ZS2151

Generic ZH25G DC 12V/24V Compressor Instruction Manual

Model: ZS2151

1. Introduction

This manual provides essential instructions for the installation, operation, and maintenance of your Generic ZH25G DC 12V/24V Compressor. This compressor is designed for use in car, ship, and mini refrigerator/freezer applications. Please read this manual thoroughly before use to ensure proper function and safety.

2. Safety Instructions

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

- Ensure the power supply matches the compressor's voltage requirements (12V or 24V DC).
- Disconnect power before performing any installation, maintenance, or troubleshooting.
- Handle refrigerant (R134a) with care and in accordance with local regulations. Only qualified personnel should handle refrigerants.
- Install the compressor in a well-ventilated area to prevent overheating.
- Avoid touching electrical components while the unit is powered.
- Securely mount the compressor to prevent vibration and movement during operation.
- Keep children and pets away from the compressor during operation.

3. Product Overview

The Generic ZH25G compressor is a compact and efficient unit designed for various DC-powered refrigeration systems. It operates with R134a refrigerant and features a low noise design.

Key Features:

- **Model:** ZH25G (DC series)
- **Refrigerant:** R134a
- **Voltage:** 12V and 24V DC compatible

- **Cooling Type:** F
- **Application:** Low Back Pressure (LBP), Middle Back Pressure (MBP)
- **Max Cooling Capacity:** 72W
- **Oil Charge:** 130 ml
- **Refrigeration Temperature Scope:** -35℃ to 10℃
- **Low Noise:** Approximately 15 Decibels

Figure 1: Front view of the Generic ZH25G DC compressor, showing the main body and control module.

Figure 2: Side view of the Generic ZH25G DC compressor, highlighting its compact design.

Figure 3: Bottom view of the Generic ZH25G DC compressor, showing the integrated mounting feet for secure installation.

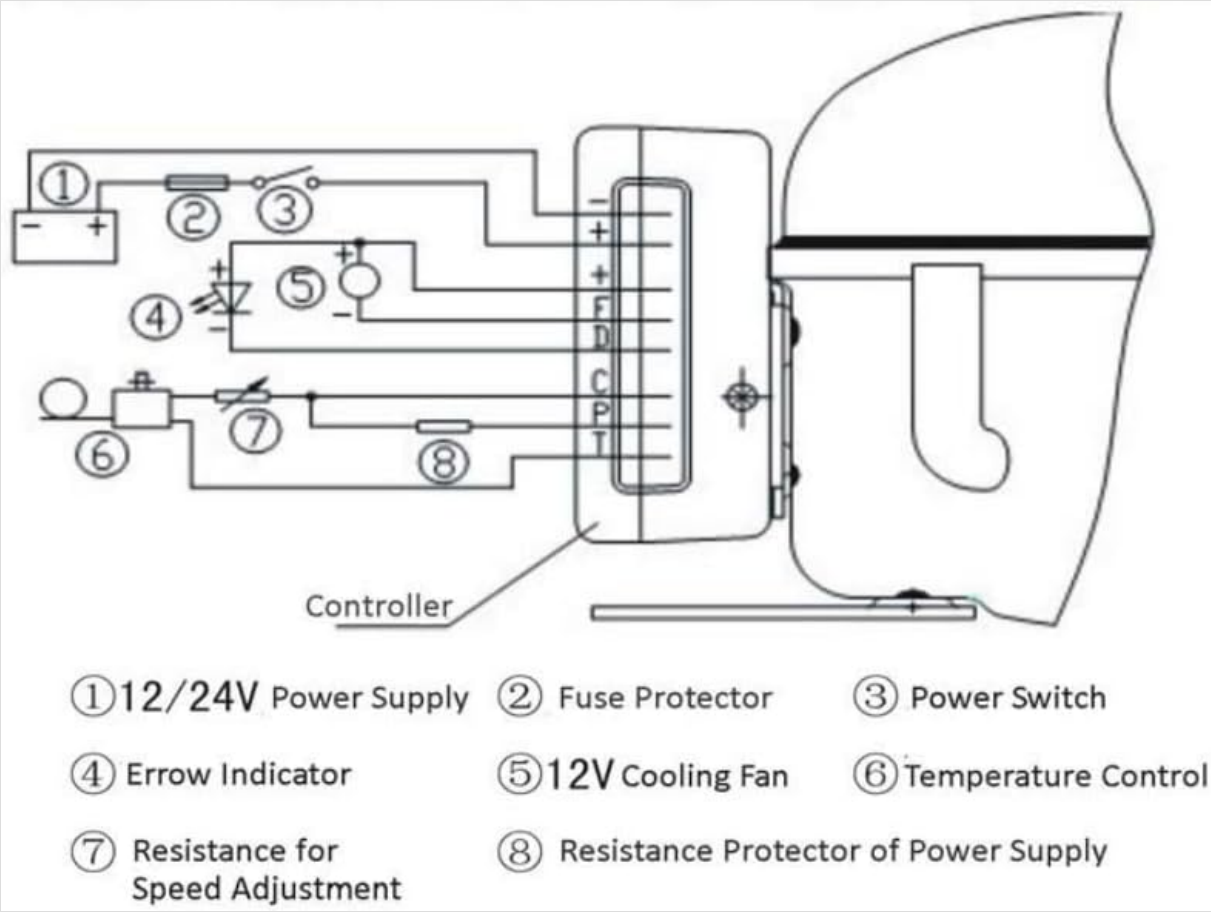

Figure 4: Close-up view of the control module and wiring terminals on the ZH25G compressor, indicating connection points.

