GE GE □□□ Series Service Manual

IS200DSPXH2CAA

1. Description

IS200DSPXH2CAA Technical Specifications

2. Specifications

Specification	Value
Original	**Manufacturer GE Industrial Systems**
Instruction	**Manual GEI-100267A**
Functional	**Abbreviation DSPX (Digital Signal Processor Control)**
LED	**Quantity 1 Red fault and 1 Green Status**
I/O	**Connectors P1 backplane , P5 DSP emulator, P6 engineering monitor**
Onboard	**Firmware Boot Loader, Application Code, and Config Parameters**
Onboard	**Memory Types FLASH, RAM, NVRAM, Add-only for revision**
Features	**Two (Master or Slave) 5 Mb/s ISBus interfaces**
About	**the IS200DSPXH2CAA**
This	**IS200DSPXH2CAA printed circuit board product offering from esteemed manufacturer General Electric was originally specifically designed for placement in the Mark VI Turbine Control System Series as indicated above in short. This IS200DSPXH2CAA product's Mark VI Series is relatively self-explanatory based off of its full extended Mark product series name at least, as it exists with a set of possible functional applications in the management and control systems of General Electric-compatible gas, steam, and wind turbine automat**

3. Product Information

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Hardware Tips and Specifications

The IS200DSPXH2CAA is a Digital Signal Processor Control Card. It serves various purposes, including being compatible with Innovation Series drives and controlling generator field control functions for the EX2100 exciters. The card is built with an ASIC (application-specific integrated circuit) connected to a high-performance DSP (digital signal processor). The DSPX board incorporates a Digital Signal Processor (DSP) that operates at a frequency of 60 MHz. During normal operation, the DSPX provides four external interrupts to the DSP, serving different purposes:

INT0: Stack overflow detection

INT1: Inner loop load pulse handling

INT2, INT3: Two configurable inputs for specific functions

The IS200DSPXH2CAA features a front faceplate that aids in securely installing the unit within the rack system. This faceplate is equipped with two LED indicators and two of the card's four I/O ports. One LED is green, and the other is red, both serving as indicators for alarm and fault states within the digital signal processor. The front faceplate is marked with the board number and bears General Electric's logo. Among the other components on the board are 16 integrated circuits, several transistors, resistor network arrays, resistors, capacitors, and diodes. Adjacent to the front I/O ports, there is a vertical pin connector, while along the rear edge, there is a backplane connector. The backplane connector features a complex pin configuration that facilitates numerous incoming and outgoing signals.

SPECIFICATIONS:

Part Number: IS200DSPXH2C

Manufacturer: General Electric

Series: Innovation

Product Type: Digital Signal Processor Control Board

Number of channels: 12

Max load Current: 125 V dc

Outputs: 24 V dc

Voltage Range: 14 to 32 V dc

Maximum Lead Resistance: 15 Ω

Outputs: 24 V dc

Mounting: DIN-rail mounting

Technology: Surface mount

Operating temperature: -30 to 65°C

Size: 15.9 cm high x 17.8 cm

Repair: 3-7 Day

Availability: In Stock

Weight: 2 lbs

Country of Origin: United States

Manual: GEI-100267B

FUNCTIONAL DESCRIPTION:

IS200DSPXH2C is a Digital Signal Processor Control Board manufactured and designed by General Electric as part of the EX2100 Series used in GE Drive Control Systems. The IS200DSPX Digital Signal Processor Control Board (DSPX) is the primary controller for the bridge and motor regulator and gating functions for Innovation Series drives. It also controls generator field control functions for the EX2100e Excitation Control. The board provides logic, processing, and interface functions. The DSPX board includes a high-performance digital signal processor (DSP), standard memory components, and an application-specific integrated circuit (ASIC) that performs custom logic functions.

An inner loop load pulse signal captures the values of I/O such as bridge, motor, or generator voltages and current VCOs, tachometer counters, and discrete inputs. It can also synchronize the ISBus channels, the software, and gating outputs to bridges.

At a sub-multiple or multiple of the inner loop load pulse, an application loop load pulse signal is used to capture values of other application VCOs and optionally the tachs.

Stack overflow detection is provided for both the foreground stack (from internal memory) and the background stack (from external SRAM). Interrupt INT0 is generated if either stack

overflows. If both stacks overflow, a hard reset is generated.

A configuration register is provided to allow the stack overflow reset to be disabled. A watchdog timer is enabled and periodically toggled by the DSP (toggle interval is configurable). A time-out of the watchdog timer will generate a hard reset. A 24-bit free running timer is also provided and used as a reference for certain functions.

Five differential (HIFI) pair application inputs may be used as two quadrature incremental tach interfaces (one with marker capability). The signals drive two 16- bit up/down counters. It maintains its present state when the inputs are at the same level, and changes state when the inputs are differentially opposite.

A 5 MHz timer resets each time the counter increments or decrements, and a state register records the direction of the last count. Associated with each of these counters, timers, and registers is a capture register that can be configured to capture the values on the occurrence of either the inner loop load pulse or the application loop load pulse.

The five differential HIFI inputs can be used as application layer VCO counters or single-channel tach interfaces. Five 16-bit counters increment on the differentially decoded and filtered inputs. These counter values are captured into registers the DSP can read by the application loop load pulse.

Six inputs from the backplane are digitally filtered and input to the VCO counters. These are 16-bit counters with capture registers latched by the inner loop load pulse and readable by the DSP. The inputs come from technology-specific I/O cards such as BIC (bridge interface) or exciter interface cards.