



DEEP SEA ELECTRONICS

DSE94xx Battery Charger Series

Configuration Suite PC Software Manual

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DSE94xx Configuration Suite PC Software Manual

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Amendments List

| Issue | Comments |
|--------------|---|
| 1 | Initial release |
| 2 | Amendments of 9472, 9480, 9481 |
| 3 | Amendments of 9470 & 9480 V2.0 New features added: <ul style="list-style-type: none"> - Digital Input - Default Voltage Mode - Battery Profile - Configurable Gencom |
| 4 | Amendments for 9474 V1 and 9470/2 & 9480/1 V3.0 |
| 5 | Amendments to cover the DSE9484 V1 and DSE9450 V1 |
| 6 | Added the DSE9473 and DSE9483 battery chargers |
| 7 | Added DSE9452 |
| 8 | Added DSE9462 dual output charger |
| 9 | Added DSE9479 |
| 10 | DC Overvoltage Alarm removed from DSE9462, Configurable Short Circuit Alarm added to DSE9452 |
| 11 | Updated battery profile image to show Bulk Trigger and Absorption Voltage. |
| 12 | Added DSENet configuration. |
| 13 | Amendments to DSENet options. |
| 14 | Updated for the DSE9473 new features (Soft Start, and Battery Self Test Range) |
| 15 | Updated to add the Stage Voltage Levels for all charger models |
| 16 | Note added for the Alarms |
| 17 | Added DSE9476, and updated the Soft Start feature in the DSE9470, DSE9472, DSE9480, DSE9481, DSE9483. Added in the DSE9470, DSE9472, DSE9480, DSE9481 chargers: <ul style="list-style-type: none"> - Automatic Battery Voltage Detection - Bulk to Absorption Trigger Level - Charge Termination |
| 18 | Updated for the DSE9474 new features (Soft Start, Deep Sleep Mode, additional Scada Instrumentations support and more) |
| 19 | Updated for the DSE9476 new features (Max Current Mode and additional Scada Instrumentations support) |
| 20 | Updated 9470 to include PIN protection, configuration of mains relay alarm and battery temperature high shutdown. Lead crystal battery profile added. |
| 21 | Updated for DSE9470 / DSE9480 MKII v7.0 |
| 22 | Updated for DSE9470MKII v7.1 / DSE9480MKIII v7.1 |

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.





| | | |
|---|-----------------|---|
|  | NOTE: | Highlights an essential element of a procedure to ensure correctness. |
|  | CAUTION! | Indicates a procedure or practice which, if not strictly observed, could result in damage or destruction of equipment. |
|  | WARNING! | Indicates a procedure or practice which could result in injury to personnel or loss of life if not followed correctly. |
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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.deepseaelectronics.com:

| DSE PART | DESCRIPTION |
|----------|--|
| 053-049 | DSE9000 Series Battery Charger Installation Instructions |
| 057-085 | DSE900 / 9100 / 9200 / 9400 Series Battery Charger Operator Manual |
| 053-147 | DSE9460 / DSE9461 Installation Instructions |
| 057-176 | DSE9460 / DSE9461 Operator Manual |
| 053-175 | DSE9474 / DSE9484 Installation Instructions |
| 057-231 | DSE9474 / DSE9484 Operator Manual |
| 053-178 | DSE9450 & DSE9452 & DSE9479 Installation Instructions |
| 057-240 | DSE9450 & DSE9452 Operator Manual |
| 053-185 | DSE9473 / DSE9483 Installation Instructions |
| 053-189 | DSE9462 Installation Instructions |
| 057-255 | DSE9462 Operator Manual |
| 053-235 | DSE9476 Installation Instructions |
| 057-282 | DSE9476 Operators Manul |
| 057-264 | DSE9479 Operator Manual |

2 DESCRIPTION

This manual covers the operation of the DSE Configuration Suite for DSE94xx (DSE9460, DSE9461, DSE9470, DSE9472, DSE9473, DSE9474, DSE9476, DSE9480, DSE9481, DSE9483, DSE9484, DSE9450, DSE9452, DSE9462 & DSE9479) battery chargers. Separate manuals cover the remaining DSE modules supported by the software.

The **DSE Configuration Suite** allows the DSE9400 series to be connected to a PC via 'USB A –USB B' cable. Once connected the various operating parameters within the charger 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 **DSE 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 to which it is fitted.

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 charger (See section entitled *Bibliography* elsewhere in this document).

3 INSTALLATION AND USING THE DSE CONFIGURATION SUITE

For information in regards to installing 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.deepseaelectronics.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

NOTE: The Charger Output 2 and Battery 2 sections are only available for the DSE9462 battery charger.

The screenshot shows a configuration menu titled "9462 Configuration v1.0". At the top are "Previous" and "Next" buttons. The menu items are: "9462" (highlighted with a yellow box), "Charger" (expanded to show "Charger Settings", "Charger Output 1 - 24 V", and "Charger Output 2 - 12 V"), "Battery 1 - 24 V", "Battery 2 - 12 V", "Mains", "Communications", and "Configurable Gencomm".

