



DEEP SEA ELECTRONICS

DSE8680 Series PC configuration suite

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DSE8680 Series configuration suite

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Amendments List

Issue	Comments	Minimum Module version required	Minimum Configuration Suite Version required
1	Initial release derived from 8710 Config Suite Manual	1	
2.1	Updated to include SCADA pages for multi controller systems	2.1	5.2.11.0

Typeface: The typeface used in this document is *Arial*. Care should be taken not to mistake the upper case letter I with the numeral 1. The numeral 1 has a top serif to avoid this confusion.

TABLE OF CONTENTS

1	BIBLIOGRAPHY	5
2	DESCRIPTION	6
3	INSTALLATION INSTRUCTIONS.....	7
3.1	SOFTWARE INSTALLATION.....	7
3.1.1	MINIMUM SYSTEM REQUIREMENTS.....	7
3.1.2	INSTALLATION.....	7
3.1.3	TROUBLESHOOTING SOFTWARE INSTALLATION.....	10
3.1.3.1	WINDOWS 7	10
3.1.3.2	WINDOWS VISTA	10
3.1.3.3	WINDOWS XP.....	10
3.1.3.4	WINDOWS NT, WINDOWS MILLENIUM, WINDOWS 98, WINDOWS 95, WINDOWS 3.1	10
3.1.3.5	APPLE MAC, WINDOWS CE, PALM OS, SMARTPHONE, PDA	10
3.2	HARDWARE INSTALLATION.....	11
3.3	TROUBLESHOOTING INSTALLATION.....	11
4	USING THE CONFIGURATION SUITE	12
5	MENUS AND TOOLBAR	13
5.1	FILE MENU	13
5.2	TOOLS MENU.....	14
5.2.1	ACCESS PERMISSIONS	16
5.2.3	UPDATE FIRMWARE	18
5.3	LANGUAGE EDITOR	20
5.3.1	GETTING STARTED	20
5.3.2	EDITING THE STRINGS.....	21
5.3.3	UPDATING THE MODULE LANGUAGE	21
5.3.4	UPDATING THE SCADA ALARMS/EVENT LOG LANGUAGE	22
5.4	PC 8XXX SERIES EVENT LOG	23
5.5	HELP MENU	24
5.6	TOOLBAR.....	24
6	EDIT CONFIG.....	25
6.1	SCREEN LAYOUT.....	25
6.2	MODULE.....	27
6.2.1	MODULE OPTIONS	28
6.2.2	CONFIGURABLE STATUS SCREENS.....	29
6.2.3	EVENT LOG.....	30
6.2.3.1	SMS MESSAGING	30
6.3	DIGITAL INPUTS	31
6.3.1	DIGITAL INPUT FUNCTIONS.....	32
6.4	OUTPUTS	34
6.4.1	DIGITAL OUTPUTS.....	34
6.4.2	VIRTUAL LEDS.....	35
6.4.3	OUTPUT SOURCES.....	36
6.5	TIMERS.....	38
6.5.1	LOAD TIMERS	38
6.5.2	MODULE TIMERS.....	38
6.6	BUS.....	39
6.6.1	BUS OPTIONS	39
6.6.1.1	CHECK SYNC.....	40
6.6.1.2	MULTISET.....	41
6.7	PLANT BATTERY.....	42
6.8	ADVANCED.....	43
6.8.1	ADVANCED OPTIONS.....	43
6.8.1.1	OUT OF SYNC.....	43
6.8.1.2	OTHER TIMERS	43
6.9	COMMUNICATIONS.....	44
6.9.1	COMMUNICATION OPTIONS.....	44
6.9.2	RS232 PORT	45
6.9.2.1	BASIC	45
6.9.2.2	ADVANCED	47
6.9.3	TROUBLESHOOTING MODEM COMMUNICATIONS	49
6.9.3.1	MODEM COMMUNICATION SPEED SETTING	49
6.9.3.2	GSM MODEM CONNECTION.....	49
6.9.4	RS485 PORT	50
6.9.5	DSE8600 SERIAL PORT INSTRUMENT DISPLAY	51
6.10	EXPANSION	53
6.10.1	DSE2130 INPUT MODULES.....	54
6.10.1.1	DIGITAL INPUTS (A-D AND E-H).....	54
6.10.2	DSE2157 RELAY MODULES.....	55
6.10.4	DSE2548 LED EXPANSION	56
7	SCADA.....	57
7.1	GENERATOR IDENTITY	58
7.2	MIMIC.....	58

7.3	LANGUAGES	59
7.4	DIGITAL INPUTS	60
7.5	DIGITAL OUTPUTS	61
7.6	VIRTUAL LEDES.....	62
7.7	BUS 1 & 2.....	63
7.7.1	FREQUENCY AND VOLTAGES	64
7.7.2	LOAD.....	64
7.7.3	MSC LINK.....	64
7.7.4	SYNC.....	65
7.7.5	ALARMS.....	65
7.8	STATUS.....	66
7.9	EVENT LOG	67
7.10	MAINTENANCE	68
7.10.1	TIME.....	68
7.10.2	MODULE PIN.....	69
8	ALARM TYPES.....	70

1 BIBLIOGRAPHY

This document refers to and is referred to by the following DSE publications which can be obtained from the DSE website www.deepseapl.com:

DSE PART	DESCRIPTION
057-082	DSE2130 Input Expansion Manual
057-083	DSE2157 Output Expansion Manual
057-084	DSE2548 Annunciator Expansion Manual
057-115	DSE8610 Operator Manual
057-119	DSE8600 Series Configuration Software Manual
057-124	DSE8710 Operator Manual
057-127	DSE8710 Configuration Software Manual
057-131	DSE8680 Bus Tie Controller Configuration Software Manual

The following third party documents are also referred to:

ISBN	DESCRIPTION
1-55937-879-4	IEEE Std C37.2-1996 IEEE Standard Electrical Power System Device Function Numbers and Contact Designations. Published by Institute of Electrical and Electronics Engineers Inc

2 DESCRIPTION

This manual covers the operation of the **DSE Configuration Suite** for DSE8680 series synchronising modules. Separate manuals cover the remaining DSE modules supported by the software. The *Help* section of the software contains links to these documents, copied onto the PC during the software installation process.

The **DSE configuration suite** allows the DSE8600 family of modules to be connected to a PC via USB 'A – USB B' cable. Once connected the various operating parameters within the module can be viewed or edited as required by the engineer. This software allows easy controlled access to these values and also has diagnostic monitoring facilities.

The configuration suite should only be used by competent, qualified personnel, as changes to the operation of the module may have safety implications on the panel / generating set to which it is fitted. Access to critical operational sequences and settings for use by qualified engineers, may be barred by a security code set by the generator provider.

The information contained in this manual should be read in conjunction with the information contained in the appropriate module documentation. This manual only details which settings are available and how they may be used.

A separate manual deals with the operation of the individual module (See section entitled *Bibliography* elsewhere in this document).

3 INSTALLATION INSTRUCTIONS

3.1 SOFTWARE INSTALLATION

3.1.1 MINIMUM SYSTEM REQUIREMENTS

Operating System	Windows 7, Windows Vista, Windows XP or Windows 2000 with Microsoft™ .Net® 4.0 framework
Monitor	17 inch recommended (1024 x 768 resolution)
Communications	USB required to configure the module.

NOTE: - As DSE configuration software for Windows™ is a 32 or 64 bit application requiring Microsoft .net 4 framework, it will not operate on Windows 2.0, 3.0, 3.1,3.11, 95, 98 or Me.

NOTE: - Microsoft .Net 4.0 Framework can be obtained from Microsoft’s website. Alternatively, it is included in the DSE Configuration Suite Software CD version which can be obtained on CD from Deep Sea Electronics PLC (DSE Part number 0806-001-15) or by downloading the ‘CD version’ from the DSE website.

NOTE: - Exit all other programs before installing the software. It is recommended that any earlier releases of the software be uninstalled prior to installing this version.

NOTE: - Please register online at www.deepseapl.com – Once registered you will be able to download updates to the software to ensure that you always have access to the latest features.

3.1.2 INSTALLATION

Insert the Software CD into the CD-ROM drive on the PC. The CD will then Auto-run if this feature is enabled on your PC.

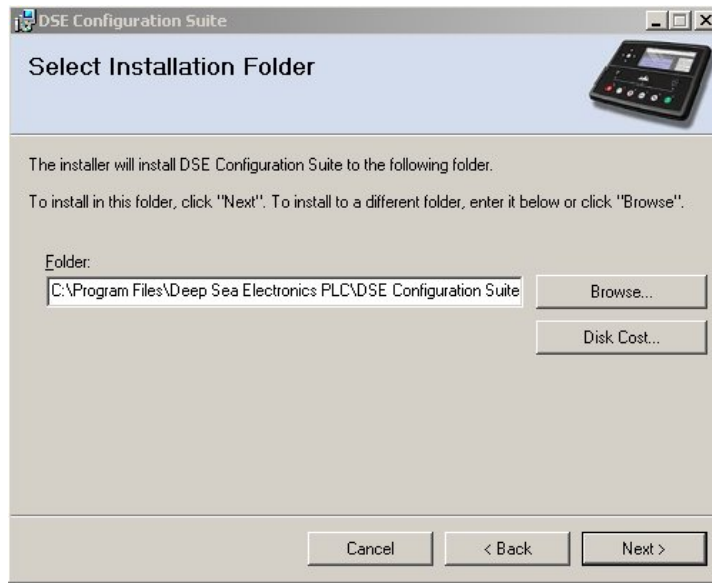
Alternatively:

- Double click on **Computer**
- Double click on **CD-ROM Drive**
- Double click CDSetup

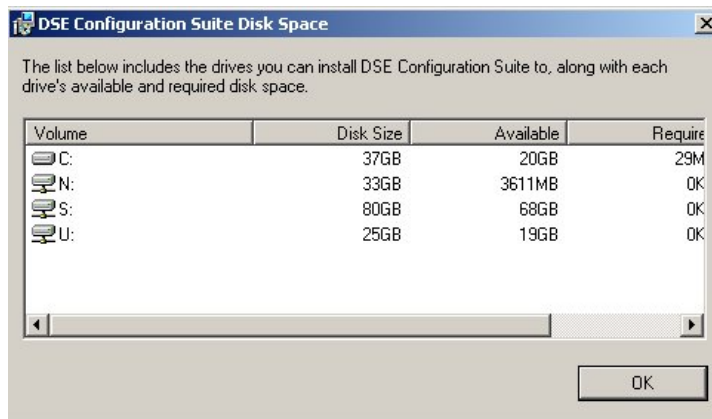


Installation

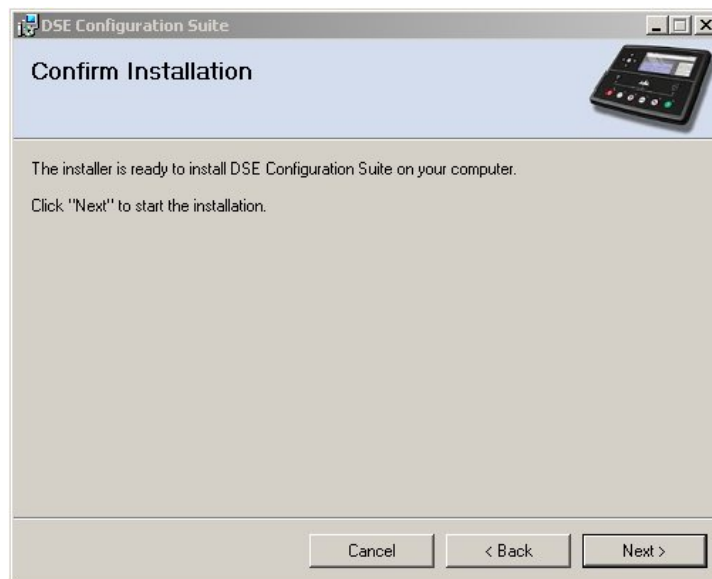
Click **Next** to continue



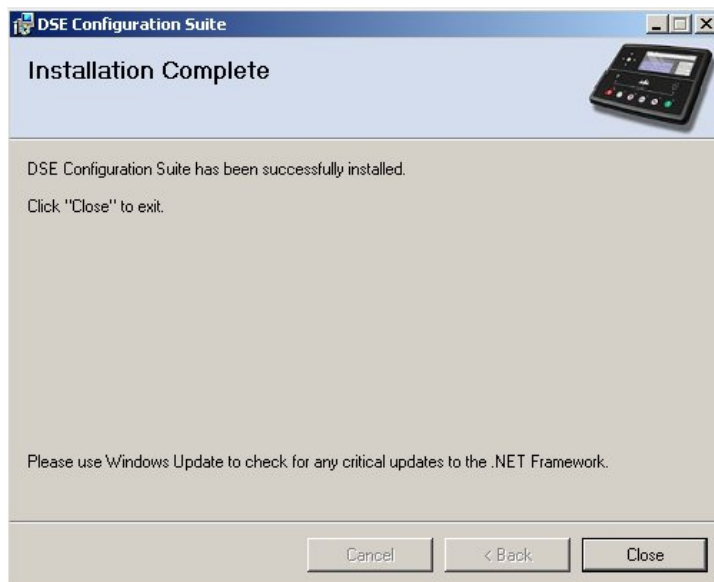
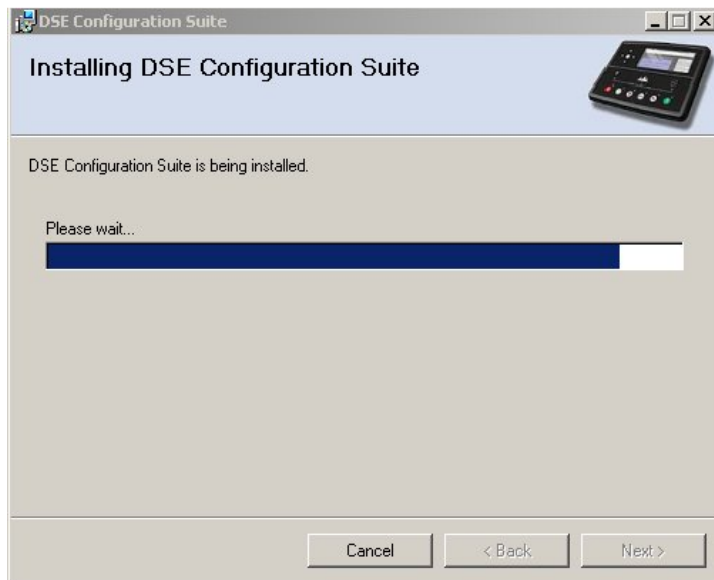
Select *Disk Cost* to view remaining disk space, Click **Next** to continue.



Example showing the *Disk Cost* window.



