



DEEP SEA ELECTRONICS

DSE4610 / DSE4620

Configuration Suite PC Software Manual

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DSE4600 Series Configuration Suite Software Manual

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Amendments List

Issue	Comments	Minimum Module version required
1	Initial release	V1.0.0
2	Updated for V1.3	V1.3.76
3	Updated for V1.4	V1.4.1

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.

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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:

1.1 INSTALLATION INSTRUCTIONS

DSE PART	DESCRIPTION
053-156	4600 Installation Instructions Sheet

1.2 MANUALS

DSE PART	DESCRIPTION
057-151	DSE Configuration Suite PC Software Installation & Operation Manual
057-200	DSE4610 / DSE4620 Operator Manual

1.3 OTHER

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

The **DSE4600 Series configuration suite** allows the 4600 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.

This manual details the configuration of the DSE46XX controllers

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).

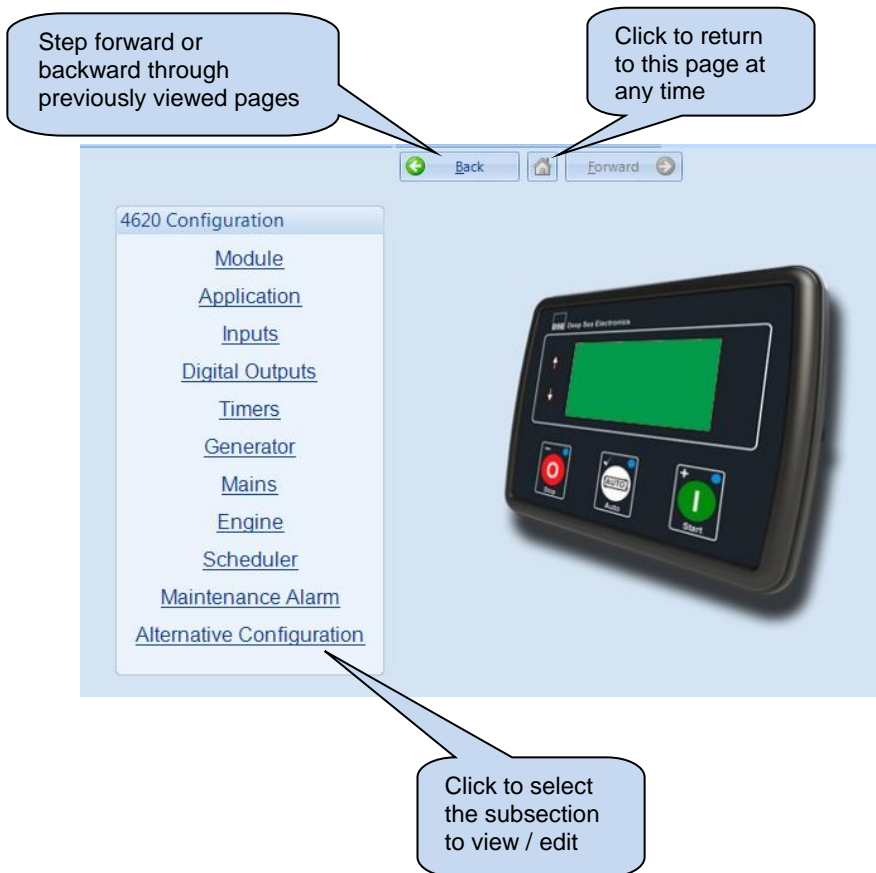
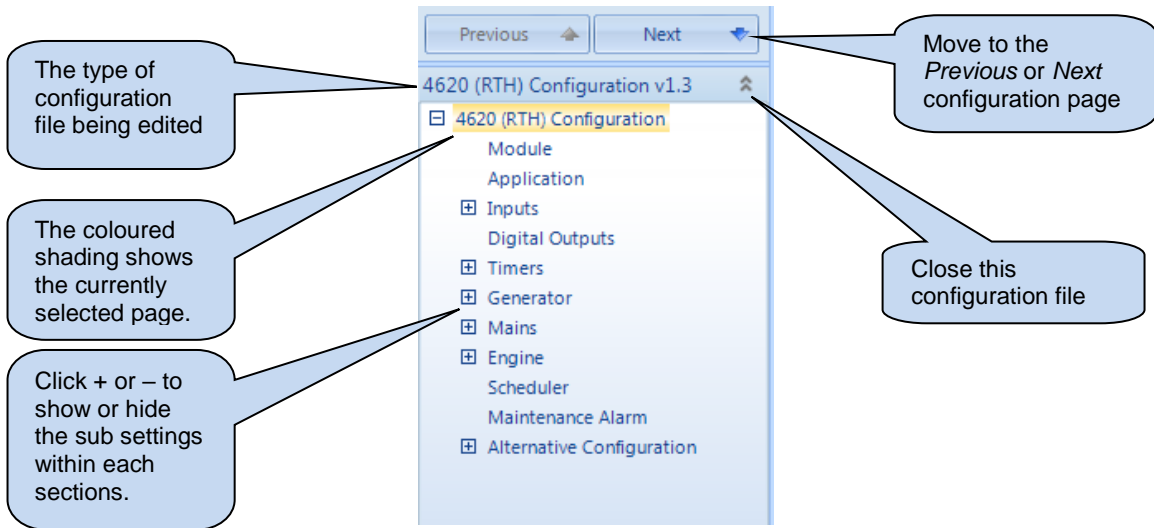
3 INSTALLATION AND USING THE DSE CONFIGURATION SUITE SOFTWARE

For information in regards to instating and using the DSE Configuration Suite Software please refer to DSE publication: **057-151 DSE Configuration Suite PC Software Installation & Operation Manual** which can be found on our website: www.deepseapl.com

4 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.

4.1 SCREEN LAYOUT



4.2 MODULE

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

Module

Module Options

Lamp test at power up	<input type="checkbox"/>
Protected Start Mode	<input type="checkbox"/>
Power Save Mode Enable	<input type="checkbox"/>
Deep Sleep Mode Enable	<input type="checkbox"/>
Event Log In Hours Run	<input type="checkbox"/>
Enable Fast Loading	<input type="checkbox"/>
Maintenance Pin Protected Enable	<input type="checkbox"/>
Enable Cool Down In Stop Mode	<input type="checkbox"/>
Power Up In Mode	Stop ▾
All warnings are latched	<input type="checkbox"/>



Instrumentation Suppression

Suppress the following instrumentation on the module screen

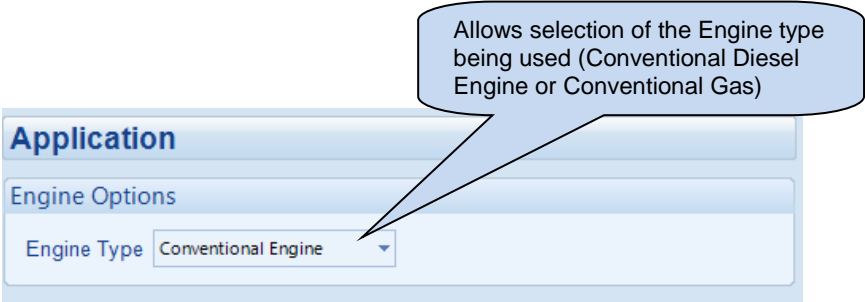
Generator Frequency	<input type="checkbox"/>	Generator Voltage	<input type="checkbox"/>
Mains Voltage	<input type="checkbox"/>	Mains Frequency	<input type="checkbox"/>
Current	<input type="checkbox"/>	Power Factor	<input type="checkbox"/>
kW	<input type="checkbox"/>	kWh	<input type="checkbox"/>
kVA _r	<input type="checkbox"/>	kVA _r h	<input type="checkbox"/>
kVA	<input type="checkbox"/>	kVA _h	<input type="checkbox"/>

Tick to hide the parameter on the module display.

Parameters detailed overleaf...

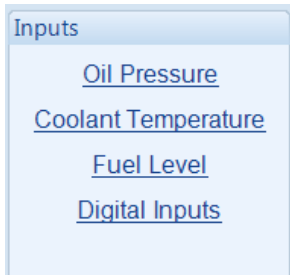
Miscellaneous Options	
Lamp Test At Power Up	<input type="checkbox"/> = Feature disabled <input checked="" type="checkbox"/> = The LEDs on the module's fascia all illuminate when the DC power is applied as a 'lamp test' feature.
Protected Start Mode	If enabled, the start button must be pressed twice to confirm manual start request
Power Save Mode Enable	<input type="checkbox"/> = Normal operation <input checked="" type="checkbox"/> = Module goes into power save (low current) mode after 1m of inactivity in STOP mode. Press any button to 'wake' the module.
Deep Sleep Mode Enable	(Available only if Power Save Mode is Enabled) When enabled, the module goes into a deeper sleep state with maximum power saving
Event log in Hours Run	<input checked="" type="checkbox"/> = The engine run hours is added to the recorded event in the event log
Enable Fast Loading	<input type="checkbox"/> = Normal Operation, the safety on timer is observed in full. This feature is useful if the module is to be used with some small engines where pre-mature termination of the delay timer can lead to overspeed alarms on start up. <input checked="" type="checkbox"/> = The module terminates the safety on timer once all monitored parameters have reached their normal settings. This feature is useful if the module is to be used as a standby controller as it allows the generator to start and go on load in the shortest possible time.
	 NOTE: - Enabling Fast Loading is only recommended where steps have been taken to ensure rapid start up of the engine is possible. (For example when fitted with engine heaters, electronic governors etc.)
Maintenance PIN Protected Enable	Maintenance alarm reset through the front panel editor is PIN protected
Enable Cool Down in Stop Mode	Changes the way the module reacts to the Stop button. <input type="checkbox"/> = if the engine is running on load and the stop button is pressed, the module opens the breaker and directly shutdown the engine. <input checked="" type="checkbox"/> = if the engine is running and the breaker is closed, the module opens the breaker, wait for the cool down timer to expire, then shutdown the engine.
	 NOTE: - If the engine is running with the breaker open, the module always shutdown the engine directly even if this option is enabled.
Power Up in Mode	Select the mode that the module enters when DC power is applied. Available modes to select from: Auto, Manual, Stop mode
All Warnings Are Latched	<input type="checkbox"/> = Normal Operation, the warnings and pre-alarms 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).

