GE
Industrial Solutions

GPS 4830 Power System

-48V DC Large Power Plant in Distributed Architecture

Overview

The GPS4830 combines the efficiency benefits of the new high efficiency GP100 rectifier with the time tested cabinet design and distribution found in the GPS4848. Utilizing the 1RU GP100 48v rectifiers a fully equipped bay equipped with 12 rectifier shelves allows for as much as 2640A of rectifier Capacity and 44 inches of vertical space for installation of distribution panels.

Bay Options

The 4830 system can be deployed with capacity of up to 2640 amps in a single cabinet or expanded over multiple cabinets. It is Designed for either internal input AC breakers or terminal strip AC input. Rectifier AC terminations can be collected in pairs to reduce input AC circuit breakers by 50%. rectifier shelves can be spread across multiple bays or concentrated to a single bay. For greater flexibility and working space, the 4830 may be combined with a larger 36 inch wide distribution bay to accommodate large cable termination and egress.

GP100 Rectifier

The GPS4830 utilizes the highly efficient (96.5%) GP100 rectifer with 380/480VAC input and 48VDC 110A nominal output

Galaxy Millennium II & Pulsar Plus Controllers

The Galaxy Millennium II controller combines sophisticated power monitoring and remote management. This flagship controller simplifies operations and maintenance while lowering administrative costs supporting up to 72 rectifiers. Remote peripheral modules can support over 500 monitoring points for GE Critical Power or third party devices. Ethernet, SNMP, Modbus RTU, and TL1 provide integration with power engineering and NOC workflow.

As an economical alternative, the GPS4830 can be equipped with the Pulsar Controller. It is designed to monitor and control system components including rectifiers, and distribution modules via a multi-drop RS485 digital communications bus. System status, parameters settings and alarm thresholds can be viewed and configured from the controller's front panel or local/remote PC interface. Pulsar Plus option is only available with single bay systems that do not have contactors or require rpms.

Advantages

- GP100 Rectifier
- Up to 2640A Capacity Per Bay w/110A Rectifiers
- System Capacity of 7920A
- Galaxy Pulsar Plus or Galaxy Millennium II Controller Options
- 408VAC 3-phase input

GP100 Rectifiers

- Compact - 1RU x 2 across form factor providing high power density of 27 watts/in3
- Plug and Play with automatic ID - installation of the rectifier in a shelf connected to a compatible system controller initializes all set up parameters and IDs shelf position automatically. No adjustments are needed. Product identifications, serial numbers and software versions are provided in the embedded inventory report page.
- Extended service life – parallel operation with automatic digital load sharing ensures that parallel units are not unduly stressed even when a unit fails or is removed.
- Monitoring / control – the built in microprocessor controls and monitors all critical rectifier functions and communicates with the system controller using the built in Galaxy Protocol serial interface.
- Fail safe performance – hot insertion capabilities allow for rectifier replacement without system shutdown; soft start and inrush current protection prevent nuisance tripping of upstream breakers. Equipped with true 48V back-bias, full communications are retained when AC is removed.

Applications

- Telecommunications Networks
- Digital Subscriber Line (DSL)
- Indoor/Outdoor Wireless
- Routers/Switches
- Fiber in the Loop
- Transmission
- Data Networks
- PBX

Key Features

- Developed for Extended temperature range
- Redundant fan cooling
- 1U height, hi power density
- Front panel LED indicators
- Wide range AC input
- 48V back bias
- Hot pluggable
- Digital load sharing over robust
- RS485 communications
- RoHS compliant

Specifications

INPUT	
Voltage Range	320-530Vac
Input Current	10A @ 380Vac 3p 8A @ 480Vac 3P
Input Frequency	47 – 66Hz
Power Factor	0.995 at>50% load
Efficiency	96.5%
Total Harmonic Distortion	<5% @loads over 50%

OUTPUT	
Voltage Adjust Range	42-58Vdc
Voltage Nominal	54.5V
Regulation (With Controller)	±0.05% typical
Ripple	250mVrms
Output Current	110A
Heat Dissipation @ Max Out 1	217 W/740 btu @ max out
Power Density	27 Watts/In3

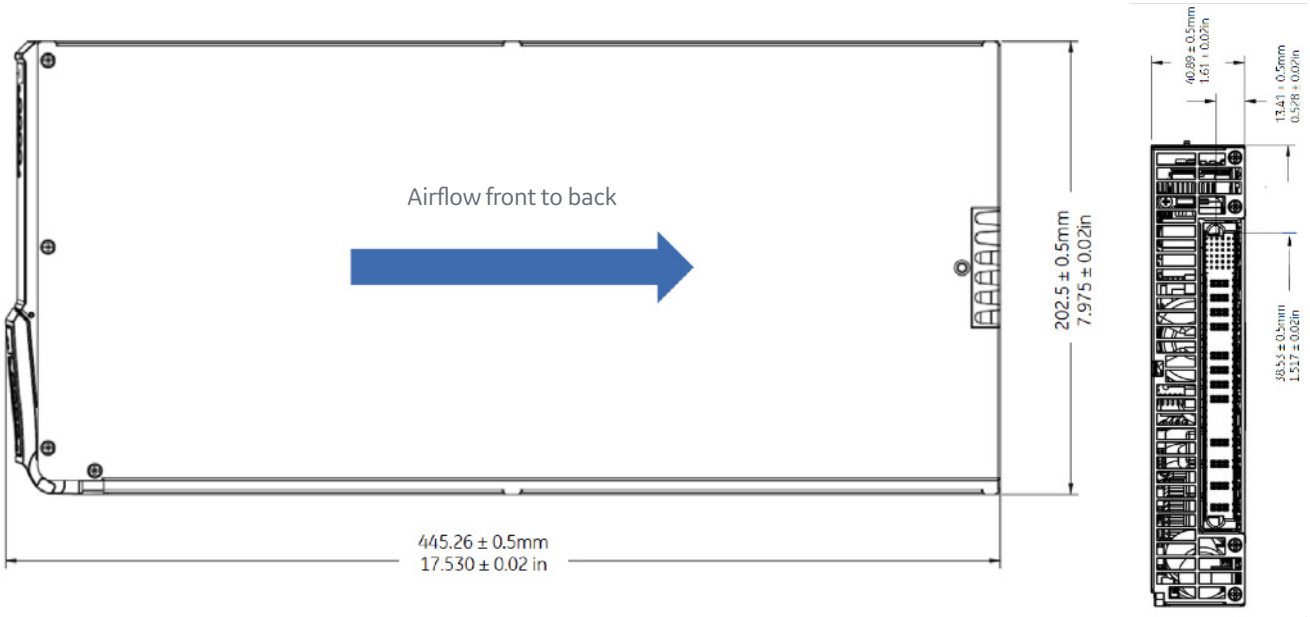
Specifications (Cont.)

