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 (to be specified on ordering)
- 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 50 milliseconds, providing the supply was at least 12V 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

**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 (W x H)**
240mm x 172mm
9.4” x 6.8”

**PANEL CUT-OUT (W x H)**
220mm x 160mm
8.7” x 6.3”

**MAXIMUM PANEL THICKNESS**
8mm
0.3”
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.

<table>
<thead>
<tr>
<th>5210</th>
<th>5220</th>
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<tbody>
<tr>
<td>Generator Volts L1-N, L2-N, L3-N</td>
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<tr>
<td>Generator Volts L1-L2, L2-L3, L3-L1</td>
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<tr>
<td>Generator Amps L1,L2,L3</td>
<td>Generator Amps L1,L2,L3</td>
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<tr>
<td>Generator Frequency Hz</td>
<td>Generator Frequency Hz</td>
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<tr>
<td>Engine Speed RPM</td>
<td>Engine Speed RPM</td>
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<tr>
<td>Engine Oil Pressure</td>
<td>Engine Oil Pressure</td>
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<tr>
<td>Fuel Level %</td>
<td>Fuel Level %</td>
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<tr>
<td>Engine Temperature</td>
<td>Engine Temperature</td>
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<tr>
<td>Plant Battery Volts</td>
<td>Plant Battery Volts</td>
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<tr>
<td>Engine Hours Run</td>
<td>Engine Hours Run</td>
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<tr>
<td>Generator kW</td>
<td>Generator kW</td>
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<tr>
<td>Generator kVA</td>
<td>Generator kVA</td>
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<tr>
<td>Generator COSθ</td>
<td>Generator COSθ</td>
</tr>
<tr>
<td>Mains Volts L1-N, L2-N, L3-N</td>
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</tr>
<tr>
<td>Mains Volts L1-L2, L2-L3, L3-L1</td>
<td>Mains Volts L1-L2, L2-L3, L3-L1</td>
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<tr>
<td>Mains Frequency Hz</td>
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RELATED MATERIALS

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<thead>
<tr>
<th>TITLE</th>
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<tbody>
<tr>
<td>DSE5210 Installation Instructions</td>
<td>053-023</td>
</tr>
<tr>
<td>DSE5220 Installation Instructions</td>
<td>053-020</td>
</tr>
<tr>
<td>DSE5210 Manual</td>
<td>057-011</td>
</tr>
<tr>
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<td>057-012</td>
</tr>
<tr>
<td>DSE157 Data Sheet</td>
<td>055-045</td>
</tr>
<tr>
<td>DSE545 &amp; DSE548 Data Sheet</td>
<td>055-049</td>
</tr>
<tr>
<td>52/53xx Software Manual</td>
<td>057-006</td>
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</table>

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 modules have 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
DSE5210 & DSE5220

MACHINE INSTALLATION INSTRUCTIONS

BATTERY NEGATIVE MUST BE GROUNDED

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

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