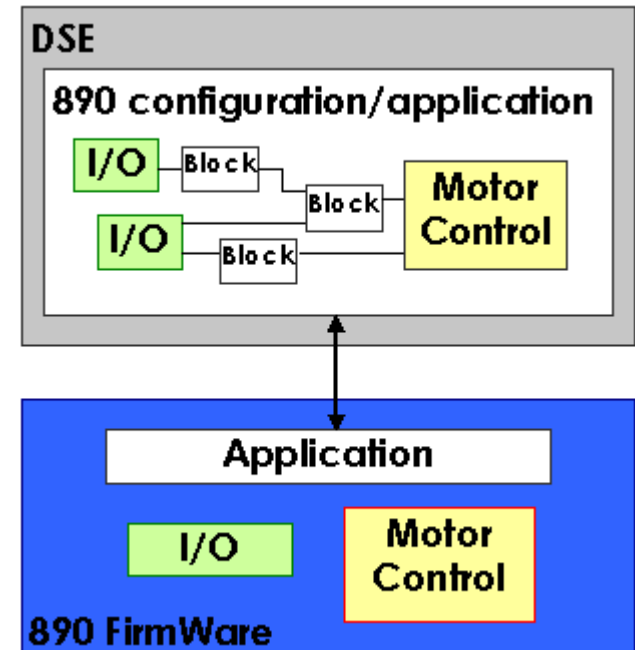
DSE Lite (Drive System Explorer Lite) is the software tool for the 890, 690+, 650V, 620 series firmware version 4.0 or later, 605, 590+, 590 series firmware version 3.2 or later, 590SP and 584SV range of drives available from SSD Drives. Using straightforward block programming you can very quickly become a confident user of DSE Lite. Users of CELite (Configuration Editor Lite) and DSD (Drive System Designer), two previous products, will appreciate DSE Lite's similarity and familiar features. DSE Lite combines the features of both these previous products into a single application with a modern interface and more advanced monitoring capabilities.

For the 584, 590, 605, 620, 650 and 690 drives DSE Lite provides parameterization and function block connectivity similar to CELite. 890 drives support user defined applications in conjunction with fixed Motor Control blocks. Similar to DSD's support for Link Tech Boxes, DSE Lite allows the user to create, parameterize, and configure user defined applications as well as parameterize and connect fixed Motor Control blocks:

**I/O Elements:** the 890 supports a wide variety of I/O this includes built in analog and digital support as well as optional encoder and field bus cards.

**Application:** this is the working space, external of the Motor Control environment. In it you can place any number of instances of any block - gone are the days of fixed numbers of blocks. Beyond that, the DSE Lite world is not flat - you can create well structured, multi-layered applications using the Macro feature, which allows you to create a compound block representing an entire block diagram.

**Motor Control:** this is a fixed environment comprising drive and motor parameters organized into blocks. You can parameterized these blocks, or you can read and write to them by linking their parameters with blocks in the Application environment.





# DSE Lite Installation

The 890 Drive is supplied with a CD containing the DSE Lite Configuration Tool. The install file is also available at [www.ssddrives.com](http://www.ssddrives.com). You can install DSE Lite on any Intel based PC with the following minimum specification:

- ◆ Running native Windows XP, Home or Professional Edition
- ◆ 100Mb of free hard disk space
- ◆ A USB port is required for connecting to an 890 drive
- ◆ A Serial port is required for connecting to 690+, 650V, 620, 605, 590+, 590, 590SP and 584SV drives.

Insert the CD and execute the "setup.exe" file on the disk to install the latest LINK database and DSE Lite. Follow the on-screen instructions.

## Installing the USB driver

The DSE installation program "setup.exe" will copy TI USB driver files into the appropriate Windows directories. This driver is needed for connect to an 890 via its USB port. When connecting to the 890 drive for the first time, Windows will acknowledge that it has found new hardware with the "New Hardware Found" wizard. When prompted for a driver, select the "Install automatically" option and select "OK".

The DSE Lite installation program "setup.exe" will also install a copy of the Texas USB drivers into:

```
C:\Program Files\Texas Instruments\USB-Serial Adapter
```

If the automatic install method fails, select the "Browse" option and select the directory above once prompted for a driver by the Found New Hardware Wizard.

If you have already plugged in the 890 Drive and Windows has determined it to be an "Unknown/Other" device, you must select the device in the Windows Device Manager (under the Unknown/Other Device Class). Display the properties for the device (by double-clicking it), and then click the "Update Driver" button on the "Driver" properties tab. This will then bring up a Wizard and you need to point to the directory of driver files as described previously.

## Updating the USB driver

### WARNING

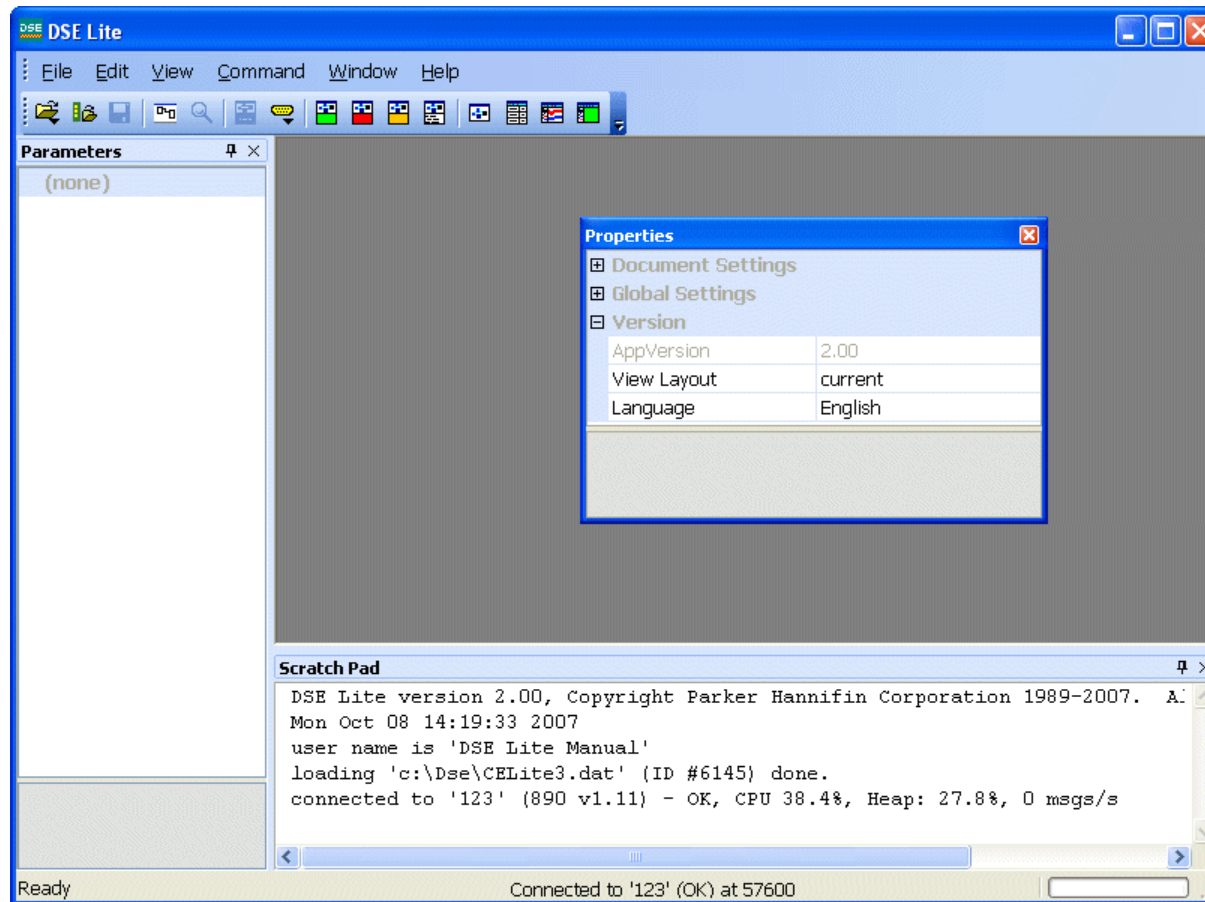
The USB driver should only be updated if the current driver is causing problems. Updating the driver should only be performed by someone with extensive knowledge of Windows XP.

To update the USB driver from Windows Explorer, go to MyComputer (Right Click) → Properties → Hardware → Device Manager → Multi-port serial adapters → TUSB3410 device → (Right Click) → Update. If this does not work, you have to manually uninstall the older version of the USB driver first:

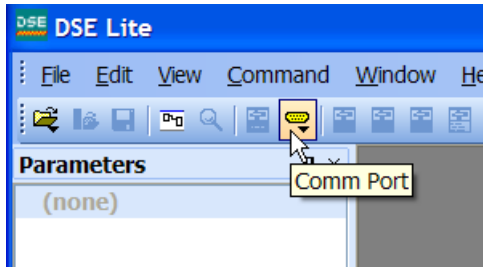
1. Open My Computer (Right Click) → Properties → Hardware → Device Manager → Multi-port serial adapters → TUSB3410 device
2. TUSB3410 device (Right Click) → Uninstall.
3. Start → Run → regedit.
4. Go to HKEY\_LOCAL\_MACHINE/SYSTEM/CurrentControlSet/Enum/USB
5. If you have a Vid\_0451&Pid\_3410 this needs to be deleted
  - a. Vid\_0451&Pid\_3410(Right Click) → Permissions → Enable Allow Full Control for you → OK
  - b. Vid\_0451&Pid\_3410(Right Click) → Delete.
6. Go to HKEY\_LOCAL\_MACHINE/SYSTEM/CurrentControlSet/Enum/umpport
7. If you have this key, it needs deleting. Follow 5a and 5b to delete this key.
8. Delete **umpusbxp.\*** and **umpcomxp.\*** in windows/inf directory
9. Delete all of the **oem\*.\*** files that link to **umpusbxp.inf** and **umpcomxp.inf**. You need to do this manually. Search string **ump\*.\*** and search files **oem\*.\***
10. Delete **umpusbxp.sys** , **umpusbvista.sys** and **umpf3410.i51** files in windows/system32/drivers directory.
11. Restart computer before installing new driver.

# Launching DSE Lite

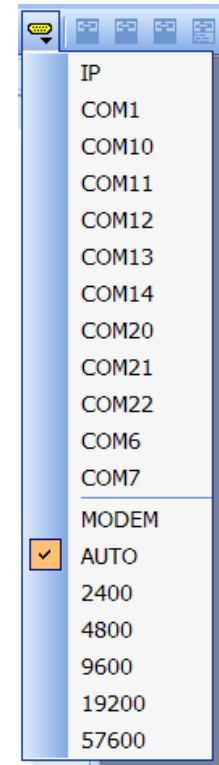
Start DSE Lite by clicking its program icon in Windows or, in the Windows' Start Menu click on "All Programs", you will see "SSD Drives", and within is "DSE Lite". Click on this to launch DSE Lite.



## Connecting to the Drive



There are now multiple ways to connect to a drive, USB cable, Modem, Serial cable, and Ethernet. Some of the connections will only work with specific drives, the following information will go over each connection type. The drives they work with and how to set them up. The Comm Port icon is shown on the Left, and the drop down menu is shown on the left.



### USB Cable Connection

At this point the only drive that can use the USB connection is the 890 Drive. The USB cable is a standard type A to mini-B, which should not be longer than 3 meters and of good quality shielded cable. Connect the A connector to any open USB port on the computer and the mini-b connector to the drive's X10 terminal. For a multiple drive systems linked via Firewire, please refer to the DSE software manual.

In the Comm Port drop down list, there are two things that need to be setup for USB communications; Comm port and baud rate. Make sure there is a check mark next to the port number that matches the port setup at the beginning of this chapter. The baud rate should have a check mark next to Auto.

### WARNING

Make sure all components on the system are properly grounded, BEFORE connecting any cables to the drive or computer. Failure to properly ground the system will result in damage to the drive, computer and cables.

## Serial Cable Connection

For 690+, 650V, 620, 605, 590+, 590, 590SP and 584SV drives you must connect directly to each drive using an RS232 cable (part number CM351909). For more information refer to the specific drives installation manual.

The 890 can only use the serial cable connection, if it has been setup to work with a modem, refer below.

In the Comm Port drop down list, there are two things that need to be setup for Serial communications; Comm port and baud rate. Make sure there is a check mark next to the port number that matches the serial port on the computer. The baud rate should have a check mark next to Auto, except if connected to a 590 drive. For a 590 drive, match the checked baud rate with the baud rate of the drive. If DSE Lite will not communicate to the 590 drive toggle the baud rate setting in the drive to reset the communication port.

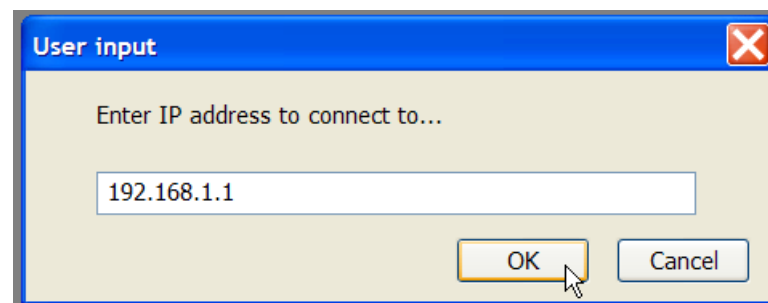
## Modem Connection

Only the 890 can use the modem connection, please refer to [Chapter 3](#)

## EtherNet Connection

The 890 is the only drive that can use the EtherNet connection. To connect to an 890 using this option it has to have an EtherNet communication card installed in slot A and configured with an IP address. For further questions on how to set up the EtherNet card in the 890 refer to the 8903/EtherNet Manual.

Once the IP address of the drive is known, it has to be entered in the IP window. Click IP under the Comm Port drop down , and enter the address under the following window:



# General Information

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After clicking ok the program should now be connected to the drive. The speed and reliability of the connection depends on the speed of the connection and available bandwidth of the internet.

**Note** *Firewalls on the computer and the internet connection will affect the reliability of the connection, and sometimes will prevent a connection. You may have to shut down or disable any firewalls in the connection for it to work. Contact your provider or IT department for help on these issuers.*

**Note** *The firmware cannot be flashed through the Ethernet connection, there has to be a direct connection to the drive using a USB cable.*

## WARNING

When connecting to equipment remotely, certain precautions should be taken. The first precaution should be to protect the equipment and personnel when connected remotely to avoid dangerous and unsafe conditions. The second precaution is to keep remote connections disconnected when not in use to avoid unauthorized or unwanted control of the equipment. It is up to the customer and end user of this program to make sure proper procedures are followed to prevent unsafe and dangerous control of the equipment.







## Chapter 2

# Configurations

How to create, modify, install and customize a configuration.