ENVIRONMENTAL	
Operating Temperature	-40°C to +75°C (-40 to 167°F)
Storage Temperature	-40°C to +85°C (-40 to 185°F)
Humidity	< 95% non-condensing
Altitude	

MECHANICAL	
Length (inch/mm)	17.36/441
Width (inch/mm)	7.97 / 202
Height (inch/mm)	1.61 / 41
Weight (lb/Kg)	9.85 / 4.5

SAFETY AND STANDARDS COMPLIANCE	
Safety	CE Mark to Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/E (Rectifiers only) UL 60950-1, 2nd Ed. Recognized CSA C22.2 No. 60950-1-07, 2nd Ed. + A1:2001 (MOD)
RoHS	Compliant to RoHS EU Directive 2002/95/EC; RoHS 6/6
EMC	European Directive 2004/108/EC; EN55022, Class A; EN55024; FCC, Class A; GR1089-CORE
ESD	EN61000-4-2, Level 4

OUTLINE DRAWINGS



Cabinet Specifications

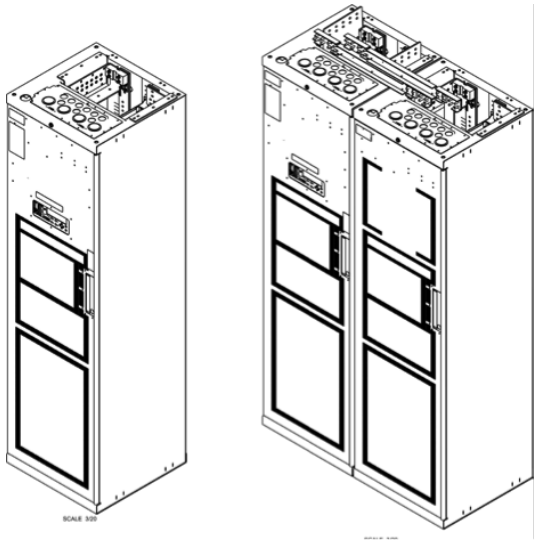
MECHANICAL	
Height	84.0 inches (2,134mm)
Weight	23.6 inches (600mm)
Depth	23.6 inches (600mm)

THERMAL	
12 Rectifiers	2604W (8880 BTU/hr)
24 Rectifiers	5208W (17760 BTU/hr)

ENVIRONMENTAL	
Operating Temperature Range	0°C to +43°C (32°F to 113°F)
Operating Relative Humidity	< 95% non-condensing
Storage Temperature Range	-40°C to +85°C (-40 to 185°F)
EMC	FCC and CISPR22 (EN55022) Class A
Immunity	GR1089, EN55024

AGENCY CERTIFICATIONS	
UL	Canada/US UL60950/UL1801
EMI/EMC	CISPR class A conducted and radiated

OUTLINE DRAWINGS



Single and Multiple Bay Configurations

Controller Options

Galaxy Millennium* II Controller

Galaxy Millennium II is our flagship controller designed to meet the needs of the most advanced power systems. Building on the Galaxy Millennium platform, the Galaxy Millennium II delivers state-of-the art performance by combining sophisticated control, monitoring, and remote network access previously on three separate circuit packs into a single integrated unit. The controller has been designed to simplify plant administrative and surveillance routines as well as reduce operating, provisioning, and personnel expenses. Configuration of the Galaxy Millennium II can be performed via menu based front panel display, a local terminal or remote modem using EasyView2, or through a local or remote network connection utilizing standard web browsers or network protocols. In addition to its standard integrated monitoring capabilities, this controller offers extensive external monitoring using bay interface cards (BICs), distribution control cards, and remote peripheral monitoring modules (RPMs) designed for various inputs and transducers. Additional external relay contacts are also available. The Galaxy Millennium II, with integrated network access, allows for advanced network supervision using standard network management protocols and available network management software. The GE Energy Galaxy Manager network management software can be used to meet power system engineering, operations and maintenance needs. Via the World Wide Web, users gain access to live data and information logged into Galaxy Manager's centralized server from each monitored system controller across the power network.

Applications

- Infinity NE-M
- CPS6000-M2
- GPS 4848/100
- GPS4830
- GPS 4812/24
- GPS 2424
- Galaxy Vector Controller upgrades
- Stand-alone monitoring apps
- Galaxy Millenium upgrades and replacements

Key Features

- Integrated 10/100Base-T Ethernet Network capability
  - TCP/IP (IPv6 and IPv4 compatible)
  - SNMP (V3, V2c, V1) for management - SMTP for email
  - Telnet/SSH for command line interface
  - TL-1
  - DHCP for network plug-n-play
  - FTP/SFTP for rapid backup and upgrades
  - HTTP/HTTPs for standard web pages and browsers
  - Compatible with Galaxy Manager and other standard network management packages
  - Standard shielded RJ-45 interface referenced to chassis ground
- MODBUS Communications Protocol
- Optional Dataswitch
  - Connections to 3 standard RS-232 devices for pass-through and alarm management
  - BSN extension to provide 3 additional
- Configurable RS-232/485 port for remote via TL1/X.25
- EasyView2, Windows-based software, for configuration and reporting through local terminal or Modem connections
- Multiple password-protected security levels:

Standard System Features

- Monitoring and control of up to 85 RS485 serial connected devices
  - Maximum of 85 serial switchmode rectifiers
  - Maximum of 32 bay interface cards (BICs)
  - Maximum of 16 serial converters
- Standard and custom User Defined system alarms
  - Alarm cut-off
  - Alarm test
  - Multiple-level alarm severity: Critical, Major, Minor, Warning, and record-only

Key Features (cont.)

- Standard rectifier management features
  - Automatic rectifier restart
  - Reserve engine transfer
  - Adaptive Rectifier Management (ARM)/Energy Efficiency
  - Remote rectifier (on/off) control
  - Automatic rectifier sequence control
  - N + X redundancy check
- Low Voltage Load and Low Voltage Battery Disconnect Options (3)
- Various levels of configuration, statistics, and history
  - All stored in non-volatile memory
  - Remote and local backup and restore of configuration data
- Remote and local software upgrade
- Basic, busy hour, and trend statistics kept
- Detailed history kept
- Maintenance reminders
- Inventory management
- User defined events and derived channels
- Hardware DIP switch access control

Standard Battery Management Features

- Float/boost mode control
  - Manual front panel boost
  - Manual timed boost locally, T1.317, and remotely initiated
  - External timed boost
  - Battery thermal protect module (BTP)
  - Auto boost terminated by time or current
- Battery discharge testing
  - Manual
  - Periodic
  - Plant Battery Test (PBT) input driven
- Slope thermal compensation
  - High temperature compensation
  - Low temperature compensation
  - Step temperature
  - STC Enable/Disable, low temperature Enable/Disable
  - mV/°C adjustments
- High temperature disconnect/ step setting
- Sophisticated reserve-time prediction
  - User configurable system reserve low alarm during normal operation
  - User configurable reserve time low alarm
- Recharge current limit
- Integrated "At Rate Calculator" for estimation purposes
- Battery discharge trace data
- Emergency Power-Off Input
- Lithium battery fail input

