GE GE □□□ Series Service Manual

IS200DSPXH2DBD

1. Description

IS200DSPXH2DBD Technical Specifications

2. Specifications

Specification	Value
Manufacturer	**General Electric**
Series	**Mark VI Speedtronic**
Part	**Number IS200DSPXH2DBD**
Product	**Type Digital Signal Processor Control Board**
Functional	**Abbreviation DSPX**
Revision	**Total 3 Revisions**
Assembly	**Type Normal Assembly**
Backplane	**Input Quantity 6**
Board	**Description Digital Signal Processor Control Board**
Board	**Use Mode Controller for Motor and Bridge Regulation**
Functional	**Acronym/Abbreviation DSPX**
I/O	**Connector Quantity 3; P6, P1, and P5**
LEDs	**2, Status and Fault**
Onboard	**Firmware Application Code, Boot Loader, and Configuration Parameters**
Part-Specific	**Manual GEI-100267B**
Serial	**Interfaces Asynchronous TTLs and Five Mb/s ISBus**
About	**the IS200DSPXH2D**
The	**IS200DSPXH2D board is a model designed for the EX2100e system of devices by General Electric with enhanced technology in mind. The primary purpose of the Digital Signal Processor Control(DSPX) board is to control any motor and bridge gating and regulator functions. Several components make up the entirety of the DSPX board, one of the main**

3. Product Information

IS200DSPXH2DBD Technical Specifications

Manufacturer General Electric

Series Mark VI Speedtronic

Part Number IS200DSPXH2DBD

Product Type Digital Signal Processor Control Board

Functional Abbreviation DSPX

Revision Total 3 Revisions

Assembly Type Normal Assembly

About the IS200DSPXH2DBD

The IS200DSPXH2DBD is a device which is known as a drive DSP control board. This is a component in the Mark VI series by General Electric. The latest in the Mark line of gas and steam turbine controls, Mark VI and its predecessors are tasked with controlling all aspects of industrial turbine management. The IS200DSPXH2DBD is a type of printed circuit board or PCB. The Mark VI Turbine Control System Series encapsulating this IS200DSPXH2DBD product here, as it is known at length, exists with a specific series of possible functional applications in the control and management systems of General Electric-compatible gas, steam, and wind turbine automated drive assemblies. This has to be defined as quite the significant functional upgrade upon the rudimentary gas and steam turbine-based possible application range introduced with the previous industry-standard Mark V Turbine Control System Series of essentially the same full series title. This IS200DSPXH2DBD product's Mark VI Series is also valued for its nature as one of the final-developed GE Mark product series utilizing the patented Speedtronic control system technology.

Hardware Tips and Specifications

The IS200DSPXH2DBD is a mid-sized printed circuit board which contains a range of various electronic components. A large white connector port has been attached to the right edge of the IS200DSPXH2DBD. This connector port is solid white in color with a series of metal connector pins. Two (2) smaller connector ports which are black in color have been placed on the opposite end of the PCB. Sitting in the center of the IS200DSPXH2DBD are two (2) large black components which are made in the shape of squares. At each corner of the components is a white screw connected the devices to the circuit card. Two (2) components which are known as resistor networks have been situated between these two (2) square components. These resistor network are solid white. Each contains a group of small resistors which are aligned in a row. The total resistance of each resistor network is equivalent to the sum of the resistance of the resistors within. Two (2) additional resistor network are situated to the right of the large black components. Many integrated circuits have been connected to the surface of the board. These integrated circuits are black and range in size.

This IS200DSPXH2DBD printed circuit board product offering or PCB for short from General Electric was originally designed and manufactured specifically with the company's Mark VI Turbine Control System Series in mind, which means that it is unfortunately not well-contextualized online within any great wealth of originally-pertinent instructional manual materials. With this being the truth, the IS200DSPXH2DBD functional product number itself stands to serve as a decent functional source of IS200DSPXH2DBD Board hardware component and component specification information, as it codes for a number of relevant IS200DSPXH2DBD Board hardware qualities through a series of consecutive functional naming elements. For example, this IS200DSPXH2DBD product number in specific is started off by an inclusion of the dual-functional IS200 series tag delegating both this IS200DSPXH2DBD product's normal Mark VI Series assembly on top of its domestic location of original General Electric manufacture. Some of the other pertinent IS200DSPXH2DBD Board hardware qualities indicated in this manner include its:

DSPX functional product acronym

Group two Mark VI Series grouping

Conformal PCB coating style

Three-fold revision table

SPECIFICATIONS:

