# DSECONTROL®
# MONITORING WITH INTELLIGENCE.

## DSE7310 & DSE7320

**AUTO START & AUTO MAINS FAILURE CONTROL MODULES (COMMUNICATIONS & EXPANSION)**



**The DSE7310 and DSE7320 are control modules for single gen-set applications. The modules have been developed from the successful DSE5310 and DSE5320 Series and incorporate a number of advanced features to meet the most demanding on-site applications.**

**The DSE7310 is an Automatic Start Control Module and the DSE7320 is an Auto Mains (Utility) Failure Control Module. Both modules have been designed to start and stop diesel and gas generating sets that include electronic and non-electronic engines. The DSE7320 includes the additional capability of being able to monitor a mains (utility) supply.**

**Both modules include USB, RS232 and RS485 ports as well as dedicated DSENet® terminals for expansion device connectivity.**

**The modules are simple to operate and feature a user-friendly menu layout for improved clarity. Enhanced features include a real time clock for enhanced event and performance monitoring, ethernet communications for low cost monitoring, mutual standby (DSE7310 only) to reduce engine wear and tear and preventative maintenance features to detect engine part faults prior to a major problem occurring.**

### FEATURES

- Backed up real time clock
- 132 x 64 pixel LCD display
- Configurable display languages
- Five-key menu navigation
- Fully configurable via PC software
- LED and LCD alarm indication
- Engine exercise mode
- Configurable start & fuel outputs
- kWh monitoring
- Automatic load transfer
- Eight configurable digital inputs
- Six configurable outputs
- Configurable timers and alarms
- Modbus RTU
- Magnetic pick-up
- Selected front panel programming
- Multiple date and time exercise scheduler
- SMS messaging (additional external modem required)
- Power save mode
- User selectable RS232 & RS485 communications
- DSENet® compatible
- Ethernet communications via DSE860/865
- Multiple date and time maintenance scheduler
- Configurable display pages
- Programmable load shedding/acceptance
- Preventative maintenance
- kW overload protection
- Unbalanced load protection
- Flexible sender input
- Configurable SCADA output page
- True dual mutual standby with load balancing timer (DSE7310 only)
- Fan control for additional cooling
- 'Protections Disabled' facility
- Fuel usage monitoring and low fuel alarm
- Support for up to three remote display units
- Automatic sleep mode
- Easy access, configurable diagnostics page shows summary of output states
- Improved programmable event log (250) showing date and time
- Manual fuel pump control
- 3 alternative configurations
- Multiple date and time scheduler
- 3 Programmable Maintenance alarms with comms alert
- Customisable status screens
- Low fuel level alarm delay
- Charge alternator fail warning and shutdown alarms with user programmable delay
- Independent Earth fault trip
- Sleep mode
- Load switching (Load shedding and dummy load outputs)
- Manual speed trim (on CAN engines that support this feature)
- Additional display screens to help with modem diagnostics
- Security levels – PC software has password system to control access to PC software features
- Operator configurable virtual LEDs visible in SCADA

### NEW FEATURES

- Additional programmable logic
- Improved modem diagnostics
- Remote control sources (10) can be accessed via SCADA
- Additional electrical trip options
- Additional start delay functions
- Oil pressure values from additional engines
- Front panel editing of scheduler
- Displays kW as % of rated kW setting

## SPECIFICATION

### DC SUPPLY

**CONTINUOUS VOLTAGE RATING**
8V to 35V Continuous

**CRANKING DIP PROTECTION**
Able to survive 0V for 50mS, providing supply was at least 10V before dropout and supply recovers to 5V. This is achieved without the need for internal batteries

**CHARGE FAIL/ EXCITATION**
0V to 35V fixed power source 2.5W

**MAXIMUM STANDBY CURRENT**
160mA at 12V 80mA at 24V

**MAXIMUM OPERATING CURRENT**
340mA at 12V 160mA at 24V

### ALTERNATOR INPUT

**RANGE**
15V - 333V (L-N) 50Hz - 60Hz
(Minimum 15V AC Ph-N)

**ACCURACY**
1% of full scale true RMS sensing

**SUPPORTED TOPOLOGIES**
3 phase 4 wire
3 phase 3 wire
3 phase 4 wire Delta
Single phase 2 wire
2 phase 3 wire L1 & L2
2 phase 3 wire L1 & L3

### MAINS/UTILITY INPUT (DSE7320 ONLY)

**RANGE**
15V - 333V (L-N) 50Hz - 60Hz
(Minimum 15V AC Ph-N)

**ACCURACY**
1% of full scale true RMS sensing

**SUPPORTED TOPOLOGIES**
3 phase 4 wire
3 phase 3 wire
3 phase 4 wire Delta
Single phase 2 wire
2 phase 3 wire L1 & L2
2 phase 3 wire L1 & L3

