GE GE □□□ Series Service Manual

IS200EROCH1ABB

1. Description

SPECIFICATIONS

3. Product Information

SPECIFICATIONS

Part No.: IS200EROCH1ABB

Manufacturer: General Electric

Country of Manufacture: United States of America (USA)

Technology: Surface-mount

Temperature Operating: -30 to 65oC

Product Type: Exciter Regulator Options Card

Availability: In Stock

Series: EX2100

Functional Description

IS200EROCH1ABB is an Exciter Regulator Options Card developed by GE. It is a part of EX2100 control system. Exciter Regulator Options Card provides essential support for regulator functions in both simplex and redundant configurations. Mounted in a single slot of the Exciter Regulator Backplane and Exciter Regulator Redundant Backplane.

Features

Board Identification and Power Indicator: Equipped with a board identification (ID) device that interfaces with the M1 or M2 control associated with the specific backplane slot. This ID device includes a barcode serial number, board type, and hardware revision for efficient tracking and identification. A green LED on the EROC faceplate serves as a power indicator, illuminating when power is applied.

Key Functions: Encompasses critical functions such as supporting GE and third-party ground detectors, facilitating keypad interface, and tool interface, and providing terminal board power connection. Specific functions tailored for redundant applications are detailed separately in the relevant section.

Keypad Interface: It includes a keypad connector on the faceplate and another on the backplane (ERBP simplex and ERRB redundant). These connectors support the transmission of keypad data and accommodate bezel-mounted keypads. The EROC utilizes RS-232C (1200 to 38.4 K baud) for communication with the keypad connectors.

Tool Interface: The tool connector faceplate serves as the interface between an external computer and the IS200DSPX Digital Signal Processor Control board (DSPX). Using a 9-pin plug connector, the tool connector supports M1/M2 communication through RS-232C (1200 to 38.4 K baud). Ground loop isolation for the tool connector is ensured by the integrated DC converter.

ECTB Connector: The connector on the EROC provides positive 70 V DC power to the contact output section of the IS200ECTB Exciter Contact Terminal board (ECTB), facilitating seamless power distribution within the system.

Keypad Connector

The keypad connector on the EROC faceplate is a critical interface that facilitates communication with external keypads, playing a crucial role in the overall functionality of the EX2100 regulator control system. Positioned for accessibility on the faceplate, this 8-pin circular DIN connector adheres to a specific pin assignment to ensure proper signaling and data transmission. Below is an elaboration of the pin signals associated with the keypad connector:

KPP24 (Pin 1): This signal, designated as KPP24, serves as a connection point for the positive 24 V power supply associated with the keypad. It provides the necessary power to the keypad for its operation.

KPTX232 (Pin 2): The KPTX232 signal, associated with Pin 2, functions as the transmit line for RS-232C communication. It carries data from the keypad to the EROC, facilitating the transmission of information.

KPRX232 (Pin 3): Pin 3 corresponds to the KPRX232 signal, serving as the receive line for RS-232C communication. This line receives data from the EROC, allowing the keypad to receive instructions or information from the regulator control system.

KPCOM (Pins 4, 5, 6): Three pins, Pins 4, 5, and 6, are designated as KPCOM, representing the common ground connection for the keypad. These pins ensure a stable reference point for electrical potential, contributing to the reliability of the keypad interface.

KPP24 (Pin 7): Similar to Pin 1, Pin 7 also carries the KPP24 signal, providing an additional connection point for the positive 24 V power supply to the keypad. This redundancy ensures a consistent power source for the keypad.

KPRTS232 (Pin 8): Pin 8 is associated with the KPRTS232 signal, which serves as the Request to Send (RTS) line for RS-232C communication. It plays a role in controlling the flow of data between the EROC and the connected keypad.

ISBus Simplex to Redundant Rack Interface

The ISBus Simplex to Redundant Rack Interface, facilitated by the EROC ISBus connectors, plays a crucial role in interfacing functionality between the M1 (ERBP) and M2/C (ERRB) sections in simplex and redundant rack configurations. Here's a detailed expansion of its operation:

Interface Functionality: The EROC ISBus connectors enable the transmission and reception of signals between the M1 (ERBP) and M2/C (ERRB) sections. These connectors utilize transceivers compliant with the RS-422 standard, while the EROC itself operates with RS-485, which encompasses RS-422 as a subset.

EROC Functionality in ERRB (M2/C): Within the ERRB (M2/C) section, the EROC provides comprehensive ISBus signal functionality between the M2 and C sections. Both M2 and C sections are capable of transmitting and receiving signals for both system and local channels.

Signal Routing and Transmission: Signals from M2 to C and vice versa are routed through the backplane connectors, traversing from the transmitting DSPX to the EROC. Within the EROC, these signals are buffered and then transmitted to the respective receiving DSPX, ensuring seamless communication between the M2 and C sections. Channel Coupling and Signal Integrity: Notably, the channels between M2 and C within ERRB are not transformer coupled, indicating a direct signal transmission pathway. This direct coupling mechanism enhances signal integrity and reduces signal distortion, thereby optimizing communication reliability between the M2 and C sections.