DEEP SEA ELECTRONICS

DSEG0123 MSC Configuration Suite
PC Software Manual

Document Number: 057-349

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DSEG0123 Configuration Suite PC Software Manual

Amendments Since Last Publication

Amd. No.	Config Suite Version No	Comments	Date
1	1.0	Initial release	

Typeface: The typeface used in this document is *Arial*. Care must be taken not to mistake the upper-case letter I with the numeral 1. The numer1 has a top serif to avoid this confusion.

TABLE OF CONTENTS

Section **Page**

1 INTRODUCTION

This document details the use of the *DSE Configuration Suite PC Software* with the DSEG0123 MSC module, which is part of the DSEGenset® range of products.

The manual forms part of the product and should be kept for the entire life of the product. If the product is passed or supplied to another party, ensure that this document is passed to them for reference purposes.

This is not a *controlled document.* DSE do not automatically inform on updates. Any future updates of this document are included on the DSE website at www.deepseaelectronics.com

The *DSE Configuration Suite PC Software* allows the DSEG0123 module to be connected to a PC via USB A to USB B cable (USB printer cable). Once connected, the software allows easy, controlled access to various operating parameters within the module which can then be viewed and edited as required.

The *DSE Configuration Suite PC Software* must 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 must 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. Separate manuals deal with the operation of the individual module and its ancillaries, refer to section 1.3 entitled *Bibliography* in this document for further information.

1.1 CLARIFICATION OF NOTATION

Clarification of notation used within this publication.

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.**

1.2 GLOSSARY OF TERMS

Term	Description
CAN	Controller Area Network. Vehicle standard to allow digital devices to communicate to one another.
DAC	Digital to Analogue Converter
LED	Light Emitting Diode
MSC	Multi-Set Communication
PIN	PIN number
SCADA	Supervisory Control And Data Acquisition. A system that operates with coded signals over communication channels to provide control and monitoring of remote equipment
USB	Universal Serial Bus

1.3 BIBLIOGRAPHY

This document refers to, and is referred by the following DSE publications which are obtained from the DSE website: www.deepseaelectronics.com or by contacting DSE technical support: support@deepseaelectronics.com.

1.3.1 INSTALLATION INSTRUCTIONS

Installation instructions are supplied with the product in the box and are intended as a 'quick start' guide only.

DSE Part	Description
053-004	DSE123 Installation Instructions
053-032	DSE2548 LED Expansion Annunciator Installation Instructions
053-033	DSE2130 Input Expansion Installation Instructions
053-034	DSE2157 Output Expansion Installation Instructions
053-049	DSE9xxx Battery Charger Installation Instructions
053-082	DSE8680 Installation Instructions
053-125	DSE2131 Ratio-metric Input Expansion Installation Instructions
053-126	DSE2133 RTD/Thermocouple Input Expansion Installation Instructions
053-134	DSE2152 Ratio-metric Output Expansion Installation Instructions
053-147	DSE9460 & DSE9461 Battery Charger Installation Instructions
053-152	DSE123 Cummins PCC Variant Installation Instructions
053-185	DSE9473 & DSE9483 Battery Charger Installation Instructions
053-233	DSEA108 Installation Instructions
053-245	DSEA109 Installation Instructions
053-248	DSE8920 Installation Instructions

1.3.2 MANUALS

Product manuals are obtained from the DSE website: www.deepseaelectronics.com or by contacting DSE technical support: support@deepseaelectronics.com.

DSE Part	Description
N/A	DSEGencomm (MODBUS protocol for DSE controllers)
057-004	Electronic Engines and DSE Wiring Guide
057-045	Guide to Synchronising and Load Sharing Part 1 (Usage of DSE Load Share Controllers in synchronisation / load sharing systems.)
057-046	Guide to Synchronising and Load Sharing Part 2 (Governor & AVR Interfacing)
057-047	Load Share System Design and Commissioning Guide
057-082	DSE2130 Input Expansion Operator Manual
057-083	DSE2157 Output Expansion Operator Manual
057-084	DSE2548 Annunciator Expansion Operator Manual
057-085	DSE9xxx Battery Charger Operator Manual
057-130	DSE8680 Operator Manual
057-131	DSE8680 Configuration Suite PC Software Manual
057-139	DSE2131 Ratio-metric Input Expansion Manual
057-140	DSE2133 RTD/Thermocouple Expansion Manual
057-141	DSE2152 Ratio-metric Output Expansion Manual
057-151	DSE Configuration Suite PC Software Installation & Operation Manual
057-175	PLC Programming Guide For DSE Controllers
057-176	DSE9460 & DSE9461 Battery Charger Operator Manual
057-238	DSE8610 MKII Configuration Suite PC Software Manual
057-254	DSE8610 MKII Operators Manual
057-312	DSEAssistant PC Software Manual
057-314	Advanced PLC Software Manual

1.3.3 TRAINING GUIDES

Training guides are provided as ‘hand-out’ sheets on specific subjects during training sessions and contain specific information regarding to that subject.

