



DSE 890 Lite Configuration Tool

Software Manual

HA471486U001 Issue 1

Compatible with Version 1.x Software



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**UK****SSD Drives Ltd**

New Courtwick Lane
Littlehampton
West Sussex BN17 7RZ
Tel: +44 (0)1903 737000
Fax: +44 (0)1903 737100

FRANCE**SSD Drives SAS**

15 Avenue de Norvège
Villebon sur Yvette
F-91953 Courtaboeuf Cedex
Paris
Tel: +33 - 1 69 18 51 51
Fax: +33 - 1 69 18 51 59

U.S.A.**SSD Drives Inc**

9225 Forsyth Park Drive
Charlotte
North Carolina 28273
Tel: +1 (704) 588 3246
Fax: +1 (704) 588 3249

CANADA**SSD Drives Inc**

4391 Harvester Road
Unit # 1
Burlington,
Ontario 7L 4X1
Tel: +1 (905) 333 7787
Fax: +1 (905) 632 0107

GERMANY**SSD Drives GmbH**

Von-Humboldt-Strasse 10
64646 Heppenheim
Tel: +49 (6252) 798200
Fax: +49 (6252) 798205

CHINA**SSD Drives Ltd**

Room 1603, Hua Teng Edifice
302# Jin Song San Qu
Chaoyang District,
Beijing 100021
P.R. China

ITALY**SSD Drives SPA**

Via Gran Sasso 9
20030 Lentate Sul Seveso
Milano
Tel: +39 (0362) 557308
Fax: +39 (0362) 557312

DENMARK**SSD Drives AB**

Enghavevej 11
DK-7100
Vejle
Tel: +45 (0)70 201311
Fax: +45 (0)70 201312

SWEDEN**SSD Drives AB**

Montörgaten 7, SE-302 60
Halmstad
Tel: +46 (0)35-17 73 00
Fax: +46 (0)35-10 84 07

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Chapter 1

General Information

About DSE 890 installation, connecting to a drive, and launching DSE890.



Introduction

DSE 890 (Drive System Explorer) is the software tool for the new 890 range of drives available from SSD Drives. It can parameterise, configure and program both the 890CD Common Bus Drive and the 890SD Standalone Drive.

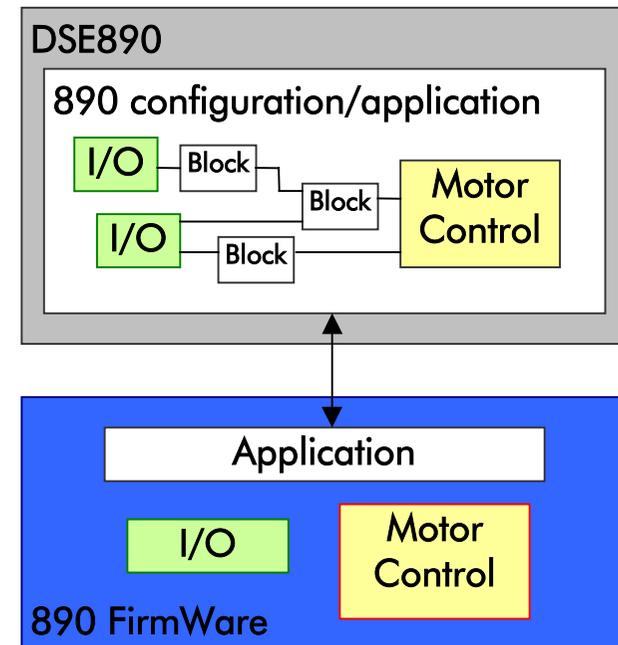
Using straightforward block programming you can very quickly become a confident user of DSE 890. Users of LINK and DSD (Drive System Designer), our two previous products, will appreciate DSE 890's similarity with DSD and familiar features.

However, DSE 890 is new. A major concept is that of having three environments: *Motor Control*, *Application*, and the *I/O Elements*:

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

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 890 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.

I/O Elements: this is an illusionary environment where all the drive's I/O is gathered. However, you do see this I/O bought out in the relevant blocks in the Application environment.



DSE 890 Installation

The 890 Drive is supplied with a CD containing the DSE 890 Configuration Tool. You can install DSE 890 on any PC with the following minimum specification:

- ◆ Windows XP, Home or Professional Edition
- ◆ 100Mb of free hard disk space

Insert the CD and execute the "setup.exe" file on the disk to install the latest LINK database and DSE 890. Follow the on-screen instructions.

Installing the USB driver

The DSE installation program "setup.exe" will copy the Texas USB driver files into the appropriate Windows directories. When connecting 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".

Note *Windows will actually prompt with "New Hardware Found" twice. This is the expected behaviour of Windows.*

The DSE 890 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.

Note *The wizard will actually prompt for files twice. Point it to this same directory both times. This is the expected behaviour of Windows.*

General Information

1

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.

Note **The wizard will actually prompt for files twice. Point it to this same directory both times. This is the expected behaviour of Windows.**

Updating the USB driver

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 MyComputer (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** and **umpf3410.i51** files in windows/system32/drivers directory.

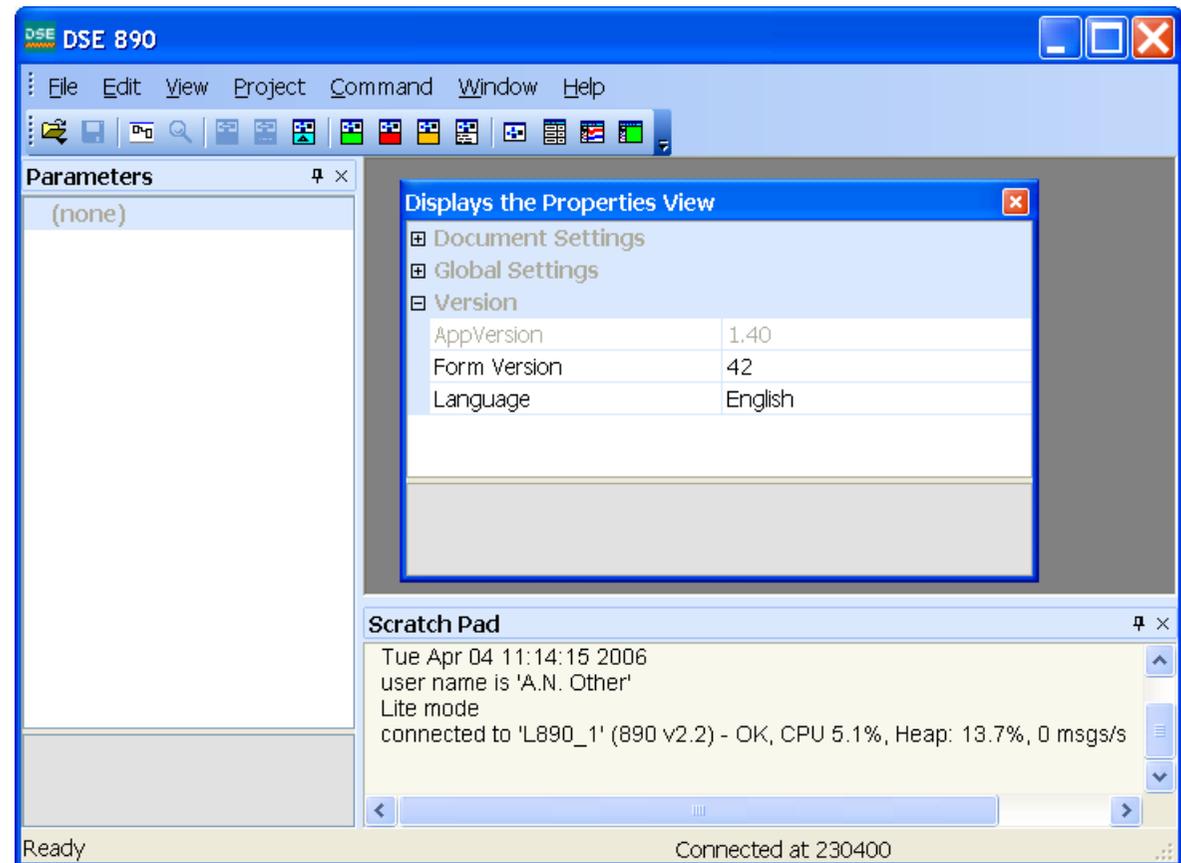
Connecting to the Drive

Connect to the 890 Drive using a USB cable: A to mini-B. Connect the PC's USB port to the drive's X10 terminal. For a drive system, you can connect via USB to any drive in the system to gain access to all drives. All drives in the system are linked via the FireWire Option.

For more information on the FireWire Option please refer to the FireWire Option Technical Manual.

Launching DSE 890

Start DSE 890 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 890". Click on this to launch DSE 890.





Chapter 2

First Configuration

How to create, modify and install a new configuration, as well as going online.



The image shows the DSE890 Drive System Explorer software interface. It features a 3D rendering of a large, blue industrial drive cabinet with multiple bays and control panels. The background is a bright, blue sky with clouds. The text 'DSE890' is prominently displayed in a large, blue, bold font, with 'DRIVE SYSTEM EXPLORER' written in a smaller, white font below it.