Callouts include:

- "The type of configuration file being edited" pointing to the "9462" header.
- "The coloured shading shows the currently selected page." pointing to the "9462" header.
- "Click + or - to show or hide the sub settings within each sections." pointing to the expand/collapse icons.
- "Move to the Previous or Next configuration page" pointing to the "Previous" and "Next" buttons.
- "Close this configuration file" pointing to a close icon in the top right corner.

The screenshot shows a configuration menu titled "9462 Configuration" with the following subsections: "Charger", "Battery 1 - 24 V", "Battery 2 - 12 V", "Mains", "Communications", and "Configurable Gencomm". A callout points to "Configurable Gencomm" with the text: "Click to select the subsection to view / edit".

To the right is a photograph of the DSE9462 battery charger, a black rectangular unit with "DSE" and "DSEPower" branding and a terminal block at the bottom.

4.2 CHARGER

 **NOTE:** When a *Shutdown Alarm* is active at the same time as a *User Configurable Alarm*, the *Shutdown Alarm* takes priority and switches the charger off.

4.2.1 CHARGER SETTINGS

Charger

Charger Settings

Site ID

Charger ID

| Parameter | Description |
|-----------|--|
| Site ID | Enter the site ID of the charger. |
| Charger | Enter the charger ID of the DSE94xx charger. |

4.2.2 DIGITAL INPUT

Allows for user configuration of the charger digital input.

Digital Input

Function

Switch to Alternative Voltage Mode ▾

| Parameter | Description |
|------------------------------------|---|
| Enable Battery Detection | When active, the battery charger detects the presence of the battery and illuminates its LEDs to indicate the status. |
| Lamp Test | This input illuminates all on board LEDs |
| Manual Boost | This input forces the charger into boost mode |
| Max Current Mode (Manual) | Only available for DSE9476, DSE9470 MKII, DSE9480 MKII When active, enables <i>Max Current Mode</i> . During this time, the charger sets the output current to maximum. Derating functions remain as standard. |
| Max Current Mode (Timed) | Only available for DSE9476, DSE9470 MKII, DSE9480 MKII When active, enables <i>Max Current Mode</i> . During this time, the charger sets the output current to maximum for the configured <i>Max Current Mode Timer</i> , during which charger deratings are disabled. Once this timer has elapsed the charger returns to normal operation. |
| Stop Charging | This input turns off the charger output |
| Switch To Alternative Voltage Mode | This input switches the output voltage to the alternative mode i.e. if the default voltage mode is set to 12 V, activating this input changes the output voltage to 24 V. |

4.2.3 VOLTAGE MODE

NOTE: Not available for DSE9450, DSE9452, DSE9462, DSE9473, DSE9474, DSE9479, DSE9483 and DSE9484.

The Battery Charger Auto Detects what type of Battery is connected .

| Default Voltage Mode | Description |
|----------------------|--|
| Auto Detect | <p>NOTE: The Battery Type cannot be determined automatically by this feature, the user must still select the correct <i>Battery Type</i> from the <i>Battery Profile</i> section.</p> <p>The charger automatically detects whether a 12 V or 24 V battery is connected by sensing the battery voltage level. The charger switches to the 12 V mode when the battery voltage is below the configured <i>Switching Threshold</i> level. The charger switches to the 24 V mode when the battery voltage is over the configured <i>Switching Threshold</i> level.</p> |
| 12 V | The charger assumes a 12 V battery is connected regardless of sensing the battery voltage level. |
| 24 V | The charger assumes a 24 V battery is connected regardless of sensing the battery voltage level. |

4.2.4 BATTERY CHARGER SELF TEST

NOTE: *Battery Charger Self Test* is not available on the DSE9462 Intelligent Battery Charger.

| Parameter | Description |
|-----------------|--|
| Enable | <p><input type="checkbox"/> = Feature disabled.</p> <p><input checked="" type="checkbox"/> = The battery charger performs a self test in a regular interval set by the <i>Self Test Timer</i>. The alarm activates when an internal failure is detected.</p> |
| Self Test Timer | Set the time interval between the <i>Battery Charger Self Test</i> runs. |

4.2.5 CHARGER FAILURE

Charger Failure Alarm

Alternative Charge Source

Delay m 2h 0m

| Parameter | Description |
|---------------------------|---|
| Alternative Charge Source | <p><input type="checkbox"/> = The <i>Alternative Charge Source</i> is disabled and the <i>Charger Failure Alarm</i> activates when the battery charger measures a voltage higher than its output voltage. The alarm is delayed by the configurable <i>Delay</i> timer.</p> <p><input checked="" type="checkbox"/> = The <i>Alternative Charge Source</i> is enabled and the <i>Charger Failure Alarm</i> no longer activates when the battery charger measures a voltage higher than its output voltage. This typically occurs when a either a DC Alternator is fitted on a running engine or when the battery charger switches from <i>Bulk</i> mode to <i>Float</i> charging mode. In both scenarios the battery voltage is typically higher than the battery charger output voltage.</p> |
| Delay | When the <i>Alternative Charge Source</i> is disabled, this sets the time delay for the <i>Charger Failure Alarm</i> . |

4.2.6 SHORT CIRCUIT ALARM

NOTE: Not available in the DSE9450 Intelligent Battery Charger's configuration.

