

Instruction Manual

Installation • Operation • Maintenance



Deep Sea AMF Controller DSE5220

DSE5220,DSE5110,DSE5120,DSE5210,DSE5220,DSE501K,DSE701,DSE704

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DSECONTROL[®] MONITORING WITH INTELLIGENCE.



DSE5210 & DSE5220

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

DSE5210



DSE5220



The DSE5210 is an Automatic Start Control Module designed to automatically start and stop diesel and gas generating sets that include non electronic engines. The module also provides excellent engine monitoring and protection features.

The module has the ability to monitor under speed, over speed, charge failure, emergency stop, low oil pressure, high engine temperature, fail to start, fail to stop, under/over generator volts, over current, under/over generator frequency, low/high DC battery volts, low fuel alarm and loss of the speed sensing signal. The module displays fault conditions on the LCD display and via the LED indicators on the front.

The DSE5220 is an Automatic Mains Failure Control Module and includes all the features of the DSE5210 plus the ability to monitor a mains (utility) supply.

Upon detection of a mains (utility) failure the module automatically starts the generating set. Once the mains (utility) power has been restored it instructs the generating set to stop.

Both modules include RS232 or RS485 communications capabilities for linking to a PC, sending SMS messages and interfacing with new and existing building management systems.

FEATURES

- Automatic start
- Automatic mains (utility) failure detection (DSE5220 only)
- Automatic load transfer
- Configurable inputs
- Configurable outputs
- Configurable alarms & timers
- Digital inputs
- Analogue inputs
- Back-lit character LCD display
- Engine protection
- Front panel mounting
- PC configurable
- Front panel programming
- Remote monitoring
- RS232 or RS485 remote communications
- Modbus RTU
- Engine history event log
- LED alarm indication
- LCD alarm indication
- SMS messaging
- Hid till lit alarm icons
- Engine exercise mode
- Magnetic pick-up

BENEFITS

- Full integration into new and existing building management systems
- In-built engine diagnostics removes the requirement for service equipment
- License free PC software
- Modules help to improve the life cycle of engine starter motors
- On-site module configuration to match user requirements
- Remote module configuration using PC software
- Modules send SMS messages to engineers to notify specific engine problems (GSM Modem and SIM Card required)
- User-friendly set-up and button layout

OPERATION

The modules are operated using the front STOP, AUTO and MANUAL push buttons. The DSE5220 also includes a TEST button. An additional push button allows the user to scroll through the LCD display to view the instrumentation and event log.

CONFIGURATION

The modules can be configured using the front panel buttons or by using the DSE810 interface and PC software.

SPECIFICATION

DC SUPPLY

8 V to 35 V continuous

CRANKING DROPOUTS

Able to survive 0V for 50mS, providing the supply was at least 10V before dropout and supply recovers to 5V

START RELAY OUTPUT

16A DC supply at supply voltage

FUEL RELAY OUTPUT

16A DC at supply voltage

AUXILIARY RELAY OUTPUTS

5A DC at supply voltage

CHARGE FAIL/EXCITATION RANGE

0V to 35V

MAXIMUM OPERATING CURRENT

320mA at 12V, 215mA at 24V

MAXIMUM STANDBY CURRENT

175mA at 12V, 95mA at 24V

ALTERNATOR INPUT RANGE

15V (L-N) to 333V AC (L-N) absolute maximum

ALTERNATOR INPUT FREQUENCY

50-60 Hz at rated engine speed
(Minimum: 15V AC L-N)

MAGNETIC PICK-UP VOLTAGE INPUT RANGE

+/- 0.5V to 70V Peak

MAGNETIC INPUT FREQUENCY

10,000 Hz (max) at rated engine speed

MAINS (UTILITY) SENSING INPUT RANGE

(DSE5220 only)
15V (L-N) to 333V AC (L-N) absolute maximum

MAINS (UTILITY) SENSING INPUT FREQUENCY

(DSE5220 only)
50-60 Hz

MAINS (UTILITY) & GENERATOR LOADING RELAY OUTPUT

(DSE5220 only)
8A AC 250V

MODULE DIMENSIONS (WxH)

240mm x 172mm
9.4" x 6.8"

PANEL CUT-OUT (WxH)

220mm x 160mm
8.7" x 6.3"

MAXIMUM PANEL THICKNESS

8mm
0.3"