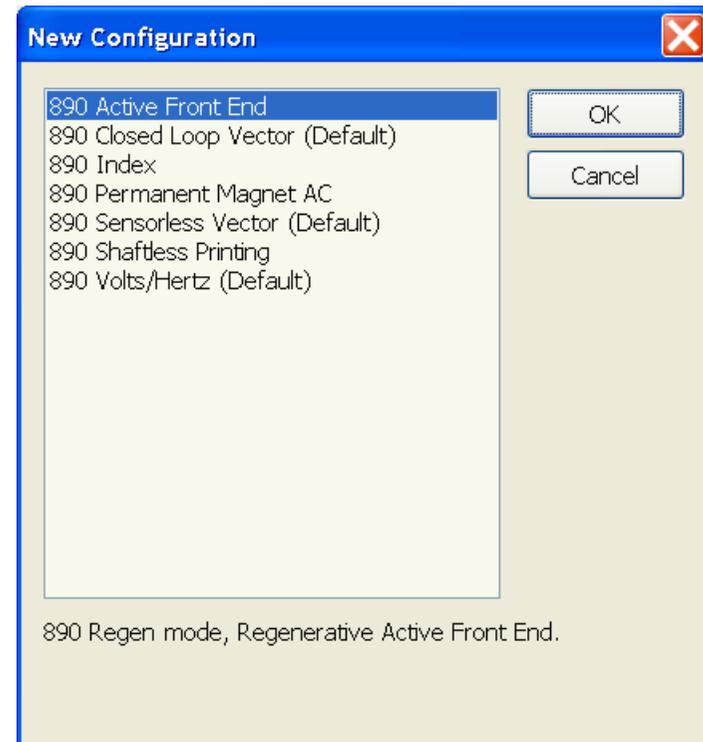
- ◆ [Creating a Configuration](#)
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- ◆ [Installing a Configuration](#)
- ◆ [Import/Export a Configuration](#)
- ◆ [The Online Configuration](#)

First Configuration

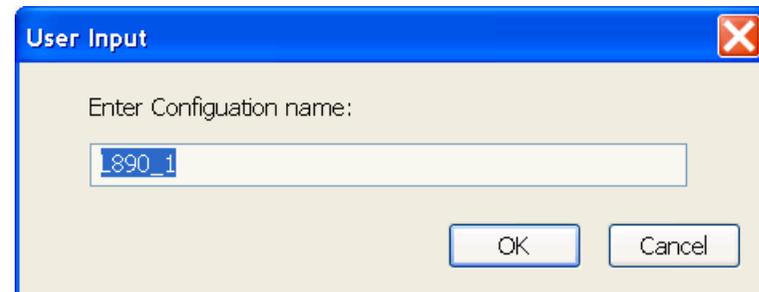
Creating a Configuration

2

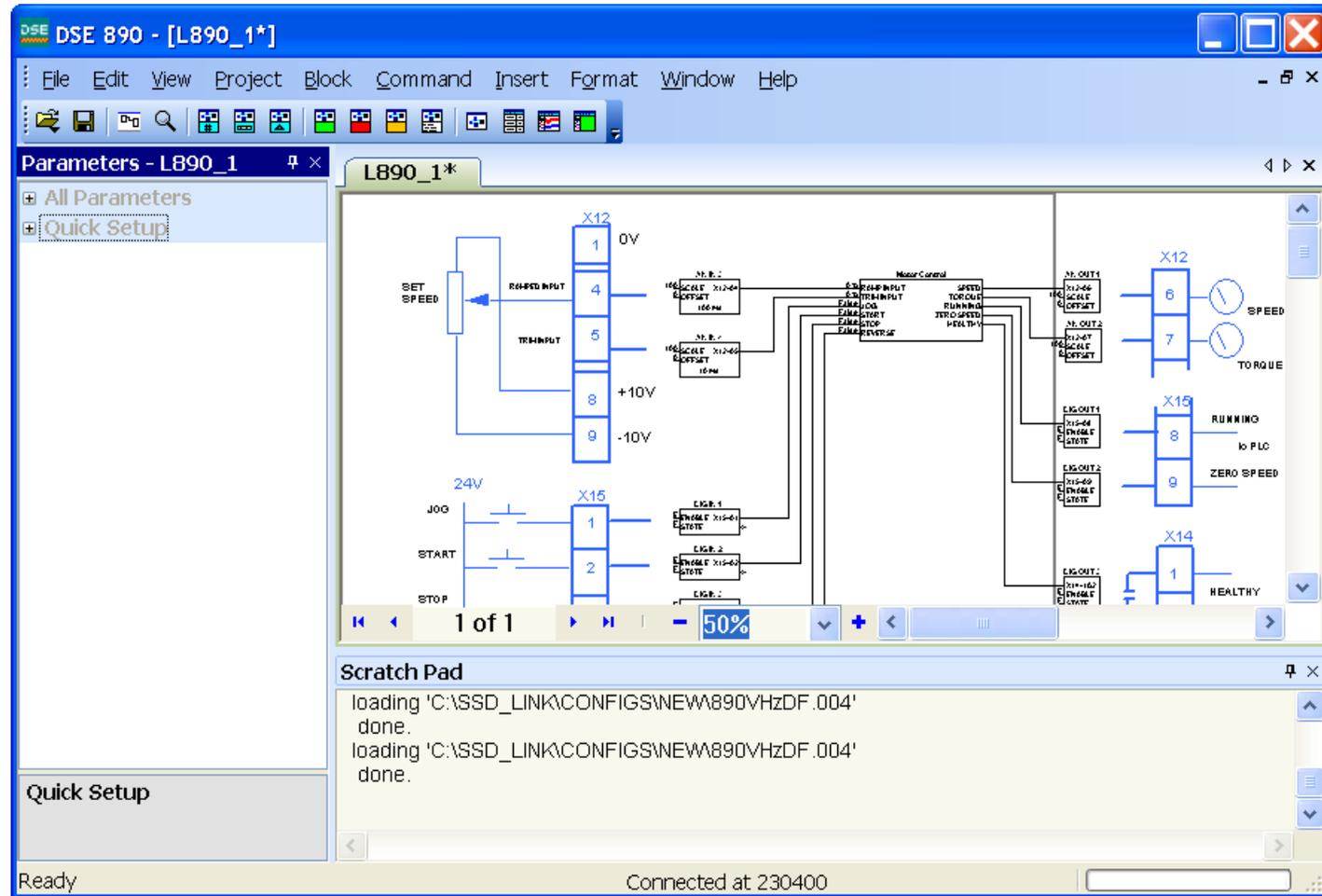
1. From the "File" menu, select "New". A Dialog will pop up. Select a configuration, e.g. 890 Volts/Hertz, and click "OK"



2. When prompted, enter a new configuration name, e.g. "L890_1", and click "OK".



3. Here is your first configuration L890_1*.



4. Save the configuration by clicking on File/Save or the Save icon, or select "Save" from the "File" menu. A standard Windows Save dialog will pop up. You can save the configuration in any directory in your file system. Once saved, the asterisk "*" against the name will disappear.

Modifying a Configuration

A configuration can be modified by editing blocks and links, and by inserting or deleting blocks.

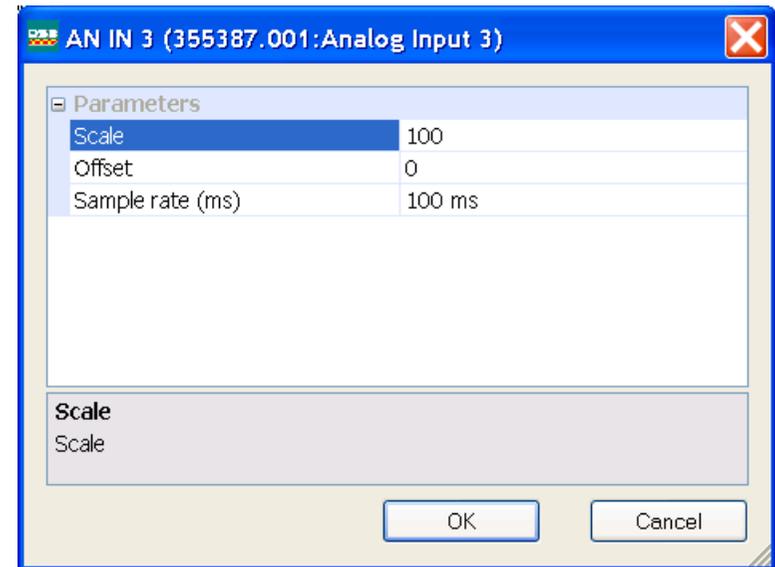
Editing Blocks

You can view the contents of any function block in the configuration by double-clicking the icon for the block. For example, double click on "AN IN 3" will open the analog input function block 3.

Where a parameter can be edited, click on the relevant sub-menu  to display the options (for enumerated and boolean parameters), or edit the displayed numeric value directly on the screen by clicking on the value.

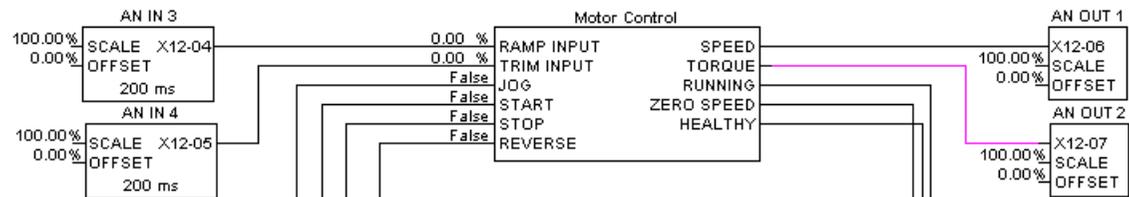
When you have finished editing the block select "OK" to exit the block, otherwise select "Cancel" to exit the block and disregard any changes you may have made.

When you make any changes, save the configuration by clicking on the Save icon , or "File→Save". This will remove the asterisk (*) against the configuration name.



Editing Links

A link transfers the value of an output parameter to an input parameter of another (or the same) block.



Links are made by connecting an output to an input, in that order.

