

# 1 INTRODUCTION

This document details the installation and operation requirements of the DSE7310 MKII & DSE7320 MKII modules, part of the DSE Genset® 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](http://www.deepseaelectronics.com)

The DSE73xx MKII series is designed to provide differing levels of functionality across a common platform. This allows the generator OEM greater flexibility in the choice of controller to use for a specific application.

The DSE73xx MKII series module has been designed to allow the operator to start and stop the generator, and if required, transfer the load to the generator either manually or automatically. Additionally, the DSE7320 MKII automatically starts and stops the generator set depending upon the status of the mains (utility) supply.

The user also has the facility to view the system operating parameters via the text LCD display.

The DSE73xx MKII module monitors the engine, indicating the operational status and fault conditions, automatically shutting down the engine and giving a true first up fault condition of an engine failure by the text LCD display.

The powerful ARM microprocessor contained within the module allows for incorporation of a range of complex features:

*Text based LCD display*

*True RMS Voltage*

*Current and Power monitoring*

*USB Communications*

*Engine parameter monitoring.*

*Fully configurable inputs for use as alarms or a range of different functions.*

*Engine ECU interface to **electronic engines**.*

*Data Logging*




Using a PC and the DSE Configuration Suite software allows alteration of selected operational sequences, timers, alarms, and operational sequences. Additionally, the module's integral front panel configuration editor allows adjustment of this information.

Access to critical operational sequences and timers for use by qualified engineers, can be protected by a security code. Module access can also be protected by PIN code. Selected parameters can be changed from the module's front panel.

The module is housed in a robust plastic case suitable for panel mounting. Connections to the module are via locking plug and sockets.

## 1.1 CLARIFICATION OF NOTATION

Clarification of notation used within this publication.

	<b>NOTE:</b>	Highlights an essential element of a procedure to ensure correctness.
	<b>CAUTION!</b>	Indicates a procedure or practice, which, if not strictly observed, could result in damage or destruction of equipment.
	<b>WARNING!</b>	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
DSE7000 MKII, DSE7xxx MKII	All modules in the DSE7xxx MKII range.
DSE7300 MKII, DSE73xx MKII	All modules in the DSE73xx MKII range.
DSE7310 MKII	DSE7310 MKII module/controller
DSE7320 MKII	DSE7320 MKII module/controller
AVR	Automatic Voltage Regulator An electronic device that is contained within a generator and automatically maintains its voltage level to a pre-determined level.
CAN	Controller Area Network Vehicle standard to allow digital devices to communicate to one another.
CDMA	Code Division Multiple Access. Cell phone access used in small number of areas including parts of the USA and Australia.
CT	Current Transformer An electrical device that takes a large AC current and scales it down by a fixed ratio to a smaller current.
BMS	Building Management System A digital/computer-based control system for a building's infrastructure.
DEF	Diesel Exhaust Fluid (AdBlue) A liquid used as a consumable in the SCR process to lower nitric oxide and nitrogen dioxide concentration in engine exhaust emissions.
DM1	Diagnostic Message 1 A DTC that is currently active on the engine ECU.
DM2	Diagnostic Message 2 A DTC that was previously active on the engine ECU and has been stored in the ECU's internal memory.
DPF	Diesel Particulate Filter A filter fitted to the exhaust of an engine to remove diesel particulate matter or soot from the exhaust gas.
DPTC	Diesel Particulate Temperature Controlled Filter A filter fitted to the exhaust of an engine to remove diesel particulate matter or soot from the exhaust gas which is temperature controlled.
DTC	Diagnostic Trouble Code The name for the entire fault code sent by an engine ECU.
ECU/ECM	Engine Control Unit/Management An electronic device that monitors engine parameters and regulates the fuelling.