Installation



3.1.3 TROUBLESHOOTING SOFTWARE INSTALLATION

It is very rare that problems are encountered when installing the system, however if problems arise, use the following checklist to troubleshoot your software installation

3.1.3.1 WINDOWS 7

32 bit and 64 bit versions

- Ensure the operating system is logged onto using an *Administrator Account*. Failure to do this results in installation failure due to incorrect user permissions disallowing registration of some parts of the Configuration Suite Software.
- When installing the software, instead of clicking the icon with the left mouse button, click on the installation icon with the right mouse button, then select *Run as Administrator*.
- Ensure the operating system is fully up to date using the *Microsoft Windows Update* facility.
- Ensure that *Windows Installer* is fully up to date using the *Microsoft Windows Update* facility.
- Ensure the operating system has *Microsoft .net 2 Framework redistributable (for x86)* installed and is fully up to date. This is available from Microsoft's website.

3.1.3.2 WINDOWS VISTA

32 bit and 64 bit versions

- Ensure the operating system is logged onto using an *Administrator Account*. Failure to do this results in installation failure due to incorrect user permissions disallowing registration of some parts of the Configuration Suite Software.
- When installing the software, instead of clicking the icon with the left mouse button, click on the installation icon with the right mouse button, then select *Run as Administrator*.
- Ensure the operating system is fully up to date using the *Microsoft Windows Update* facility.
- Ensure that *Windows Installer* is fully up to date using the *Microsoft Windows Update* facility.
- Ensure the operating system has *Microsoft .net 2 Framework redistributable (for x86)* installed and is fully up to date. This is available from Microsoft's website.

3.1.3.3 WINDOWS XP

- Ensure the operating system is logged onto using an *Administrator Account*. Failure to do this results in installation failure due to incorrect user permissions disallowing registration of some parts of the Configuration Suite Software.
- Ensure the operating system is fully up to date using the *Microsoft Windows Update* facility.
- Ensure that *Windows Installer* is fully up to date using the *Microsoft Windows Update* facility.
- Ensure the operating system has *Microsoft .net 2 Framework redistributable (for x86)* installed and is fully up to date. This is available from Microsoft's website.

3.1.3.4 WINDOWS NT, WINDOWS MILLENIUM, WINDOWS 98, WINDOWS 95, WINDOWS 3.1

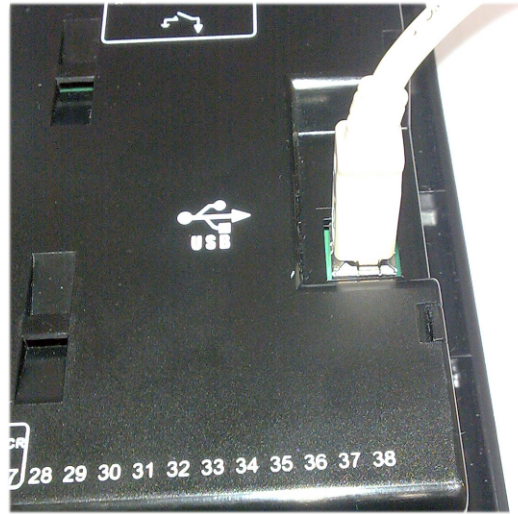
- DSE Configuration Suite does not support these operating systems. It is recommended that the system is operated under Windows 7, Windows Vista or Windows XP operating systems.

3.1.3.5 APPLE MAC, WINDOWS CE, PALM OS, SMARTPHONE, PDA

- DSE Configuration Suite requires a Windows Personal Computer (PC). It is recommended that the system is operated under Windows 7, Windows Vista or Windows XP operating systems.

3.2 HARDWARE INSTALLATION

Ensure the Configuration Suite Software is installed on the PC as described above. The installation of the PC software also installs the DSE Controller USB Driver automatically. Connect the USB cable to the module and to the PC as shown below.



Windows detects the module when power is applied to it.

You are now ready to configure or monitor the module using the Configuration Suite Software.

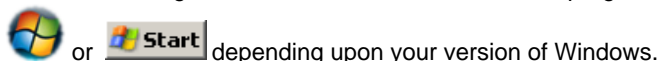
3.3 TROUBLESHOOTING INSTALLATION

Occasionally USB devices are disabled by the Windows operating system, the following procedure will re-enable the device in these instances.

- Disconnect the Deep Sea Electronics Controller from the USB port. Wait a moment, then reconnect and try again. If you still encounter problems then :
- Try another USB cable. If you don't have one, it's the same type of cable as usually used between a PC and a USB printer (Type A to Type B). If you still encounter problems then :
- Disconnect the Deep Sea Electronics Controller. Shutdown, then restart the PC. Reconnect the interface, and then try again. If you continue to experience problems then :
- Check the USB port with another device (for instance a mouse, printer or digital camera).

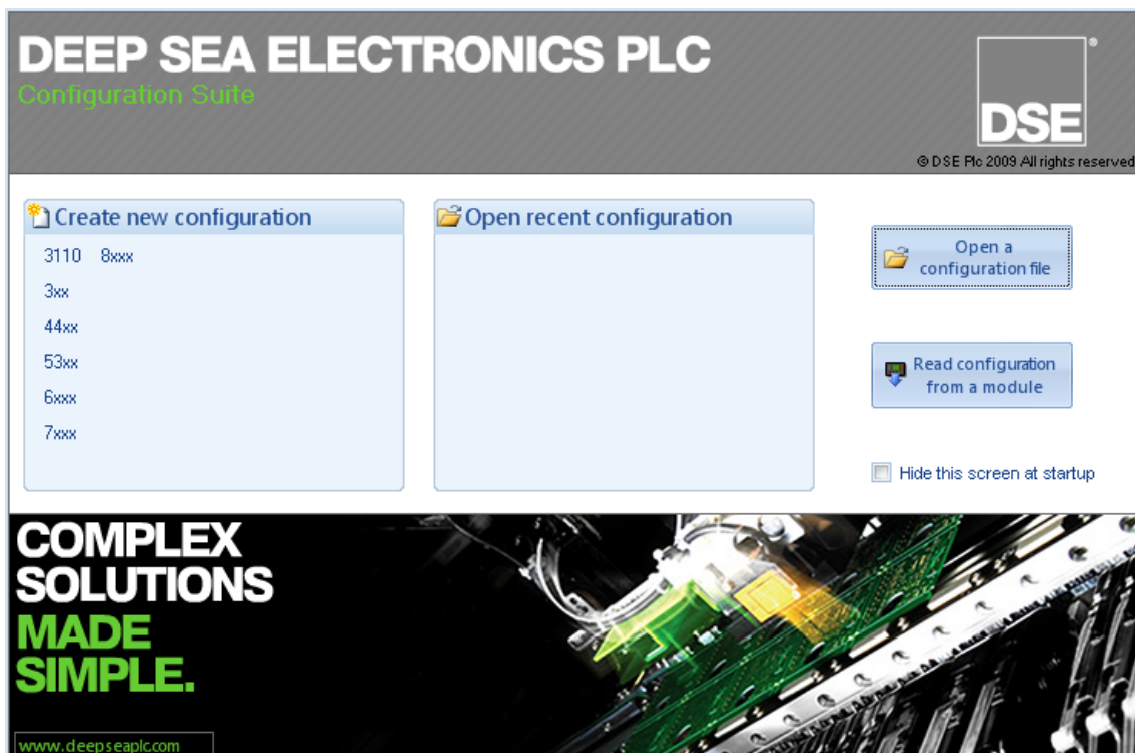
4 USING THE CONFIGURATION SUITE

To run the Configuration Suite Software for Windows program click the Windows start button



Then select 'All Programs' - 'Deep Sea Electronics PLC' – “DSE Configuration Suite” – “DSE Configuration Suite”

After a short delay to load the application, the splash screen is shown, after which the screen will display:-



This is the initial start-up screen and can be disabled by checking the box *Hide this screen at start-up*. The screen prompts the user to select between the three main uses for the software:

- Creating a new configuration. Select the module type under *Create new configuration*. This allows you to create a configuration for the 'latest' module version. Use *File | Convert to...* to convert the configuration to suit an earlier module version or use *Tools | Update firmware* to update an 'earlier' module to the latest firmware version.
- Editing a configuration previously saved to disk or flash memory device. Select the configuration file either from the *Open recent configuration* area or by clicking *Open a configuration file* and browsing to the file.
- Reading and changing the configuration of a connected module. Click *Read configuration from a module*. The file is read from a currently connected controller and is available for editing in the Configuration Suite.

Alternatively you can ignore this screen and continue to use the program in the background. Once you make a connection or load/create a configuration, the start-up screen will disappear.

5 MENUS AND TOOLBAR

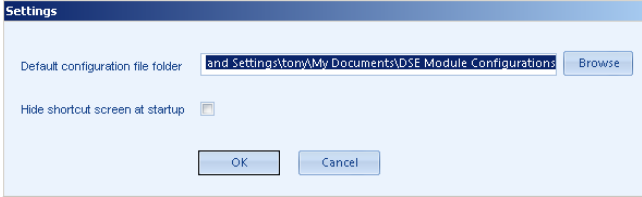
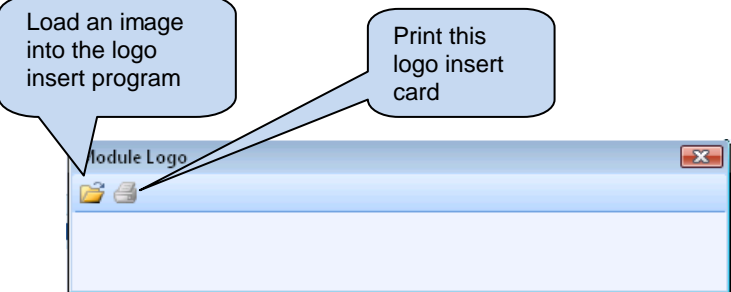
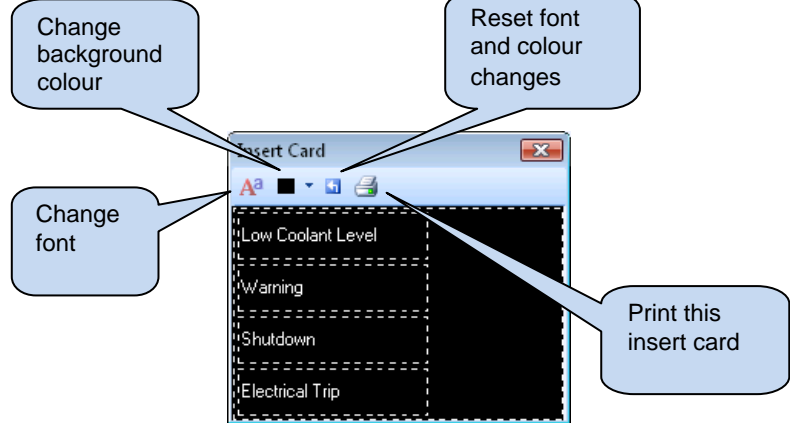
The menu and toolbar are located at the top of the screen:

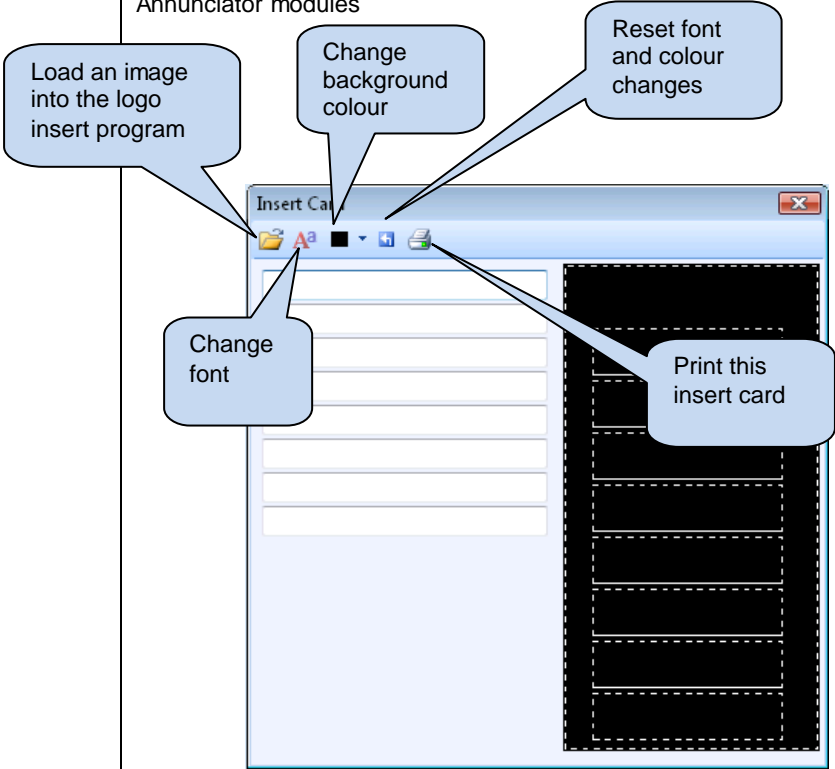


5.1 FILE MENU

New	Create a new configuration file. You are prompted to select what kind of module you want to create the configuration for. The settings of the new configuration file match the factory settings for the chosen module type. You can only select to create a configuration file for the 'latest' version of controller. If you want to create a configuration for an earlier version of controller, you can use <i>Convert to...</i> to make your configuration suitable for the earlier controller or use <i>Tools Update firmware</i> to update the earlier module to the latest version.
Open	Open an existing file from disk or flash memory device.
Close	Close the currently open file.
Save	Save the currently open file to the location it was loaded from previously. If this is a new file, you are prompted to enter a filename.
Save As..	Save the currently open file, under a new name. You will be prompted to enter a filename.
Write to module	Send the currently open configuration settings to the controller.
Read from module	Read the settings out of the connected controller for viewing / editing.
Import from module	Read the settings from the connected controller and convert to the currently selected configuration type.
Import from file	Read the settings from a configuration file on disk or flash memory device and convert to the currently selected configuration type.
Convert to... ▶	Convert the currently loaded configuration file to suit another module type or another module version.
Print	Print the currently open configuration file.
Print Preview	Preview what the configuration file will look like on the page after printing.
Page Setup	Select printer type and printer settings.
Exit	Exit the software. If the currently open file has changed since it was last saved, you will be prompted to save it.