- ◆ [Introduction](#)
- ◆ [Creating a Configuration](#)
- ◆ [Modifying a Configuration](#)
- ◆ [Installing a Configuration](#)
- ◆ [Updating a Configuration](#)

## Introduction

2

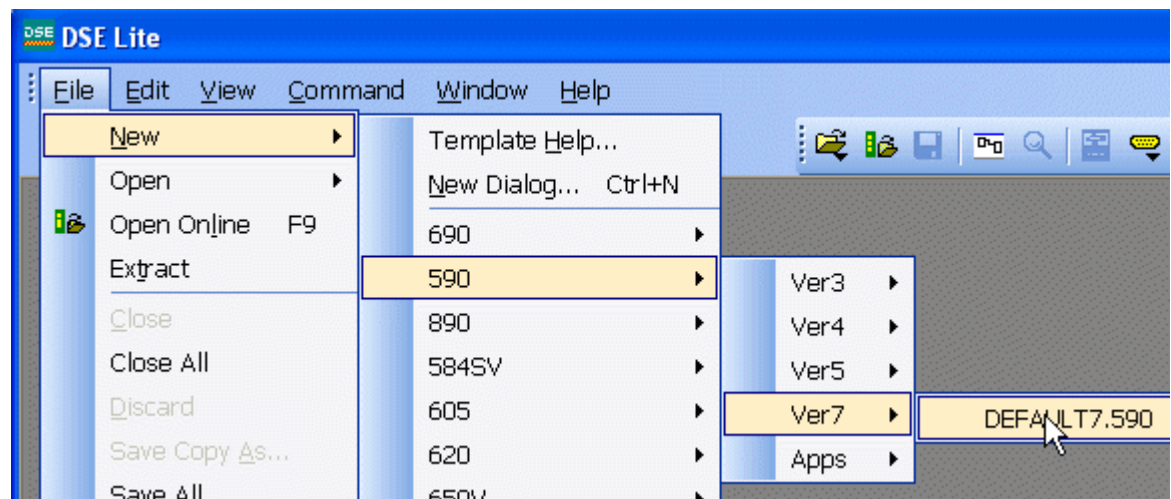
This chapter will walk you through creating, modifying, installing and accessing a configuration. DSE Lite uses many interfaces common to Windows and popular Windows applications such as Menus, Tool Bars and Docking windows. If you are not familiar with these concepts, you may want to refer to [Chapter 3](#) before reading this chapter.

**Note** *Many commands can be selected in more than one way such as selecting a main menu command ( → ), clicking on a button in a Tool Bar, selecting an option from a popup menu generated by right clicking an item or typing a keyboard sequence.*

## Creating a Configuration

First, you need to know the model of drive for which you will be creating a configuration. The 690+, 650V, 620, 605, 590+, 590, 590SP and 584SV drives have a pre-defined Function Block Diagram which can only be ‘wired’ and parameterized, whereas the 890 allows the user to design their own application (user selected Function Blocks) in addition to the pre-defined Function Block Diagram. As such, when you select an 890 drive, you will have more options available for configuring it than you will for the 690+, 650V, 620, 605, 590+, 590, 590SP and 584SV drives.

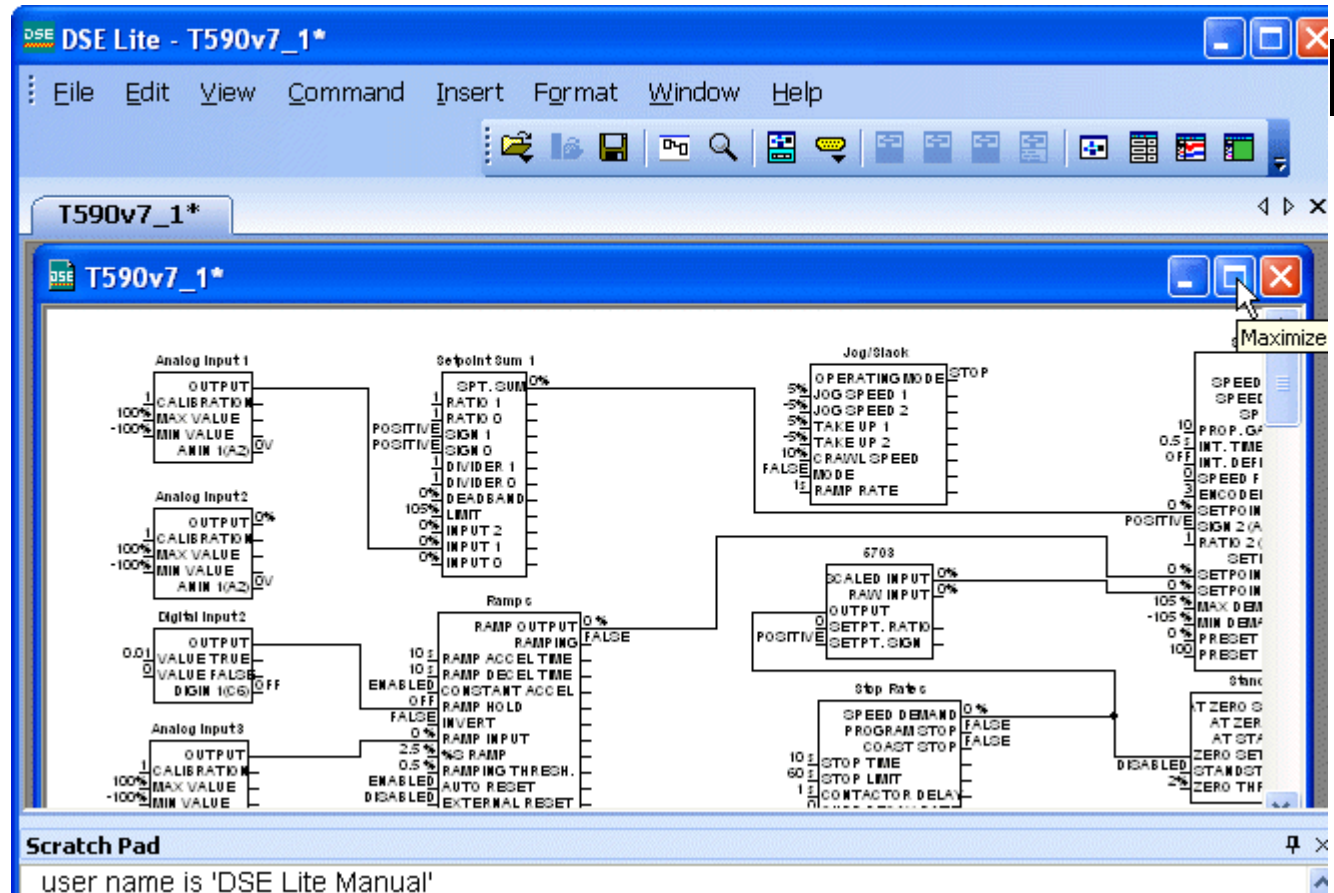
For starters, we’re going to create a 590+ configuration. Don’t worry if you don’t have a 590+ drive, all of this is relevant to the other drives as well. From the "File" menu, select "New→590→Ver7 →DEFAULT7.590". This is the default template for a version 7, 590+ drive.



This should open the following window (your view may be different depending on your setup):

Notice that the template has multiple function blocks representing various drive functions and that they are pre-wired for a default configuration.

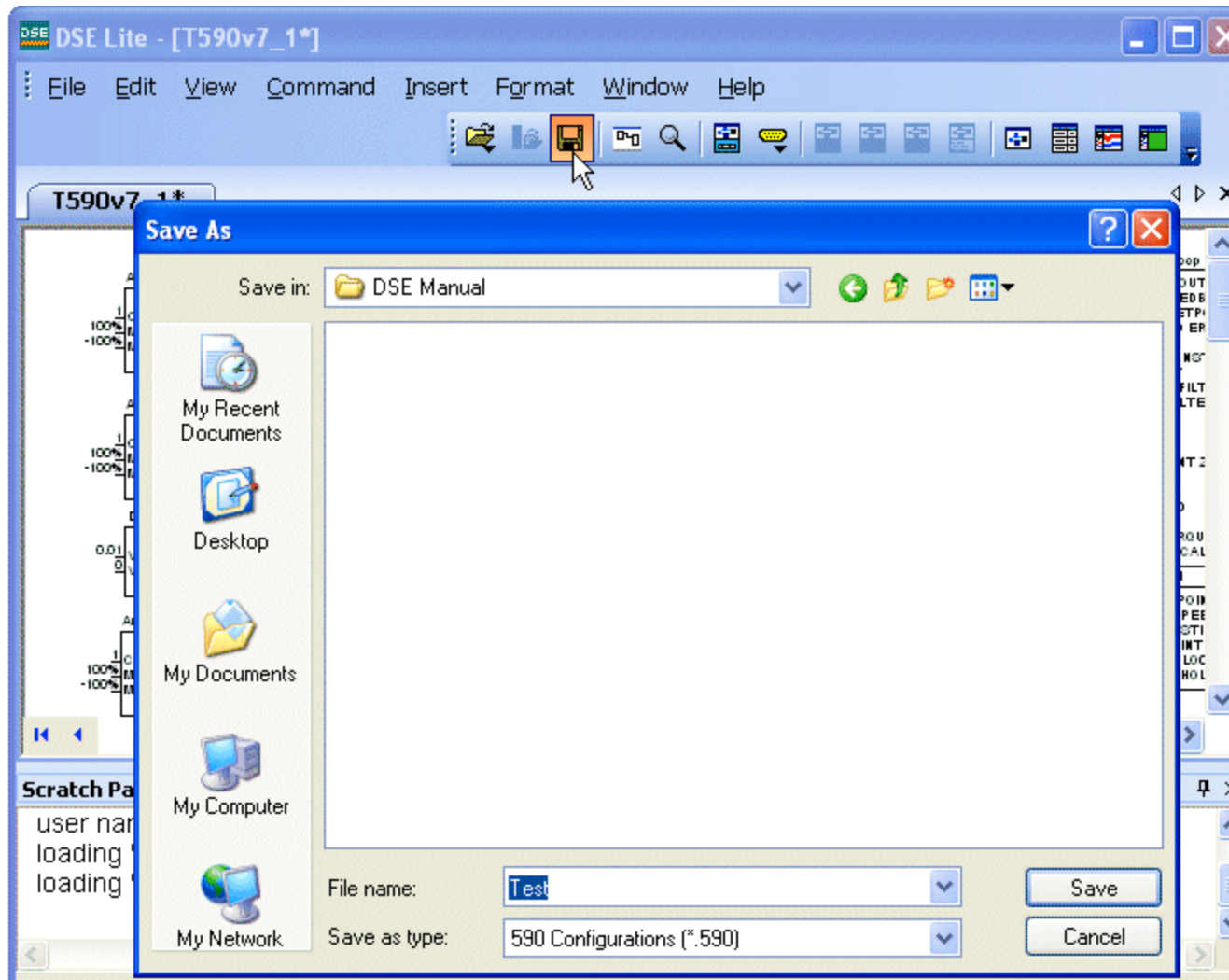
The example shown is a Window view which allows multiple windows to be shown at once. If you are only editing one configuration, you may want to expand the window to the whole view by clicking the Maximize button (see cursor in example).




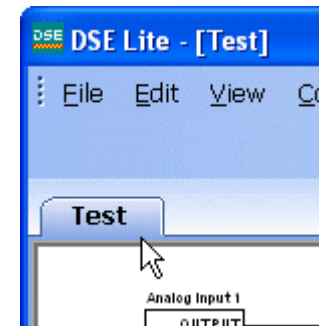
The default setup is for all windows to be open, to move, delete or add windows, refer to [Chapter 3](#).

# Configurations

2



The configuration can be saved by clicking on the Save icon  in the main tool bar, or selecting "Save" in the "File" menu. A standard Windows Save dialog will pop up. You can rename the configuration and save it in any directory in your file system. Once saved, the asterisk "\*" at the end of the name will disappear.



Now that you have the default configuration saved, you are ready to modify it for your application.


# Modifying a Configuration

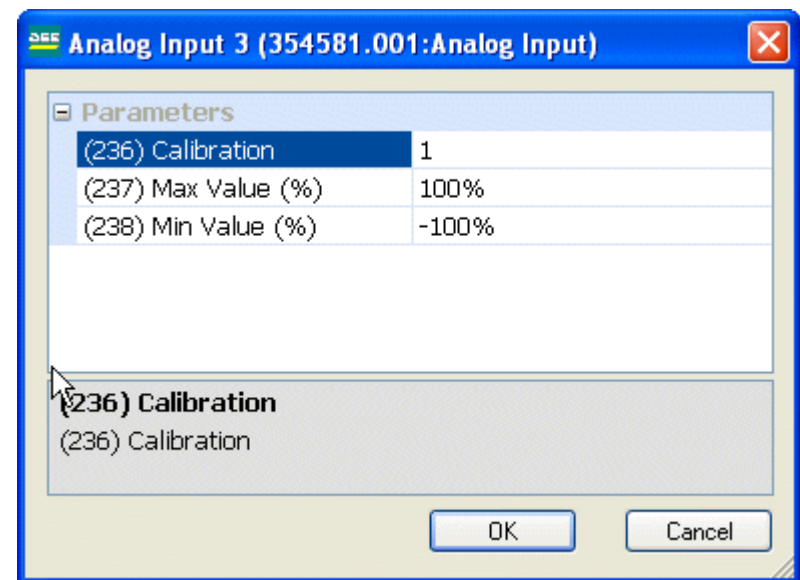
A configuration can be modified by editing blocks and links, by inserting or deleting blocks (890 only), inserting text, graphics and forms.

## Editing Function Blocks

You can view the contents of any function block in the configuration by double clicking on the block. For example, double clicking "Analog Input 3" will open the dialog to the right.

Click on a parameter's name to select it. This will cause the field at the bottom of the dialog to be updated with information about that parameter. This information will vary based on the drive you are configuring. If the parameter is enumerated or a boolean click on  to select a new value, otherwise you can directly edit the numeric.

When you have finished making changes click on "OK" to exit, otherwise click on "Cancel" to exit and disregard any changes you may have made. Note that the  button acts the same as the "Cancel" button.



Function blocks can be Renamed. To rename a function block, right click with the mouse in the center of the block. A popup menu should appear. Click on "Rename Block" to rename the function block. You will also notice that the popup menu contains a item labeled "Help". You can click on this to bring up a data sheet for that function block.

To select a function block either click on it or hold down the SHIFT key and drag the mouse over the function block. You can select multiple function blocks by holding the SHIFT key down while click on them, or dragging the mouse over then so that some portion of the function block to be selected are contained in the rectangle drawn on the screen.

## Configurations

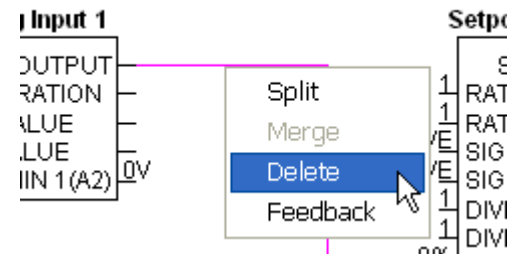
2

Selected item(s) can be moved by click on an item in the selection and moving them while the mouse button is still down (dragging). Let up on the mouse button to finish the move. If you hold down the CTRL key before letting up on the mouse button, the selected item will continue to follow the mouse until it is clicked again to finish the move. This allows you to move items from one page to another page by changing the current page before clicking the mouse again. If you depress the ESC key while the items are being moved, but before the move is finished, the move will be cancelled and the items will go back to their original location.

## Editing Links

A link (also known as a connection) ‘transfers’ the output of one function block to the input of another (or same) function block. The exact details of how this is done varies from drive to drive and type of function blocks being connected, but all of this, to first approximation, is hidden from the user. For the most part, the user only has to think of it as a means of specifying that an output from one function block is used as the input for another.

To select a link click on it. It will change color, purple by default, to indicate that it is selected. Once the link is selected, you can delete it by depressing the Backspace or Delete key or by selecting Delete from the popup menu created when you right click on the link. Using this popup you can also Split the link and, for some drives, flag it as a Feedback. Splitting is covered in more detail below.

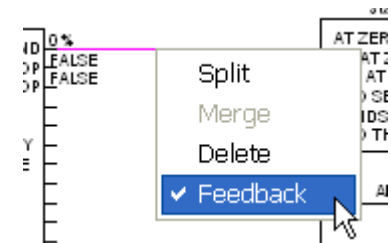


Selecting Feedback flags the link as a feedback (for drives that have feedback links). Feedback links are shown as a different color, light blue by default. Most drives update all pre-defined function blocks at a periodic rate or scan. Feedback links are processed at the end of that scan

so that its value will be used at the beginning of the next scan.

