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DEVMO SX460-AVR

DEVMO SX460 Automatic Voltage Regulator User Manual

Model: SX460-AVR

INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of the DEVMO SX460 Automatic Voltage Regulator (AVR). The SX460 is designed to regulate the output voltage of a Stamford type generator genset, ensuring stable power delivery.

Please read this manual thoroughly before installation and operation to ensure proper function and safety.

SAFETY INFORMATION

WARNING: ELECTRIC SHOCK RISK!

Live terminals and heatsink are present. Always disconnect power before performing any installation, maintenance, or troubleshooting. Only qualified personnel should attempt installation or service.

Image: Top-down view of the DEVMO SX460 AVR circuit board, clearly showing the "WARNING! ELECTRIC SHOCK RISK" label on the central component.

PRODUCT OVERVIEW

The DEVMO SX460 is an exact generic replacement for the Stamford SX460 AVR. It is a self-excited, single-phase sensing Automatic Voltage Regulator (AVR) that forms part of the excitation system for a brushless generator.



Image: Angled view of the DEVMO SX460 AVR, showing the various components and connection points.



Image: Side view of the DEVMO SX460 AVR, highlighting its compact form factor.



Image: Another top view of the DEVMO SX460 AVR, showing the layout of the circuit board.



Image: Close-up side view of the DEVMO SX460 AVR, detailing the connection terminals.



Image: Bottom view of the DEVMO SX460 AVR, showing the product label and mounting points.

SETUP AND INSTALLATION

Installation of the SX460 AVR should only be performed by a qualified technician. Ensure the generator is completely shut down and isolated from all power sources before beginning installation.

1. **Preparation:** Before removing the old AVR, take a clear photograph of its wiring connections and note any jumper settings. This will serve as a crucial reference for the new installation.
2. **Removal:** Carefully disconnect all wires from the existing AVR and remove it from its mounting.
3. **Mounting:** Mount the DEVMO SX460 AVR securely in the designated location within the generator control panel.
4. **Wiring:** Connect the wires to the corresponding terminals on the new SX460 AVR. Pay close attention to the input voltage selection jumpers (95-132V AC or 190-264V AC) and ensure they match your generator's specifications. The SX460 is a single-phase sensing unit; ensure your generator setup is compatible.
5. **Initial Voltage Adjustment:** After installation and before applying full load, it may be necessary to adjust the output voltage. This can typically be done via a potentiometer on the AVR board. Aim for the exact desired output

voltage (e.g., 120V AC).

Note: Some older generator systems may use a three-phase sensing AVR. The SX460 is designed for single-phase sensing. Attempting to use it in a three-phase sensing configuration by connecting a third leg to terminal 6 may cause the regulator to fail. Verify your generator's requirements before installation.

OPERATING PRINCIPLES

The DEVMO SX460 AVR functions by controlling the exciter field current to maintain the generator's output voltage at a preset level. It achieves this by sensing the generator's output voltage and comparing it to a stable reference. Any deviation from the reference voltage results in an adjustment to the exciter field current, thereby regulating the generator's output.

- **Voltage Regulation:** Provides a regulation accuracy of $\pm 1.0\%$.
- **Typical System Response:**
 - AVR response: 20ms
 - Field current to 90%: 80ms
 - Machine volts to 97%: 300ms
- **Build-up Voltage:** Requires a minimum of 4 Volts at the AVR terminals for voltage build-up.

MAINTENANCE

The DEVMO SX460 AVR is designed for reliable operation and typically requires minimal maintenance. However, periodic inspection is recommended to ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect the AVR for any signs of physical damage, loose connections, or discoloration that might indicate overheating.
- **Cleanliness:** Ensure the AVR and its surrounding area are kept clean and free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning.
- **Connection Integrity:** Verify that all electrical connections to the AVR are secure and free from corrosion. Loose connections can lead to unstable voltage or component failure.

Important: Always disconnect power to the generator and AVR before performing any maintenance or inspection.

TROUBLESHOOTING

If you experience issues with your generator's voltage regulation, consider the following common troubleshooting steps:

Problem	Possible Cause	Solution
No voltage output or unstable voltage	• Incorrect wiring or loose connections • Incorrect jumper settings for input voltage • Generator not building up initial voltage • AVR failure • Incompatibility with three-phase sensing systems	• Verify all wiring against the generator's schematic and ensure connections are tight. • Check input voltage jumper settings (95-132V AC or 190-264V AC) on the AVR. • Ensure the generator provides at least 4 Volts AC to the AVR terminals for build-up. • If all else fails, the AVR may need replacement. • Confirm your generator requires single-phase sensing. If it requires three-phase sensing, this AVR is not suitable.
Output voltage too high or too low	• Voltage adjustment potentiometer misset • Load issues	• Adjust the voltage potentiometer on the AVR board to achieve the desired output. • Ensure the generator is not overloaded.

SPECIFICATIONS

Parameter	Value
Model Number	SX460-AVR
Input Voltage (Jumper Selectable)	95-132V AC or 190-264V AC
Input Frequency	50-60 Hz nominal
Input Phase	1 (Single Phase)
Output Voltage (Max)	90V DC at 207V AC input
Output Current (Continuous)	4 A DC
Output Current (Intermittent)	6 A for 10 seconds
Output Resistance (Minimum)	15 ohms
Voltage Regulation	±1.0%
Thermal Drift	0.05% per degree C change in AVR ambient
Unit Power Dissipation (Max)	10 watts
Build Up Voltage	4 Volts @ AVR terminals
Item Weight	11.8 ounces
Package Dimensions	6.5 x 4.61 x 2.4 inches

WARRANTY AND SUPPORT

For any questions, technical assistance, or warranty inquiries regarding your DEVMO SX460 Automatic Voltage Regulator, please contact DEVMO customer support. Refer to the product packaging or the official DEVMO website for the most current contact information.

You can also visit the [DEVMO brand page on Amazon](#) for more information and product listings.

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