LINEAGE POWER

GALAXY SC Controller

Capable of controlling and monitoring as many as 64 rectifiers, the GALAXY SC Controller simplifies the administration and surveillance associated with power plants and auxiliary equipment.

Designed to simplify plant administrative and surveillance routines as well as reduce operating, provisioning, and personnel expenses, GALAXY SC is an advanced controller designed to meet the needs of telecom power systems into the 21st century.

The modular hardware features of the GALAXY SC can be economically configured for central office requirements through a menu-based, front-panel display or through EasyView, a Microsoft Windows*-based configuration and reporting software program that runs on a personal computer.

GALAXY SC can control and monitor up to 64 switchmode and ferroresonant rectifiers. In addition, the controller offers extensive monitoring using small input and output modules designed for shunt, binary, temperature, and voltage monitoring, as well as relay control.
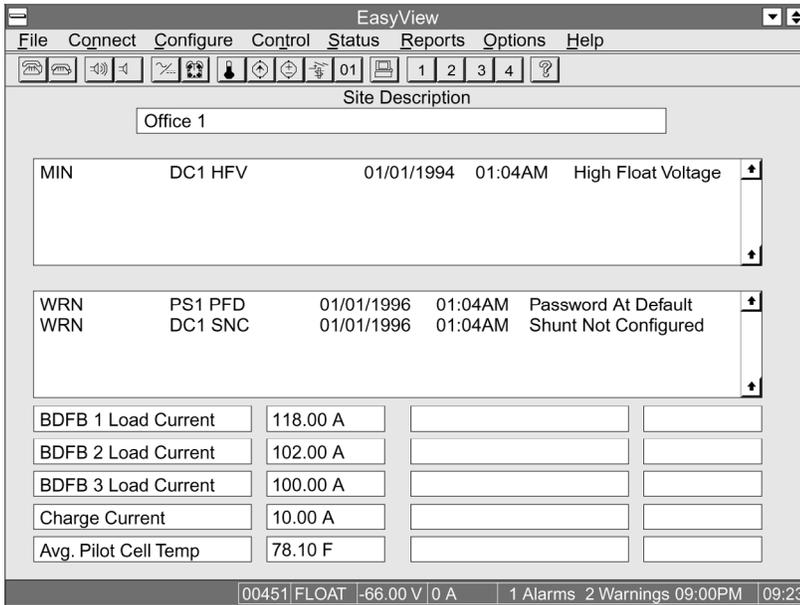
Applications

- Designed to fit in the J85500A-2 bay for remote control and monitoring of medium and large communication center equipment, including:
  - Power plants
  - Battery strings
  - Emergency generators
  - AC supply cabinets
  - Auxiliary plants
  - Environmental conditions

Benefits

- Easy, User-Friendly Installation and Configuration

  Use the push-button, menu-driven front panel for basic programming functions or EasyView for more advanced programming.
  - Integrated plant and rectifier control capabilities require minimal setup.
  - EasyView point-and-click interface simplifies configuring and controlling GALAXY SC and gives easy access to reports.
  - ANSI-standard T1.317 interface provides for command-line access.

- Efficient Physical Design
  - Controller and monitoring system are integrated in a single chassis designed to fit into the initial battery plant bay allowing space for growth of other components.
  - GALAXY SC's local area network for the peripheral monitoring modules minimizes cable length and congestion as the cables are brought into the controller.

* Microsoft and Windows are registered trademarks of Microsoft Corporation.

EasyView is GALAXY SC's easy-to-use, Windows interface for configuration, control, and report access. The main window displays active alarms, warnings, and instantaneous values for plant voltage, current, and selected monitoring channels.

- Designed for Optimal Flexibility and Growth

  Hardware and software are designed for flexibility and modular growth as plant control and monitoring requirements change over time.

