



DSE**6110/20**

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES



The DSE6110 is an Auto Start Control Module and the DSE6120 is an Auto Mains (Utility) Failure Control Module suitable for a wide variety of single gen-set applications.

Monitoring speed, frequency, voltage, current, oil pressure, coolant temperature and fuel level, the modules will display warnings, shutdown and engine status information on the back-lit LCD screen and illuminated LED.

Both modules offer electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engine versions and offer a number of flexible inputs, outputs and engine protections so the system can be easily adapted to suit a wide range of application demands.

The modules can be easily configured using the DSE Configuration Suite PC software. Selected front panel editing is also available.

ENVIRONMENTAL TESTING STANDARDS

ELECTRO-MAGNETIC COMPATIBILITY

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 60068-2-1 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 5 Hz to 8 Hz @ +/-7.5 mm, 8 Hz to 500 Hz @ 2 gn

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

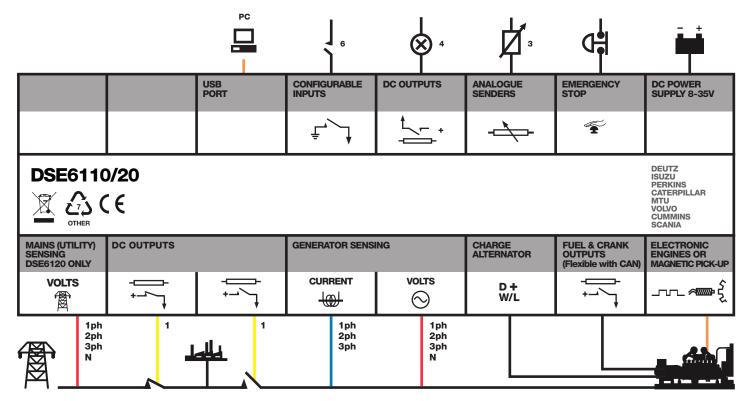
BS EN 60068-2-27 Three shocks in each of three major axes 15 gn in 11 mS

DEGREES OF PROTECTION PROVIDED BY ENCLOSURES

BS EN 60529

IP65 - Front of module when installed into the control panel with the optional sealing gasket.

COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS



















DSE**6110/20**

AUTO START & AUTO MAINS FAILURE CONTROL MODULES

FEATURES



DSE**6120**

DSE6110





KEY FEATURES

- Back-lit text LCD display
- Front panel editing
- LED and LCD alarm indication
- Power Save mode
- CAN and Magnetic Pick-up/Alt. versions available (specify on ordering)
- PC and front panel configuration
- 6 Digital inputs
- 3 Analogue inputs
- 6 Outputs (4 configurable on Magnetic Pick-up/Alt., 6 configurable on CAN version)
- Configurable timers and alarms
- Alternative configuration
- Event Log (10)
- Remote Start input
- 3 Phase generator monitoring
- Current Monitoring and protection
- 3 Phase Mains (Utility) monitoring (DSE6120 only)

- Test button (DSE6120 only)
- Battery voltage monitoring
- Engine pre-heat
- Hours counter
- Comprehensive shutdown or warning on fault condition

KEY BENEFITS

- Automatically transfers between mains (utility) and generator power (DSE6120 only)
- Hours counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout
- Multiple engine parameters are monitored simultaneously
- Module can be configured to suit individual applications
- Compatible with a wide range of CAN engines

- Tier 4 engine support
 Uses DSE Configuration Suite PC software for simplified
- configuration
- IP65 rating (with optional gasket) offers increased resistance to water ingress
- · Licence-free PC software

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. LEDs and backlight will not be maintained during cranking.

MAXIMUM OPERATING CURRENT

178 mA at 12 V, 95 mA at 24 V

MAXIMUM STANDBY CURRENT 88 mA at 12 V 50 mA at 24 V

CHARGE FAIL/EXCITATION RANGE

0 V to 35 V

MAINS (UTILITY) DSE6120 ONLY VOLTAGE RANGE

15 V - 333 V AC (L-N)

FREQUENCY RANGE

3.5 Hz to 75 Hz

OUTPUT A (FUEL)

2 A DC at supply voltage

OUTPUT B (START)

2 A DC at supply voltage

AUXILIARY OUTPUTS C,D,E & F

2 A DC at supply voltage

GENERATOR

VOLTAGE RANGE

15 V - 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)

DIMENSIONS

OVERALL

215 mm x 158 mm x 42 mm 8.5" x 6.2" x 1.6"

PANEL CUT-OUT

7.2" x 5.4"

MAXIMUM PANEL THICKNESS

0.3"

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

RELATED MATERIALS

TITLE

DSE6110 Installation Instructions DSE6120 Installation Instructions DSE6100 Quick Start Guide DSE6100 Operator Manual DSE6100 Configuration Suite PC Manual