Short Circuit Alarm

Enable

Delay s

| Parameter | Description |
|-----------|---|
| Enable | <input type="checkbox"/> = The <i>Short Circuit Alarm</i> is disabled; however the battery charger switches its output off when a short circuit is detected. <input checked="" type="checkbox"/> = The <i>Short Circuit Alarm</i> is enabled and activates when a short circuit is detected for longer than the configurable <i>Delay</i> timer. |
| Delay | Set the time delay for the <i>Short Circuit Alarm</i> . This is useful to delay the alarm when the engine crank motor is engaged; the battery charger detects the current drawn by the crank motor as a short circuit. In this case, the charger immediately switches its output off for protection but the alarm is delayed. |

4.2.7 SOFT START

NOTE: Available only on the DSE9470, DSE9472, DSE9473, DSE9474, DSE9476, DSE9480, DSE9481 & DSE9483 Intelligent Battery Chargers.

Short Circuit Alarm

Enable

Delay s

| Parameter | Description |
|-----------|--|
| Enable | <input type="checkbox"/> = The <i>Soft Start</i> is disabled. <input checked="" type="checkbox"/> = The <i>Soft Start</i> is enabled. The charger rises its output voltage to the required DC voltage level in steps, and takes longer time to reach the maximum output voltage level. This feature helps to reduce the inrush current caused by the capacitive loads or deeply discharged batteries. |

4.2.8 RELAY ACTIVE FOR MAINS ALARMS

 **NOTE: Available only on DSE9470, DSE9472, DSE948 and DSE9481.**

Relay Active For Mains Alarms

Enable

| Parameter | Description |
|-----------|---|
| Enable | <input type="checkbox"/> = Fault relay does not activate upon Mains Voltage alarms. <input checked="" type="checkbox"/> = Fault relay activates on all alarms. |

4.2.9 MODULE PIN

 **NOTE: Available only on DSE9470, DSE9472, DSE948 and DSE9481.**

Once set and the configuration containing the PIN has been sent to the battery charger, the PIN is required before further configuration changes can be made.

Module PIN

Module PIN Confirmation *Module PIN does not match the Confirmation PIN*

4.2.10 MISCELLANEOUS OPTIONS

NOTE: Only available for DSE9450, DSE9452, DSE9462, DSE9474, DSE9476, DSE9479, and DSE9484.

NOTE: The Sensing wires must be installed on the Battery Terminals.

Miscellaneous Options

Sensing Wires Enabled

Support Right-To-Left Languages in Module Strings

| Parameter | Description |
|---|---|
| Sensing Wires Enabled | <input type="checkbox"/> = Sensing Wires are inactive <input checked="" type="checkbox"/> = The Charger senses voltage on the Sensing Wires input. This allows the charger to automatically compensate for a voltage drop across the actual Charger Wires. |
| Support Right To 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 |

4.2.11 CABLE VOLTAGE DROP WARNING

NOTE: Only available when the battery charger is connected to the battery with no active alarms and the mains supply is available.

NOTE: Only available when the option *Sensing Wires Enabled* is enabled. For more information see section titled *Miscellaneous Options* shown elsewhere in this manual.

NOTE: Only available for DSE9450, DSE9452, DSE9462, DSE9474, DSE9479, and DSE9484

Cable Voltage Drop Warning

Enable

Alarm V DC

Alarm Delay 1.0s

Return V DC

Return Delay 1.0s

| Parameter | Description |
|--------------|---|
| Alarm | The alarm activates when the voltage difference between the battery charger output and the Battery Voltage Sensing terminals exceeds the <i>Alarm</i> trip setting for longer than the <i>Alarm Delay</i> duration. |
| Alarm Delay | |
| Return | The alarm is deactivated when the voltage difference between the battery charger output and the Battery Voltage Sensing terminals falls below the <i>Return</i> setting for longer than the <i>Return Delay</i> time. |
| Return Delay | |

4.2.12 DEEP SLEEP MODE

Deep Sleep Mode

Enable

| Parameter | Description |
|-----------|--|
| Enable | <input type="checkbox"/> = <i>Deep Sleep Mode</i> is disabled. <input checked="" type="checkbox"/> = Upon a Mains failure the Charger enters <i>Deep Sleep Mode</i> . <i>Deep Sleep Mode</i> disables the Charger Mircoprocessor as well as the Comm's port. This allows for a lower power consumption (less than 16 mA). <i>Deep Sleep Mode</i> becomes inactive upon the Mains returning. |

4.2.13 PSU MODE

NOTE: Only available for DSE9470 MKII & DSE9480 MKII v7.0

PSU Mode

Enable

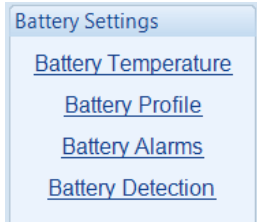
Output Voltage V DC

Current Limit %

| Parameter | Description |
|-----------|---|
| Enable | <input type="checkbox"/> = The module operates as a Battery Charger. <input checked="" type="checkbox"/> = The module operates as a Power Supply within the user configured <i>Output Voltage</i> and <i>Current Limit</i> range. All other features that affect the <i>Output Voltage</i> are disabled. |

