GE Service Manual

DS200GDPAG1ALF

1. Description

DS200GDPAG1ALF Technical Specifications

2. Specifications

Specification	Value
OEM	**General Electric**
Series	**Mark V Speedtronic**
Product	**Number DS200GDPAG1ALF**
Functional	**Acronym GDPA**
Revision	**Quantity 3 Revisions**
Assembly	**Type Normal Assembly**
Mark	**V Series Grouping Group 1**
About	**the DS200GDPAG1ALF**
The	**DS200GDPAG1ALF is a High-Frequency Power Supply replacement printed circuit board designed for use in conjunction with GE industrial control systems like the Speedtronic Mark V. The Mark V Series that this DS200GDPAG1ALF High-Frequency Power Supply Board is one of the later Mark Series from General Electric incorporating Speedtronic Technology into its assembly. The Mark V Series that this DS200GDPAG1ALF PCB belongs to has specific applications in the control and management systems of gas, steam, and wind turbines.**

3. Product Information

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Hardware Tips and Specifications

This DS200GDPAG1ALF product offering is a unique Mark V Series printed circuit board in a number of different components and component specifications. The DS200GDPAG1ALF can draw input power from both AC and DC input sources. The 600-700 W high-frequency board has a 27 kHz inverter on its surface, along with a buck driver and an input rectifier. Additionally, the DS200GDPAG1ALF board is protected by several protective circuits, each of which is described in detail in relevant instructional manual materials. Some of these various protective circuits include:

The Inverter Overcurrent Circuit

The Regulator Overcurrent Circuit

The P80 Overvoltage Circuit

The Control Voltage Undervoltage Circuit

The CVOK Running Signal Circuit

Each of these circuits have been named for the specific fault condition that the protect the assembly of the DS200GDPAG1ALF High-Frequency Power Supply from generally. This DS200GDPAG1ALF printed circuit board's internal assembly is additionally populated by a number of standard Mark V Turbine Control System Series voltage-protecting hardware components, such as rectifiers, diodes, capacitors, and more. The DS200GDPAG1ALF is designed to operate at an input range of 80-132 VAC or 105-140 VDC. Operation at lower input voltages (both AC and DC) is possible, but reducing loading may be required. DS200GDPAG1ALF board operation below 102 VAC may result in thermal damage if the board is fully loaded. The DS200GDPAG1ALF includes multiple TP test points, two stab-on connectors, and four GXPL connectors. Stab-on connectors are used as a shield ground and as an input to control the assembly backplane. This DS200GDPAG1ALF board can mount onto a drive mounting plate. Alternatively, it can mount onto the drive cabinet. Let your system configuration lead you in how you install the board. Installation instructions are included within GE manuals.

Part Number: DS200GDPAG1ALF

Manufacturer: General Electric

Series: EX2000

Product Type: High Frequency Power Supply Board

Temperature: 0 to 60oC (32 to 149 oF)

Availability: In Stock

Country of Manufacturer: United States (USA)

Functional Description

DS200GDPAG1ALF is a High Frequency Power Supply Board developed by General Electric. It is a part of EX2000 excitation system. The High Frequency Power Supply Board boast a power output ranging from 600 to 700 watts (W). Possesses the capability to draw input power from both alternating current (AC) and direct current (DC) sources, ensuring adaptability to diverse operational environments and requirements.

Key Components and Functions

Input Rectifier and Filter: The board features an input rectifier and filter mechanism, responsible for converting and filtering incoming power from external sources. This process ensures the delivery of clean and stable power to subsequent stages of the power supply system.

Regulator (Buck Chopper): A regulator, commonly known as a buck chopper, drives a regulated direct current (DC) bus, maintaining a consistent voltage level to meet the demands of connected loads.

27 kHz Inverter: Operating from the regulated DC bus, a 27 kHz inverter is integrated into the GDPA board, facilitating the conversion of DC power into high-frequency alternating current (AC). This inverter plays a pivotal role in powering specific components or systems requiring AC power.

Output Transformer: The board incorporates an output transformer designed to provide 50 volts AC outputs, catering to the diverse voltage requirements of connected devices or subsystems.

120 V DC Power Supply: Additionally, the board includes a 120-volt DC power supply, ensuring the availability of stable DC power for various applications within the system.

Control Power Supply: To support the operation of control systems and associated components, the board features a dedicated control power supply, delivering the necessary power to ensure optimal functionality.

Control Signal Level Circuits: Integrated control signal level circuits enable the processing and manipulation of control signals, facilitating precise control and coordination of system operations.

Protective Circuits: Critical to the safeguarding of the board and connected equipment, protective circuits are implemented to detect and mitigate potential faults or abnormal operating conditions, ensuring the integrity and reliability of the power supply system.

LED Indicators

PWR IN (CR1 and CR2): These LED indicators illuminate to signify the presence of power input from external sources. When activated, they indicate that the board is receiving power input, providing a visual confirmation of the power supply status.

READY (CR37 and CR39): The READY LED indicators serve as indicators of the operational readiness of the board. When illuminated, they indicate that the board has completed its initialization process and is ready for operation. This visual cue assures operators that the board is prepared to perform its intended functions.

120 V DC FUSE (N2): The neon indicator labeled 120 V DC FUSE provides visual feedback on the status of the fuse associated with the 120-volt DC power supply. When illuminated, it indicates the integrity of the fuse, providing assurance that the power supply protection mechanism is functioning properly.

HI VOLT SHORT (N1): The HI VOLT SHORT neon indicator serves as a warning indicator for high-voltage short circuits within the system. When activated, it alerts operators to the presence of a potential short circuit condition, prompting immediate attention and troubleshooting to prevent damage to the board and connected equipment.

Application Data

Plug and Stab-on Connectors: The High Frequency Power Supply Board offers versatile connectivity options through the inclusion of twelve plug connectors and two stab-on connectors. These connectors serve as interfaces for connecting external devices or subsystems to the board, facilitating seamless integration and compatibility with various system configurations.

Grounding Mechanism: Ensuring proper grounding is essential for the safe and reliable operation of the board. To achieve this, the board is grounded via three mounting screws, designated as GND1, GND2, and GND3. This grounding mechanism effectively dissipates excess electrical charge and mitigates the risk of electrical hazards, promoting system safety and stability.

Fuses: Integrated fuses serve as crucial protective devices, safeguarding the board and connected equipment against overcurrent conditions or electrical faults. These fuses help prevent damage to components and ensure the longevity of the board's operation.

Test Points: Test points are provided to facilitate diagnostic procedures and troubleshooting activities. These points allow for convenient access to key electrical signals and voltages, enabling operators to perform precise measurements and assessments of the board's performance.