4.3 APPLICATION



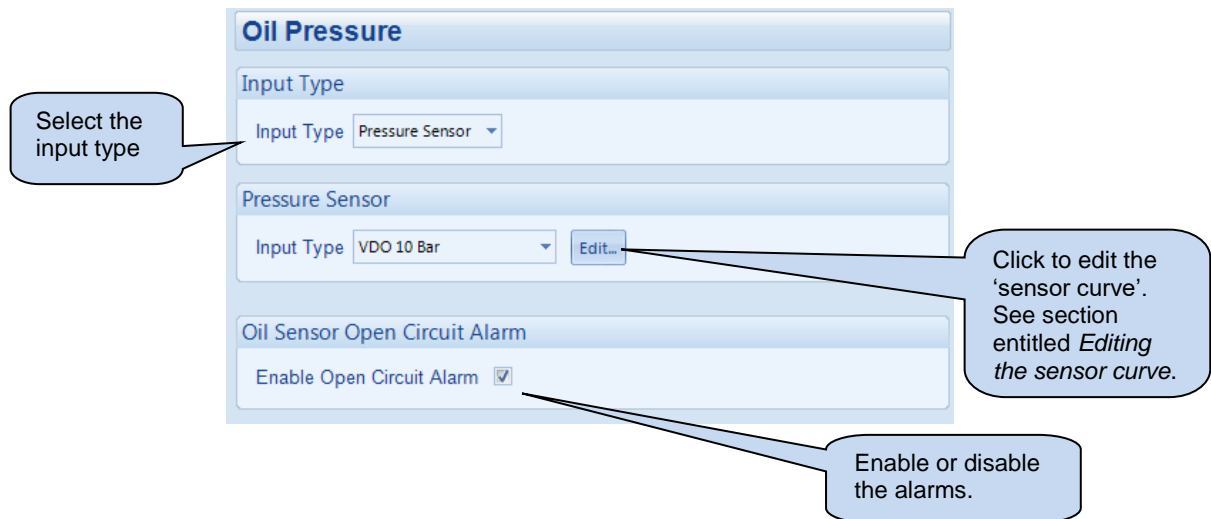
4.4 INPUTS

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



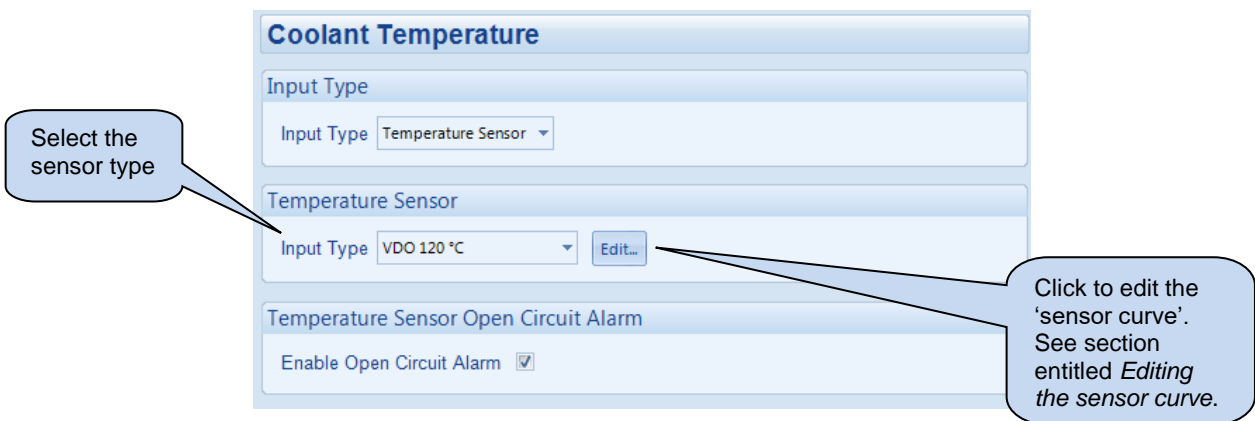
4.4.1 OIL PRESSURE

This section allows the configuration of the oil pressure input.



4.4.2 COOLANT TEMPERATURE

This section allows the configuration of the coolant temperature input.



4.4.3 FUEL LEVEL

This section allows the configuration of the fuel level input.

The screenshot shows the 'Fuel Level' configuration page. It is divided into three main sections: 'Sender Usage', 'Input Type', and 'Sensor Alarms'.
1. 'Sender Usage': A dropdown menu labeled 'Use sender as' is set to 'Fuel level sensor'.
2. 'Input Type': A dropdown menu is set to 'VDO Ohm range (10-180)' with an 'Edit...' button next to it.
3. 'Sensor Alarms': This section contains four alarm configurations, each with an 'Enable' checkbox, an 'Action' dropdown, and numerical settings for 'Alarm', 'Pre-alarm Trip', 'Pre-alarm Return', and 'Delay'.
- Low Alarm Enable: Checked, Action: Shutdown, Low Alarm: 10%, Delay: 0s.
- Low Pre-alarm Enable: Checked, Low Pre-alarm Trip: 25%, Low Pre-alarm Return: 30%, Delay: 0s.
- High Pre-alarm Enable: Checked, High Pre-alarm Return: 65%, High Pre-alarm Trip: 70%, Delay: 0s.
- High Alarm Enable: Checked, Action: Shutdown, High Alarm: 90%, Delay: 0s.
To the right of the numerical settings are horizontal sliders with green handles for adjusting the values.

Select the sensor type

Click to edit the 'sensor curve'. See section entitled *Editing the sensor curve*.

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

Click to enable or disable the alarms. The relevant values below appears *greyed out* if the alarm is disabled.

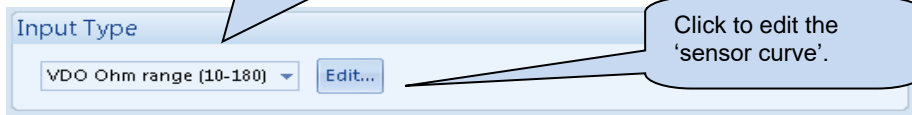
Click and drag to alter the time delay

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

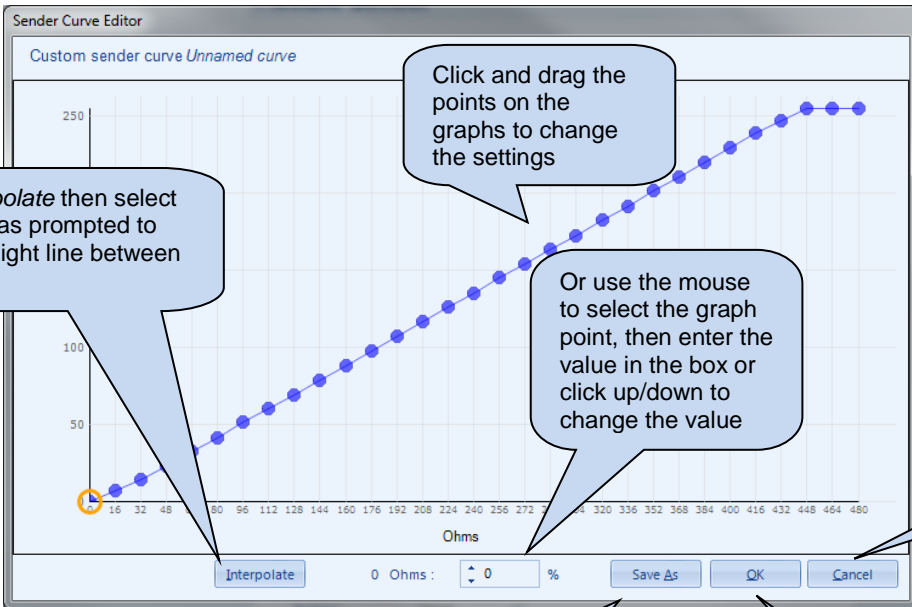
4.4.4 EDITING THE SENSOR CURVE

While the *configuration suite* holds sensor specification for the most commonly used resistive sensors, occasionally it is required that the module be connected to a sensor not listed by the *configuration suite*. To aid this process, a sensor editor has been provided.

In this example, the closest match to the sensor in use is the VDO 10-180Ω fuel level sensor.



Click to edit the 'sensor curve'.



Click *Interpolate* then select two points as prompted to draw a straight line between them.

Click and drag the points on the graphs to change the settings

Or use the mouse to select the graph point, then enter the value in the box or click up/down to change the value

Click CANCEL to ignore and lose any changes you have made

Click SAVE AS, you are prompted to name your curve....

Click OK to save the curve.

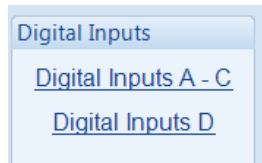
Any saved curves become selectable in the *Input Type* selection list.

Click OK to accept the changes and return to the configuration editor

Hint: Deleting, renaming or editing custom sensor curves that have been added is performed in the main menu, select *Tools | Curve Manager*.

4.4.5 DIGITAL INPUTS

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



Digital Inputs A - C

Digital Input A

Function: Emergency Stop
Polarity: Open to Activate
Action: [Greyed out]
Arming: [Greyed out]
Activation Delay: 0s

Digital Input B

Function: User Configured
Polarity: Close to Activate
Action: Shutdown
Arming: Always
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, active from starting, active from the end of the safety timer

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.

4.4.6 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.
Alternative Configuration	These inputs are used to instruct the module to follow the <i>alternative</i> configuration settings instead of the <i>main</i> configuration settings.
Auto Restore Inhibit IEEE 37.2 - 3 checking or interlocking relay 	In the event of a remote start/mains failure, the generator is instructed to start and take load. On removal of the remote start signal/mains return the module continues to run the generator on load until the <i>Auto Restore Inhibit</i> input is removed. This input allows the controller to be fitted as part of a system where the restoration to mains is controlled remotely or by an automated system.
Auto Start Inhibit IEEE 37.2 - 3 checking or interlocking relay	This input is used to provide an over-ride function to prevent the controller from starting the generator in the event of a remote start/mains out of limits condition occurring. If this input is active and a remote start signal/mains failure occurs the module does not give a start command to the generator. If this input signal is then removed, the controller operates as if a remote start/mains failure has occurred, starting and loading the generator. This function can be used to give an ‘AND’ function so that a generator is only called to start if the mains fails and another condition exists which requires the generator to run. If the ‘Auto start Inhibit’ signal becomes active once more it is ignored until the module has returned the mains supply on load and shutdown. This input does not prevent starting of the engine in MANUAL mode.
Auxiliary Mains Fail 	The module monitors the incoming single or three phase supply for Over voltage, Under Voltage, Over Frequency or Under frequency. It may be required to monitor a different mains supply or some aspect of the incoming mains not monitored by the controller. If the devices providing this additional monitoring are connected to operate this input, the controller operates as if the incoming mains supply has fallen outside of limits, the generator is instructed to start and take the load. Removal of the input signal causes the module to act if the mains has returned to within limits providing that the mains sensing also indicates that the mains is within limits.
Coolant Temperature Switch	This input is used to give a <i>Coolant Temperature High</i> shutdown from a digital normally open or closed switch. It allows coolant temperature protection.
Emergency Stop	Provides an immediate engine hot shutdown, used in emergency situations
External Panel Lock	Locks the mode buttons on the module front fascia.