4.3 BATTERY

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



4.3.1 BATTERY TEMPERATURE

Battery Temperature

Battery Settings

Enable Temperature Sensor

Battery Temperature Warning

Enable

Return 50 °C

Return Delay 0.1s

Alarm 55 °C

Alarm Delay 0.3s

Battery Temperature Shutdown

Enable

Return 58 °C

Alarm 60 °C

Temperature Compensation

Voltage value is entered per battery cell

Enabled

Voltage Compensation / °C 0.003 V DC


Callout 1: Enable or disable the external Battery Temperature Sensor (PT1000). The relevant values below appear *greyed out* if the option is disabled.

Callout 2: Type the value or click the up and down arrows to change the settings

Callout 3: Click and drag to change the settings

Callout 4: Only available on DSE9470, DSE9472, DSE9480 and DSE9481

Parameters detailed overleaf...

| Parameter | Description |
|------------------------------|---|
| Enable Temperature Sensor | <input type="checkbox"/> = External battery temperature sensor is not used, all other temperature settings are disabled and 'greyed out'. <input checked="" type="checkbox"/> = The battery charger reads the battery temperature using the externally fitted PT1000 sensor. Other temperature settings are available as below. |
| Battery Temperature Warning | <input type="checkbox"/> = Warning alarm disabled. <input checked="" type="checkbox"/> = Warning alarm is raised should the battery temperature exceed the <i>Alarm</i> level for longer than the <i>Alarm Delay</i> setting. The alarm is cancelled when the battery temperature falls below the <i>Return</i> level for longer than the period set in <i>Return Delay</i> . |
| Battery Temperature Shutdown | This feature cannot be disabled, however the alarm levels may be adjusted. Alarm: The charger output switches off when the temperature exceeds this setting for more than one second (this delay cannot be changed). Return: The charger output switches back on when the temperature falls below this setting for more than one second (this delay cannot be changed). |
| Voltage Compensation / °C | <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">  NOTE: For further information on the temperature compensation, refer to the product's <i>Operator Manual</i> which can be found on our website: www.deepseaelectronics.com </div> Set the variation of the charger output voltage for each degree Celsius of temperature change. <i>This is normally specified by the battery manufacturer.</i> |

4.3.2 BATTERY PROFILE

NOTE: For a 2-Stage charging profile, select a 3-Stage profile and configure Boost Voltage and Float Voltage to the same value.

Battery Profile

Profile

Battery Profile: Custom

Settings

Custom Save As Save Delete

Current Limit: 100% 10.000 A

Profile Stages: 4 12V 24V

Battery Cells: 4 4

Check alarm thresholds after modifying number of battery cells.

Charge Profile

Voltage values are entered per cell at a battery temperature rating of 20 °C
Check alarm thresholds after configuring V/cell levels.

| | | 12V | 24V |
|----------------------------------|---|-------------|-------------|
| Absorption Voltage | 3.500 V DC | 14.000 V DC | 28.000 V DC |
| Boost Voltage | 3.500 V DC | 14.000 V DC | 28.000 V DC |
| Float Voltage | 3.200 V DC | 12.800 V DC | |
| Bulk Trigger Voltage | 2.875 V DC | | |
| Absorption Timer | 1h | | |
| Float Timer | 1h | | |
| Storage Timer | 1h | | |
| Storage Voltage | 3.125 V DC | 12.500 V DC | |
| Bulk to Absorption Trigger Level | 75 % | 7.500 A | |
| Charge Termination Enabled | <input checked="" type="checkbox"/> | | |
| Charge Termination Threshold | 3 % | 0.300 A | |
| Charge Termination Timer | 1h | | |

Change the profile parameters to edit custom battery profiles

Click to select the appropriate battery charging profile for your batteries

Adjust the Current Limit of the charger output.


Choose between 3 Stage and 4 stage profile and set the number of battery cells

The value the charger output voltage must drop below to go into the Bulk charge state.


Not available in the DSE9450, DSE9452, DSE9462, DSE9476, DSE9479, DSE9484

Parameters detailed overleaf...

4.3.2.1 PROFILE

| Parameter | Description |
|--|--|
| Battery Profile | <p>Select the appropriate battery charging profile for your batteries from the list:</p> <ul style="list-style-type: none"> - Calcium - Lead Acid Antimony - Lead Crystal 12Ah - Lithium Phosphate - NiCd 18 Cell - NiCd 20 Cell - VRLA-AGM - VRLA-GEL - Wet (Vented) Lead Acid - Custom |
| <p> NOTE: The Battery Type availability depends from the DSE Battery Charger model, select Custom to create the desired Battery Profile if the required Battery Type is not available in the list.</p> | |

