

Graigar HSC940

Graigar Smartgen HSC940 Gas Genset Controller Panel User Manual

Comprehensive instructions for installation, operation, and maintenance.

1. INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of the Graigar Smartgen HSC940 Gas Genset Controller Panel. The HSC940 is designed for automatic start/stop and monitoring of single gas genset units, integrating digital, intelligent, and network technologies. Please read this manual thoroughly before installation and operation to ensure safe and efficient use of the controller.

2. KEY FEATURES

The Smartgen HSC940 controller offers a range of advanced features for genset management:

- **Integrated Technology:** Combines digitization, intellectualization, and network technology for comprehensive control.
- **Automatic Operation:** Supports automatic start/stop functions for single gas genset units.
- **Data Monitoring:** Provides precise measurement and display of generator parameters including 3-phase voltage, current, power, and frequency.
- **Alarm Protection:** Incorporates alarm protection mechanisms to safeguard the genset.
- **Remote Capabilities:** Offers remote control, remote measuring, and remote communication functionalities (requires SG485 module).
- **Speed Regulation:** Regulates engine speed by adjusting the throttle opening via a stepper motor.
- **User Interface:** Features a large LCD display with selectable Chinese, English, Spanish, and Russian languages for easy operation.

- **Configurable Parameters:** All parameters can be configured via the front panel or a PC connection (USB to LINK, SG72 module required).
- **System Compatibility:** Suitable for 3-phase 4-wire, 3-phase 3-wire, single phase 2-wire, and 2-phase 3-wire systems with 120/240V voltage and 50/60Hz frequency.

3. PRODUCT OVERVIEW

The HSC940 controller features a robust design with an intuitive front panel and comprehensive rear connections.



Figure 3.1: Front view of the Smartgen HSC940 Gas Genset Controller Panel. This image displays the LCD screen, navigation buttons, and control buttons for Stop, Manual, Auto, Start, and Set functions.