Function	Description
Generator Load Inhibit IEEE 37.2 - 52 AC circuit breaker	<p>This input is used to prevent the module from loading the generator. If the generator is already on load, activating this input causes the module to unload the generator. Removing the input allows the generator to be loaded again.</p> <p>NOTE: -This input only operates to control the generator-switching device if the module load switching logic is attempting to load the generator. It does not control the generator-switching device when the mains supply is on load.</p>
Lamp Test	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.
Low Fuel Level Switch	Used to give a digital input function to provide a low fuel level alarm
Mains Load Inhibit IEEE 37.2 - 3 checking or interlocking relay 	<p>This input is used to prevent the module from loading the mains supply. If the mains supply is already on load activating this input causes the module to unload the mains supply. Removing the input allows the mains to be loaded again.</p> <p>NOTE: -This input only operates to control the mains switching device if the module load switching logic is attempting to load the mains. It does <u>not</u> control the mains switching device when the generator is on load.</p>
Maintenance Reset Alarm Air	Provides an external digital input to reset the maintenance alarm
Maintenance Reset Alarm Fuel	Provides an external digital input to reset the maintenance alarm
Maintenance Reset Alarm Oil	Provides an external digital input to reset the maintenance alarm
Oil Pressure Switch	A digital normally open or closed oil pressure switch gives this input. It allows low oil pressure protection.
Remote Start Off Load	If this input is active, operation is similar to the 'Remote Start on load' function except that the generator is not instructed to take the load. This function can be used where an engine only run is required e.g. for exercise.
Remote Start On Load	When in auto mode, the module performs the start sequence and activate all configured Light Outputs.
Simulate Auto Button	<p>NOTE: - If a call to start is present when AUTO MODE is entered, the starting sequence begins. 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 Mains available 	This function is provided to override the module's internal monitoring function. If this input is active, the module does not respond to the state of the incoming AC mains supply.
Simulate Start Button	This input mimics the operation of the 'Start' button and is used to provide a remotely located start push button.
Simulate Stop Button	This input mimics the operation of the 'Stop' button and is used to provide a remotely located stop/reset push button.
Smoke Limiting IEEE 37.2 - 18 accelerating or decelerating device	This input instructs the module to give a <i>run at idle speed</i> command to the engine either via an output configured to <i>smoke limit</i> or by data commands when used with supported electronic engines.
Transfer to generator/Open Mains IEEE 37.2 - 52 AC circuit breaker	This input is used to transfer the load to the generator when running in MANUAL MODE
Transfer to Mains/ Open Generator IEEE 37.2-52 AC circuit breaker	This input is used to transfer the load to the mains supply (AMF module) when running in MANUAL MODE or provide the 'Open Generator' signal in a non AMF Module.)

4.5 DIGITAL OUTPUTS

The screenshot shows a configuration window titled "Digital Outputs" with a table of output settings:

Output	Source	Polarity
Output A	Fuel Relay	Energise
Output B	Start Relay	Energise
Output C	Close Gen Output	Energise
Output D	Close Mains Output	De-Energise
Output E	Common Warning	Energise
Output F	Common Electrical Trip	Energise

Callouts provide the following information:

- "These labels match the typical wiring diagram" (pointing to the Output A-F labels).
- "These are greyed out as they are fixed and not adjustable." (pointing to the Source and Polarity dropdown menus).
- "Select if the relay is to energise or de-energise upon activation of the source" (pointing to the Polarity dropdown).
- "Select what the output is to be used to control" (pointing to the Source dropdown).

4.5.1 OUTPUT SOURCES

The list of output sources available for configuration of the module relay.




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.



The outputs are in alphabetical order with the *parameter* first. For instance for overspeed output, it's listed as *Engine Overspeed*.




= Only available on DSE4620 AMF Modules

Output source	Activates...	Is not active...
Not Used	The output does not change state (Unused)	
Air Filter Maintenance	Indicates that the air filter maintenance alarm is due	
Air Flap Relay	Normally used to control an air flap, this output becomes active upon an Emergency Stop or Over-speed situation.	Inactive when the set has come to rest
Analogue Input A, B & C (Digital)	Active when the relevant analogue input, configured as digital input, is active	
Audible Alarm IEEE 37.2 – 74 alarm relay	Use this output to activate an external sounder or external alarm indicator. Operation of the Mute pushbutton resets this output once activated.	Inactive if no alarm condition is active or if the Mute pushbutton was pressed.
Battery High Voltage IEEE 37.2 – 59DC overvoltage 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 undervoltage relay	This output indicates that a Battery Under Voltage alarm has occurred.	Inactive when battery voltage is not Low

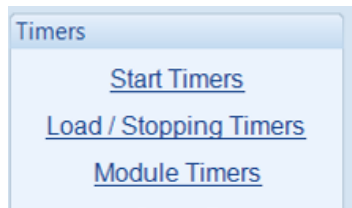
Output source	Activates...	Is not active....
Charge Alternator Warning/Shutdown	Active when the charge alternator alarm is active	
Close Gen Output IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the 4500 module selects the generator to be on load this control source is active.	Inactive whenever the generator is not required to be on load
Close Gen Output Pulse IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the 4500 module selects the generator to be on load this control source is active for the duration of the Breaker Close Pulse timer, after which it becomes inactive again.	
Close Mains Output IEEE 37.2 – 52 ac circuit breaker 	Used to control the load switching device. Whenever the 4500 module selects the mains to be on load this control source is active.	The output is inactive whenever the mains is not required to be on load
Close Mains Output Pulse IEEE 37.2 – 52 ac circuit breaker 	Used to control the load switching device. Whenever the 4500 module selects the mains to be on load this control source is active for the duration of the Breaker Close Pulse timer, after which it becomes inactive again.	
Combined Mains Failure 	Active when the mains supply is out of limits OR the input for Auxiliary Mains Failure is active	
Common Alarm	Active when one or more alarms (of any type) are active	The output is inactive when no alarms are present
Common Electrical Trip	Active when one or more <i>Electrical Trip</i> alarms are active	The output is inactive when no shutdown alarms are present
Common Shutdown	Active when one or more <i>Shutdown</i> alarms are active	The output is inactive when no shutdown alarms are present
Common Warning	Active when one or more <i>Warning</i> alarms are active	The output is inactive when no warning alarms are present
Cooling Down	Active when the Cooling timer is in progress	The output is inactive at all other times
Delayed Load Output 1, 2, 3 & 4	Provide delayed outputs for controlling load switching devices	
Digital Input A, B, C & D	Active when the relevant digital input is active	
Display Heater Fitted and ON	Active when the internal LCD heater is switched on	
Emergency Stop	Active when the Emergency Stop alarm is active.	
Energise To Stop	Normally used to control an <i>Energise to Stop</i> solenoid, this output becomes active when the controller wants the set to stop running.	Becomes inactive a configurable amount of time after the set has stopped. This is the <i>ETS hold time</i> .
Fail To Start IEEE 37.2 - 48 Incomplete Sequence Relay	Becomes active if the set is not seen to be running after the configurable number of start attempts	
Fail To Stop IEEE 37.2 - 48 Incomplete Sequence Relay	If the set is still running a configurable amount of time after it has been given the stop command, the output becomes active. This configurable amount of time is the <i>Fail to Stop Timer</i> .	
Flexible Sensor Low/High – Alarm/Pre-Alarm	Active when the relevant flexible sensor alarm is active	
Fuel Filter Maintenance	Indicates that the fuel filter maintenance alarm is due	
Fuel Level High Alarm	The level detected by the fuel level sensor has risen above the high fuel level alarm setting.	
Fuel Level High Pre-Alarm	The level detected by the fuel level sensor has risen above the high fuel level pre-alarm setting.	
Fuel Level Low Alarm	The level detected by the fuel level sensor has fallen below the low fuel level alarm setting.	
Fuel Level Low Pre-Alarm	The level detected by the fuel level sensor has fallen below the low fuel level pre-alarm setting.	

Output source	Activates...	Is not active...
Fuel Relay	Becomes active when the controller requires the governor/fuel system to be active.	Becomes inactive whenever the set should be stopped, including between crank attempts, upon controlled stops and upon fault shutdowns.
Gen Over Frequency Overshoot Alarm	Becomes active when the over frequency overshoot alarm is active	
Generator Available	Becomes active when the generator is available to take load.	Inactive when <ul style="list-style-type: none"> • <i>Loading voltage</i> and <i>loading frequency</i> have not been reached • After <i>electrical trip</i> alarm • During the starting sequence before the end of the warming timer.
Generator High Voltage Alarm	Active when the generator voltage exceeds the shutdown level.	
Generator Low Voltage Alarm	Active when the generator voltage falls below the shutdown level during normal running.	
Generator Over Frequency Shutdown	Becomes active when the over frequency shutdown alarm is active	
Generator Under Frequency Shutdown	Becomes active when the under frequency shutdown alarm is active	
High Coolant Temperature Shutdown	Active when the high coolant temperature shutdown alarm is active	
KW Overload Alarm	Active when the measured kW has risen above the configured trip level for a configured duration.	
Loss of Mag Pickup Signal	Active when the controller senses the loss of signal from the magnetic pickup probe	
Low Oil Pressure Shutdown	Active when the Low Oil Pressure Shutdown alarm is activate	
Mains High Frequency	Active when the measured mains frequency has risen above the configured trip level.	
Mains High Voltage	Active when the measured mains voltage has risen above the configured trip level.	
Mains Low Frequency	Active when the measured mains frequency has fallen below the configured trip level.	
Mains Low Voltage	Active when the measured mains voltage has fallen below the configured trip level.	
MPU Open Circuit	This output indicates that the module has detected an open circuit failure in the Magnetic Pickup transducer circuit.	
Oil Filter Maintenance	Indicates that the oil filter maintenance alarm is due	
Oil Pressure Sender Open Circuit	Active when the Oil Pressure Sensor is detected as being open circuit.	
Open Gen Output IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the module selects the generator to be off load this control source is active.	Inactive whenever the generator is required to be on load
Open Gen Output Pulse IEEE 37.2 – 52 ac circuit breaker	Used to control the load switching device. Whenever the module selects the generator to be off load this control source is active for the duration of the Breaker Open Pulse timer, after which it becomes inactive again.	
Open Mains Output IEEE 37.2 – 52 ac circuit breaker 	Used to control the load switching device. Whenever the module selects the mains to be off load this control source is active.	The output is inactive whenever the mains is required to be on load
Open Mains Output Pulse IEEE 37.2 – 52 ac circuit breaker 	Used to control the load switching device. Whenever the module selects the mains to be off load this control source is active for the duration of the Breaker Open Pulse timer, after which it becomes inactive again.	

