RaeSung HAT560N

RaeSung Smartgen HAT560N ATS Diesel Generator Controller User Manual

1. Introduction

This manual provides comprehensive instructions for the installation, operation, maintenance, and troubleshooting of the RaeSung Smartgen HAT560N Automatic Transfer Switch (ATS) Diesel Generator Controller. Please read this manual thoroughly before installation and operation to ensure proper function and safety. This controller is designed for intelligent dual-supply module applications, featuring configurable functions, automatic measurement, an LCD display, and digital communication capabilities. It integrates digital, intelligent, and networking technologies to reduce operational errors and is an ideal solution for ATS systems.

2. Safety Information

Always observe the following safety precautions to prevent injury or damage to the equipment:

- Ensure all power sources are disconnected before installation, wiring, or maintenance.
- Installation and wiring should only be performed by qualified personnel.
- Verify all connections are secure and correct according to the wiring diagrams.
- Do not operate the controller with damaged components or wiring.
- Protect the controller from moisture, extreme temperatures, and corrosive environments.

3. Product Overview

The HAT560N series ATS controller is an intelligent dual-supply module designed for automatic transfer systems. It features an LCD display for clear information presentation and supports digital communication. Its robust design allows for direct use with specialized ATS, Contactor ATS, and Air break ATS types. The compact structure, advanced circuits, simple wiring, and high reliability make it suitable for various electrical devices and automatic control systems in diverse industries.
A powerful microprocessor enables precise voltage measurement for 2-way 3-phase or single-phase systems, ensuring accurate judgment. The unit provides protection against over/under voltage, over/under frequency, loss of phase, and reverse phase sequence. It supports both Automatic and Manual operating modes, allowing forced switch closure or opening in manual mode.

All operational parameters can be configured on-site. The controller incorporates a two-password system to ensure that only authorized personnel can make adjustments, enhancing security and preventing unauthorized changes. During commissioning, the generator set can be configured for either On-load or Off-load operation.

Figure 3.1: Front view of the HAT560N Controller with active display.

4. Installation and Wiring

4.1 Mounting

The HAT560N controller is designed for panel mounting. Ensure the panel cutout dimensions match the controller's specifications. Secure the controller using the provided mounting hardware.

Figure 4.1: HAT560N Controller with mounting hardware.

4.2 Wiring Connections

Refer to the wiring diagram on the back of the controller for correct electrical connections. Ensure all terminals are securely fastened to prevent loose connections, which can lead to malfunction or damage. Pay close attention to AC voltage inputs, DC supply, auxiliary outputs, and switch control signals.

