GE GE □□□ Series Service Manual

IS200DSFCG1AEB

1. Description

IS200DSFCG1AEB Technical Specifications

2. Specifications

Specification	Value
Manufacturer	**General Electric**
Series	**Mark VI Speedtronic**
Part	**Number IS200DSFCG1AEB**
Functional	**Abbreviation DSFC**
Revision	**Total 3 Revisions**
Backwards-Compatibility	**1st two revisions**
Assembly	**Type Normal Assembly**
OEM	**GE General Electric**
Series	**Mark VI Speedtronic**
Part	**Number IS200DSFCG1A**
Product	**Type Driver Shunt Feedback Board**
Assembly	**Type Normal Assembly**
Functional	**Abbreviation DSFC**
Manufacturer	**Location Domestic**
Frequently	**Asked Questions about IS200DSFCG1A**
Was	**this IS200DSFCG1A Driver/Shunt Feedback Card domestically manufactured?**

3. Product Information

IS200DSFCG1AEB Technical Specifications

Manufacturer General Electric

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Part Number IS200DSFCG1AEB

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About the IS200DSFCG1AEB

The IS200DSFCG1AEB is a Shunt Feedback Board/IGBT Gate Driver that was created and marketed by GE as part of their Speedtronic Mark VI system. The Mark VI Series is a flexible management platform for gas and steam turbine industrial systems of various sizes and complexity. The Mark VI Turbine Control System Series that this IS200DSFCG1AEB printed circuit board product offering's Mark VI Turbine Control System Series belongs to has to be defined as quite the functional step up from the Mark V Turbine Control System Series of a similar full extended series name, as the Mark V Series' established gas and steam turbine-based functional applications are added on to by the wind turbine-based alternative energy functional environment. This IS200DSFCG1AEB Shunt Feedback Board's greater Mark VI Turbine Control System Series is additionally valued on greater relevant markets for its status as one of the final-developed GE Mark product series to incorporate the patented Speedtronic control system technology into a number of its different offerings.

Hardware Tips and Specifications

The Mark VI Series automated drive assembly includes an HMI/operator interface with a PC-based workstation using an MS Windows platform and dynamic graphics. The system includes GE’s proprietary Control System Toolbox for online software maintenance that allows for I/O configuration and monitoring. The IS200DSFCG1AEB is a square circuit board with multiple components. These include five LED indicators labeled DS1 through DS5, stab-on connectors, plug connectors, eyelet connectors, an isolation transformer, as well as various capacitors, diodes, resistor network arrays, resistors, transistors, and jumpers. The board is marked on two edges to allow for proper alignment. It is also marked with the GE logo and board number. Up to six of the IS200DSFCG1AEB may be needed with 1800 amp drives or bridges. 1000 amp systems take three boards. Proper orientation of the board is critical; please be sure to notate the alignment of your old boards before removing them to properly align your new part.

For more detailed information about installing the IS200DSFCG1AEB refer to manuals or data sheets originally provided by the OEM. If these are no longer available to you, AX Control may be able to provide replacements with your order. In-stock parts that are requested before 3 pm are typically shipped out on the same day. Please let your sales representative know your preferred shipping options. All available shipping options can be found on our website. Luckily enough for the purposes of this IS200DSFCG1AEB personalized product page here, this IS200DSFCG1AEB device is well-contexualized within existing Mark Series instructional documentation made available to our convenient manuals tab above. As was hinted at above, this IS200DSFCG1AEB printed circuit board product offering's LEDs are utilized to indicate different functional fault conditions. Two of the major functional faults that impact this IS200DSFCG1AEB printed circuit board in specific can be defined as the Desaturation fault, with the other existing as the Undervoltage fault. The status of this DSFC product's gate drivers is indicated by both a green and yellow LED indicator. According to original manuals, the function of these LEDs is as follows:

The Yellow-colored LED will activate when IGBTs are driven ON

The Green-colored LED will activate when IGBTs are driven OFF

SPECIFICATIONS

Part No.: IS200DSFCG1A

Manufacturer: General Electric

Function: Driver Shunt Feedback Board

LED: 5

Series: Mark VI

Size: 2 inches height, 3 inches length

Manual: GEI-100263

Product Type: PCB

Availability: In Stock

Country of Manufacture: United States (USA)

Functional Description

IS200DSFCG1A is a Driver Shunt Feedback Board designed and developed by GE. It belongs to General Electric's Speedtronic Mark VI series. The Driver Shunt Feedback Board have features such as MOV protection, jumper pins for customization, current sensing and fault detection circuits, galvanic and optical isolation, compatibility with Innovation SeriesTM source bridges and AC drives, and precise mounting and orientation requirements. These features collectively contribute to the board's reliability, functionality, and effectiveness in drive/source applications, providing essential control and feedback capabilities for power conversion systems.

Product Attributes

Metal Oxide Varistor (MOV): Located near the upper left corner of the PCB, the board incorporates a circular red Metal Oxide Varistor (MOV). This component helps protect the board and the connected circuitry from transient voltage spikes or surges by diverting excessive electrical energy to ground.

Jumper Pins: Features six jumper pins arranged in three pairs near the upper center. Each pair of jumper pins is labeled with designators such as PL, PL1, and PL2. These jumper pins provide the ability to configure and customize certain settings or connections on the board, allowing for flexibility and adaptability in system integration.

Current Sensing and Fault Detection Circuits: Includes a current sensing circuit that enables the accurate measurement and monitoring of current levels in the system. This feature is essential for precise control and protection against overcurrent conditions. Additionally, a fault detection circuit is incorporated to detect and identify any faults or abnormalities in the system, ensuring timely and effective fault management.

Galvanic and Optical Isolation: Both the feedback and driver circuits on the Gate Driver/Shunt Feedback Board are designed with galvanic and optical isolation. This isolation helps prevent electrical noise and interference, enhancing the stability and accuracy of the feedback signals and driver outputs. It also improves safety by isolating different electrical potentials, reducing the risk of electrical faults and ensuring reliable operation.

Compatibility with Innovation SeriesTM Source Bridges and AC Drives: Specifically designed to be used with the Innovation SeriesTM 1000 Amp and 1800 Amp Pulse Width Modulated

(PWM) source bridges and AC drives. These source bridges and AC drives are critical components in power conversion applications. The board serves as an interface between the drive bridge personality interface board and the drive control system, enabling seamless integration and communication.

Mounting and Orientation: To ensure proper installation, the board must be mounted directly to the upper and lower IGBT modules in each phase leg. The gate, emitter, and collector connections to the IGBT hold the board securely in place. Correct orientation is crucial for aligning the mounting holes with the corresponding gate, emitter, and collector connections, ensuring proper electrical and mechanical integration.

Features

Shunt Feedback: Built-in shunt resistor that provides feedback on the current flowing through the system. This feedback is used to regulate the current and prevent overloading or other issues that can occur when the current is not properly controlled.

Amplification: The board has a built-in amplifier that amplifies the input signal to a level that can be easily processed by the control system.

Isolation: Provides electrical isolation between the input signal and the output signal, which helps protect the control system from any electrical noise or surges in the input signal.

Signal Output: Provides a high-level output signal that can be used to control a motor or valve, or interface with a PLC or DCS system.

Protection: The board provides protection features such as overvoltage protection and short-circuit protection to safeguard the connected equipment.

Modularity: The board is modular, meaning that it can be easily replaced if it fails or needs to be upgraded.

Excitation Control System

The excitation control system provides dc power to the synchronous generator's field.

The exciter uses the field current to control the generator's ac terminal voltage and/or reactive volt-amperes. The exciter is delivered in freestanding floor-mounted indoor NEMA 1 metal cabinets. The cabinet lineup is made up of several cabinets that are bolted together. The cable can enter from the top or bottom.

Power Supplies

An isolation transformer powers the high voltage side of each of the driver/monitor circuits.