DSE Part	Description
056-001	Four Steps To Synchronising
056-005	Using CTs With DSE Products
056-006	Introduction to Comms
056-010	Over Current Protection
056-011	AMSC Link
056-013	Load Demand Scheme
056-018	Negative Phase Sequence
056-019	Earth Fault Protection
056-020	Loss Of Excitation
056-021	Mains Decoupling
056-022	Switchgear Control
056-023	Adding New CAN Files
056-024	GSM Modem
056-026	kVA, kW, kvar and Power Factor
056-029	Smoke Limiting
056-030	Module PIN Codes
056-033	Synchronising Requirements
056-036	DSE Module Expansion
056-043	Sync Process
056-045	PLC as Load Demand Controller
056-047	Out of Sync and Failed To Close
056-051	Modbus Control
056-053	Recommended Modems
056-054	DSE8x10 In Fixed Export
056-055	Alternate Configurations
056-057	SW1 & SW2
056-069	Firmware Update
056-071	DSEG0123 Auto Test Manual
056-072	Dead Bus Synchronising
056-075	Adding Language Files
056-076	Gencomm Alarms
056-079	Gencomm Status
056-080	MODBUS
056-081	Screen Heaters
056-082	Override Gencomm PLC Example
056-084	Synchronising & Load sharing
056-086	G59
056-091	Equipotential Earth Bonding
056-092	Best Practices for Wiring Restive Sensors
056-094	MSC Compatibility
056-095	Multi Set Controller Input Functions
056-097	USB Earth Loops and Isolation
056-099	Digital Output to Digital Input Connection
056-118	Configurable CAN
056-123	Simulation Injection Testing

1.3.4 THIRD PARTY DOCUMENTS

The following third-party documents are also referred to:

Reference	Description
ISBN 1-55937-879-4	IEEE Std C37.2-1996 IEEE Standard Electrical Power System Device Function Numbers and Contact Designations. Institute of Electrical and Electronics Engineers Inc
ISBN 0-7506-1147-2	Diesel generator handbook. L.L.J. Mahon
ISBN 0-9625949-3-8	On-Site Power Generation. EGSA Education Committee.

1.4 INSTALLATION AND USING THE DSE CONFIGURATION SUITE SOFTWARE

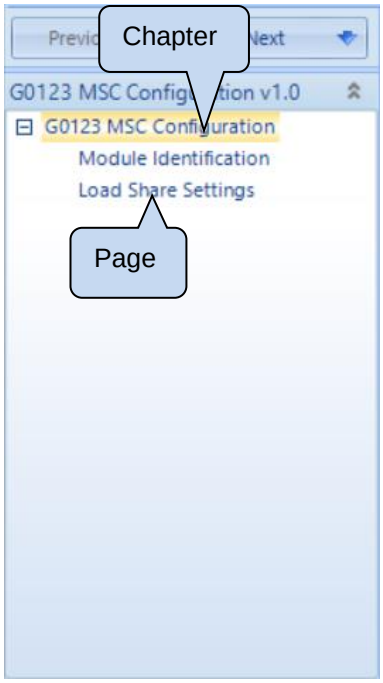
For information regarding installing and using the *DSE Configuration Suite PC Software,* refer to DSE publication: ***057-151 DSE Configuration Suite PC Software Installation & Operation Manual*** which is found on the DSE website: www.deepseaelectronics.com

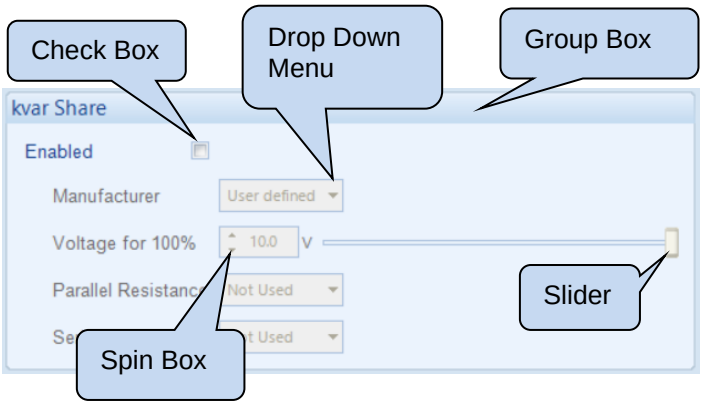
2 GENERAL CONTROLS

NOTE: For information on Menu & Toolbars please refer to DSE Publication: 057-151 *DSE Configuration Suite PC Software Installation & Operation Manual*

Overview

The *DSE Configuration Suite PC Software* dialog boxes provide the user with a way to type text, choose options, and initiate actions. Controls in other windows provide a variety of services, such as letting the user choose commands and view and edit text. This section describes the controls provided by the *DSE Configuration Suite* and how to manipulate them.
The diagram below shows the general controls of the main configuration screen.