4.3.2.2 SETTINGS

 **NOTE: Settings is configured when “Custom” is selected in *Profile*.**

| Parameter | Description |
|-----------------------------------|---|
| Custom | Used to create or save new Battery Profile(s) |
| Automatic Max Current Mode Enable | <p>Only available for DSE9476</p> <p><input type="checkbox"/> = Automatic Max Current Mode is disabled. <input checked="" type="checkbox"/> = If a sudden rise in output current is detected the charger sets the output current to maximum for the configured <i>Max Current Mode Timer</i>, during which charger deratings are disabled. Once this timer has elapsed the charger returns to normal operation.</p> |
| Max Current Mode Timer | <p>Only available for DSE9476</p> <p>Defines the period for which the charger remains at full output current following the initiation of Max Current Mode, either automatically or by the <i>Max Current Mode (Timed)</i> digital input.</p> |
| Current Limit | Set the maximum charging current limit during the Absorb stage. |
| Profile Stages | Define the number of stages 3 or 4. |
| Battery Cells | Define the number of battery cells. |

4.3.2.3 CHARGE PROFILE

| Parameter | Description |
|--------------------------------------|---|
| Absorption Voltage | The charge voltage level per cell during the <i>Absorb</i> stage. |
| Boost Voltage | The charge voltage level per cell during the <i>Bulk</i> stage. |
| Float Voltage | The charge voltage level per cell during the <i>Float</i> stage. |
| Bulk Trigger Voltage | <div style="border: 1px solid black; padding: 5px;"> <p>NOTE: This parameter is not available in the following chargers: DSE9450, DSE9452, DSE9462, DSE9479, DSE9484.</p> </div> <p>The battery's cell voltage value for the charger to go into the <i>Bulk</i> charge state when the cell voltage level is below the <i>Bulk Trigger Voltage</i> level.</p> |
| Absorption Timer | The charging time at <i>Absorb</i> stage. |
| Float Timer | The charging time at <i>Float</i> stage |
| Storage Timer | The charging time at <i>Storage</i> stage |
| Storage Voltage | The charge voltage level per cell during the <i>Storage</i> stage. |
| Bulk To Absorption Trigger Level (%) | The output charge current level at which the DSE Battery Charger switches from <i>Bulk</i> stage to <i>Absorb</i> stage when it is reduced below the configured % level. |
| Charger Termination Enabled | <input type="checkbox"/> = The <i>Charger Termination</i> is disabled. <input checked="" type="checkbox"/> = The <i>Charger Termination</i> is enabled. The DSE Intelligent Battery Charger terminates the charging when the charging current reaches below the configured <i>Charge Termination Threshold</i> % level. |
| Charge Termination Threshold (%) | The charge current percentage level below which the charging is terminated when the <i>Charger Termination</i> is enabled. |
| Charge Termination Timer | The time duration the charger waits with no charging before it starts charging again. |

4.3.3 BATTERY ALARMS

4.3.3.1 OVER CURRENT ALARM

The screenshot shows the 'Over Current Alarm' configuration window. It includes an 'Enable' checkbox, a note that 'Nominal current reduces relative to AC input voltage and ambient temperature.', and settings for 'Alarm' (105%), 'Alarm Delay' (60.0s), 'Return' (100%), and 'Return Delay' (60.0s). A '30.000 A' current limit is also visible. Callouts explain: 1) The 'Enable' checkbox controls whether the alarm is active; if disabled, values are greyed out. 2) The percentage values (Alarm, Return) can be changed by typing or using up/down arrows. 3) The current limit (30.000 A) and delay values can be changed by clicking and dragging the sliders.

| Over Current Alarm | |
|--------------------|--|
| Trip | The alarm activates when the current drawn by the battery exceeds the <i>Trip</i> setting for longer than the <i>Trip Delay</i> duration. |
| Trip Delay | |
| Return | The alarm is deactivated when the current drawn by the battery falls below the <i>return</i> value setting for longer than the <i>Return Delay</i> duration. |
| Return Delay | |

4.3.3.2 UNDER VOLTAGE ALARM

The screenshot shows the 'Under Voltage Alarm' configuration window. It includes an 'Enable' checkbox, a note that voltage values are per cell at 20 °C, and settings for Alarm (1.800 VDC), Alarm Delay (60.0s), Return (1.900 VDC), and Return Delay (60.0s). Callouts explain: 1) The 'Enable' checkbox and its value are greyed out if disabled. 2) The numerical values can be changed using up/down arrows. 3) The slider controls can be clicked and dragged to change settings.

| Under Voltage Alarm | |
|---------------------|---|
| Trip | The alarm activates when the battery voltage falls below the <i>Trip</i> setting for longer than the <i>Trip Delay</i> duration. |
| Trip Delay | |
| Return | The alarm is deactivated when the battery voltage exceeds the <i>Return</i> setting for longer than the <i>Return Delay</i> duration. |
| Return Delay | |

4.3.3.3 OVER VOLTAGE ALARM

NOTE: DC Over Voltage Alarm configuration is not available in DSE9462.