To make a link	Hover the cursor over the output line until the cursor changes to an "x". At this point, click and hold the mouse button. Now stretch the red link to the input line. When the link turns green, you have a possible connection. To make the connection, let go of the mouse button.
To delete a link	Click on the line. It will turn purple. Press the Delete key on your keyboard.
To reshape a link line	Click on the line and hold the mouse button. The line will turn purple. Now you can drag any part of the line in any direction.

Inserting New Function Blocks

You can insert any number of new function blocks into the Application. For example:

Click on the Block menu at the top of the screen.

1. Move the cursor down to select "Logic" and select "Counter".
2. Click to attach the block icon to the cursor. Move the icon to where you want on the screen. Click again to release the icon.
3. To insert another of these blocks you can repeat the process or just Copy and Paste the original using the Edit menu at the top of the page. (The standard Ctrl+C, Ctrl+V and Ctrl+X also apply).

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

Deleting Function Blocks

Select a block and press the "Delete" key. This will delete the block.

First Configuration

Editing the Motor Control Block

Double-click the Motor Control Block. A new window will display the motor control block diagram.

2

The screenshot displays the DSE 890 configuration tool interface. The main window is titled "DSE 890 - [L890_1-Motor Control]". The left sidebar shows a tree view of parameters, with "Motor Control" selected. The main workspace shows a block diagram of the motor control block, titled "REFERENCE". The diagram includes several sub-blocks: "SKIP FREQUENCIES", "REFERENCE RAMP", "REFERENCE", and "REFERENCE JOG".

SKIP FREQUENCIES

INPUT	OUTPUT
0 %	OUTPUT Hz
0 Hz	OUTPUT Hz
0 Hz	INPUT Hz
0 Hz	BAND 1
0 Hz	FREQUENCY 1
0 Hz	BAND 2
0 Hz	FREQUENCY 2
0 Hz	BAND 3
0 Hz	FREQUENCY 3
0 Hz	BAND 4
0 Hz	FREQUENCY 4

REFERENCE RAMP

LINEAR	RAMPING
10 %	RAMP TYPE
10 %	ACCEL TIME
10 %	DECEL TIME
False	SYMMETRIC MODE
10 %	SYMMETRIC TIME
True	SRAMP CONTINUOUS
10 /s ²	SRAMP ACCEL
10 /s ²	SRAMP DECEL
10 /s ³	SRAMP JERK 1
10 /s ³	SRAMP JERK 2
10 /s ³	SRAMP JERK 3
10 /s ³	SRAMP JERK 4
False	HOLD

REFERENCE

SPEED DEMAND
SPEED SETPOINT
REVERSE
LOCAL SETPOINT

REFERENCE JOG

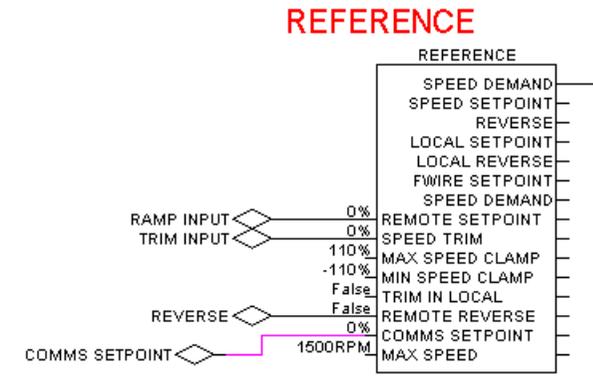
10 %	SETPOINT
1 %	ACCEL TIME
1 %	DECEL TIME

The interface also includes a "Parameters - L890_1" sidebar, a "Scratch Pad" at the bottom, and a status bar at the very bottom showing "Ready" and "Connected at 230400".

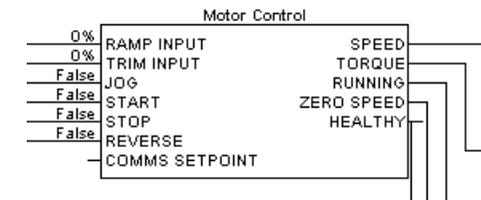
Connecting Parameters to the Application

If a motor control block has to be written to or read from the application, Inputs and Outputs respectively can be added to the Motor Control block diagram for this purpose.

For example, to add a new input parameter called "REVERSE", open the Motor Control Block diagram, add a new input from the Block menu, then rename it to "REVERSE" (shown connected to REFERENCE /REMOTE REVERSE).



On exiting, the motor Control Macro the additional input parameter "SETPOINT" will automatically appear on the Motor Control block as shown on the right.



First Configuration

2

Installing a Configuration in a Drive

Once you have created your own configuration, you are in a position to install it in the drive. Select "Command→Install At Selected" to install the currently opened configuration into a drive.

The installation is confirmed by the Scratch Pad message.

The configuration is now installed into your drive.



Autotune

The configuration must be closed:

1. Trigger Autotune in the drive (via the MMI) and wait for it to be completed.
2. Select File→Update; this will update the parameters in DSE's copy of the configuration.

This will ensure that your DSE 890 configuration reflects exactly the state of the drive.

The Online Configuration

Opening the Default Configuration Online

If you did not install a configuration in the drive, select "File→Open Online" or simply press "F9" to open the default, shipping configuration in online mode.

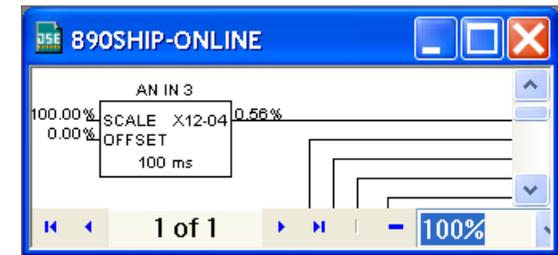
Opening a New Configuration Online

At this point, your configuration should be installed in the drive. Now, select "Command→Go Online" and the configuration will be opened in online mode. Alternatively, you can select "File→Open Online", or simply hit "F9".

Working Online

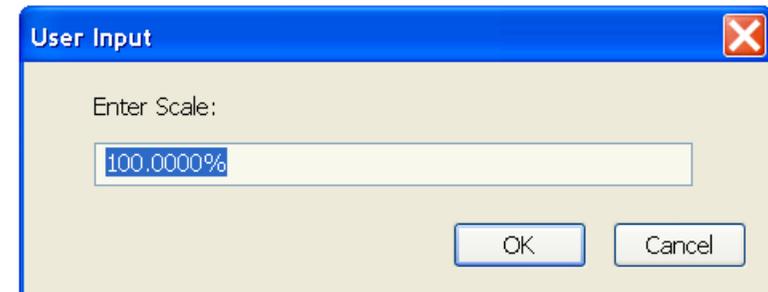
The ONLINE configuration window looks the same as an OFFLINE version, but has some extra features. Note that you cannot remove or add blocks and links in online mode.

When you hover the cursor over the output of a block, the cursor will change to the shape of a "cross". Shift-click puts the parameter into the Monitor List. To read the value in the function block and the scratchpad, just click on the parameter. DSE 890 will get and display the actual value from the drive.



The Scratch pad will become visible and will display the retrieved value. The same happens if you click on an input of a block while holding the "SHIFT" key.

If you want to change an input value of a function block, simply click on the block input while holding down the "CTRL" key. This will bring up a dialog prompting for the value to be set. For instance, clicking on AN IN 3 : SCALE while holding the CTRL key will open the following dialog.





Chapter 3

DSE 890 Tools

An explanation of the DSE 890 tools for working on configurations.



The image shows the DSE890 Drive System Explorer software interface. It features a 3D rendering of a blue industrial drive cabinet with three doors, set against a background of a blue sky and a white horizon. The text 'DSE890 DRIVE SYSTEM EXPLORER' is overlaid at the bottom of the image.

[Introduction](#)

[The Properties View](#)

[The Scratch Pad](#)

[The Parameters View](#)

[The Configuration View](#)

[The ONLINE Configuration](#)

- [Scratch Pad](#)
- [The Monitor List](#)
- [The Chart Recorder](#)
- [The Oscilloscope](#)

Introduction

It is assumed that at this point you have launched DSE 890. The DSE 890 main window uses the standard Windows menu bars, scroll bars, title bars etc. If you are unsure about these, consult your Windows manual.

Main Views

DSE 890 comprises several graphical areas:

Properties View	displays global DSE 890 properties
Scratch Pad	displays a record of work performed by DSE 890
Parameters View	displays a list of all parameters in the active configuration
Configuration View	displays the configuration(s)
Monitor List	use this to monitor parameters of a selected drive
Chart Recorder	use this to monitor parameters of a selected drive
Oscilloscope	use this to monitor parameters of a selected drive

All these views can be accessed through the DSE 890's "View" menu.

Working with Panes

Monitor List, Chart Recorder and Oscilloscope open as separate windows. All other Main Views are dockable panes. Either they can be windows (floating panes), or they can be docked to an existing window where they become a tab (docking pane). You can size and dock all areas and toolbars to wherever you want in the DSE 890 window. To undock, click on a Pane Title and drag the pane to a desired place. At first, the area will become a floating pane, but Windows will propose areas to dock the pane to. Releasing the mouse then will dock the pane to an existing Window as a Tab.

The Properties View

The Properties view allows you to configure the behaviour of DSE 890 through parameters organized into a tree. Initially, the Properties View will display all items in the Version section.

Version

AppVersion

The application version is displayed and can not be changed.