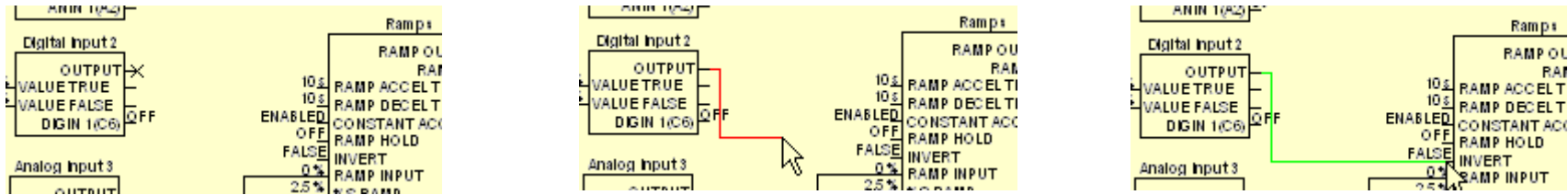
If you right click on a feedback link, you will notice that Feedback is checked to indicate that this is a feedback link. You can click on Feedback again to clear the feedback flag.

Links are made by connecting an output to an input, in that order. You start by placing the mouse cursor near an output of a function block. DSE Lite detects this and changes the shape of the

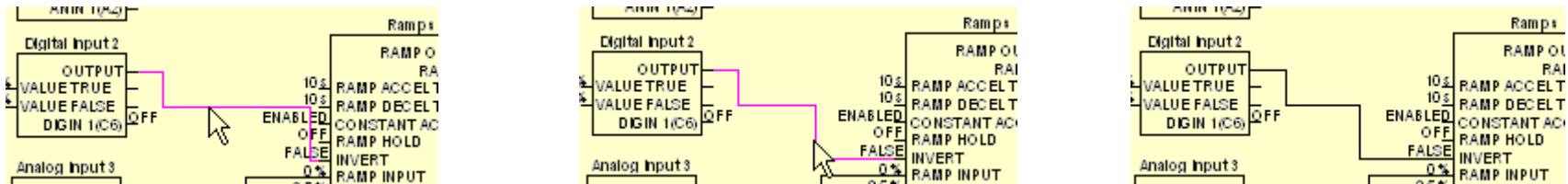


cursor to an 'x' to give visual feedback that the cursor is over an output and that the user can start drawing a connection. While holding the left mouse button down, drag the mouse cursor to start drawing the link. The link being drawn will be displayed in red, by default, and when you move the cursor over a valid input it will turn green, by default, to indicate that you have a valid link selected. Let up on the mouse button to make the connection.

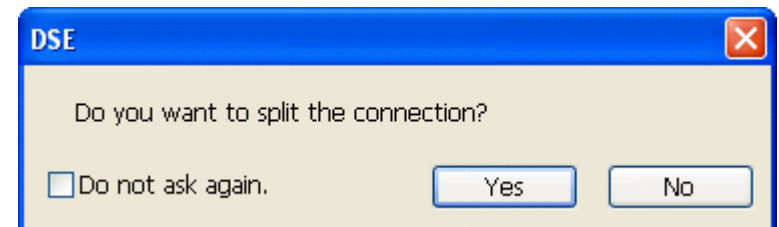
If you want to change the shape or routing of a link, left click on the link and hold down the mouse button. The line



will change color to indicate that it is selected. Drag the mouse while holding down the mouse button to change the shape of the link.



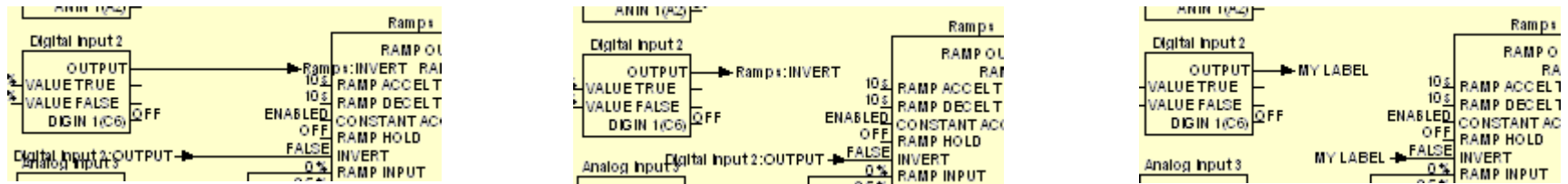
You can also split a link. This will separate the link into two pieces with a label at the end of each piece. To split the link either double click on it or right click on it and select Split. If you double click the link, you will initially be asked if you want to split the connection. If you don't want to see this dialog again, check the "Do not ask again" box before clicking on the "OK" button.



## Configurations

When you first split the link, DSE Lite will provide default labels. These labels behave very much like function blocks. You can move them around to clean up your drawing. If you double click or right click on either label, you can Rename them to your own labels.

2



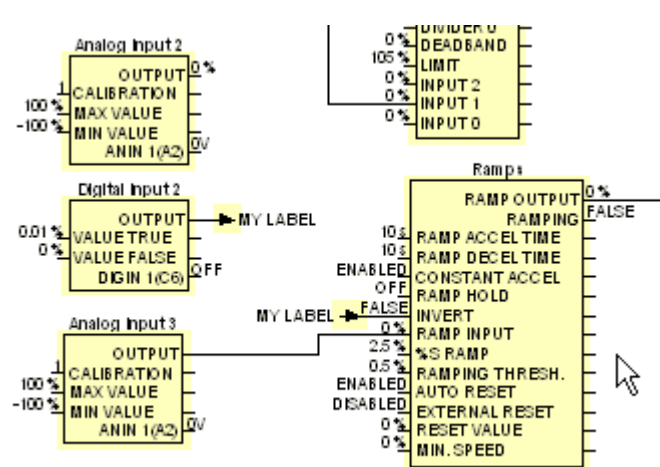
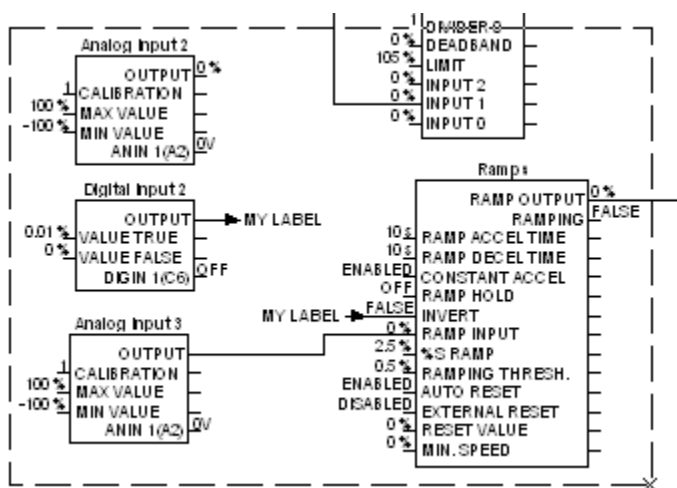
You can also connect function blocks that reside on different sheets. To do this, start making the connection the same way that you would for linking two function blocks that are on the same sheet. Then go to the sheet that contains the destination function block. You will notice that the connection line(s) will follow you to the next sheet even though the source function block is not there. Select the destination input to finish the connection. Split links will be created on each sheet to represent the connection. Just as described above, you can change the name of the split link as well.

**Note** *In configurations that contains many split links, it may not be easy to visually match up each half of the connection. To help in this, if you right click on either of the slit labels, you can select 'Find Matching' to go to the matching label of the split link.*



## Selecting Function Blocks

You can select a single function block by simply clicking on it with the mouse. Additional blocks may be added to the selection by hold down the SHIFT key while clicking on them with the mouse. Clicking on an already selected block while holding down the SHIFT key will remove it from the selection. It is also possible to select a group of block by holding down the SHIFT key and left clicking the mouse on an empty part of the page, holding down the mouse button, dragging it over the blocks to be selected and letting up on the mouse button (and SHIFT key) when done. You will notice that a rectangle will outline the area to be selected while you are dragging the mouse.



Selected blocks are highlighted with a user defined color (default is light yellow).

## Moving Function Blocks

Once you have a block or group of blocks selected, you can move them by clicking on one of the selected blocks and while holding down the left mouse button, move the block(s) to a new location on the same page. To move to another page, move the mouse cursor to the lower left page number display, and click the right or left arrow to select the destination page. Let up on the mouse button to end the move.

## Configurations

# Inserting New Function Blocks

2

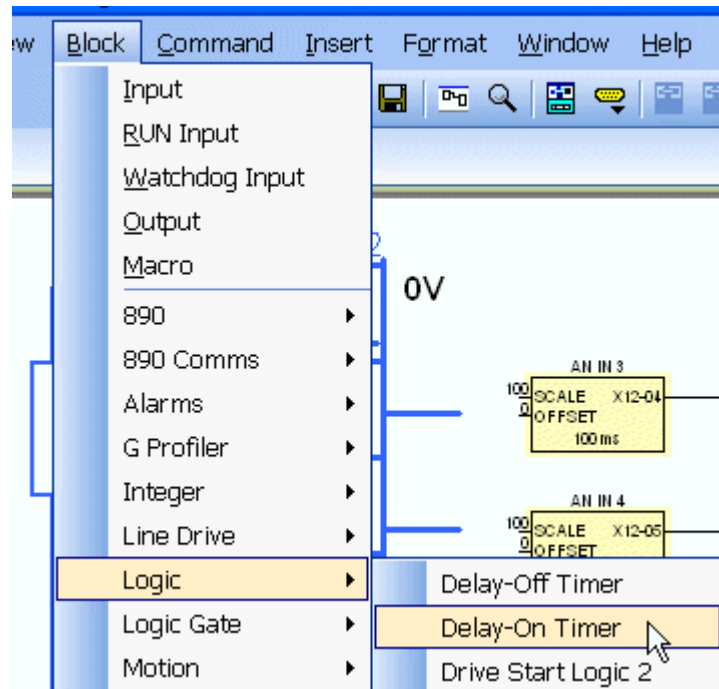
**Note** Inserting new function blocks is only supported for 890 drive configurations.

If you want to follow the examples in this section and do not have an 890 version 3 default configuration open, create one now (New→890→Ver3→v31\_DFLT.890, see [Creating a Configuration](#)).

There are many ways to create new function blocks in the configuration. One way is to insert a new function block by selecting it from the “Block” menu. Move it to where you want on the screen and click again to place the function block.

For example: Click on the Block menu at the top of the screen. Move the cursor down to select "Logic→Counter".

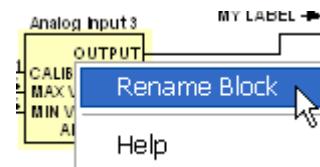
**Note** For further details of all function blocks, refer to the 890 Engineering Reference manual, Appendix D. Function block data sheets are available in DSE Lite by right-clicking a function block and selecting "Help".



You can also use Edit→Copy (Ctrl+C), Edit→Paste (Ctrl+V) or Edit→Duplicate (Ctrl+D) to insert another copy of the currently selected block(s) or Edit→Import to insert a previously exported (Edit→Export) block(s).

## Renaming Function Blocks

Right clicking on a function block with the mouse will cause a popup menu to appear from which you can select various operations related to that function block. One of these operations is to Rename the block. If you select ‘Rename Block’ you will be asked for a new name. Names must be unique.



## Deleting Function Blocks

*Note* Pre-defined drive function blocks cannot be deleted.

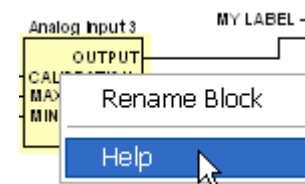
Select a block(s) and press the "Delete" or "Backspace" key. Selected function blocks can also be deleted by selecting Edit→Delete, Edit→Cut (which also places the selection in the clipboard for Pasting) or right clicking on a block and selecting Delete Block from the popup menu.



2

## Function Block Data Sheets (Help)

Right clicking on a function block with the mouse will cause a popup menu to appear from which you can select various operations related to that function block. One of these operations is to access the data sheet for the block. If you select 'Help', the data sheet for the function block will be brought up in an Acrobat Reader window.



## Connecting to Other Drives and Devices

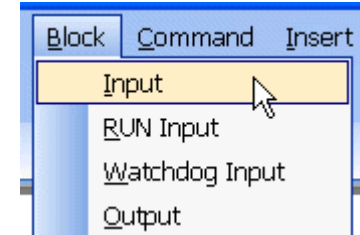
There are four ways to connect to other drives and devices: through the built in digital and analog I/O, optional encoders cards, optional field bus cards and the **P3** MMI serial port.

For built in I/O, encoder cards and serial ports, there are pre-defined function blocks that support these inputs.

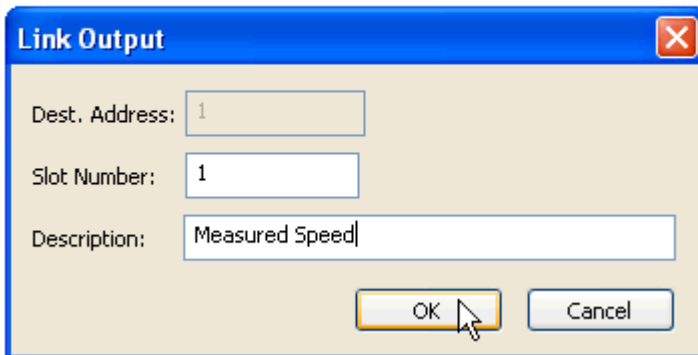
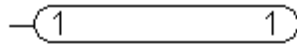
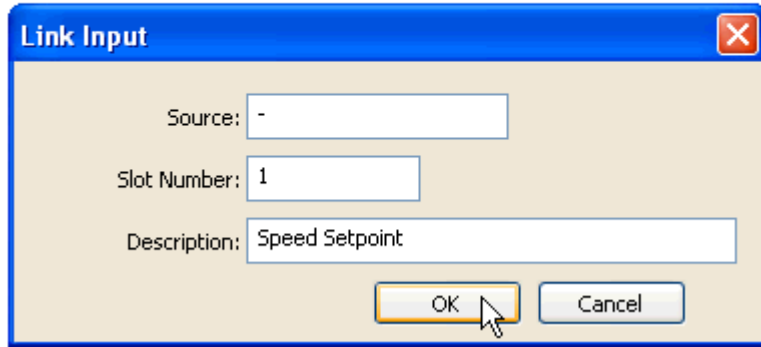
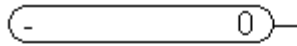
# Configurations

The 590+ and the 690+ also provide pre-defined function blocks for optional field bus tech. boxes.

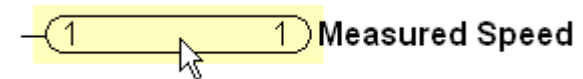
The 890 drives have application level support for the P3 MMI serial port and optional field bus cards. It is possible to specify that the P3 MMI serial port will be connected to a TS8000 HMI display. The application interface to the P3 MMI serial port is through *Link* slot inputs and outputs. Unlike 890 *Link* systems (supported by the development version of DSE), for a standalone 890 drives, these slots can only be address to the configuration in which they reside. Slot inputs and outputs are selected from the top of the Block menu.



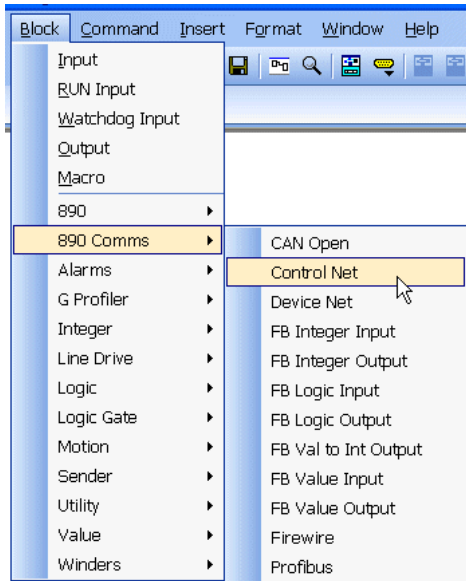
There are three types of inputs ('Input', 'Run Input' and 'Watchdog Input'). All three of these inputs will request you to specify a 'slot' number when inserting them in the configuration. This slot number is what is used by the external device to identify this input. The Source and Description fields are optional.