Features

Integrated Outputs

- Traditional office alarm interface with 19 Form-C alarm outputs (60VDC@.3A)
  - Standard default assignments: Power Critical-Audio, Power Critical-Visual, Power Critical-External, Power Major-Audio, Power Major-Visual, Power Major-External, Power Minor- Audio, Power Minor-Visual, Power Minor-External, Major Fuse (MJF), Minor Fuse (MNF), Battery On Discharge (BD), AC Fail (ACF), Rectifier Fail, High Voltage (HV), Very Low Voltage (VLV), Controller Fail, User Relay 1, User Relay 2
  - 16 Form-Cs are user assignable
- 1 1/3A Auxiliary Battery Supply (ABS) Output

Remote Peripheral Monitoring & Control

- Modular monitor and control growth options for up to 95 monitoring modules optimized for DC voltage and shunt monitoring, binary input detection, temperature monitoring, external transducer monitoring
- Additional Form-C relay output control available
- Devices managed and powered by the controller via one twisted-pair cable over distances of 300m or more
- Daisy-chain connections from module to module reduce installation costs and cable congestion
- Modules can be located near monitored source
- Various panels for rack- mounting available

Enhanced Battery Management Features

- Battery discharge test options including periodic and manual tests (local/ remote) with configurable thresholds or 20% discharge algorithm
- State of charge indication
- Rectifiers on-line during test (minimize risk to service)
- Discharge data stored in non-volatile memory. Graphical data available
- Accurate battery reserve time calculations that factor in battery specific parameters, plant voltage, load, temperature, number of battery strings and number of cells per string
- Thermal compensation (STC) and recharge current limit to maximize battery life

Extensive Plant and Monitoring Statistics

- Real-time data and historical statistics help analyze critical performance parameters
- Statistics for planning preventive or corrective maintenance before serious problems occur

Derived Channels

- 32 derived channels enable arithmetic and Boolean operations
- to be performed on measured values to allow customer specific parameters such as output power to be calculated and managed

Rectifier Management

- Energy Efficiency, provides ability to automatically shutdown selected rectifiers during low plant loads maintaining maximum battery
- plant efficiency without sacrificing reliability
- Provides Reserve Operation feature for maintaining designated number of rectifiers on during Engine runs as well as proper sequencing for generators
- Provides ability to transfer rectifiers (TR1-TR4) on in certain sequences for return of AC

Galaxy Manager Compatible

- Centralized web server and database with multiple user access to live or managed data with drill down to problem details
- Monitor and control of more than 40 connected devices
- Management information from
- polling or alarms received from alarm traps from multiple sites are available on one screen via the inter/intranet
- Trend user selected data over time
- Automatic or manual report generation
- Standard engineering tools like reserve time calculators and cable voltage drop analyzer

Specifications

GENERAL	
Operating Voltage	± 24Vdc, ± 48Vdc (Range: ± 18 to ± 60Vdc)
Input Power	36W (depending on options)
Operating Temperature Range	-40°C to +75°C (-40 to 167°F)
Storage Temperature Range	-40°C to +85°C (-40 to 185°F)
Operating Relative Humidity	0 - 95% (non-condensing)
Physical Specifications	9.24" H x 20.76" W x 2.14" D
Display	8-line by 40-character backlit LCD

SAFETY AND STANDARDS COMPLIANCE	
NEBs	Evaluated by independent NRTL test lab to Telcordia GR63-CORE and GR1089-CORE Issue 6 [Level 3]
Safety	ANSI/UL60950-1-2014 and CAN/CSA C22.2 No. 60950-1-07, Second Edition + A2:2014 (MOD), dated October 14, 2014
RoHS	Compliant to RoHS EU Directive 2002/95/EC RoHS 6/6
EMC	European Directive 2014/30/EU; EN55032, Class B, EN55035; FCC, Class B; GR1089-CORE

AGENCY CERTIFICATIONS	
NEBs	Evaluated by independent NRTL test lab to Telcordia GR63, Issue 3 and GR1089-CORE, Issue 6 (including level 3 testing)
EMC (Emissions)	European Directive 2014/30/EU; EN55032, (CISPR22) Class B, EN55035 (CISPR24)
Safety	Underwriters Laboratories (UL) Listed per Subject Letter 1801: Power Distribution Center for (CSA 22.2 950): Safety of Information Technology Equipment

Pulsar Plus Controller*

The Pulsar Plus family of controllers provides system monitoring and control features for Infinity, CP, and other power systems. These controllers monitor and control system components including rectifiers, converters, and distribution modules via a multi-drop RS485 digital communications bus. System status, parameters, settings, and alarm thresholds can be viewed and configured from the controller's front panel display. Assignment and configuration of alarm inputs and output relays can be performed from a laptop computer connected to a local RS-232 or Ethernet port, or by remote access is through a network connection to the World Wide Web (internet) or your enterprise network (intranet). An optional modem is also available.

This controller utilizes standard network management protocols allowing for advanced network supervision. GE Galaxy Manager™ software is the centralized visibility and control component of a comprehensive power management system designed to meet engineering, operations and maintenance needs. The Galaxy Manager client-server architecture enables remote access to system controllers across the power network, featuring ECO Priority advanced monitoring features which provides detailed energy source analysis to help better customize your renewable energy resources.

Applications

- Telecommunications Networks
- Digital Subscriber Line (DSL)
- Indoor/Outdoor Wireless
- Routers/Switches
- Fiber in the Loop
- Transmission
- PBX
- Off-Grid/On-Grid Renewable Energy Sites

Key Features

Remote Access and Features

- Integrated 10/100Base-T Ethernet Network
  - TCP/IP (IPv6 and IPv4 compatible)
  - SNMP (V3, V2c, V1) for management
  - SMTP for email
  - Telnet/SSH for command line interface
  - DHCP for plug-n-play
  - FTP/SFTP for rapid backup and upgrades
  - HTTP/HTTPs for standard web pages and browsers
  - NTP for clock synchronization
  - Compatible with Galaxy Manager and other management packages
  - Shielded RJ-45 interface referenced to chassis ground
- Password protected security levels: User, Super-User, Administrator for all access
- Ground-referenced RS232 system port
- ANSI T1.317 command-line interface
- Modem access support
  - Remote via external modem
  - Callback security
- EasyView2, Windows-based GUI software for local terminal or Modem access
- Optional 1U Display with context alarm indicating backlight feature
- Supporting the following Protocols:
  - SNMP V3
  - SSL
  - SSH
- ECO Priority controls and features
  - Advanced generator controls to help minimize fuel consumption for off grid applications
  - ECO Energy Management allowing for non-ECO sources outputs to be minimized while ECO resources are available
- Source and load trend logging

Standard System Features

- Monitor and control of more than 60 connected devices
  - Robust RS485 system bus
- Standard and user defined alarms
  - Alarm test
  - Assignable alarm severity: Critical, Major, Minor, Warning, and record-only
  - 10 alarm relays (7 user assigned)
- Rectifier management features
  - Automatic rectifier restart
  - Active Rectifier Management

Key Features (Cont.)