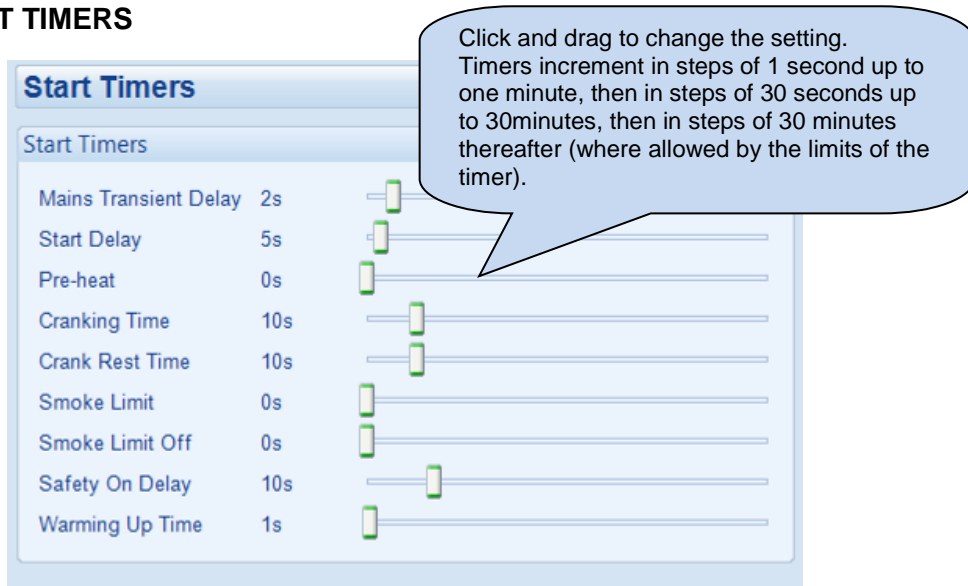
Output source	Activates...	Is not active...
Over Current Delayed Alarm	Active when an overcurrent condition has caused the Overcurrent Delayed alarm to trigger	
Over Current Immediate Warning IEEE 37.2 – 50 instantaneous overcurrent relay	Active when an overcurrent condition exceeds the Overcurrent alarm Trip setting. At the same time, the controller begins following the IDMT curve. If the overload condition exists for an excess time, the Overcurrent IDMT alarm activates.	
Over Speed Shutdown IEEE 37.2 – 12 over speed device	Active if the engine speed exceeds the Over Speed Shutdown setting	
Over Speed Overshoot Alarm	Active if the engine speed exceeds the Over Speed Overshoot alarm setting	
Preheat During Preheat Timer	Becomes active when the preheat timer begins. Normally used to control the engine preheat glow-plugs.	Inactive when : <ul style="list-style-type: none"> • The set is stopped • The preheat timer has expired
Preheat Until End Of Cranking	Becomes active when the preheat timer begins. Normally used to control the engine preheat glow-plugs.	Inactive when : <ul style="list-style-type: none"> • The set is stopped • The set has reached <i>crank disconnect</i> conditions
Preheat Until End Of Safety Timer	Becomes active when the preheat timer begins. Normally used to control the engine preheat glow-plugs.	Inactive when : <ul style="list-style-type: none"> • The set is stopped • The set has reached the end of the <i>safety delay</i> timer
Preheat Until End of Warming Timer	Becomes active when the preheat timer begins. Normally used to control the engine preheat glow-plugs.	Inactive when : <ul style="list-style-type: none"> • The set is stopped • The set has reached the end of the <i>warming</i> timer
Smoke Limiting	Becomes active when the controller requests that the engine runs at idle speed. As an output, this can be used to give a signal to the <i>Idle input</i> of an engine speed governor (if available)	Becomes inactive when the controller requests that the engine runs at rated speed.
Start Relay IEEE 37.2 – 54 turning gear engaging device	Active when the controller requires the cranking of the engine.	
System in Auto Mode	Active when Auto mode is selected	
System in Manual Mode	Active when Manual mode is selected	
System in Stop Mode	Active when Stop mode is selected	
Temperature Sensor Open Circuit	Active when the Temperature Sensor is detected as being open circuit.	
Under Speed Shutdown	Active when the engine speed falls below the under speed Shutdown setting	
Waiting for Manual Restore 	Becomes active when the generator is on load and the mains supply is healthy but an input configured to Manual Restore is active. This can be used to signal to an operator that action is required before the set can transfer back to the mains supply.	

4.6 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.



4.6.1 START TIMERS



= Only available on DSE4620 AMF Modules

Timer	Description
 Mains Transient Delay	Used to give a delay between sensing mains failure and acting upon it. This is used to prevent dropouts of the mains breaker and operation of the system due to mains supply transient conditions.
Start delay	Used to give a delay before starting in AUTO mode. This timer is activated upon a remote start signal being applied, or upon a start due to mains failure, scheduled run or any other <i>automatic</i> start. Typically this timer is applied to prevent starting upon fleeting remote start signals or short term mains failures.
Pre-heat	Give a 'pre start' time during which the <i>Preheat</i> output becomes active (if configured)
Cranking time	The length of each crank attempt
Crank rest time	The time between multiple crank attempts.
Smoke limit	The amount of time that the engine is requested to run at <i>idle</i> speed upon starting. This is typically used to limit emissions at startup.
Smoke limit off	This should be set to a little longer than the amount of time that the set takes to run up to rated speed after removal of the command to run at <i>idle</i> speed. If this time is too short, the set could be stopped due to <i>underspeed</i> failure. If the time is too long, <i>underspeed</i> protection is disabled until the <i>Smoke limit time off</i> time has expired.
Safety on delay	The amount of time at startup that the controller ignores oil pressure, engine speed, alternator voltage and other <i>delayed</i> alarms. This is used to allow the engine to run up to speed before protections are activated.
Warming up time	The amount of time that the set runs BEFORE being allowed to take load. This is used to warm the engine to prevent excessive wear.

4.6.2 LOAD / STOPPING TIMERS

Load/Stopping Timers

Load Control Timers

Transfer Time	0.7s
Breaker Trip Pulse	0.5s
Breaker Close Pulse	0.5s


Load Delay Timers

Delay Load Output 1	0s
Delay Load Output 2	0s
Delay Load Output 3	0s
Delay Load Output 4	0s

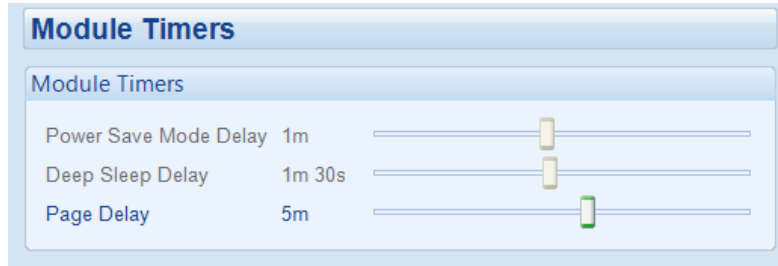
Stopping Timers

Return Delay	30s
Cooling Time	1m
Cooling Time At Idle	0s
ETS Solenoid Hold	0s
Fail to Stop Delay	30s
Generator Transient Delay	0.0s

 = Only available on DSE4620 AMF Modules

Timer	Description
 Transfer Time	The time between one load switch opening and the other closing. Used during transfer to and from the generator.
Breaker close pulse	The amount of time that <i>Breaker Close Pulse</i> signals is present when the request to close a breaker is given.
Breaker Trip pulse	The amount of time that <i>Breaker Open Pulse</i> signals is present when the request to open a breaker is given.
Load Delay Timers	Delay Load Output 1, 2, 3 & 4 Determine the time delay before energising the configured “Delayed Load” outputs. These outputs are used to control additional load breakers to provide five stage loading. After the generator load switch is closed, the remaining four outputs are closed after the configurable time delay. This allows for additional loads to be energised in sequence, minimising the size of step loading of the generator
Return delay	A delay, used in auto mode only, that allows for short term removal of the request to stop the set before action is taken. This is usually used to ensure the set remains on load before accepting that the start request has been removed.
Cooling time	The amount of time that the set is made to run OFF LOAD before being stopped. This is to allow the set to cool down and is particularly important for engines with turbo chargers.
Cooling Time At Idle	After the Cooling Time, the module instructs the set to run at idle speed for this amount of time before stop.
ETS Solenoid hold	The amount of time the <i>Energise to stop</i> solenoid is kept energised after the engine has come to rest. This is used to ensure the set has fully stopped before removal of the stop solenoid control signal.
Fail to stop delay	If the set is called to stop and is still running after the <i>fail to stop</i> delay, a <i>Fail to Stop</i> alarm is generated.
Generator transient delay	Used to delay the generator under/over volts/frequency alarms. Typically this is used to prevent spurious shutdown alarms caused by large changes in load levels.

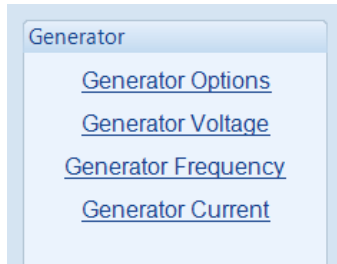
4.6.3 MODULE TIMERS



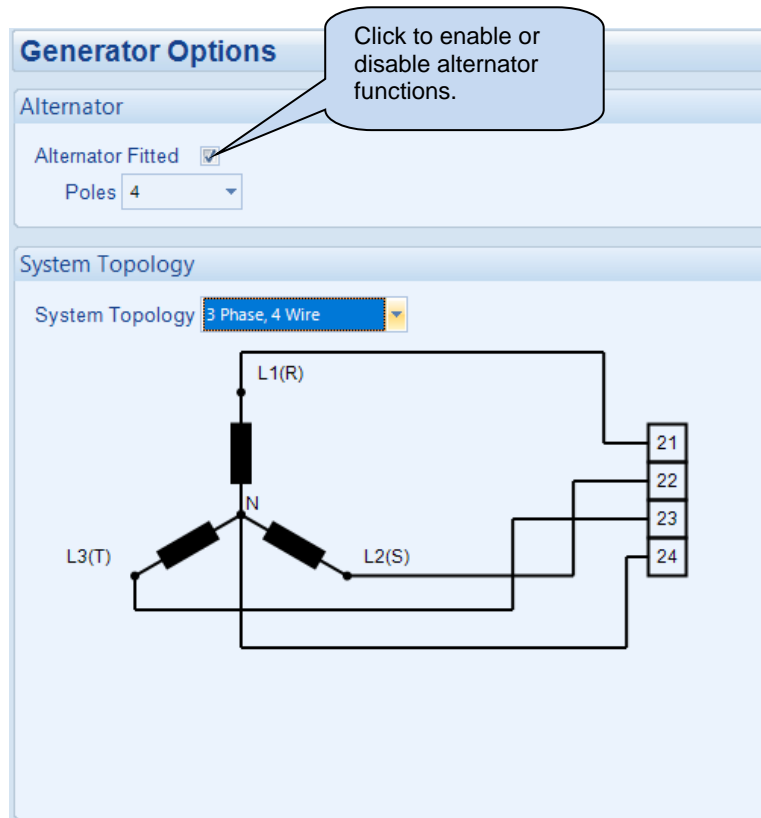
Timer	Description
Power Save Mode Delay	If the module is left unattended in Stop mode for the duration of the <i>Power Save Mode Delay</i> , it enters low power consumption mode (Power Save Mode).
Deep Sleep Delay	When the module is in Power Save Mode, if left unattended for the duration of the <i>Deep Sleep Mode Delay</i> timer, it enters a lower power consumption mode (Deep Sleep Mode)
Page Delay	If the module is left unattended for the duration of the <i>Page Delay Timer</i> , it reverts to show the Status page.

4.7 GENERATOR

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



4.7.1 GENERATOR OPTIONS



Parameter	Description
Alternator Fitted	<input type="checkbox"/> = There is no alternator in the system, it is an <i>engine only</i> application <input checked="" type="checkbox"/> = An alternator is fitted to the engine, it is a generator application.
System Topology	Allows a number of Topology's to be catered for. Selecting the <i>System Topology</i> shows the connections required for that particular system, along with the relevant connection numbers on the controller.