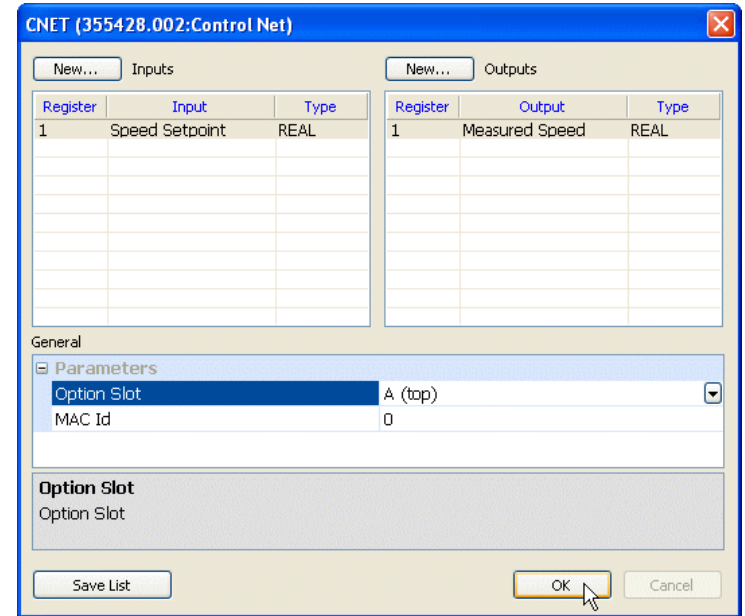
Similarly, a slot Output will ask you for the destination slot number (for standalone configurations, the Dest. address is fixed to be the same as the configuration's address). Again, the Description field is optional.





There are numerous application function blocks associated with a field bus option cards. These can all be found in the 'Block→890 Comms' submenu.



As you can see, there are many supported field bus (there may be others not displayed here). The function blocks that begin with 'FB' are input and output blocks shared by all of the various field buses. They are used vary similar to the *Link* inputs and outputs described above with the exception that there is no slot number (this is assigned internally when you configure the field bus, see example for Control Net), you need to pick the correct block depending on the data type of

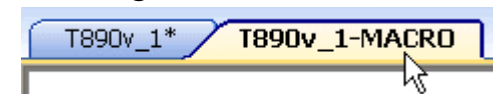
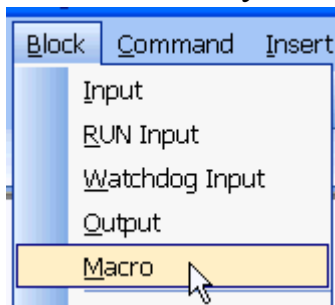


the I/O. The block name is used as the description. For example,

**Speed Setpoint**  a 'FB Value Input' (Speed Setpoint) can be used to connect a value coming from the field bus register to the input of an application block and a 'FB Value Output' (Measured Speed) can be used to connect the output of an application block to a field bus register. See the data **Measured Speed**  sheet of the field bus you are using for more details.

## Macros

Macros are a way of encapsulating a group of function blocks into one logical block. The function blocks inside the macro do not execute any differently than they would if they were not inside the macro. It is simply a way to hide the details and complexity from the top level view of the configuration. Select 'Macro' from the Block menu to create an empty macro. To edit the contents of a macro, double click on it with the left mouse button. This will open another window for editing the contents of the macro. Notice that the tab name is the configuration name with the macro name appended to the end.

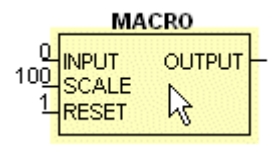
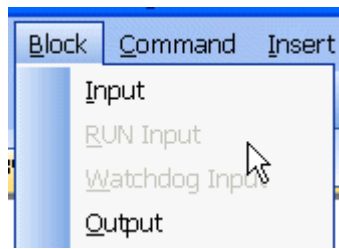


# Configurations

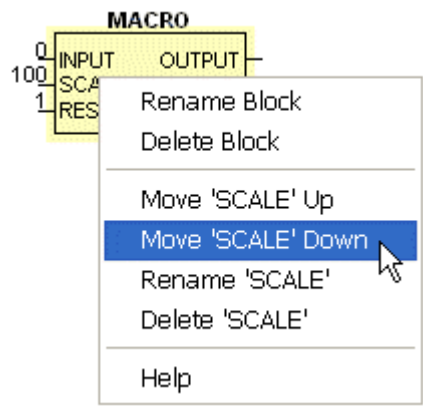
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For an example, we'll create a macro that multiplies two numbers (an input and a scale) together and adds the result to a running total which can be reset. First we need to know how to get parameters in and out of the macro. This is done very similar to how we created I/O to other devices in the previous section. If you click on the tab of the macro to make it the active window, you will notice that the Block menu has changed slightly. The 'RUN Input' and 'Watchdog Input' items are disabled, and if you click on 'Input' or 'Output' instead of getting a *Link* slot I/O block, you will now get a macro input or output when you select them. These macro I/O blocks are diamond shape and just like the field bus I/O block, the

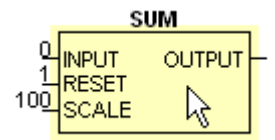
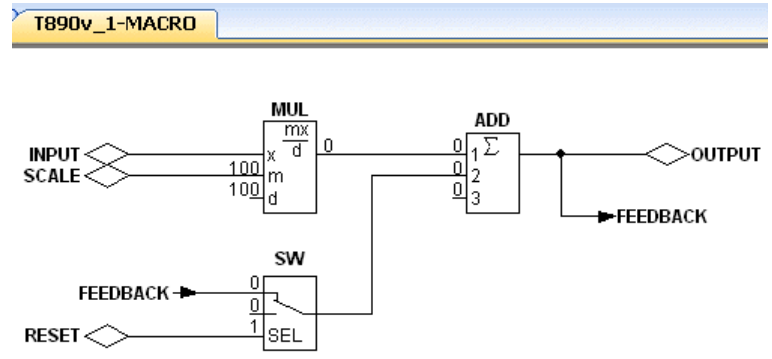
name you give to the block is the name that will be used for that parameter in the macro symbol. So let's create our inputs 'Input', 'Scale' and 'Reset' and output 'Output'. Add in a 'Value Multiplier', 'Value Adder' and 'Value Switch' to actually implement the macro function and wire it all together. You'll get something like this:




Let's say you wanted the second input to the macro to be RESET and the third to be SCALE. Click on SCALE with the right mouse button and select Move 'SCALE' Down










to arrange the inputs in the order that we want. In this example, there was only one output, but if there had been more than one, they could have been arranged the same way. Let's right click on the macro again to rename it 'SUM' and we're all done. Our final macro looks something like this:



## Text

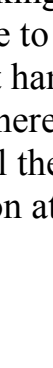

DSE Lite allows the user to annotate a configuration with their own text. To insert text into your configuration you start by creating a text box. This can be done by either selecting the Insert→Text menu item, or by clicking on the insert text button  in the Text Tool Bar ([Chapter 3](#)). When you do this, the cursor will change to shape to + indicating that it is waiting for you to create a text box. Move the cursor to where you want the top, left hand corner of the text to be, click on the left mouse button and hold it down while you drag the mouse to where you want the bottom, right hand corner of the text box to be and left up on the mouse button. The shape will then change to a text insert box (colored sizing tabs on corners and sides of text area) with an empty selection at the top, right.



The text that you enter can be formatted as you are typing it by either selecting a new format from the Format menu or from the Text Tool Bar. Above is an example of many of the formatting options. ‘Testing’ is in the default font, ‘123’ was in a different, larger font with the color changed for each digit (  button), ‘small font’ is 9 point, ‘Times New Roman’ font and the second line is 12 point, ‘Times New Roman’ font (  Times New Roman |  12 buttons), centered (  button) with Bold, Italics and Underlined text (    buttons).





To edit an existing Text object, double click on it with the left mouse button.


## Graphics

As with Text (see previous subsection), you can add graphics to your configuration. To insert graphics into your configuration select the graphic object you want to draw from either the Insert menu or Drawing Tool Bar (see [Chapter 3](#)).  There are five types of graphic types supported by DSE Lite: Arrow, Line, Oval, Rectangle and Image. Line Width  selects how thick the line will be for Arrows and Lines and the



## Configurations

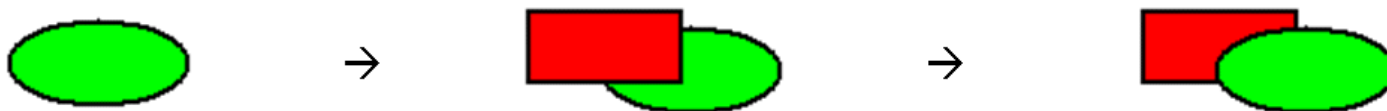
2

border thickness for Ovals and Rectangles. Line Pattern  allows you to select solid or dashed lines for Arrows and Lines. It does not affect Ovals and Rectangles. Fill Pattern  select the interior pattern for Ovals and Rectangles. Line Color  selects the color for Arrows and Lines and the border color for Ovals and Rectangles. Fill Color  select the interior color for Ovals and Rectangles.

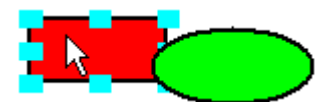
The last graphic type is the 'Image'  command. This command allows you to insert an image into your configuration. This is very useful if you want to add a logo to your configuration. When you select the 'Image' command, it will behave very similar to the 'Rectangle' command. The difference is that the rectangle you are dragging will be the 'frame' that defines the size of the image you are creating. When you finish drawing the 'frame', DSE Lite will ask you to select the image you want to insert (standard File Open dialog; bitmap, gif, jpeg, icon, windows media file and enhanced meta file format images are supported). When you first create the image, it will be sized to fit in the 'frame' you created, but it will be sized so that the aspect ratio of the image is not changed. Once the image is created, if you resize it, the original aspect ratio will not be maintained. If, after resizing, you want to reset the image to the original aspect ratio, select the image and then the 'Format→Align' command.



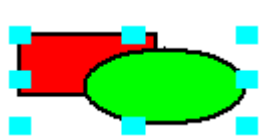
There are four commands, 'Move to Front', 'Move to Back', 'Group' and 'Ungroup', that allow you to manipulate the placement of graphic objects. 'Move to Front'  and 'Move to Back'  are used to change the drawing order of overlapping graphic items. For example, if you have an oval drawn in your configuration and now want to add a rectangle with the oval overlapping it, when you insert the rectangle, it will overlap the oval. To change this, select the oval and then 'Move to Front', or while the rectangle is selected, pick 'Move to Back':





Now that you have this oval on top of a rectangle drawing, you may want to move them to another location. To do this you will have to select them both so that they move together. If you miss selecting one of them, you will change the drawing when you start the move. To avoid this when you finish creating the drawing, you should select both of the items and group them together with the







‘Group’  command. When items are grouped, operations such as select, move or delete are applied to all items in the group. If you no longer want the item to act as a group, you can ungroup them with the ‘Ungroup’  command.

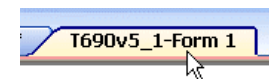
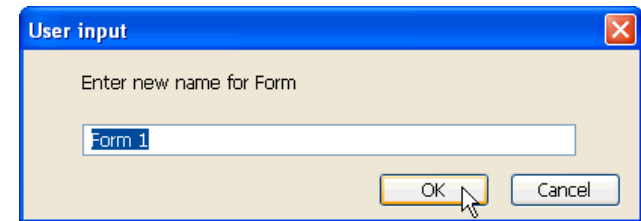
## Forms

Forms are a means by which project, configuration and user information can be displayed on every sheet of a configuration or macro. This is mainly intended for printed documentation purposes, but is also useful for online reference while a configuration is being edited. Special form commands can also be used for creating custom index sheets for projects as well.

There are two types of forms: internal and predefined. Internal forms are created as part of a configuration. Predefined forms are created in advanced and stored in DSE’s working folder as XML files with the extension ‘.xfm’.

### Creating an Internal Form

To create an internal form for a configuration, just select ‘Create...’ from the ‘Insert→Form’ submenu. You will be asked for a name for the internal form. You can name it whatever you like, but it is a good idea to choose a name that indicates that it is an internal form and that the name does not match the name of any other form. After you pick a name, a new form editing view will be created in which you can edit the contents of your form (see [Chapter 5](#) for more details). When you are done editing the contents, close the form editing view and the newly created form will be displayed in your configuration or macro (as long as ‘View→Forms’ is checked).

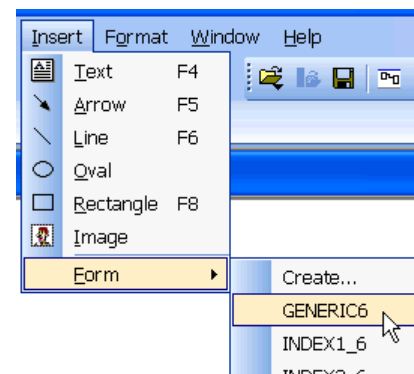


## Configurations

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### Inserting a Predefined Form

When DSE starts, it searches the working folder for any files with the extension ‘.xfm’. The names of all of these files, without the ‘.xfm’, are added to the ‘Insert→Form’ submenu. To insert a predefined form into a configuration, just select it from the ‘Insert→Form’ submenu. The selected form will be inserted into the configuration (or macro) and displayed on the screen (as long as ‘View→Forms’ is checked).



### Editing a Form

To edit a form in a configuration or macro, select the name of the form in the ‘Edit→Edit Form’ submenu. A form editing view will be created in which you can edit the contents of the form (see [Chapter 5](#) for details).



### Deleting a Form

To delete a form in a configuration or macro, select the name of the form in the ‘Edit→Delete Form’ submenu. The form will be deleted from the configuration or macro.



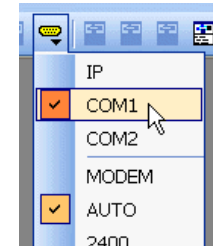
## Installing a Configuration

The 690+, 650V, 620, 605, 590+, 590, 590SP and 584SV drives have a pre-defined drive Function Block Diagram which can only be ‘wired’ and parameterized, whereas the 890 allows the user to design their own application (user selected Function Blocks) in addition to the pre-defined Function Block Diagram. As such, 890 drive installation is different from the 690+, 650V, 620, 605, 590+, 590, 590SP and 584SV drives. We will cover each of these separately.

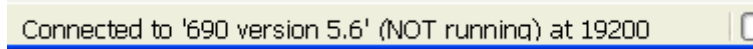
Once you have created your own configuration, it can be installed into a drive. If the configuration is not already open, you will first have to open it. You can open the configuration from the “File→Open” menu or by clicking on the “Open” button in the main Tool Bar.

## Install (non-890)

- Make sure the drive is connected to your PC via an RS232 cable (part number CM351909).
- Select the correct baud rate for the connected drive from the Comms Icon in the standard tool bar (or in the Properties View). Except for the 590 you can use the “AUTO” setting and let DSE determine what baud rate is needed.
- Select the correct port if it is not already selected. If the correct baud rate and port is selected, this will cause the drive type and current running status to be displayed in the Scratch Pad and



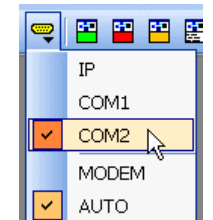
Status Bar:



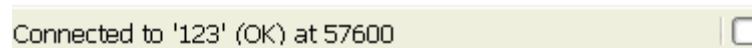
- Select "Command→Install" to install the currently opened configuration into the connected drive.
- The installation progress is displayed on the Status Bar and noted in the Scratch Pad.

## Install (890)

- Make sure the 890 drive is connected to your PC via a USB cable: A to mini-B and that the USB driver is installed (see [Chapter 1](#) for more details).
- Select the “AUTO” baud rate from the Comms Icon in the standard tool bar (or in the Properties View).
- Select the correct port if it is not already selected. If “AUTO” baud and the correct port is selected, the drive type and current running status will be displayed in the Scratch Pad and



Status Bar:



- Select "Command→Install At Selected" to install the currently opened configuration into a drive.
- The installation progress is displayed on the Status Bar and noted in the Scratch Pad.