- ARM (energy efficiency)
- Remote rectifier (on/off)
- Reserve Operation
- Automatic rectifier sequence control
- N + X redundancy check

- Multiple Low Voltage Load and Low Voltage Battery Disconnect thresholds
- Configuration, statistics, and history
  - All stored in non-volatile memory
  - Remote/local backup and restore of configuration data
- Industry standard defaults
  - Customer specific configurations available
- Remote/ local software upgrade
- Basic, busy hour, and trend statistics
- Detailed event history
- User defined events and derived channels

Standard Battery Management Features

- Float/boost mode control
  - Manual boost
  - Manual timed boost locally, T1.317, and remotely initiated
  - Auto boost terminated by time or current
- Battery discharge testing
  - Manual (local/remote)
  - Periodic
  - Plant Battery Test (PBT) input driven
  - Configurable threshold or 20% algorithm
  - Graphical discharge data
  - Rectifiers on-line during test
- Slope thermal compensation
  - High temperature
  - Low temperature
  - Step temperature
  - STC Enable/Disable, low temperature Enable/Disable
  - Configurable mV/°C slopes
- State of charge indication
- High temperature disconnect setting
- Reserve-time prediction
- Recharge current limit
- Emergency Power-Off input

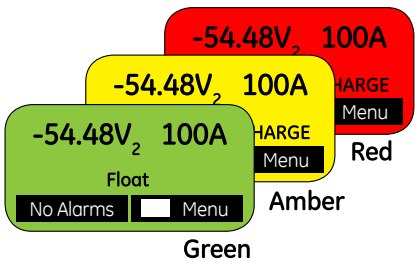
Integrated Monitoring Inputs/Outputs

- System plant voltage (accuracy ±0.04V, resolution 0.01V)
- One system shunt (accuracy ±0.5% full scale, resolution 1A)
  - Battery or load
  - Mounted in the return side of DC bus
- Up to 15 binary inputs
  - Six inputs close/open to battery
  - 9 input close/open to return
  - User assignable
- Up to 7 Form-C output alarms (60VDC @ .5A)
  - User assignable
- 1-Wire™ bus devices
  - Up to 16 temperature probes (QS873)
  - Up to 6 mid-string monitors (ES771)

Galaxy Manager Compatible

- Centralized web server and database with multiple user access to live or managed data with drill down to problem details
- Monitor and control of more than 40 connected devices
- Management information from polling or alarms received from alarm traps from multiple sites are available on one screen via the inter/intranet
- Trend user selected data over time
- Automatic or manual report generation
- Standard engineering tools like reserve time calculators and cable voltage drop analyzer

Specifications

GENERAL		
Operating Voltage	±24 Vdc, ±48 Vdc (Range: ±18 to ±60 Vdc)	
Input Power	Less than 7W	
Operating Temperature Range	-40°C to +75°C (-40°F to 167°F)	
Operating Relative Humidity	0 - 95% (non-condensing)	
Storage Temperature Range	-40°C to +85°C (-40°F to 185°F)	
Physical Specifications	Sizes vary by packaging option	
Display	8-line by 40-character with alarm context sensitive backlit LCD	

Specifications (Cont.)

SAFETY AND STANDARDS COMPLIANCE	
NEBs	Evaluated by independent NRTL test lab to Telcordia GR63-CORE and GR1089-CORE Issue 6 [Level 3]
Safety	ANSI/UL60950-1-2014 and CAN/CSA C22.2 No. 60950-1-07, Second Edition + A2:2014 (MOD), dated October 14, 2014
RoHS	Compliant to RoHS EU Directive 2002/95/EC RoHS 6/6
EMC	European Directive 2014/30/EU; EN55032, Class A, EN55035; FCC, Class A; GR1089-CORE

AGENCY CERTIFICATIONS	
NEBs Level 3	Evaluated by independent NRTL test lab to Telcordia GR63-CORE and GR1089-CORE Issue 6 [Level 3]
EMC	European Directive 2014/30/EU; EN55032, (CISPR22) Class B, EN55035 (CISPR24)
Safety	Underwriters Laboratories (UL) Listed per Subject Letter 1801: Power Distribution Center for Communications Equipment, and cUL Certified (CSA 22.2 950): Safety of Information Technology Equipment

*Note that the Pulsar Controller is for single bay systems only where there are no disconnects

AC Input Specifications: Internal Circuit Breaker Panel Connection to Rectifier

GROUP CODE NUMBER	# OF RECT	# OF RECT SHELVES	# OF RECT PER EXTERNAL CB	NOMINAL RECT VOLTAGE VAC	INPUT CURRENT PER CB IN AMPS	CIRCUIT BREAKER SIZE IN AMPS	# OF EXTERNAL CIRCUIT BREAKERS
304A	8	4	2	480	16	20	4
304B	8	4	4	480	32	40	2
306A	12	6	2	480	16	20	6
306B	12	6	4	480	32	40	3
308A	16	8	2	480	16	20	8
308B	16	8	4	480	32	40	4
310A	20	10	2	480	16	20	10
310B	20	10	4	480	32	40	5
312A	24	12	2	480	16	20	12
312B	24	12	4	480	32	40	6
G634	24	12	4	480	40	40	6
G646B	24	12	4	480	96	125	2

AC Input Specifications: Terminal Block Panel Connection to Rectifier

GROUP CODE NUMBER	# OF RECT	# OF RECT SHELVES	# OF RECT PER EXTERNAL CB	NOMINAL RECT VOLTAGE VAC	INPUT CURRENT PER CB IN AMPS	CIRCUIT BREAKER SIZE IN AMPS	# OF EXTERNAL CIRCUIT BREAKERS
G334A	8	4	8	480	80	80	1
G334B	16	8	16	480	128	175	1
G346A	12	6	6	480	48	60	2
G346B	24	12	12	480	96	125	2

Ordering Information – GPS4830 Power System

The 4830 system can be deployed with capacity of up to 2640 amps in a single cabinet or expanded over multiple cabinets to 7920 amps. Designed for either internal input AC breakers or terminal strip terminations, rectifier shelves can be spread across multiple bays to maximize distribution availability and provide modular growth. In applications needing additional distribution, two more bays can be added and dedicated exclusively for distribution. For greater flexibility and working space, the 4830 may be equipped with a larger 36 inch wide distribution bay to accommodate large cable termination and egress.

Key Features

- AC input applications utilizing 480V 3Φ-Y
- Full featured control and monitoring capability with the flagship Galaxy Millennium II or Pulsar Plus controller
- Up to 72 rectifiers and other digitally connected peripherals
- Single Bay, 12 shelf configuration with up to 2640A of rectification and 45" of available distribution space
- TE Rectifier efficiency

Additional Information

REFERENCE DOCUMENT	TITLE
H5694827_4830_434	GPS Ordering Guide
10832736	GPS Installation Guide
108994645	Millennium II Controller Product Manual
107570517	Galaxy Remote Peripheral Monitoring System Product Manual (167790063)
CC848815341	Pulsar Plus Controller Family Product Manual

Step 1: Select Power Bays (Consult GE Solutions Engineers)

