DSEGenset

DSE

DSE8610
SYNCHRONISING AUTO START LOAD SHARE CONTROL MODULE

FEATURES

The DSE8610 is an easy to use Synchronising Auto Start Control Module suitable for use in a multi-generator loadshare system, designed to synchronise up to 32 generators including electronic and non-electronic engines.

The DSE8610 monitors the generator and indicates operational status and fault conditions, automatically starting or stopping the engine on load demand or fault condition.

System alarms are annunciated on the LCD screen (multiple language options available), illuminated LED and audible sounder.

The event log will record 250 events to facilitate easy maintenance. An extensive number of fixed and flexible monitoring, metering and protection features are included as well as comprehensive communication and system expansion options.

Using the DSE PC Configuration Suite Software allows easy alteration of the operational sequences, timers and alarms. With all communication ports capable of being active at the same time, the DSE8610 is ideal for a wide variety of demanding load share applications.

KEY LOAD SHARE FEATURES:

- Peak lopping/sharing (with DSExx60)
- Sequential set start
- Manual voltage/frequency adjustment
- R.O.C.O.F. and vector shift protection
- Generator load demand
- Automatic hours run balancing
- Mains (Utility) de-coupling
- Mains (Utility) de-coupling test mode
- Dead bus sensing
- Bus failure detection
- Direct governor and AVR control
- Volts and frequency matching
- kW and kV Ar load sharing
- Dead bus synchronising

ENVIRONMENTAL TESTING STANDARDS

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

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

TEMPERATURE
BS EN 60068
Ab/Ae Cold Test -30°C
BS EN 60068-2-2
Bb/Be Dry Heat +70°C

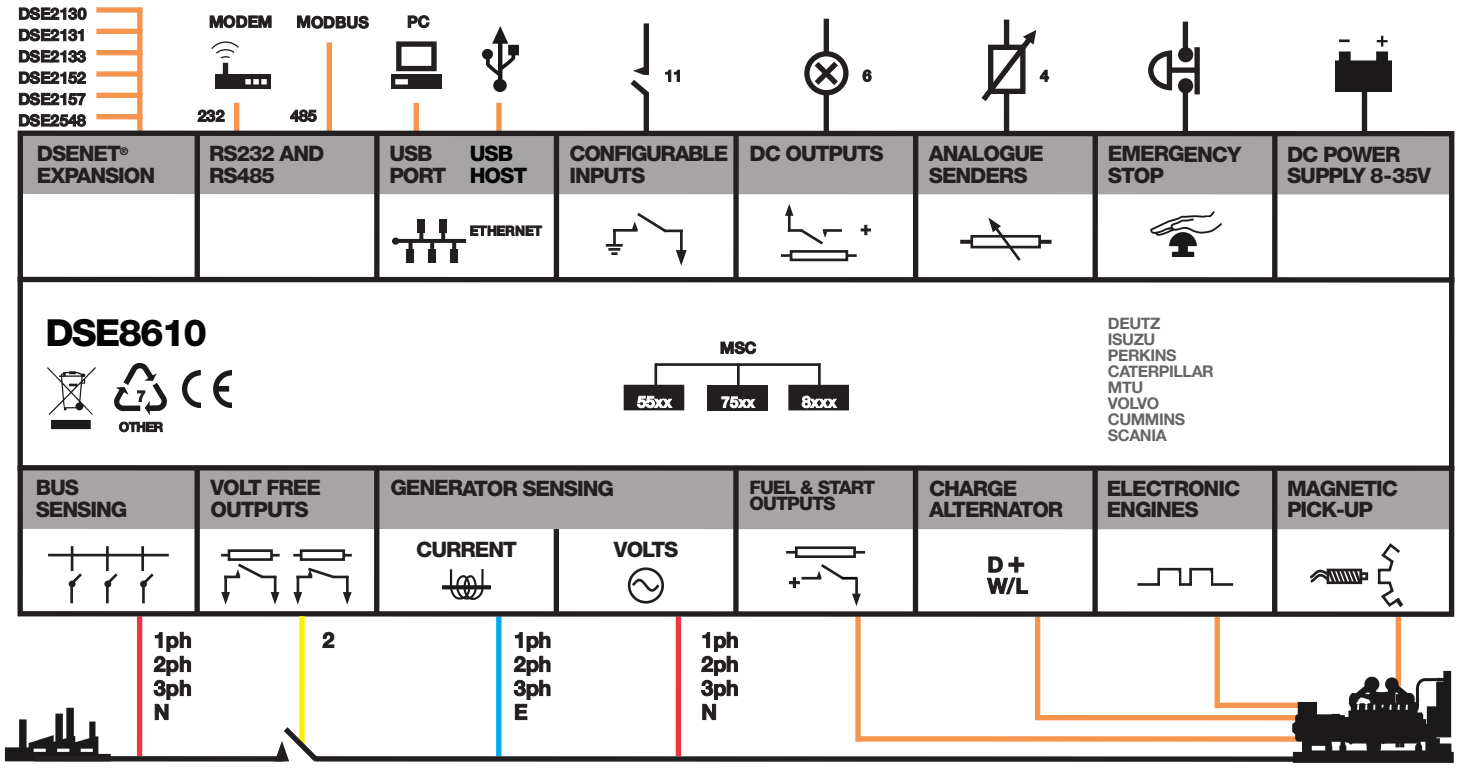
VIBRATION
BS EN 60068-2-6
Ten sweeps in each of three major axes
5Hz to 8Hz @ +/-7.5mm, 8Hz to 500Hz @ 2gn