## Configurations

### Autotune

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- Install a configuration with appropriate motor parameters (see above).
- See manual for drive for specific details and safety warnings. Trigger Autotune in the drive (via the MMI) and wait for it to be completed.
- With configuration open, select ‘Command→Extract Drive Parameters’; this will extract tuning (and other) parameters from the drive and set them in the configuration. This will ensure that your configuration reflects exactly the state of the drive.
- Save the configuration to save the extracted drive parameters. These parameters will now be available if you need to replace the drive in the future and do a ‘Full Install’ on the new drive.

## Updating a Configuration

There are several ways to update a configuration. One is to directly modify it as described in a previous section.

Another is to extract drive parameters from a connected drive into an open configuration using the ‘Command → Extract Drive Parameters’ command. This command extracts all of the predefined drive parameters from any of the supported drives and does not require that the open configuration is the one installed in the drive. It will not, however, extract user defined application parameters from 890 configurations.

For 890 drives, it is also possible to extract the configuration from the connected drive using the ‘File→Extract’ command. The extracted configuration is updated with the current value of all application and drive parameters. This extracted configuration can then be saved to make a copy of the current state of the drive that can be used for installing into a new drive if the current drive fails.

## Chapter 3

# User Interface

How to control your DSE Lite environment.

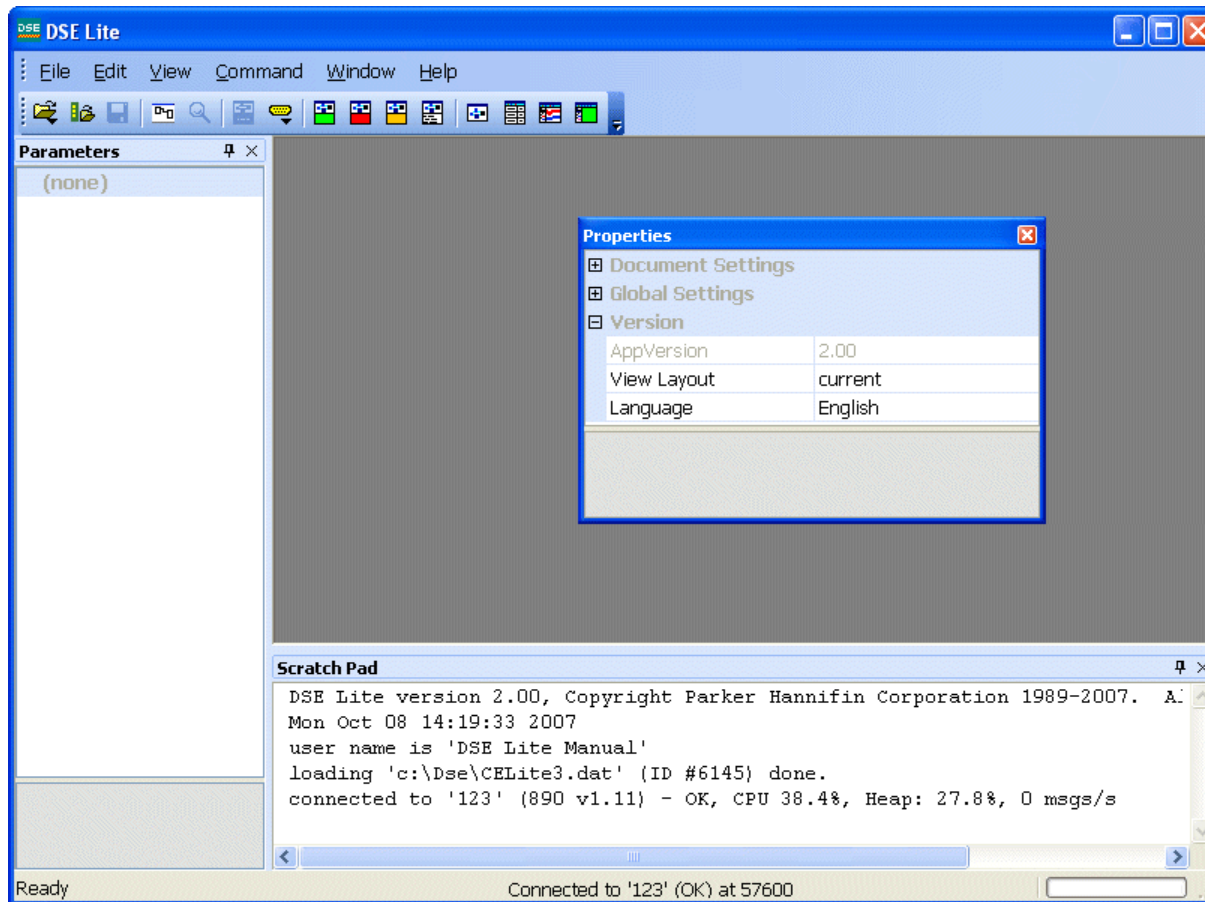


- ◆ [Docking Windows](#)
- ◆ [Tool Bars](#)
- ◆ [Configuration Windows](#)
- ◆ [Properties](#)

## Docking Windows

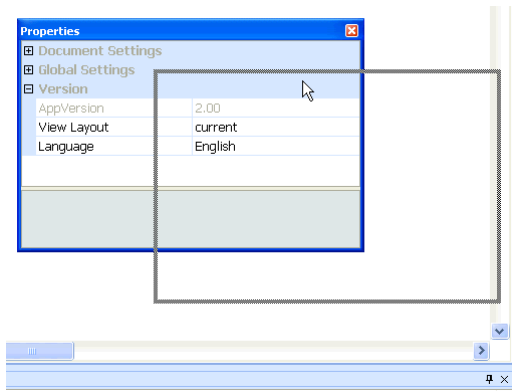
The DSE Lite framework uses several docking windows to allow the user to interface with the program. Docking windows are windows that can either ‘float’ anywhere in the application window or be ‘docked’ to one of the sides of the application window. When you first install and launch DSE Lite, it starts with three visible docking windows:

3



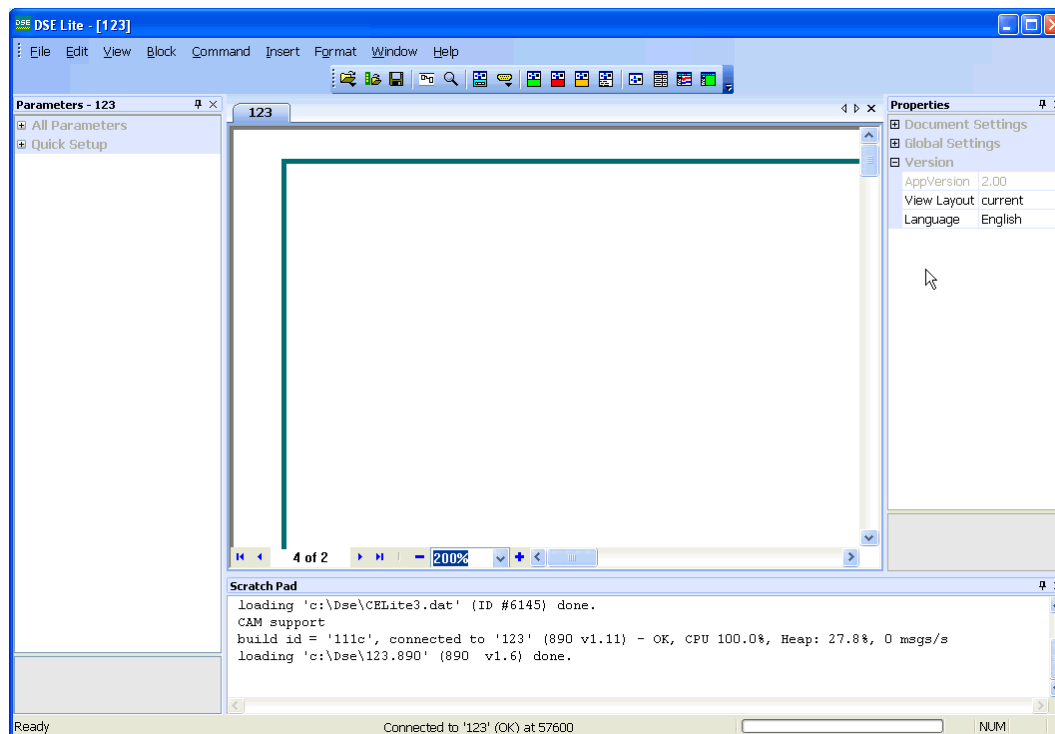
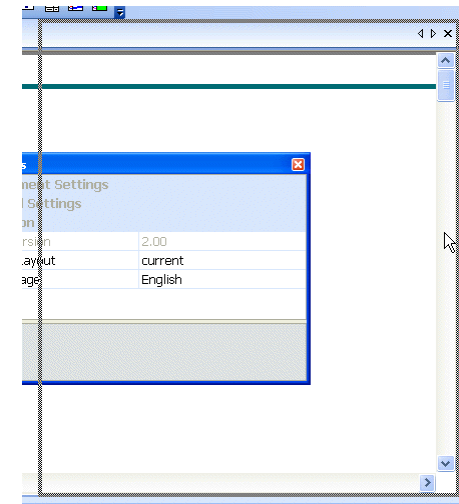
One is the ‘Parameters’ windows which is ‘docked’ to the left side of the main window. Another is the ‘Scratch Pad’ which is ‘docked’ to the bottom of the main window. Finally, the ‘Properties’ window is ‘floating’ near the center of the main window. We’ll talk about what each of these and other docking windows do later, but for now we’re going to discuss how to view, hide, move, dock and undock these windows.

To dock a ‘floating’ window, click on the title bar of the window and drag, with the mouse button down, the gray outline of the window to the side of the main window where you want to dock it.



You will notice that when the mouse gets near the edge of the main window, an outline of how the window will be docked appears.

When the 'docked' outline is showing the new location you want for the window, let up on the mouse to 'dock' the window. In our example, it would look like the image below:



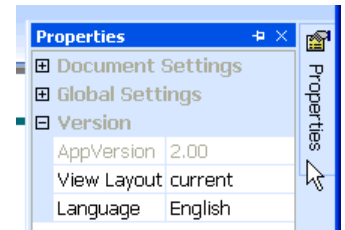
The width and height of the window normally changes when it was docked. If you want to change this, move the mouse to the edge of the window nearest the center of the main window (it will change shape to indicate that you are on the edge) and drag it to a new size.

Docked windows can also be collapsed into the side of the main window. You will notice that the docked window has a small thumb tack in the title bar next to the close button. If you click on this thumb tack, the window will collapse into the side of the main window,

## User Interface

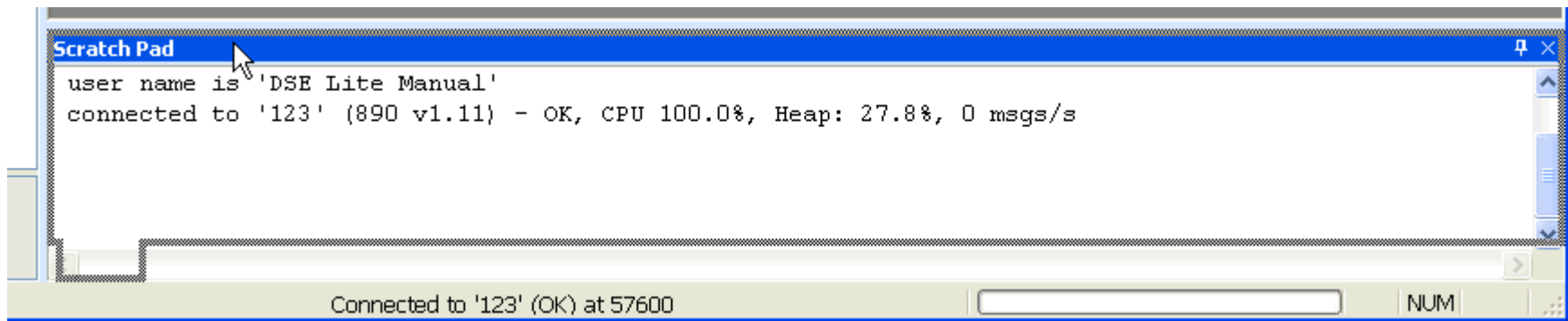


creating a tab bar with just the title of the window. If you want to see the collapsed window again, click on the tab and the window will 'expand' again. When the collapsed window is no longer being used, it will once again collapse into the side of the main window. If you don't want this to happen, you can again click on the thumb tack to lock the window in the visible location.

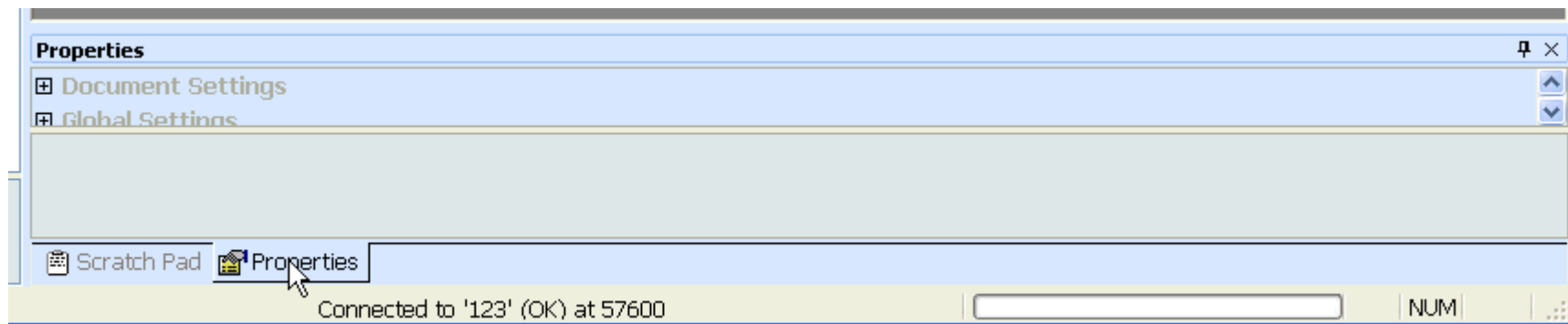


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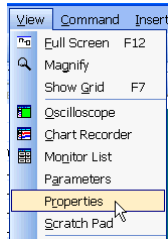
When there is already a window docked on the side of the main window, it is also possible to dock more windows there as well. There are three ways this can be done. One is to dock one window above (or below) the already docked window. Another is to dock one windows to the side of the already docked window. By moving the mouse around the frame of the already docked window, you can see where the docking will take place. Finally, you can dock the new window on top of the already docked window. In this case the docking outline is shown with a tab:



When windows are docked in this way, you click on the tab of the window you want to see to make that window visible.





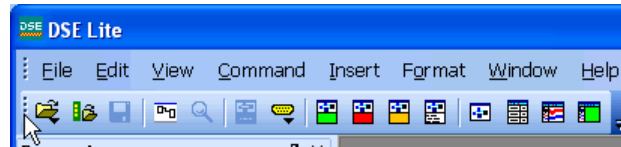


If you want to separate a tabbed window, you have to first close each window in the tabbed group. Then select the window you want to in the View menu to make it visible again. When it is made visible again, it comes back in the same place that it was docked before being closed. You then need to move it (un-dock it) to ‘remove’ it from the tabbed grouping. Then select the other windows in the tabbed group to make them visible again.

## Tool Bars

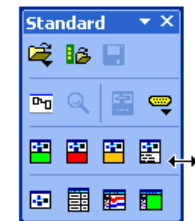
Tool bars are a graphical means to select DSE Lite commands. In most cases these are the same commands that can be selected in the Main menu. The advantage of tool bars is that in most cases you can select the command by just clicking on it without needing to navigate a menu structure.

