GE GE □□□ Series Service Manual

IS200VSVOH1BDC

1. Description

SPECIFICATIONS

2. Specifications

Specification	Value
Functional	**Part Number IS200VSVOH1BDC**
Revisions	**BDC**
Manufacturer	**GE Industrial Systems, General Electric Company US**
Functional	**Description Servo Control Card**
Application	**Specific I/O Servo Valve Interface**
Coil	**Servo Quantity 2 or 3; 3 for TMR Applications**
Frequency	**Range for Pulse Rate Inputs 2-14k Hz**
Functional	**Acronym/Abbreviation VSVO**
LED	**Quantity 3; Run, Fail, Status**
Prime	**Mover Type Steam or Gas Turbines**
Speed	**Sensor Active or Passive**
Sufficient	**Sensitivity Range 2 Hz**

3. Product Information

SPECIFICATIONS

Part No.: IS200VSVOH1BDC

Manufacturer: General Electric

Country of Manufacture: United States of America (USA)

Temperature: 0 to 60 °C

Processo:r Texas Instruments TMS320C32

Product Type: Servo Control Board

Availability: In Stock

Series: Mark VI

Functional Description

IS200VSVOH1BDC is a servo control board developed by GE. It is a part of Mark VI control system. The Servo Board, designated as VSVO, serves as a critical component within the intricate tapestry of a control system, specifically tasked with the precision control of electrohydraulic servo valves. This pivotal role directly influences the actuation of steam and fuel valves, components crucial for regulating key processes in industrial and mechanical systems. Let's delve into the intricacies of the VSVO, shedding light on its functions and its seamless integration into the broader control architecture.

Features

Control of Electrohydraulic Servo Valves: The primary function of the VSVO revolves around the precise control of four electrohydraulic servo valves. These valves play a pivotal role in modulating the flow of steam and fuel within the system, influencing critical processes such as power generation or industrial machinery operation.

Division Across Two Servo Terminal Boards: To ensure efficient control distribution, the four channels managed by the VSVO are intelligently divided between two TSVO (Terminal Servo Output) servo terminal boards. This strategic division optimizes the allocation of control resources, contributing to the overall stability and responsiveness of the system.

Valve Position Sensing

To ascertain the accurate position of the valves, the VSVO employs Linear Variable Differential Transformers (LVDT).

These precision sensors provide continuous and reliable feedback on the displacement of the valves. The integration of LVDT technology ensures that the control system operates with a heightened level of accuracy and responsiveness.

Control Algorithm Execution

Centralized Loop Control Algorithm: A distinctive feature of the VSVO is its capability to run the loop control algorithm internally. This implies that the intricate calculations and decision-making processes essential for optimal valve control are executed within the VSVO itself. This decentralized approach enhances system efficiency and minimizes communication delays, particularly in applications requiring real-time responsiveness.

Its role in dividing control channels across TSVO servo terminal boards, utilizing LVDT for accurate valve position sensing, and executing the control algorithm internally, underscores its significance in enhancing the overall performance and reliability of the control system. As a key player in the orchestration of industrial processes, the VSVO exemplifies advanced control technologies harnessed for seamless and responsive operation.

Installation

Power Down the VME Processor Rack: Before initiating the installation, it is imperative to power down the VME processor rack. This ensures a safe and controlled environment for the installation process, minimizing the risk of electrical interference and safeguarding both the operator and the equipment.

Slide in the Board: With the VME processor rack powered down, carefully slide in the board into the designated slot. The slot is strategically positioned to accommodate the VSVO board seamlessly. Ensure that the insertion is precise and aligns with the slot guides to prevent any potential damage.

Securely Seat Edge Connectors: Once the board is positioned within the slot, utilize both hands to push the top and bottom levers. This action securely seats the edge connectors, establishing a stable and reliable electrical connection with the control system. This step is critical for the board to function optimally within the system architecture.

Tighten Captive Screws: To further enhance the stability of the VSVO board, tighten the captive screws located at the top and bottom of the front panel. This step ensures that the board is firmly secured within the rack, minimizing the possibility of vibrations or displacement during normal system operation.