The screenshot shows the 'Over Voltage Alarm' configuration window. It includes an 'Enable' checkbox, a note that voltage values are per cell at 20 °C, and settings for Return (2.450 VDC), Return Delay (60.0s), Alarm (2.500 VDC), and Alarm Delay (60.0s). Callouts explain: 1) The 'Enable' checkbox and its value are greyed out if disabled. 2) The numerical values can be changed using up/down arrows. 3) The slider controls can be clicked and dragged to change settings.

| Over Voltage Alarm | |
|--------------------|--|
| Trip | The alarm activates when the battery voltage exceeds the <i>Trip</i> setting for longer than the <i>Trip Delay</i> duration. |
| Trip Delay | |
| Return | The alarm is deactivated when the battery voltage falls below the <i>return</i> setting for longer than the <i>Return Delay</i> time duration. |
| Return Delay | |

4.3.4 BATTERY DETECTION

The screenshot shows the 'Battery Detection' configuration window. It includes a title bar, a 'Battery Detection' header, and several settings: 'Enable' (checked), 'Battery Detection Threshold' (slider between 9.500 V DC and 18.000 V DC), 'Battery Detection Rate' (slider at 5m), 'Battery Detection Mode' (radio buttons for Latching and AutoRecovery), 'Auto Recovery Timer' (slider at 60.0s), 'Battery Detection Test Period Enable' (unchecked), and 'Battery Detection Test Period' (slider at 2.0s). Two callout boxes are present: one pointing to the 'Enable' checkbox with the text 'Enable or disable the alarms. The relevant value below appears greyed out if the option is disabled.' and another pointing to the sliders with the text 'Click and drag to change the settings'.

The *Battery Detection* feature allows the Charger to ensure a Battery is connected and healthy

| Battery Detection | |
|--------------------------------------|--|
| Battery Detection Test | <input type="checkbox"/> = The Battery Charger does not attempt to detect if a battery is connected. <input checked="" type="checkbox"/> = The Battery Charger does attempt to detect if a battery is connected according the parameters listed below. |
| Battery Detection Threshold | During the <i>Battery Detection</i> test, the charger reduces its output voltage to 0.5 V below the <i>Battery Detection Threshold</i> . The battery voltage is then monitored for 2 seconds. If the battery voltage falls below the configured <i>Battery Detection Threshold</i> , the battery charger considers the battery to be <i>Disconnected</i> and issues a <i>Warning</i> alarm for <i>Battery Disconnected</i> . |
| Battery Detection Rate | The time period between <i>Battery Detection</i> Tests. |
| Battery Detection Mode | <p>Latching: Upon the <i>Battery Disconnected Alarm</i> becoming active, the Battery Charger output voltage remains at the <i>Battery Detection Threshold</i> until the alarm is cleared.</p> <p>No more <i>Battery Detection</i> Tests take place until the alarm is cleared.</p> <p>The alarm is cleared by either power cycling the Battery Charger or if the battery voltage rises above the <i>Battery Detection Threshold</i> value.</p> <p>Auto Recovery: Upon the <i>Battery Diconnected Alarm</i> becoming active, the Battery Charger output voltage remains at <i>Battery Detection Threshold</i> and the <i>Auto Recovery Timer</i> begins. Upon completion of the <i>Auto Recovery Timer</i>, the battery charger output voltage rises to the <i>Bulk Trigger Voltage</i> and normal charging resumes.</p> <p>The test is repeated at the <i>Battery Detection Rate</i> interval.</p> <p>The alarm is cleared by either power cycling the Battery Charger or if the voltage rises above the <i>Battery Detection Threshold</i> value at the next scheduled <i>Battery Detection Test</i>.</p> |
| Battery Detection Test Period Enable | <input type="checkbox"/> = Upon the <i>Battery Detection Test</i> becoming active the Battery Charger output voltage falls to 0.5 V below the <i>Battery Detection Threshold</i> . The battery voltage is then monitored for 2 seconds. <input checked="" type="checkbox"/> = Upon the <i>Battery Detection Test</i> becoming active the Battery Charger output voltage falls to 0.5 V below the <i>Battery Detection Threshold</i> for the duration of <i>Battery Detection Test Period</i> timer. Upon completion of the <i>Battery Detection Test Period</i> timer the battery voltage is then monitored for 2 seconds. |
| | This is used to obtain an accurate indication of battery condition when a standing load is applied but Battery Charger supply is not available (typically during Battery Charger mains supply failure). |

4.4 MAINS

The screenshot shows the 'Mains' configuration page. It is divided into two sections: 'Over Voltage Alarm' and 'Under Voltage Alarm'. Each section has an 'Enable' checkbox, a 'Trip' value (with up/down arrows and a slider), a 'Delay' value (with a slider), a 'Return' value (with up/down arrows and a slider), and a 'Return Delay' value (with a slider). Callouts provide instructions: 'Enable or disable the alarms. The relevant values below will appear *greyed out* if the option is disabled.' (pointing to the Enable checkbox), 'Type the value or click the up and down arrows to change the settings' (pointing to the Trip and Return input boxes), and 'Click and drag to change the settings' (pointing to the sliders).