-48V Primary (Control) Bays with Millennium Controller

OUTPUT	ORDERING CODE	ORDERING CODE
-48V -48V Distributed 880A	150051762	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (8) GP100 rectifier positions, (1) feed per (2) rectifiers • 1500 amp battery shunt • 61" space available for distribution H5694830 G001 G019 G304A G032
-48V -48V Distributed 880A	150051763	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (8) GP100 rectifier positions, (1) feed per (4) rectifiers • 1500 amp battery shunt • 61" space available for distribution H5694830 G001 G019 G304B G032
-48V -48V Distributed 1,320A	150051764	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (12) GP100 rectifier positions, (1) feed per (2) rectifiers • 1500 amp battery shunt • 57" space available for distribution H5694830 G001 G019 G306A G032
-48V -48V Distributed 1,320A	150051765	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (12) GP100 rectifier positions, (1) feed per (4) rectifiers • 1500 amp battery shunt • 57" space available for distribution H5694830 G001 G019 G306B G032
-48V -48V Distributed 1,760A	150051719	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (16) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 53" space available for distribution H5694830 G001 G019 G308A G032A
-48V -48V Distributed 1,760A	150051720	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (16) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 53" space available for distribution H5694830 G001 G019 G308B G032A
-48V -48V Distributed 2,200A	150050146	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (20) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 49" space available for distribution H5694830 G001 G019 G310A G032A
-48V -48V Distributed 2,200A	150051654	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (20) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 49" space available for distribution H5694830 G001 G019 G310B G032A
-48V -48V Distributed 2,640A	150051721	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 45" Distrubution space H5694830 G001 G019 G312A G032A

-48V Primary (Control) Bays with Millennium Controller (Cont.)

OUTPUT	ORDERING CODE	ORDERING CODE
-48V -48V Distributed 2,640A	150051722	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 45" space available for distribution H5694830 G001 G019 G312B G032A
-48V -48V Distributed 880A	150051725	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Internal 480V AC Circuit breaker panel rectifier input for (8) GP100 rectifier position, (1) external feed to (4) circuit breakers • 1500 amp battery shunt • 63" space available for distribution H5694830 G001 G019 G334A G032
-48V -48V Distributed 1,760A	150051726	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Internal 480V AC Circuit breaker panel rectifier input for (16) GP100 rectifier positions, (1) external feed to (4) circuit breakers • 3000 amp battery shunt • 55" space available for distribution H5694830 G001 G019 G334B G032A
-48V -48V Distributed 1,320A	150051727	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Internal 480V AC Circuit breaker panel rectifier input for (12) GP100 rectifier positions, (2) feeds to (6) circuit breakers • 1500 amp battery shunt • 56" space available for distribution H5694830 G001 G019 G346A G032
-48V -48V Distributed 2,640A	150051728	GPS4830 Distributed Architecture Full Height Control Bay with • Millennium 2 controller • Internal 480V AC Circuit breaker panel rectifier input for (24) GP100 rectifier positions, (2) feeds to (6) circuit breakers • 3000 amp battery shunt • 44" space available for distribution H5694830 G001 G019 G346B G032A

-48V Supplemental Bays to be Used With Previous Initial Bays

OUTPUT	ORDERING CODE	ORDERING CODE
-48V -48V Distributed 880A	150051793	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (8) GP100 rectifier positions, (1) feed per (2) rectifiers • 1500 amp battery shunt • 61" space available for distribution H5694830 G001 G018D G304A G032
-48V -48V Distributed 880A	150051794	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (8) GP100 rectifier positions, (1) feed per (4) rectifiers • 1500 amp battery shunt • 61" space available for distribution H5694830 G001 G018D G304B G032
-48V -48V Distributed 1,320A	150051795	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (12) GP100 rectifier positions, (1) feed per (2) rectifiers • 1500 amp battery shunt • 57" space available for distribution H5694830 G001 G018D G306A G032

-48V Supplemental Bays to be Used With Previous Initial Bays (Cont.)

OUTPUT	ORDERING CODE	ORDERING CODE
-48V -48V Distributed 1,320A	150051796	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (12) GP100 rectifier positions, (1) feed per (4) rectifiers • 1500 amp battery shunt • 57" space available for distribution H5694830 G001 G018D G306B G032
-48V -48V Distributed 1,760A	150051797	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (16) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 53" space available for distribution H5694830 G001 G018D G308A G032A
-48V -48V Distributed 1,760A	150051798	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (16) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 53" space available for distribution H5694830 G001 G018D G308B G032A
-48V -48V Distributed 2,200A	150050149	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (20) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 49" space available for distribution H5694830 G001 G018D G310A G032A
-48V -48V Distributed 2,200A	150051655	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (20) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 49" space available for distribution H5694830 G001 G018D G310B G032A
-48V -48V Distributed 2,640A	150051799	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 45" Distrubution space H5694830 G001 G018D G3120A G032A
-48V -48V Distributed 2,640A	150051800	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 45" space available for distribution H5694830 G001 G018D G312B G032A
-48V -48V Distributed 880A	150051803	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Internal 480V AC Circuit breaker panel rectifier input for (8) GP100 rectifier positions, (1) feed to (4) circuit breakers • 1500 amp battery shunt • 63" space available for distribution H5694830 G001 G019 G334A G032
-48V -48V Distributed 1,760A	150051804	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Internal 480V AC Circuit breaker panel rectifier input for (16) rectifier postions, (1) feed to (4) circuit breakers • 3000 amp battery shunt • 55" space available for distribution H5694830 G001 G018D G334B G032A
-48V -48V Distributed 1,320A	150051805	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Internal 480V AC Circuit breaker panel rectifier input for (12) rectifier positions, (2) feeds to (6) circuit breakers • 1500 amp battery shunt • 56" space available for distribution H5694830 G001 G018D G346A G032

-48V Supplemental Bays to be Used With Previous Initial Bays (Cont.)

OUTPUT	ORDERING CODE	ORDERING CODE
-48V -48V Distributed 2,640A	150051806	GPS4830 Distributed Architecture Full Height Supplemental Bay with • No controller • Internal 480V AC Circuit breaker panel rectifier input for (24) rectifier positions, (2) feeds to (6) circuit breakers • 3000 amp battery shunt • 44" space available for distribution H5694830 G001 G018D G346B G032A
-48V -48V Distributed Distribution Only Bay	150051980	GPS4800 Distributed Architecture Full Height Distribution only bay with: • No controller • No rectifier positions • 72" space available for distribution panels H569434G1 G18D G428 G33

-48V Bays with Pulsar Plus Controllers (Single Bay Systems Only)

OUTPUT	ORDERING CODE	ORDERING CODE
-48V 48V Distributed 880A	150051768	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (8) GP100 rectifier positions, (1) feed per (2) rectifiers • 1500 amp battery shunt • 61" space available for distribution H5694830 G001 G020 G304A G032
-48V -48V Distributed 880A	150051769	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (8) GP100 rectifier positions, (1) feed per (4) rectifiers • 1500 amp battery shunt • 61" space available for distribution H5694830 G001 G020 G304B G032
-48V -48V Distributed 1,320A	150051770	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (12) GP100 rectifier positions, (1) feed per (2) rectifiers • 1500 amp battery shunt • 57" space available for distribution
-48V -48V Distributed 1,320A	150051771	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (12) GP100 rectifier positions, (1) feed per (4) rectifiers • 1500 amp battery shunt • 57" space available for distribution
-48V -48V Distributed 1,760A	150051777	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (16) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 53" space available for distribution
-48V 48V Distributed 1,760A	150051778	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (16) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 53" space available for distribution
-48V -48V Distributed 2,200A	150051779	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (20) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 49" space available for distribution

-48V Bays with Pulsar Plus Controllers (Single Bay Systems Only [Cont.])