4.7.2 GENERATOR VOLTAGE

Generator Voltage Alarms

Under Voltage Alarms

Alarm Trip 319 v PhPh 319v PhPh

Pre-alarm Trip 339 v PhPh 339v PhPh

Loading Voltage

359 v PhPh 359v PhPh

Over Voltage Alarms

Pre-alarm

Return 440 v PhPh 440v PhPh

Trip 459 v PhPh 459v PhPh

Shutdown

Trip 480 v PhPh 480v PhPh

Click to enable or disable the alarms. The relevant values below appears 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
Generator Under voltage	IEEE 37.2 - 27AC Undervoltage relay
Loading Voltage	Determines the alternator voltage at which the generator becomes available and ready to take load
Generator Over voltage	IEEE 37.2 - 59AC Overvoltage relay

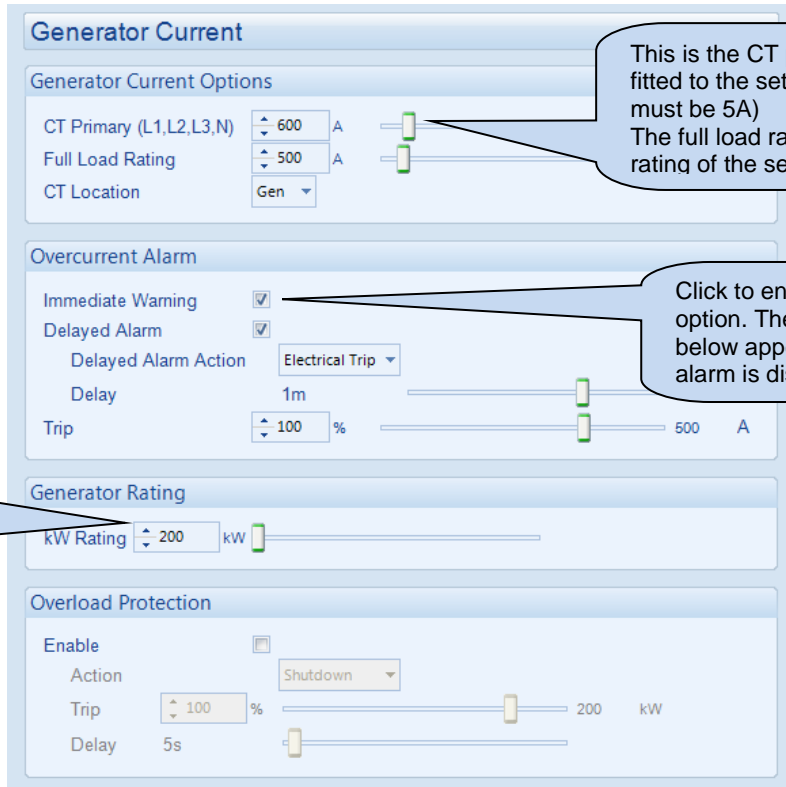
4.7.3 GENERATOR FREQUENCY

The screenshot shows the 'Generator Frequency Alarms' configuration window. It is divided into four sections: Under Frequency Alarms, Loading Frequency, Nominal Frequency, and Over Frequency Alarms. Each section contains checkboxes for enabling/disabling the alarm and numerical input fields for trip or return values, accompanied by sliders and percentage indicators.

- Under Frequency Alarms:**
 - Alarm: (Callout: Click to enable or disable the alarms. The relevant values below appears *greyed out* if the alarm is disabled.)
 - Trip: 40.0 Hz (Callout: Type the value or click the up and down arrows to change the settings)
 - Pre-alarm:
 - Trip: 42.0 Hz (Callout: Click and drag to change the setting.)
- Loading Frequency:** 45.0 Hz (Callout: Type the value or click the up and down arrows to change the settings)
- Nominal Frequency:** 50.0 Hz
- Over Frequency Alarms:**
 - Pre-alarm:
 - Return: 54.0 Hz
 - Trip: 55.0 Hz
 - Shutdown:
 - Trip: 57.0 Hz

Alarm	IEEE designation
Generator Under Frequency	IEEE 37.2 -81 Frequency relay
Loading Voltage	Determines the alternator frequency at which the generator becomes available and ready to take load
Generator Over Frequency	IEEE 37.2 -81 Frequency relay

4.7.4 GENERATOR CURRENT



4.7.4.1 OVERCURRENT ALARM

Setting	Description
Immediate Warning	When enabled, if the current exceeds the <i>Trip</i> level the <i>Immediate Warning</i> activates. Any output or LCD display set to <i>Over Current Immediate Warning</i> is energised. The current load must fall below the <i>Trip</i> level in order to cancel the output source.
Delayed Alarm	When enabled, if the current exceeds the <i>Trip</i> level the <i>Delayed Alarm</i> activates.
Delayed Alarm Action	<i>Electrical Trip:</i> The generator is taken off load and the set stopped after the <i>Cooling timer</i> . Any output or LCD display set to <i>Over Current Delayed Alarm</i> is energised. <i>Shutdown:</i> The generator is taken off load and the set stopped immediately. <i>Warning:</i> An alarm is generated but the set continues to run. Any output or LCD display set to <i>Over Current Delayed Alarm</i> is energised. The current load must fall below the <i>Trip</i> level in order to cancel the output source.
Delay	A time delay starts before the alarm action is executed
Trip	The current value at which the warning or alarm is activated

4.7.4.2 OVERLOAD PROTECTION

Setting	Description
Enable	<input type="checkbox"/> = Overload Protection function is disabled. <input checked="" type="checkbox"/> = The module monitors the kW load level and provide an alarm function if the level exceeds the <i>Trip</i> setting for the configured amount of time in the <i>Delay</i> setting.
Action	<i>Electrical Trip:</i> The generator is taken off load and the set stopped after the <i>Cooling timer</i> . Any output or LCD display set to <i>kW Overload Protection</i> is energised. <i>Shutdown:</i> The generator is taken off load and the set stopped immediately.
Trip	The kW value at which the alarm is activated
Delay	A time delay starts before the alarm action is executed

4.8 MAINS



= Only available on DSE4620 AMF Modules

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



4.8.1 MAINS OPTIONS

Timer	Description
Mains failure detection 	<input type="checkbox"/> = The module ignores the status of the mains supply. <input checked="" type="checkbox"/> = The module monitors the mains supply and use this status for automatically starting and stopping the set in auto mode.
Immediate Mains Dropout 	<input type="checkbox"/> = Upon mains failure, the mains load switch is kept closed until the generator is up to speed and volts. <input checked="" type="checkbox"/> = Upon mains failure, the mains load switch is opened immediately, subject to the setting of the <i>mains transient</i> timer.
AC System 	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 This list is not exhaustive. DSE reserve the right to add to this list as part of our policy of continual development

4.8.2 MAINS ALARMS

Mains Alarms

Voltage Alarms

Undervolts

Trip v PhPh

Return v PhPh

Overvolts

Return v PhPh

Trip v PhPh

Frequency Alarms

Under Freq.

Trip Hz

Return Hz

Over Freq.





Return Hz

Trip Hz

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

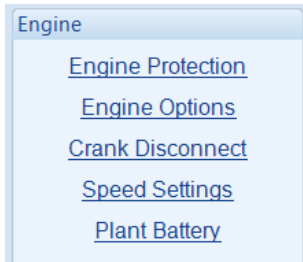
Click to enable or disable the alarms. The relevant values below appear *sgreyed out* if the alarm is disabled.

Click and drag to change the setting.

Alarm	IEEE designation
Mains Under voltage 	IEEE 37.2 - 27AC Undervoltage relay
Mains Over voltage 	IEEE 37.2 - 59AC Overvoltage relay
Mains Under Frequency 	IEEE 37.2 -81 Frequency relay
Mains Over Frequency 	IEEE 37.2 -81 Frequency relay

4.9 ENGINE

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



4.9.1 ENGINE PROTECTION

The screenshot shows the "Engine Protection" configuration page. It is divided into two main sections: "High Coolant Temperature Alarms" and "Low Oil Pressure Shutdown".

- High Coolant Temperature Alarms:** This section has a "Shutdown" label. Below it is a "Trip" input field containing the value "96" with a unit of "°C". To the right of the input field is a horizontal slider with a green handle. The right end of the slider is labeled "205 °F".
- Low Oil Pressure Shutdown:** This section starts with an "Enable" checkbox that is checked. Below it is a "Trip" input field containing the value "1.03" with a unit of "Bar". To the right of the input field is a horizontal slider with a green handle. The right end of the slider is labeled "14.94 PSI, 103 kPa".

Three callout boxes provide instructions:

- A callout on the left points to the "Enable" checkbox: "Enable or disable the alarms. The relevant values below appears *greyed out* if the alarm is disabled."
- A callout on the right points to the slider handle: "Click and drag to change the settings"
- A callout at the bottom points to the "Trip" input field: "Type the value or click the up and down arrows to change the settings"

4.9.2 ENGINE OPTIONS

The screenshot shows the 'Engine Options' configuration page, divided into several sections:

- ECU (ECM) Options:** Engine Type (Conventional Engine), Alternative Engine Speed (checkbox).
- Startup Options:** Start Attempts (3), Loss of Sensing Signal (Shutdown), Magnetic pickup open circuit (Shutdown).
- Gas Engine Timers:** Choke Timer (2s), Gas On Delay (2s), Ignition Off Delay (2s).
- Sensing Options:** Magnetic Pickup Fitted (checkbox), Flywheel Teeth (190).
- Overspeed Options:** Overspeed Overshoot % (10), Overshoot Delay (2s).

Callouts provide the following explanations:

- ECU (ECM) Options:** This item is not adjustable here, it's read only. To change this item, visit the *Application* menu.
- Gas Engine Timers:** Controls the amount of time that the Gas Choke output is active during the starting sequence.
- Gas Engine Timers:** Controls the amount of time between energising the Gas Ignition and energising the Fuel output. Used in the starting sequence to purge old gas from the engine.
- Gas Engine Timers:** Controls the amount of time between de-energising the Fuel output and de-energising the Gas Ignition output. Used in the stopping sequence to purge unburnt gas from the engine before it is stopped.

A thought bubble on the left states: "For these timers to have any meaning, outputs are required for Gas Choke, Gas Ignition and Fuel."

Parameters detailed overleaf...