DSE Lite supports three pre-defined tool bars in addition to the main Menu which is a special case of a tool bar that cannot be closed or modified. The three pre-defined tool bars are: Standard, Drawing and Text and if they are not visible, they can be selected via the ‘View→Toolbars’ submenu. The Standard tool bar is visible by default and contains many commonly used commands. The Drawing tool bar contains most of the drawing commands that are found in the ‘Insert’ and ‘Format’ menus. The Text tool bar contains most of the text commands that are found in the ‘Insert’ and ‘Format’ menus.

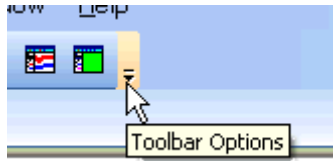


## Docking

In many ways, tool bars are very similar to docking windows described in the previous section. It is possible to dock them to the main window sides or have them free ‘floating’ as tool windows. By default, the main Menu tool bar is docked to the top of the main window and the Standard tool bar is docked below it. If you want to move a tool bar, just click on the left edge (a series of dots) and drag the tool bar where you want it. If you drag the tool bar away from the main window edge, it will change into a free floating tool window. You can also drag the edge of a tool window to change its shape.

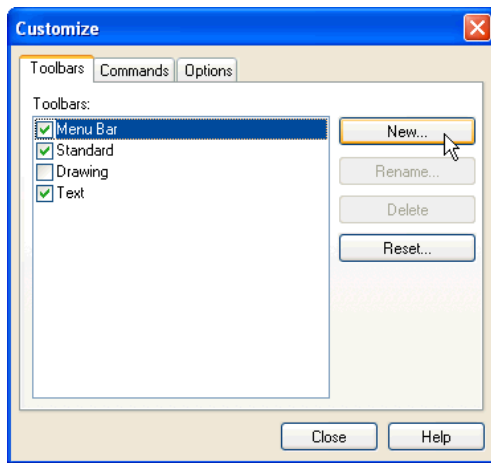
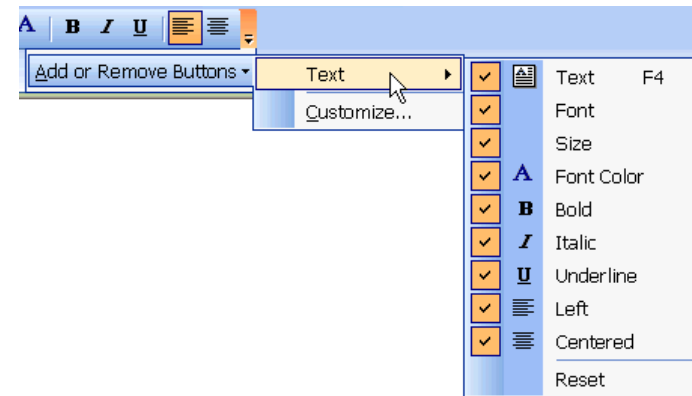


## Customizing

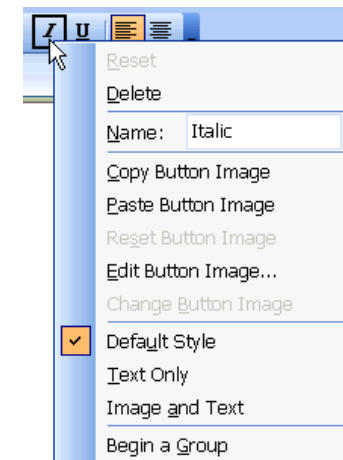


It is possible to customize the pre-defined tool bars or create your own custom tool bars. To do this, click on the downward pointing triangle in the tool bar (labeled ‘Toolbar options’). When you click on

this, you will be presented with an option to add or remove items from an existing tool bar or to create a new custom tool bar.



Clicking on customize will bring up the tool bar dialog. This dialog allows you to modify an existing tool bar or create a custom new tool bar. When the dialog is active, the tool bars on the screen are in edit mode. Click on a tool bar item to select it. Then right click the item to get a menu of editing options for that item. You can add new items to a tool bar by clicking on the ‘Commands’ tab in the customization dialog and then dragging a command from the list to where you want it in the tool bar.









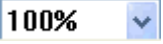

## Configuration Windows

When you open or create a configuration, DSE Lite creates a configuration window to display the configuration. More than one configuration may be open at once. Each configuration gets its own window. By default, these are overlapping windows that can be re-sized. If you would prefer to always have the active configuration window maximized (fill all the available space in the main window not used by docked windows and tool bars – main view area), you can set the global property (see Properties section below) ‘Frame Mode’ to ‘Maximize’. In that mode, all

of the open configuration windows will be maximized by default and can be selected by the tab with the configuration name in it at the top of the main view area.

At the bottom, left of each windows there is a built in tool bar: 

This tool bar allows you to quickly navigate through the sheets of the configuration and to easily change the viewing size. The items have the following meaning:

-  Go to first sheet.
-  Go to previous sheet
-  Displays current sheet and total sheet, click on to enter sheet to go to.
-  Go to next sheet.
-  Go to last sheet.
-  Decrease magnification.
-  Display current magnification and allow user to select new magnification.
-  Increase magnification.

## Properties

There are many user settable properties that affect the user interface. One of them, ‘Frame Mode’, we saw in the previous section. Open the Properties window, View→Properties, to view or change these properties. Below is a description of all the current properties by category.

## Document Settings

- Snap to Grid                      When ‘True’, objects being moved are aligned to user defined grid.
- Grid Size                              Specifies the grid size used for ‘Snap to Grid’ above. Units are 1/720 inch (360 equals 1/2 inch grid) and should be in increments of 36 to assure proper alignment of connections.

## User Interface

### Blocks

Block Selected Color	Color used for a selected function block.
Advanced Performance Color	Outline color for a Advanced Performance function block.
High Performance Color	Outline color for a High Performance function block.

3

### Connections

New Unconnected Color	Color used for drawing a new connection that is not matched to an input.
New Connected Color	Color used for drawing a new connection that is matched with a valid input.
Selected Color	Color for a selected connection.
Feedback Color	Color for a feedback connection.
Type Mismatch Warning	DSE checks to make sure that the output and input of a connection are of compatible types. If they are not and Type Mismatch Warning is enabled, then a warning dialog is displayed.

### Parameters

Accessed Color	In online mode, color that indicates that a parameter has been accessed (read).
Modified Color	Color used to indicated that a parameter has been modified.
Frame Dependent Color	Color used to indicate that a parameter is frame dependent (will on be set during a full install).

## Global Settings

User Name	User name. Used for displaying information and log files.
Database Path	Path of main database.
Acrobat.exe	Optional full path for Acrobat or Acrobat Reader. Used to launch application for displaying help files.

Serial Comms Port	Communication port to use for connecting to drive.
Baud Rate	Baud rate to use for connecting to drive.
Drive Param. View Level	View level for displaying build in drive parameters.
Scratch Pad Font	Font used for Scratch Pad docking window.
Monitor List Font	Font used for Monitor List window.
Blink Time	Length of time for ‘Command→Identify’ to ‘blink’ selected drive.
Frame Mode	Determines whether new configuration windows are normal size or maximized.
Configuration Mode	Option determines whether a parameter docking window is included with configuration windows.

## Modem

For modem setup and use refer to modem application note under the DSE help menu.

Attention	Escape sequence to get modem’s attention while online.
Initialization	Initialization string for selected modem.
Dialing Mode	Dialing commands for modem (also need to add phone number).
‘Yes’ Response	Text response for yes from modem.
‘No’ Response	Text response for no from modem.
‘Connect’ Response	Text response for modem connection.

## Supported Drive Types

Drive Type 1 – 10 List of drive types supported in New and Open menus. By default all drive types are supported and will show up in the list. If any of the drive types are removed from the list they will not show up in the list, but can be added back at any time.



## User Interface

### Default Forms

Form 1 – 3

Form(s) with the names entered will automatically be inserted into a new configuration when it is created. The form(s) must be in the working directory (c:\ssd\_link\tools\win3) for DSE Lite, have the same name as the entries in the list and have the extension '.xfm'. See [Chapter 5, Editing Forms](#).

3

### Configuration Description Fields

Field 1 – 6

Text names to be used for fields 1 through 6 in the Configuration Information Dialog, 'Edit→Config. Info'. This makes the dialog easier to use by having a text description instead of just a field number (say 'Configuration Name' instead of 'Field 1').

### Project Description Fields

Field 1 – 9

Text names to be used for fields 1 through 9 in the Project Information Dialog, 'Edit→Project Info'. This makes the dialog easier to use by having a text description instead of just a field number (say 'Project Name' instead of 'Field 1').

## Version

AppVersion

Version number of this copy of DSE Lite.

View Layout

Choosing 'default' will cause layout to be reset to the default setting the next time DSE Lite starts.

Language

Language in which most text in program is displayed.

## Chapter 4

# Online Access

How to access and change parameters online.



◆ [The Online Configuration](#)

# The ONLINE Configuration

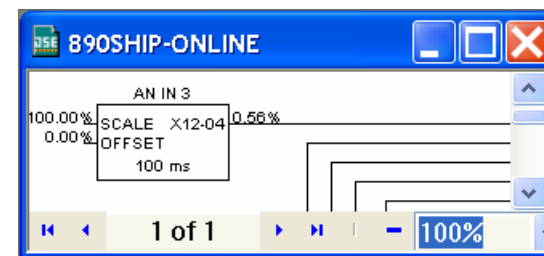
*Note You cannot remove or add blocks and links in ONLINE mode.*

To go ONLINE, refer to [Chapter 2](#).

The ONLINE configuration window has "ONLINE" displayed in the title, but otherwise the window looks the same as the OFFLINE version, but it does have some extra features.

Move your cursor over the "tick" of the parameter in the function box and the cursor will change to an "X". Now you can:

- Click the input or output of a block to display the actual value from the drive in the Scratchpad.
- SHIFT-click the output of a block to add that parameter to the Monitor List.
- CTRL-click the input of a block to change the parameter value. This will bring up a dialog prompting for the value to be set.
- Right-click a parameter to display a menu of actions applying to the parameter (right-clicking a parameter in the Parameters View has the same effect):

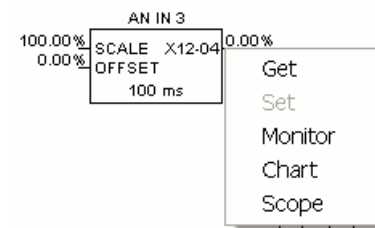


**Get**            Display the parameter value in the Scratchpad.

**Monitor**      Add this parameter to the Monitor List

**Chart**         Add this parameter to the Chart Recorder

**Scope**        Add this parameter to the Oscilloscope.



Note that in all cases the Scratchpad will display the latest value.









## The Monitor List

The Monitor List displays all the drive parameters that you are monitoring and continuously gets updated values from the drive.

## The Monitor List Toolbar

The toolbar contains several buttons:

-  Open saved Monitor List configuration from a file.
-  Save Monitor List configuration to a file.
-  Toggle the Monitor List to be on top.
-  Start recording to a file.
-  Stop recording.
-  Change the font of the items in the monitor list.



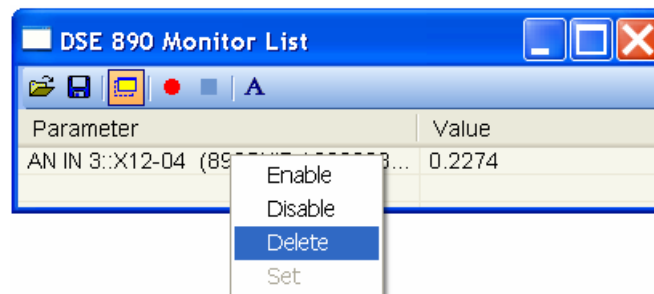
Parameter	Value
AN IN 3::X12-04 (890SHIP / 000008...	0.1755

## Online Access

### Adding Parameters to the Monitor List

You can add a parameter to the Monitor List either from an ONLINE Configuration or from the ONLINE Parameter View, e.g. adding the analog input 3 "AN IN 3" results in the following Monitor List. Parameters from several drive nodes (or modules) in a drive system can be monitored in the same list.

4



You can easily remove a parameter from the Monitor List by a right click and selecting "Delete".

"Set", available for this parameter, brings up a dialog to change the value. Enable and Disable allow this parameter to be enabled or disabled from being updated in the Monitor List.

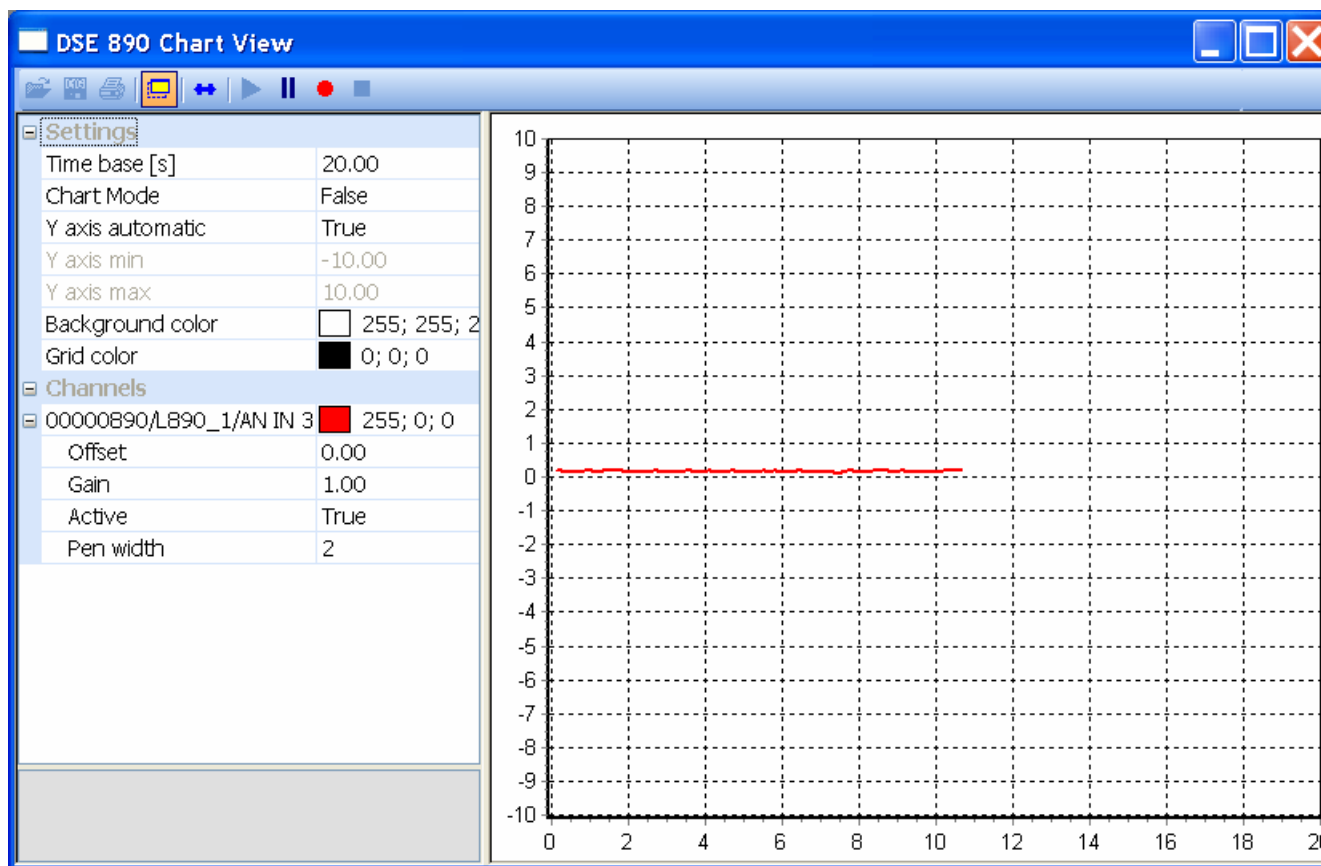
### Monitor List Information

"Parameter" displays the configuration name/instance/parameter name

"Value" displays the current value, constantly updated.