### CT'S

**BURDEN**
0.5VA

**PRIMARY RATING**
1A - 8000A (user selectable)

**SECONDARY RATING**
1A or 5A secondary (user selectable)

**ACCURACY OF MEASUREMENT**
1% of full load rating

**RECOMMENDATIONS**
Class 1 required for instrumentation
Protection class required if using for protection

Continued on page 2

## SPECIFICATION

### MAGNETIC PICKUP

**VOLTAGE RANGE**
+/- 0.5V minimum (during cranking) to 70V peak

**FREQUENCY RANGE**
10,000 Hz (max)

### OUTPUTS

**OUTPUT A (FUEL)**
15 Amp DC at supply voltage

**OUTPUT B (START)**
15 Amp DC at supply voltage

**OUTPUTS C & D**
8 Amp 250V (Volt free)

**AUXILIARY OUTPUTS E,F,G,H**
2 Amp DC at supply voltage

### DIMENSIONS

**OVERALL**
240mm x 181.1mm x 41.7mm
9.4" x 7.1" x 1.6"

**PANEL CUT-OUT**
220mm x 160mm
8.7" x 6.3"
Max panel thickness 8mm ( 0.3")

### ENVIRONMENTAL TESTING STANDARDS

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

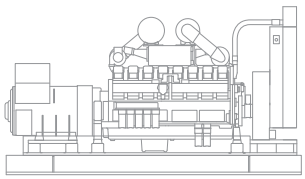
**ELECTRO MAGNETIC COMPATIBILITY**
BS EN 61000-6-2
EMC Generic Immunity Standard for the Industrial Environment
BS EN 61000-6-4
EMC Generic Emission Standard for the Industrial Environment

**TEMPERATURE (OPERATING)**
BS EN 60068
Test Ab to +70ºC 60068-2-2 Hot
Test Ab to -30ºC 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 @ 40ºC for 48 hours

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



ELECTRONIC ENGINE CAPABILITY

## BENEFITS

- 132 x 64 pixel ratio makes information easy to read
- Real time clock provides accurate event logging
- PC software is license free
- Set maintenance periods can be configured to maintain optimum engine performance
- Ethernet communications provides advanced remote monitoring at low cost
- Modules can be integrated into building management systems
- Preventative maintenance avoids expensive engine down time
- Advanced PCB layout ensures high reliability
- Robust design
- Extensive performance monitoring

## OPERATION

The modules are operated via the START, STOP, AUTO and MANUAL soft touch membrane buttons on the front panel. The DSE7320 also has a TEST button. Both modules include load switch buttons. The main menu system is accessed using the five navigation buttons to the left of the LCD display.

## CONFIGURATION

The modules can be configured using the front panel buttons or by using the DSE Configuration Suite PC software and a USB lead.

## COMMUNICATIONS

The DSE7310 & DSE7320 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 (s), notifying an engineer of the exact time, date and reason why the engine failed (GSM Modem and SIM Card required).

### Remote Communications

When the module detects an alarm state, it dials out to a PC notifying the user of the condition (Modem required).

### Remote Control

The module can be controlled remotely using either a GSM Modem, Ethernet via DSE860/865 or via RS485. Using a modem allows the module to be controlled from any distance. Using RS485 limits the distance to 1km (0.6 miles).

### Building Management

The module has been designed to be integrated into new and existing building management systems, using RS485.

### PC Software

The module has the ability to be configured and monitored from a remote PC, using the PC software and a USB lead.

## INPUTS & OUTPUTS

Analogue inputs are provided for oil pressure, coolant temperature and fuel level. These connect to conventional engine mounted resistive sensor 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 coolant temperature shutdowns. Eight user configurable digital inputs are also included, plus one flexible sender.

Outputs are provided for fuel solenoid, start solenoid and six additional configurable outputs. On these configurable outputs a range of different functions, conditions or alarms can be selected.

## INSTRUMENTATION

The modules provide advanced metering facilities, displaying the information on the LCD display. The information can be accessed using the five-key menu navigation to the left of the display.

| 7310 | 7320 |
|---|---|
| **Generator Instruments**<br>Volts, Hz, Amps, kW, kVA, Pf, kWh, kVAr, kVArh, KVAh | **Generator Instruments**<br>Volts, Hz, Amps, kW, kVA, Pf, kWh, kVAr, kVArh, KVAh |
| **Engine Instruments**<br>RPM, Oil Pressure, Coolant Temperature, Hours Run, Charging Voltage, Battery Volts. | **Engine Instruments**<br>RPM, Oil Pressure, Coolant Temperature, Hours Run, Charging Voltage, Battery Volts. |
| **Electronic Engines**<br>Enhanced Instrumentation and Engine ECU diagnostics via electronic engine interface. | **Electronic Engines**<br>Enhanced instrumentation and Engine ECU diagnostics via electronic engine interface. |
| | **Mains/Utility Instruments**<br>Volts, Frequency, Amps (optional when CT's are fitted load side of the line) |

## DSENET®

DSENet® is a collection of expansion modules that have been created to work with DSENet® compatible control modules. DSENet® allows up to 20 different expansion devices to be used at a time. The expansion modules available are:

- DSE2157 Relay Output Expansion Module
- DSE2130 Input Expansion Module
- DSE2548 Annunciator Module Remote Display Module
- DSE2510 Remote Display
- DSE2520 Remote Display

## EVENT LOG

The module includes a comprehensive event log that shows the most recent 250 alarm conditions and the date and time that they occurred. This function assists the user when fault finding and maintaining a generating set.

