GE GE □□□ Series Service Manual

IS200VTURH1BAB

1. Description

IS200VTURH1BAB Technical Specifications

2. Specifications

Specification	Value
Original	**Manufacturer General Electric**
Product	**Series Mark VI Speedtronic**
Functional	**Part Number IS200VTURH1BAB**
Functional	**Acronym VTUR**
Revision	**Quantity 3 Revisions**
Backwards-Compatibility	**1st two revisions**
Mark	**VI Series Grouping Group 1**

3. Product Information

IS200VTURH1BAB Technical Specifications

Original Manufacturer General Electric

Product Series Mark VI Speedtronic

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Revision Quantity 3 Revisions

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About the IS200VTURH1BAB

The IS200VTURH1BAB is a component used within the GE Mark VI Turbine Speedtronic control system series. This system is one of the last gas/steam turbine management systems released by General Electric under the Speedtronic name. It is built with an architecture that allows the system to be designed either as a simplex system or designed as a triple modular redundant (TMR) system. The Mark VI has a connected operator interface (HMI) that lets users access important information from a sole centralized location. The Mark VI Series that this IS200VTURH1BAB product offering belongs to has to be considered an attractive product series on its greater figurative automated industrial marketplace purely given the fact that is is one of Geneal Electric's lastly-developed GE Mark product series to incorporate their patented Speedtronic control system technology across quite the expanse of their product offerings.

Hardware Tips and Specifications

The IS200VTURH1BAB functions as a Primary Turbine Protection card. It performs several functions. This includes measuring turbine speed for primary over speed, controlling three primary over speed trip relays on the TRPx board, monitoring shaft voltage and current-voltage and alarming for these levels if they are excessive. In gas turbines, the IS200VTURH1BAB monitors eight Geiger-Mueller flame detectors. This IS200VTURH1BAB device, while certainly definable as a Primary Turbine Protection Card, must not be considered General Electric's originally-developed product of this specific Mark Series functionality, as that would be the IS200VTURH1 parent Primary Turbine Protection Card noticeably not utilizing this IS200VTURH1BAB product's three significant product revisions. Several LED indicators have been made available on the front side of this IS200VTURH1BAB product for the indication and display-ment of critical diagnostic information including functional fault statuses including potential fatal functional fault statuses. Given the fact that this IS200VTURH1BAB product here has been attributed to a now-discontinued GE Mark series, the IS200VTURH1BAB functional product number can be treated as a decently-strong source of IS200VTURH1BAB Board hardware component and component specification information; indirectly asserting this information through a series of consecutive functional naming segments. For instance, the IS200VTURH1BAB functional product number began with the dual-functioning IS200 series tag asserting this IS200VTURH1BAB PCB's normal Mark VI Series assembly as well as its domestic original location of manufacture. Some of the other relevant hardware information revealed in the IS200VTURH1BAB functional product number includes this product's:

VTUR functional product acronym

Conformal PCB surface coating

Group one Mark VI Series product grouping

Three-fold product revision history

The IS200VTURH1BAB is fronted by a single-slot face plate. This has one cable connector (labeled J5) and three LED indicators mounted on its surface. The board itself has over five dozen integrated circuits on its surface, along with 13 transistors, two backplane connectors, a multi-position plug that allows for the mounting of a daughterboard, and resistors, diodes, and capacitors. The board is marked with a number of codes such as Type 6, 94V-0, and 6BA01. Additional important information regarding installation and configuration of the IS200VTURH1BAB can be found through GE publications like Mark VI manuals and user guides. These publications will include important information like alarm faults, fault codes, and handling recommendations. The single-slot metal sturdy installation faceplate attached in this IS200VTURH1BAB product's normal Mark VI Turbine Control System Series assembly is indicative of this IS200VTURH1BAB product offering's insertion in a greater VME Rack Installation Assembly, as is typical of many Mark VI Series printed circuit boards. This IS200VTURH1BAB device's VME Rack installation strategy additionally ensures that its base printed circuit board has not been permeated at any point through the typical factory-drilled installation holes necessitated by most GE Mark product series offerings.

SPECIFICATIONS:

Part Number: IS200VTURH1BAB

Manufacturer: General Electric

Series: Mark VI

Product Type: Vibration Transducer Interface Module

Board rating: 125 V dc

Common Mode Voltage Range: ±5 V

Dimensions: 11.00 x 9.00 x 3.00

Operating temperature: 0 to 60 °C

No.of Analog Voltage Inputs: 6

Repair: 3-7 Day

Availability: In Stock

Country of Origin: United States

Manual: GEH-6421I

FUNCTIONAL DESCRIPTION:

IS200VTURH1BAB is a Vibration Transducer Interface Module manufactured and designed by General Electric as part of the VI Series used in GE Speedtronic Gas Turbine Control Systems. The system measures turbine speed using four passive pulse rate devices and relays the signal to the controller, which initiates the primary overspeed trip. It enables automatic generator synchronization and manages the closure of the main breaker. Additionally, it monitors induced shaft voltage and current, as well as eight Geiger-Mueller flame detectors used in gas turbine applications. These detectors are linked to the TRPG and operate on a 335 V DC, 0.5 mA supply from an external source.

The controller manages three primary overspeed trip relays located on the TRPG terminal board. When the trip signal is generated, it is transmitted to VTUR and subsequently to

TRPG, triggering the emergency solenoids. Overspeed trips can originate from either VTUR or VPRO. The TRPG unit features nine magnetic relays for interfacing with three trip solenoids, referred to as Electrical Trip Devices (ETD). In Triple Modular Redundant (TMR) systems, nine relays are employed, while simplex systems utilize three.

OPERATION:

In a simplex application, turbine speed can be measured using up to four pulse rate signals. The generator and bus voltages are connected to VTUR for automatic synchronization, working alongside the turbine controller and excitation system. TTUR includes permissive generator synchronizing relays and manages the main breaker relay coil 52G. Shaft voltage is captured with brushes and monitored along with the current to the machine casing.

An interface supports four passive magnetic speed inputs with a frequency range of 2 to 20,000 Hz. With passive pickups on a sixty-tooth wheel, the circuit sensitivity enables the detection of a 2-RPM turning gear speed, allowing for the identification of turbine stoppage (zero speed). If the turbine control includes automatic turning gear engagement, this signal activates the turning gear operation.

PRIMARY TRIP SOLENOID INTERFACE:

The controller calculates the normal primary overspeed trip, which is then transmitted to VTUR and subsequently to the selected primary trip terminal board. TRPx contains relays that interface with the electrical trip devices (ETD) and usually operate alongside an emergency trip board (TREG), forming the primary and emergency interfaces to the ETDs. PTUR can support up to three ETDs powered by each TRPx/TREx combination, with various trip boards available through VTUR.

TRPG is designed for gas turbine applications and works in tandem with TREG for emergency trips. TRPS caters to small and medium steam turbine systems and is managed by the PTUR I/O pack, while TRPL is intended for large steam turbine systems, also controlled by the PTUR I/O pack for emergency scenarios. Additional trip boards are under development for specific applications. To facilitate trip board functionality, VTUR offers several discrete inputs to monitor signals, including trip relay positions, synchronizing relay coil activation, and ETD power status.