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Graigar DSE4520MKII

Graigar DSE4520MKII Generator Control Panel

Instruction Manual

1. INTRODUCTION AND OVERVIEW

The DSE4520MKII is a compact Auto Mains (Utility) Failure Control Module designed for diesel genset applications. It provides a comprehensive range of features within a compact enclosure, ensuring reliable generator control and monitoring. This manual provides essential information for the proper installation, operation, and maintenance of your DSE4520MKII control panel.

2. KEY FEATURES

- Compact Auto Mains (Utility) Failure Control Module.
- Largest back-lit display in its class, providing clear and easy-to-read information pages.
- Ensures display operation in extreme cold weather conditions.
- Minimizes battery drain when the system is not in use.
- Generator & load power monitoring (kW, kV A, kV Ar, pf).

3. PRODUCT COMPONENTS

The DSE4520MKII control panel package includes the main controller unit, various green plug-in connectors for wiring, and mounting clips. Ensure all components are present before proceeding with installation.



Image 3.1: DSE4520MKII control panel shown with its accompanying green wiring connectors and mounting clips.

4. SPECIFICATIONS

Specification	Value
Brand	Graigar
Model Name	DSE4520MKII
Part Number	DSE4520
Material	Plastic
Color	Black
Item Weight	9.92 ounces (approx. 281 grams)
Recommended Uses	Monitoring
Power Source	Battery Powered, Diesel
Fuel Type	Diesel
Wattage	5 watts
DC Supply Continuous Voltage Rating	8 V to 35 V Continuous
Cranking Dropouts	Able to survive 0 V for 50 mS (supply must be at least 10 V before dropout and recover to 5 V)
Maximum Operating Current	85 mA at 12 V, 96 mA at 24 V

Specification	Value
Maximum Standby Current	51 mA at 12 V, 47 mA at 24 V
Maximum Sleep Current	35 mA at 12 V, 32 mA at 24 V
Maximum Deep Sleep Current	<10 uA at 12 V, <10 uA at 24 V
Mains (Utility) Voltage Range	15 V to 415 V AC (Ph to N), 26 V to 719 V AC (Ph to Ph)
Mains (Utility) Frequency Range	3.5 Hz to 75 Hz
Generator Voltage Range	15 V to 415 V AC (Ph to N), 26 V to 719 V AC (Ph to Ph)
Generator Frequency Range	3.5 Hz to 75 Hz
Output A (Fuel)	10 A short term, 5 A continuous, at supply voltage
Output B (Start)	10 A short term, 5 A continuous, at supply voltage
Auxiliary Outputs C, D, E & F	2 A DC at supply voltage

5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and effective operation of the DSE4520MKII. This section provides general guidance; always refer to the detailed wiring diagrams and specific instructions provided with your unit for precise connections.

5.1 Mounting the Control Panel

The DSE4520MKII is designed for panel mounting. Ensure adequate space for ventilation and access to wiring terminals. Use the provided mounting clips to secure the unit firmly into the panel cutout.



Image 5.1: Front view of the DSE4520MKII control panel, showing the display, navigation buttons, Stop, Auto, and Start buttons.

5.2 Wiring Connections

All wiring connections are made to the rear of the control panel using the supplied plug-in connectors. Ensure all power is disconnected before making any connections. Refer to the labels on the back of the unit and the detailed wiring diagram for correct terminal assignments.

- **DC Supply:** Connect the main DC power supply (8V to 35V) to the designated terminals.
- **DC Outputs:** Connect to fuel solenoid, starter motor, and other auxiliary devices.
- **DC Inputs:** Connect to various sensors and switches (e.g., oil pressure, engine temperature).
- **AC Voltage Inputs:** Connect to the generator and mains (utility) AC voltage sources for monitoring.
- **AC Current Inputs:** Connect to current transformers (CTs) for generator and load current monitoring.
- **Charge Alternator:** Connect for battery charging monitoring.
- **Magnetic Pickup:** Connect for engine speed sensing.
- **Comms Port:** USB port for PC configuration and firmware updates.



Image 5.2: Rear view of the DSE4520MKII control panel, detailing the various wiring terminals for DC supply, outputs, inputs, AC voltage/current, charge alternator, magnetic pickup, and the USB comms port.

5.3 Initial Power-Up

After all connections are made and verified, apply DC power to the unit. The display should illuminate, and the controller will perform a self-test. Follow any on-screen prompts for initial configuration.

6. OPERATING INSTRUCTIONS

The DSE4520MKII offers intuitive operation through its front panel buttons and display. The primary modes of operation are Manual and Automatic.

6.1 Control Buttons

- **Stop Button (Red 'O')**: Stops the generator and resets any active alarms.
- **Auto Button (White 'AUTO')**: Places the controller in automatic mode, allowing it to start and stop the

generator based on mains (utility) supply status or other configured events.

- **Start Button (Green 'I')**: Manually starts the generator.
- **Navigation Buttons (Up/Down Arrows)**: Used to scroll through display pages and adjust parameters during configuration.

6.2 Automatic Mode

In Auto mode, the controller continuously monitors the mains (utility) supply. If the mains supply fails or falls outside acceptable limits, the controller will initiate a generator start sequence. Once the mains supply returns and stabilizes, the controller will transfer the load back to the mains and shut down the generator.

6.3 Manual Mode

In Manual mode, the generator can be started and stopped directly using the Start and Stop buttons. This mode is typically used for testing or specific operational requirements where automatic control is not desired.

6.4 Display Navigation

Use the Up and Down navigation buttons to cycle through various information pages on the display, such as generator voltage, current, frequency, engine parameters, and event logs.

7. MAINTENANCE

The DSE4520MKII is designed for reliability and requires minimal maintenance. However, regular checks are recommended to ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect the unit for any signs of damage, loose connections, or corrosion.
- **Cleaning:** Keep the control panel clean and free from dust and debris. Use a soft, dry cloth for cleaning the display and buttons. Avoid abrasive cleaners or solvents.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to ensure your unit has the latest features and bug fixes. Updates are typically performed via the USB comms port.
- **Battery Health:** Ensure the generator's battery, which powers the control panel, is in good condition and properly charged.

8. TROUBLESHOOTING

This section provides basic troubleshooting steps for common issues. For complex problems, consult a qualified technician or refer to the comprehensive technical manual.

8.1 No Display/Power

- Check the DC power supply connections to ensure they are secure and providing the correct voltage (8V to 35V).
- Verify the generator's battery is charged and functional.
- Inspect any fuses in the DC supply line.

8.2 Generator Fails to Start

- Check for active alarms on the display. Address any fault conditions (e.g., low oil pressure, high engine temperature).

- Ensure the fuel supply is adequate and the fuel solenoid is functioning.
- Verify the starter motor connections and battery charge.
- Confirm the controller is in the correct operating mode (Auto or Manual Start).

8.3 Incorrect Readings

- For voltage or current readings, check the connections to the AC voltage inputs and current transformers (CTs).
- For engine parameters (e.g., oil pressure, temperature), verify the sensor connections and sensor functionality.
- Ensure the controller's configuration matches the installed sensors and CT ratios.

9. PRODUCT OVERVIEW VIDEO

Watch this video for a visual overview of the Graigar DSE4520 Generator Control Panel, including its unboxing and a brief look at its features.

Your browser does not support the video tag.

Video 9.1: An unboxing and overview of the Graigar DSE4520 Generator Control Panel.

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact Graigar customer service or refer to the official documentation provided with your product. Keep your purchase receipt as proof of purchase for warranty claims.

Manufacturer: Graigar