4. Setup and Installation

Proper installation is crucial for the compressor's performance and longevity. Follow these steps carefully:

1. **Mounting:** Securely mount the compressor on a stable, level surface using appropriate fasteners through the mounting feet. Ensure adequate clearance for airflow around the unit.
2. **Electrical Connection:**
    - Identify the correct voltage (12V or 24V DC) for your application.
    - Connect the positive (+) and negative (-) terminals from your DC power supply to the corresponding terminals on the compressor's control module.
    - Integrate a fuse protector (item 2 in wiring diagram) and a power switch (item 3) into the circuit for safety and control.
    - If using a cooling fan (item 5), connect it to the designated 12V output.
    - Connect the temperature control unit (item 6) and resistance for speed adjustment (item 7) as per your system design.
    - Ensure all connections are tight and insulated to prevent short circuits.
3. **Refrigerant System Connection:**
    - Connect the compressor to the refrigeration system (evaporator, condenser, filter drier) using appropriate refrigeration lines.
    - Evacuate the system to remove air and moisture before charging with R134a refrigerant.
    - Charge the system with 130 ml of R134a refrigerant. Refer to your refrigeration system's specific requirements for precise charging.

Figure 5: Wiring diagram for the Generic ZH25G DC compressor. This diagram illustrates the connections for power supply, fuse, switch, error indicator, cooling fan, temperature control, and speed adjustment resistance.

① **12/24V Power Supply:** Main DC input.

② **Fuse Protector:** Essential for circuit protection.

③ **Power Switch:** On/Off control for the system.

④ **Error Indicator:** Provides visual feedback on system status.

⑤ **12V Cooling Fan:** For additional cooling of the compressor or system.

⑥ **Temperature Control:** Connects to a thermostat for temperature regulation.

⑦ **Resistance for Speed Adjustment:** Allows adjustment of compressor RPM.

⑧ **Resistance Protector of Power Supply:** Additional protection for the power input.

5. Operation

Once installed and connected, the compressor is ready for operation:

1. **Power On:** Activate the power switch (item 3 in the wiring diagram). The compressor should begin operation.
2. **Temperature Control:** Adjust the temperature control unit (item 6) to set the desired refrigeration temperature within the range of -35°C to 10°C.

3. **Speed Adjustment (if applicable):** If your system includes a resistance for speed adjustment (item 7), you can modify the compressor's RPM.
    - **2000 RPM:** Cooling capacity approx. 43W
    - **2500 RPM:** Cooling capacity approx. 53W
    - **3000 RPM:** Cooling capacity approx. 62W
    - **3500 RPM:** Cooling capacity approx. 72W
4. **Monitoring:** Observe the error indicator (item 4) for any fault signals. Ensure the system is cooling effectively.

6. Maintenance

Regular maintenance ensures optimal performance and extends the lifespan of your compressor:

- **Cleanliness:** Keep the compressor and surrounding area clean and free of dust and debris to ensure proper heat dissipation.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion.
- **Refrigerant Leaks:** Inspect the refrigeration lines for any signs of leaks. Address any leaks immediately by a qualified technician.
- **Airflow:** Ensure that the compressor has unrestricted airflow for cooling.
- **Professional Service:** For any complex issues or refrigerant handling, consult a qualified refrigeration technician.

7. Troubleshooting

Refer to the following table for common issues and their potential solutions:

Problem	Possible Cause	Solution
Compressor does not start	No power, loose connection, blown fuse, faulty switch.	Check power supply, verify connections, replace fuse, test switch.
Insufficient cooling	Low refrigerant charge, airflow obstruction, faulty temperature control, incorrect RPM setting.	Check refrigerant level (professional service), clear obstructions, verify temperature control settings, adjust RPM.
Compressor runs continuously	Temperature control set too low, poor insulation, refrigerant leak.	Adjust temperature setting, check insulation, inspect for leaks (professional service).
Unusual noise	Loose mounting, internal component issue.	Tighten mounting bolts. If noise persists, professional inspection is recommended.

If the problem persists after attempting these solutions, contact customer support or a qualified technician.

8. Specifications

Feature	Detail

Feature	Detail
Brand	Generic
Model Number	ZS2151 (Compressor ZH25G)
Refrigerant	R134a
Voltage	12V / 24V DC
Oil Charge	130 ml
Cooling Type	F
Refrigeration Temperature Scope	-35℃ ~ 10℃
Application	LBP (Low Back Pressure), MBP (Middle Back Pressure)
Max Cooling Capacity	72W (at 3500 RPM)
Displacement	2.5 cm^3
Noise Level	Approx. 15 Decibels
Item Weight	8.4 pounds (3.8 kg)
Product Dimensions	20 x 20 x 20 inches (approximate, based on product data)
Included Components	1x Compressor

9. Warranty and Support

Specific warranty details for this product are not provided in the available information. Please refer to your purchase documentation or contact the seller for warranty terms and conditions.
For technical support or inquiries, please contact the retailer or manufacturer through their official channels. When contacting support, please have your product model number (ZS2151) and purchase date available.