GE GE □□□ Series Service Manual

IS200EDCFG1BAA

1. Description

SPECIFICATIONS

2. Specifications

Specification	Value
Manufacturer	**GE Industrial Systems**
Series	**EX2100**
Part	**Number IS200EDCFG1BAA**
Functional	**Acronym EDCF**
Functional	**Description Exciter DC Feedback Board**
PCB	**Coating Normal Coating**
Functional	**Revision 1 B**
Functional	**Revision 2 A**
Artwork	**Revision A**
About	**the IS200EDCFG1BAA**
Originally	**manufactured for the EX2100 series of Excitation Control Systems and Excitation Control System component products; this IS200EDCFG1BAA module PCB is a revised printed circuit board; featuring a functional revision 1 rated at a "B" grade, a functional 2 revision rated at an "A" grade, and an artwork revision rated at an "A" grade as well. These three revisions modify this part from its original IS200EDCFG1 parent product, which is explicitly definable as an Exciter DC Feedback Board. This functional description is backed through this product's EDCF functional acronym, which in this instance happens to line up exactly with each letter.**

3. Product Information

SPECIFICATIONS

Part No.: IS200EDCFG1BAA

Manufacturer: General Electric

Country of Manufacture: United States of America (USA)

Size: 15.9 cm high x 10.2 cm wide

Technology: Surface-mount

Temperature Operating: -30 to 65oC

Product Type: Exciter DC Feedback Board

Availability: In Stock

Series: EX2100

Functional Description

IS200EDCFG1BAA is an Exciter DC Feedback Board developed by GE. It is a part of the EX2100 excitation system. The EDCF board measures both field current and voltage across the SCR bridge within the EX2100 series drive assembly. Additionally, it serves as an interface with the EISB board via a high-speed fiber-optic link connector. An integral part of this board is its LED indicator, which provides visual feedback on the proper functioning of the power supply.

Features

Fiber-Optic Interface: One of the key features of the board is its interface with the EISB board in the control panel via a high-speed fiber-optic link. This innovative communication method offers several advantages, including voltage isolation and high noise immunity, ensuring reliable data transmission between the two boards.

Plastic Type Fiber: This type of fiber is suitable for distances of up to 10 meters, making it ideal for shorter connections within the control system setup.

Hard Clad Silica Type: Designed for longer distances, the hard-clad silica type fiber supports connections of up to 90 meters. This option provides flexibility in system layout and installation, allowing for efficient signal transmission over extended distances.

Minimum Bending Radius: It's important to note that both types of fibers have a minimum bending radius requirement of 1.5 inches. Adhering to this specification ensures proper handling and installation of the fiber cables, preventing signal degradation and maintaining signal integrity.

Field Current Feedback

Field Current Measurement: The field current feedback mechanism plays a crucial role in monitoring the electrical current across a DC shunt located at the SCR bridge within the control system. This setup generates a low-level signal proportional to the field current, with a maximum amplitude of 500 millivolts (mV).

Signal Processing: The low-level signal generated by the DC shunt is input to a specialized circuit known as a differential amplifier. This amplifier is responsible for amplifying the signal while also providing differential amplification to enhance its accuracy and robustness. The output voltage from the differential amplifier is carefully regulated and ranges between -5 volts (V) to +5 volts (V).

Voltage Controlled Oscillator Integration: The regulated output voltage from the differential amplifier serves as the input signal to a voltage-controlled oscillator (VCO). A VCO is an electronic oscillator whose oscillation frequency is controlled by a voltage input. In this context, the VCO adjusts its oscillation frequency based on the magnitude of the input voltage received from the amplifier.

Signal Range and Control: The output frequency of the VCO is directly proportional to the amplitude of the input voltage signal. By modulating the frequency of oscillation, the VCO effectively translates variations in the field current into corresponding changes in the output frequency. This frequency modulation provides a dynamic representation of the field current status, enabling precise monitoring and control within the control system.

IS200EDCFG1BAA Technical Specifications

Manufacturer GE Industrial Systems

Series EX2100

Part Number IS200EDCFG1BAA

Functional Acronym EDCF

Functional Description Exciter DC Feedback Board

PCB Coating Normal Coating

Functional Revision 1 B

Functional Revision 2 A

Artwork Revision A

About the IS200EDCFG1BAA

Originally manufactured for the EX2100 series of Excitation Control Systems and Excitation Control System component products; this IS200EDCFG1BAA module PCB is a revised printed circuit board; featuring a functional revision 1 rated at a "B" grade, a functional 2 revision rated at an "A" grade, and an artwork revision rated at an "A" grade as well. These three revisions modify this part from its original IS200EDCFG1 parent product, which is explicitly definable as an Exciter DC Feedback Board. This functional description is backed through this product's EDCF functional acronym, which in this instance happens to line up exactly with each letter.

Hardware Tips and Specifications

The IS200EDCFG1BAA Exciter DC Feedback Board features a number of crucial, product-specific hardware features that all contribute to its overall functionality. To fully understand all of the hardware components included in this printed circuit board's unique configuration assembly, it is firstly important to understand the function of the product. The IS200EDCFG1BAA EDCF board is used to measure both field current and voltage for the overall EX2100 series drive assembly's SCR bridge. This IS200EDCFG1BAA product also serves to interface with a corresponding EISB board, through the use of a high-speed fiber-optic link connector. This process is regulated in part through this EDCF-abbreviated board's inclusion of a singular LED indicator, which indicates the corrective operation of the board's power supply. This LED is labeled with the factory-printed nomenclature PSOK, and glows green to indicate regular PCB function.

Beyond the basic functioning and singular LED indicator apparent to this IS200EDCFG1BAA model PCB, the EDCF board offers a number of jumpers and connectors for supreme customization and compatibility purposes. One of the more crucial connectors established on the base board of this PCB exists in its J16-labeled connector, which establishes an input voltage connection of 24 V DC into the board assembly. The two Fiber-optic cable connectors included in the IS200EDCFG1BAA board's configuration assembly include both the CF

OF-labelled Field Current Feedback Pulse connector, as well as the similar VF OF-labelled Filed Current Feedback Pulse connector. Both of these connectors can be classified as HFBR-1528 fiber optic drivers, specifically. Some of the jumpers more relevant to this EDCF board include a series of eight total Bridge Voltage Scaling Jumpers, intended for different PPT voltages ranging from 140 V rms to 1400 V rms. An external power supply is required to provide sufficient voltage to the IS200EDCFG1BAA board; this source is classified as a 24 VDC set of voltage regulators. All of these previously-mentioned hardware components should be sufficiently protected beneath a solid layer of chemically-applied normal PCB coating, as evidenced by the "G1" series grouping tag present in the IS200EDCFG1BAA functional product number.