ENVIRONMENTAL TESTING STANDARDS

ELECTRO MAGNETIC CAPABILITY

BS EN 61000-6-2
EMC Generic Emission Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

ELECTRICAL SAFETY

BS EN 60950
Safety of Information Technology Equipment, including Electrical Business Equipment

TEMPERATURE

BS EN 60068-2-2
Test Ab to +70°C 60067-2-2 Hot
Test Ab to -30°C 60068-2-1 Cold

VIBRATION

BS EN 60068-2-6
Ten sweeps in each of three major axes
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2gn

HUMIDITY

BS 2011 part 2.1 60068-2-30
Test Cb Ob Cyclic
93% RH @ 40°C for 48 hours

SHOCK

BS EN 60068-2-27
Three shocks in each of three major axes
15gn in 11ms

LED INDICATION

Hid till lit icons are used to show the presence of alarm conditions detected by the modules. The icons appear to the left of the LCD display.

TELEMETRY

The module gives the user full telemetry facilities when using the optional communications software. The module can be connected to a PC using the DSE810 PC interface or by using a suitable modem. The PC software is Microsoft Windows™ based.

All access into the module can be configured to be password protected to prevent unauthorised entry. The PC software allows the module to be controlled from a remote location.

INPUTS & OUTPUTS

Analogue inputs are provided for oil pressure, engine temperature and fuel level. These connect to conventional engine mounted resistive sender units to provide accurate monitoring and protection facilities. They can also be configured to interface with digital switch type inputs for low oil pressure and high engine temperature shutdowns.

Relay outputs are provided for fuel solenoid output and three configurable outputs. The configurable relay functions can be selected from a range of different functions, conditions or alarms. The relays supply positive plant supply out.

INSTRUMENTATION

The modules provide advanced metering facilities, displaying the information on the LCD display. The information can be accessed using the display scroll push buttons located next to the LCD display.

COMMUNICATIONS

The DSE5210 & DSE5220 have a number of different communication capabilities.

SMS Messaging

When the module detects an alarm condition, it has the ability to send an SMS message to a dedicated mobile number, notifying an engineer of the problem. (GSM Modem and SIM Card required)

Remote Communications

When the module detects an alarm condition, it dials out to a PC via a modem notifying the user of the exact alarm condition.

Building Management

The module has been designed to be integrated into new and existing building management systems.

PC Software

The module has the ability to be controlled, configured and monitored from a remote PC, using the DSE810 interface.

EVENT LOG

The module includes a comprehensive event log that shows the 30 most recent alarm conditions and the date and time that they occurred. This function assists the user when fault finding and maintaining a generating set.