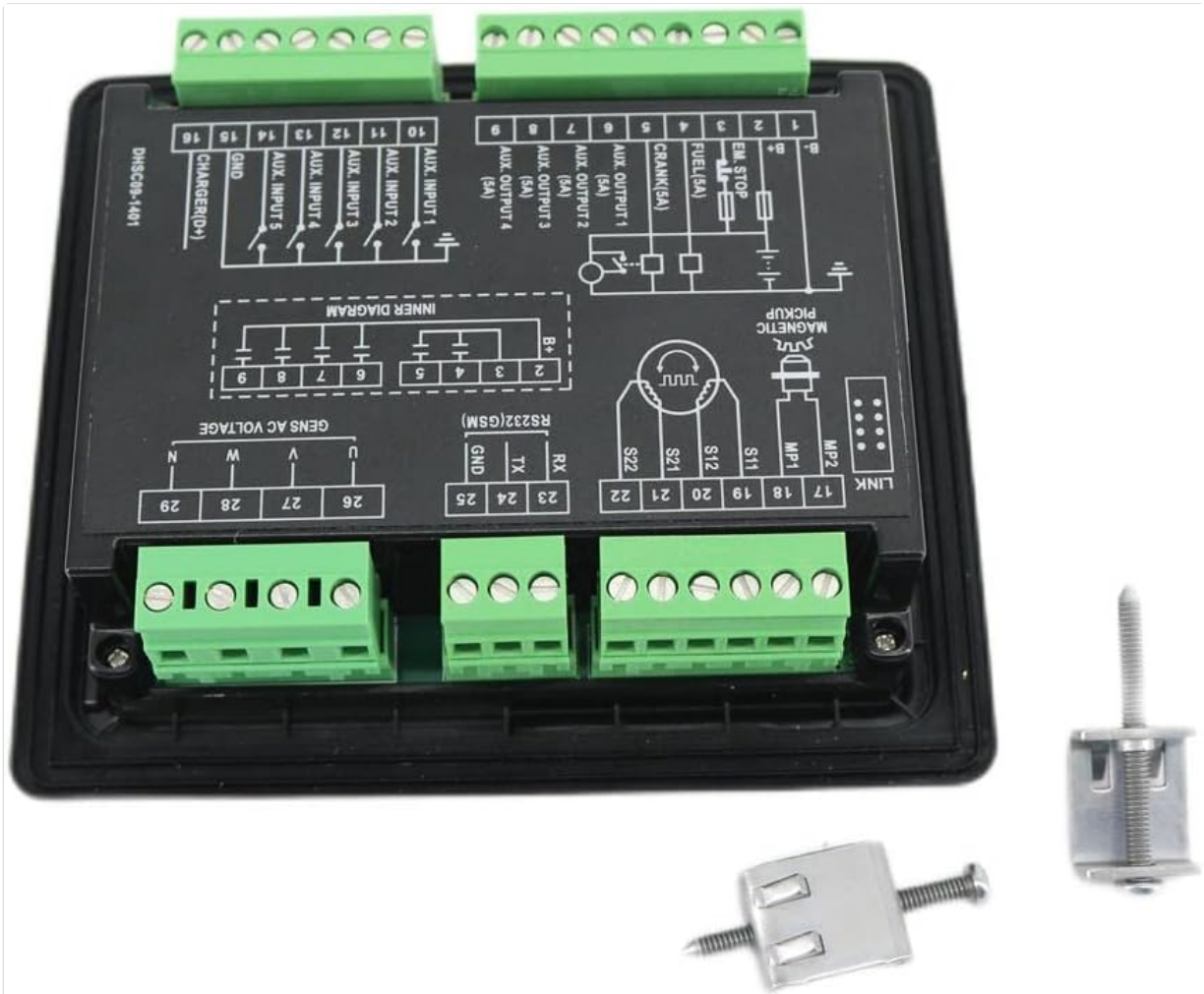


Figure 3.2: Rear view of the Smartgen HSC940 Gas Genset Controller Panel, showing the various wiring terminals for power, inputs, outputs, and communication. Mounting hardware is also visible.