5.2 TOOLS MENU

<p>Options</p>	<p>Opens the <i>Settings</i> screen containing customisation options for the Configuration Suite.</p> 
<p>Access Permissions</p> <p>Logo insert</p>	<p>See the section headed "Access Permissions" after this table.</p> <p>Only available when currently viewing the <i>Module</i> section of the configuration.</p> <p>This allows the user to create Logo Inserts for the modules to customise the controller to suit the generator manufacturer.</p> 
<p>Text Insert</p>	<p>Only available when currently viewing the <i>Module</i> section of the configuration.</p> <p>This allows the user to create Text Inserts for the configurable LEDs on the modules.</p> 

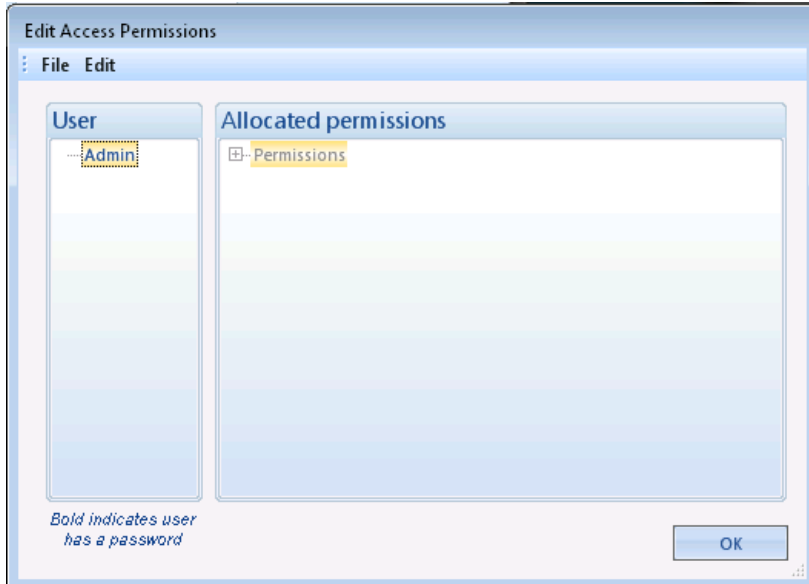
<p>Annunciator text insert</p>	<p>Only available when currently viewing the DSE2548 configurations in the <i>Expansion 2548 Annunciator Modules</i> section of the configuration.</p> <p>This allows the user to create Text Inserts for the DSE2548 Expansion Annunciator modules</p>  <p>The screenshot shows a window titled 'Insert Card' with a toolbar containing icons for file operations, font settings, background color, and printing. A preview area on the right shows a black card with white dashed lines indicating text placement. Callout boxes point to specific toolbar icons: 'Load an image into the logo insert program' (file icon), 'Change background colour' (color swatch), 'Reset font and colour changes' (font icon), 'Change font' (font icon), and 'Print this insert card' (print icon).</p>
<p>Update Firmware</p>	<p>Allows the user to update the firmware (internal software) of the 8600 Series controller. For a complete description see the section entitled "Update Firmware" elsewhere in this document.</p>
<p>Manage curves</p>	<p>Allows the management (editing or deleting) of custom sensor curves</p>
<p>Event Log</p>	<p>Allows the user to log all the events from any module connected to the PC via SCADA. For a complete description see the section entitled "Event Log" else where in this document.</p>
<p>Address Book</p>	<p>Allows the user to create an Address Book of connections. For a complete description see the section entitled "Address Book" else where in this document.</p>
<p>Language editor</p>	<p>Allows the editing of the text displayed by the module. For a complete description see the section entitled "Language Editor" elsewhere in this document.</p>
<p>Alarms</p>	<p>Allows the user to mute any alarms that have been received by telephone modem from a suitably configured controller.</p>

5.2.1 ACCESS PERMISSIONS

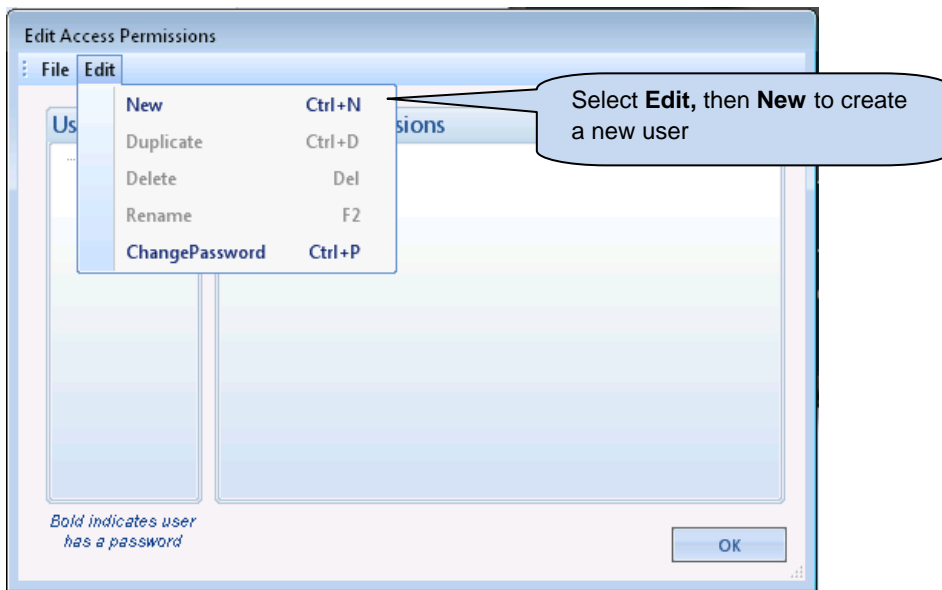
Access permissions is an advanced Administration option to allow OEMS to setup the Configuration Suite software to limit access for certain users.

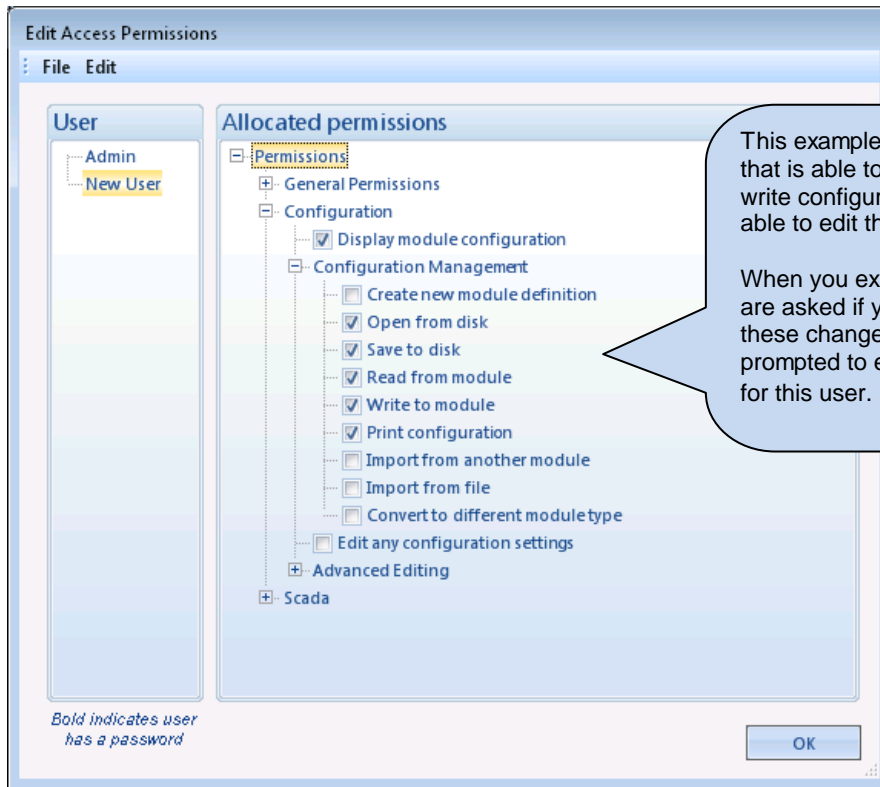
For instance, the generator OEM can install the software on the End User's PC and then setup multiple usernames to limit the customers access to only those functions that the OEM requires for the end user.

An example of this is to give only SCADA access to a user requiring monitoring, or to give access to read and write configuration files, but not to edit a configuration file.



Create a new user type



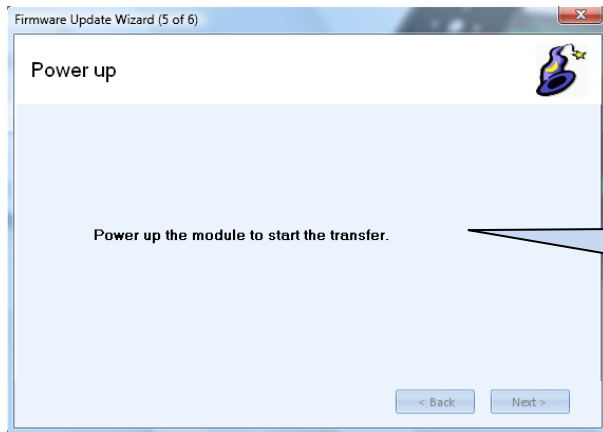


5.2.3 UPDATE FIRMWARE

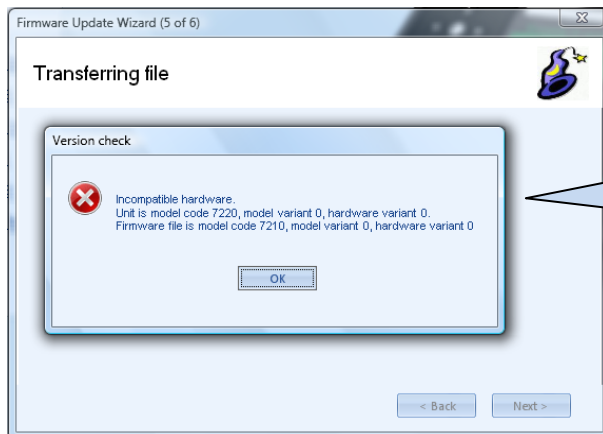
Selecting *Update Firmware* initiates the update wizard:

The image displays four sequential screenshots of the Firmware Update Wizard, each with a callout box providing instructions:

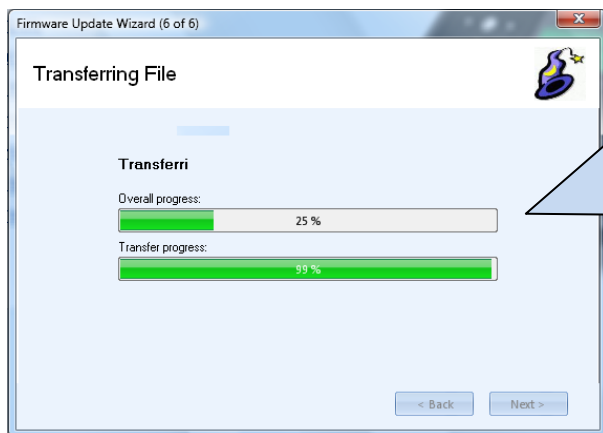
- Step 1: Welcome** (Firmware Update Wizard 1 of 6). The window contains a "Welcome" message, a wizard icon, and a warning: "Warning: Interrupting this process at any point may render the module inoperable." Callouts include: "Click the **exit** button if you don't want to update your module." (pointing to the window's close button), "Hint: Stopping the update process once it begins could leave the module inoperable! If this occurs, simply run the update wizard again and let it complete correctly." (in a cloud shape), and "Click **next** to continue." (pointing to the "Next >" button).
- Step 2: Power down** (Firmware Update Wizard 2 of 6). The window contains the instruction: "Disconnect the module from power supply." Callout: "Ensure the module's supply is removed, and then Click **next** to continue." (pointing to the "Next >" button).
- Step 3: Connect USB** (Firmware Update Wizard 3 of 6). The window contains the instruction: "Connect the USB cable between the module and PC." Callout: "Connect the USB cable to the module and into your PC, then Click **next** to continue." (pointing to the "Next >" button).
- Step 4: Select file** (Firmware Update Wizard 4 of 6). The window contains the instruction: "Select firmware update file." Below this is a "File name:" label and an empty text input field. Callouts include: "Click to select the firmware update file." (pointing to the "Browse" button) and "Then click **next** to continue." (pointing to the "Next >" button).



Power up the module. It will be automatically detected and the update process will begin.



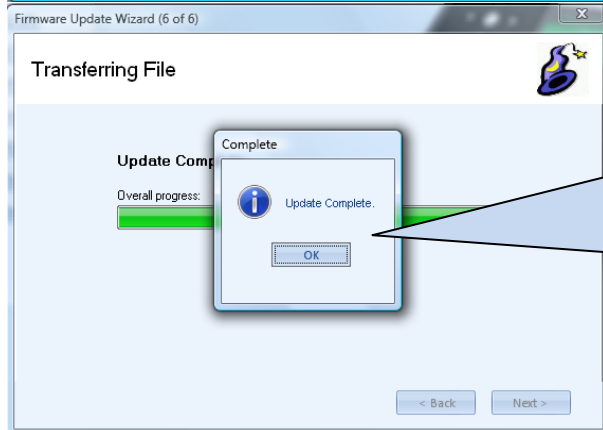
If the file you attempt to send to the module is not compatible with the currently connected module, the update cannot continue. In this example an attempt was made to send a 7210 firmware file to a 7220 module!



The update is now in progress and will take under one minute.

During this phase:

- DO NOT DISCONNECT THE USB CONNECTION
- DO NOT TURN OFF YOUR PC
- DO NOT REMOVE POWER FROM THE CONTROLLER



The update is now complete.

The module will automatically restart with the updated firmware (internal software program).

It is now safe to disconnect the USB lead and power down the module or your PC.

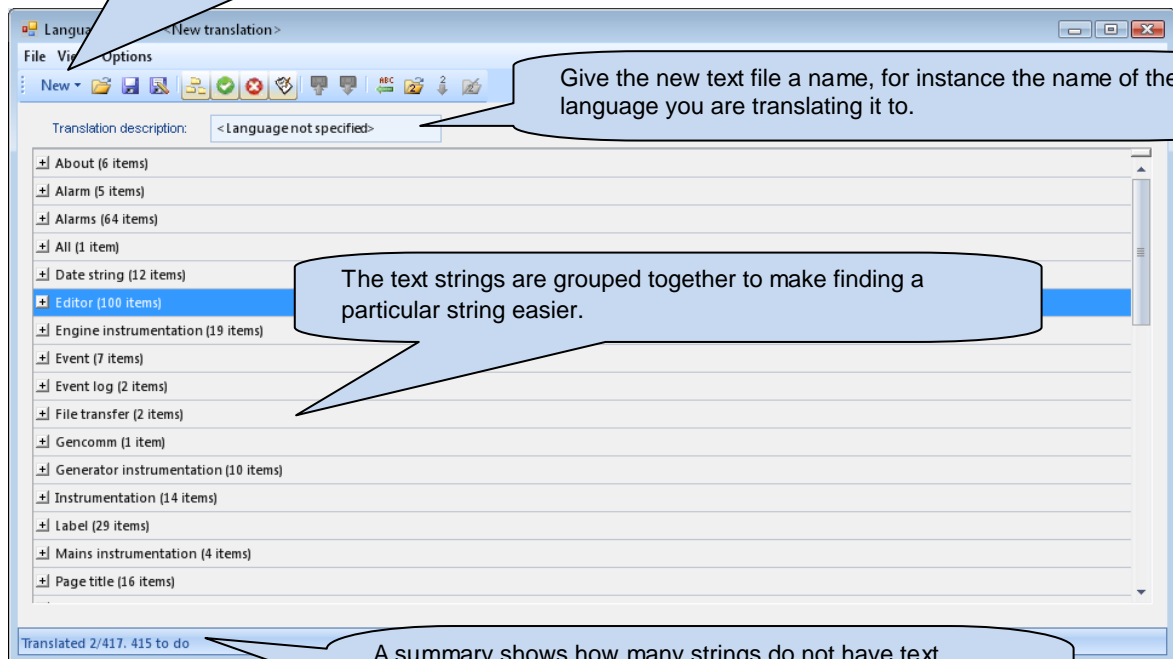
Click **OK** to continue.