OUTPUT	ORDERING CODE	ORDERING CODE
-48V -48V Distributed 2,200A	150051780	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (20) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 49" space available for distribution
-48V -48V Distributed 2,640A	150051781	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (2) rectifiers • 3000 amp battery shunt • 45" Distrubution space
-48V -48V Distributed 2,640A	150051782	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 45" space available for distribution
-48V -48V Distributed 2,640A	150051783	GPS4830 Distributed Architecture Full Height Control Bay with • Top AC in/ Bottom DC out • Pulsar Plus controller •Terminal strip 480V AC feed input for (24) GP100 rectifier positions, (1) feed per (4) rectifiers • 3000 amp battery shunt • 33" space available for distribution H5694830 G001 G020 G634 G032A
-48V -48V Distributed 2,640A	150051784	GPS4830 Distributed Architecture Full Height Control Bay with • Top AC in/ Bottom DC out • Pulsar Plus controller • Internal 480V AC Circuit breaker panel rectifier input for (24) GP100 rectifier positions, (2) feeds to (6) circuit breakers • 3000 amp battery shunt • 39" space available for distribution H5694830 G001 G020 G646B G032A
-48V -48V Distributed 880A	150051785	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Internal 480V AC Circuit breaker panel rectifier input for (8) GP100 rectifier positions, (1) feed to (4) circuit breakers • 3000 amp battery shunt • 63" space available for distribution H5694830 G001 G020 G334A G032
-48V -48V Distributed 1,760A	150051786	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Internal 480V AC Circuit breaker panel rectifier input for (16) GP100 rectifier positions, (1) feed to (4) circuit breakers • 3000 amp battery shunt • 55" space available for distribution H5694830 G001 G020 G334B G032A
-48V -48V Distributed	150051787	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Internal 480V AC Circuit breaker panel rectifier input to (12) GP100 rectifer positions, (2) feeds to (6) circuit breakers • 3000 amp battery shunt • 56" space available for distribution H5694830 G001 G020 G346A G032A
-48V -48V Distributed 2,640A	150051788	GPS4830 Distributed Architecture Full Height Control Bay with • Pulsar Plus controller • Internal 480V AC Circuit breaker panel rectifier input to (24) GP100 rectifier positions, (2) feeds to (6) circuit breakers • 3000 amp battery shunt • 44" space available for distribution H5694830 G001 G020 G346B G032A

Step 2: Select Rectifier

OUTPUT	ORDERING CODE	MODEL	PHOTO
R ~ 100A	150034309	GP100H3R48TEZ	

Step 3: Select Field Installed Distribution Panels

Field Installed DC Distribution Panels

ORDERING CODE	GROUP CODE	PANEL DESCRIPTION	VERTICAL SPACE	ED83143-31 GROUPS
108907791	43A	6 Position 125A-800A circuit breaker panel	12”	1
108907858	42A	3 Position 125A-600A circuit breaker panel	6”	2
108907973	48A	5 Position 125A-800A circuit breaker panel	9”	5
108907825	96A	10 Position 3A-100A Bullet Breaker Panel	6”	15
108966342	97A	14 Position 3A-200A bullet breaker panel	6”	16
108965136	98A	22 position 3A-200A bullet breaker panel	9”	17
108907841	68A	2 position 32A-400A NH2 DIN fuse panel	6”	21
108907874	67A	8 position 4A-160A NH00 DIN fuse panel	6”	22
108908260	60A,61A,65A,66A	10/14 position 1-50A DIN (48V) fuse panel or 10/14 position 1-125A DIN (48V) breaker panel	6”	71
108907999	52A	10 position 3A-60A TPS fuse panel	6”	53
108966359	54A	5 position 70A-225A TPL-B fuse panel	9”	54
108907981	53A	2 position 70A-600A TPL-B,C fuse panel	9”	55
108985235	58A	6 position 1-7.5A GMT fuse panel	0	58
108908278		Low voltage load disconnect option (order when needing LVLD to a distribution load panel)		FA
150045382		Return bus for ED groups 1,2,5,21,54,55		GC
150045383		Return bus for ED groups 11,12,15,16,17,22,53,71		GD
	G094A	2 Position 600-1200A NH4 Fuse Panel	12	

Step 4: Select Distribution Components

Note: Plug in, and bolt in distribution components are listed below.
These must be selected to match the distribution panels selected in Step 3.

Bullet Style Load Circuit Breakers

ORDERING CODE	AMPERAGE	CB POSITIONS (POLES)	MIN WIRE GAUGE	PHOTO
407998137	3	1	10	
407998145	5	1	10	
407998152	10	1	10	
407998160	15	1	10	
407998178	16	1	10	
407998186	20	1	10	
407998194	25	1	10	
407998202	30	1	10	
408213486	40	1	8	
407998210	45	1	8	
407998228	50	1	6	
407998236	60	1	6	
407998244	70	1	2	
407998251	80	1	2	
407998269	90	1	2	
407998277	100	1	2	
CC848808551	100	2	2	
408185353	125	2	2	
408185346	150	2	1/0	
408564941	200	3	2/0	
408535752	250	3	4/0	
848631479	2-pole adapter bus kit (includes bus for 1/4" hole lug on 5/8" centers and hardware), order two per breaker			
848745662	3-pole adapter bus kit (includes bus for 5/16" hole lug on 1" centers and hardware), order two per breaker			

Step 4: Select Distribution Components (Cont.)

Large Circuit Breaker Kits

ORDERING CODE	AMERAGE	CB POSITIONS (POLES)	MIN WIRE GAUGE	PHOTO
108908187	125	1	2	
108908179	150	1	1/0	
108908195	175	1	2/0	
108908203	225	1	4/0	
108908211	300	2	2 x 4/0	
108908237	400	2	2 x 4/0	
108908229	500	3	3 x 4/0	
108908252	600	3	3 x 4/0	
108984782	800	4	4 x 4/0	

Large TPL Fuses

ORDERING CODE	AMERAGE	MAX # WIRES PER POSITION	MIN WIRE GAUGE	PHOTO
408472322	70-250A Fuse Holder Head (only required for 2 Position 70A-600A TPL Fuse Panel)			
402328926	0.18A Alarm Fuse			
406794776	70	3	6	
408239648	80	3	4	
406794784	100	3	2	
406925685	125	3	2	
406794792	150	3	1/0	
406794818	200	3	4/0	
406794982	225	3	4/0	
406794842	250	3	4/0	
406794867	300	3	2 x 4/0	
406794875	400	3	2 x 4/0	
406794883	500	3	2 x 4/0	
406794891	600	3	3 x 4/0	

Step 4: Select Distribution Components (Cont.)