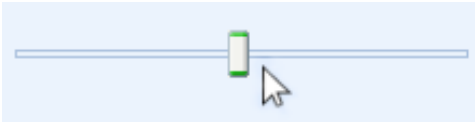




2.1 USER CONTROLS

Slider

The Slider Control allows the user to change a value using a mouse or arrows found on a standard keyboard.
The slider is highlighted in green in its inactive state and will change to orange (active state) once selected by a mouse pointer.



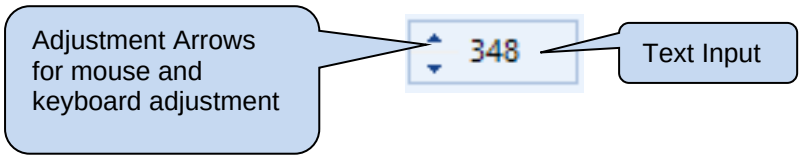
Inactive state

Active state

During the active state, the slider can be moved with the mouse pointer and the left and right keyboard arrows.

Spin Box

The Spin box displays the current value of the setting in the group box.



Clicking the mouse over the Spin box will change its colour to orange putting it in an active state.

Inactive state Active state

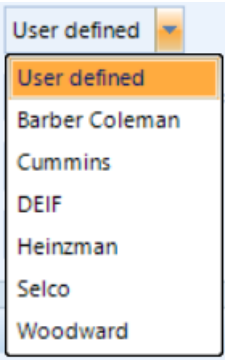
During the active state text can be entered using the keyboard, changed using the mouse pointer or the up and down arrows on the keyboard.