5.3 LANGUAGE EDITOR

The *Language editor* (*Tools | Language Editor*) is included to allow the user to tailor the text of the controller to suit their own requirements. An obvious use for this facility is to allow the user to change the entire module text to another language. Other uses include changing some wording to better reflect the customer's application. For instance "Shutdown" can be renamed to "Critical Alarm" and "Warning" can be changed to "Prompt Alarm".

5.3.1 GETTING STARTED

To begin, use the FILE menu item to create a new translation or open an existing one for editing.



Give the new text file a name, for instance the name of the language you are translating it to.

The text strings are grouped together to make finding a particular string easier.

A summary shows how many strings do not have text entered, and if any are incorrect (are too long to display on the module screen) these will be shown as 'errors'.

5.3.2 EDITING THE STRINGS

Click the + symbol to open up that section and view/modify the text strings. Click – to close this group

Click the column headings to sort the strings into alphabetical order

Alarms [64 items]				
	English	Translation	Mimic	
✘	Air Flap Closed			Alarm
✘	Auto Sense Fail			Alarm
✘	Battery Over Voltage			Alarm
✘	Battery Under Voltage			Alarm

A 'tick' shows that the text fits onto the display. A 'cross' means the text is too long for the display.

Enter the new text into the *Translation* column.

The *Mimic* column shows how it will appear on the module display. Take care that the text fits correctly in the green box. You may need to abbreviate your translation if it does not fit into the space allowed.

✔	Shutdown	Critical Alarm		
✘	Unknown ECU Fault	Engine Control Unit	Unknown Engine Control	
✔	Warning	Prompt Alarm		

5.3.3 UPDATING THE MODULE LANGUAGE

When you're ready to test your new text file in the connected module, 'send' it using the button provided. Remember you must select this new language file in the module's display configuration editor. You can also upload language files to the module using the SCADA | LANGUAGES section of the Configuration Suite Software.



The screenshot displays two 'Warning Alarms' panels and two 'Event Log' tables. The left 'Warning Alarms' panel shows a default alarm string 'Fail To Stop'. The right 'Warning Alarms' panel shows a user-configured alarm string 'Engine not Stopped'. The left 'Event Log' table shows a default event log string for 'Fail To Stop'. The right 'Event Log' table shows a user-configured event log string for 'Fail To Stop'. Callouts provide examples of default and user-configured strings for both alarm and event log entries.

#	Date	Time	Hours Run	Event	Details
1	13/09/2010	12:35	1:58	Warning	Fail To Stop
2	13/09/2010	12:13	1:58	Mains	Mains fail
3	13/09/2010	12:13	1:58	Shutdown	Emergency Stop


#	Date	Time	Hours Run	Event	Details
1	13/09/2010	12:35	1:58	Warning	Engine not Stopped
2	13/09/2010	12:13	1:58	Mains	Mains fail
3	13/09/2010	12:13	1:58	Shutdown	Emergency Stop

5.4 PC 8XXX SERIES EVENT LOG

The PC event log is provided to maintain a log of alarms of 86xx / 87xx series controllers that have been connected to the SCADA section of the software. This event log is intended to maintain a log of alarms from modules that have 'dialed' in when the station is unattended.

















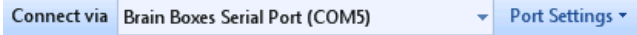
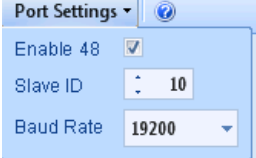
The screenshot shows the '8xxx Series Event Log' application window. It features a toolbar with icons for file operations and a table with columns for Timestamp (PC), Device ID, Device Name, Generator ID, Site ID, Event, and Details. The table is currently empty.

5.5 HELP MENU

Software manuals	Links to the configuration suite software manuals for the supported products. These manuals are copied to the PC during the software installation process.
 About	Shows the version number of the configuration suite

5.6 TOOLBAR

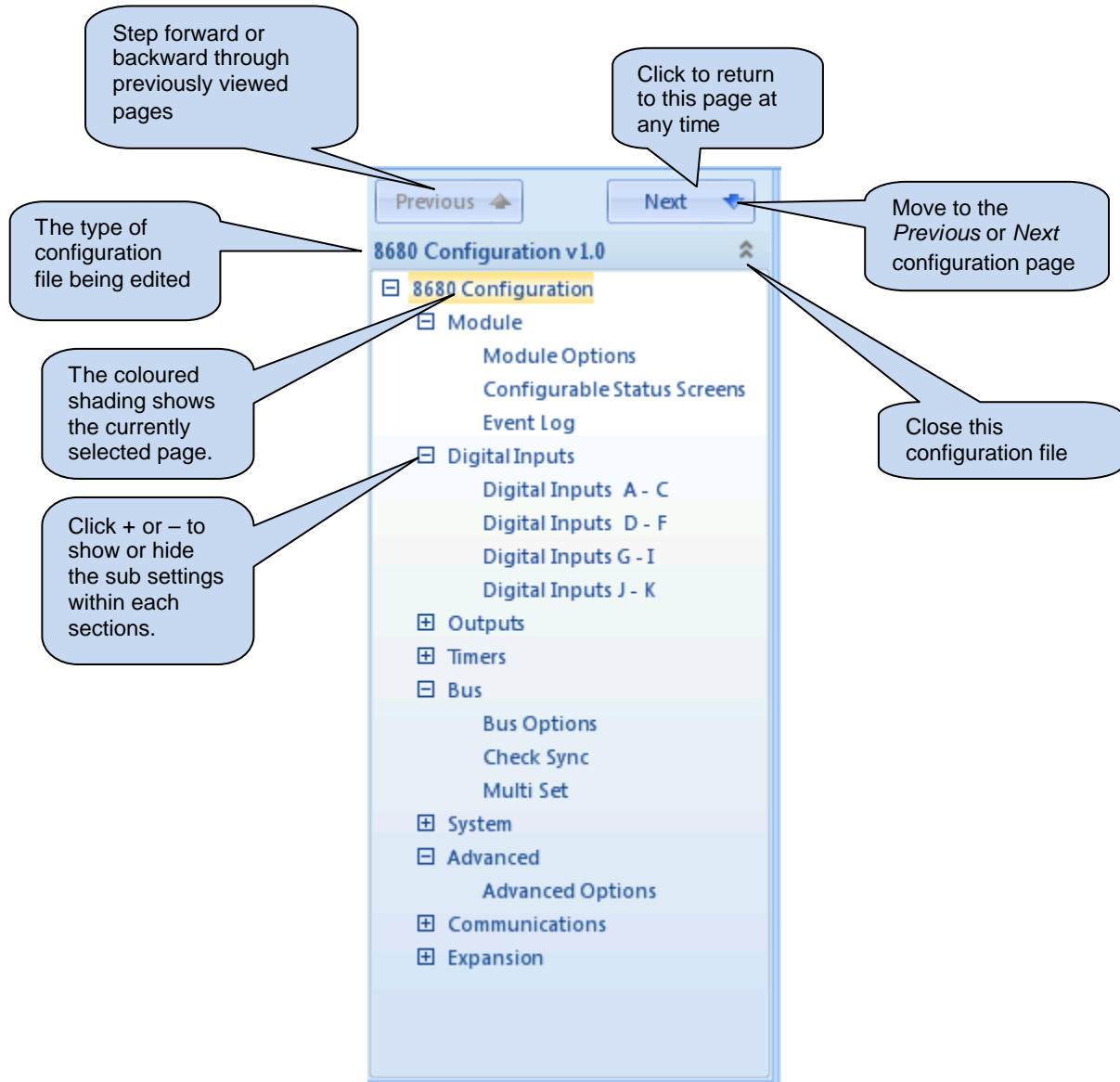
The toolbar contains the most used commands from the menus and is often a quicker way of accessing these commands.

	Create a new configuration file
	Open an existing file from disk or flash memory device
	Save the currently open file to the location it was loaded from previously. If this is a new file, you are prompted to enter a filename.
	Print the currently open configuration file
	Preview what the configuration file will look like on the page after printing.
	Send the currently open configuration settings to the controller
	Read the settings out of the connected controller for viewing / editing
	Allows the user to create an Address Book of connects. For a complete description see the section entitled "Address Book" else where in this document.
	Allows the user to log all the events from any module connected to the PC via SCADA. For a complete description see the section entitled "Event Log" else where in this document.
	Allows the user to mute any alarms that have been received by telephone modem from a suitably configured controller.
	Shows the version number of the configuration suite
<input type="checkbox"/> Display volts as PhPh	<input checked="" type="checkbox"/> Voltages are shown as phase to phase voltages in the configuration editor <input type="checkbox"/> Voltages are shown as phase to neutral voltages in the configuration editor
Connect via  USB Modem	<p>Select the communication method. The choices present are dependent upon your PC's configuration. Any modem connections added to the address book are also selected here.</p> <p>To connect via USB directly to the controller, select <i>USB</i> :</p>  <p>To connect to a module via modem, select your the connection from the list. You must add entries via the 'address book' icon first.</p> <p>Dial  Dial the number currently entered into the <i>Module Phone Number</i> setting.</p> <p>Hang-up  Close the phone connection.</p> <p>Answer mode  The Configuration Suite goes into <i>Answer Mode</i> awaiting a connection from a remote module.</p>
RS485 / RS232	<p>To connect to a module via RS232 or RS485, select your comport from the list :</p>  <p>Then click Port Settings to configure the RS485 Port :</p>  <p>Enable 485 : Enable or Disable the RS485 port connection in the PC.</p> <p>Slave ID: The modbus slave ID you wish to communicate with.</p> <p>Baud Rate: The baud rate you wish to connect at.</p> <p>For further details about the RS232/RS485 port, see the section headed Communications elsewhere in this manual.</p>

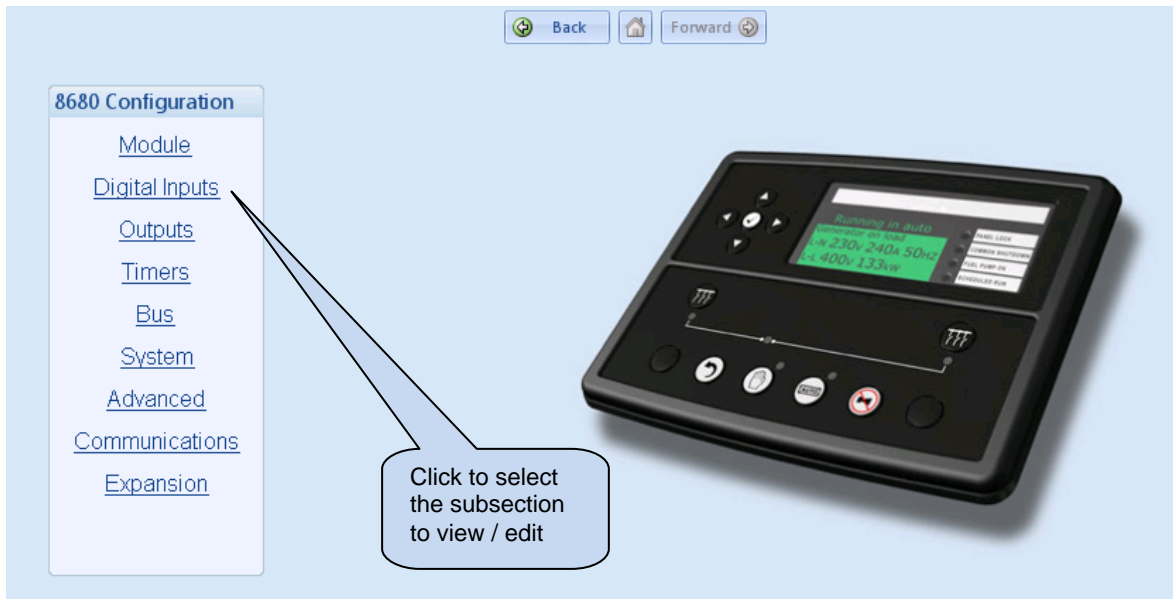
6 EDIT CONFIG

This menu allows module configuration, to change the function of Inputs, Outputs and LED's, system timers and level settings to suit a particular application.

6.1 SCREEN LAYOUT



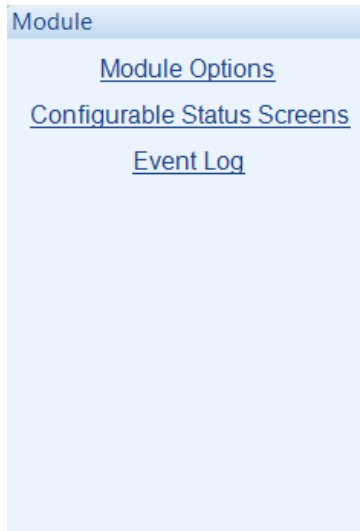
Menus and toolbar



6.2 MODULE

The module page is subdivided into smaller sections.
Select the required section with the mouse.

This section allows the user to change the options related to the module itself.



6.2.1 MODULE OPTIONS

The screenshot shows the 'Module Options' configuration window, divided into three main sections:

- Description:** Contains four numbered text input boxes (1-4). A callout explains: "Free entry boxes to allow the user to give the configuration file a description. Typically this is used to enter the job number, customer name, engineers name etc."
- LED Indicators:** Contains four rows, each with a dropdown menu (all set to 'Not Used'), a 'Lit' dropdown, and an 'Insert Card Text' text box. Below these are 'Text Insert' and 'Logo Insert' buttons. A callout explains: "Allows the user to create logo and text insert cards"
- Miscellaneous Options:** Contains two checkboxes: 'All warnings are latched' and 'Support right-to-left languages in module strings'.

A callout on the left side explains: "Allows the user to select the function of the modules user configurable LED indicators. For details of possible selections, please see section entitled *Output sources* elsewhere in this document."

Miscellaneous Options	
All Warnings Are Latched	<input type="checkbox"/> = Normal Operation, the warnings and pre-alarms will automatically reset once the triggering condition has cleared. <input checked="" type="checkbox"/> = Warnings and pre-alarms latch when triggered. Resetting the alarm is performed by either an external reset applied to one of the inputs or, the 'Stop/Reset' pushbutton must be operated (once the triggering condition has been cleared).
Support right-left languages in module strings	Determines the direction of text input where supported (i.e. configurable input text) <input type="checkbox"/> =left to right language support <input checked="" type="checkbox"/> =right to left language support

6.2.2 CONFIGURABLE STATUS SCREENS

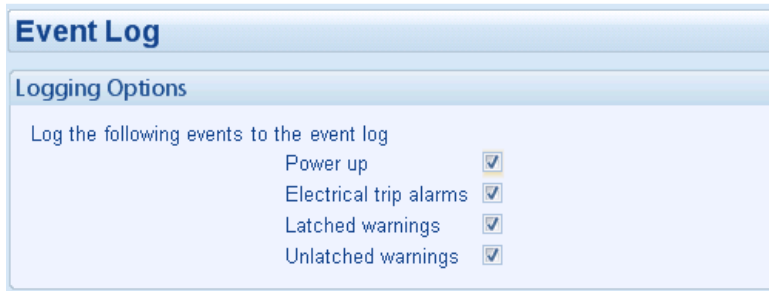
Configurable Status Screens allow the operator to design the status screen to match the requirements of the end user or application more closely. For instance it is possible to configure the module to show the factory set 'summary screen' and then cycle the display to show instruments specified by the end user. This display cycling occurs with no user intervention.