Form Version

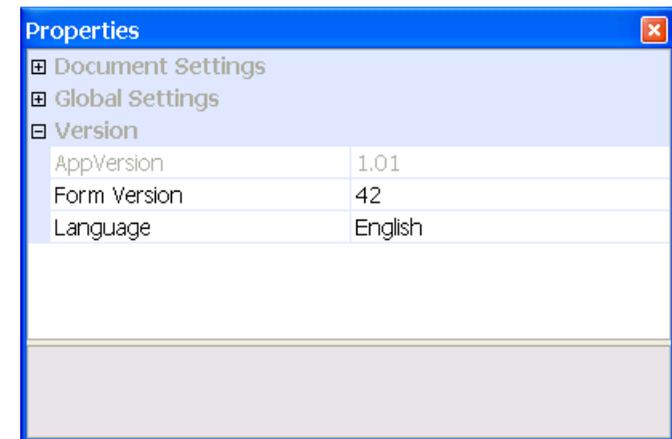
This displays the version of the pane layout and can be used to reset the layout to the default settings. To reset the pane layout to its shipping version, select "Form Version" and set its value to 0. Then exit DSE 890. After launching DSE 890, the pane layout is reset to its default.

Language

Select your language from the "Language" item.

Document Settings

These settings refer to a configuration's block diagram and how it is displayed: Snap to Grid, Grid Size, Block (colors for selected, advanced and high performance blocks), Connections (colors for connected, unconnected and selected connections).



Document Settings	
Snap To Grid	True
Grid Size	36; 36
Block	Properties
Connections	Properties

Global Settings

The list of Global Settings are mostly self-explanatory, but a few are explained in more detail below.

Serial Comms Port

This will select the port your drive is connected to. If you have selected the Comms port correctly, the Serial Comms Port description field in the Properties View will read "USB-Serial Port".

Drive Parameter View Level

Set this to view Drive Parameters of a certain level. Each parameter has a viewing level attributed to it, from "Operator" (basic operating parameters) to "Engineering" (high-end parameters primarily used by SSD engineers).

Frame Mode

This will set how a configuration's block diagram is displayed: maximized or in a "frame per configuration" block diagram.

Configuration Mode

This will add a list of parameters to the Configuration View when set to "Block Diagram and Parameter Tree". The configuration view displays only the block diagram if this mode is set to "Block Diagram only".

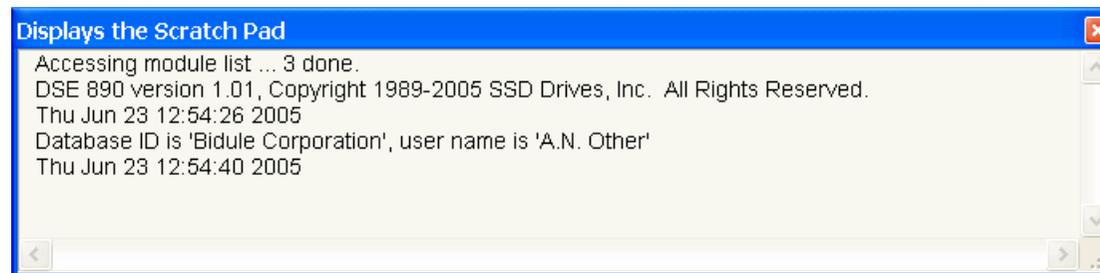
Configuration Description Fields

You can set up to 6 description fields here. Double-click the required field (e.g. Field 1). Enter your new text. These fields can be referenced in a Form that can be inserted in to a Configuration : Insert→Form.

Global Settings	
User Name	A.N. Other
Database path	C:\SSD_LINK\
Serial Comms Port	COM6
Drive parameter view level	Reserved
Scratch Pad Font	Arial; 8pt
Monitor List Font	Arial; 8pt
Blink time (in seconds)	10
Frame Mode	Maximize
Configuration Mode	Block diagram only
Configuration Description Fields	

The Scratch Pad

The Scratch Pad reports the activities of DSE 890 to the user. When DSE 890 is started it will display the DSE 890 version, the date, the user name and company DSE 890 is licensed to, together with the database ID. You can enter today's date and time into the Scratch Pad: "Edit→Paste Time".



The Parameters View

The Parameter View (View→Parameters) displays a tree-view of all blocks and parameters (where applicable).

3

"All Parameters" contains a tree view of the entire configuration with all blocks and all parameters in a hierarchical manner, i.e. it contains the top level block diagram with all its blocks (a block can itself contain another block diagram).

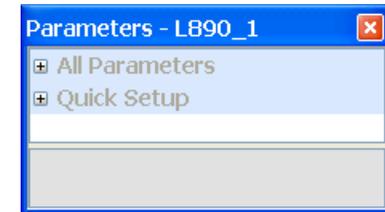
"Quick Setup" contains a tree view of a subset of motor parameters, for example the CONTROL MODE.

In this view you can edit parameter values. For example:

1. Click the "+" next to "All Parameters" (or double-click the name). This will display all the function blocks in the top level block diagram.
2. Click the "+" next to "ANIN3" (or double-click the name). This will display all the parameters of the analog input block 3.
3. Double click into the value field of "Sample rate (ms)".
4. Change the value to the desired value.
5. Press enter. The value is now changed.

Another example:

1. Click the "+" next to "All Parameters" (or double-click the name). This will display all the function blocks in the top level block diagram.
2. Click the "+" next to "Motor Control" (or double-click the name). This will display all blocks for the Motor Control sub-system.
3. Click the "+" next to "Motor Data" (or double-click the name). This will all parameters for the Motor Data block.



All Parameters	
System	
ACCESS CONTROL	
AN IN 3	
Scale	100.0000%
Offset	0.0000%
Sample rate (ms)	200.00 ms

4. Click the POWER to allow editing. You will see the parameter reference number displayed, the full parameter path as accessed in the block diagram hierarchy, and if applicable, the maximum/minimum values and units.
5. Click into the value field to change the parameter value.

The Parameters View provides a convenient means to change parameter values throughout the configuration.

Note that all firmware parameters can be referenced by a parameter reference (Pref) number in the format:

BLOCKNUMBER.PARAMETERNUMBER

You can read the parameter reference in the Parameters View. For instance, the Parameter Reference for "MOTOR DATA/POWER " would be "27.2".

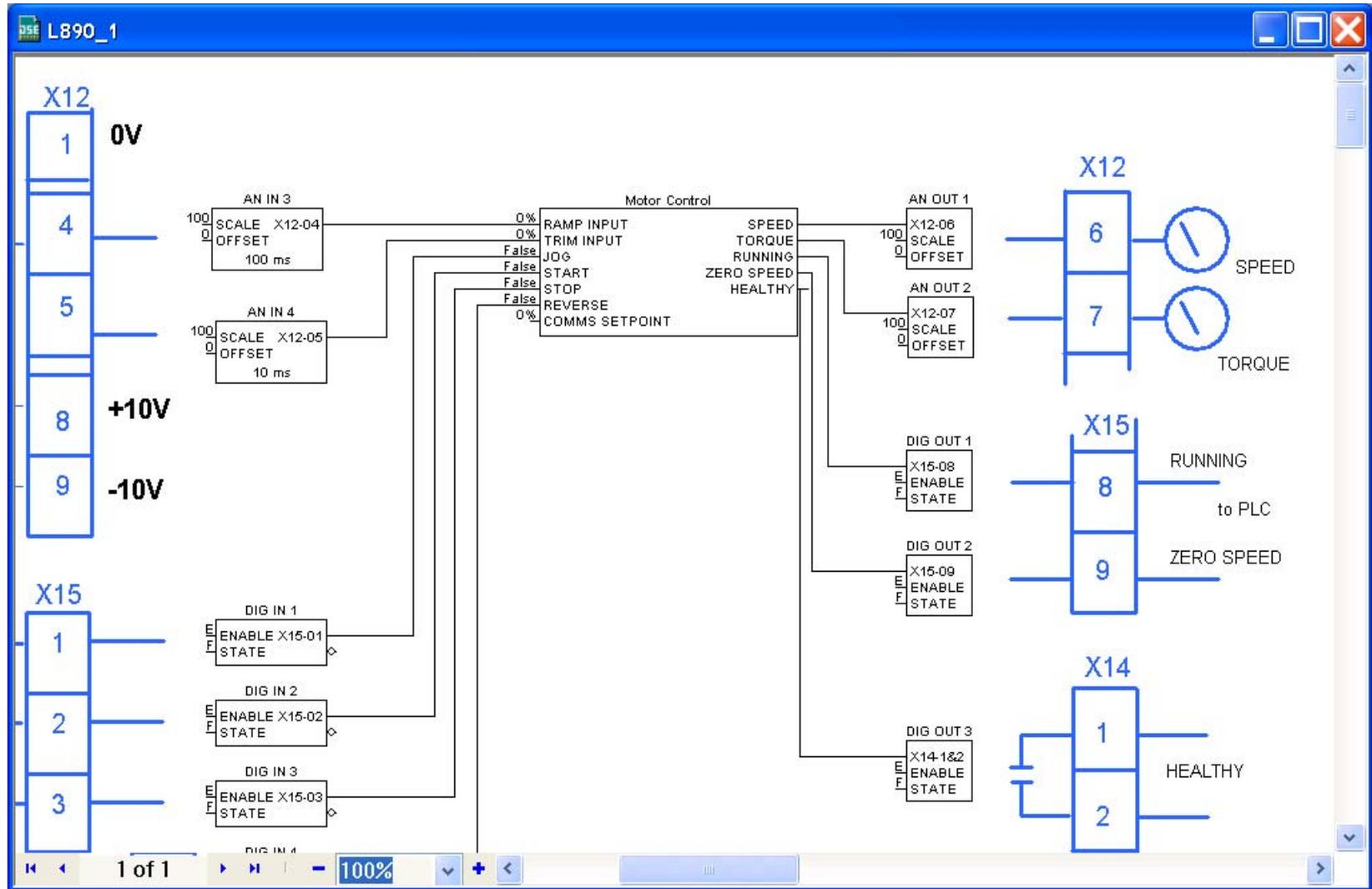
Parameters - Standalone /L890_1	
MOTOR DATA	
CONTROL MODE	VOLTS / Hz
SUPPLY VOLTAGE	380V TO 460V
POWER	2.2kW
BASE FREQUENCY	50Hz
MOTOR VOLTAGE	400V
MOTOR CURRENT	4.9A
MAG CURRENT	1.96A
NAMEPLATE RPM	1420RPM
MOTOR CONNECTION	STAR
MOTOR POLES	4 POLE
POWER FACTOR	0.78
OVERLOAD	2
* TOTAL INERTIA	0kgm2
* STATOR RES	3.53480hm
* LEAKAGE INDUC	75.01mH
* MUTUAL INDUC	300.04mH
* ROTOR TIME CONST	136.75ms

POWER
Parameter reference: 27.2
Min : 0.000000, Max : 3000.000000, Units : kW

The Configuration View

The default configuration for the 890 is shown below. It contains the Motor Control block, the function blocks required by the default Application and their links.