  For example, the GALAXY SC Controller offers:
  - Independent controller for basic operations and optional intelligent controller for advanced operations
  - Control for Lineage Power's switchmode rectifiers (SR Series), ferroresonant rectifiers, and other rectifiers of various technologies, vintages, and suppliers
  - Connectorized backplane modules, including rectifier, monitoring, and modem interfaces
  - Configuration control through hardware DIP switches and software options
  - Small peripheral monitoring modules
  - User-configurable alarm levels and notification

- Controller Redundancy

  GALAXY SC features control redundancy that functions as three controllers in one:
  - Independent controller provides the basic operation
  - Intelligent controller provides the more sophisticated features
  - Hardwired backup High-Voltage Shutdown (HVSD) system provides minimum control in the event of multiple microprocessor failures or a high voltage condition on the plant bus

- Controller Security

  GALAXY SC performs the following functions to provide secure and reliable control of power plants:
  - Provides multiple password-protected security levels
  - Provides a callback security option
  - Provides hardware DIP switches to enable and disable critical plant functions
  - Stores basic alarm configuration data in nonvolatile memory
  - Stores high-level configuration and history data in RAM with battery backup

- Remote Access

  GALAXY SC offers two remote access options:
  - ANSI T1.317 command-line interface accessible through a computer terminal
  - EasyView software running on a personal computer

  Following are some examples of the remote access functions:
  - Obtains plant statistics to assist in troubleshooting and restoring failed equipment
  - Controls the power plant, including turning on/off rectifiers, clearing latched events, performing alarm cut-off, etc.
  - Upgrades the Intelligent Controller through the command-line interface as new releases of GALAXY SC software become available

The front panel provides a backlit LCD display with an easy-to-use push-button, menu-driven interface. The panel can be used to program basic functions and access real-time data, history, statistics, and measured values.

- Peripheral Monitoring and Control

  - The Intelligent Controller can monitor and control up to 1530 points using small peripheral modules designed for shunt, binary, temperature, and voltage monitoring, as well as relay control. The devices can be placed throughout the plant or monitoring area and connected to the controller via one, two, or three twisted-pair cables. The unique design reduces installation costs and cable congestion at the controller.

  - With GALAXY SC's flexible monitoring and control architecture, modules can be added as needed. Each relay output module has three form-C relay contacts. Each binary or analog input

  - module has six monitored channels of a specific type plus one temperature channel.

  - Several analog modules are available to optimize typical monitoring points, including shunts, battery cells, and battery strings:

    -100 mVdc to +150 mVdc
    0 Vdc to 3 Vdc
    0 Vdc to 16 Vdc
    0 Vdc to 70 Vdc
    0 Vdc to 200 Vdc

  - There is also another module, 0 mVdc to 100 mVdc, designed specifically to interface with transducers.

  - The monitoring modules can be mounted in the frame with GALAXY SC, or they can be placed near the measurement point. The actual number of modules supported depends on their distances from the GALAXY SC.

  - In addition, to provide prepackaged, easy-to install solutions for ac voltage, current, and frequency-monitoring applications, a family of transducer interface units designed specifically for and tested with the GALAXY SC Controller is available.

- Derived Channels

  Thirty-two derived channels further enhance the benefits of the GALAXY SC's plant and remote monitoring capabilities. The derived channels enable arithmetic and boolean operations to be performed on measured values. For example, the average battery temperature can be calculated from individual battery cell readings, or power output can be calculated from the plant voltage and current readings.

Battery Reserve Time Prediction

Accurate battery reserve time is calculated using a number of variables, including plant voltage and load, battery type and temperature, and the number of battery strings and cells per string.

- Extensive Plant and Monitoring Statistics

  To plan preventive or corrective maintenance before serious problems occur, GALAXY SC provides real-time data. Historical statistics are available to help analyze critical performance parameters, including plant voltage and current, monitoring point values, and battery reserve time.

Energy Management

In the event of low plant loads, selected rectifiers are automatically shut down, thereby maintaining maximum battery plant efficiency without sacrificing reliability or creating nuisance alarms.

GALAXY SC provides peripheral monitoring and control through a local area network of small modules, which can be added as needed and mounted in the frame with the or placed near the measurement or control point.