Check box

Used to select a parameter

Drop down menu

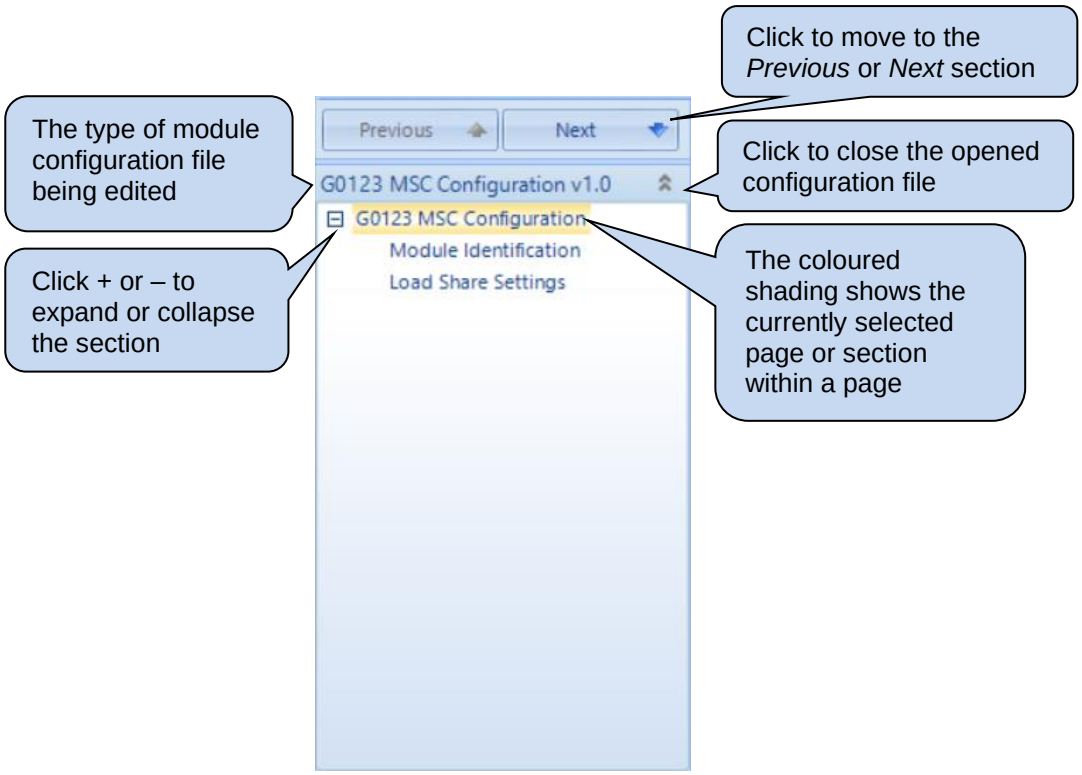
Used to select an action

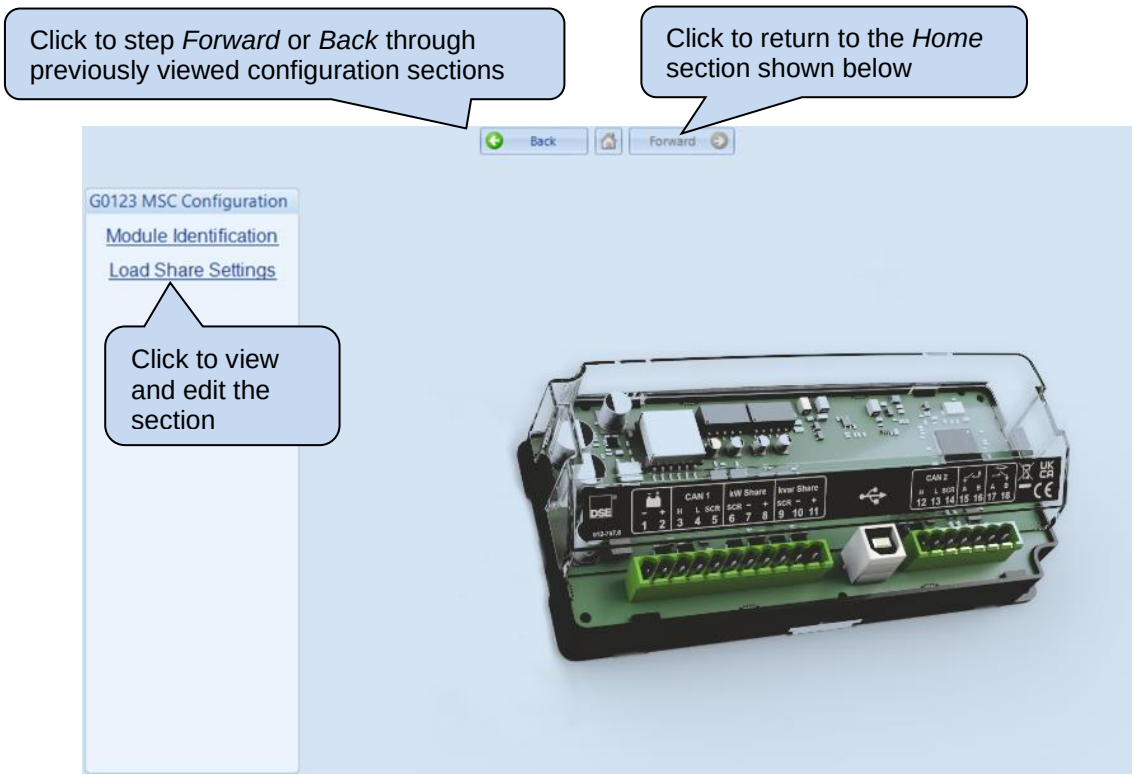


3 EDITING THE CONFIGURATION

The software is broken down into separate sections to provide simple navigation whilst editing the module's configuration to suit a particular application.

3.1 SCREEN LAYOUT

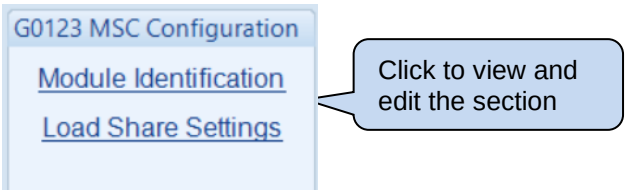




3.2 MSC CONFIGURATION

NOTE: The G0123 MSC ID is fixed at 16 so it is important to ensure when configuring an 8610 MKII, the module doesn't have the same MSC ID. It is advised that an 8610 MK11 is powered up after the G0123 otherwise Auto ID Allocation will fail if 8610MKII has been allocated an ID of 16 prior to the G0123 being connected.

The Module section allows the user to edit options related to the module itself and is subdivided into smaller sections.

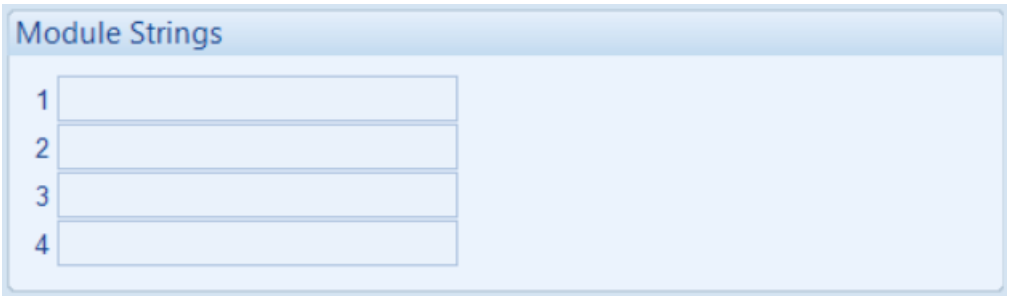


3.2.1 MODULE IDENTIFICATION

The *Module Identification* section allows the user to edit options related to the module itself and is subdivided into smaller sections.

