GE GE □□□ Series Service Manual

IS215ACLEH1B

1. Description

SPECIFICATIONS:

2. Specifications

Specification	Value
Model	**Number IS215ACLEH1B**
Functional	**Acronym/Abbreviation ACLE**
Series	**EX2100 Excitation Controller**
Group	**and Functional Revision H1B**
Potential	**Added Component PROM**
Hardware	**Features LEDs, CPU, and PCI Controller**
Software	**Feature Basic Input/Output System**
Cache	**Level Level 2, 128 KB**
Weight	**1lbs 4oz**
Shipping	**Dimensions 18x12x12 inches**
Country	**of Origin United States (USA)**
About	**the IS215ACLEH1B**
This	**IS215ACLEH1B modular assembly product offering from General Electric was originally designed and manufactured specifically with the EX2100 or EX2100E Excitation Control System Series in mind. A member of the EX2100 series, this IS215ACLEH1B product offering seems to have been customized to meet the various installation demands of General Electric's standard VME Rack Mounting Structure, as its special style of assembly makes use of a metal installation faceplate meant for this structure alone. This IS215ACLEH1B device is actually not the original Application Control Layer Module manufactured f**

3. Product Information

SPECIFICATIONS:

Part Number: IS215ACLEH1B

Manufacturer: General Electric

Series: Mark VI

Function: Application Control Layer Module

Input Voltage: 125 V dc

Output Voltage: 24 V dc

Operating temperature: -30 to +65oC

Mounting: DIN-rail

Board Size: 23.495 cm high x 10.795 cm

Model Type: Safety I/O Pack

Repair: 3-5 Days

Availability: In Stock

Country of Manufacture: United States (USA)

FUNCTIONAL DESCRIPTION:

IS215ACLEH1B is an Application Control Layer Module manufactured and designed by General Electric as part of the Mark VI Series used in GE Speedtronic Gas Turbine Control Systems. The application Control Layer Module would serve as a crucial component responsible for overseeing and managing various applications related to the control and operation of turbines. This layer plays a pivotal role in ensuring the efficient, safe, and coordinated functioning of the entire turbine system. Here are some specific aspects of the Application Control Layer Module in a turbine control system:

Turbine Control Logic: Implementing and managing the control logic that governs the operation of the turbine. This includes regulating parameters such as speed, load, and temperature to optimize performance.

Safety Protocols: Enforcing safety measures and protocols to prevent potential hazards or damage. This may involve emergency shutdown procedures, fault detection, and response mechanisms.

Communication Interfaces: Providing interfaces for communication between different components of the turbine control system. This includes interactions with sensors, actuators, and other control modules.

Fault Detection and Diagnostics: Monitoring the turbine system for any faults or anomalies and implementing diagnostic tools to identify the root causes of issues for quick resolution.

Coordination of Subsystems: Coordinating the activities of various subsystems within the turbine, such as fuel management, speed control, and temperature regulation, to ensure seamless operation.

Load Balancing: Optimizing the distribution of load among multiple turbines if the system involves a multi-turbine setup. This helps in maximizing overall efficiency and preventing overloads on individual turbines.

Remote Monitoring and Control: Facilitating remote monitoring and control capabilities, allowing operators to oversee and adjust turbine parameters from a centralized location.

Data Logging and Reporting: Recording operational data, events, and performance metrics for analysis, maintenance, and compliance purposes. Generating reports on turbine performance and system health.

Cybersecurity Measures: Implement security measures to safeguard the turbine control system from unauthorized access, data breaches, and cyber threats.

Integration with SCADA Systems: Collaborating with Supervisory Control and Data Acquisition (SCADA) systems to provide a comprehensive view of the entire power generation process and enable efficient decision-making.

IS215ACLEH1B Technical Specifications

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Functional Acronym/Abbreviation ACLE

Series EX2100 Excitation Controller

Group and Functional Revision H1B

Potential Added Component PROM

Hardware Features LEDs, CPU, and PCI Controller

Software Feature Basic Input/Output System

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Hardware Tips and Specifications

The IS215ACLEH1B model is part of the EX2100e series as an Application Control Layer Module and will typically be a microprocessor-based controller. The primary use of this board is to perform several different duties over communication networks such as ISBus and Ethernet. When the board has been mounted it will occupy two half-slots in the EX2100 exciter board rack or Innovation Series drive. As a standard General Electric EX2100 or EX2100E Series product, this IS215ACLEH1B device's voltage suppression and limitation strategy involves its special modular assembly's acceptance of a unique series of series-standardized hardware components including but not limited to various styles of EX2100 Series

capacitors, resistors, transistors, diodes, and finally specialized integrated circuits or ICs. The ACLE board will also be located within the control cabinet. There are a number of different software features which include but are not limited to the following:

I/O points and Internal Booleans forcing

Application control for Innovation Series drives

Non-volatile flash memory

Online application configuration loading

Control block

The IS215ACLEH1B board uses an Ethernet connection that uses IRQ 5 initialized by the BIOS function on the board. The Ethernet connection on the ACLE board is a 10baseT or RJ45 jack which is located on the front panel of the ACL board. As a microprocessor-based control, the board has a peripheral component interconnect (PCI) controller that will manage the different inputs and outputs, configuration transfers to and from the PCI bus as well as manage a variety of memory functions. The IS215ACLEH1B model also has a 128 KB L2 Cache which is used with and controlled by the PCI controller, this cache is set at a 152 NC cache line which will fill the line between the L1 and L2 cache. Another feature of the ACLE board is a flash memory device, this memory device is located on the local bus side of the target interface and is known as Device 1, the device can only be accessed in byte mode.

Given the low general availability of this IS215ACLEH1B device's originally-printed instructional manual materials online, the IS215ACLEH1B functional product number can actually serve as a decently-strong source of IS215ACLEH1B Board hardware component and component specification information. The IS215ACLEH1B functional product number indirectly codes for a number of relevant hardware details in a selection of GE-made functional naming chunks, beginning with the initial dual-functional IS215 chunks delegating this IS215ACLEH1B device's domestic manufacture location along with its special modular EX2100 Series assembly. Some of the other relevant hardare details in the IS215ACLEH1B functional product number include this IS215ACLEH1B Board's ACLE functional product acronym, its group one EX2100 Series product grouping, its conformal PCB coating, and finally its B-rated primary functional product revision.