3



Modifying the Configuration

A configuration can be modified by changing parameter values of existing blocks, adding new blocks, or adding/deleting links between function blocks. In addition, graphical elements can be added to improve the understanding of your configuration.

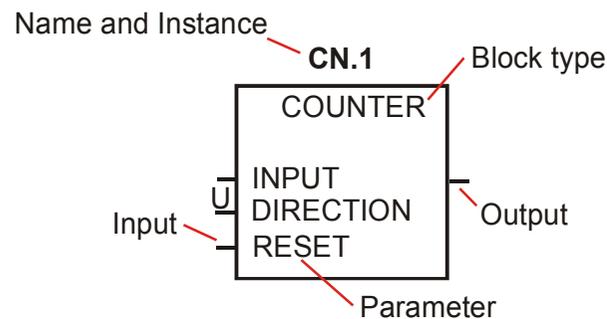
Function Block Properties

A block icon displays the Instance, Class Name and Parameter Name.

Inputs are shown on the left of the block, outputs are shown on the right.

You can use any number of the same type of block - another Instance of that block will be produced.

Rename the Instance name for the block by right clicking on the block and selecting "Rename".



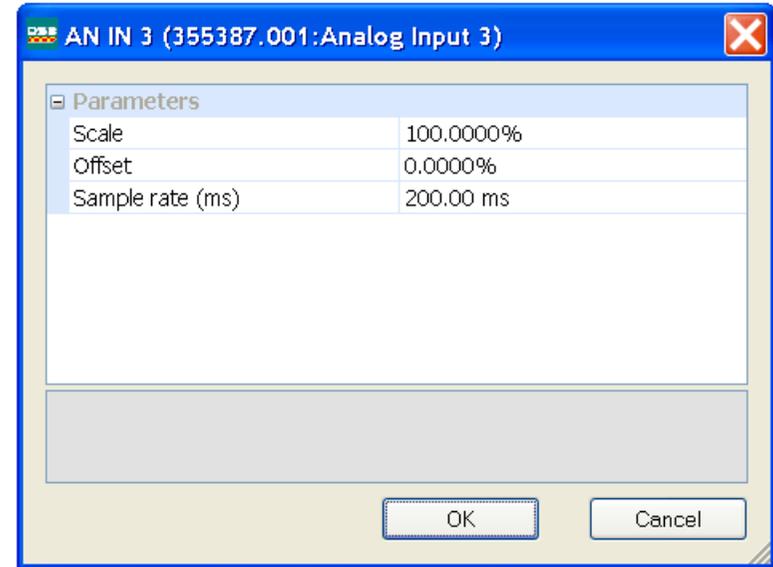
Editing Blocks

You can view the contents of any function block in the configuration by double-clicking the icon for the block. For example, double click on "AN IN 3" will open the analog input function block 3.

Where a parameter can be edited, click on the relevant sub-menu  to display the options (for enumerated and boolean parameters), or edit the displayed numeric value directly on the screen by clicking on the value.

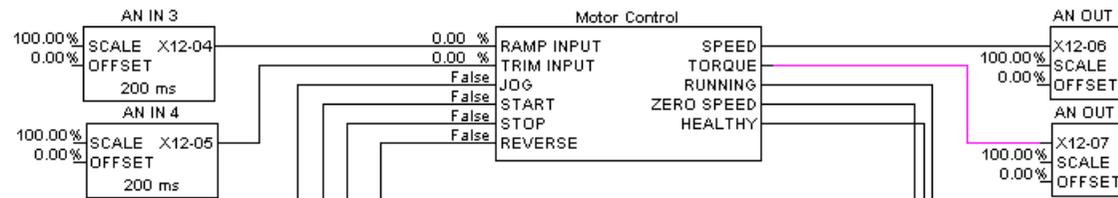
When you have finished editing the block select "OK" to exit the block, otherwise select "Cancel" to exit the block and disregard any changes you may have made.

When you make any changes, save the configuration by clicking on the Save icon , or "File→Save". This will remove the asterisk (*) against the configuration name.

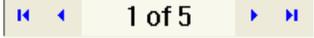


Editing Links

A link transfers the value of an output parameter to an input parameter of another (or the same) block.



Links are made by connecting an output to an input, in that order.

To make a link	Hover the cursor over the output line until the cursor changes to an "x". At this point, click and hold the mouse button. Now stretch the red link to the input line. When the link turns green, you have a possible connection. To make the connection, let go of the mouse button.
To delete a link	Click on the line. It will turn purple. Press the Delete key on your keyboard.
To reshape a link line	Click on the line and hold the mouse button. The line will turn purple. Now you can drag any part of the line in any direction. Click away from the line to deselect it. The line will turn black.
To split a link	<p>This allows you to split a link on a page or between different pages of the configuration.</p> <p><i>To split a link on a page:</i> Make the link (as above). Double click on the link to select it. It will turn purple and a message box will appear. Confirm to split the connection. The link will be split with the relevant text pointers.</p> <p><i>To split a link between different pages:</i> Make the link (as above) but, while holding the mouse button, click on "▶" . This will open the next page and allow you to connect to an input on that page. The link will be made with the relevant text pointers.</p>

Inserting New Function Blocks

You can insert any number of new function blocks into the Application. For example:

Click on the Block menu at the top of the screen.

4. Move the cursor down to select "Logic" and select "Counter".
5. Click to attach the block icon to the cursor. Move the icon to where you want on the screen. Click again to release the icon.
6. To insert another of these blocks you can repeat the process, or just Copy and Paste the original using the Edit menu at the top of the page. (Ctrl+C to copy, Ctrl+V to paste, and Ctrl+X to cut selected text also apply).

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

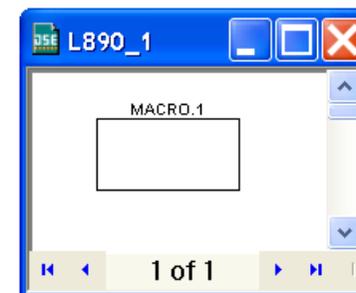
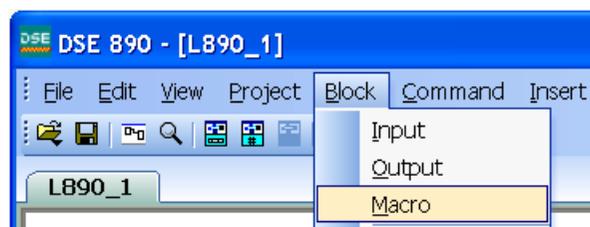
Deleting Function Blocks

To delete a block, select the block and press the "Delete" key.

Macro Blocks

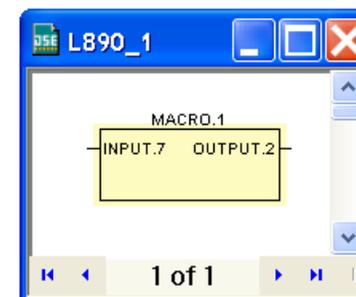
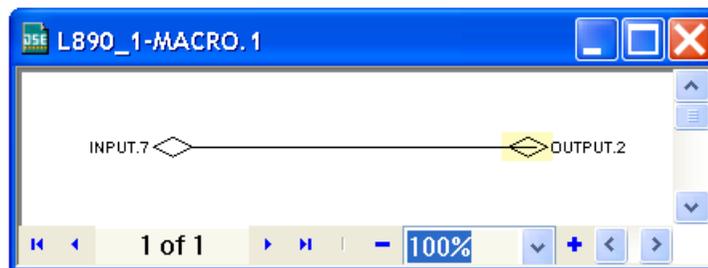
An important feature of DSE 890 is the use of the Macro Block. These blocks can be used to run a portion of the application. Because the blocks can be layered, the entire application can be organised in a hierarchical and structured manner. (The Motor Control block is in fact a Macro block).

To insert a Macro block, go to the Block menu and select "Macro".



As a result, a new Macro block will be added to your configuration. Double click on the block to open the new, empty diagram. You can add blocks (including further Macro blocks) and links as usual. In addition, you may add input and/or output blocks from the "Blocks" menu using "Input" and "Output" respectively.

Adding one input and one output and connecting them together would create the following diagram. Note that the input and output will automatically appear as additional ticks on the Macro block icon.



Network I/O Blocks

When in the main, or top level diagram, selecting "Input" or "Output" from the "Blocks" menu will create a Network input or output respectively. You must provide the node ID of the source as well as a slot number, which acts as unique identifier.