EXPANSION MODULES

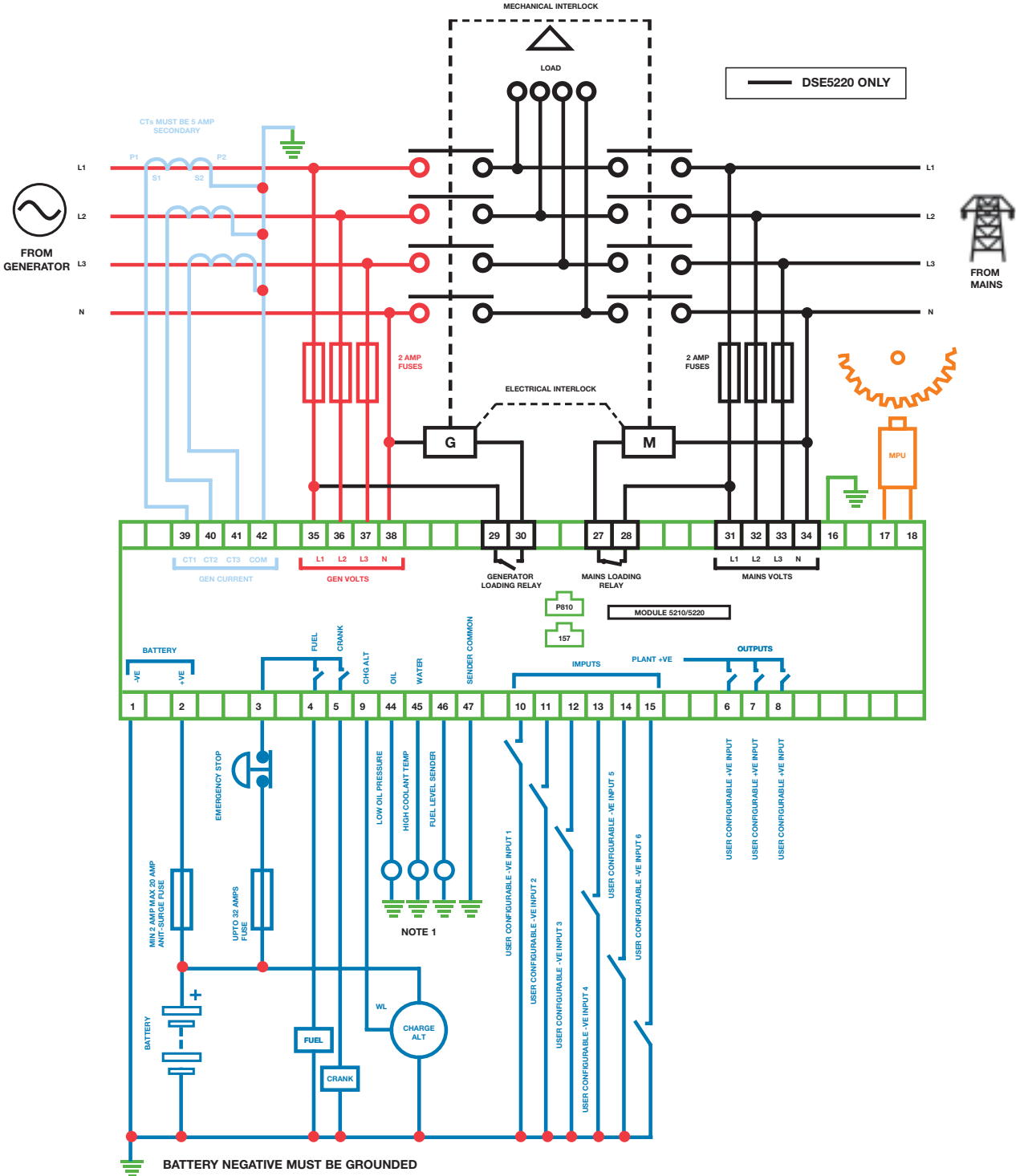
DSE157 Output Relay Expansion Module
DSE545 & DSE548 Remote Annunciation Expansion Module

5210	5220
Generator Volts L1-N, L2-N, L3-N	Generator Volts L1-N, L2-N, L3-N
Generator Volts L1-L2, L2-L3, L3-L1	Generator Volts L1-L2, L2-L3, L3-L1
Generator Amps L1,L2,L3	Generator Amps L1,L2,L3
Generator Frequency Hz	Generator Frequency Hz
Engine Speed RPM	Engine Speed RPM
Engine Oil Pressure	Engine Oil Pressure
Fuel Level %	Fuel Level %
Engine Temperature	Engine Temperature
Plant Battery Volts	Plant Battery Volts
Engine Hours Run	Engine Hours Run
Generator kVA	Generator kVA
Generator kW	Generator kW
Generator Cosθ	Generator Cosθ
	Mains Volts L1-N, L2-N, L3-N
	Mains Volts L1-L2, L2-L3, L3-L1
	Mains Frequency Hz

RELATED MATERIALS

TITLE	PART NO'S
DSE5210 Installation Instructions	053-023
DSE5220 Installation Instructions	053-020
DSE5210 Manual	057-011
DSE5220 Manual	057-012
DSE157 Data Sheet	055-045
DSE545 & DSE548 Data Sheet	055-049
52/53xx Software Manual	057-006

DSE5210 & DSE5220



BATTERY NEGATIVE MUST BE GROUNDED

TERMINALS SUITABLE FOR 22-16 AWG (0.6mm - 1.3mm) FIELD WIRING

TIGHTENING TORQUE = 0.8Nm (7lb-in)

TIGHTENING TORQUE = 0.8Nm (7lb-in)

NOTE 1

THESE GROUND CONNECTIONS MUST BE ON THE ENGINE BLOCK, AND MUST BE TO THE SENDER BODIES. THE GROUND WIRE TO TERMINAL 47 MUST NOT BE USED TO PROVIDE A GROUND CONNECTION TO ANY OTHER DEVICE