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Term	Description
FMI	Failure Mode Indicator A part of DTC that indicates the type of failure, e.g. high, low, open circuit etc.
GSM	Global System for Mobile communications. Cell phone technology used in most of the World.
HEST	High Exhaust System Temperature Initiates when DPF filter is full in conjunction with an extra fuel injector in the exhaust system to burn off accumulated diesel particulate matter or soot.
HMI	Human Machine Interface A device that provides a control and visualisation interface between a human and a process or machine.
IDMT	Inverse Definite Minimum Time
MSC	Multi-Set Communication
OC	Occurrence Count A part of DTC that indicates the number of times that failure has occurred.
PGN	Parameter Group Number A CAN address for a set of parameters that relate to the same topic and share the same transmission rate.
PLC	Programmable Logic Controller A programmable digital device used to create logic for a specific purpose.
SCADA	Supervisory Control And Data Acquisition A system that operates with coded signals over communication channels to provide control and monitoring of remote equipment
SCR	Selective Catalytic Reduction A process that uses DEF with the aid of a catalyst to convert nitric oxide and nitrogen dioxide into nitrogen and water to reduce engine exhaust emission.
SIM	Subscriber Identity Module. The small card supplied by the GSM/CDMA provider that is inserted into the cell phone, GSM modem or DSEGateway device to give GSM/GPRS connection.
SMS	Short Message Service The text messaging service of mobile/cell phones.
SPN	Suspect Parameter Number A part of DTC that indicates what the failure is, e.g. oil pressure, coolant temperature, turbo pressure etc.

### 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](http://www.deepseaelectronics.com) or by contacting DSE technical support: [support@deepseaelectronics.com](mailto: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
053-032	DSE2548 LED Expansion Annunciator Installation Instructions
053-033	DSE2130 Input Expansion Installation Instructions
053-125	DSE2131 Ratiometric Input Expansion Installation Instructions
053-126	DSE2133 RTD / Thermocouple Input Expansion Installation Instructions
053-134	DSE2152 Analogue Output Expansion Installation Instructions
053-034	DSE2157 Output Expansion Installation Instructions
053-064	DSE2510 and DSE2520 Remote Display Expansion Installation Instructions
053-181	DSE7310 MKII & DSE7320 MKII Installation Instructions
053-147	DSE9460/DSE9461 Enclosed Intelligent Battery Charger Installation Instructions
053-049	DSE9xxx BatteryCharger Installation Instructions

#### 1.3.2 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
056-005	Using CTs With DSE Products
056-006	Introduction to Comms
056-010	Over Current Protection
056-018	Negative Phase Sequence
056-019	Earth Fault Protection
056-022	Breaker Control
056-023	Adding New CAN Files
056-024	GSM Modem
056-026	kW, kvar, kVA and pf.
056-029	Smoke Limiting
056-030	Module PIN Codes
056-051	Sending DSEGencom Control Keys
056-053	Recommended Modems
056-055	Alternate Configurations
056-069	Firmware Update
056-075	Adding Language Files
056-076	Reading DSEGencom Alarms
056-079	Reading DSEGencom Status
056-080	MODBUS
056-090	DSE73xx MKI to DSE73xx MKII Conversion
056-091	Equipotential Earth Bonding
056-092	Recommended Practices for Wiring Resistive Sensors
056-095	Remote Start Input Functions
056-096	Engine Speed Control Over CAN for DSEGenset
056-097	USB Earth Loops and Isolation
056-098	DSE73xx MKII, DSE74xx MKII & DSE86xx MKII John Deere T4
056-099	Digital Output to Input Connection

### 1.3.3 MANUALS

Product manuals are obtained from the DSE website: [www.deepseaelectronics.com](http://www.deepseaelectronics.com) or by contacting DSE technical support: [support@deepseaelectronics.com](mailto:support@deepseaelectronics.com).

DSE Part	Description
N/A	DSEGencom (MODBUS protocol for DSE controllers)
057-004	Electronic Engines and DSE Wiring Guide
057-082	DSE2130 Input Expansion Operator Manual
057-139	DSE2131 Ratiometric Input Expansion Operator Manual
057-140	DSE2133 RTD / Thermocouple Input Expansion Operator Manual
057-141	DSE2152 Analogue Output Expansion Operator Manual
057-083	DSE2157 Output Expansion Operator Manual
057-084	DSE2548 Annunciator Expansion Operator Manual
057-278	DSE73xx MKII Conversion to DSE25xx MKII Remote Display Manual
057-279	DSE2510 MKII and DSE2520 MKII Configuration Suite PC Software Manual
057-151	DSE Configuration Suite PC Software Installation & Operation Manual
057-175	PLC Programming Guide For DSE Controllers
057-220	Options for Communications with DSE Controllers
057-243	DSE7310 MKII & DSE7320 MKII Configuration Suite PC Software Manual
057-176	DSE9460/DSE9461 Enclosed Intelligent Battery Charger Operators Manual
057-085	DSE94xx Series Battery Charger Operator Manual

### 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.