Bullet Style Fuse Holder and TPS Fuses

ORDERING CODE	AMERAGE	WP-92461 LIST	MIN WIRE GAUGE	PHOTO
406700567	3	100	10	
406700583	5	101	10	
406700591	6	102	10	
406700609	10	103	10	
406700617	15	104	10	
406700625	20	105	10	
406700633	25	106	10	
406700641	30	107	10	
406700658	40	108	10	
406700674	50	109	8	
406700682	60	110	6	
406700690	70	111	6	
402328926	0.18 Alarm Fuse			
408548944	Bullet Fuse Holder, TFD-101-011-09 (Alarms on Blown Fuse or Fuse Head Removal)			
CC408617410	Bullet Fuse Holder, TFD-101-011-10 (Alarms on Blown Fuse Only)			

GMT Fuses

ORDERING CODE	AMERAGE	WP-92461 LIST	MIN WIRE GAUGE	PHOTO
405006222	0.25A			
406976894	0.5A			
405673146	1.33A			
405181983	2A			
406976985	3A			
406159061	5A			
405725433	7.5A			
406159236	10A			
406473959	15A			
408515823	Fuse Puller			

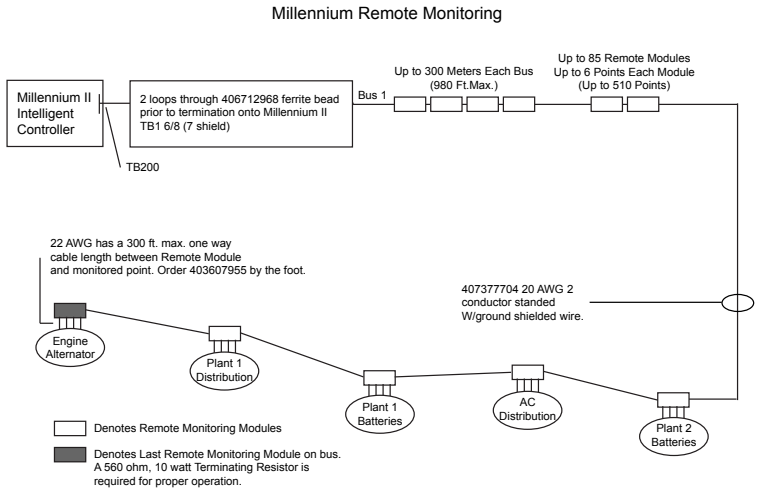
Step 5: Select Remote Peripheral Monitoring Options (Millennium 2 Controller Only)

ORDERING CODE	MODULES	# INPUTS	# TEMP	PHOTO
108469461	J85501G1L21 RPM Shunt Monitoring (221F)	6	1	
108469479	J85501G1L22 RPM Voltage 0-200VDC (221D)	6	1	
108469495	J85501G1L23 RPM Transducers (221J)	6	1	
108298431	J85501G1L24 RPM Voltage 0-3VDC (221A)	6	1	
108298498	J85501G1L25 RPM Voltage 0-16VDC (221B)	6	1	
108469503	J85501G1L26 RPM Voltage 0-70VDC (221C)	6	1	
108298449	J85501G1L27 RPM Binary (222A)	6	1	
108483538	J85501G1L28 RPM Temperature (223T)	0	7	
108298456	J85501G1L9 RPM Control Relay (214A)	3	0	

Supporting Materials

ORDERING CODE	DESCRIPTION	PHOTO
407377704	Connecting Cable for RPMs (Order by foot)	
848535332	Blue panel for mounting 6 modules above a GPS cabinet	
848412367	White panel for mounting 6 modules in a 23-inch frame inside GPS bay	
847307410	12' Cable to be used with Temperature Probes	
847917879	½" Diameter Ring Terminal Temperature Probe (Cable Required)	
848528881	5/16" Diameter Ring Terminal Temperature Probe (Cable Required)	
405298308	Termination Resistor (1 per bus)	
406712968	Ferrite Bead (1 per bus)	
403607955	Monitor Channel cable KS13385 22AWG stranded pair, R&Bk (order by the foot)	
108984477	23" grey panel, 6 RPM mounting panel for Lorain plants	

OUTLINE DRAWING



Step 5A: Select Monitoring Options (Pulsar)

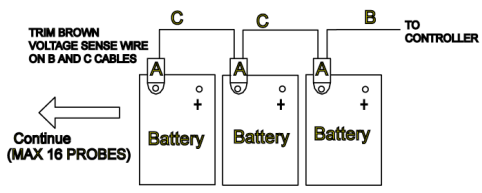
Alarm Cables

ORDERING CODE	MODULES	CABLE LENGTH	PHOTO
CC848817651	Auxiliary input alarm cable for Pulsar Plus Controller	50 ft	
CC848817668	Auxiliary input alarm cable for Pulsar Plus Controller	150 ft	
CC109157442	Alarm cable for Pulsar Plus Controller (for systems with external distribution)	15 ft	
CC848817635	Alarm cable for Pulsar Plus Controller (for systems with external distribution)	50 ft	
CC848817643	Alarm cable for Pulsar Plus Controller (for systems with external distribution)	150 ft	
CC848890178	Alarm cable for Pulsar Edge Controller	15 ft	
CC848890186	Alarm cable for Pulsar Edge Controller	50 ft	
CC848890194	Alarm cable for Pulsar Edge Controller	150 ft	

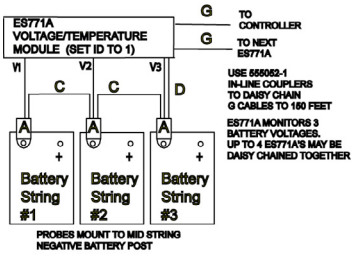
Battery Monitoring

ORDERING CODE	DESCRIPTION	PHOTO
CC109142980	QS873A Thermal Probe (A)	
CC848817024	10 ft wire set (B: thermal probe to controller)	
CC109157434	20 ft wire set (B:thermal probe to controller)	
CC848822560	1 ft wire set (C: thermal probe to thermal probe)	
848719803	5 ft wire set (C: thermal probe to thermal probe)	
CC848822321	10 ft wire set (C: thermal probe to thermal probe)	
850027334	20 ft wire set (C: thermal probe to thermal probe)	
108958422	ES771A Battery Voltage Monitor Card	
CC848791517	2-1/2 ft wire set (D: ES771A to thermal probe)	
108984477	23" grey panel, 6 RPM mounting panel for Lorain plants	
CC848797290	6 ft wire set (D: ES771A to thermal probe)	
848719829	10 ft wire set (D: ES771A to thermal probe)	
CC848791500	4 ft wire set (G: ES771A to ES771A or controller)	
848652947	10 ft wire set (G: ES771A to ES771A or controller)	
555052-1	In-Line Coupler	

OUTLINE DRAWING



Temperature Measurement



Temperature and Voltage Measurement

Temperature/Voltage probes are needed for battery monitoring. They are connected to each battery or battery string to provide slope thermal compensation, temperature alarms and voltage imbalance alarms.