3

Link Input

Source: 1

Slot Number: 1

Description: Counter In

OK Cancel

Link Output

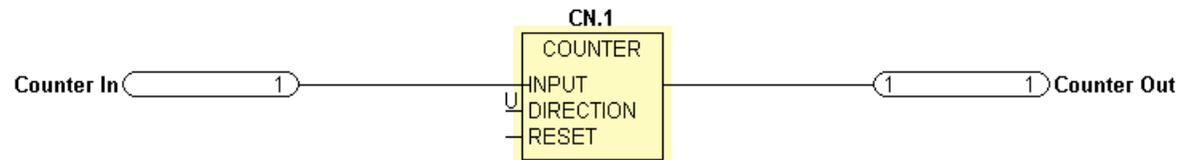
Dest. Address: 1

Slot Number: 1

Description: Counter Out

OK Cancel

The Description field will become the input/output block name (Instance).



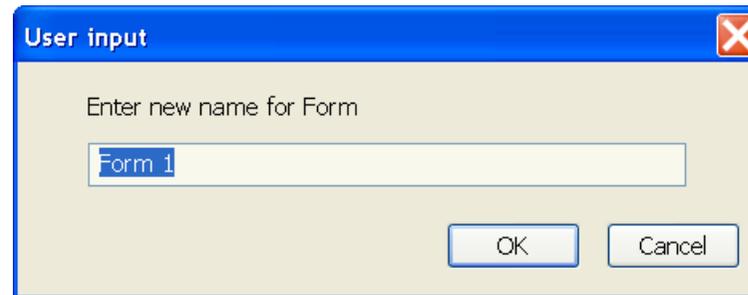
Connecting Parameters to the Application

Refer to "Connecting Parameters to the Application" on page 7.

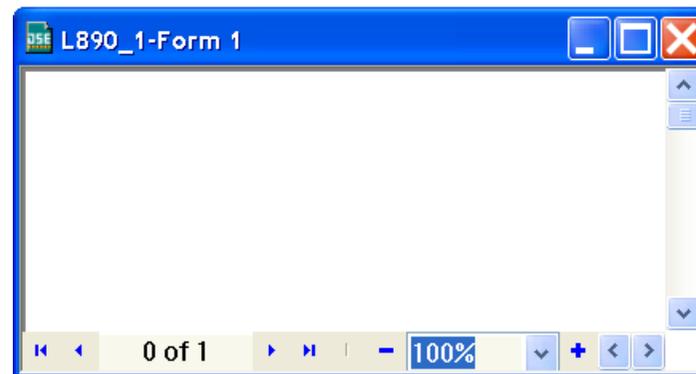
Inserting and Creating Forms

DSE allows you to add forms to a configuration. Either you can add an existing form through the menu "Insert -> Forms -> Name of the form to be inserted", or you can create a new form.

If you want to create a new Form, select menu "Insert -> Forms -> Create ..." which will display the dialog:



After entering a name, e.g. "Form 1" and selecting OK, an empty Form will be created.



Using the Drawing Toolbar you can add any drawing element.

The ONLINE Configuration

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

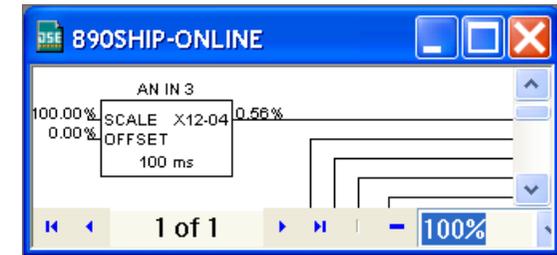
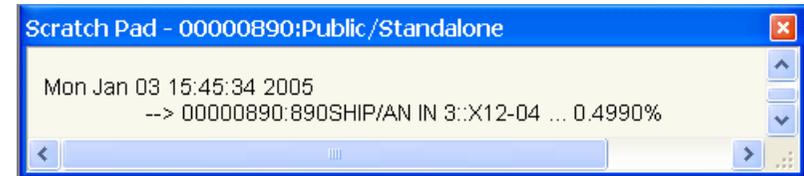
3

To go ONLINE, refer to page 2-8.

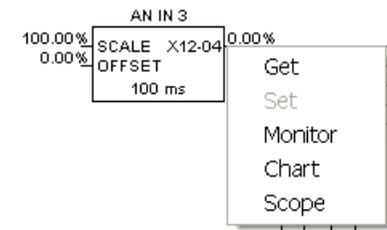
The ONLINE configuration window has "ONLINE" displayed in the title, but otherwise the window looks the same as the OFFLINE version, but it does have some extra features.

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):



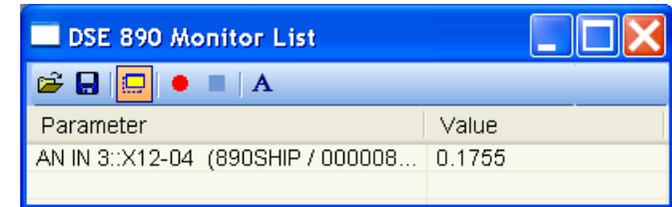
- Get** Display the parameter value in the Scratchpad.
- Monitor** Add this parameter to the Monitor List
- Chart** Add this parameter to the Chart Recorder
- Scope** Add this parameter to the Oscilloscope.



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

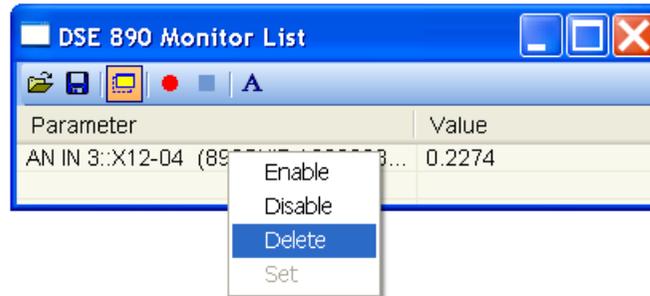
The toolbar contains several buttons:

-  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.

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.

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

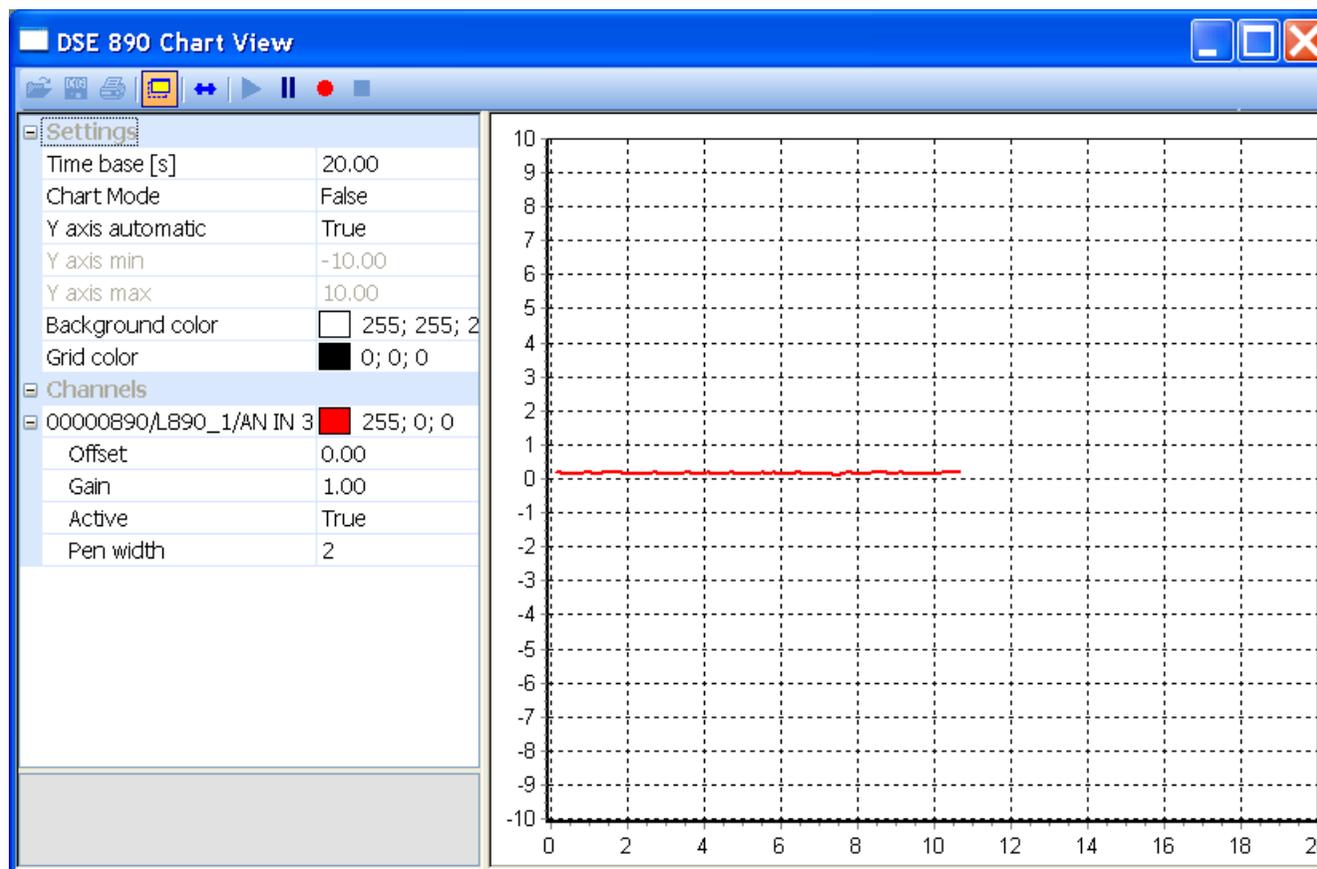
"Value" displays the current value, constantly updated.