HUMIDITY
BS EN 60068-2-30
Db Damp Heat Cyclic 20/55°C @ 95% RH
48 Hours
BS EN 60068-2-78
Cab Damp Heat Static 40°C @ 93% RH
48 Hours

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

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES
BS EN 60529
IP65 - Front of module when installed into the control panel with the supplied sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF LOAD SHARE APPLICATIONS



ISSUE 3

DSEGenset

DSE8610

SYNCHRONISING AUTO START LOAD SHARE CONTROL MODULE

FEATURES

KEY FEATURES

- Comprehensive synchronising & loadsharing capabilities
- Built-in governor and AVR control
- Base load (kW export) functionality
- Positive & negative kVAr export control
- Mains (utility) de-coupling protection
- Generator power (kW, kV Ar, kV A & pf) monitoring
- Overload (kW & kV Ar) protection
- Reverse power (kW & kV Ar) protection
- Unbalanced load protection
- Independent earth fault protection
- Advanced integral PLC editor
- 11 Configurable inputs
- 8 Configurable outputs
- Configurable flexible sensor inputs
- DSENet® expansion compatibility
- User configurable RS232, RS485 and Ethernet communications
- Remote SCADA monitoring via various DSE software applications
- MODBUS RTU & TCP support
- User configurable MODBUS pages
- Advanced SMS control and fault messaging (additional GSM modem required)
- Easy access diagnostic pages including modem diagnostic pages
- Data logging and trending
- CAN, MPU and Frequency speed sensing
- Tier 4 CAN engine support
- “Protections disabled” feature
- Front panel editing with PIN protection
- Fully configurable using DSE Configuration Suite PC software via USB
- 4 Line back-lit LCD text display
- LED and LCD alarm indication
- Configurable display languages
- USB connectivity
- Customisable status screens
- Five key menu navigation
- 3 Configurable maintenance alarms
- Multiple date and time run scheduler
- Manual fuel pump control
- Fuel usage monitor and low fuel level protection
- Charge alternator failure protection
- Load switching (load shedding and dummy load control)
- Configurable event log (250)
- Backed up real time clock

KEY BENEFITS

- Compatible in load share systems containing DSE5500, DSE7500 and DSE8600 series. Contact DSE for further details
- 132 x 64 pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Ethernet communication, provides builit in advanced remote monitoring.
- Can be integrated into building management systems (BMS) and programmable logic control (PLC)
- Increased input and output expansion capability via DSENet®
- Licence-free PC software
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Advanced Internal PLC editor allows user configurable functions to meet specific application requirements.