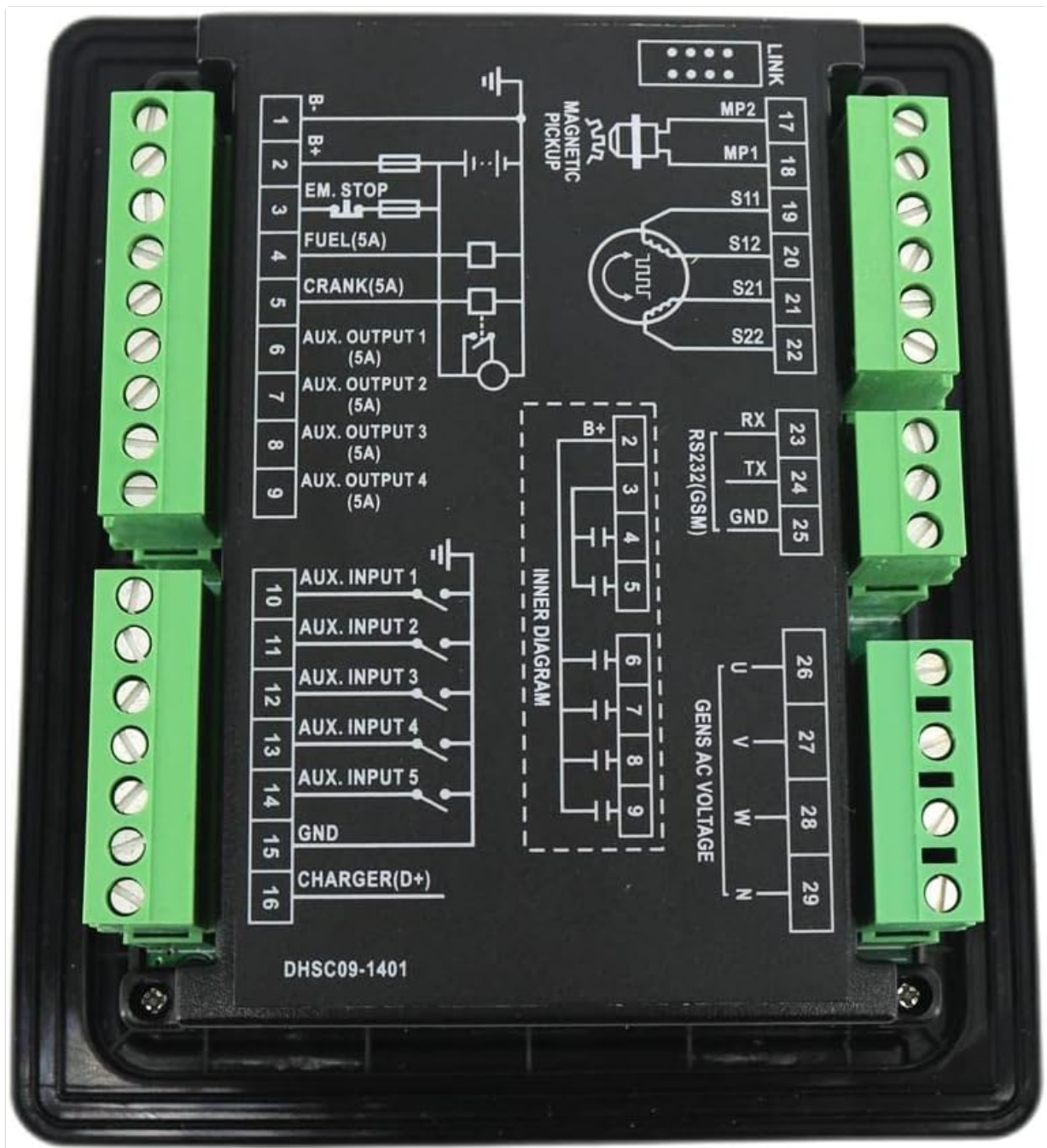


Figure 3.3: Detailed view of the wiring diagram printed on the back of the HSC940 controller, illustrating connections for emergency stop, fuel, crank, auxiliary inputs/outputs, RS232/GSM, and genset AC voltage.

4. SETUP AND INSTALLATION

Proper installation is crucial for the reliable operation of the HSC940 controller. Refer to the wiring diagram (Figure 3.3) for all electrical connections.

4.1 Mounting the Controller

1. Prepare a panel cutout of 110mm x 90mm.
2. Insert the controller into the cutout from the front.
3. Secure the controller using the provided mounting clips from the rear of the panel.

4.2 Electrical Connections

Ensure all power is disconnected before making any electrical connections.

- **DC Power Supply:** Connect the DC power supply (8-35V) to the designated terminals.

- **Genset AC Voltage:** Connect the generator's AC voltage lines (U, V, W, N) to the corresponding terminals.
- **Magnetic Pickup:** Connect the magnetic pickup for engine speed sensing.
- **Fuel and Crank Outputs:** Connect the fuel solenoid and starter motor to the respective relay outputs.
- **Auxiliary Inputs/Outputs:** Connect any auxiliary sensors or actuators as required by your genset system.
- **Communication (Optional):** For remote communication, connect the SG485 module to the RS232/GSM terminals. For PC configuration, connect the SG72 module (USB to LINK).

Important: Double-check all wiring for correct polarity and secure connections to prevent damage to the controller or genset.

5. OPERATING INSTRUCTIONS

The HSC940 controller supports various operating modes accessible via the front panel buttons.