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".

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.

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

DSE 890 Tools

Channels

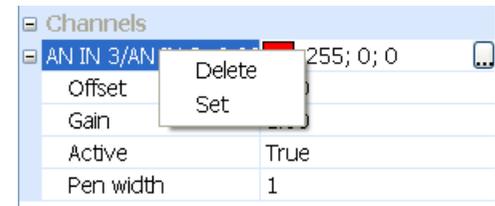
"Channels" lists the current parameters being charted. Every parameter is listed by parameter name. You can also set a display color for each parameter.



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

- 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

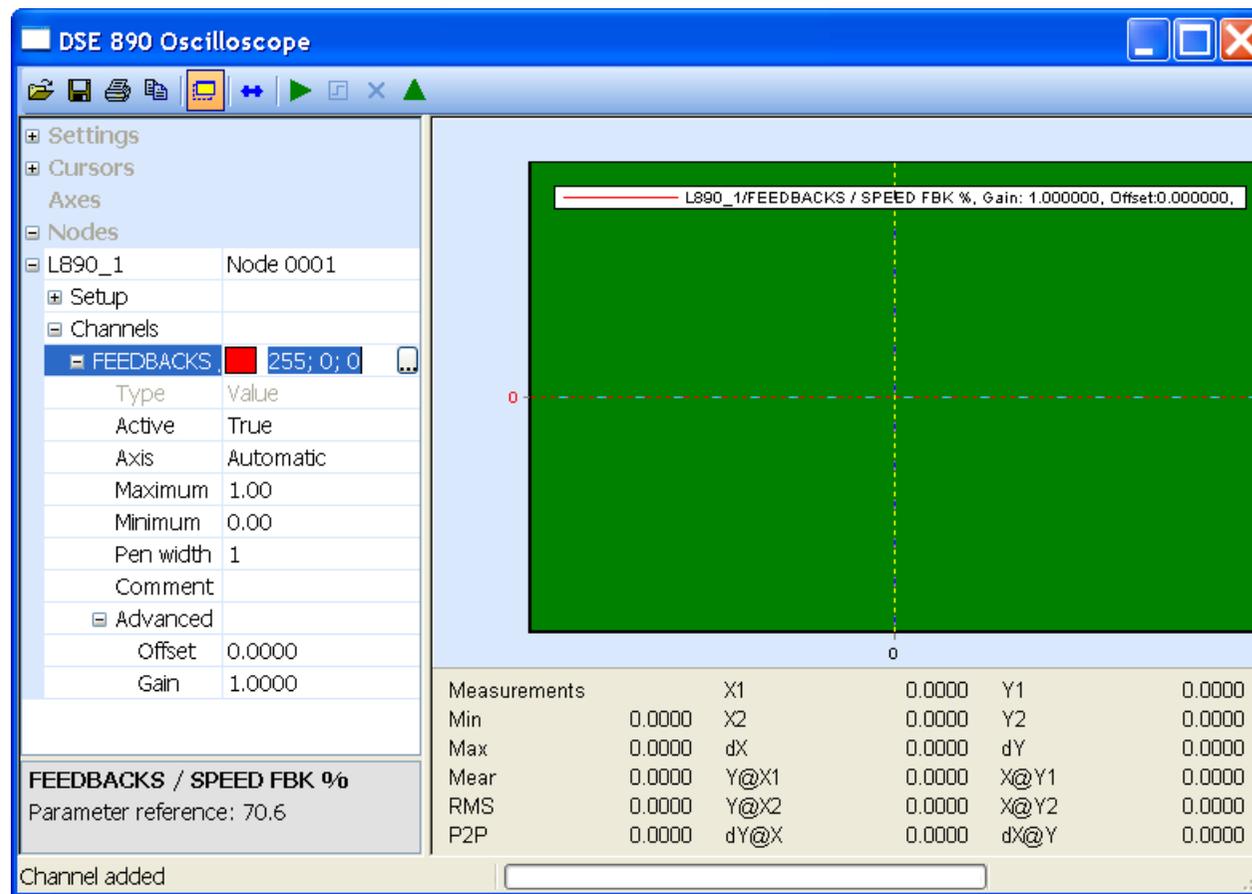
The Oscilloscope

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 normalised into 10 divisions in the main display area. Time 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.

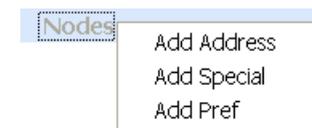
Adding Parameters to the Oscilloscope

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:

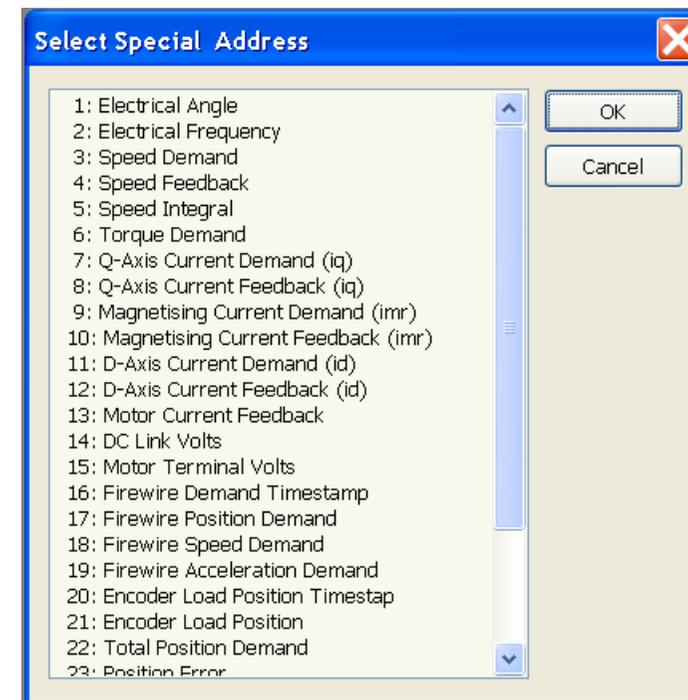
- Add Address** Add a physical address in the firmware to scope
- Add Special** Add a special parameter from a pick list
- Add Pref** Add a parameter reference number



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.

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.

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

Maximum : Sets maximum value in the data display area

Minimum : Sets minimum value in the data display area

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	

DSE 890 Tools

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

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

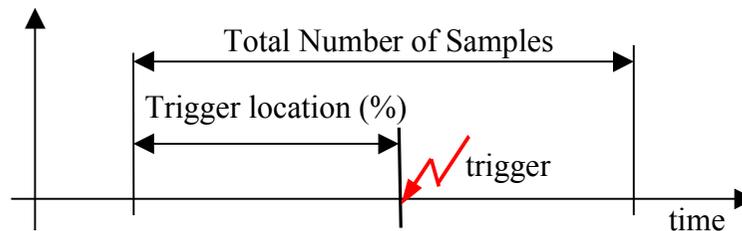
A parameter (channel) can easily be removed by a right click on the parameter and selecting "Delete".



Using the Oscilloscope

3

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 4

How-To

A quick list of common requirements and problems.



The image shows the DSE890 Drive System Explorer software interface. It features a 3D rendering of a blue industrial drive cabinet with three doors, set against a background of a blue sky and a white horizon. The text 'DSE890' is prominently displayed in a large, blue, bold font, with 'DRIVE SYSTEM EXPLORER' written in a smaller, white font below it.

- [How-To](#)

How-To

Install a Configuration

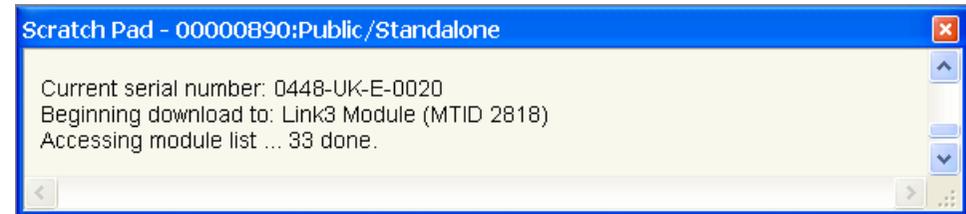
If you have created your own configuration, you need to install it in the drive.

There are two methods for installing a configuration:

1. Select "**Command**→**Install At Selected**" to install the currently opened configuration into a drive selected in the Module List (a list of all drives that are connected to the PC).
2. Select "**Command**→**Install At Address**" to install the currently opened configuration at the Net address for the drive (defined in the configuration, see XXX to change the net address.)

The installation will be confirmed by a Scratch Pad message.

Now the configuration is installed into your drive. You are now the owner of this configuration. It cannot be edited by another copy of DSE 890 without your consent.

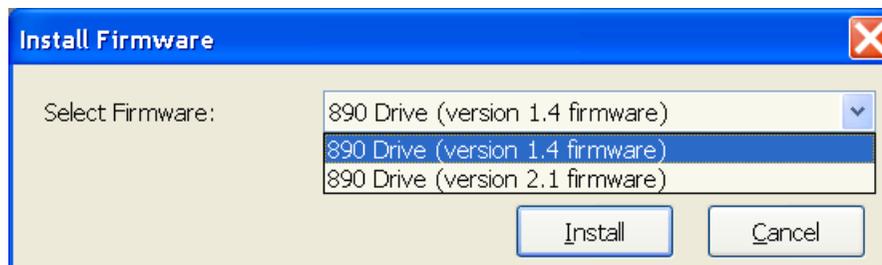


Open a Configuration ONLINE

Select File->Go Online.