| Mains Over Voltage Alarms | |
|---------------------------|--|
| Trip | The alarm activates when the Mains voltage exceeds the <i>Trip</i> setting for longer than the "Trip Delay" duration. |
| Trip Delay | |
| Return | The alarm is deactivated when the Mains voltage falls below the <i>Return</i> setting for longer than the <i>Return Delay</i> duration |
| Return Delay | |

| Mains Under Voltage Alarms | |
|----------------------------|--|
| Trip | The alarm activates when the Mains voltage falls below the <i>Trip</i> setting for longer than the <i>Trip Delay</i> duration. |
| Trip Delay | |
| Return | The alarm is deactivated when the Mains voltage exceeds the <i>Return</i> setting for longer than the "Return Delay" duration. |
| Return Delay | |

4.5 COMMUNICATIONS

Communications

Communications Options

Communications Mode RS485

Communications - RS485

Slave ID 10

Baud Rate 38400

Master inactivity timeout 5s

Communications - DSENet


DSENet ID 0

CAN Port

CAN Source Address 1

| RS485 Port | |
|--|--|
| Communications Mode | RS485: Configures the RS485 port to be used for MODBUS communication DSENet: Configures the RS485 port to be used for DSENet communication |
| Basic Slave ID Baud Rate | The Modbus Slave address and RS485 baud rate. Slave ID: This is used when connecting the RS485 port to a Modbus Master device. Baud Rate: The communications link speed. Adjustable from 4800 to 115200. |
| Advanced Master Inactivity Timeout | Master Inactivity Timeout: Modbus timer to enable the charger to detect when the Modbus Master is no longer communicating. |
| DSENet | The DSENet slave address This is used when connecting the RS485 port to a DSE module's DSENet port. |
| CAN Port | Only available for DSE9474, DSE9479, DSE9484, DSE9450 & DSE9452 The CANbus source address This is used when connecting the CAN port to a CAN device. |

4.6 CONFIGURABLE GENCOM

 **NOTE: Configurable Gencomm pages are NOT available in DSE9470, DSE9472, DSE9480 and DSE9841.**

For Modbus users of the battery charger, configurable Gencomm pages are available.

Configurable Gencomm

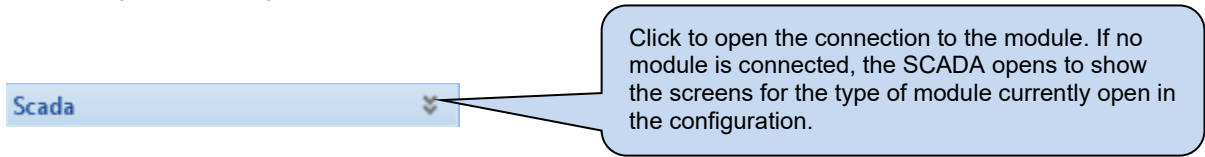
Page 166

| Register | Value | Register | Value | Register | Value | Register | Value |
|----------|------------|----------|------------|----------|------------|----------|------------|
| 0-1 | <Not Used> | 64-65 | <Not Used> | 128-129 | <Not Used> | 192-193 | <Not Used> |
| 2-3 | <Not Used> | 66-67 | <Not Used> | 130-131 | <Not Used> | 194-195 | <Not Used> |
| 4-5 | <Not Used> | 68-69 | <Not Used> | 132-133 | <Not Used> | 196-197 | <Not Used> |
| 6-7 | <Not Used> | 70-71 | <Not Used> | 134-135 | <Not Used> | 198-199 | <Not Used> |
| 8-9 | <Not Used> | 72-73 | <Not Used> | 136-137 | <Not Used> | 200-201 | <Not Used> |
| 10-11 | <Not Used> | 74-75 | <Not Used> | 138-139 | <Not Used> | 202-203 | <Not Used> |
| 12-13 | <Not Used> | 76-77 | <Not Used> | 140-141 | <Not Used> | 204-205 | <Not Used> |
| 14-15 | <Not Used> | 78-79 | <Not Used> | 142-143 | <Not Used> | 206-207 | <Not Used> |
| 16-17 | <Not Used> | 80-81 | <Not Used> | 144-145 | <Not Used> | 208-209 | <Not Used> |
| 18-19 | <Not Used> | 82-83 | <Not Used> | 146-147 | <Not Used> | 210-211 | <Not Used> |
| 20-21 | <Not Used> | 84-85 | <Not Used> | 148-149 | <Not Used> | 212-213 | <Not Used> |
| 22-23 | <Not Used> | 86-87 | <Not Used> | 150-151 | <Not Used> | 214-215 | <Not Used> |
| 24-25 | <Not Used> | 88-89 | <Not Used> | 152-153 | <Not Used> | 216-217 | <Not Used> |
| 26-27 | <Not Used> | 90-91 | <Not Used> | 154-155 | <Not Used> | 218-219 | <Not Used> |
| 28-29 | <Not Used> | 92-93 | <Not Used> | 156-157 | <Not Used> | 220-221 | <Not Used> |
| 30-31 | <Not Used> | 94-95 | <Not Used> | 158-159 | <Not Used> | 222-223 | <Not Used> |
| 32-33 | <Not Used> | 96-97 | <Not Used> | 160-161 | <Not Used> | 224-225 | <Not Used> |
| 34-35 | <Not Used> | 98-99 | <Not Used> | 162-163 | <Not Used> | 226-227 | <Not Used> |
| 36-37 | <Not Used> | 100-101 | <Not Used> | 164-165 | <Not Used> | 228-229 | <Not Used> |
| 38-39 | <Not Used> | 102-103 | <Not Used> | 166-167 | <Not Used> | 230-231 | <Not Used> |
| 40-41 | <Not Used> | 104-105 | <Not Used> | 168-169 | <Not Used> | 232-233 | <Not Used> |
| 42-43 | <Not Used> | 106-107 | <Not Used> | 170-171 | <Not Used> | 234-235 | <Not Used> |
| 44-45 | <Not Used> | 108-109 | <Not Used> | 172-173 | <Not Used> | 236-237 | <Not Used> |
| 46-47 | <Not Used> | 110-111 | <Not Used> | 174-175 | <Not Used> | 238-239 | <Not Used> |
| 48-49 | <Not Used> | 112-113 | <Not Used> | 176-177 | <Not Used> | 240-241 | <Not Used> |
| 50-51 | <Not Used> | 114-115 | <Not Used> | 178-179 | <Not Used> | 242-243 | <Not Used> |
| 52-53 | <Not Used> | 116-117 | <Not Used> | 180-181 | <Not Used> | 244-245 | <Not Used> |
| 54-55 | <Not Used> | 118-119 | <Not Used> | 182-183 | <Not Used> | 246-247 | <Not Used> |
| 56-57 | <Not Used> | 120-121 | <Not Used> | 184-185 | <Not Used> | 248-249 | <Not Used> |
| 58-59 | <Not Used> | 122-123 | <Not Used> | 186-187 | <Not Used> | 250-251 | <Not Used> |
| 60-61 | <Not Used> | 124-125 | <Not Used> | 188-189 | <Not Used> | 252-253 | <Not Used> |
| 62-63 | <Not Used> | 126-127 | <Not Used> | 190-191 | <Not Used> | 254-255 | <Not Used> |