EXPANSION DEVICES

- DSE124 CAN/MSC Extender
- DSE2130 Input Expansion Module
- DSE2131 Ratio-metric Input Expansion Module
- DSE2133 RTD & Thermo-couple Expansion Module
- DSE2152 Ratio-metric Output Expansion Module
- DSE2157 Output Expansion Module
- DSE2548 LED Expansion Module

SPECIFICATION

DC SUPPLY

CONTINUOUS VOLTAGE RATING
8 V to 35 V continuous

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

MAXIMUM OPERATING CURRENT
460 mA at 12 V, 245 mA at 24 V

MAXIMUM STANDBY CURRENT
375 mA at 12 V, 200 mA at 24 V

CHARGE FAIL/EXCITATION RANGE
0 V to 35 V

OUTPUTS

OUTPUT A (FUEL)
15 A DC at supply voltage

OUTPUT B (START)
15 A DC at supply voltage

OUTPUTS C & D
8 A AC at 250 V AC (Volt free)

AUXILIARY OUTPUTS E,F,G,H,I & J
2 A DC at supply voltage

GENERATOR & BUS

VOLTAGE RANGE
15 V to 333 V AC (L-N)

FREQUENCY RANGE
3.5 Hz to 75 Hz

MAGNETIC PICK-UP

VOLTAGE RANGE
+/- 0.5 V to 70 V

FREQUENCY RANGE
10,000 Hz (max)

BUILT-IN GOVERNOR CONTROL

MINIMUM LOAD IMPEDANCE
1000Ω
Fully isolated

GAIN VOLTAGE
0 V to 10 V DC
Fully isolated

OFFSET VOLTAGE
+/- 10 V DC
Fully isolated

BUILT-IN AVR CONTROL

MINIMUM LOAD IMPEDANCE
1000Ω
Fully isolated

GAIN VOLTAGE
0 V to 10 V DC
Fully isolated

OFFSET VOLTAGE
+/- 10 V DC
Fully isolated

DIMENSIONS

OVERALL
240 mm x 181 mm x 42 mm
9.4” x 6.8” x 1.6”

PANEL CUTOUT
220 mm x 160 mm
8.7” x 6.3”

MAXIMUM PANEL THICKNESS
8 mm
0.3”

OPERATING TEMPERATURE RANGE
-30 °C to +70 °C

STORAGE TEMPERATURE RANGE
-40 °C to +85 °C

RELATED MATERIALS

TITLE	PART NO’S
DSE8610 Installation Instructions	053-069
DSE8610 Operator Manual	057-115
DSE8600 PC Configuration Suite Manual	057-119
DSE8660 Date Sheet	055-086

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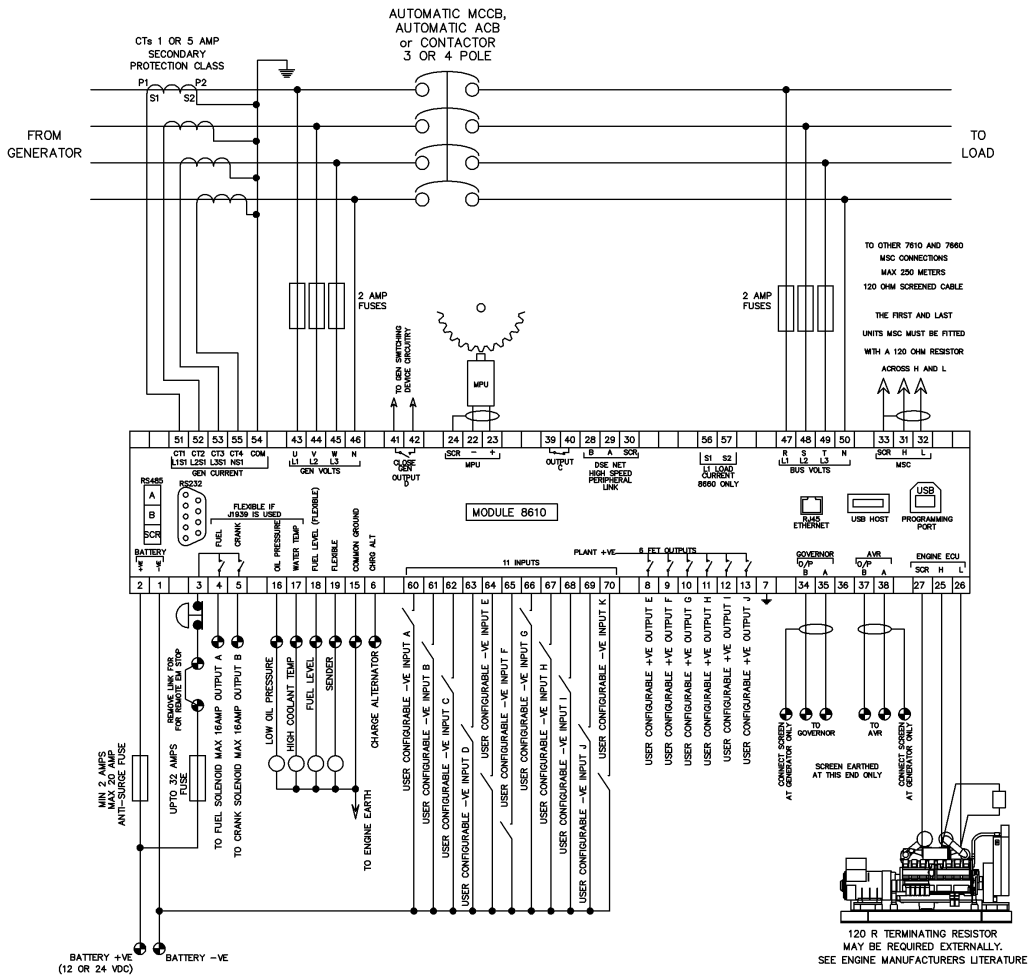
055-083/03/12 (10)