Step 6: Select Optional AC Monitoring Equipment (Millennium 2 Controller Only)

Configured Panels

ORDERING CODE	DESCRIPTION	PHOTO
CC408646005	3P/3W 208/240V Line to Line, 10x12x14 box provides current, voltage, and power	
CC408646046	3P/3W 480V Line to Line, 10x12x14 box provides current, voltage, and power	
CC408646054	3P/4W 208V Line to Neutral, 10x12x14 box provides current, voltage, and power	

Transducers

ORDERING CODE	DESCRIPTION	PHOTO
CC408645808	1-phase AC Current Transducer (Built-in CT; 150A max current; 350 kcmil max conductor size)	
CC408645816	1-phase AC Voltage Transducer 120V	
CC408645824	1-phase AC Voltage Transducer 208/240V	
CC408644537	3-phase AC Voltage Transducer 208/240V Line to Line	
CC408645741	3-phase AC Voltage Transducer 208/240V Line to Neutral (120V)	
CC408645832	3-phase AC Voltage Transducer 480V Line to Line	
CC408645840	3-phase AC Current Transducer	

Current Transformers (Required for Configured Panels and Current Transducers)

ORDERING CODE	DESCRIPTION	PHOTO
CC408645857	Current Transformer, 200A primary, 5A secondary, 4 in inside diameter	
408524862	Current Transformer, 400A primary, 5A secondary, 4 in inside diameter	
CC408645865	Current Transformer, 600A primary, 5A secondary, 6 in inside diameter	
CC408645873	Current Transformer, 800A primary, 5A secondary, 6 in inside diameter	
CC408645881	Current Transformer, 1000A primary, 5A secondary, 8 in inside diameter	
CC408645898	Current Transformer, 1200A primary, 5A secondary, 8 in inside diameter	

Miscellaneous

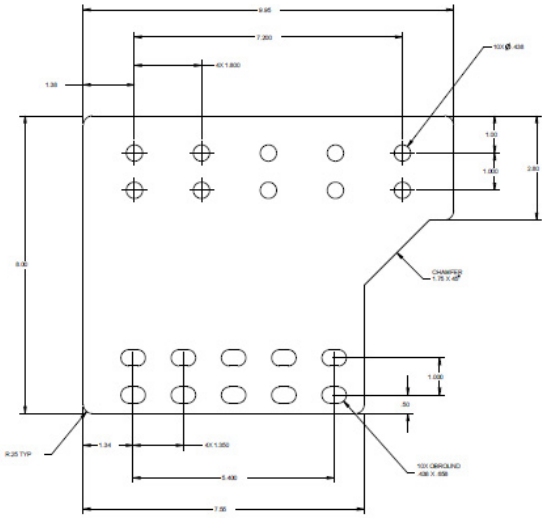
ORDERING CODE	DESCRIPTION
CC408645907	Barrier terminal block to extend the CT secondary leads beyond their 12 ft factory length. Use 12 AWG THHN wire in conduit.
CC408645915	Bud Industries Wall Box (12H x 10W x 8D) w/captive screw cover & internal mounting panel. For mounting transducers

Step 7: Select Battery Termination Options

Order optional termination bar if standard 8 positions may be exceeded

ORDERING CODE	DESCRIPTION
850044744	Optional bus bar that provides 16 output terminations (includes one bus). Use for either battery or return applications.
848385878	Optional adapter that allows two lugs to be stacked and connected at one location. (Provides one adapter)
850045481	Optional bus bar that provides 10 – 750MCM cables wide barrel back to back. (Provides one bus). Use for either battery or return applications.

OUTLINE DRAWING



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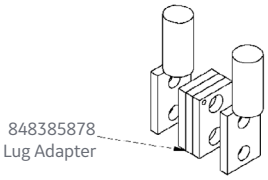
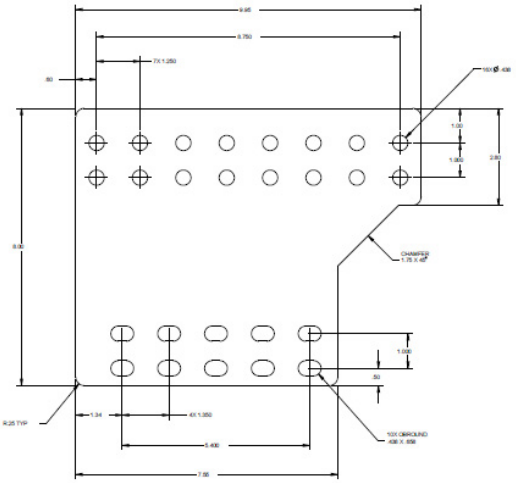


848385878



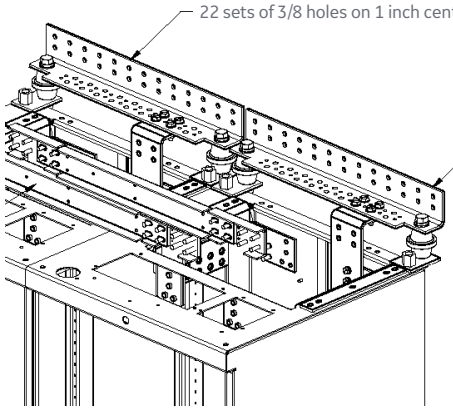
850045481

Step 8: Select Optional Return Bus Bars

Standard Architecture 600mm Bays

ORDERING CODE	DESCRIPTION
CC848805160	External Return Bus Kit: Option for termination of all distribution return cables. 1 per cabinet, 20 sets of 0.375" dia holes on 1.00" centers and 7 sets of 0.250" dia holes on 0.625" centers. The external return bus kit is an alternative to internal return buses when many large cables are required (Fig. below shows kit).
150047508	45 degree External Return Bus Kit: Option for termination of all distribution return cables. 1 per cabinet, rated at 1800 Amps. 20 sets of 0.375" dia holes on 1.00" centers and 7 sets of 0.250" dia holes on 0.625" centers. The external return bus kit is an alternative to internal return buses when many large cables are required (Kit not shown).

OUTLINE DRAWING



Notes

Notes

Reliability

- Delivers decades of service
- High availability architecture
- NEBS level 3 certified

Intelligence

- Industry leading digital smart monitor
- Network interface for remote access
- Visual, audible and remote alarms

Investment Protection

- Backward compatibility
- Flexible upgrade options
- Seamless integration with GPS plants

On Time Delivery

- Standard building blocks
- 4 - 6 week availability
- 24/7 technical support

Management Visibility

Galaxy Manager* software is the centralized visibility and control component of a comprehensive power management system designed to meet engineering, operations and maintenance needs. The Galaxy Manager client-server architecture enables remote access to system controllers across the power network.

- Dashboard display with one-click access to management information database
- Trend analysis
- Scheduled or on demand reports
- Fault, configuration, asset, and performance management

Training

GE offers on-site and classroom training options based on certification curriculum. Technical training can be tailored to individual customer needs. Training enables customers and partners to more effectively manage and support the power infrastructure. We have built our training program on practical learning objectives that are relevant to specific technologies or infrastructure design objectives.

Service & Support

GE field service and support personnel are trusted advisors to our customers – always available to answer questions and help with any project, large or small. Our certified professional services team consists of experts in every aspect of power conversion with the resources and experience to handle large turnkey projects along with custom approaches to complex challenges. Proven systems engineering and installation best practices are designed to safely deliver results that exceed our customers' expectations.

Warranty

GE is committed to providing quality products and solutions. We have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or replaced as soon as possible.

For full warranty terms and conditions please go to
www.geindustrial.com

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