Power Up the VME Rack: Securely installed, proceed to power up the VME rack. Monitor the diagnostic indicators to confirm that VSVO board is recognized and functioning correctly. Any discrepancies observed during this phase should prompt a thorough review of the installation steps.

Verification and Testing: Post-installation, it is prudent to conduct thorough verification and testing procedures. This involves checking the connectivity, ensuring proper alignment, and validating functionality. Any anomalies should be addressed promptly to guarantee the reliability of the entire control system.

IS200VSVOH1BDC Technical Specifications

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Revisions BDC

Manufacturer GE Industrial Systems, General Electric Company US

Functional Description Servo Control Card

Application Specific I/O Servo Valve Interface

Coil Servo Quantity 2 or 3; 3 for TMR Applications

Frequency Range for Pulse Rate Inputs 2-14k Hz

Functional Acronym/Abbreviation VSVO

LED Quantity 3; Run, Fail, Status

Prime Mover Type Steam or Gas Turbines

Speed Sensor Active or Passive

Sufficient Sensitivity Range 2 Hz

About the IS200VSVOH1BDC

This IS200VSVOH1BDC printed circuit board product here from General Electric was originally designed and produced for the mark VI Turbine Control System Series, as outlined in its randomly-available General Electric instructional manual materials above. The Mark VI Turbine Control System Series, as partially evidenced through its full extended series name

here, has a set selection of specific applications in gas, steam, and wind turbine automated drive assemblies. With this being the case, it still must be considered separately attractive on the greater figurative automated industrial community purely given the fact that it is one of General Electric's final-developed GE Mark product series to make use of the Speedtronic control system technology first released to the community with the success of the initial Mark I Series in the mid to later 1960s.

Hardware Tips and Specifications

Servo Control Card IS200VSVOH1BDC was designed to be used with servo valve interface application I/Os or with pulse rate (speed) inputs. When used with pulse rate inputs the VSVO card is used for flow divider feedback in servo loops. The pulse rate inputs do have a specific frequency range which is two to fourteen thousand Hertz. Another feature of the VSVO card when being used with pulse rate inputs is the interfacing of speed sensors, the two sensor types interfaced are either passive or active. The card can also support an additional two passive speed sensors as long as being used with a Backup Protection Module. Before even considered making any final purchase on this IS200VSVOH1BDC product, it is of the utmost importance to realize that its originally-introduced performance specifications and dimensions have no doubt been altered through its acceptance of a full three-fold product revision history including the B-rated primary IS200VSVOH1BDC Board functional product revision, the D-rated secondary IS200VSVOH1BDC Board functional product revision, and last but not least, the C-rated artwork configuration revision altering the placement of individual hardware components on this IS200VSVOH1BDC device's base printed circuit board.

As mentioned above the IS200VSVOH1BDC card will use servo valve interface I/Os. A number of features are available when the VSVO uses this feature some of which are selectable current drivers, feedback from LVDRs, LVDTs, and pulse-rate inputs from flow divider feedbacks. The VSVO card can also be used with two or three coil servos depending on the chosen redundancy application. There are typically four servo channels used with the VSVO card, for every servo channel up to three LVDT/LVDRs feedback sensors can be used with median select, high select, or low select made in software. Please note that the servo current outputs that are used with this model are going to be bi-directional. A minimum of two LVDT/LVDRs are recommended when the IS200VSVOH1BDC model is being used in TMR applications as each sensor requires an AC excitation source. The associated manual used with this model is either the GER-4193A Speedtronic Mark VI System Guide or the GEH-6421C Volume II System Guide. Given the fact that this IS200VSVOH1BDC product belongs to a now-discontinued legacy GE product series, its IS200VSVOH1BDC functional product number itself can actually be utilized as a decently-strong primary source of IS200VSVOH1BDC Board hardware component and component specification information; coding for various relevant details across a number of GE-designed functional naming segments. For instance, the IS200VSVOH1BDC functional product number is begun through the dual-functional IS200 series tag responsible for indirectly stating this IS200VSVOH1BDC product's normal Mark VI Series assembly version as well as its standard domestic original manufacture location.