GE GE □□□ Series Service Manual

IS200TRTDH1CCC

1. Description

SPECIFICATIONS

3. Product Information

SPECIFICATIONS

Part No.: IS200TRTDH1CCC

Manufacturer: General Electric

Country of Manufacture: United States of America (USA)

Number of channels: 8

Span: 0.3532 to 4.054 V

Temperature: -30 to +65 oC

Technology:Surface mount

Product Type: Resistance Temperature Device

Availability: In Stock

Series: Mark VI

Functional Description

IS200TRTDH1CCC is a resistance temperature device developed by GE. It is a part of the Mark VI control system. The Resistance Temperature Device (RTD) terminal board boasts the capability to accommodate up to 16 three-wire RTD inputs efficiently. These inputs are meticulously wired to two barrier-type terminal blocks, ensuring a streamlined and organized connection process. Notably, the terminal board is equipped with advanced noise suppression circuitry, effectively safeguarding the system against surges and high-frequency noise, which could otherwise compromise the accuracy and reliability of temperature measurements.

Features

In the intricate realm of temperature monitoring and control, TRTD plays a pivotal role by establishing communication with one or more I/O processors. These processors play a crucial role in converting the analog RTD inputs into digital temperature values, a fundamental step in ensuring precision and consistency in temperature monitoring applications. The seamless transfer of these digital temperature values to the controller enhances the overall efficiency of the system, allowing for swift and informed decision-making based on accurate temperature data.

It stands out as a simplex board featuring two DC-type connectors designed specifically for VRTD (Voltage Resistance Temperature Device). This specialization enables the TRTDH1C to cater to the unique requirements of applications where VRTD inputs are employed. The inclusion of dedicated connectors enhances the adaptability and versatility of the board, making it a reliable solution for systems that rely on DC-type connections for temperature monitoring.

The RTD terminal board, with its sophisticated design and features, stands as a robust solution for accurate and reliable temperature monitoring in diverse industrial and scientific settings.

The integration of noise suppression circuitry, communication with I/O processors, and the specialized TRTDH1C variant with DC-type connectors collectively contribute to the overall effectiveness and adaptability of the TRTD system in meeting the demands of temperature-sensitive applications.

Number of Channels: Each terminal board of the Expander Load Source Board accommodates an impressive eight channels, providing ample capacity for monitoring and control tasks across multiple parameters within the system.

RTD Types: The board supports various Resistance Temperature Detector (RTD) types, offering flexibility to accommodate different sensing requirements. These include 10, 100, and 200 ohm platinum RTDs, 10 ohm copper RTDs, and 120 ohm nickel RTDs. This diverse range of RTD types ensures compatibility with a wide range of temperature sensing applications, allowing for precise and accurate temperature monitoring across different operating conditions.

Span: The voltage span for RTD measurements ranges from 0.3532 to 4.054 volts, providing a wide dynamic range to accurately capture temperature variations. This broad span ensures that the board can effectively measure temperature changes across different temperature ranges with high resolution and sensitivity.

Maximum Lead Resistance: To maintain measurement accuracy, the board imposes a maximum lead resistance of 15 ohms, which includes both the lead resistance and the two-way cable resistance. This limitation ensures that the impact of resistance in the leads and cables on the RTD measurements is minimized, allowing for precise temperature readings even in situations with significant wiring distances.

Installation

The installation process of the Resistance Temperature Device (RTD) terminal board is a meticulous and well-organized procedure, ensuring the reliable connection of the sixteen RTDs to the system. The heart of this setup lies in the direct wiring of the RTDs to two barrier-type terminal blocks that are strategically mounted on the terminal board.

Each of these terminal blocks is securely fastened to the board using two screws, providing a stable and robust connection. The design of the terminal blocks is such that they are equipped with 24 terminals each, capable of accepting wires of up to #12 AWG (American Wire Gauge). This allows for a versatile range of wire sizes, accommodating the specific requirements of the RTDs being used in the system.

In addition to the precise wiring arrangement, the terminal board incorporates a shield terminal strip adjacent to each terminal block. These shield terminal strips play a crucial role in maintaining a reliable electrical connection and ensuring the integrity of the system's signals. Attached to the chassis ground, the shield terminal strip provides an effective means of grounding, mitigating the risk of electromagnetic interference and enhancing the overall stability of the RTD inputs.

The strategic placement of the shield terminal strip immediately to the left of each terminal block highlights the thoughtful design of the installation layout. This arrangement simplifies the grounding process, creating an efficient and organized system where the shielding and grounding components work seamlessly with the RTD inputs to maintain signal integrity.

Fault Detection

The board features robust fault detection mechanisms to ensure system integrity and reliability. This includes high/low limit checks implemented at the hardware level to detect out-of-range conditions and trigger appropriate responses.

Additionally, high/low limit checks are performed at the software level to provide an additional layer of protection against system abnormalities. Furthermore, the board is equipped to detect failed ID chips, enabling quick identification and resolution of potential issues to maintain uninterrupted system operation. These fault detection capabilities enhance system safety and reliability by promptly identifying and addressing any anomalies or failures that may arise during operation.

IS200TRTDH1CCC is a RTD Terminal Board developed by GE. It is a part of the Mark VI control system.

There are 16 three-wire RTD inputs on the RTD Input (TRTD) terminal board. Two barrier-type terminal blocks are connected to these inputs by wiring.

1.The TRTDH1B is a TMR variant that uses six DC-type connectors to fan out the signals to three VRTD boards.

2.A simplex board called TRTDH1C has two DC-type connectors for VRTD.

3.TRTDH1D is a simplex board with two PRTD, normal scan DC-type connections.

4.The TRTDH2D is a simplex board with two PRTD, quick-scan DC-type connectors.