3.2.1.1 MODULE STRINGS

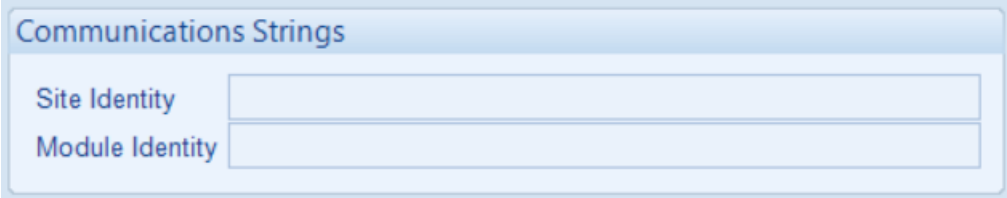
Description



Parameter	Description
Description	Four free entry boxes to allow the user to give the configuration file a description. Typically used to enter the job number, customer name, engine information etc. This text is only shown in the configuration file.

3.2.1.2 COMMUNICATION STRINGS

Description



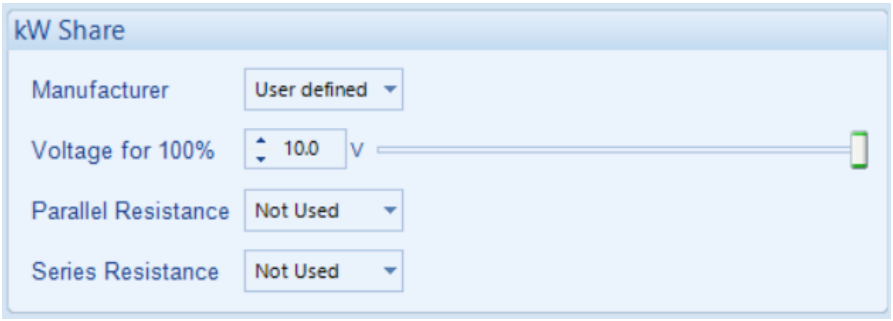
Parameter	Description
Site Identity	A free entry boxes to allow the user to give the DSE module a description of where the site is located. This text is only seen when performing remote communication. This aids the user in knowing where the module is located.
Module Identity	A free entry boxes to allow the user to give the DSE module a description of which generator it is connected to. This text is is only seen when performing remote communication. This aids the user in knowing which module on a specific site is being monitored.

3.3 LOAD SHARE SETTINGS

The *Load Share Settings* section allows the user to edit options related to the module itself and is subdivided into smaller sections.

3.3.1 KW SHARE

Description



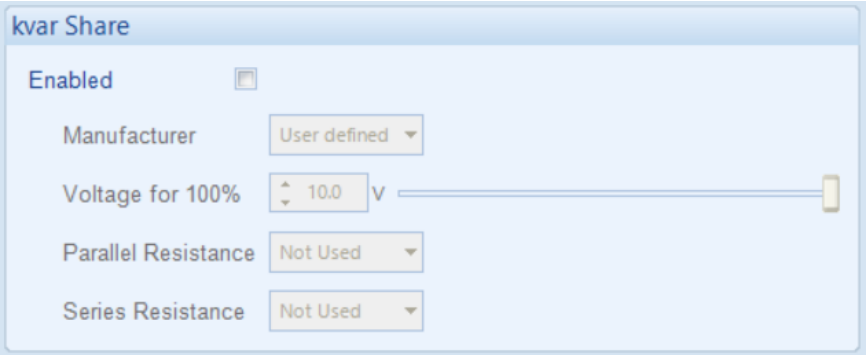
Parameter	Description
Manufacturer	This is a list of pre-sets that change the other settings to match the requirements of manufacturers. The options are as follows: ***User Defined*** ***Barber Coleman*** ***Cummins*** ***DEIF*** ***Heinzman*** ***Selco*** ***Woodward***
Voltage for 100%	The voltage that the DAC produces when the Gen is at 100% load.
Parallel Resistance	The parallel resistance values for the User Defined option are: **3.6kΩ** **3.9kΩ** **4.0kΩ** **4.3kΩ** **4.4kΩ** **4.5kΩ** **5.0kΩ** **5.5kΩ** **6.3kΩ** **6.5kΩ** **6.8kΩ** **7.5kΩ** **8.0kΩ** **8.2kΩ** **10 kΩ** **12.5kΩ** **17kΩ** **18.3kΩ** **21.3kΩ** **30kΩ** **39kΩ** **47kΩ**

NOTE: It's essential that every unit on a pair of load share lines uses the same Voltage, Parallel and Series Resistance values. Failure to do so will result in incompatibility between the modules.