This transformer's primary is connected to a 17.7 volt peak (35.4 volt peak to peak), 25 kHz square wave.

The third secondary is fullwave rectified and filtered to provide the isolated t12 V needed by the shunt current feedback VCO and fault detection circuitry (unregulated, +10%, 100 mA maximum average for each voltage).

A light 5 V logic supply is also required by the shunt circuit, which is generated by a 5V linear regulator connected to the +12 V supply (+10%, 100 mA average maximum). The only regulated component is the 5V power supply.

Trip System

On turbines without mechanical overspeed bolts, the control can send a trip command from the main processor card to the VTUR card in the Control Module(s) or from the Backup Protection Module. The negative side of the 24Vdc/125Vdc circuit is wired to the TRPG, which is driven by the card in the Control Module, and the positive side is wired to the TREG, which is driven by the VPRO in each section of the Backup Protection Module.

A typical system trip initiated in the Control Module(s) will close the servo valve actuators, stopping fuel or steam flow and de-energizing (or energizing) the hydraulic trip solenoids from the VTUR and TRPG. If cross tripping is used or an overspeed condition is detected, the VTUR/TRPG will trip one of the solenoids while the VPTRO/TREG will trip the other (s).

Storage Precautions

Cover the equipment with the following requirements:

Keep the equipment clean and dry, protected from precipitation and flooding.

Use only canvas type covering material

no plastic.

Unpack and label the equipment as described.

Maintain the following environment in the storage enclosure: -40 to 80 degrees Celsius recommended ambient storage temperature limits.

Free of dust and corrosive elements such as salt spray or chemical and electrically conductive contaminants in the surrounding air

A relative humidity range of 5 to 95%, with provisions for condensation prevention.

No rodents

No temperature fluctuations resulting in moisture condensation

IS200DSFCG1A Technical Specifications

OEM GE General Electric

Series Mark VI Speedtronic

Part Number IS200DSFCG1A

Product Type Driver Shunt Feedback Board

Assembly Type Normal Assembly

Functional Abbreviation DSFC

Manufacturer Location Domestic

Frequently Asked Questions about IS200DSFCG1A

Was this IS200DSFCG1A Driver/Shunt Feedback Card domestically manufactured?

Yes. This IS200DSFCG1A Driver/Shunt Feedback Card device was domestically manufactured in GE's Salem, Virginia factory plant location.

What warranty would this IS200DSFCG1A Driver/Shunt Feedback Card device possess upon my purchase here?

This IS200DSFCG1A Driver/Shunt Feedback Card device in particular would be guaranteed protection through a standard three-year PCB warranty upon a purchase here.

About the IS200DSFCG1A

The IS200DSFCG1A is a device called a feedback driver/shunt card. This is a type of PCB (printed circuit board). General Electric created the IS200DSFCG1A as a part of GE’s Speedtronic Mark VI series.

Hardware Tips and Specifications

The IS200DSFCG1A printed circuit board is designed for GE Turbine applications. Positioned near the upper left part of the PCB is one (1) circular red metal oxide varistor or MOV. The

designator LCB is printed on the board near the MOV. A series of solid black resistors are situated right under the MOV. A total of four (4) of the resistors have been placed around black transistor which is shaped like a square. Sitting close to these components is one (1) small solid red light-emitting diode or LED. Printed on the board right above the light-emitting diode are the words LINK ABOVE 50V. Two (2) large components which are metal are situated close to the bottom left side of the IS200DSFCG1A. The two (2) metal components are identified with the labels UGB and UEB. Six (6) jumper pins are featured close to the upper center of the IS200DSFCG1A in three (3) pairs. Every pair of jumper pins is labeled with designators like PL, PL1, and PL2. One (1) square component which is large is situated on the right half of the IS200DSFCG1A. The square component is black on the side and silver on the top. Placed on the IS200DSFCG1A card are a series of integrated circuits. Around ten (10) integrated circuits are placed on the PCB which may be small, medium, or large.