Displayed Pages	
Page 1	Not Used
Page 2	Not Used
Page 3	Not Used
Page 4	Not Used
Page 5	Not Used
Page 6	Not Used
Page 7	Not Used
Page 8	Not Used
Page 9	Not Used
Page 10	Not Used

These instruments are displayed one after the other when the set runs. If an entry is set to 'Not Used', or is not applicable, the entry is skipped over and not displayed.

6.2.3 EVENT LOG

The event log can be configured to allow users to select which events are stored.



The screenshot shows a configuration window titled "Event Log". Inside, there is a section titled "Logging Options" with the instruction "Log the following events to the event log". Below this, four event types are listed, each with a checked checkbox:

Event Type	Checked
Power up	<input checked="" type="checkbox"/>
Electrical trip alarms	<input checked="" type="checkbox"/>
Latched warnings	<input checked="" type="checkbox"/>
Unlatched warnings	<input checked="" type="checkbox"/>

6.2.3.1 SMS MESSAGING

Logged events will also cause modem 'dial outs' and SMS messages to be sent if the module is configured to do so and connected to a suitable external GSM modem with functioning SIM card.

6.3 DIGITAL INPUTS

The *digital inputs* page is subdivided into smaller sections. Select the required section with the mouse.

Digital Inputs

- [Digital Inputs A - C](#)
- [Digital Inputs D - F](#)
- [Digital Inputs G - I](#)
- [Digital Inputs J - K](#)

Digital Input A

Function	Close Bus
Polarity	Close to Activate
Action	
Arming	
LCD Display	
Activation Delay	0s

Input function. See section entitled *Input functions* for details of all available functions

As this example shows a *predefined* function, these parameters are *greyed out* as they are not applicable

Configures when the input is active:
Never, Always, Bus Closed, Bus Open

This is the text that will be displayed on the module screen when the alarm is triggered.

Digital Input B

Function	User Configured
Polarity	Close to Activate
Action	Electrical Trip
Arming	Always
LCD Display	Sample text
Activation Delay	2s

Example of a user configured input

Close or open to activate

Select the type of alarm required. For details of these, see the section entitled *Alarm Types* elsewhere in this document.


Click and drag to change the setting. This is used to give a delay on acceptance of the input. Useful for liquid level switches or to mask short term operations of the external switch device.

6.3.1 DIGITAL INPUT FUNCTIONS

Where a digital input is NOT configured as “user configured”, a selection can be made from a list of predefined functions. The selections are as follows:

Under the scope of IEEE 37.2, function numbers can also be used to represent functions in microprocessor devices and software programs. Where the DSE input functions can be represented by IEEE 37.2, the function number is listed below.

Function	Description
Alarm Mute	This input is used to silence the audible alarm from an external source, such as a remote mute switch.
Alarm Reset	This input is used to reset any latched alarms from a remote location. It is also used to clear any latched warnings which may have occurred (if configured) without having to stop the generator.
Bus Closed Auxiliary IEEE 37.2 - 3 Checking or interlocking relay	This input is used to provide feedback to allow the DSE8680 to give true indication of the contactor or circuit breaker switching status. It should be connected to the bus tie switching device auxiliary contact. Action: Warning (<i>Alarm only, No shutdown</i>)
Bus Closed Inhibit IEEE 37.2 - 3 Checking or interlocking relay	This input is used to prevent the DSE8680 from closing the tie breaker. If it is already closed, activating this input will cause the DSE8680 to open it. Removing the input will allow the bus tie to be closed again.
Close Bus IEEE 37.2 - 52 AC circuit breaker (DSE8680 only)	Closes the Bus Tie load switch (synchronising first if required)
External Panel Lock	This input is used to provide security to the installation. If the External Panel lock input is active, the module will not respond to operation of the Mode select or start buttons. This allows the module to be placed into a specific mode (such as Auto) and then secured. The operation of the module is not affected and the operator will still be able to view the various instrumentation pages etc. (<i>Front panel configuration access is still possible while the system lock is active</i>). NOTE: - External control sources (i.e. Simulate Start Button) are not affected by the external panel lock input and will continue to operate normally.
Lamp Test	This input is used to provide a test facility for the front panel indicators fitted to the DSE8600 module. When the input is activated all LED's should illuminate.
MSC Alarms Inhibit	This input is used to prevent MSC alarms. It is particularly useful when a set is being removed from duty for maintenance. NOTE: - For further details on MSC alarms, refer to the DSE Guide to Synchronising and Load Sharing.

Function	Description
Simulate Auto Button	<p> NOTE: - If a call to start is present when AUTO MODE is entered, the starting sequence will begin. Call to Start can come from a number of sources depending upon module type and configuration and includes (but is not limited to) : Remote start input present, Mains failure, Scheduled run, Auxiliary mains failure input present, Telemetry start signal from remote locations.</p> <p>This input mimics the operation of the 'Auto' button and is used to provide a remotely located Auto mode push button.</p>
Simulate Lamp test \ Alarm Mute Button	<p>This input is used to provide a test facility for the front panel indicators fitted to the module. When the input is activated all LED's should illuminate. The input also serves a second function, in that it also provides a mute signal to silence the audible alarm. The input is recognised by the module as though it was the Push button on the module itself being operated.</p>
Simulate Manual Button	<p>This input mimics the operation of the 'Manual' button and is used to provide a remotely located Manual mode push button.</p>
Simulate Open/Close Button IEEE 37.2 - 52 AC circuit breaker	<p>This input is used to toggle the state of the tie breaker when in MANUAL MODE (Synchronising if required)</p>

6.4 OUTPUTS

6.4.1 DIGITAL OUTPUTS

The screenshot shows a configuration window titled "Digital Outputs" with two sections: "Relay Outputs (Volts Free)" and "Relay Outputs (DC Supply Out)".

	Source	Polarity
Output C (N/C)	Not Used	De-Energise
Output D	Close Bus Output Pulse	Energise

	Source	Polarity
Output E	Digital Input A	Energise
Output F	Audible Alarm	Energise
Output G	Not Used	Energise
Output H	Not Used	Energise
Output I	Not Used	Energise
Output J	Not Used	Energise

Callout 1: "Select what the output is to be used to control" (points to the Source column).

Callout 2: "These labels match the typical wiring diagram" (points to the output labels).

Callout 3: "Select if the relay is to energise or de-energise upon activation of the source" (points to the Polarity column).

The list of output sources available for configuration of the module outputs is listed in the section entitled *Output Sources*.

6.4.2 VIRTUAL LEDS

	Source	Polarity
LED 1	Not Used	Lit
LED 2	Not Used	Lit
LED 3	Not Used	Lit
LED 4	Not Used	Lit
LED 5	Not Used	Lit
LED 6	Not Used	Lit
LED 7	Not Used	Lit
LED 8	Not Used	Lit
LED 9	Not Used	Lit
LED 10	Not Used	Lit
LED 11	Not Used	Lit
LED 12	Not Used	Lit
LED 13	Not Used	Lit
LED 14	Not Used	Lit
LED 15	Not Used	Lit
LED 16	Not Used	Lit
LED 17	Not Used	Lit
LED 18	Not Used	Lit
LED 19	Not Used	Lit
LED 20	Not Used	Lit

Allows the configuration of 'status' items. These items are not available for viewing on the module itself but can be seen in the SCADA section of the PC software, or read by third party systems (i.e. BMS or PLCs) using the Modbus protocol.

The list of output sources available for configuration of the module Virtual LEDs is listed in the section entitled *Output Sources*.

6.4.3 OUTPUT SOURCES

The list of output sources available for configuration of the module relay outputs also applies to the LED configuration and expansion relay outputs.

Under the scope of IEEE 37.2, function numbers can also be used to represent functions in microprocessor devices and software programs. Where the DSE output functions can be represented by IEEE 37.2, the function number is listed below.

Output source	Activates...	Is not active....
Not Used	The output will not change state (Unused)	
Alarm Mute	Indicates that an alarm mute operation is in progress by digital input	
Alarm Reset	Indicates that an alarm reset operation is in progress by digital input	
Audible Alarm IEEE 37.2 – 74 alarm relay	This output indicates that the internal sounder is operating to allow it to feed an external sounder. Operation of the Mute pushbutton will reset this output once activated.	Inactive if the internal sounder is not operating.
Auto Mode	Active when the controller is in AUTO mode	Inactive in any other mode.
Battery High Voltage IEEE 37.2 – 59DC over voltage relay	This output indicates that a Battery Over voltage alarm has occurred.	Inactive when battery voltage is not High
Battery Low Voltage IEEE 37.2 – 27DC under voltage relay	This output indicates that a Battery Under Voltage alarm has occurred.	Inactive when battery voltage is not Low
Bus 1 Live	This output indicates that a voltage has been detected on the bus. Once the voltage on the bus is detected above the “Dead bus relay setting”, it will no longer be considered a ‘dead-bus’ and the generator will need to synchronise in order to get onto the bus.	
Bus 1 Phase Rotation Alarm	This output indicates that the module has detected a phase sequence error on the bus.	
Bus 2 Live	This output indicates that a voltage has been detected on the bus. Once the voltage on the bus is detected above the “Dead bus relay setting”, it will no longer be considered a ‘dead-bus’ and the generator will need to synchronise in order to get onto the bus.	
Bus 2 Phase Rotation Alarm	This output indicates that the module has detected a phase sequence error on the bus.	
Bus Closed Auxiliary	Active when the <i>Bus closed auxiliary</i> input is active	
Bus Failed to Close IEEE 37.2 - 48 Incomplete Sequence Relay	This output source is intended to be used to indicate a failure of the Bus contactor or breaker. It can only be used if the module is configured to use ‘Bus Closed Auxiliary’ feedback.	
Bus Failed to Open IEEE 37.2 - 48 Incomplete Sequence Relay	This output source is intended to be used to indicate a failure of the Bus contactor or breaker. It can only be used if the module is configured to use ‘Bus Closed Auxiliary’ feedback.	
Check Sync IEEE 37.2 – 25 Synchronising or Synchronising Check Relay	Indicates that the internal check synchroscope has determined that the supplies are in sync.	
Close Bus Output IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the 8600 module selects the bus to be on load this control source will be active.	Inactive whenever the bus is not required to be on load
Close Bus Output Pulse IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the DSE8600 module selects the bus to be on load this control source will be active for the duration of the Breaker Close Pulse timer, after which it will become inactive again.	
Common Alarm IEEE 37.2 – 74 alarm relay	Active when one or more alarms (of any type) are active	The output is inactive when no alarms are present
Common Electrical Trip IEEE 37.2 – 74 alarm relay	Active when one or more <i>Electrical trip</i> alarms are active	The output is inactive when no electrical alarms are present
Common Warning IEEE 37.2 – 74 alarm relay	Active when one or more <i>Warning</i> alarms are active	The output is inactive when no warning alarms are present

Edit Configuration - Outputs

Output source	Activates...	Is not active...
Digital Input A - K	Active when the digital input is active	Inactive when : <ul style="list-style-type: none"> • If the input is not active • If the input is active but conditioned by <i>activation delay, safety timer</i> or <i>Arming requirements</i>.
Fail to Synchronise IEEE 37.2 - 48 Incomplete Sequence Relay	Becomes active if the module fails to synchronise after the <i>fail to sync</i> timer.	
Lamp test	This output indicates that the module is performing a lamp test. Once the lamp test is completed, the output will become inactive again. The output can be used to feed a lamp test on external modules or panel lamps.	
Manual Mode	Active when the controller is in MANUAL mode	Inactive in any other mode.
MSC Data Error	Indicates bad data transfer in the MultiSet Comms (MSC) Link	
MSC Failure	Indicates that the number of sets on the MultiSet Comms (MSC) Link is lower than it was previously.	
MSC ID Error	Indicates that two or more modules connected on MultiSet Comms (MSC) Link share the same MSC ID.	
MSC Too Few Sets	Indicates that the number of sets connected on the MultiSet Comms (MSC) Link is lower than the <i>Minimum sets required</i> setting.	
Mute / Lamp test button pressed	This output indicates that the alarm mute / Lamp test pushbutton is being operated. Once the button is released, the output will become inactive.	
Open Bus Output IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the DSE8600 module selects the bus to be off load this control source will be active.	Inactive whenever the bus is required to be on load
Open Bus Output Pulse IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the DSE8600 module selects the bus to be off load this control source will be active for the duration of the Breaker Open Pulse timer, after which it will become inactive again.	
Out of Sync	Indicates that the <i>out of sync</i> alarm has been triggered.	
Panel locked	This output indicates that the module ' <i>Panel Lock</i> ' is active. If the Panel lock input is active, the module will not respond to operation of the Mode select or start buttons. This allows the module to be placed into a specific mode (such as Auto) and then secured. The operation of the module is not affected and the operator will still be able to view the various instrumentation pages etc. (<i>Front panel configuration access is barred while system lock is active</i>).	
Panel lock by digital input	This output indicates that a digital input that has been configured as ' <i>Panel Lock</i> ' is active. If the Panel lock input is active, the module will not respond to operation of the Mode select or start buttons. This allows the module to be placed into a specific mode (such as Auto) and then secured. The operation of the module is not affected and the operator will still be able to view the various instrumentation pages etc. (<i>Front panel configuration access is barred while system lock is active</i>). Refer to the ' <i>Edit Inputs</i> ' section of this manual for details.	
Panel lock by telemetry	This output indicates that remote ' <i>Panel Lock</i> ' via telemetry is active. If the Panel lock is active, the module will not respond to operation of the Mode select or start buttons. This allows the module to be controller remotely without local interference. The operation of the module is not affected and the local operator will still be able to view the various instrumentation pages etc. (<i>Front panel configuration access is barred while system lock is active</i>).	
Synching Enabled	This output indicates that the synchronisation feature has been enabled.	
System healthy	This output indicates that the module is in <i>Auto</i> mode and there are no alarms present.	
Telemetry Active (Relay)	Active when the communication port is live and for a short time after transmission stops. Can be used as a relay or LED source.	
Telemetry Data Active (LED)	Active when data is being transmitted. This output will change continuously state (flash) upon data transfer. Normally used as an LED source rather than a relay source as this source will flash repeatedly. For a similar source more suited to drive a relay, see <i>Telemetry Active</i> .	

6.5 TIMERS

Many timers are associated with alarms. Where this occurs, the timer for the alarm is located on the same page as the alarm setting. Timers not associated with an alarm are located on the timers page. The *timers* page is subdivided into smaller sections. Select the required section with the mouse.



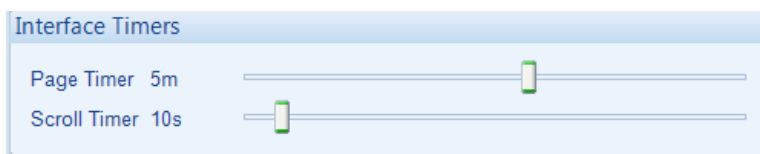
6.5.1 LOAD TIMERS



Click and drag to change the setting. Timers increment in steps of 1 second up to one minute, then in steps of 30 seconds up to 30 minutes, then in steps of 30 minutes thereafter (where allowed by the limits of the timer).