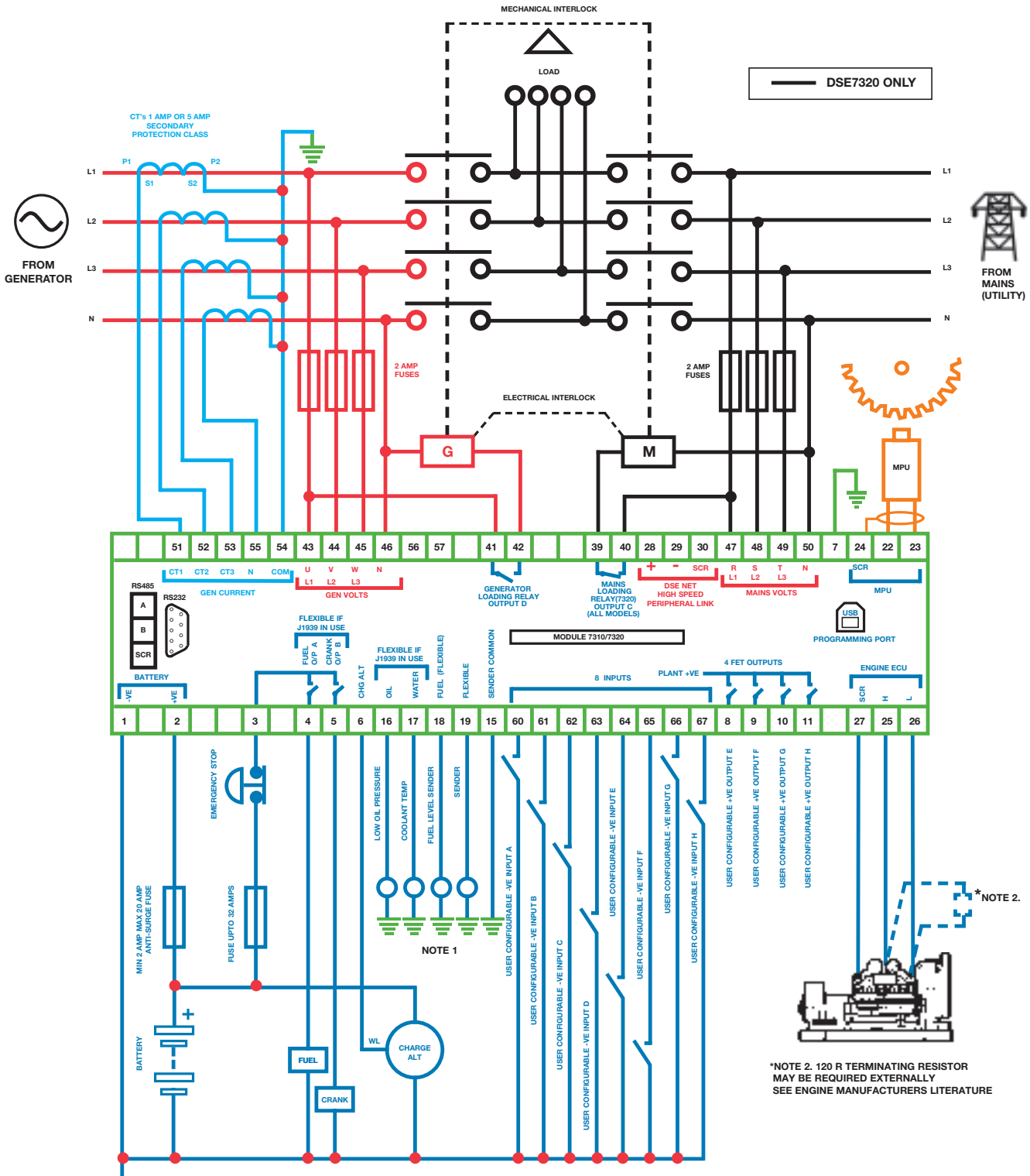
## ELECTRONIC ENGINE COMPATABILITY

- CAT
- Cummins
- Deutz
- John Deere
- MTU
- Perkins
- Scania
- Volvo
- IVECO
- Generic
- Plus additional manufacturers

## RELATED MATERIALS

| TITLE | PART NO'S |
|---|---|
| DSE7xxx Manual | 057-074 |
| DSE72xx/73xx PC Software Manual | 057-077 |
| DSE2130 Data Sheet | 053-060 |
| DSE2157 Data Sheet | 053-061 |
| DSE2548 Data Sheet | 053-062 |
| DSE860/865 Data Sheet | 055-071 |
| DSE2510/20 Data Sheet | 055-074 |

# DSE7310 & DSE7320




*NOTE 2. 120 R TERMINATING RESISTOR MAY BE REQUIRED EXTERNALLY SEE ENGINE MANUFACTURERS LITERATURE

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 15 MUST NOT BE USED TO PROVIDE A GROUND CONNECTION TO ANY OTHER DEVICE

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