TYPICAL WIRING DIAGRAM

A larger diagram is available in the operators manual.



DIMENSIONS	**PANEL CUTOUT**:
240.0mm x 181.1mm x 41.7mm (9.4" x 7.1" x 1.6")	220mm x 160mm (8.7" x 6.3")

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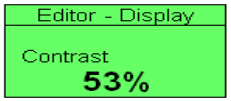
ACCESSING THE FRONT PANEL CONFIGURATION EDITOR.

- Ensure the engine is at rest and the module is in STOP mode by pressing the Stop/Reset button.
- Press the Stop/Reset and Info buttons simultaneously.
- If a module security PIN has been set, the PIN number request is then shown :

- Press the button the first digit will flash to enable the pin to be entered.
- Press (up) or (down to adjust it to the correct value)
- Press (right) when the first digit is correctly entered. The digit you have just entered will now show **'#'** for security.
- Repeat this process for the other digits of the PIN number. You can press (left) if you need to move back to adjust one of the previous digits.
- When is pressed after editing the final PIN digit, the PIN is checked for validity. If the number is not correct, you must re-enter the PIN.
- If the PIN has been successfully entered (or the module PIN has not been enabled), the editor is displayed :



EDITING A PARAMETER

- Enter the editor as described above.
- Press the or to cycle to the section you wish to view/change. Then press or to cycle to the parameter within the section you have chosen.
- To edit the parameter, press to enter edit mode. The parameter begins to flash to indicate that you are editing the value.
- Press the up or down buttons to change the parameter to the required value.
- Press to save the value. The parameter ceases flashing to indicate that it has been saved.
- To exit the editor at any time, press and hold the or button.

⚠ **NOTE: When the editor is visible, it is automatically exited after 5 minutes of inactivity to ensure security.**

⚠ **NOTE: The PIN number is automatically reset when the editor is exited (manually or automatically) to ensure security.**

⚠ **NOTE: More comprehensive module configuration is possible using the 86xx series PC configuration software. Please contact us for further details**

⚠ **NOTE: The contents of the tables overleaf may differ depending on the actual module configuration.**

ADJUSTABLE PARAMETERS

Front Panel Configuration Editor (Factory default settings are shown in bold italicised text)