# The Chart Recorder










The Chart Recorder displays the values of the selected parameter(s) and continuously gets updated values from the drive.



Here is a typical chart. It shows one parameter, analog input 3 "AN IN 3".

# The Chart Recorder Toolbar

The toolbar contains several buttons:

-  Open saved oscilloscope data or configuration from a file.
-  Save captured oscilloscope data and configuration to a file.
-  Print oscilloscope plot.
-  Toggle the Chart Recorder to be on top.
-  Display/Hide the property grid.
-  Restart data acquisition.
-  Pause data acquisition.
-  Start recording to a file.
-  Stop recording.

4

## Adding Parameters to the Chart Recorder

You can add a parameter to the chart recorder either from the ONLINE Configuration or from the ONLINE Parameter View.

Parameters from several drive nodes (or modules) in a drive system can be charted on the same chart.

## Setting-up the Chart Recorder

The Chart Recorder displays menus for Settings and Channels.

## Settings

"Settings" displays the settings for how the chart recorder displays the information.

Settings	
Time base [s]	20.00
Chart Mode	False
Y axis automatic	True
Y axis min	-10.00
Y axis max	10.00
Background color	<input type="checkbox"/> 255; 255; 255
Grid color	<input checked="" type="checkbox"/> 0; 0; 0

- Time base [s] : This is the time period shown by the chart (x axis)
- Chart Mode : When False the chart redraws at the end of the time range; when True the chart scrolls continuously
- Y axis automatic : When False the Y axis is set by "Y axis min" and "Y axis max"; when True the Y axis is set automatically
- Y axis min : Sets the minimum Y axis for the chart
- Y axis max : Sets the maximum Y axis for the chart
- Background color : Background color of the chart
- Grid color : Foreground color of the chart

# Online Access

## Channels

"Channels" lists the current parameters being charted. Every parameter is listed by parameter name. You can also set a display color for each parameter.

Channels	
AN IN 3/AN IN 3::0.0C	255; 0; 0
Offset	0.00
Gain	1.00
Active	True
Pen width	1

4

- Offset : The Y axis offset
- Gain : The Y axis gain (amplitude, multiplier)
- Active : False suspends the charting for this line, True activates the charting
- Pen width : Sets the line thickness of the charted line (note that the order of parameters in the list determines the drawn order on the screen - the last parameter to be added is uppermost)

You can delete a parameter from the chart by right-clicking on its name and selecting Delete.

Channels	
AN IN 3/AN IN 3::0.0C	255; 0; 0
Offset	
Gain	
Active	True
Pen width	1

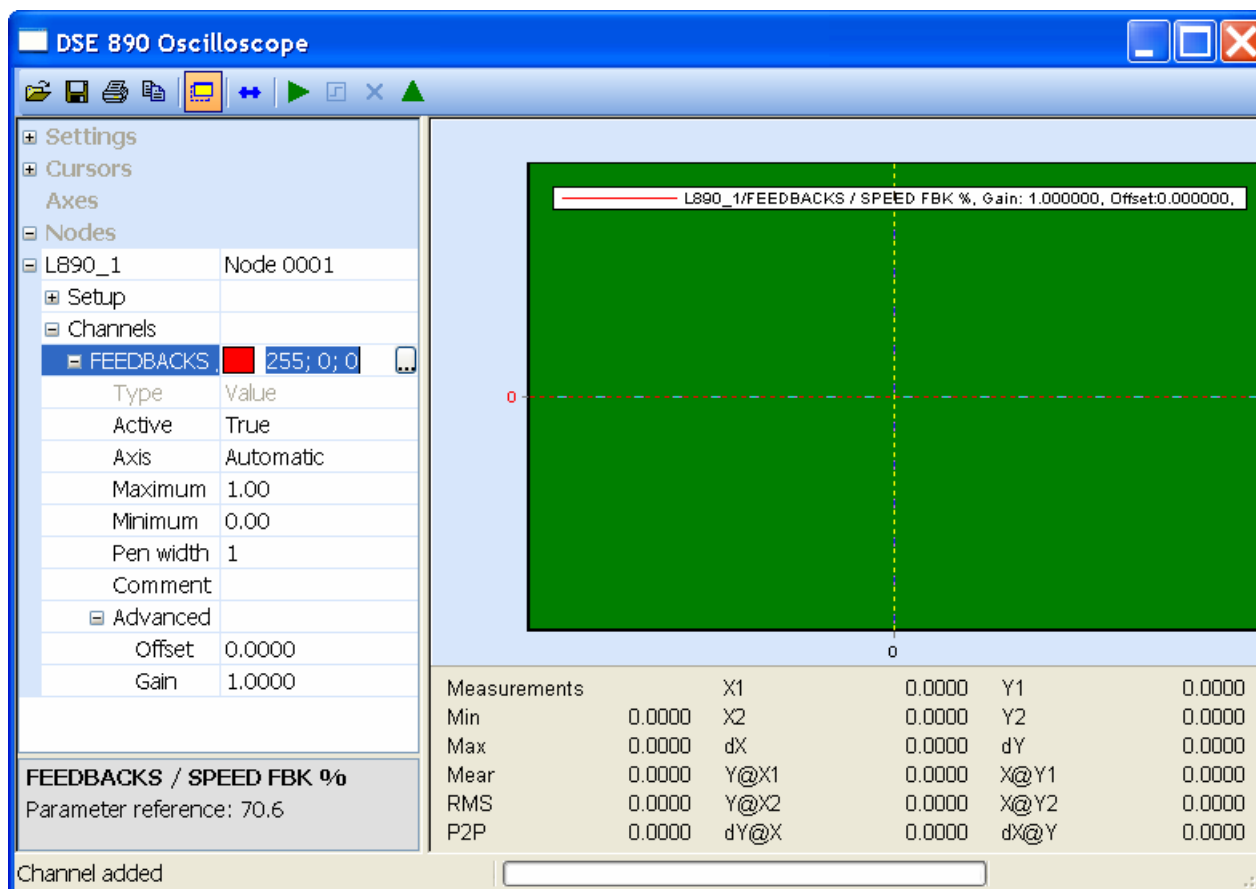
# The Oscilloscope

The Oscilloscope will set-up a real-time data acquisition facility inside the drive firmware, wait for data to be ready, retrieve the data and display it. This is a tool to capture and display fast signals from external or internal triggers.

Shown opposite is a typical chart, "FEEDBACKS/SPEED FBK %" with parameter reference "70.6".











All parameter values are normalized into 10 divisions in the main display area. Which is displayed in milliseconds.

"Measurement", at the bottom of the screen, displays measured values such as minimum, maximum and RMS. In addition this is the display area for the cursors.



# The Oscilloscope Toolbar

The toolbar contains several buttons:

-  Open saved oscilloscope data or configuration from a file.
-  Save captured oscilloscope data and configuration to a file.
-  Print oscilloscope plot.
-  Copy oscilloscope plot to clipboard
-  Toggle the Oscilloscope to be on top.
-  Display/Hide the property grid.
-  Download the oscilloscope set-up to the drive.
-  Manually hold the data if no trigger has occurred.
-  Stop polling for the status.
-  Upload the data once available for upload.

## Adding Parameters to the Oscilloscope

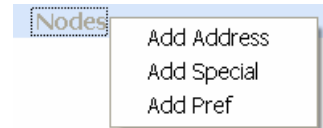
You can add a parameter to the Oscilloscope either from an ONLINE configuration or from the ONLINE Parameter View, e.g. adding the speed feedback in rpm from MOTOR CONTROL / FEEDBACKS / SPEED FBK RPM result in the following oscilloscope view.

Note that only firmware parameters can be scoped.



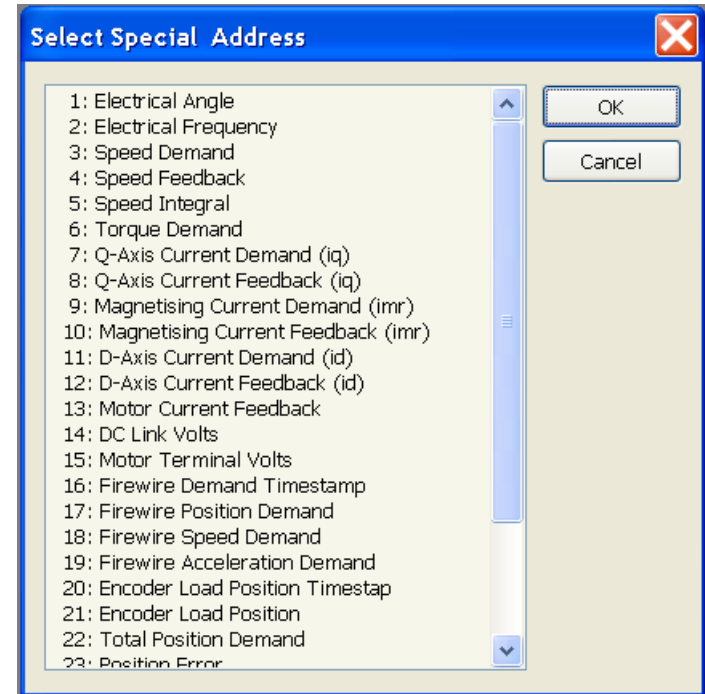
Another way to add parameters to the oscilloscope is to right-click on "Nodes", which will bring up a menu with three choices:

- Add Address**      Add a physical address in the firmware to scope
- Add Special**      Add a special parameter from a pick list
- Add Pref**          Add a parameter reference number



In all three cases you will be prompted to enter the module node number with a dialog.

- In the case of *Add Address*, you will be prompted to enter a memory address as a hexadecimal number, e.g. 0x0010.
- In the case of *Add Special*, a pick list will appear, show opposite. This pick list will depend on the type of configuration, e.g. Permanent Magnet Motor configuration will be different from a Volts/Hertz one.
- In the case of *Add Pref*, a dialog will prompt for a parameter reference number, which expects the format: BLOCKNUMBER.PARAMETERNUMBER





## Setting-up the Oscilloscope

The Oscilloscope displays menus for Settings, Cursors and Nodes. The oscilloscope facility will do nothing until it is set-up.

4

### Settings

"Settings" displays the settings for how the oscilloscope displays the information.

Settings	
Description	
Show Legend	True
Time Scale	Milliseconds
Cyclic Mode	False
Background color	 0; 128; 0
Grid color	 255; 255; 0

- Description : Description printed in the legend
- Show Legend : Show legend in plot
- Time Scale : Time scale on plot x axis
- Cyclic Mode : Carry out data acquisition in a cyclic manner
- Background color : Background color of the scope
- Grid color : Grid color of the scope

### Cursors

"Cursors" controls the cursors for X and Y axis.

Cursors	
Active	Both
Channel	L890_1/REFERENCE / F

- Active : Select None, Horizontal, Vertical or both cursors
- Channel : Select the channel the cursor should apply to

## Axes

"Axes" are named axis for the plot that can be added by the user.

Each plotted channel comes with its own axis. In order to group several channels into one axis, a named axis can be added and its minimum and maximum values can be specified.

- Maximum : Sets maximum value in the data display area
- Minimum : Sets minimum value in the data display area

[-] Axes	
[-] Named Axis	0; 0; 255
Maximum	1.00
Minimum	0.00

## Nodes

"Nodes" lists in hierarchical order the parameters to scope for each node.

Once a parameter has been added to the scope, a node will be added automatically. The node name will be the name of the corresponding configuration.

Each node entry will then contain a "Setup" item and a "Channels" item.

[-] Nodes	
[-] LB90_1	
[-] Setup	
[-] Channels	

# Online Access

## Setup

"Setup" contains all the information to set up the data acquisition facility in the drive.

Setup	
Trace Mode	Trigger
Trigger Direction	No Trigger
Trigger Source	FEEDBACKS / SPEED FBK
Trigger Value	0.0000
Trigger Location	0
Sample Number	100
Sample Rate	1
Sample Period	ms

4

Trace* Mode	Hold Trace on Trigger, Start, Stop or Full
Trigger Direction	Falling, Rising or no trigger
Trigger Source	Pull down list of available parameters
Trigger Value	Numerical value of parameter to trigger on
Trigger is Real Value	If true the raw data are scaled.
Trigger Location	Location in % of the entire data sample where the trigger is expected.
Sample Number	Number of samples to be acquired
Sample Rate	Sample rate in period defined next
Sample Period	Sample period, either milliseconds, or on the fastest task in the firmware, the pattern generator.

\* The term "trace" is used as a synonym for "data acquisition".

## Channels

"Channels" controls channel configuration and contains a "Channel" entry per parameter using the name of the parameter.

This entry also sets a color for the parameter.

Channels	
FEEDBACKS / SPEE	255; 0; 0
Type	Value
Active	True
Axis	Automatic
Maximum	1.00
Minimum	0.00
Pen width	1
Comment	
Advanced	
Offset	0.0000
Gain	1.0000

- Type : Type can be either value, i.e. a real data type, or an integer.
- Active : False suspends the display and setup for this channel  
True activates the display and setup.
- Axis : The Axis can be assigned automatically, manually with minimum and maximum specified, or assigned to a named axis.
- Minimum : Sets minimum value in the data display area
- Maximum : Sets maximum value in the data display area
- Pen width : Sets the line thickness of the charted.
- Comment : The comment added here will appear in the printed version
- Offset : Sets the offset of the channel
- Gain : Sets the gain of the channel

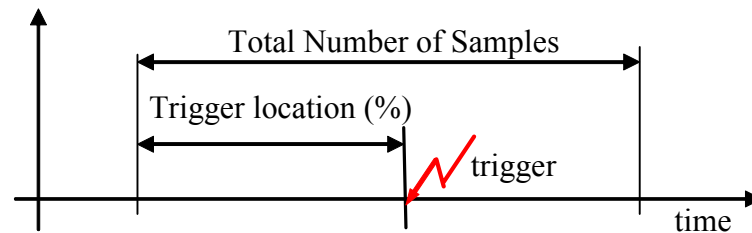
A parameter (channel) can easily be removed by a right click on the parameter and selecting "Delete".




## Using the Oscilloscope

4

1. Set the Trace Mode.
2. Set-up the trigger conditions: Trigger Direction, Source, Value, and Type.
3. Set the Trigger Delay (the percentage of total number of samples occurring before the trigger).
4. Set the Sample Number (the total number of samples to be captured)



5.  Download the oscilloscope set-up to the drive. This will begin the data acquisition.
6. When a trigger occurs, data acquisition continues until the total number of samples are acquired. At this point, the trace facility will go into a HELD status.
7. DSE 890 will upload and display the captured data.

# Chapter 5

# Forms

How to create, edit, save, insert and delete forms.



- ◆ [Introduction](#)
- ◆ [Creating a Form](#)
- ◆ [Inserting a Predefined Form](#)
- ◆ [Editing a Form](#)
- ◆ [Saving a Form](#)
- ◆ [Deleting a Form](#)

## Introduction

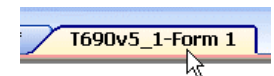
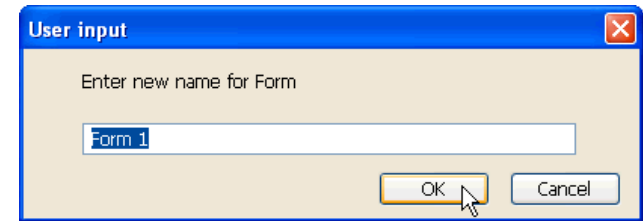
Forms are a means by which project, configuration and user information can be displayed on every sheet of a configuration or macro. This is mainly intended for printed documentation purposes, but is also useful for online reference while a configuration is being edited. Special form commands can also be used for creating custom index sheets for projects as well.

There are two types of forms: internal and predefined. Internal forms are created as part of a configuration. Predefined forms are created in advanced and stored in DSE's working folder as XML files with the extension '.xfm'.