4.9.2.1 STARTUP OPTIONS

Parameter	Description
Start Attempts	<p>The number of starting attempts the module makes.</p> <p>If the module does not detect that the engine has fired before the end of the <i>Cranking time</i>, then the current start attempt is cancelled and the <i>Crank Rest</i> time takes place before the next crank attempt begins.</p> <p>If, after all configured <i>start attempts</i>, the engine is not detected as running, the <i>Fail to Start</i> shutdown alarm is generated.</p> <p>The engine is detected as running by checking all methods of <i>Crank Disconnect</i>. For further details, see the section entitled <i>Crank Disconnect</i> elsewhere in this document.</p>
Loss of sensing signal	<p>If the speed sensing signal is lost during engine running (or not present during cranking when <i>Multiple Engage Attempts</i> is enabled), an alarm is generated :</p> <p><i>Shutdown:</i> The generator is removed from load and the set is immediately stopped.</p> <p><i>Warning:</i> The generator continues to run, however a warning alarm is raised.</p>
Magnetic Pickup Open Circuit	<p>If the magnetic pickup device is not detected, an alarm is generated :</p> <p><i>Shutdown:</i> The generator is removed from load and the set is immediately stopped.</p> <p><i>Warning:</i> The generator continues to run, however a warning alarm is raised.</p>

4.9.2.2 SENSING OPTIONS

Parameter	Description
Magnetic pickup fitted	<p><input type="checkbox"/> = Magnetic pickup device is not fitted to the DSE module.</p> <p><input checked="" type="checkbox"/> = A low impedance magnetic pickup device is fitted to the DSE module to measure engine speed. Specifications of the DSE module Magnetic Pickup Input are contained within DSE publication 057-200 4600 Series Operator Manual.</p>
Flywheel teeth	The number of teeth on the engine flywheel. This is read by the magnetic pickup device.

4.9.2.3 OVERSPEED OPTIONS

Parameter	Description
Overspeed overshoot %	To prevent spurious overspeed alarms at engine start up, the module includes configurable <i>overspeed overshoot</i> protection.
Overspeed overshoot delay	<p>This allows the engine speed to 'overshoot' the Overspeed / Over frequency setting during the starting process for a short time.</p> <p>Rather than 'inhibiting' the Overspeed / Over frequency alarms, the levels are temporarily raised by the <i>Overspeed Overshoot %</i> for the duration of the <i>Overspeed Overshoot</i> delay.</p>

4.9.3 CRANK DISCONNECT

Crank disconnect settings are used to detect when the set fires during the starting sequence. As the set is cranked, the first parameter that passes its *crank disconnect* setting results in the cessation of the cranking signal.

Having more than one *crank disconnect* source allows for a much faster crank disconnect response leading to less wear on the engine and starter components, and provides added safety in case one source is lost, by a blown or tripped fuse for example.

Crank Disconnect

Options

- Crank disconnect on oil pressure
- Check oil pressure prior to starting

Crank Disconnect

- Generator Frequency: 21.0 Hz
- Engine Speed: 600 RPM
- Oil Pressure: 2.00 Bar

Callouts:

- Thought bubble: If *check oil pressure prior to starting* is enabled, the cranking is not allowed if the oil pressure is not seen as being low. This used as a *double check* that the engine is stopped before the starter is engaged
- Callout: Click and drag to change the setting.
- Callout: Type the value or click the up and down arrows to change the settings

4.9.4 SPEED SETTINGS

Speed Settings

Under Speed Shutdown

- Enable
- 1200 RPM

Over Speed Shutdown

- Trip: 1710 RPM

Callouts:

- Callout: Click to enable or disable the option. The relevant values below appears *greyed out* if the alarm is disabled.
- Callout: Click and drag to change the setting.
- Callout: Type the value or click the up and down arrows to change the settings
- Thought bubble: Overspeed shutdown cannot be disabled.

4.9.5 PLANT BATTERY

The screenshot shows the 'Plant Battery' configuration window, divided into three sections: Voltage Alarms, Charge Alternator Alarm, and Start On Low Battery. Callouts provide instructions on how to interact with these settings.

- Voltage Alarms:**
 - Undervolts:** Includes checkboxes for 'Warning' and 'Return' (both checked), a 'Delay' of 1m, and voltage thresholds of 10.0 V DC (Warning) and 10.5 V DC (Return). A callout states: 'Click to enable or disable the option. The relevant values below appears greyed out if the alarm is disabled.'
 - Overvolts:** Includes checkboxes for 'Return' and 'Warning' (both checked), a 'Delay' of 1m, and voltage thresholds of 29.5 V DC (Return) and 30.0 V DC (Warning). A callout states: 'Type the value or click the up and down arrows to change the settings.'
- Charge Alternator Alarm:**
 - Shutdown:** Includes a 'Trip' of 4.0 V DC and a 'Delay' of 5s. A callout points to the 'Shutdown' checkbox: 'Click and drag to change the setting.'
 - Warning:** Includes a 'Trip' of 6.0 V DC and a 'Delay' of 5s.
- Start On Low Battery:**
 - Enable:** A checkbox that is currently unchecked. A callout states: 'Select to enable autostart upon the battery voltage falling to the *threshold* level. The engine starts and run for the specified *Engine Run Time*.'
 - Threshold:** Set to 18.0 V DC.
 - Engine Run Time:** Set to 1h.
 - Start Delay:** Set to 5s.

Alarm	IEEE designation
Plant Battery Undervolts	IEEE 37.2 -27 DC Undervoltage relay
Plant Battery Overvolts	IEEE 37.2 -59 DC Overvoltage relay
Start on Low Battery	<input type="checkbox"/> = Start on Low Battery is disabled. <input checked="" type="checkbox"/> = Select to enable autostart upon the battery voltage falling to the <i>threshold</i> level. The engine starts and run for the specified <i>Engine Run Time</i> . This occurs only if the module is in AUTO mode
Charge Alternator Alarm	If the voltage measured at the charge alternator output drops below the configured value the respective alarm is triggered.
Start Delay	Start delay timer for the Start on Low Battery function.

4.10 SCHEDULER

The scheduler is used to automatically start the set at a configured day and time and run for the set duration of hours.

The generator is made to run *on load* or *off load* depending upon the configuration :

Function	Description
Enabled	<input type="checkbox"/> = Scheduled runs are disabled <input checked="" type="checkbox"/> = Enables the Scheduler
Scheduled run is On Load	<input type="checkbox"/> = The module runs the generator on schedule with the breaker open <input checked="" type="checkbox"/> = The module runs the generator on schedule and closes the breaker
Repeat Interval	Determines the repeat interval for the scheduled run. Options available are: repeat every 1 week, 2 weeks, 3 weeks or 4 weeks
Day	Specifies the day of week, on which the scheduled run should take place
Start Time	Determines at what time of day the scheduled run should start
Duration	Determines the time duration for the scheduled run
Clear	Resets the values for the Day, Start Time and Duration to defaults

4.11 MAINTENANCE ALARM

The screenshot displays the 'Maintenance Alarm' configuration window, which is organized into three sections: 'Maintenance alarm Air', 'Maintenance Alarm Oil', and 'Maintenance Alarm Fuel'. Each section contains the following controls:

- Enable:** A checked checkbox.
- Action:** A dropdown menu with options 'Warning' (for Air), 'Shutdown' (for Oil), and 'Shutdown' (for Fuel).
- Engine run hours:** A numeric input field set to '10' with a 'hrs' unit indicator and a slider control.

Two callout boxes provide additional information:

- The first callout points to the 'Enable' checkbox in the 'Maintenance alarm Air' section, stating: 'Click to enable or disable the option. The relevant values below appears *greyed out* if the alarm is disabled.'
- The second callout points to the 'Engine run hours' field in the 'Maintenance Alarm Oil' section, stating: 'Maintenance Alarm occurs when the engine has run for the specified number of hours.'

There are three ways to reset the maintenance alarm:

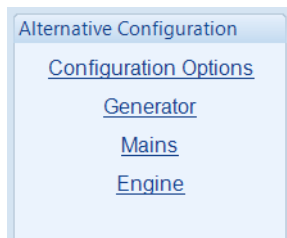
- 1) Activate a digital input configured to "Maintenance Reset Alarm".
- 2) Use the SCADA | Maintenance | Maintenance Alarm section of this PC Software.
- 3) Through the Front Panel Editor of the module

4.12 ALTERNATIVE CONFIGURATION

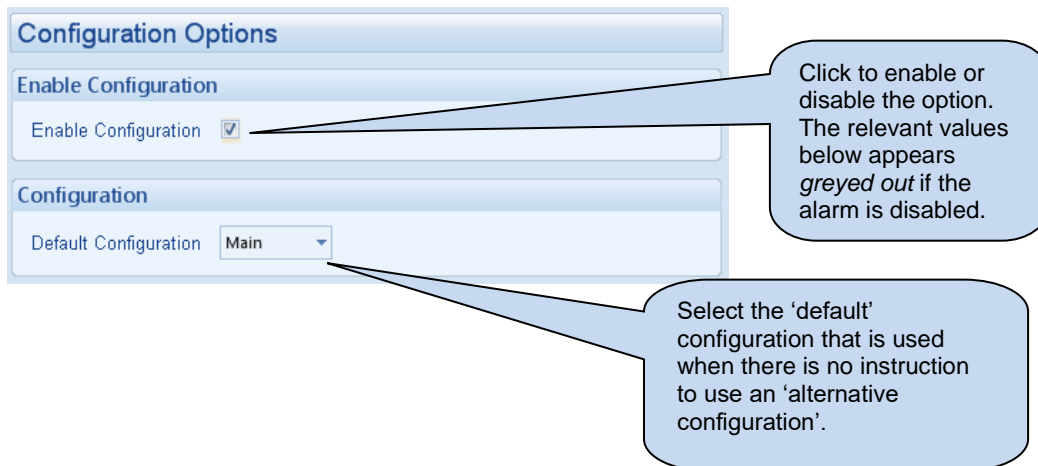
An Alternative Configuration is provided to allow the system designer to cater for different AC requirements utilising the same generator system. Typically this feature is used by Rental Set Manufacturers where the set is capable of being operated at (for instance) 120V 50Hz and 240V 50Hz using a selector switch.

The Alternative Configuration can be selected using either:

- Configuration Suite Software (Selection for 'Default Configuration')
- DSE4600 Series Front Panel Editor
- Via external signal to the DSE4600 Series module input configured to "Alternative Configuration" select.

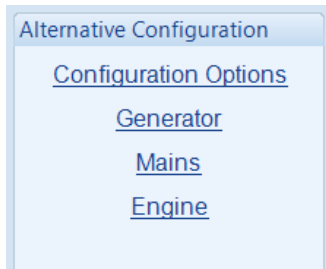


4.12.1 CONFIGURATION OPTIONS

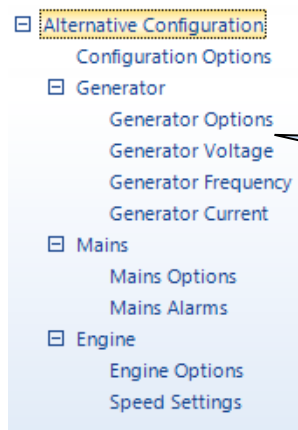


4.12.2 ALTERNATIVE CONFIGURATIONS EDITOR

The Alternative Configurations Editor allows for editing of the parameters that are to be changed when an Alternative Configuration is selected.