Timer	Description
Breaker close pulse	The amount of time that <i>Breaker Close Pulse</i> signals will be present when the request to close a breaker is given.
Breaker Trip pulse	The amount of time that <i>Breaker Open Pulse</i> signals will be present when the request to open a breaker is given.

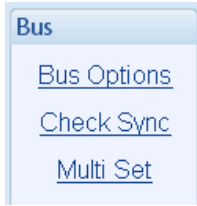
6.5.2 MODULE TIMERS



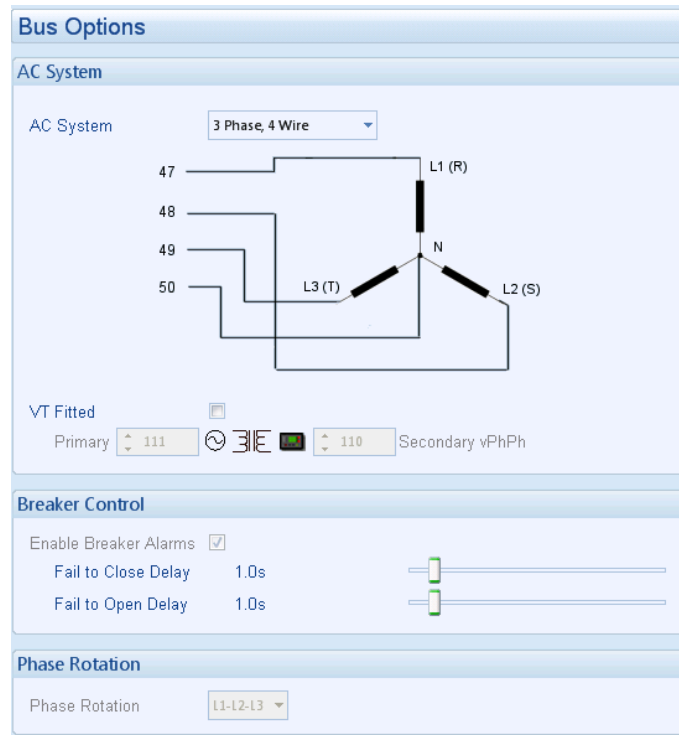
Timer	Description
LCD Page timer	If the module is left unattended for the duration of the <i>LCD Page Timer</i> it will revert to show the <i>Status</i> page.
LCD Scroll Timer	The scroll time between parameters on a selected page

6.6 BUS

The *bus* page is subdivided into smaller sections. Select the required section with the mouse.



6.6.1 BUS OPTIONS



Timer	Description
AC System	<p>These settings are used to detail the type of AC system to which the module is connected: 3 phase 4 wire, 1 phase 2 wire, 2 phase 3 wire – L1-L2, 2 phase 3 wire – L1-L3, 3 phase 3 wire, 3 phase 4 wire delta.</p> <p>This list is not exhaustive. DSE reserve the right to add to this list as part of our policy of continual development</p>
VT Fitted	<p><input type="checkbox"/> = The voltage sensing to the controller is direct from the mains <input checked="" type="checkbox"/> = The voltage sensing to the controller is via Voltage Transformers (VTs or PTs)</p> <p>This is used to step down the supplied voltage to be within the 8600 Series controller voltage specification. By entering the <i>Primary</i> and <i>Secondary</i> voltages of the transformer, the controller will display the <i>Primary</i> voltage rather than the actual measured voltage.</p> <p>This is typically used to interface the DSE module to high voltage systems (ie 11kV) but can also be used on systems such as 600V ph-ph.</p>
Bus Phase Rotation IEEE 37.2 – 47 phase sequence relay	<p><input type="checkbox"/> = Bus phase rotation is not checked. <input checked="" type="checkbox"/> = A 'Bus failure' situation is generated if the phase rotation is not as configured.</p>

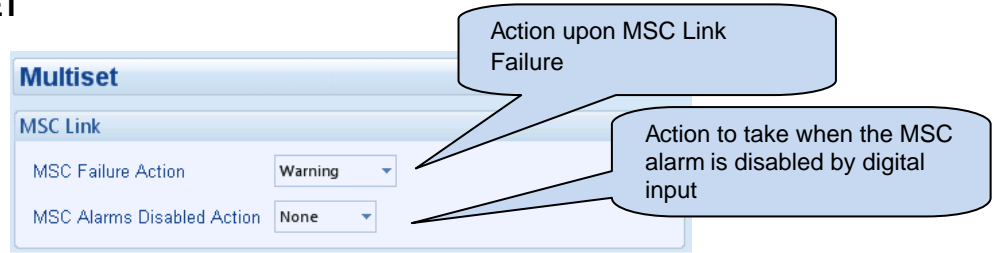
6.6.1.1 CHECK SYNC

The screenshot displays the 'Check Sync' configuration window. It is divided into four sections:

- Bus To Control:** A dropdown menu set to 'Bus 1'.
- Dead Bus:** A voltage slider set to 30 v PHN.
- Check Sync:** Four parameters with sliders: Low Frequency (-0.1 Hz), High Frequency (0.2 Hz), Voltage (2 v PHN), and Phase Angle (5 degrees).
- Fail To Sync Alarm:** A delay slider set to 1m.

Parameter	Description
Bus to control	During synchronising, one bus is controlled to synchronise with the other. This setting determines which bus is controlled by the DSE8680.
Dead Bus	The bus is measured when the set is to be loaded. If the bus is measured to be below the <i>Dead Bus Voltage</i> , the bus is assumed to be 'dead' and the breaker can be closed immediately. If the bus is measured to be above the <i>Dead Bus Voltage</i> , the oncoming generator must be synchronised before the breaker can be closed.
Check Sync	During the synchronising process, the DSE86xx will adjust the frequency of the generator to closely match the existing bus. Typically the oncoming set will be adjusted to be 0.1Hz faster than the existing supply. This causes the phase of the two supplies to change continuously. Before the breaker can be closed, the following conditions must be met: <ul style="list-style-type: none"> The difference between the two supplies frequencies must be between the <i>Check Sync Low Frequency</i> and <i>Check Sync High Frequency</i> The difference between the two supplies voltages must be equal to or below the <i>Check Sync Voltage</i> The phase of the two supplies must be equal to or below the <i>Check Sync Phase Angle</i>
Fail to sync Alarm	If the synchronising process continues longer than the <i>Fail to Sync Alarm Delay</i> , the alarm is triggered. This may occur if changes in the load are making the set control difficult due to changes in voltage and frequency. Electrical Trip : The set is stopped. In a <i>Load Demand</i> scheme, other generators may start if available. Warning : The set continues to synchronise.

6.6.1.2 MULTISSET



NOTE: - The MSC Link Alarms can be disabled by a digital input configured to *MSC Alarms Inhibit* if required.

6.7 PLANT BATTERY

Voltage Alarms

Undervolts

Warning 10.0 V DC

Return 10.5 V DC

Delay 1m

Overvolts

Return 29.5 V DC

Warning 30.0 V DC

Delay 1m

Charge Alternator Alarm

Shutdown

Trip 4.0 V DC

Delay 5s

Warning

Trip 6.0 V DC

Delay 5s

Click to enable or disable the option. The relevant values below will appear greyed out if the alarm is disabled.

Click and drag to change the setting.

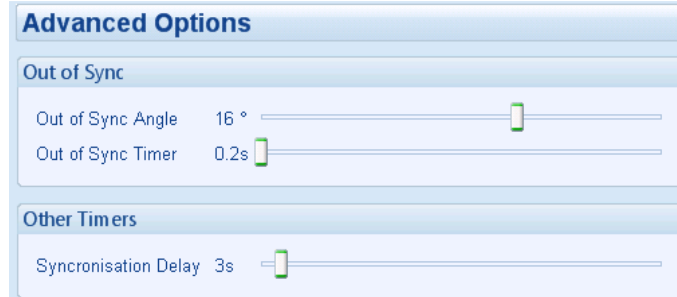
Type the value or click the up and down arrows to change the settings

Alarm	IEEE designation
Plant Battery Under volts	IEEE 37.2 -27 DC Under voltage relay
Plant Battery Over volts	IEEE 37.2 -59 DC Over voltage relay

6.8 ADVANCED

These settings are provided for *advanced* users only. Take care when changing these options and ensure you fully understand the consequences of any change made.

6.8.1 ADVANCED OPTIONS



6.8.1.1 OUT OF SYNC

During parallel operation, the phase of both supplies is monitored. Being in parallel means that this phase angle is zero degrees (0°).

If the angle exceeds the *Out of Sync Angle* for longer than the duration of the *Out of Sync Timer*, an electrical trip alarm is generated taking the set off load and into the cooling timer, after which the set is stopped.

TROUBLESHOOTING

This sections describes the most common causes for an *Out of Sync* alarm:

- The *Bus Sensing* connections have not been made between the common generator bus and the DSE module, or the bus sensing fuses have blown or have been removed.
- The load switching device does not close quickly enough. Ensure the breaker closes within 100mS of receiving the close signal.
- The *Out of Sync* timer is set too low. If you raise this timer away from the factory setting of 200mS (0.2s), ensure you understand why you are raising it!
- Something external has caused the breaker to open, or has prevented it from closing. Typical examples are external G59 relays and other equipment operating directly on the breaker to open it.
- The breaker wiring 'logic' may not be correct, causing the breaker to 'fire through', where it triggers the close mechanism, but the breaker doesn't actually mechanically close, it re-opens again.

6.8.1.2 OTHER TIMERS

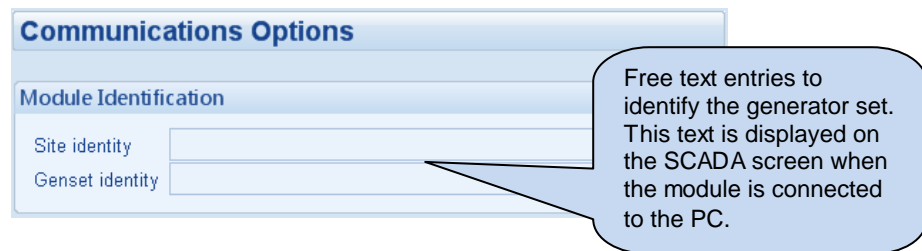
Options	Description
Synchronisation Delay	Delays the synchronising process to allow the set to stabilise and power parasitic loads or transformers (for instance) before the synchronising process begins.

6.9 COMMUNICATIONS



6.9.1 COMMUNICATION OPTIONS

Provides a means of giving the control an identity name. This is used in the SCADA section to allow the operator to see the site name and genset identity that is currently connected to the SCADA. As this could be a remote module connected over modem or Ethernet connection this is a very useful feature.



6.9.2 RS232 PORT

Communications

[Basic](#)

[Advanced](#)

6.9.2.1 BASIC

The screenshot shows the 'RS232 Port - Basic' configuration window. It is divided into two main sections: 'Serial Port Configuration' and 'Modem Settings'.

- Serial Port Configuration:**
 - Slave ID:** A numeric input field containing '10'. A callout bubble points to it with the text 'Modbus Slave ID'.
 - Baud Rate:** A dropdown menu currently set to '19200'. A callout bubble points to it with the text 'Baud rate adjustable from 1200-57600'.
 - Port Usage:** A dropdown menu currently set to 'No Modem'. A callout bubble points to it with the text 'Selects how the port is to be used'.
- Modem Settings:**
 - Alarm number:** A text input field.
 - GSM Modem:** A checkbox that is currently unchecked.
 - SMS Message centre number:** A text input field.
 - SMS Recipient numbers:** A multi-line text input field.

A callout bubble points to the 'Modem Settings' section with the text: 'These items are greyed out until a relevant option in Port Usage is selected.'

SERIAL PORT CONFIGURATION

Timer	Description
Port usage	<p>Only one of the two serial ports can be used at any one time (RS232 or RS485) The options are :</p> <p>No Modem – RS232 ports is used for direct RS232 connection to PLC, BMS etc</p> <p>Incoming modem calls – RS232 port connected to modem, used to accept incoming calls only.</p> <p>Incoming and outgoing modem – RS232 port connected to modem used to accept incoming calls and also make calls upon shutdown alarms.</p> <p>Outgoing modem alarms - RS232 port connected to modem, used to make calls upon shutdown alarms.</p>

MODEM SETTINGS

Timer	Description
Alarm Number	The phone number that the module will dial upon an alarm condition. This number must be connected to a PC modem on a PC running the Configuration Suite Software.
GSM Modem	<input type="checkbox"/> = The connected modem is a fixed line telephone modem <input checked="" type="checkbox"/> = The connected modem is a GSM (cellular) modem. The GSM signal strength meter and GSM operator are shown on the module display.
SMS Message Centre Modem	The Message centre used so send SMS messages. This number is usually stored on the SIM card and need not be entered here. A number is only needed here if it is not stored on the SIM card.
SMS Recipient Numbers	Numbers of the cell phones to send SMS messages to. Leave blank if SMS function is not required.

RECOMMENDED MODEMS

DSE stock and supply the following recommended modems:


PSTN (fixed line) modem

Description	DSE Part Number
Multitech ZBA Global Modem	020-252
Modem Localisation kit for Europe	020-253
Modem Localisation kit for Iceland/Sweden	020-254
Modem Localisation kit for New Zealand	020-264
Modem Localisation kit for Netherlands	020-265
Modem Localisation kit for USA	020-286

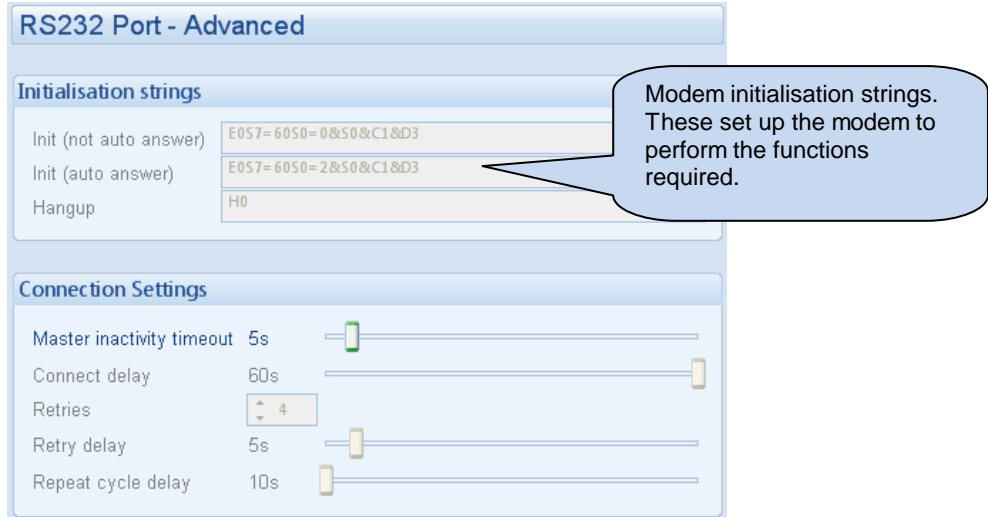
Other Localisation Kits can be obtained from www.multitech.com

GSM modem

DSE do not stock or supply CSD SIM cards for the modem, these must be obtained from your local GSM provider.