Install New Firmware

In the Command Menu, select "Install Firmware". A dialog will pop up which allows you to select a firmware:



Once selected, press OK and the firmware download will start. It may take a few minutes.



Chapter 5

Toolbars & Menus

A listing of all DSE 890 toolbars and menus.



The image shows the DSE890 Drive System Explorer software interface. It features a 3D rendering of a blue industrial drive cabinet with multiple bays and control panels. The background is a light blue sky with clouds. At the bottom of the image, the text 'DSE890 DRIVE SYSTEM EXPLORER' is displayed in a bold, blue font.

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

Toolbars & Menus

Toolbars

Note DSE 890 uses the standard Windows toolbar controls for operating, sizing, moving and customising the toolbars. If you are unsure about these controls, consult your Windows manual.

There are three default toolbars: "Standard", "Drawing" and "Text". You can customise these toolbars and also create new toolbars. You can also undock them creating a floating toolbar.

The "Standard" Toolbar



5

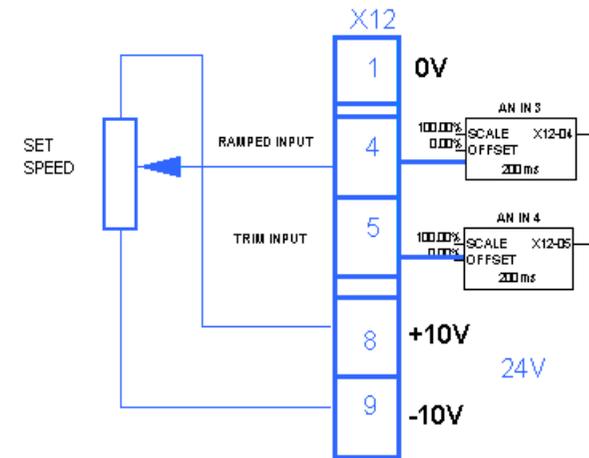
	Open	Opens a new configuration. Select "New" to open one of the supplied configurations, or select from your list of recently opened configurations.
	Save	Saves the configuration. An unsaved configuration displays an asterisk in the name.
	Full Screen	Displays the selected configuration full screen. Other open configurations are displayed as tabs. To return to normal view, select View\Full Screen.
	Magnify	Left click to zoom in, right click to zoom out. Click the icon again to disable the feature.
	Install at Address	Installs the open configuration to the net address selected via Edit/Net Address.
	Install at Selected	Installs the open configuration to the drive selected in the Module List.
	Install Changes	Installs changes to the configuration
	Restart Node	Restarts the application in the drive selected in the Module List
	Halt Node	Halts the application in the drive selected in the Module List
	Identify Node	Identifies the drive selected in the Module List by changing the green flashing STATUS LED on the drive to orange (for approximately 10 flashes).
	Get Info.	Displays a set of information in the Scratch Pad about the drive selected in the Module list.
	Module List	Refreshes and displays the Module List.
	Monitor List	Displays the Monitor List
	Chart Recorder	Displays the Chart Recorder
	Oscilloscope	Displays the Oscilloscope

Drawing Information

DSE 890 allows to add drawing information to a configuration. This can be done by two tool bars, the Drawing and the Text tool bar.

The operation of these toolbars is very intuitive and similar to many widely used programs. For this reason, the details of the "Drawing" and "Text" toolbars are not explained.

The "Drawing" and "Text" toolbars can be used to annotate the Configuration Window and the Motor Control pane. For example, the blue diagrams in the default "New Configurations" are produced in this way.



5

The "Drawing" Toolbar

ARROW, LINE, OVAL, RECTANGLE, IMAGE, LINE COLOR, FILL COLOR, FRONT, BACK, GROUP, UNGROUP, PATTERN, LINE WIDTH, LINE PATTERN.



The "Text" Toolbar

TEXT, FONT, SIZE, FONT COLOR, BOLD, ITALIC, UNDERLINE, LEFT, CENTERED.



Toolbars & Menus

Menus



5

<u>F</u>ile		
<u>N</u>ew...	Ctrl+N	Creates a new default configuration
O pen		Opens a configuration
O pen <u>H</u>istory...		Opens revision history of current configuration
O pen <u>S</u>elect	F2	Opens configuration of selected module in Module List
O pen <u>O</u>nline	F9	Opens configuration of selected module in Module List in ONLINE mode
<u>E</u>xtract Selected		Extracts selected items and save to a file
<u>C</u>lose		Closes the active window
C lose All		Closes all configurations
<u>D</u>iscard		Removes the configuration without saving
<u>S</u>ave	Ctrl+S	Saves the configuration
S ave <u>A</u>s...		Saves the configuration using a new configuration name
S ave All		Saves all configurations
<u>I</u>mport		Imports configuration elements from a file
<u>U</u>ppdate Selected		Updates configuration with parameter values from selected module
<u>P</u>rint Setup...		Setup your printing requirements
P rint <u>P</u>review		Shows how the page will print
<u>P</u>rint...	Ctrl+P	Prints the active window
<u>E</u>xit		Closes this program

<u>E</u> dit		
U ndo	Ctrl+Z	Reverses your last action
C ut	Ctrl+X	Cuts the selected item from the window (to the clipboard)
C opy	Ctrl+C	Copies the selected item to the clipboard
P aste	Ctrl+V	Inserts the contents of the clipboard to the active window
D elete		Deletes the selected item
I mport		Import selection
E xport		Export selection
S elect A ll		Selects all items in the active window
D uplicate	Ctrl+D	Duplicates the selected item(s)
P aste Time		Pastes today's date and time in the Scratch Pad
I nsert Sheet		Insert a sheet into the configuration
D elete Sheet		Delete a sheet from the configuration
D elete F orm	▶	Delete a Form from list
E dit F orm	▶	Edit a Form from list
F ind I nput...	F10	Find block input by name
F ind O utput...	F11	Find block output by name
N et Address (1)...		Sets the net address for the drive module in a drive system
P erformance	▶	
S tandard		Displays standard blocks in the Block Menu (black)
A dvanced		Displays advanced blocks in the Block Menu (green)
H igh		Displays high blocks in the Block Menu (green)
M otor Wizard		Launches the Motor selection wizard

Toolbars & Menus

<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 Recorder		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 890
<u>S</u> cratchpad		Toggles the Scratch Pad
<u>T</u> oolbars	▶	Display the toolbars
Standard		Toggles the Standard toolbar
Drawing		Toggles the Drawing toolbar
Text		Toggles the Text toolbar
Ladder		Brings up the Ladder Editor Toolbar
<u>S</u> tatus Bar		Toggles the Status Bar
<u>F</u> orms		Toggles Forms

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<u>B</u>lock	
<u>I</u>nput	Network input on top level diagram, else macro input
<u>O</u>utput	Network output on top level diagram, else macro output
<u>M</u>acro	Block representing a block sub-diagram
890	▶ 890 blocks
:	▶ :
Winders	▶ Winder blocks

Note *The "Block" menu is only visible when a Configuration pane is on the screen.*

Toolbars & Menus

<u>C</u> ommand		
I nstall at <u>A</u> ddress	Ctrl+T	Installs the open configuration to the net address selected via Edit/Net Address.
I nstall at <u>S</u> electe d	Ctrl+G	Installs the open configuration to the drive selected in the Module List.
I nstall <u>C</u> hanges	F3	Installs changes to the configuration
F ull Install at <u>S</u> electe d		Installs full configuration in selected drive
G o <u>O</u> nline		Go ONLINE with the currently opened configuration
R estart		Restarts the application in the drive selected in the Module List ?
H alt		Halts the application in the drive selected in the Module List
I dentify		Identifies the drive selected in the Module List by changing the green flashing STATUS LED on the drive to orange (for approximately 10 flashes).
G et <u>I</u> nfo.		Displays a set of information in the Scratch Pad about the drive selected in the Module list
R efresh		Refreshes and displays the Module List.
U pg ra de <u>F</u> irmware		Upgrade drive firmware
S et <u>S</u> erial Number		Set serial number in drive firmware
S et <u>P</u> erformance Level		Set performance level for drive

<u>I</u> nsert		
<u>T</u> ext	F4	Inserts a text box
<u>A</u> rrow	F5	Inserts a line with arrow
<u>L</u> ine	F6	Inserts a line
<u>O</u> val		Inserts an oval
<u>R</u> ectangle	F8	Inserts a rectangle
<u>I</u> mage		Inserts a selected bitmap image file
<u>F</u> orm	Create... ►	Create a new Form in a new view
	Form X	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 Bold attribute for selected text
<i><u>I</u>talic</i>		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
<u>L</u> ine Color		Select the line color
<u>F</u> ill Color		Select the fill color
M <u>o</u> ve to <u>F</u> ront		Move selected object in front of other objects
M <u>o</u> ve 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
<u>P</u> attern	▶	Select a pattern fill
Line <u>W</u> idth	▶	Select a line width
Line <u>P</u> attern	▶	Select a line pattern

<u>W</u>indow
<u>C</u>ascade
<u>T</u>ile
<u>A</u>rrange Icons

Arranges windows as separate tabs

Arranges split-screen windows

Arrange icons at the bottom of the window

<u>H</u>elp
<u>C</u>ontents...
<u>I</u>ndex...
<u>S</u>earch...
<u>A</u>bout DSE 890...
General
Data Sheets

Opens the DSE 890 manual to search the Contents

Opens the DSE 890 manual to search the Index

Opens the DSE 890 manual to search for specific words

Displays the version number and other information about DSE 890

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Opens data sheets about DSE 890

Toolbars & Menus

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