Alternative configuration options contain a subset of the main configuration. The adjustable parameters are not discussed here as they are identical to the main configuration options :

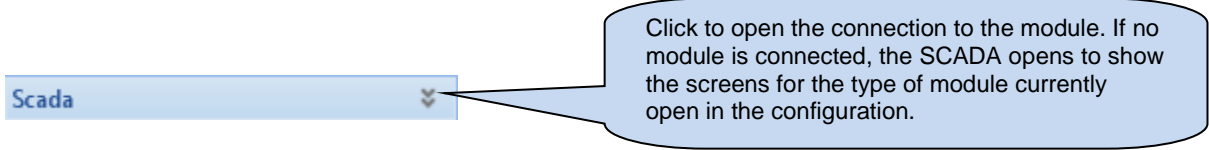


Configuration menus for the *Alternative Configuration*. For information about the configuration items within this section, you are referred to their description in the 'main' configuration.

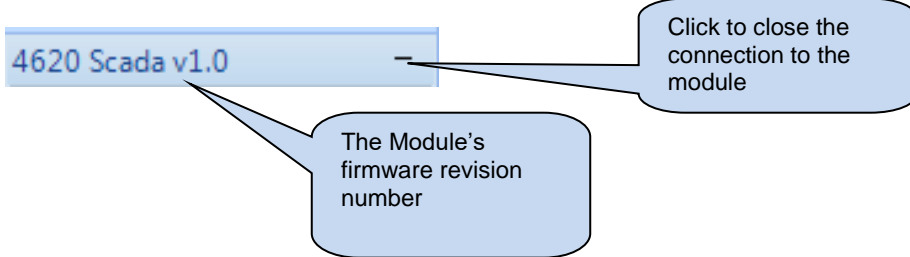
5 SCADA

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 are 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.



5.1 MIMIC

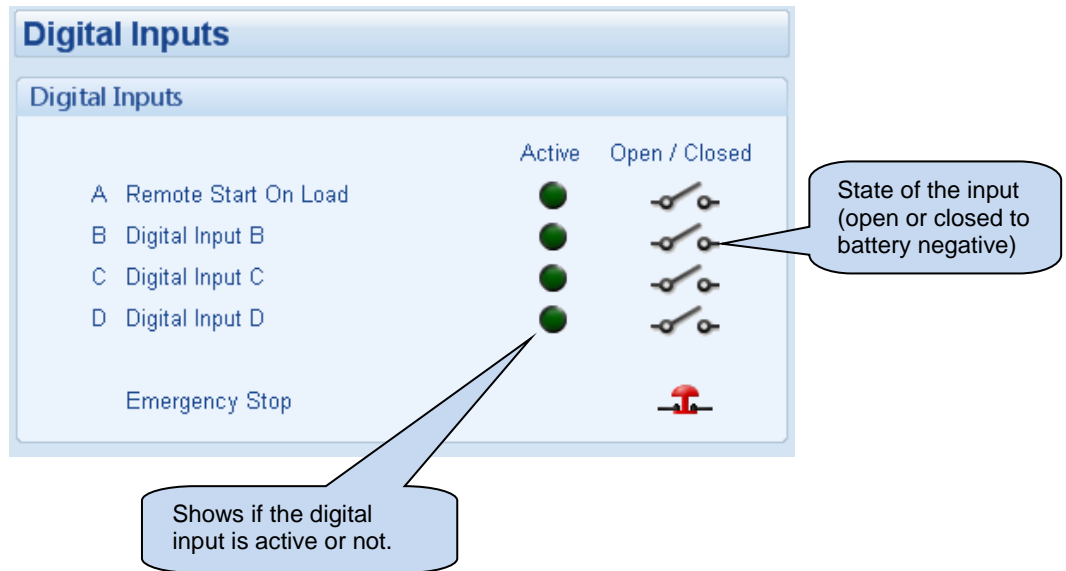
This screen provides a mimic of the control module and allows the operator to change the control mode of the module.



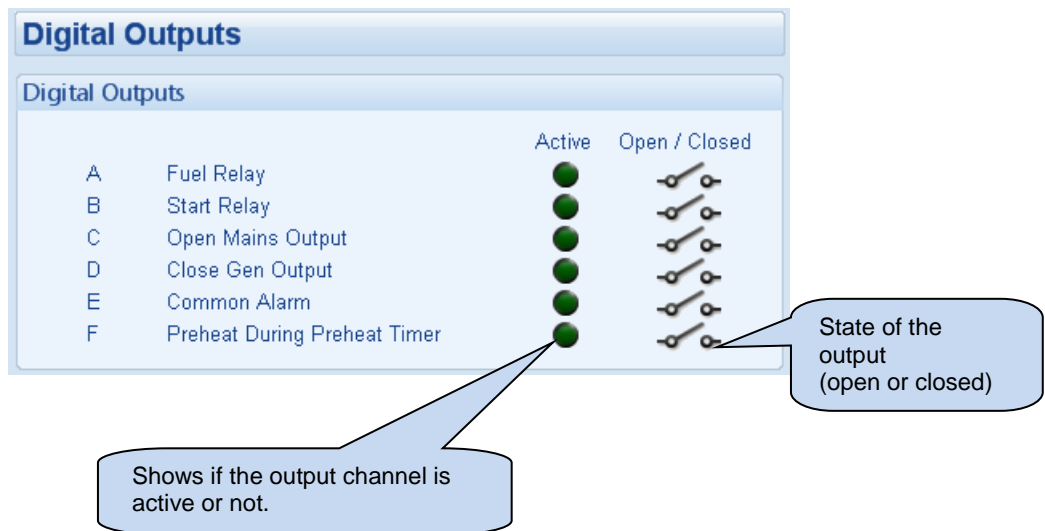
Click the mimic buttons to control the module remotely

Hint : Buttons may not operate if this has been locked out by the *Access Permissions* security feature of the Configuration Suite Software. Refer to your system supplier for details.

5.2 DIGITAL INPUTS



5.3 DIGITAL OUTPUTS



5.4 MAINS

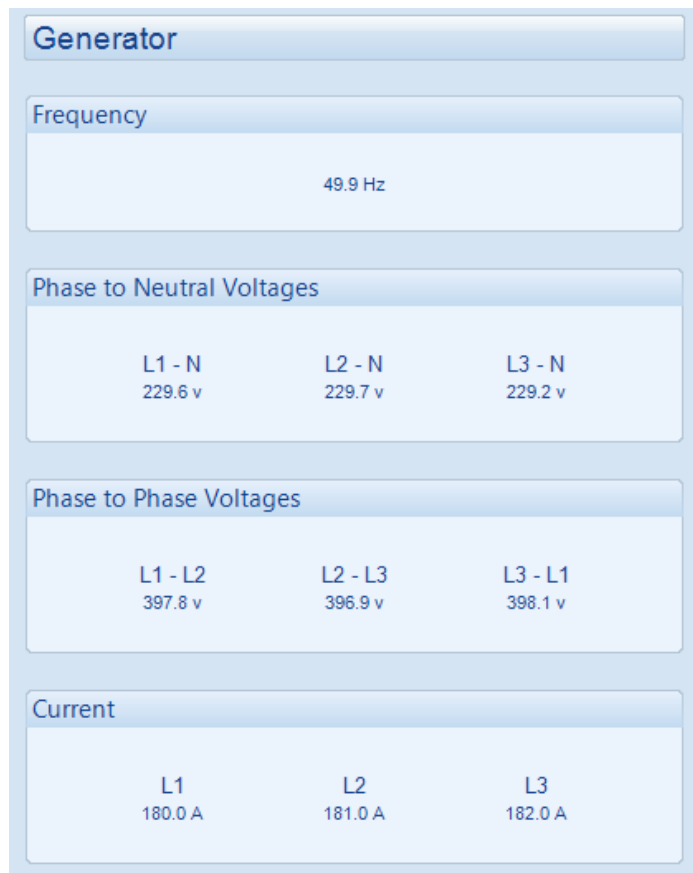


DSE4620 AMF MODULES ONLY

Shows the modules measurements of the mains supply (4620 only).

Mains		
Frequency		
Phase To Neutral Voltages		
L1 - N	L2 - N	L3 - N
Phase To Phase Voltages		
L1 - L2	L2 - L3	L3 - L1
Current		
L1	L2	L3

5.5 GENERATOR

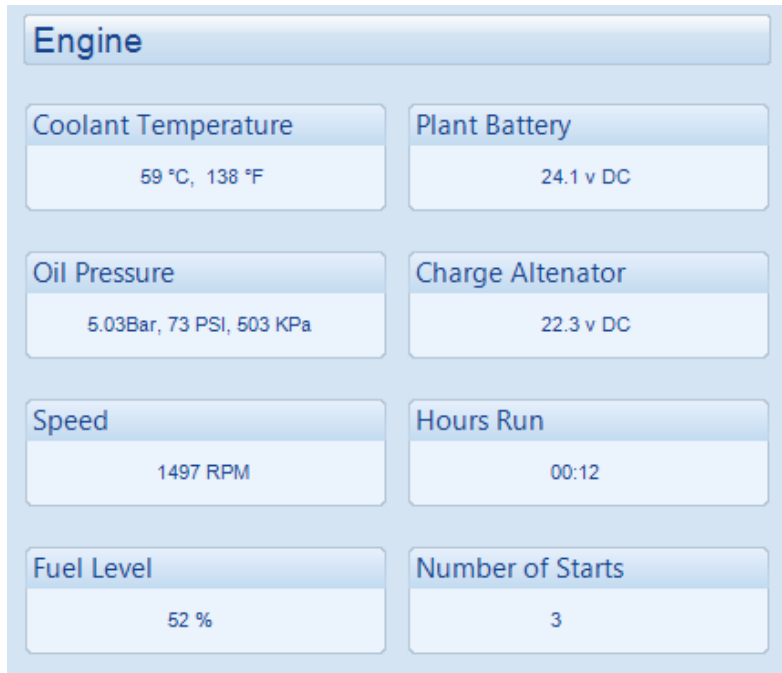


5.6 POWER

Power				
Watts				
	L1	L2	L3	Total
	33.0 kW	34.0 kW	33.0 kW	100.0 kW
VA				
	L1	L2	L3	Total
	41.0 kVA	42.0 kVA	42.0 kVA	125.0 kVA
VAr				
	L1	L2	L3	Total
	24.0 kVAr	24.0 kVAr	24.0 kVAr	72.0 kVAr
Power Factor				
	L1	L2	L3	Average
Lag	0.80	Lag 0.80	Lag 0.79	Lag 0.80
Accumulated Power				
	kWh	kVAh	kVArh	
	15.5 kWh	19.2 kVAh	10.7 kVArh	

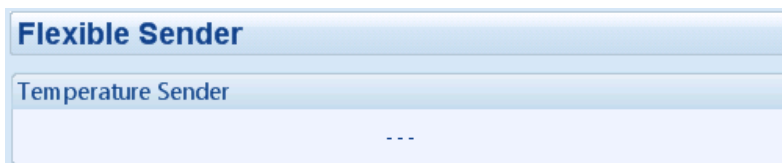
5.7 ENGINE

Shows the modules measurements of the engine parameters.