Description	DSE Part Number
Wavcom Fastrak Supreme GSM Modem supplied with power supply cable, RS232 connection cable and GSM antenna. Suitable for GSM operating on 900/1800 MHz bands.	0830-001-01
<div style="border: 1px solid black; padding: 5px;">  NOTE : This modem is supplied ready configured to operate with the DSE module. When purchasing from a third party, the modem is not configured to communicate with the DSE8680 series module. </div>	

6.9.2.2 ADVANCED



INITIALISATION STRINGS

The initialisation strings are commands that are sent to the modem upon powering up the DSE module and additionally at regular intervals subsequently, whenever the DSE8680 series module *initialises* (resets) the modem.

Factory set initialisation strings

Setting	Description
E0	Echo off
S7=60	Wait for carrier time 60s
S0=0 (not auto answer) S0=2 (auto answer)	Do not answer Answer after two rings
&S0	DSR always on
&C1	DCD is active if modem is online
&D3	Reset (ATZ) on DTR-drop
H0	Hang up (disconnect)

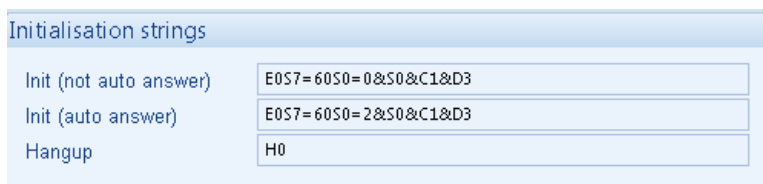
Silent operation

The modem connected to the DSE8680 controller will usually make dialling noises and 'squeal' in the initial stages of making a data call. To control this noise, add the following command to the end of the initialisation string:

Setting	Description
M0	Silent operation
M1	Sounds during the initial stages of making a data call
M2	Sounds always when connected (not recommended for normal use but can be of use for troubleshooting)

Multitech ZBA Global Modem initialisation strings

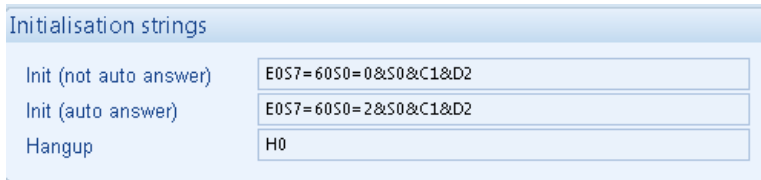
The DSE8680 factory settings for the initialisation strings are suited to the Multitech ZBA Global Modem:



Wavecom Fastrak Supreme GSM Modem initialisation strings

When connected to the Wavecom Fastrak Supreme GSM modem, the initialisation strings must be altered by changing the factory set &D3 to &D2.

Setting	Description
&D2 (required for Wavecom Fastrak Supreme)	Hang up on DTR-drop
&D3 (DSE8680 series factory settings)	Reset on DTR-drop



OTHER MODEMS

When using modems not recommended by DSE first try either of the options shown above. If problems are still encountered, you should contact your modem supplier for further advice.

CONNECTION SETTINGS

Timer	Description
Master inactivity timeout	The module <i>looks</i> by default at the USB port for communications. When activity is detected on the RS232 or RS485 port, the module <i>switches</i> to look at the relevant port for further data. If no data activity is detected on the port for the duration of the <i>master inactivity timer</i> , it reverts to looking at the USB port. This should be set longer than the time between modbus polls from the master.
Connect delay	The amount of time that is allowed to elapse between the alarm being registered and the controller dialling out with the fault.
Retries	The number of times the module will attempt to contact the remote PC by modem.
Retry delay	The amount of time between retries

6.9.3 TROUBLESHOOTING MODEM COMMUNICATIONS

6.9.3.1 MODEM COMMUNICATION SPEED SETTING

First ensure the modem is set to communication with the DSE module at 9600 baud – Modems supplied by DSE are factory adjusted to operate with the DSE8600 series module. Only modems purchased from a third party may require adjustment.

To change the modems RS232 baud rate you will need a command line terminal program (Hyperterminal by Microsoft is a good solution). Operation of this terminal program is not supported by DSE; you should contact your terminal program supplier.

Connect the modem RS232 port to your PCs RS232 port. You may need an additional card in your PC to provide this facility.

Use Hyperterminal (or similar) to connect to the modem at its current baud rate. You may need to contact your modem supplier to obtain this detail. If this is not possible, use 'trial and error' methods. Select a baud rate, attempt connection, press <ENTER> a few times. If the modem responds with **OK** then you are connected at the correct baud rate. Any other response (including nothing) means you are not connected so select another baud rate.

When connected, enter the following command:

AT+IPR=9600 and press <ENTER>

This sets the modem to 9600 baud.

Close the Hyperterminal connection (**do not** remove power from the modem) then open a new connection to the modem at 9600 baud.

Enter the following command:

AT&W and press <ENTER>

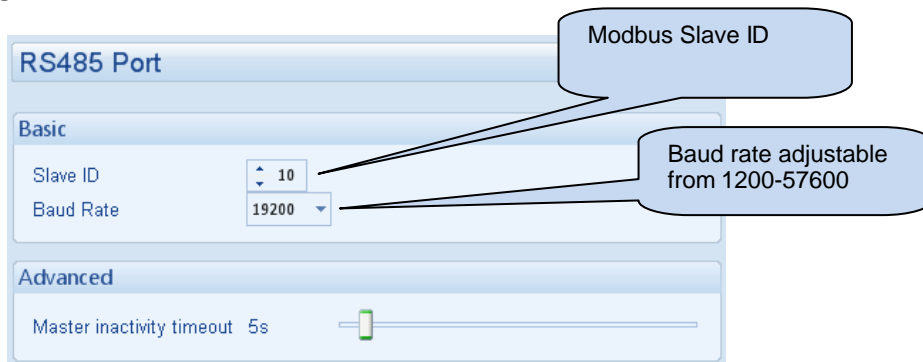
This saves the new setting in the modem. Power can now be removed. The next time power is applied, the modem starts with the new settings (Baud rate = 9600), suitable to communicate with the DSE8600 series module.

6.9.3.2 GSM MODEM CONNECTION

Most GSM modems have a *Status* LED. The Wavecom Fastrack Supreme as recommended and supplied by DSE has a RED Status LED, operating as follows.

LED STATE	Description
Off	Modem is not powered
On Continuous	Not connected to GSM network
Flashing Slow (approx once every two seconds)	Connected to GSM network
Flashing Fast (approx twice per second)	Connected to GSM network data transmission in progress.

6.9.4 RS485 PORT



Timer	Description
Master inactivity timeout	The module <i>looks</i> by default at the USB port for communications. When activity is detected on the RS232 or RS485 port, the module <i>switches</i> to look at the relevant port for further data. If no data activity is detected on the port for the duration of the <i>master inactivity timer</i> , it reverts to looking at the USB port. This should be set longer than the time between modbus polls from the master.

6.9.5 DSE8600 SERIAL PORT INSTRUMENT DISPLAY

The following section is an excerpt from the DSE8600 series operator manual (DSE Publication 057-115) and details the *Serial Port* instrument, used for monitoring operation of the DSE8600 series module serial port.

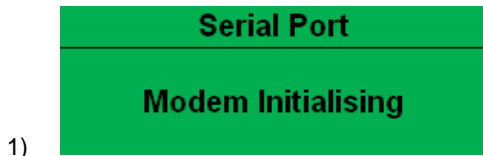
NOTE:- Factory Default settings are for the RS232 port to be enabled (no modem connected), operating at 19200 baud, modbus slave address 10.

Example 1 – Module connected to a RS232 telephone modem.

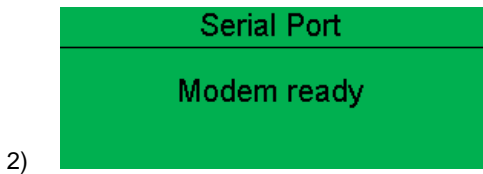
Serial Port	
Baud	9600
SlaveID	10
Modem	

Indicates that a modem is configured. Shows 'RS232' if no modem is configured or 'RS485' if the RS485 port is selected.

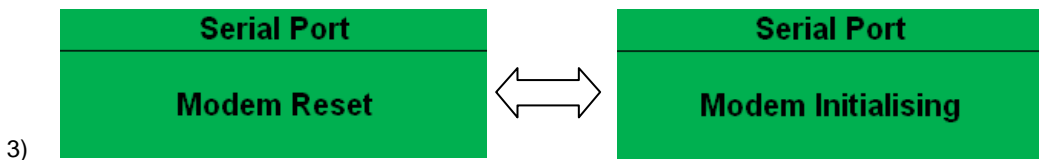
Modem Setup Sequence



If the Modem and DSE7000 series communicate successfully:



In case of communication failure between the modem and DSE8680 module, the modem is automatically reset and initialisation is attempted once more:



In the case of a module that is unable to communicate with the modem, the display will continuously cycle between 'Modem Reset' and 'Modem Initialising' as the module resets the modem and attempts to communicate with it again. This will continue until correct communication is established with the modem. In this instance, you should check connections and verify the modem operation.

Example 2 – Module connected to a modem.

Serial Port	
Baud	9600
SlaveID	10
Modem	

Example 3 – Modem status of a GSM modem

Currently connected GSM operator and signal strength.

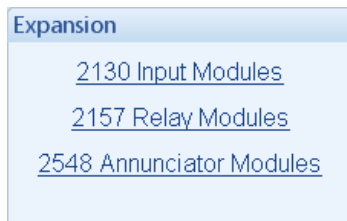
Serial Port	
Signal	Orange
Modem Ready	

Example 4 - Module RS485 port configured for connection to a modbus master.

Serial Port	
Baud	19200
SlaveID	1
RS485	

6.10 EXPANSION

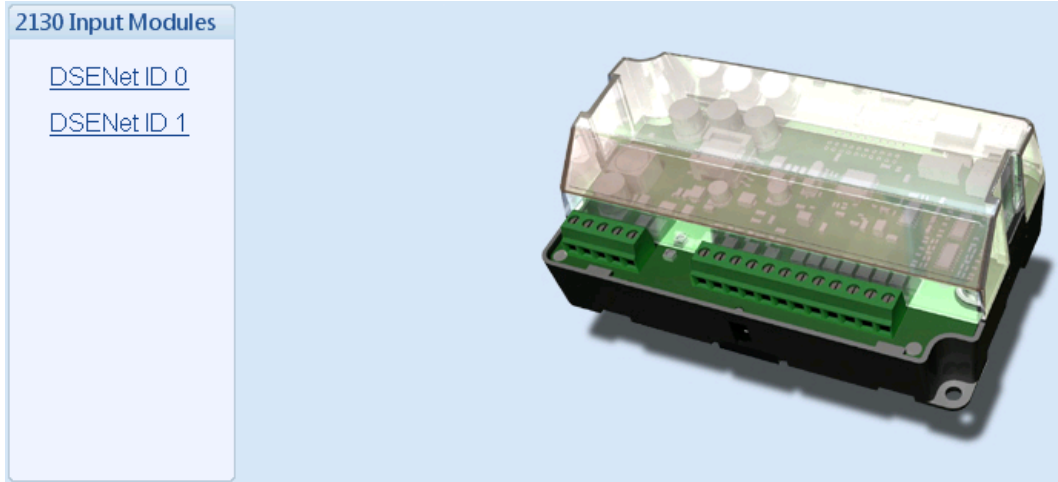
The *Expansion* page is subdivided into smaller sections.
Select the required section with the mouse.



See overleaf for description of the different expansion modules.

6.10.1 DSE2130 INPUT MODULES

Select the DSENet ID of the input expansion you wish to configure. The ID of the expansion input module is set by rotary decimal switch accessible under the removable cover of the device.



The following is then shown:

DSENet ID 0

2130 Expansion Enable

Expansion Enabled

Link Lost Alarm Action Electrical Trip

2130 Expansion Inputs

[Inputs A - D](#)

[Inputs E - H](#)

Click to enable or disable the option. The relevant values below will appear *greyed out* if the alarm is disabled.

Select the alarm type of the *link lost alarm*. This alarm will take action if the expansion module is not detected by the host module.

6.10.1.1 DIGITAL INPUTS (A-D AND E-H)

Inputs A - D

Digital Input A

Function User Configured

Polarity Close to Activate

Action Warning

Arming Always

LCD Display Low water level

Activation Delay 5s

Select which of the expansion inputs you wish to configure.

Select the required function of the input and whether it is *open* or *close to activate*.

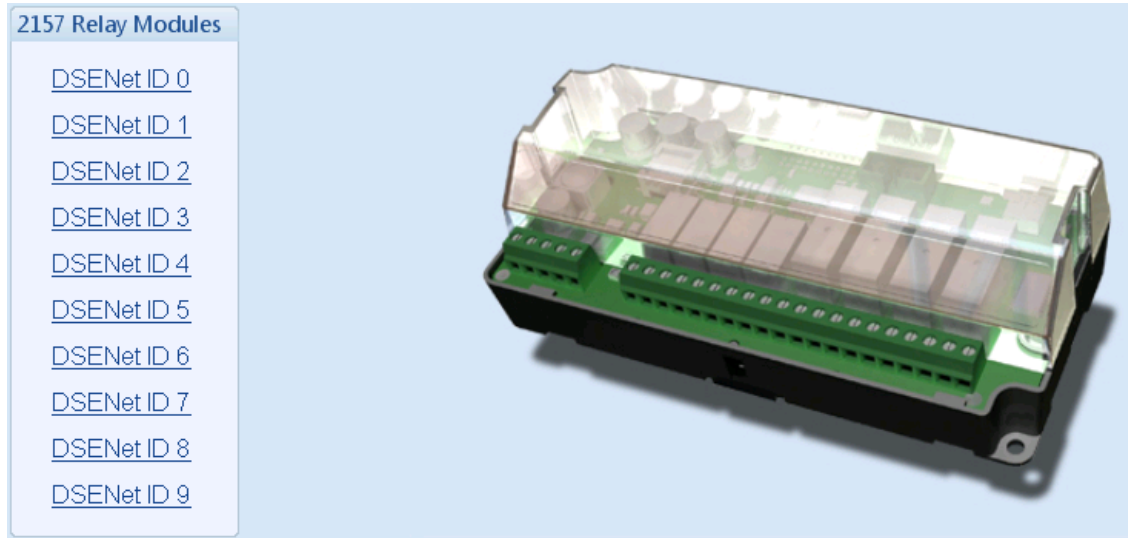
Select the required alarm type of the input and when it is active.

Type the text that is to appear on the module's display when the alarm is active.

Gives a delay upon activation of the input to allow the input to be used as a level switch for example.

6.10.2 DSE2157 RELAY MODULES

Select the DSENet ID of the relay expansion you wish to configure. The ID of the relay board is set by rotary decimal switch accessible under the removable cover of the device.



