GE Service Manual

DS200SHVMG1AFE

1. Description

DS200SHVMG1AFE Technical Specifications

2. Specifications

Specification	Value
Manufacturer	**GE General Electric**
Series	**Mark V**
Part	**Number DS200SHVMG1AFE**
Functional	**Description SCR High Voltage M-Frame Interface Board**
Instruction	**Manual GEI-100174**
Functional	**Acronym SHVM**
PCB	**Coating Normal Coating**
Revision	**Quantity 3 Revisions**
Mark	**V Series Grouping Group 1**
Backwards-Compatibility	**1st two revisions**
About	**the DS200SHVMG1AFE**
DS200SHVMG1AFE	**is a General Electric designed high voltage M-frame interface board. As a member of the Mark V series, this card can be used across a range of GE brand drives and exciters, although the Mark V Series has specific applications in the control and management systems of wind, steam, and gas turbine automated drive assemblies.**

3. Product Information

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An interface medium is provided when this board is installed. Communications between the SCR bridge of the M-frame drive, the power supply board (either DCFB or SDCI), and the power connect card (PCCA) are created with this interface board.

While this DS200SHVMG1AFE printed circuit board or PCB for short is definable as a SCR High Voltage M-frame Interface Board, it is by no means considered the original product of this functionality to exist within the Mark V Turbine Control System Series; that would be the DS200SHVMG1 SCR High Voltage M-frame Interface Board missing all three of this DS200SHVMG1AFE product's three significant product revisions.

The Mark V Turbine Control System Series that this DS200SHVMG1AFE product belongs to is additionally lauded on the greater automated industrial marketplace as it is one of the lastly-developed GE Mark product series to utilize their patented Speedtronic control system technology first seen with the release of the Mark I Series in the mid to late 1960s.

Hardware Tips and Specifications

Signal conversions and electrical functions are provided when this board is installed in the drive. This card produces differential frequency outputs rated between 0 and 500 kHz by converting shunt signals ranging from -500 to 500 mV. The DC positive and negative shunts found on the voltage controlled oscillator (VCO) circuit is responsible for performing these conversions. Newly converted digital signals are then sent to the power supply board as well as the power connect card. A 10:1 current transformer attenuation is integrated into the AC line current.

Before attempting any installation or replacement of this DS200SHVMG1AFE model of General Electric printed circuit board, it is important to wait a few minutes for the voltages present in this device's series of capacitors to die out; as capacitors exist as one of the standardized Mark V Turbine Control System Series voltage-limiting hardware components available with this model.

Some of the other voltage-limiting hardware components in the assembly of this DS200SHVMG1AFE PCB included various:

diodes

resistors

integrated circuits

Additionally, almost the entirety of the hardware components elements made available to this DS200SHVMG1AFE printed circuit board are protected by thick rudimentary layer of normal printed circuit board coating, which envelops individual hardware elements on a functional priority basis. The group one Mark V Turbine Control System Series product grouping that this DS200SHVMG1AFE product possesses is actually the only available Mark V Turbine Control System Series grouping for this specific functional product.

Users can select desired attenuation by configuring one of the 17 jumpers available in this General Electric product's assembly. The exact placement and function of each of this extended series of jumpers is explained in the original DS200SHVMG1AFE instructional manual available above through our manuals tab. It it important to realize that the first eight jumpers in this DS200SHVMG1AFE PCB's assembly all share a similar functionality. These jumpers have been included in the DS200SHVMG1AFE board's assembly to select 10:1 attenuation for both phase A and phase C current transformers. With this being known, jumpers JP1-JP8 in this DS200SHVMG1AFE SCR High Voltage M-frame Interface Board should all be set to the same position; effectively either bypassing or selecting 10:1 attenuation. Most of the other jumpers in the assembly of this DS200SHVMG1AFE Mark V Series product select for different line attenuation strings in this DS200SHVMG1AFE board's configuration.

Before making an ultimate purchase decision on this DS200SHVMG1AFE product offering, its is crucial to understand that its original instructional manual-introduced performance specifications and dimensions have been altered through its extended three-fold revision history. This DS200SHVMG1AFE device's manually-moveable hardware jumpers are but one component part of a larger DS200SHVMG1AFE board customization strategy that includes both wiring plugs and stab connectors additionally. According once again to the DS200SHVMG1AFE instructional manual made available for your convenience in the manuals tab above, this DS200SHVMG1AFE device is a highly voltage-sensitive product that would be treated with care during both shipping and handling; AX ensures this through the use of a static-sensitive packaging bag within this DS200SHVMG1AFE device's packing materials.

Based on the provided files "image_bd833f.png" and "image_bd835d.png", here is the organized information for the DS200SHVMG1AFE:

Specifications

Part Number: DS200SHVMG1AFE

Manufacturer: General Electric

Series: EX2000

Product Type: SCR High Voltage M-Frame Interface Board

Input Voltage Range: -500 mV to +500 mV

Number of relay channels: 12

Power supply voltage: 28 V dc

Output Frequency Range: 0 to 500 kHz

Mounting: DIN-rail mounting

Current Attenuation: Jumper-selectable 10:1

AC Line Voltage Attenuation Bypass: 240–600 V

Technology: Surface mount

ACCT Secondary Current Rating: 144 mA maximum

Operating temperature: -30 to +65°C

Size: 15.9 cm high x 17.8 cm

Availability: In Stock

Country of Origin: United States

Manual: GEI-100174A

Functional Description

The DS200SHVMG1AFE is an SCR High Voltage M-Frame Interface Board designed by General Electric for the EX2000 Series GE Excitation Control Systems. This board serves as an interface for signals from an M-frame drive's SCR bridge to the PCCA Power Connect Card and the DCFB or SDCI Power Supply Board. It converts shunt signals (-500 mV to +500 mV) into differential-frequency outputs (0 to 500 kHz) for the DCFB or SDCI board. Additionally, it incorporates hardware jumper-selectable 10:1 current transformers and provides attenuation for motor armature, AC line, and SCR bridge voltages.

Key Components and Settings

DC Bridge Shunt Isolator Circuits: These floating shunt isolator voltage-controlled oscillator (VCO) circuits convert shunt signals from the bridge, ranging from -500 mV to +500 mV (0 to 500 kHz), and feed them to the DCFB board. The input circuits float to the bridge potential of the dc+ and dc- voltages.

AC Current Transformers (ACCTs): The SHVM board provides jumper-selectable 10:1 current transformer attenuation for phase A and phase C ac line currents. This is required when the main line ACCT secondary current exceeds 144 mA, as the CT burden resistors on DCFB and SDCI boards cannot handle more than this rating. If the current is less than 144 mA, this attenuation should be bypassed.

Line Voltage Attenuators (L1, L2, L3): These are used to attenuate ac line voltage based on generator field ratings and magnitude. Attenuators should be bypassed if the main ac line is 240–600 V, and included if it is 601–1000 V.

DC Bridge Voltages (P1 and P2): Resistor strings are used to attenuate dc voltage based on field voltage ratings. Configurable jumpers scale the dc bus voltage feedback, with settings based on nominal main ac RMS input voltage. These should be bypassed for a 240–600 V main ac line and included for a 601–1000 V main ac line.