Part Number: IS200DSPXH2D

Manufacturer: General Electric

Series: EX2100

Product Type: Digital Signal Processor Control Board

Technology: Surface Mount

Common Mode Voltage Range: ±5 V

Size: 15.9 cm high x 17.8 cm

Temperature: -30 to +65 degrees

No.of Analog Voltage Inputs: 6

Repair: 3-7 Day

Availability: In Stock

Country of Origin: United States

FUNCTIONAL DESCRIPTION:

IS200DSPXH2D is a Digital Signal Processor Control Board manufactured and designed by General Electric as part of the EX2100 series used in GE Excitation Control Systems. A Digital Signal Processor Control Board, often abbreviated as a DSP control board, is a hardware component used in various electronic systems to process digital signals. It serves as the central control unit for managing and executing signal processing tasks using a Digital Signal Processor (DSP) chip. It is comprised of a high-performance digital signal processor (DSP), standard memory components, and an application-specific integrated circuit (ASIC) that performs custom logic functions. A CompactPCI (CPCI) enclosure houses the controller. A 6U high rack, one or two 3U high power supplies, a 6U high single board, and a cooling fan are typical components of a CPCI enclosure. Here are some key aspects and functions of a DSP Control Board:

DSP Chip: The heart of the board is the DSP chip, which is a specialized microprocessor designed to efficiently handle digital signal processing tasks. DSPs excel at tasks like filtering, modulation, demodulation, and other operations on digital signals.

Input and Output Interfaces: DSP control boards typically feature various input and output interfaces to connect with external devices. These might include analog-to-digital converters (ADCs) for converting analog signals into digital format and digital-to-analog converters (DACs) for the reverse process.

Memory: DSP control boards have onboard memory, which is crucial for storing data and program code. This memory may include RAM (Random Access Memory) for data storage and ROM (Read-Only Memory) for program code storage.

Processing Power: DSP chips are designed to handle complex mathematical calculations quickly, making them suitable for real-time signal processing tasks. The control board provides the necessary power and clocking to support these calculations.

Programming Interface: To program the DSP chip, there is usually a programming interface, which can include connectors for debugging tools and software for writing, compiling, and uploading code to the DSP.

Control Logic: The control board also includes control logic that manages the overall operation of the DSP chip and coordinates data flow between input and output devices.

I/O Ports: Depending on the specific application, DSP control boards may have various input and output ports, such as serial communication ports (e.g., UART, SPI, I2C), GPIO (General-Purpose Input/Output) pins, and other interfaces to connect with sensors, displays, or other devices.

Power Supply: DSP control boards require a stable power supply to operate effectively. They often include power management circuitry to ensure the DSP chip and other components receive the correct voltage and current.

IS200DSPXH2D Technical Specifications

Backplane Input Quantity 6

Board Description Digital Signal Processor Control Board

Board Use Mode Controller for Motor and Bridge Regulation

Functional Acronym/Abbreviation DSPX

I/O Connector Quantity 3; P6, P1, and P5

LEDs 2, Status and Fault

Onboard Firmware Application Code, Boot Loader, and Configuration Parameters

Part-Specific Manual GEI-100267B

Serial Interfaces Asynchronous TTLs and Five Mb/s ISBus

About the IS200DSPXH2D

The IS200DSPXH2D board is a model designed for the EX2100e system of devices by General Electric with enhanced technology in mind. The primary purpose of the Digital Signal Processor Control(DSPX) board is to control any motor and bridge gating and regulator functions. Several components make up the entirety of the DSPX board, one of the main components is the high-performance digital signal processor (DSP) which allows for the DSPX board to function and is able to provide an interface, logic, and processing functions. Along with the DSP, there are also memory components that range from NVRAM, add-only memory, RAM, and FLASH memory.

There are several specialized functions provided by the IS200DSPXH2D board through ASICs or FPGAs (Field Programmable Gate Arrays), many of which are supported by a singular ASIC. Please take into consideration that if facilitating firmware synchronization of any of the load pulse signals on the DSPX board six-bit registers are needed one each inner loop load pulse. The DSPX board also provides pulse-width modulation (PWM) outputs that have a fixed frequency of 24 kHz and 10-bit resolution, these will each occupy one twenty-bit register. These outputs can be used to drive instrumentation meters or any other output type.

The IS200DSPXH2D board features three I/O connectors, which are an engineering monitor port labeled as P6, a DSP emulator port labeled as P5, and a backplane connector labeled as P1. Each I/O connector has a different function, for example, the P5 port will provide a scan interface to the T1 emulator port which will allow for emulation and FLASH programming.