PART NO'S

053-059 053-060 057-102 057-095 057-096

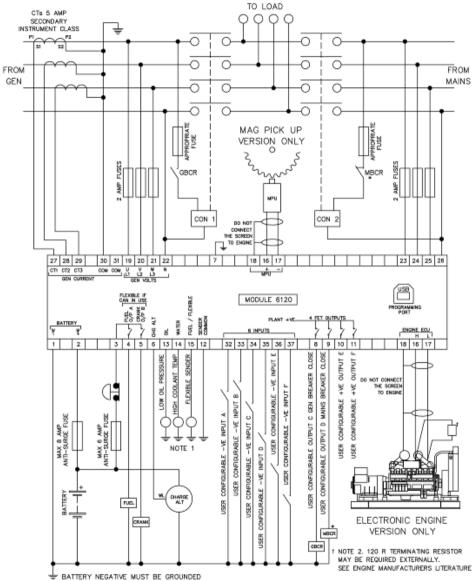
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Typical Wiring Diagram



TERMINALS SUITABLE FOR 22-16 AWG (0.6mm - 1.3mm) FIELD WRING TIGHTENING TORQUE = 0.8Nm (7lb-in)

THESE GROUND CONNECTIONS MUST BE ON THE ENGINE BLOCK, AND MUST BE TO THE SENDER BODIES.

* NOTE 3. MAINS BREAKER CLOSED OUTPUT SHOULD BE CONFIGURED FOR DE-ENERGISE CLOSE MAINS. AND USE THE NORMALLY CLOSED CONTACTS OF MBCR

053-060 ISSUE 3

DEEP SEA ELECTRONICS



DSE6120 Installation Instructions

ACCESSING THE FRONT PANEL EDITOR (FPE)

The module must be in STOP mode with the engine at rest before configuration mode can be accessed.

To enter the 'configuration mode' press both the INFO and STOP buttons together.

ENTERING THE CONFIGURATION EDITOR PIN NUMBER

If the module PIN number has been set, the PIN number request is then shown. The configuration cannot be viewed or changed until the PIN number is correctly entered.



- The first * is flashing. Press + or buttons to adjust it to the correct value for the first digit of the PIN number.
- Press ✓ when the first digit is correctly entered.
- The entered digit will turn back to a * to maintain security.
- Enter the remaining digits of the pin number using the same method.

If the Configuration PIN has been entered successfully (or the PIN number has not been set in the module) the first configurable parameter is displayed.

 $oldsymbol\Delta$ NOTE:- When \checkmark is pressed after editing the final PIN digit, the PIN is checked for validity. If the number is not correct, the editor is automatically exited. To retry you must re-enter the editor as described above.

EDITING A PARAMETER

Enter the editor as described above.

- Press to select the required 'page' as detailed below.
- Press (+) to select the next parameter or (-) to select the previous parameter within the current page.
- When viewing the parameter to be changed, press the **①** (✓) button. The value begins to flash.
- Press (+) or (-) to adjust the value to the required setting.
- Press ① (<) the save the current value, the value ceases flashing.
- Press and hold the (\checkmark) button to exit the editor.

 $oldsymbol{\Delta}$ NOTE: - Values representing pressure will be displayed in Bar. Values representing temperature are displayed in degrees Celsius.

▲ NOTE: - When the editor is visible, it is exited after 5 minutes of inactivity to ensure security.

 $oldsymbol{\Delta}$ NOTE:- To exit the front panel configuration editor at any time, press and hold the $oldsymbol{0}$ (\checkmark) button. Ensure you have saved any changes you have made by pressing the ✓ button first.

 $oldsymbol\Delta$ NOTE:- The PIN number is automatically reset when the editor is exited (manually or automatically) to ensure security.

ADJUSTABLE PARAMETERS (Configuration editor)

(Factory default settings are shown in bold italicised text)

PIN Pin Entry Contrast Contrast Language English - Others LCD Page Timer Auto Scroll Delay Day and Time Default Config ENGINE Oil Pressure Low Shutdown Coolant Temperature High Shutdown Start Delay Timer Crank Duration Timer Crank Duration Timer Crank Rest Timer Crank Rest Timer Safety On Delay Smoke Limiting Smoke Limiting Marm Up Timer Cool Down Timer Speed Low Shutdown Speed Low Shutdown Speed High Shutdown Speed Low Shutdown Speed Overshoot Delay Speed Overshoot Delay Battery Voltage Low Warning Battery Voltage High Warning Battery Voltage High Warning Battery Voltage High Warning Charge Alternator Failure Warning Charge Alternator Failure Warning Delay Charge Alternator Failure Shutdown Charge Mattery Start Low Battery Sta	Section	Parameter as shown on display	Values
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Pre Heat Timer		Coolant Temperature High Shutdown	2°C - 140°C (95°C)
Crank Duration Timer			0 - 10hr (5s)
Crank Rest Timer			0 - 5m (0s)
Safety On Delay		Crank Duration Timer	0 - 1m (10s)
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Charge Alternator Failure Warning 0V - 39V (6V) Charge Alternator Failure Warning Delay 0 - 24hr (5s) Charge Alternator Failure Shutdown Active, Inactive Charge Alternator Failure Shutdown 0V - 5.9V (4.0V) Charge Alternator Failure Shutdown Delay 0 - 24hr (5s) Low Battery Start Active, Inactive Low Battery Level 0V - 40.0V (18.0V) Low Battery Start Delay hh:mm:ss (10s)		Battery Voltage High Warning	
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Charge Alternator Failure Shutdown Delay 0 - 24hr (5s) Low Battery Start Active, Inactive Low Battery Level 0V - 40.0V (18.0V) Low Battery Start Delay hh:mm:ss (10s)		Charge Alternator Failure Shutdown	
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Low Battery Level 0V - 40.0V (18.0V) Low Battery Start Delay hh:mm:ss (10s)			
Low Battery Start Delay hh:mm:ss (10s)			
		Low Battery Level	
		Low Battery Start Delay	
Low Battery Run Time hh:mm:ss(30s)		Low Battery Run Time	hh:mm:ss (30s)

