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Fafeicy 8a1babcd-271c-4248-bade-d62c2f6148f3

Fafeicy GB-120 Automatic Voltage Regulator User Manual

Model: GB-120 (Part Number: 8a1babcd-271c-4248-bade-d62c2f6148f3)

1. Introduction

This manual provides essential information for the safe and effective installation, operation, and maintenance of the Fafeicy GB-120 Automatic Voltage Regulator (AVR). The GB-120 is designed for 3-phase carbon brush generators with phase compound excitation and third harmonic excitation systems. Please read this manual thoroughly before use to ensure proper functionality and to prevent damage to the unit or associated equipment.

2. Product Overview

The Fafeicy GB-120 is a compact and reliable automatic voltage regulator module engineered to maintain stable output voltage for compatible 3-phase generators. It features a parallel shunt control mode and a maximum integral excitation current of 15A. Its design allows for connection to a differential current transformer for parallel generation applications.



Figure 1: Top-down view of the Fafeicy GB-120 Automatic Voltage Regulator, showing the heat sink, blue capacitor, and various electronic components.

Key Features:

- Suitable for phase compound excitation and third harmonic excitation 3-phase carbon brush generators.
- Compact design for easy integration and storage.
- Maximum integral excitation current of 15A.
- Terminals B1 and B2 support connection to a differential current transformer for parallel generator operation.
- Steady state voltage adjustment rate of less than 1.5%.



Figure 2: The Fafeicy GB-120 AVR, highlighting its maximum excitation current capacity of 15A.

3. Specifications

Parameter	Value
Item Type	Voltage Regulator
Detection Input Voltage	380 / 400VAC
Detection Input Frequency	50 / 60Hz
Control Mode	Parallel shunt
Maximum Integral Excitation Current	15A
Steady State Voltage Adjustment Rate	<1.5%
Weight	Approximately 16 ounces (453 grams)
Model Number	GB-120 (8a1babcd-271c-4248-bade-d62c2f6148f3)

4. Setup and Installation

Before installation, ensure the generator is completely shut down and disconnected from any power sources. Installation should only be performed by qualified personnel.

1. **Mounting:** Securely mount the Fafeicy GB-120 AVR in a location that is free from excessive vibration, moisture, and extreme temperatures. Ensure adequate ventilation around the heat sink.
2. **Wiring Connections:** Refer to the provided wiring diagram for precise connection points. The main terminals are typically labeled F+, Z2, U, V, B1, B2.
3. **Detection Input:** Connect the detection input to the generator's output voltage (380/400VAC, 50/60Hz) as per the wiring diagram.
4. **Excitation Output:** Connect the AVR's excitation output to the generator's exciter field windings.
5. **Parallel Generation (Optional):** If operating two generators in parallel, connect terminals B1 and B2 to a differential current transformer. This allows for load sharing and stable parallel operation.



Figure 3: Side view of the GB-120 AVR, illustrating the clearly labeled connection terminals for wiring.



Figure 4: The GB-120 AVR, demonstrating how terminals B1 and B2 are used for connecting to a differential current transformer for parallel generation of two generators.

Warning: Incorrect wiring can lead to severe damage to the AVR, generator, and potential injury. Always consult the detailed wiring diagram provided with the product and ensure all connections are secure and correct before applying power.

5. Operating Instructions

Once the Fafeicy GB-120 AVR is correctly installed and wired, follow these steps for operation:

1. **Initial Power-Up:** Carefully apply power to the generator. The AVR will automatically begin regulating the output voltage.
2. **Voltage Adjustment:** If minor voltage adjustments are required, use the voltage adjustment potentiometer (if present on your specific generator control panel or AVR model) to fine-tune the output. Refer to your generator's manual for specific adjustment procedures.
3. **Monitoring:** Continuously monitor the generator's output voltage and frequency to ensure stable operation.
4. **Parallel Operation:** If configured for parallel generation, ensure both generators are synchronized before connecting them to the load. The differential current transformer connected to B1 and B2 will assist in load sharing.

The GB-120 operates in a parallel shunt control mode, providing stable voltage regulation for your generator system.

6. Maintenance

The Fafeicy GB-120 AVR is designed for reliable operation with minimal maintenance. However, periodic checks can help ensure its longevity and performance.

- **Visual Inspection:** Regularly inspect the AVR for any signs of physical damage, loose connections, or overheating (discoloration).
- **Cleanliness:** Keep the AVR free from dust, dirt, and debris. Use a soft, dry brush or compressed air to clean the unit, especially the heat sink fins, to ensure efficient heat dissipation.
- **Connection Integrity:** Periodically check all wiring connections to ensure they are tight and free from corrosion.
- **Environmental Conditions:** Ensure the operating environment remains within specified temperature and humidity limits to prevent premature component failure.

Caution: Disconnect all power to the generator and AVR before performing any maintenance or inspection to avoid electrical shock.

7. Troubleshooting

If you encounter issues with your Fafeicy GB-120 AVR, consider the following troubleshooting steps:

Problem	Possible Cause	Solution
No Voltage Output	• Incorrect wiring • No excitation voltage • AVR failure	• Verify all wiring connections against the diagram. • Check for proper input voltage to the AVR. • Consult a qualified technician for AVR testing or replacement.
Unstable Voltage Output	• Loose connections • Generator speed fluctuations • AVR settings incorrect	• Tighten all electrical connections. • Ensure stable engine speed. • Adjust voltage potentiometer if accessible and necessary.
Overheating AVR	• Insufficient ventilation • Overload condition • Internal fault	• Ensure proper airflow around the unit. • Reduce generator load. • Discontinue use and seek professional service.

If problems persist after attempting these solutions, contact a qualified service technician.

8. Warranty and Support

For warranty information and technical support regarding your Fafeicy GB-120 Automatic Voltage Regulator, please refer to the documentation provided at the time of purchase or contact your vendor. Keep your purchase receipt as proof of purchase.
For further assistance, you may visit the official Fafeicy store on Amazon:Fafeicy Store.

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