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› Knowtek DSE7220 Auto Controller User Manual

Knowtek DSE7220

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1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of the Knowtek DSE7220 Auto Controller. The DSE7220 is an advanced Auto Start Control Module and Auto Mains (Utility) Failure (AMF/ATS) Control Module designed for a wide range of single, diesel, or gas generator-set applications. It monitors engine parameters and the mains supply, displaying critical information and managing generator operations.

2. KEY FEATURES

- **Automatic Mains Failure (AMF) / Automatic Transfer Switch (ATS) Functionality:** Automatically manages generator start/stop based on mains power availability.
- **Auto Start Control:** Initiates generator operation automatically.
- **Comprehensive Monitoring:** Monitors extensive engine parameters and mains (utility) supply.
- **Information Display:** Back-lit LCD screen and illuminated LEDs display warnings, shutdown status, and engine information.
- **Engine Compatibility:** Compatible with both electronic (CAN) and non-electronic (magnetic pick-up/alternator sensing) engines.
- **Flexible Inputs/Outputs:** Offers a wide range of configurable inputs, outputs, and engine protections.
- **Real-Time Clock:** Enhances event monitoring accuracy.
- **Multi-Language Support:** Information can be displayed in various languages including English, Spanish, Portuguese, French, German, Russian, Thai, Arabic, and Chinese.
- **User-Friendly Interface:** Clear 4-line text display and selected front panel editing capabilities.

3. PRODUCT OVERVIEW

The DSE7220 controller features a robust design with a clear display and intuitive controls for managing generator operations.

3.1 Front Panel

The front panel includes the LCD screen for displaying operational data, status indicators, and navigation buttons for menu access and parameter adjustment. Control buttons for manual start, stop, auto mode, and alarm mute are also

present.



Figure 3.1: Front view of the DSE7220 controller with operational display. This image shows the controller's front face, including the LCD screen which reads 'Auto Start Controller Model 7220', and the various control buttons and indicator lights.



Figure 3.2: Front view of the DSE7220 controller with a blank screen. This image provides a clear view of the controller's physical layout, including the navigation and control buttons, without any active display content.

3.2 Rear Panel and Connections

The rear panel houses all necessary electrical connections, including terminal blocks for power input, engine sensors, generator output, mains input, and communication ports (USB, RS485, RS232).