5.1 Control Buttons Overview

- **STOP (Red Button):** Stops the genset and resets any active alarms.
- **MAN (Manual Button):** Allows manual control of the genset. Press to start/stop manually.
- **AUTO (Automatic Button):** Enables automatic operation. The genset will start and stop based on configured remote signals or conditions.
- **START (Green Button):** Initiates the genset start sequence (typically used in Manual mode).
- **SET (Wrench Icon Button):** Enters the parameter setting menu.
- **Up/Down Arrows:** Navigate through menus and adjust parameter values on the LCD.

5.2 Starting the Genset

1. **Automatic Mode:** Press the **AUTO** button. The controller will monitor the system and automatically start the genset when a start signal is received or conditions are met.
2. **Manual Mode:** Press the **MAN** button, then press the **START** button. The genset will initiate its starting sequence.

5.3 Stopping the Genset

1. **Automatic Mode:** The genset will automatically stop when the stop signal is received or conditions are no longer met.
2. **Manual Mode:** Press the **STOP** button. The genset will shut down.

5.4 Parameter Configuration

To adjust operational parameters:

1. Press the **SET** button to enter the parameter menu.
2. Use the Up/Down arrow buttons to navigate through the parameters.
3. Select a parameter and use the Up/Down arrows to adjust its value.
4. Confirm changes as prompted by the display.
5. Alternatively, connect the controller to a PC via the SG72 module for configuration using dedicated software.

6. MAINTENANCE

Regular maintenance ensures the longevity and reliable performance of your HSC940 controller.

- **Cleaning:** Periodically clean the controller's front panel with a soft, dry cloth. Avoid abrasive cleaners or solvents.
- **Connection Checks:** Annually inspect all wiring connections at the rear of the controller to ensure they are secure and free from corrosion.
- **Software Updates:** Check the manufacturer's website for any available firmware updates for improved functionality or bug fixes.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent damage.

7. TROUBLESHOOTING

This section provides guidance for common issues. For complex problems, contact technical support.

7.1 Common Issues

- **Controller Not Powering On:**
 - Check the DC power supply connections and ensure the voltage is within the 8-35V range.
 - Verify the power source is active.
- **Genset Fails to Start:**
 - Ensure the controller is in AUTO or MAN mode.
 - Check for active alarms on the LCD display. Address any alarm conditions.
 - Verify fuel supply and battery charge for the genset.
 - Inspect crank and fuel solenoid wiring.
- **Incorrect Readings:**
 - Check connections for voltage, current, and frequency sensors.
 - Verify parameter settings for sensor types and calibration.
- **Communication Issues (Remote/PC):**
 - Ensure the SG485 or SG72 module is correctly installed and connected.
 - Verify communication settings in the controller and on the PC.
 - Check cable integrity.

If the issue persists after following these steps, please refer to the support section.

8. SPECIFICATIONS

Below are the technical specifications for the Graigar Smartgen HSC940 Gas Genset Controller Panel.



Figure 8.1: Technical specifications of the HSC940 controller, including display type, inputs, outputs, power, and dimensions.

Table 8.1: Detailed Specifications

Feature	Specification
Display	LCD (132*64)
Operation Panel	PC (via SG72 module)
Language Options	Chinese, English, Spanish, Russian
Digital Inputs	5
Relay Outputs	6
AC System Compatibility	3P4W, 1P2W, 3P3W, 2P3W
Alternator Frequency	50/60Hz
SMS Functionality	Yes (with SG485 module)
Motor Specifications	Mixed 2-phase; Drive current $\leq 1A$
DC Supply Voltage	DC (8-35)V
Case Dimensions (mm)	130*112*39
Panel Cutout (mm)	110*90
Operating Temperature	(-25 ~ +70) $^{\circ}C$
Material	Plastic
Item Weight	2 pounds

9. WARRANTY AND SUPPORT

For warranty information and technical support, please contact Graigar, the manufacturer, or your authorized dealer.

Ensure you have your product model number (HSC940) and purchase details available when contacting support.

Manufacturer: Graigar

Model: HSC940

For further assistance, please visit the official Graigar website or consult your product's purchase documentation.

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