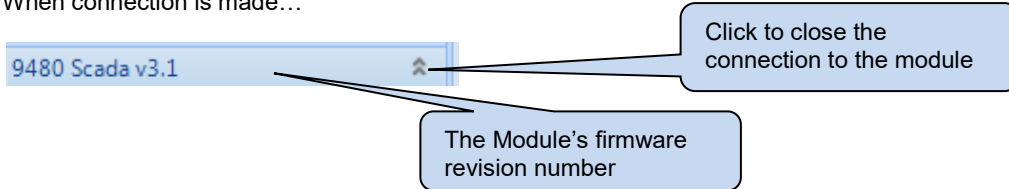
5 SCADA

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 module.

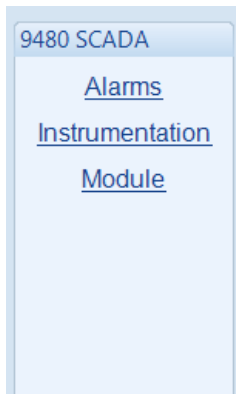
As a service tool, the SCADA pages are to check the operation of the controller's inputs and outputs as well as checking the operating parameters.



When connection is made...



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



5.1 ALARMS

Shows any present alarm conditions.




5.2 INSTRUMENTATION

 **NOTE: The chargers Scada Instrumentation page shows different instruments depending on each charger what instruments they support.**

Shows the DSE Intelligent Chargers instrumentation parameters.

| Instrumentation | |
|----------------------|--------------|
| Battery | |
| Battery Voltage | 28.10 V DC |
| Battery Temperature | 27 °C, 81 °F |
| Mains | |
| Mains Voltage | 230 V |
| Mains Frequency | 50.1 Hz |
| Mains Current | 12.7 A |
| Charger | |
| Output Voltage | 28.63 V DC |
| Output Current | 94.82 A |
| Active Current Limit | 100.00 A |
| Output Power | 2714 W |
| Charger Temperature | 34 °C, 93 °F |
| Charger Status | Absorption |
| Fan 1 Speed | 3700 RPM |
| Fan 2 Speed | 3650 RPM |

The DSE9474 and 9476 chargers includes Charge State Time Remaining, Time Until Next Battery Test, Time Until Next Self Test, and Digital Input function and its status.

| Instrumentation | |
|------------------------------|---|
| Battery | |
| Battery Temperature | |
| Mains | |
| Mains Voltage | 240 V |
| Mains Frequency | 50.1 Hz |
| Charger | |
| Output Voltage | 28.16 V DC |
| Output Current | 0.00 A |
| Active Current Limit | 30.00 A |
| Output Power | 0 W |
| Charger Temperature | 27 °C, 81 °F |
| Charger Status | Absorption |
| Charge State Time Remaining | 59m |
| Time Until Next Battery Test | 5m |
| Time Until Next Self Test | 5m |
| Digital Input | Lamp Test  |

5.3 MODULE

Shows the chargers software versions and identity information.

| | |
|--------------------|--------------------------|
| Software Version | |
| 2.3 | |
| Module ID | |
| 151916650F | |
| Bootloader Version | |
| 1.2 | |
| Description | |
| Module Identity: | DSE Battery Charger |
| Site Identity: | Deep Sea Electronics PLC |

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