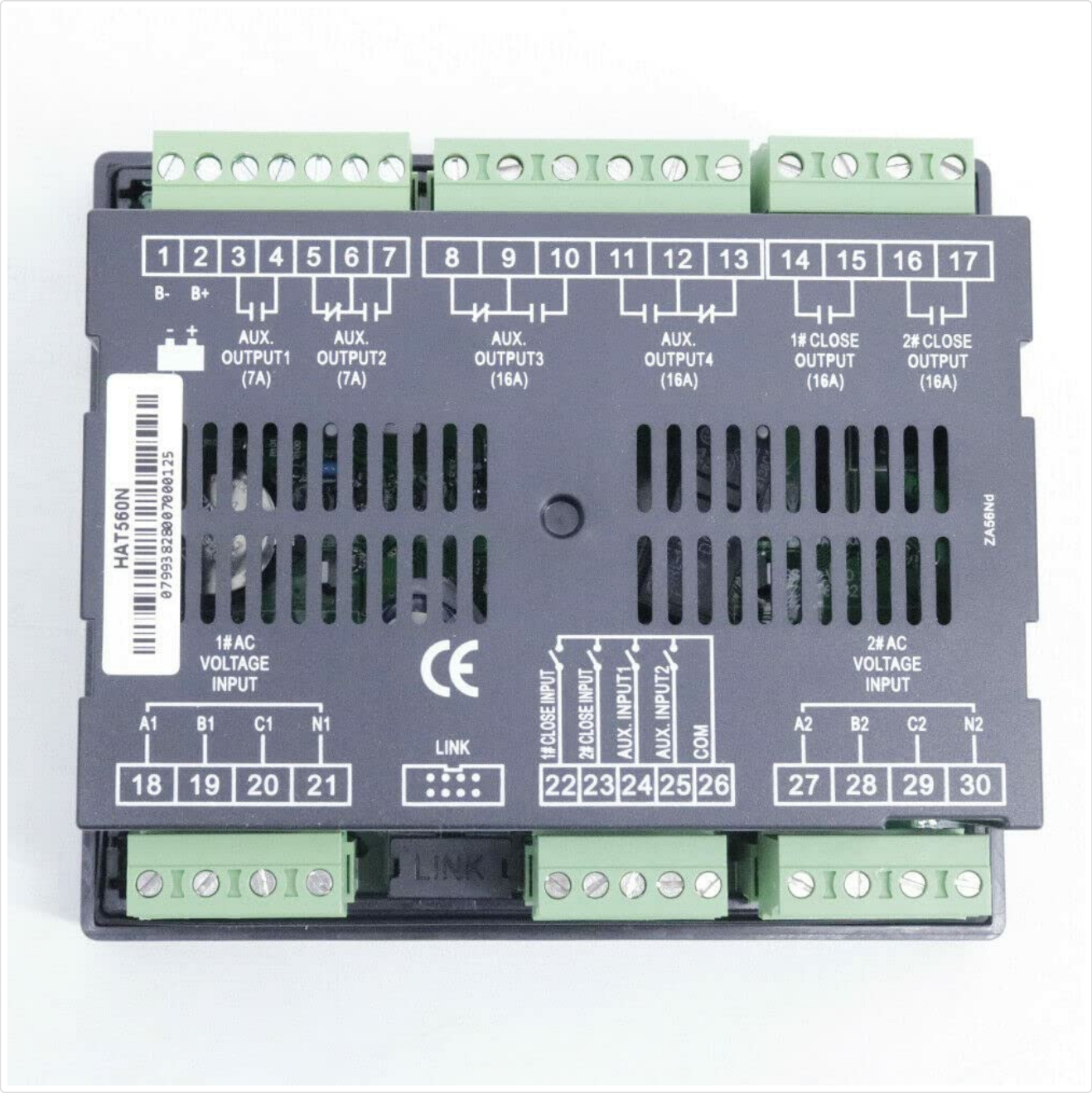

Figure 4.2: Back view of the HAT560N Controller with wiring terminals.

- **DC Supply:** Connect the DC (8-35)V power supply to the designated terminals.
- **AC Voltage Input:** Connect the 1# and 2# AC voltage inputs according to your system configuration (1P2W/2P3W/3P3W/3P4W).
- **Auxiliary Outputs:** Utilize the auxiliary outputs (7A and 16A) as required for external control or indication.
- **Switch Control:** Connect the 1# Close, Open, and 2# Close outputs to your ATS mechanism.

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5. Operation

5.1 Display and Navigation

The controller features an LCD (132x64) display for monitoring system status and parameters. Navigation buttons (Up, Down, Set) allow users to browse menus and adjust settings.

Figure 5.1: HAT560N Controller front panel with buttons.

5.2 Operating Modes

The HAT560N supports two primary operating modes: Automatic and Manual.

- **Automatic Mode:** The controller automatically monitors the power sources and initiates transfer operations based on configured parameters and detected abnormalities (e.g., over/under voltage, frequency deviations, phase loss).
- **Manual Mode:** In manual mode, the user can directly control the ATS switch to close or open specific power sources using the dedicated buttons on the front panel (1# Close, Open, 2# Close). This mode is typically used for testing or specific operational requirements.

5.3 Parameter Settings

All operational parameters can be set directly on the controller using the navigation buttons and the 'Set' button. Access to certain parameters is protected by a two-level password system to prevent unauthorized modifications. Refer to the detailed programming guide (not included in this manual) for specific parameter definitions and adjustment procedures.

6. Maintenance

Regular maintenance ensures the longevity and reliable operation of your HAT560N controller.

- **Cleaning:** Periodically clean the controller's exterior with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Connection Checks:** Annually inspect all wiring connections for tightness and signs of corrosion. Re-tighten as necessary.
- **Environmental Check:** Ensure the operating environment remains within specified temperature and humidity ranges.
- **Firmware Updates:** Check with the manufacturer for any available firmware updates that may improve performance or add features.

7. Troubleshooting

This section provides basic troubleshooting steps for common issues. For complex problems, contact technical support.

- **Controller Not Powering On:**
  - Check the DC supply voltage (8-35V) and ensure connections are secure.
  - Verify the power source is active.
- **ATS Not Transferring:**
  - Check if the controller is in Automatic mode.
  - Verify AC voltage inputs for both sources are within acceptable limits.
  - Inspect wiring to the ATS mechanism for continuity and correct connection.
  - Check for any active alarms or protection trips displayed on the LCD.
- **Incorrect Voltage/Frequency Readings:**
  - Ensure AC voltage input connections are correct and secure.
  - Verify the AC system configuration (1P2W/2P3W/3P3W/3P4W) is correctly set in the controller's parameters.

8. Technical Specifications

Feature	Specification
Display	LCD (132*64)
Language	Chinese & English
AC System	1P2W/2P3W/3P3W/3P4W
Alternator Voltage	(30~360)V (ph-N)
Alternator Frequency	50/60Hz
Monitor Interface	LINK
Programmable Interface	LINK
RTC (Real Time Clock)	Yes
Scheduled Start Genset	Yes
Circulate Start Genset	Yes
Switch Over Priority	Yes
Applicable Switch Type	PC Two-stage, PC Three-stage, CB and CC switch
DC Supply	DC(8-35)V
Case Dimensions	139mm * 120mm * 48mm
Panel Cutout	130mm * 111mm
Operating Temperature	(-25~+70)°C

9. Warranty and Support

The RaeSung Smartgen HAT560N ATS Diesel Generator Controller is manufactured by RaeSung. For warranty information, technical support, or service inquiries, please contact your local distributor or the manufacturer directly. Please have your product model number (HAT560N) and purchase details available when seeking support.