FIXING CLIPS

The module is held into the panel fascia using the supplied fixing clips.

- Withdraw the fixing clip screw (turn anticlockwise) until only the pointed end is protruding from the clip.
- Insert the three 'prongs' of the fixing clip into the slots in the side of the 6000 series module case.
- Pull the fixing clip backwards (towards the back of the module) ensuring all three prongs of the clip are inside their allotted slots.
- Turn the fixing clip screws clockwise until they make contact with the panel fascia.
- Turn the screws a little more to secure the module into the panel fascia. Care should be taken not to over tighten the fixing clip screws.

▲NOTE:- In conditions of excessive vibration, mount the panel on suitable anti-vibration mountings.

ADJUSTABLE PARAMETERS (Configuration Editor - Continued)

(Factory default settings are shown in bold italicised text)

Section	Parameter as shown on display	Values
GENERATOR		50V - 360V (184V)
	Voltage Nominal	50V – 276V (230V)
	Voltage High Shutdown	231V - 360V (277V)
	Frequency Low Shutdown	0Hz - 75Hz (43Hz)
	Frequency Nominal	0Hz - 75Hz (50Hz)
	Frequency High Shutdown	0Hz - 75Hz (58Hz)
	Full Load Rating	5A - 6000A (500A)
	Delayed Over Current	Active, Inactive
	Delayed Over Current	50% - 120% (100%)
	AC System	Single Phase, 2 Wire
		3 Phase, 4 Wire
		2 Phase, 3 Wire (L1 & L3)
		3 Phase, 4 Wire (Delta)
		2 Phase, 3 Wire (L1 & L2)
		3 Phase, 3 Wire
	CT Primary	5A - 6000A (600A)
	Generator Transient Delay	0 - 10m (0.7s)
MAINS	Voltage Low Trip	50V – 360V (184V)
	Voltage High Trip	50V – 360V (276V)
	Frequency Low Trip	0Hz - 75Hz (45Hz)
	Frequency High Trip	0Hz - 75Hz (55Hz)
	Mains Transient Delay	0 - 30s (2s)
	Return Delay	0 - 1hr (30 s)
	Mains Transfer Time	0 - 10m <i>(0.7s)</i>
TIMERS	LCD Page Timer	hh:mm:ss (<i>5m</i>)
	Auto Scroll Delay	1s - 1hr (2s)
	Pre Heat Timer	0 - 5m (0s)
	Crank Duration Timer	0 - 1m (10s)
	Crank Rest Timer	0 - 1m (10s)
	Safety On Delay	0 - 1m (<i>10s</i>)
	Smoke Limiting	0 - 15m (0s)
	Smoke Limiting Off	0 - 1m (0s)
	Warm Up Timer	0 -1hr (0s)
	Cool Down Timer	0 - 1hr (<i>1m</i>)
	Fail To Stop Delay	0 - 2m (30s)
	Battery voltage Low Warning Delay	0 - 24hr (1m)
	Battery Voltage High Warning Delay	0V - 24hr (<i>1m</i>)
	Return Delay	0 - 5hr (30s)
	Generator Transient Delay	0 - 10m (0.7s)
	Mains Transient Delay	0 - 30s (2s)
	Mains Transfer Time	0 - 10m (0.7s)
SCHEDULER	Scheduler	Active, <i>Inactive</i>
	Schedule On Load	Active, <i>Inactive</i> Active, <i>Inactive</i>
	Schedule Start	Day - hh:mm
	Schedule Period	
	Schedule relion	hh:mm (5m)

DIMENSIONS AND MOUNTING

For flat surface mounting in a Type 1 enclosure to meet UL requirements.

DIMENSIONS	PANEL CUTOUT	WEIGHT
216mm x 158mm x 42mm	182mm x 137mm	510g (0.51kg)
(8.5" x 6.2" x 1.6")	(7.2" x 5.4")	3 \ 3