Parameter	Description
Series Resistance	The resistor in series with the +VE load share line is for compatibility with certain makes of equipment. The available values for the *User Defined* option are: **47Ω** **817Ω** **848Ω** **956 Ω** **1000Ω** **4.46kΩ** **5.6kΩ** **22kΩ**

NOTE: Selecting Cummins as manufacturer will grey out all other settings.

3.3.2 KVAR SHARE



Parameter	Description
Enabled	☐ = kvar Share is disabled. ☑ = kvar Share is enabled.
Manufacturer	This is a list of compliant manufactures. The options are as follows: ***User Defined*** ***Barber Coleman*** ***Cummins*** ***DEIF*** ***Heinzman*** ***Selco*** ***Woodward***
Voltage for 100%	The voltage that the DAC produces when the Gen is at 100% load.
Parallel Resistance	The parallel resistance values for the User Defined option are: **3.6kΩ** **3.9kΩ** **4.0kΩ** **4.3kΩ** **4.4kΩ** **4.5kΩ** **5.0kΩ** **5.5kΩ** **6.3kΩ** **6.5kΩ** **6.8kΩ** **7.5kΩ** **8.0kΩ** **8.2kΩ** **10 kΩ** **12.5kΩ** **17kΩ** **18.3kΩ** **21.3kΩ** **30kΩ** **39kΩ** **47kΩ**

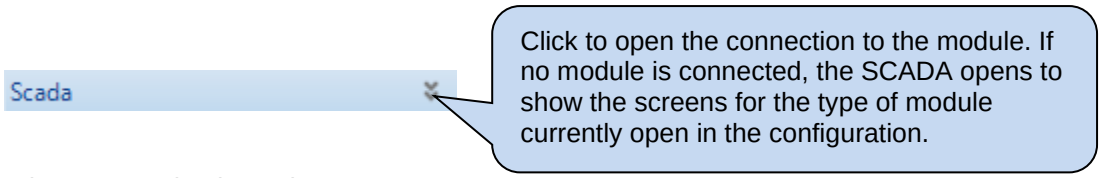
NOTE: If the Enabled is unchecked it prevents the G0123-MSC from var sharing, leaving only power sharing active. This should only be done if var control is also turned off in the 8610's config. Without var sharing it will be necessary to rely on var droop between the two Gens.

Parameter	Description
Series Resistance	The resistor in series with the +VE load share line is for compatibility with certain makes of equipment. The available values for the *User Defined* option are: **47Ω** **817Ω** **848Ω** **956 Ω** **1000Ω** **4.46kΩ** **5.6kΩ** **22kΩ**

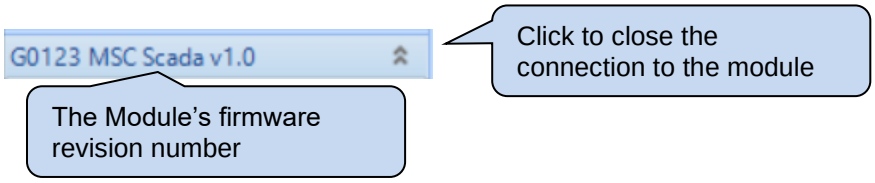
NOTE: It's essential that every unit on a pair of load share lines uses the same Voltage, Parallel and Series Resistance values. Failure to do so will result in incompatibility between the modules.

4 SCADA

SCADA stands for Supervisory Control And Data Acquisition and is provided both as a service tool and as a means of monitoring and 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.

