GE GE □□□ Series Service Manual

IS200TPROH1BBB

1. Description

SPECIFICATIONS

3. Product Information

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Part No.: IS200TPROH1BBB

Manufacturer: General Electric

Country of Manufacture: United States of America (USA)

Size: 17.8 cm high x 33.02 cm wide

Temperature Operating: -30 to 65 o C

Product Type: Protection Board

Availability: In Stock

Series: Mark VI

Functional Description

IS200TPROH1BBB is a protection board developed by GE. It is a part of Mark VI series. The module serves as a critical element, delivering essential signals such as speed, temperature, generator voltage, and bus voltage to the VPRO. This collaboration forms an independent emergency overspeed and synchronization protection system, ensuring safety and stability. This comprehensive arrangement demonstrates the critical interactions between TPRO and VPRO within the emergency overspeed and synchronization protection system. The integrated functions and control mechanisms ensure prompt and coordinated responses to emergency situations, prioritizing safety and system stability in turbine operations.

System Configuration

VPRO Redundancy: The protection system comprises triple redundant VPRO boards, functioning separately from the primary turbine control system. These VPRO boards manage trip solenoids via TREx (TREG, TREL, or TRES) modules, providing critical control over emergency trip functions.

Input Provision: TPRO serves as the source of inputs to all three VPRO boards, facilitating crucial signal delivery for coordinated emergency functions.

Cabling Configuration

A visual representation in the provided figure illustrates the cabling setup from TPRO to VPRO and TREx terminal boards. This layout showcases the intricate connections ensuring data flow and control signals between these vital modules.

Functions and Trip Solenoid Control

Emergency Trip Function: VPRO operates as the primary entity providing the emergency trip function, playing a pivotal role in safeguarding against potential hazards. It controls up to three trip solenoids connected between TREx and TRPx (TRPG, TRPL, or TRPS) terminal boards.

Turbine Trip Control: TREx and TRPx terminal boards manage the positive and negative sides, respectively, of the 125 V DC supply to trip solenoids. Either board holds the capability to trip the turbine in emergency situations.

Overspeed Protection: VPRO assumes responsibility for emergency overspeed protection and emergency stop functionalities, ensuring prompt responses to critical scenarios.

Control and Relay Management

Relay Control: VPRO exercises control over 12 relays on the TREG board, with nine forming three groups to vote inputs that manage the three trip solenoids. These relays serve as crucial elements in coordinating emergency responses.

Secondary TREG Connectivity: Additionally, a secondary TREG board can be driven from VPRO through J4, further enhancing redundancy and control capabilities in emergency scenarios.

General Electric created the IS200TPROH1BBB protective termination board. This printed circuit board or PCB was developed for the Mark VI series. Mark VI and the other series in the Mark lineup are used to automate and manage all of the processes in industrial gas and steam turbines.

The IS200TPROH1BBB protective termination board is long and rectangular. A wide variety of electronic components from very small to large are featured on the IS200TPROH1BBB. The left edge of the IS200TPROH1BBB is occupied by two (2) very large terminal blocks that are solid black and labeled with white numbers. Each of the terminal blocks contains a collection of silver metallic terminals labeled from one to forty-eight (48). Sitting at the top of the IS200TPROH1BBB is a pair of relays or contactors that are red squares. These relays contain yellow parts on the top. To the left of each of the relays is a MOV or metal oxide varistor that is solid red. Three (3) black variable resistors or potentiometers are grouped together in a vertical line near the upper right corner of the IS200TPROH1BBB. Each of these variable resistors are identified with the letter R. On the bottom of the IS200TPROH1BBB, several small yellow capacitors may be seen. Many of these are paired together near the bottom while others have been placed individually. A line of small silver components is featured on the left half in a vertical row. Many black rectangular parts called diodes have been concentrated mainly at the bottom of the IS200TPROH1BBB.