5

## Creating a Form

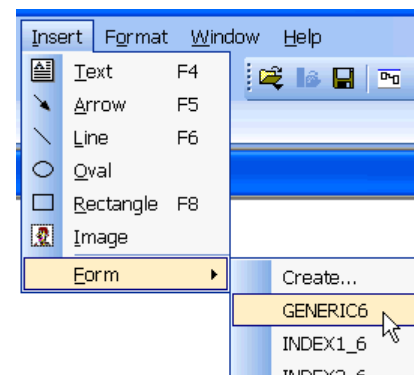
To create an internal form for a configuration, just select 'Create...' from the 'Insert→Form' submenu. You will be asked for a name for the internal form. You can name it whatever you like, but it is a good idea to choose a name that does not match the name of any other form. After you pick a name, a new form editing view will be created in which you can edit the contents of your form (see [Editing a Form](#) below, for details). When you are done editing the contents, close the form editing view and the newly created form will be displayed in your configuration or macro (as long as 'View→Forms' is checked).





## Inserting a Predefined Form

When DSE Lite starts, it searches the working folder for any files with the extension ‘.xfm’. The names of all of these files, without the ‘.xfm’, are added to the ‘Insert→Form’ submenu. To insert a predefined form into a configuration, just select it from the ‘Insert→Form’ submenu. The selected form will be inserted into the configuration (or macro) and displayed on the screen (as long as ‘View→Forms’ is checked).



## Editing a Form



To edit a form in a configuration or macro, select the name of the form in the ‘Edit→Edit Form’ submenu. A form editing view will be created in which you can edit the contents of the form.

**Note** *All Forms in the configuration are also displayed in the form window as well. This is help laying out forms that work together, but it can be very confusing. In most cases it is a good idea to turn off forms being displayed (View →Forms) while editing a form.*

The Form Editing window that is created looks very similar to a configuration window though the window’s tab will have both the configuration name and form name in it. Use the same text and graphic commands, described in [Chapter 2](#), that are used in a configuration window to create your form.

DSE Lite allows you to incorporate user defined configuration and project information into a form as well. This is done via escape codes in text added to the form. When the text is displayed in the configuration, the field specified by the escape code is displayed in place of the escape code. All escape codes begin with the ‘^’ character. Below is a table of the supported codes and their meaning:

- ^A network node address.
- ^C configuration’s name.
- ^D configuration’s modification date.
- ^F# field ‘#’ from configuration’s description ([Chapter 3, Document Settings](#)).

## Forms

- ^G# field ‘#’ from configuration’s project description ([Chapter 3, Document Settings](#)).
- ^I configuration’s project directory name.
- ^M configuration’s modification number.
- ^N total number of sheets in configuration.
- ^P configuration’s project name.
- ^R configuration’s revision number.
- ^S current configuration sheet number.

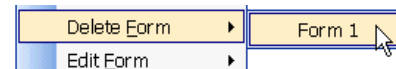
5

Form windows start at sheet zero. Sheet zero is a special sheet for forms. Any content that is added to sheet zero will be display on all sheets of the configuration in which the form is used. Thus, for many forms, sheet zero will be the only sheet that has any content. If you do place something on another sheet, those items will only appear on that same sheet of the configuration in which the form is used.

## Saving a Form

When you have a form open for editing, you can save it as file that can then be used as a pre-defined form. Make sure the form window is active and select ‘File→Save Copy As’ to save the form to a file. Forms being saved for the first time (name not in pick list) will not be available until the next time you start DSE Lite.

## Deleting a Form



To delete a form in a configuration or macro, select the name of the form in the ‘Edit→Delete Form’ submenu. The form will be deleted from the configuration or macro.

## Chapter 6

# Toolbars & Menus

A listing of all DSE Lite toolbars and menus.

6



- ◆ [Toolbars](#)
- ◆ [File Menu](#)
- ◆ [Edit Menu](#)
- ◆ [View Menu](#)
- ◆ [Block Menu](#)
- ◆ [Command Menu](#)
- ◆ [Insert Menu](#)
- ◆ [Format Menu](#)
- ◆ [Window Menu](#)
- ◆ [Help](#)

# Toolbars
















There are three predefined toolbars: "Standard", "Drawing" and "Text". DSE Lite uses the standard windows toolbar controls for operating, sizing, moving and customizing, for more information see [Chapter 3](#).

*Note Some menu and toolbar functions will be grayed out depending on the drive type or template used.*

## The "Standard" Toolbar

















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	<b>Open</b>	Opens a new configuration. Select "New" to open one of the supplied configurations, or select from your list of recently opened configurations.
	<b>Open Online</b>	Opens Online window (890)/toggles Online mode for selected drive.
	<b>Save</b>	Saves the configuration. An unsaved configuration displays an asterisk in the name.
	<b>Full Screen</b>	Displays the selected configuration full screen. Other open configurations are displayed as tabs. To return to normal view, select View→Full Screen, ESC or F12.
	<b>Magnify</b>	Left click to zoom in, right click to zoom out. Click the icon again to disable the feature.
	<b>Install at Address</b>	Installs the open configuration to the net address selected via Edit/Net Address.
	<b>Comm Port</b>	Select Comm. Port and Baud rate to use to connect to drive.
	<b>Restart Node</b>	Restarts the application in the selected drive (890 only).
	<b>Halt Node</b>	Halts the application in the selected drive (890 only)
	<b>Identify Node</b>	Identifies the selected drive by flashing the STATUS LED orange (890 only, flashing time set in <a href="#">Properties</a> ).
	<b>Get Info.</b>	Displays detailed information in the Scratch Pad about the selected drive.
	<b>Module List</b>	Refreshes and displays the Module Status.
	<b>Monitor List</b>	Displays the Monitor List window.
	<b>Chart Recorder</b>	Displays the Chart Recorder window.
	<b>Oscilloscope</b>	Displays the Oscilloscope window.

The standard toolbar is used for the basic operation of the DSE Lite program.

## The "Drawing" Toolbar










	<b>Arrow</b>	Draws an arrow between two points.
	<b>Line</b>	Draws a line between two points.
	<b>Oval</b>	Draws an oval or circle inside the box, once the mouse key is released.
	<b>Rectangle</b>	Draws a rectangle or square inside the box, once the mouse key is released.
	<b>Image</b>	Allows an image to be imported into the box, once the mouse key is released.
	<b>Line Width</b>	Changes the thickness of the lines for an arrow, line, oval or rectangle.
	<b>Line Pattern</b>	Changes the type of line drawn on the arrow and line commands.
	<b>Fill Pattern</b>	Fills the selected oval or rectangle with the pattern selected.
	<b>Line Color</b>	Changes the color of the lines in an arrow, line, oval or rectangle.
	<b>Fill Color</b>	Changes the color inside an oval or rectangle
	<b>Front</b>	Move the selected item on top
	<b>Back</b>	Move the selected item to the bottom
	<b>Group</b>	Group the selected items into one object.
	<b>Ungroup</b>	Ungroup the selected object into its individual items.

The drawing toolbar is used to document or enhance the configuration graphically. Most of the functions operate the same as any windows application.

## Toolbars & Menus

# The "Text" Toolbar

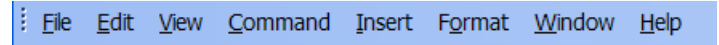


	<b>Text Box</b>	Insert a text box
	<b>Font Face</b>	Select the typeface for the selected text
	<b>Font Size</b>	Select the type size for the selected text
	<b>Font Color</b>	Select the color for the selected text
	<b>Bold</b>	Toggles the <b>Bold</b> attribute for selected text
	<b>Italic</b>	Toggles the <i>Italic</i> attribute for selected text
	<b>Underline</b>	Toggles the <u>Underline</u> attribute for selected text
	<b>Left Justified Text</b>	Align the selected text to the left margin
	<b>Centered Text</b>	Center the selected text

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The text toolbar is used to document or label information in the configuration. Once a text box is created it can be edited at anytime by clicking inside the box.

# Menus



<b><u>F</u>ile</b>		
<b><u>N</u>ew...</b>	Ctrl+N	Creates a new default configuration
<b>O</b> pen		Opens a configuration
<b>O</b> pen <b>O</b> nline	F9	Opens configuration of selected module in Module List in ONLINE mode
<b><u>E</u>xtract</b>		Extracts selected items and save to a file
<b><u>C</u>lose</b>		Closes the active window
<b>C</b> lose <b>A</b> ll		Closes all configurations
<b><u>D</u>iscard</b>		Removes the configuration without saving
<b><u>S</u>ave</b>	Ctrl+S	Saves the configuration
<b>S</b> ave <b>C</b> opy <b>A</b> s...		Saves the configuration using a new configuration name
<b>S</b> ave <b>A</b> ll		Saves all configurations
<b><u>P</u>rint <b>S</b>etup...</b>		Setup your printing requirements
<b>P</b> rint <b>P</b> review		Shows how the page will print
<b><u>P</u>rint...</b>	Ctrl+P	Prints the active window
<b><u>E</u>xit</b>		Closes this program

## Toolbars & Menus

<b><u>E</u>dit</b>		
<b>U</b> ndo	Ctrl+Z	Reverses your last action
<b>C</b> ut	Ctrl+X	Cuts the selected item from the window (to the clipboard)
<b>C</b> opy	Ctrl+C	Copies the selected item to the clipboard
<b>P</b> aste	Ctrl+V	Inserts the contents of the clipboard to the active window
<b>D</b> elete		Deletes the selected item
<b>I</b> mport		Import selection
<b>E</b> xport		Export selection
<b>S</b> elect <b>A</b> ll		Selects all items in the active window
<b>D</b> uplicate	Ctrl+D	Duplicates the selected item(s)
<b>P</b> aste Time		Pastes today's date and time in the Scratch Pad
<b>C</b> onfig. Info		Change title bar information for the configuration
<b>P</b> roject Info		Change Project information for the title bar.
<b>I</b> nsert Sheet		Insert a sheet into the configuration
<b>D</b> elete Sheet		Delete a sheet from the configuration
<b>D</b> elete <b>F</b> orm	▶	Delete a Form from list
<b>E</b> dit <b>F</b> orm	▶	Edit a Form from list
<b>F</b> ind <b>I</b> nput...	F10	Find block input by name
<b>F</b> ind <b>O</b> utput...	F11	Find block output by name
<b>P</b> erformance	▶	
	<b>Standard</b>	Displays standard blocks in the Block Menu (black)
	<b>Advanced</b>	Displays advanced blocks in the Block Menu (green)
	<b>High</b>	Displays high blocks in the Block Menu (red)
<b>M</b> otor Wizard		Launches the Motor selection wizard

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<u>V</u> iew		
<u>F</u> ull Screen	F12	Toggles full screen view by hiding toolbars etc.
<u>M</u> agnify		Magnifies the configuration
<u>S</u> how Grid	F7	Shows a drawing grid
<u>O</u> scilloscope		Toggles the Oscilloscope view
<u>C</u> hart <u>R</u> ecorder		Toggles the Chart Recorder view
<u>M</u> onitor List		Toggles the Monitor List view
<u>P</u> arameters		Selects the Parameter view
<u>P</u> roperties		Displays the Properties menu for DSE Lite
<u>S</u> cratchpad		Toggles the Scratch Pad view
<u>T</u> oolbars	▶	Display the toolbars
<u>S</u> tandard		Toggles the Standard toolbar
<u>D</u> rawing		Toggles the Drawing toolbar
<u>T</u> ext		Toggles the Text toolbar
<u>S</u> tatus Bar		Toggles the Status Bar
<u>F</u> orms		Toggles Forms

## Toolbars & Menus

<b><u>C</u>ommand</b>		
<b><u>I</u>nstall</b>	Ctrl+G	Installs the open configuration to the net address selected via Edit/Net Address.
<b><u>F</u>ull Install</b>		Installs the open configuration to the drive selected in the Module List.
<b><u>E</u>xtract Drive Parameters</b>		Extract the drive parameters into the open configuration.
<b><u>R</u>estart</b>		Restarts the application in the drive selected in the Module List
<b><u>H</u>alt</b>		Halts the application in the drive selected in the Module List
<b><u>I</u>dentify</b>		Identifies the drive selected in the Module List by changing the green flashing STATUS LED on the drive to orange (for approximately 10 flashes).
<b><u>G</u>et Info.</b>		Displays a set of information in the Scratch Pad about the drive selected in the Module list
<b><u>R</u>efresh Full</b>		Refreshes and displays the Module List with all drive information.
<b><u>R</u>efresh Partial</b>		Refreshes and displays the Module List with partial drive information.
<b><u>D</u>isconnect</b>		Go offline.
<b><u>U</u>ppgrade <u>F</u>irmware</b>		Upgrade drive firmware
<b><u>S</u>et <u>S</u>erial Number</b>		Set serial number in drive firmware
<b><u>S</u>et <u>P</u>erformance Level</b>		Set performance level for drive
<b><u>W</u>rite Password</b>		Set password into drive configuration to prevent changing.

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<b><u>I</u>nsert</b>	
<b><u>T</u>ext</b>	F4
<b><u>A</u>rrow</b>	F5
<b><u>L</u>ine</b>	F6
<b><u>O</u>val</b>	
<b><u>R</u>ectangle</b>	F8
<b><u>I</u>mage</b>	
<b><u>F</u>orm</b>	Create... ▶
	Form X

Inserts a text box

Inserts an arrow between two points

Inserts a line between two points

Inserts an oval or circle

Inserts a rectangle or square

Inserts a selected bitmap image file

Create a new Form in a new view

List of Forms to be inserted

## Toolbars & Menus

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<u>F</u> ormat		
<u>A</u> lign	Ctrl+A	Align drawing elements
Text <u>F</u> ont...		Changes the font attributes of selected text
Text <u>F</u> ace	▶	Select the typeface for selected text
Text <u>S</u> ize	▶	Select the type size for selected text
Text <u>C</u> olor		Select the color for selected text
<u>B</u> old		Toggles the <b>Bold</b> attribute for selected text
<u>I</u> talic		Toggles the <i>Italic</i> attribute for selected text
<u>U</u> nderline		Toggles the <u>Underline</u> attribute for selected text
<u>L</u> eft Justified		Aligns selected text to the left, ragged right
<u>C</u> enter Text		Centers selected text
Line <u>W</u> idth	▶	Select a line width
Line <u>P</u> attern	▶	Select a line pattern
<u>P</u> attern	▶	Select a pattern fill
<u>L</u> ine Color		Select the line color
<u>F</u> ill Color		Select the fill color
Move to <u>F</u> ront		Move selected object in front of other objects
Move to <u>B</u> ack		Move selected object behind other objects
<u>G</u> roup		Group selected objects together
<u>U</u> ngroup		Ungroup selected compound

<b><u>W</u>indow</b>	
<b><u>C</u>ascade</b>	Arranges windows as separate tabs
<b><u>T</u>ile</b>	Arranges split-screen windows
<b><u>A</u>rrange Icons</b>	Arrange icons at the bottom of the window
<b>File name ...</b>	Each open configuration will show up here for a quick open.

## Toolbars & Menus

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<b><u>H</u>elp</b>	
<b><u>C</u>ontents...</b>	Opens the DSE Lite manual to search the Contents
<b><u>I</u>ndex...</b>	Opens the DSE Lite manual to search the Index
<b><u>S</u>earch...</b>	Opens the DSE Lite manual to search for specific words
<b><u>A</u>bout DSE ...</b>	Displays the version number and other information about DSE 890
<b>Data Sheets</b>	Opens data sheets about DSE Lite
<b>DSE890 Manuals</b> ▶	Opens Manuals for DSE 890
<b>Release Notes</b> ▶	Software version release notes
<b>Product Bulletin</b> ▶	Reported Issues about software and drives
<b>Installing the USB Driver</b>	Information on how to load USB drivers
<b>DSE Lite</b> ▶	Specific Help for DSE Lite software
<b>DSE Support</b>	Email DSE support