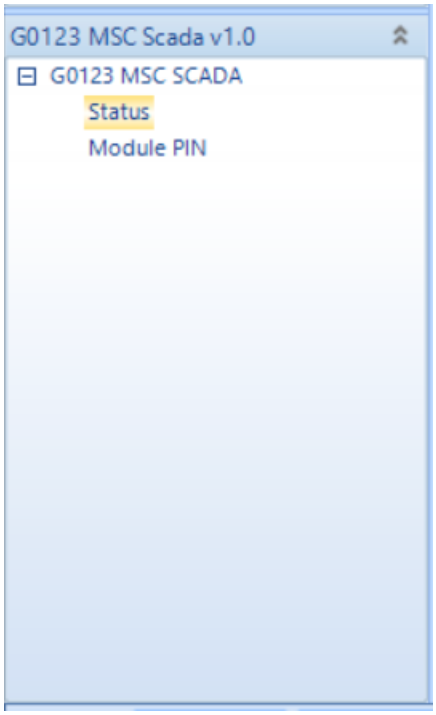


When connection is made…



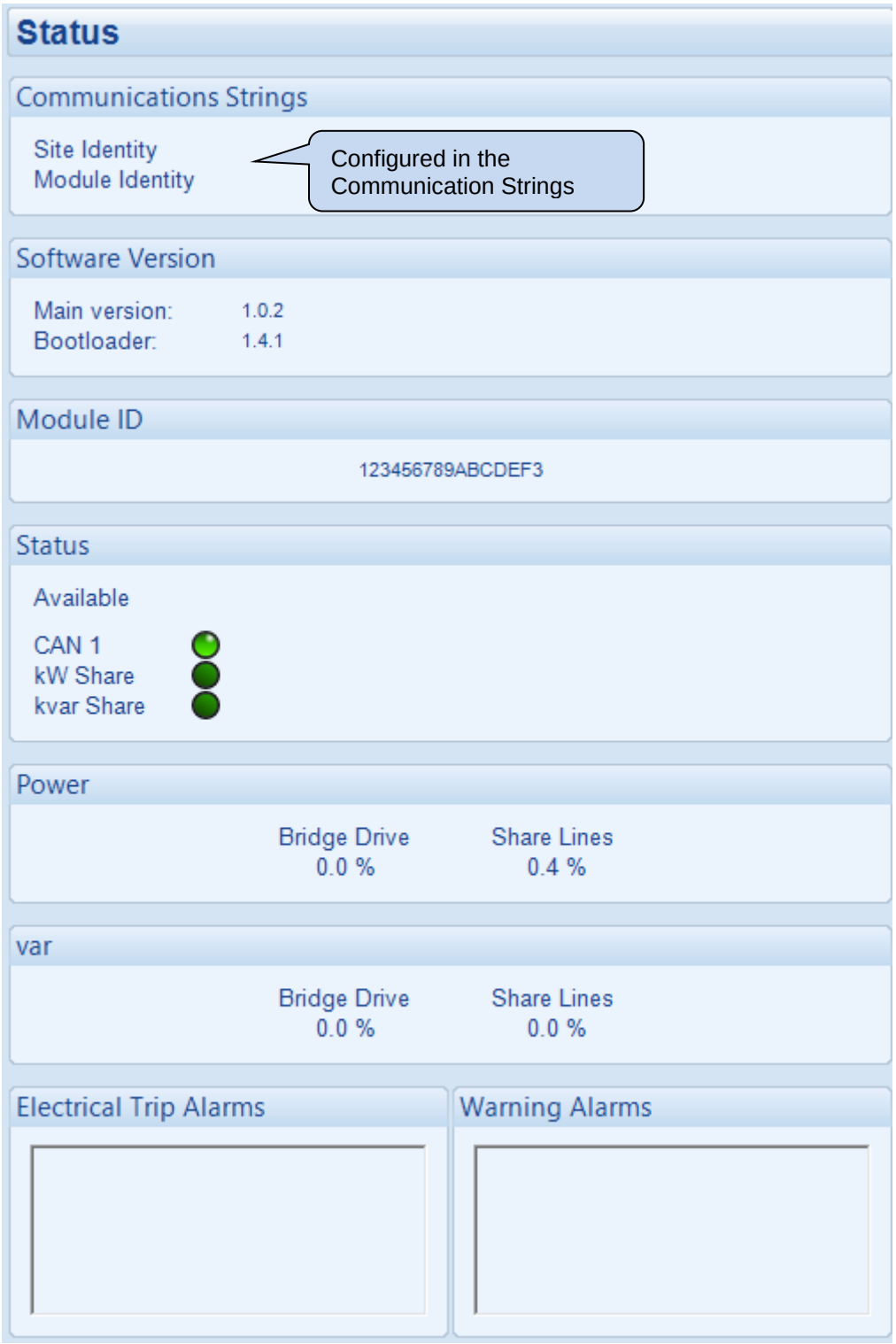
The *SCADA* page is subdivided into smaller sections.
Select the required section with the mouse.

NOTE: The SCADA sections will appear depending on how the module is configured.



4.1 STATUS

This section displays the status information about the module.