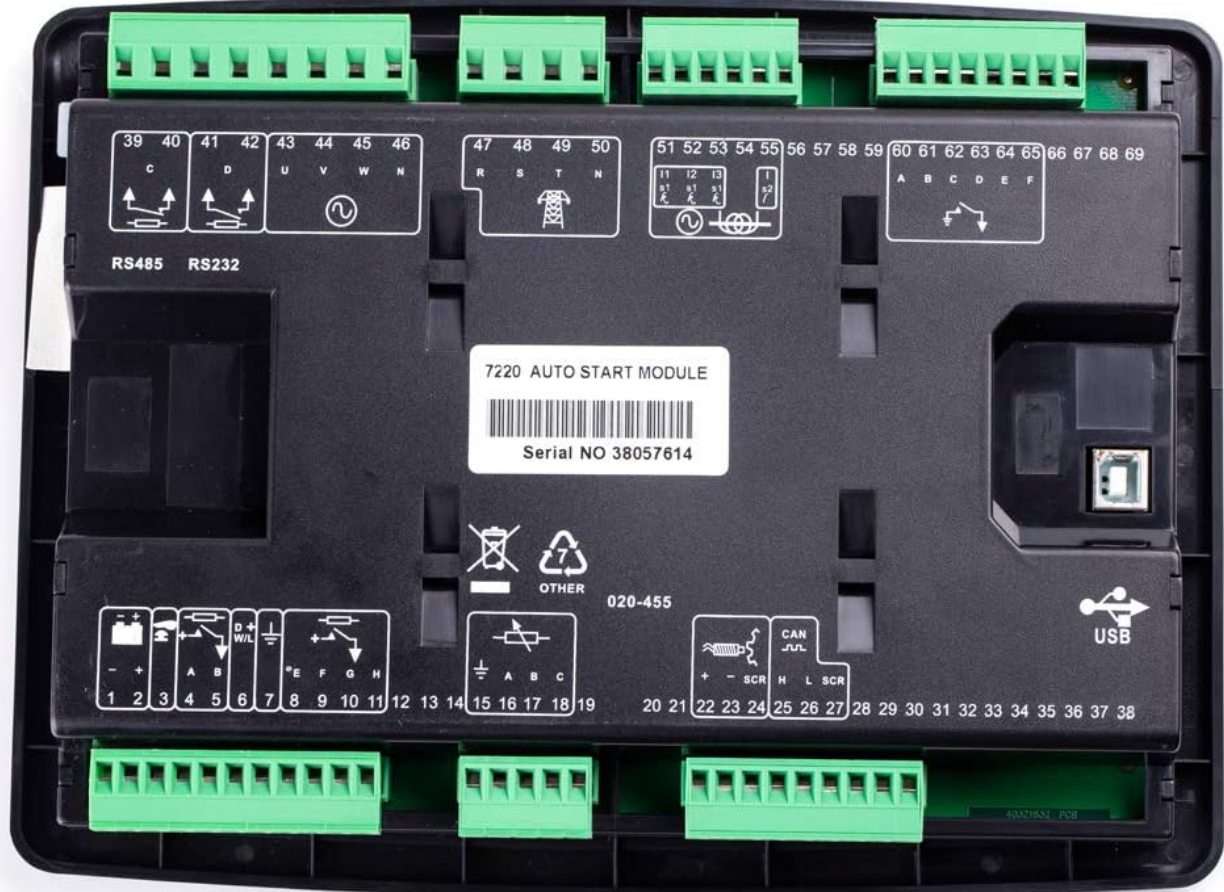


Figure 3.3: Rear view of the DSE7220 controller with connection details. This image clearly displays the back of the unit, detailing the various terminal blocks, communication ports (USB, RS485, RS232), and their respective labels for wiring.



Figure 3.4: Close-up of bottom terminal blocks. This image provides a detailed view of the green terminal connectors located at the bottom of the controller, showing the individual pin numbering for precise wiring.

4. SETUP AND INSTALLATION

Installation of the DSE7220 controller requires careful attention to electrical wiring and safety standards. It is recommended that installation be performed by qualified personnel.

4.1 Mounting

Mount the controller in a secure, vibration-free location, typically within a control panel. Ensure adequate ventilation and protection from environmental elements such as moisture and extreme temperatures.

4.2 Electrical Connections

Refer to the wiring diagrams provided with your specific generator-set and the DSE7220 manual for detailed connection instructions. Key connections include:

- **DC Supply:** Connect the controller to a stable DC power source.
- **Engine Sensors:** Connect various engine sensors (e.g., oil pressure, coolant temperature, engine speed) to the designated inputs.
- **Generator Output:** Connect the generator's output to the controller for monitoring.
- **Mains (Utility) Supply:** Connect the mains power supply for AMF functionality.
- **Actuators/Relays:** Connect to engine start/stop solenoids, fuel solenoids, and other control relays.
- **Communication Ports:** Utilize USB, RS485, or RS232 for PC configuration and remote monitoring.

Ensure all connections are secure and correctly polarized. Incorrect wiring can damage the controller or the generator system.

4.3 Configuration

The DSE7220 can be configured via the front panel or using PC software connected through the communication ports. Configuration involves setting parameters such as engine type, protection limits, timer settings, and input/output functions to match your specific application.

5. OPERATING INSTRUCTIONS

The DSE7220 offers various operating modes to suit different requirements.

5.1 Operating Modes

- **AUTO Mode:** The controller automatically starts the generator upon detection of a mains failure and stops it when mains power is restored.
- **MANUAL Mode:** Allows manual control of the generator start and stop functions.
- **TEST Mode:** Initiates a generator test run without transferring the load.

5.2 Display and Navigation

Use the navigation buttons (up, down, left, right, enter) to scroll through menus, view engine parameters, and access configuration settings on the LCD screen. The 4-line text display provides clear, detailed information.

5.3 Alarms and Warnings

The controller will display warnings and initiate shutdowns based on detected faults (e.g., low oil pressure, high engine temperature, overspeed). Refer to the specific alarm codes in the full product manual for detailed explanations and corrective actions.

6. MAINTENANCE

Regular maintenance ensures the longevity and reliable operation of your DSE7220 controller.

- **Cleaning:** Keep the controller's front panel clean and free from dust and debris. Use a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Connection Checks:** Periodically inspect all electrical connections for tightness and signs of corrosion.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to ensure optimal performance and access to new features.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges.

7. TROUBLESHOOTING

If the DSE7220 controller is not functioning as expected, consider the following basic troubleshooting steps:

- **No Power:** Check the DC supply connections and fuse.
- **Generator Not Starting:** Verify fuel supply, battery charge, engine stop solenoid, and all safety shutdowns. Check for active alarms on the display.
- **Incorrect Readings:** Ensure all sensor connections are secure and correctly calibrated in the controller's settings.
- **Communication Issues:** Check USB/RS485/RS232 cable connections and driver installations on the PC.

For persistent issues or complex problems, consult the full technical manual or contact qualified service personnel.

8. SPECIFICATIONS

Specification	Value
Model Number	DSE7220
Manufacturer	KNOWTEK
Item Weight	2.2 pounds (approximately 1 kg)
Package Dimensions	11.02 x 7.87 x 2.36 inches (approximately 28 x 20 x 6 cm)

9. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation provided at the time of purchase or contact your vendor directly. Technical support may be available from the manufacturer or authorized distributors. Always provide your product model number (DSE7220) and any relevant serial numbers when seeking support.

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