Section	Parameter as shown on display	Values
Display	Contrast	53%
	Language	English, others.
	Current Date and Time	*hh:mm*
Timers	LCD Page Timer	5m
	Scroll Delay	2***s***
	Engine Pre Heat Timer	0s
	Engine Crank Duration	10s
	Engine Crank Rest Time	10s
	Engine Safety On Delay	10s
	Engine Smoke Limiting	0s
	Engine Smoke Limiting Off	0s
	Engine Warm Up Time	0s
	Engine Cool Down Time	1m
	Engine Speed Overshoot Delay	0s
	Engine Failed To Stop	30s
	Battery Under Voltage Warning Delay	1m
	Battery Over Voltage Warning Delay	1m
	Return Delay	30s
	Generator Transient Delay	0s
Generator	Under Voltage Shutdown	184v
	Under Voltage Pre-Alarm	196v
	Nominal Voltage	230v
	Over Voltage Pre-Alarm	265v
	Over Voltage Shutdown	277v
	Under Frequency Shutdown	40Hz
	Under Frequency Pre-Alarm	42Hz
	Nominal frequency	50Hz
	Over Frequency Pre-Alarm	54Hz
	Over Frequency Shutdown	57Hz
	Full Load Rating	500A
	kW Overload Trip	100%
	Delayed Over current	Active
	Delayed Over Current	100%
	AC System	3 Phase 4 Wire
	CT Primary	600A Power Cycle After Exit
	CT Secondary	5A Power Cycle After Exit
	Short Circuit Trip	200%
	Earth CT Primary	500A
	Earth Fault Trip	Active
	Earth Fault Trip	10%
	Transient Delay	0s
	Gen Reverse Power Delay	2s
	Full kW rating	345kW
	Full kVAr rating	258kVAr
	Load Ramp Rate	3%
	Load Level For More Sets	80%
	Load Level For Less Sets	70%
	Load Demand Priority	1
	Gen Reverse Power	35kW
	Insufficient Capacity Delay	1s
	Insufficient Capacity Action	None
	Reactive Load CTL Mode	VAr Share
	Load Parallel Power	172kW When In Mains Parallel Mode
	Load Power factor	0% When In Mains Parallel Mode
Engine	Oil Pressure Low shutdown	1.03bar
	Oil Pressure Low Pre-Alarm	1.24bar
	Coolant Temp High Pre-Alarm	90°C
	Coolant Temp High Electrical Trip	92°C (When Enabled)
	Coolant Temp High Shutdown	95°C
	Start Delay Off load	5s
	Start Delay on load	5s
	Start Delay Telemetry	5s
	Pre Heat Timer	0s
	Crank Duration	10s
	Crank rest Time	10s
	Safety On Delay	10s
	Smoke Limiting	0s
	Smoke limiting off	0s
	Warm Up Time	0s
	Cool Down Time	1m
	Speed Overshoot Delay	0s
	Speed Overshoot	0%
	Fail To Stop Delay	30s
	Battery Under Volts Warning	Active
	Battery Under Volts Warning Delay	1m
	Battery Under Volts Warning	10v
	Battery Over Volts Warning	Active
	Battery Over Volts Warning Delay	1m
	Battery Over Volts Warning	30v
	Charge Alternator Failure Warning	Active

Continued Overleaf

Front Panel Configuration Editor (continued)

Section	Parameter as shown on display	Values
Engine (Continued)	Charge Alternator Failure Warning	6.0v
	Charge Alternator Warning Delay	***5s***
	Charge Alternator Failure Shutdown	*Inactive*
	Charge Alternator Failure Shutdown	4.0v (When Enabled)
	Charge Alternator Shutdown Delay	5s (When Enabled)
	Droop %	Active, Inactive. Electronic engines only when droop is enabled.
Scheduler	Scheduler	Active, Inactive
	Schedule On Load	Active , Inactive (Only Available When Scheduler Is Active)
	Schedule Period	Weekly, Monthly (Only Available When Scheduler Is Active)
	Schedule Time & Date Selection (1-16)	Press ✓ to begin editing then ▲ or ▼ when selecting the different parameters in the scheduler.

ACCESSING THE 'RUNNING' CONFIGURATION EDITOR

- The 'running' editor can be entered while the engine is running. All protections remain active if the engine is running while the running editor is entered.
- Press and hold the ✓ button to enter the running editor.

ADJUSTABLE PARAMETERS (Running editor)

- Enter the editor as described above.
- Press the up ▲ or down ▼ buttons to cycle to the section you wish to view/change.
- To Edit the parameter press the ✓ button to enter edit mode. The parameter begins to flash to indicate that you are editing the value.
- Press the up ▲ or down ▼ buttons to change the parameter to the required value.
- Press the ✓ button to save the value. The parameter ceases flashing to indicate that it has been saved.
- To exit the editor at any time , press and hold the ✓ button.

Running Editor

Section	Parameter as shown on display	Factory Settings
DISPLAY	Contrast	53%
	Language	English
	Load Demand priority	**(1)**
	Load Power factor	0-100% **(0)**
	Load parallel power	0-100% **(50)**
	Commissioning screens	Inactive, Active
	Override starting alarms	Inactive, Active
	Voltage adjust (manual mode only engine running breaker open)	0-100 % **(0)**
	Frequency adjust (manual mode only engine running breaker open)	0-100 % **(0)**
	Mains decoupling test mode (Stop mode only)	Inactive Active