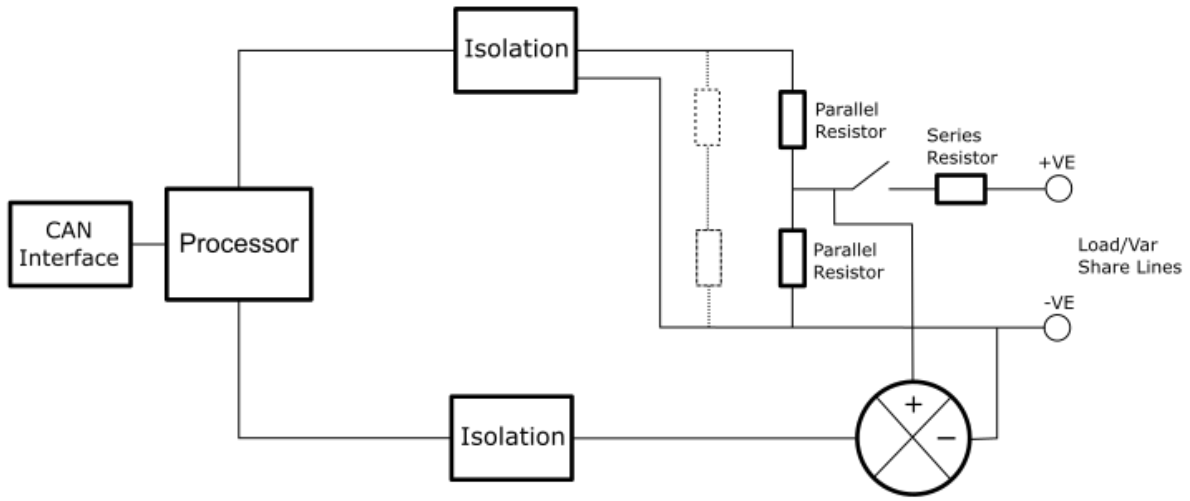


Status

Parameter	Description
CAN 1	CAN1 mimics the LED on the module and is lit when the CAN port is connected to a Gen and everything is ok
kW Share	kW Share mimics the LED on the module and is lit when the switch shown in diagram below is closed, connecting the power bridge to the load share lines. This will happen when the 8610 is running and has it's breaker closed.
Kvar Share	kvar Share mimics the LED on the module and is lit when the switch shown in the diagram below is closed, connecting the var bridge to the var share lines. This will happen when the 8610 is running and has it's breaker closed, unless disabled by the check box in the G0123-MSC's config or kvar sharing is disabled in the 8610.

Power & var

Parameter	Description
Bridge Drive	The 'Bridge Drive' percent is the percent of full power/var that is being applied to the bridge and is identical to the power/var of the load that the 8610 is supplying and displaying on its LCD.
Share Lines	The percentage measured across the load/var share lines themselves. When everything is perfectly sharing these will be the same as the Gen is producing. When there's an imbalance between the 8610 and the other Gen these are the averages of the two, of course the imbalance should be corrected quite quickly.



Power and var Sharing Bridges

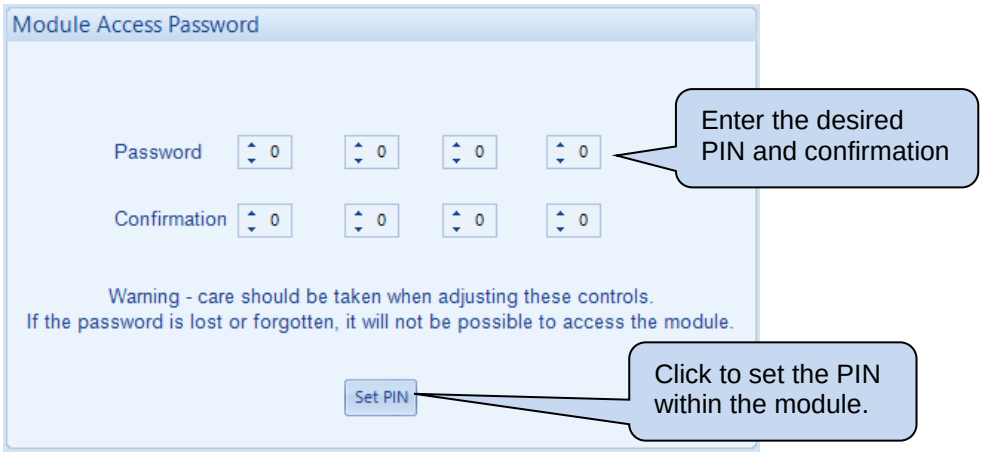
Alarms

Alarm Type	Description
Electrical Trip	*Electrical Trip alarms* are serious issues that require the Generator Bus to be taken off load. As the name implies, this is often electrical faults that occur 'after' the load switch. The Generator Bus is allowed to cool before stopping.
Warning	*Warning alarms* are used to draw the operator's attention to a minor issue or to a problem that may escalate to an Electrical Trip if left untreated.

4.2 MODULE PIN

CAUTION!: If the module PIN is lost or forgotten, it is no longer possible to access or make changes to the module!

This section allows the user to configure a PIN (Personal Identification Number) within the module. This PIN must be entered when writing a configuration to the G0123 MSC module.



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