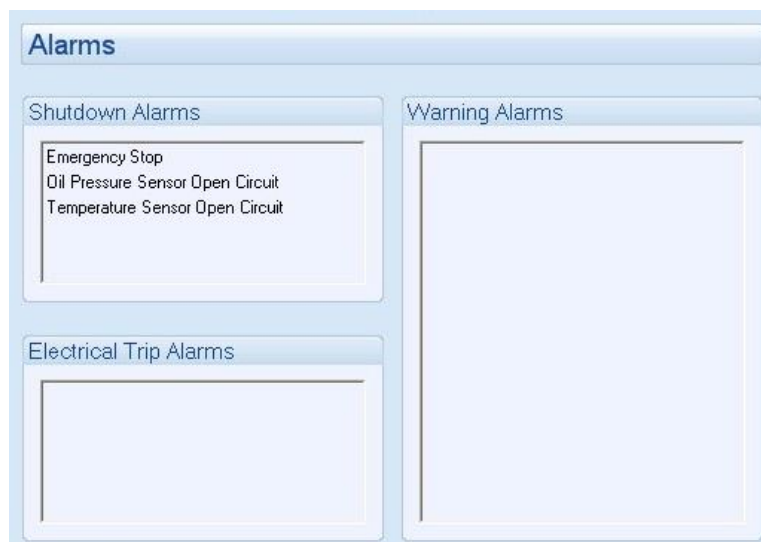
5.8 FLEXIBLE SENSOR

Shows the measurement of the Flexible Sensor (If configured)



5.9 ALARMS


Shows any present alarm conditions.



5.10 STATUS

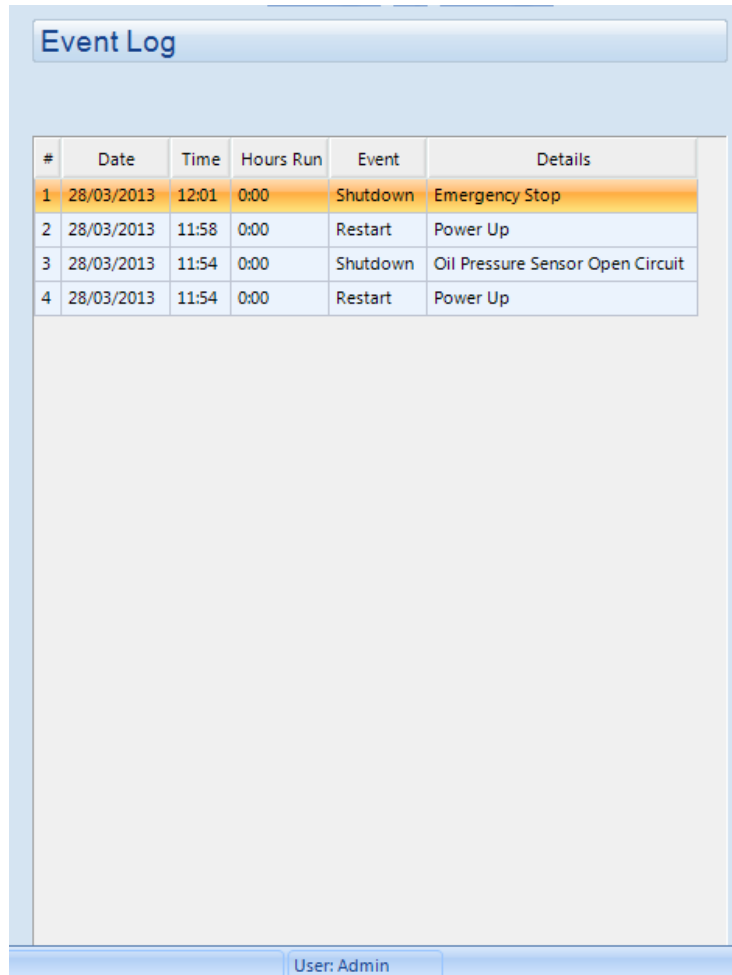
Shows the module's current status.

Status

Supervisor State At Rest	Software Version 1.1
Engine/Generator State Engine At Rest	Module ID 13129EC5C3
Mains Detection State Mains Failed	Mode 
Load Switching State Closed To Mains	

5.11 EVENT LOG

Shows the contents of the module's event log.

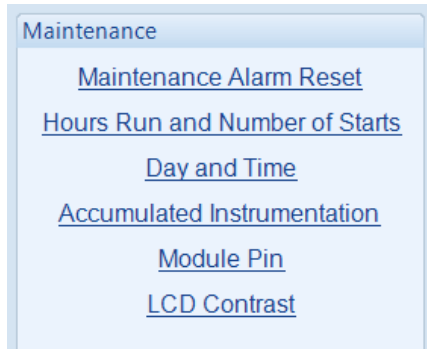


#	Date	Time	Hours Run	Event	Details
1	28/03/2013	12:01	0:00	Shutdown	Emergency Stop
2	28/03/2013	11:58	0:00	Restart	Power Up
3	28/03/2013	11:54	0:00	Shutdown	Oil Pressure Sensor Open Circuit
4	28/03/2013	11:54	0:00	Restart	Power Up

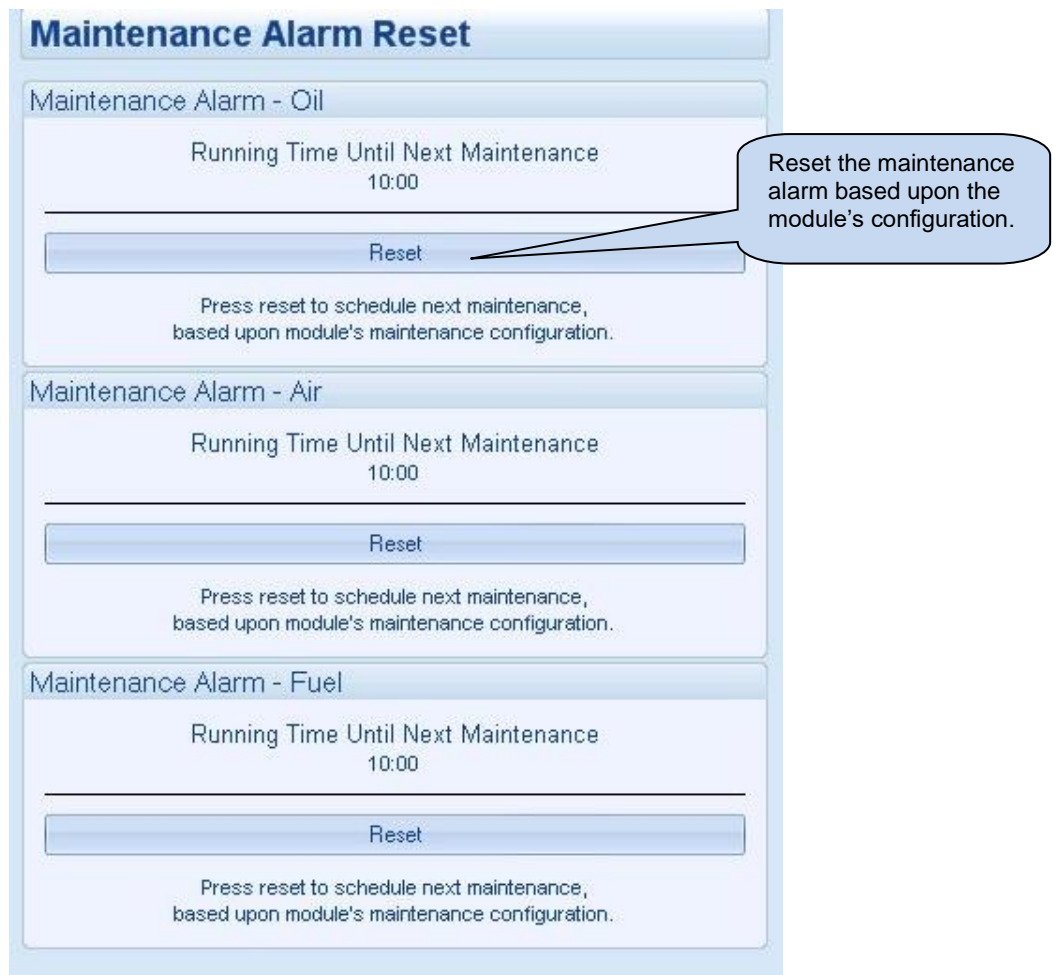
User: Admin

5.12 MAINTENANCE

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



5.12.1 MAINTENANCE ALARM RESET



5.12.2 HOURS RUN AND NUMBER OF STARTS

This section allows the Hours Run and Number of Starts to be customised on the controller. Typically, this is used when fitting a new controller to an older generator so that the controller display matches the amount of work previously done by the system.

The screenshot shows two configuration panels. The top panel, titled 'Hours Run', displays 'Hours Run: 02:01' followed by a numeric input field containing '02:01' and a 'Set' button. The bottom panel, titled 'Number of Starts', displays 'No. of Starts: 62' followed by a numeric input field containing '62' and a 'Set' button. Both input fields have up and down arrows for navigation.

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

Click to perform the adjustment in the module. Note that this is not visible on the module itself. It is included in the PC SCADA for diagnostic purposes.

5.12.3 DATE AND TIME

This section allows the day and time to be set and changed on the controller.

The screenshot displays a configuration interface for 'Day and Time' settings. It is organized into several sections:

- Day and Time**: The main title of the configuration area.
- Module Day**: A field displaying 'Tuesday'. A callout points to this field with the text: 'Display of the module's current date and time'.
- Module Time**: An empty field for time configuration.
- Module Week**: A field displaying '1'.
- Set Day and Time**: A section containing three dropdown menus for 'Day' (set to 'Tuesday'), 'Time', and 'Week' (set to '1'). Below these is a 'Set' button. A callout points to the dropdowns with the text: 'Type the new date / time or click the up and down arrows to change the settings'. Another callout points to the 'Set' button with the text: 'Click Set to adjust the module to the selected date/time.'
- Set To PC Time**: A section displaying the current system date and time: 'Date Week 28, Tuesday' and 'Time 14:01:10'. Below this is a 'Set To PC Time' button. A callout points to this button with the text: 'Click Set to adjust the module to the date/time that your PC is set to.'

5.12.4 ACCUMULATED INSTRUMENTATION

Accumulated Instrumentation

kWh

kWh: 75.0 kWh

kVAh

kVAh: 100.0 kVAh

kVArh

kVArh: 18.0 kVArh

Reset

5.12.5 MODULE PIN

NOTE : If the PIN is lost or forgotten, it is no more 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.

Module PIN

Module Access Password

Password

Confirmation

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.

Enter the desired PIN number and reconfirm.

Click to set the PIN number in the module.

5.12.6 LCD CONTRAST



Click and drag to change the contrast, then click 'Set' to store permanently in the module..

6 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.
Shutdown	Audible alarm and common alarm signal is generated. The set is taken off load and immediately stopped. <i>Shutdown alarms</i> are serious issues that demand immediate stopping of the generator. For instance Emergency Stop or Overspeed alarms require immediate shutdown.

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