Features

Independent Controller

- Menu-based control panel with an eight-line by 40-character illuminated display
- 12 LEDs to display plant and alarm status
- Monitoring of plant shunts
- Monitoring and control of 64 rectifiers
- Configuration stored in nonvolatile memory
- Hardwired backup High-Voltage Shutdown (HVSD) circuit
- Traditional office alarm interface with 16 relays
- Automatic rectifier restart
- Reserve engine transfer
- Multiple rectifier fail alarm
- Interface to Lineage Power Battery Thermal Protection Module (210A)
- Alarm cut-off
- Alarm test
- Float/boost mode control

Intelligent Controller

- Callback security
- Multiple password-protected security levels: user, superuser, administrator
- Multiple-level alarm severity: critical, major, minor, warning, record-only
- Customized alarms
- EasyView, Windows-based software for configuration and reporting
- ANSI T1.317 serial access
- RS-232 port for local terminal access or event log printing
- RS-232/485 port for remote access (TL1/X.25)
- Remote and local software upgrade
- Remote and local backup and restore of configuration data
- Configuration and history stored in RAM with battery backup
- TL1 support
- Energy management
- Maintenance reminders
- Remote plant control
- Remote rectifier (on/off) control
- Automatic rectifier sequence control
- Derived channels
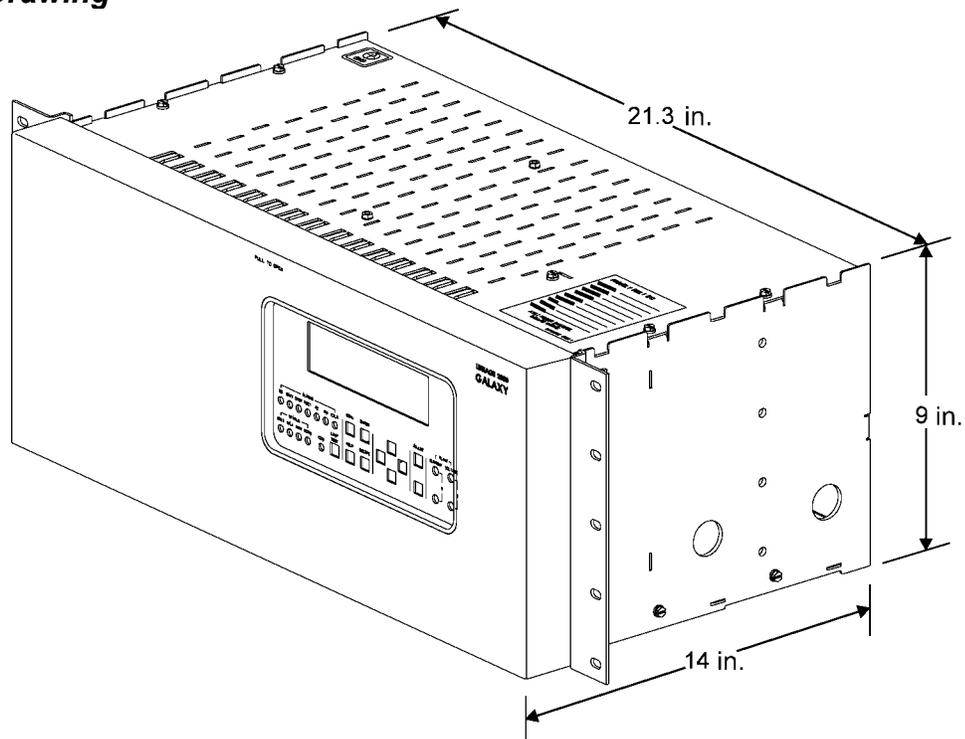- Inventory management

Intelligent Controller Options

- Monitoring and control of up to 1530 points
- Reserve-time prediction for the following Lineage Power Batteries (can be extended to support other batteries): List 1S Round Cells, List 508 and 508P, 12IR125, 4VR125, 2VR375, IR30/IR30C, IR40/IR40C
- 14,400 bps modem
- Data switch to store and forward ASCII alarm messages from other devices

Specifications

Electrical and Thermal	
Operating Voltage	+24 Vdc, –48 Vdc
Input Power	25 W—100 W (depending on options)
Temperature	0 °C to 50 °C (32 °F to 122 °F)
Physical	
Dimensions (Width x Depth x Height)	21.3
Weight	30
Display	8-line
Frame Mounting Requirements	Standard
Safety / Standards Compliance	
Electrostatic Discharge	IEC 801-2 level 2, 4, 5
Radiated and Conducted Emissions	FCC Class A, CISPR 22 level A
Safety	UL*-Listed

*UL is a registered trademark of Underwriters Laboratories, Inc.

Outline Drawing

21.3 in.

9 in.

14 in.

GALAXY SC Controller, Model J85501F-1

DS03-026 Rev 4