The following is then shown:

DSENet ID 0

2548 Expansion Enable

Expansion Enabled

Link Lost Alarm Action Warning

Sounder Configuration

Follow main unit

Sounder enabled

LED Indicators

A	Not Used	Lit
B	Not Used	Lit
C	Not Used	Lit
D	Not Used	Lit
E	Not Used	Lit
F	Not Used	Lit
G	Not Used	Lit
H	Not Used	Lit

Annunciator Insert Card

Click to enable or disable the option. The relevant values below will appear *greyed out* if the alarm is disabled.

Select the alarm type of the *link lost alarm*. This alarm will take action if the expansion module is not detected by the host module.

Select the output source and the polarity required. For example this output will *energise* when the module is in the *Auto* mode.

6.10.4 DSE2548 LED EXPANSION

Select the DSENet ID of the LED expansion you wish to configure. The ID of the Annunciator is set by rotary decimal switch accessible on the back of the device.



The following is then shown:

DSENet ID 0

2548 Expansion Enable

Expansion Enabled

Link Lost Alarm Action Warning

Sounder Configuration

Follow main unit

Sounder enabled

LED Indicators

A	Not Used	Lit
B	Not Used	Lit
C	Not Used	Lit
D	Not Used	Lit
E	Not Used	Lit
F	Not Used	Lit
G	Not Used	Lit
H	Not Used	Lit

Annunciator Insert Card

Click to enable or disable the option. The relevant values below will appear *greyed out* if the alarm is disabled.

Select the alarm type of the *link lost alarm*. This alarm will take action if the expansion module is not detected by the host module.

**- If the *mute / lamp test* button is pressed, other DSE2548 modules configured to *Follow main unit* and the host module will also lamp test / mute their alarm and vice-versa.
 - If the *mute / lamp test* button is pressed, other DSE2548 modules and the host module will not respond to this.**

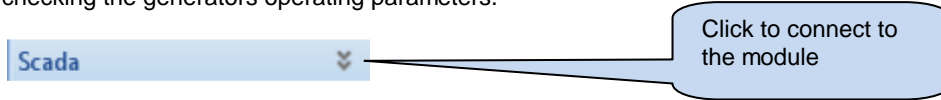
Enable or disable the expansion module's internal sounder.

Select the configuration for the LED. For instance this LED is configured to be *unlit* when in *auto mode*. Hence this is a *not in auto* LED.

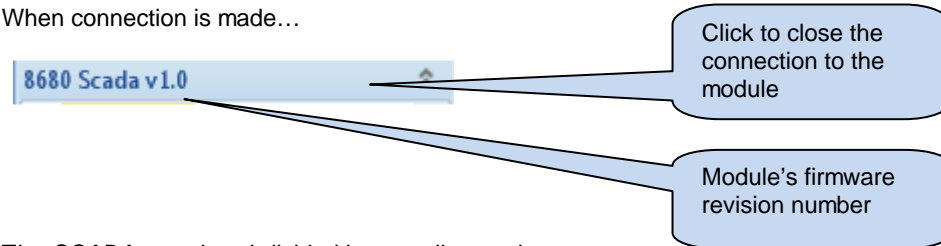
7 SCADA

SCADA stands for **S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition and is provided both as a service tool and also as a means of monitoring / controlling the generator set.

As a service tool, the SCADA pages is to check the operation of the controller's inputs and outputs as well as checking the generators operating parameters.



When connection is made...



The SCADA page is subdivided into smaller sections. Select the required section with the mouse.



7.1 GENERATOR IDENTITY

Shows the module's current settings for *Site ID* and *genset ID*.

This information is particularly helpful when the current connection is made remotely by modem or internet for example or when the connected set is one of a number of sets on an RS485 data link.

Generator Identity	
Site Identity	Deep Sea Electronics Head Office
Genset Identity	Volvo TAD941 GE

7.2 MIMIC

This screen provides a mimic of the control module and allows the operator to change the control mode of the module.

Only the mode control and load switch buttons are operational in the mimic display. The menu navigation buttons are inoperable.

Module status information. This is **not** an exact duplicate of the module's own display.

Click the bottom row of buttons to change module mode. The load switch buttons are also operable (in manual mode as with the module's own fascia buttons)

Hint: Before the mimic buttons will operate, ensure you have this enabled under TOOLS | ACCESS PERMISSIONS

7.3 LANGUAGES

Languages

Current Module Language
7xxx Chinese (People's Republic) language file - 18-09-2007

To upload: 7xxx Arabic (Saudi Arabia) language file - 03-10-2007

Upload Now

Current language in the module.

Select *new* language

Click to send the new language to the module

Languages

Current Module Language
7xxx Spanish (Spain - Modern) language file - 19-12-2007

To upload: 7xxx Spanish (Spain - Modern) language file - 19-12-2007

Upload Now

File Upload Progress

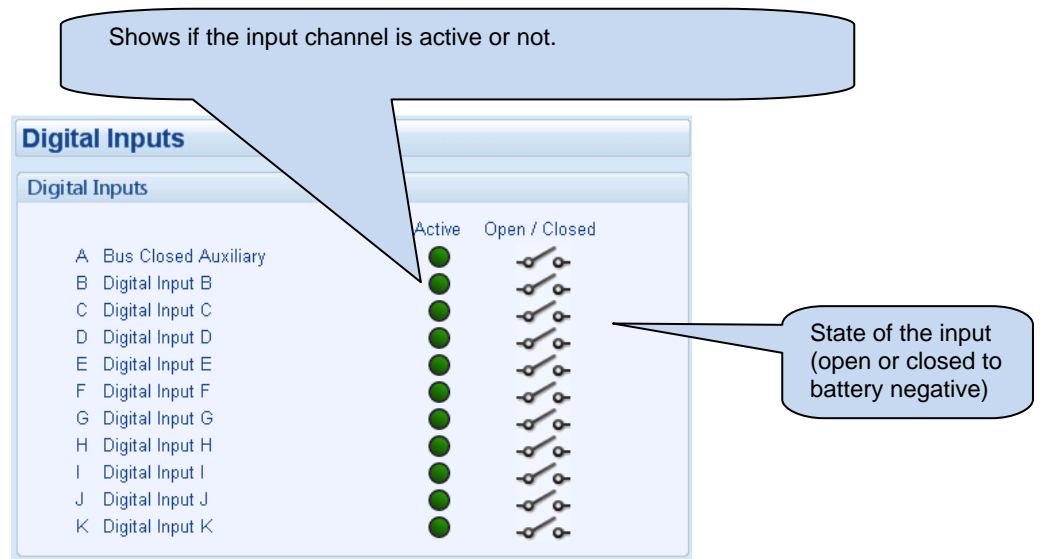
41 %

Uploading language file to module.

During language upload, the progress is shown. Total transfer time is less than one minute. During this process:

- DO NOT DISCONNECT THE USB LEAD
- DO NOT TURN OFF YOUR PC
- DO NOT DISCONNECT THE MODULE's DC POWER SUPPLY

7.4 DIGITAL INPUTS



7.5 DIGITAL OUTPUTS

Digital Outputs	
Digital Outputs (Volts Free)	
C (N/C) Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
D Close Bus Output	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
Digital Outputs (DC Supply Out)	
E Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
F Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
G Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
H Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
I Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>
J Not Used	Active <input checked="" type="checkbox"/> Open / Closed <input type="checkbox"/>

Shows if the output channel is active or not.

State of the output (open or closed)

7.6 VIRTUAL LEDs

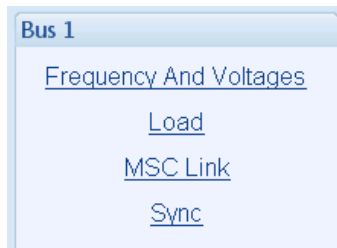
Shows the state of the *virtual LEDs*. These LEDs are not fitted to the module or expansion modules, they are not physical LEDs. They are provided to show status and appear only in the SCADA section of the configuration suite, or can be read by third party PLC or Building Management Systems (for example) using the modbus RTU protocol.

The screenshot displays a window titled "Virtual LEDs" with a sub-section "LED Status". It contains a table with 20 rows, each representing an LED. The first two columns list "LED 1" through "LED 20". The third column, labeled "Active", shows a vertical column of 20 small circular indicators. Callout boxes provide additional context: one points to the top indicator, stating "Shows if the Virtual LED is active or not", and another points to the eighth indicator, stating "Shows what the Virtual LED is configured for (shows the LED number if not configured)".

LED 1	LED 1	Active
LED 1	LED 1	●
LED 2	LED 2	●
LED 3	LED 3	●
LED 4	LED 4	●
LED 5	LED 5	●
LED 6	LED 6	●
LED 7	LED 7	●
LED 8	LED 8	●
LED 9	LED 9	●
LED 10	LED 10	●
LED 11	LED 11	●
LED 12	LED 12	●
LED 13	LED 13	●
LED 14	LED 14	●
LED 15	LED 15	●
LED 16	LED 16	●
LED 17	LED 17	●
LED 18	LED 18	●
LED 19	LED 19	●
LED 20	LED 20	●

7.7 BUS 1 & 2

The *Bus* pages are subdivided into smaller sections. Select the required section with the mouse.



7.7.1 FREQUENCY AND VOLTAGES

Shows the modules measurements of the bus supply.

Bus		
Frequency		
0.0 Hz		
Phase Rotation		
Indeterminate		
Phase to Neutral Voltages		
L1 - N 0.0 v	L2 - N 0.0 v	L3 - N 0.0 v
Phase to Phase Voltages		
L1 - L2 0.0 v	L2 - L3 0.0 v	L3 - L1 0.0 v
Other Controllers		
Gen Controllers		

7.7.2 LOAD

Shows the modules measurements of the bus supply power.

Load	
Bus Derived Instrumentation	
Watts 0.0 kW	VAr 0.0 kW

7.7.3 MSC LINK

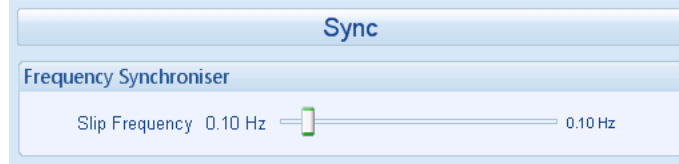
Multiset	
Bus	
Sets On The Bus Mains Controllers On The Bus Bus Tie Controllers On The Bus	
GenSet	
MSC ID	↑ 1 Set
Priority	↓ 1 Set

The number of modules currently on the bus

Unique MSC ID and priority of the DSE8680 in a multi set system

7.7.4 SYNC

NOTE: - This setting is not stored in the module configuration. It is stored in a different memory area and not transferred with the configuration. The *Backup Module* feature transfers both the configuration AND the settings of the Sync page.



Item	Function
Slip frequency	The difference between generator frequency and the bus/mains frequency. The 8600 controller will adjust engine speed until the frequency difference matches the slip frequency. The phase of the supplies will then drift in and out of synchronism at a rate of 1/slip-frequency times per second. I.e. for Slip frequency of 0.2Hz, the supplies will be in phase once every five seconds.

7.7.5 ALARMS

Shows any present alarm conditions.
 For a description of the different alarm types, see the section entitled *Alarm Types* elsewhere in this manual.



7.8 STATUS

Shows the module's current status.

The image shows a 'Status' panel with a light blue header and a white background. It contains five sub-panels arranged in a grid. The 'Supervisor State' panel shows 'Open Request'. The 'Software Version' panel shows '1.0'. The 'Load Switching State' panel shows 'Open Bus Tie'. The 'Module ID' panel shows 'BC614E'. The 'Mode' panel shows a hand icon with the index finger pointing up, indicating a specific operational mode.

Status	
Supervisor State Open Request	Software Version 1.0
Load Switching State Open Bus Tie	Module ID BC614E
	Mode 

7.9 EVENT LOG

Shows the contents of the module's event log.

#	Date	Time	Event	Details
1	06/02/2000	11:59	Restart	Power Up
2	04/02/2000	16:19	Warning	Bus Breaker Failed To Close
3	04/02/2000	11:12	Restart	Power Up
4	01/02/2000	12:21	Warning	Out Of Sync
5	01/02/2000	12:20	Warning	Bus Breaker Failed To Close
6	01/02/2000	12:18	Restart	Power Up
7	01/02/2000	12:16	Restart	Power Up
8	01/02/2000	12:12	Restart	Power Up
9	01/02/2000	12:03	Restart	Power Up
10	01/02/2000	12:00	Restart	Power Up
11	01/02/2000	12:00	Initialise	Event log initialised
12	01/02/2000	12:00	Initialise	User calibration data initialised
13	01/02/2000	12:00	Initialise	Accumulated instrumentation initialised

Export to Excel Export to CSV Export to PDF Print event log

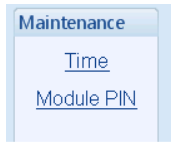
Click to save the log to an Excel or csv file for use in an external spreadsheet program

Click to save the log to a pdf (Adobe Acrobat) file

Click to print the log

7.10 MAINTENANCE

The *Maintenance* section is subdivided into smaller sections. Select the required section with the mouse.



7.10.1 TIME

A screenshot of the 'Time' settings page in the software interface. The page is divided into four sections: 'Module Date', 'Module Time', 'Set Date and Time', and 'Set to PC Time'. Each section contains specific information and controls. Callouts provide instructions for each section.

Section	Content	Callout
Module Date	18/10/2007	Display of the module's current date and time
Module Time	04:52:39	Display of the module's current date and time
Set Date and Time	Date: 18/10/2007 Time: 04:52:35 Set	Type the new date / time or click the up and down arrows to change the settings
Set to PC Time	Date: 18/10/2007 Time: 10:52:41 Set to PC Time	Click Set to adjust the module to the date/time that your PC is set to.

Click Set to adjust the module to the selected date/time.

7.10.2 MODULE PIN

NOTE : If the PIN is lost or forgotten, it will not be possible to access the module!

Allows a PIN (Personal Identification Number) to be set in the controller. This PIN must be entered to either access the front panel configuration editor or before a configuration file can be sent to the controller from the PC software.

The screenshot shows a software window titled "Module PIN". Inside, there is a sub-section "Module Access Password". It contains two rows of four numeric input fields each, labeled "Password" and "Confirmation". Below these fields is a warning message: "Warning - care should be taken when adjusting these controls. If the password is lost or forgotten, it will not be possible to access the module." At the bottom of the window is a "Set PIN" button. Two callout boxes are present: one pointing to the input fields with the text "Enter the desired PIN number and reconfirm.", and another pointing to the "Set PIN" button with the text "Click to set the PIN number in the module."

8 ALARM TYPES

The protection included with the DSE control modules provides increasing levels of notification, depending upon the severity of the situation:

Alarm type	Description
Indication	No audible alarm or common warning signal occurs. <i>Indication</i> alarms are only used to illuminate indicators or to activate outputs.
Warning	Audible alarm and common alarm signal is generated. The set continues to run. <i>Warning alarms</i> are used to draw the operator's attention to a minor issue or to a problem that may escalate to an Electrical Trip or Shutdown Alarm if left untreated.
Electrical Trip	Audible alarm and common alarm signal is generated. The set is taken off load and the cooling timer begins, after which the set is stopped. <i>Electrical Trip alarms</i> are series issues that require the set to be taken off load. As the name implies, this is often electrical faults that occur 'after' the load breaker. The set is allowed to cool before stopping.

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