IS200EXHSG3AEC

EX2100 High-Speed Relay Driver Board

BRAND	GE Vernova
DOCUMENT SCOPE	Selected OEM-authored product-family reference
IDENTIFICATION	Use the exact ordering reference IS200EXHSG3AEC for nameplate comparison.
REPLACEMENT CHECK	Confirm hardware revision, firmware, rack or cabinet position, terminal assignments and field wiring.
APPLICATION NOTE	EX2100 High-Speed Relay Driver Board for installed industrial automation and control-system service.
SOURCE	https://www.gevernova.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/resources/refe

USE NOTE

This concise Apter Power edition preserves searchable text and selected technical context. Confirm the installed nameplate and the latest OEM documentation before replacement.

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FACTSHEET

GENERATOR CONTROL MIGRATIONS WITH THE EX2100E

For decades, GE Vernova has successfully delivered controls and excitation modernizations for heavy duty and aeroderivative gas, industiral and large steam, and hydro powered turbine-generators. Today, many legacy systems are limited by the technology of their era and require an upgrade to deliver generator operability and availability improvements.

The GE Vernova's controls team members are experts in excitation modernizations and the application of the EX2100e control platform across virtually any application, from fully engineered and installed system replacements to "controls only" retrofits.

The GE Vernova has developed a line of digital front end (DFE) solutions which enable customers with legacy GE excitation systems as well as non-GE systems to upgrade to the fully digital EX2100e platform. A control migration significantly reduces installation cost and required outage length through retention of field devices, field wiring, and cabinet terminations.

EX2000 static exciter with EX2100e Controls Migration.

Benefits of EX2100e Technology

Improved performance – through a precise control and protection system that maintains unit stability and enhances operational flexibility.

Increased operational productivity – user-friendly HMI graphics, alarm/event management, and trending leading to improved operator recognition and resolution of system faults. Enhanced data capture and analysis tools support regulatory requirements.

Improved flexibility – wide range of configurations for mixed generator fleets with redundancy options to fit application and budget demands.

Improved reliability – available TMR controller redundancy provides 2-out-of-3 voting to improve reliability and eliminate single-point communication failures within the control.

Intuitive features – powerful ToolboxST software, with modern drag-and-drop type editors, industry leading trender with video type forward-reverse-freeze capability, and code-compare tools.

Comprehensive software libraries – drawing upon years of OEM experience to ensure safety-related software updates are delivered as well as built-in generator simulator for training.

Maintenance efficiency improvements – a simplified architecture that shares technology with turbine and plant controls for improved lifecycle management support and reduced obsolescence.

I/O expandability – flexible and modular architecture allows for future growth of capabilities and applications.

Additional capabilities available

Additional options are available with the EX2100e DFE migration, including a power system stabilizer to meet system grid connect requirements. Other added features and protective functions include:

- Autotracking regulators
- PT failure throw-over
- Temperature biasing
- Volts per hertz limit
- Over excitation limit
- Under reactive ampere limit
- Under excitation limit

Software

The ControlST software suite is comprised of several high performance tools for ease of use by operators and maintenance personnel. These include the WorkstationST* software for management of HMI and Historian functions, the ToolboxST application for configuration and diagnostics, and a CIMPLICITY graphics user interface. Seamless integration provides direct connectivity from parameters on operator screens to their corresponding alarm history, trends, logic diagrams, watch windows, and browsers.

Software tools include system diagrams with signal flow, sequencing, and regulator control within the excitation control. The diagrams display variables and their values in engineering units and in real time. Parameters shown in the diagrams can be modified.

The flexible communication architecture enables connectivity to other plant control systems through standard protocols and interfaces.

Cybersecurity

Upgrading to GE Vernova's suite of security products allows you to take advantage of our comprehensive cybersecurity solutions, helping reduce your risk and ensure maximum uptime. With over 10 years of industrial network protection experience and hundreds of installations worldwide, our cybersecurity solutions provide defense-in-depth protection and have undergone strict cybersecurity best practices demonstrating to customers that systems are developed and implemented securely. The SecurityST platform and GE Vernova's Validated Patching Program are designed to support the plant operation's compliance to cybersecurity standards and guidelines including NERC CIP, NEI 08-09 and ISA99/IEC 62443.

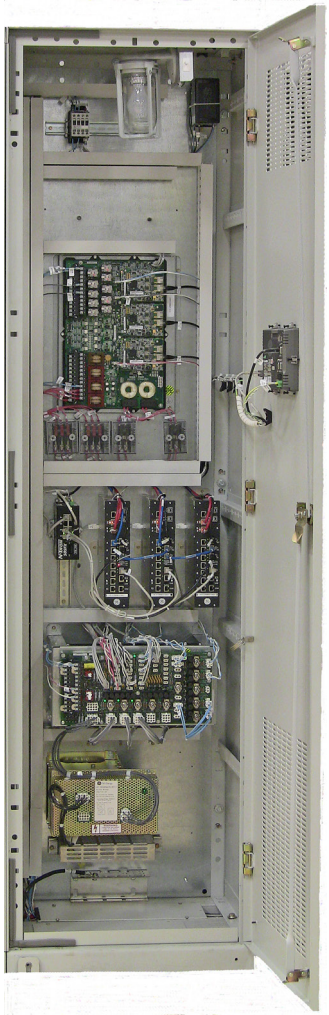
Life Cycle Support

GE Vernova offers System Service Agreements (SSAs) and Multi-Year Agreements (MYAs) designed to reduce the risk and cost of maintaining your system. Subscribers benefit from our expertise and a true partnership in the maintenance and servicing of control systems. Service Agreement costs are predictable, simplifying annual maintenance budgets, and provide a proactive approach to maintenance that reduces the risk of forced outages.

Dedicated Excitation Retrofit Experts

GE Vernova provides a full range of services and support capabilities for the EX2100e excitation systems:

- Hardware, software and integration engineering
- Application expertise to support custom solutions
- Installation design and documentation packages
- Single point system responsibility – PPT, cable, bus, networks, enclosures
- Comprehensive PSS and Modeling services and documentation
- Project management, installation and commissioning services
- Nuclear grade retrofit packages and DCN support



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GEA35384 (11/2023)