LINEAGE POWER®

# Infinity M™ Power System

## Dual Voltage, Rack Mounted Power System

- Dual Voltage power system with ultimate flexibility
- -48V up to 1,200A (65KW) or +24V up to 1,600A (44KW)
- Secondary voltage up to 600A
- High availability wireless telecom applications
- Telecom service providers
- Efficiency approaching 97%

### Overview

The Lineage Power Infinity M™ DC energy system is a modular power plant that supports dual voltage (+24V/-48V) operation through the use of a comprehensive range of state of the art rectifiers and DC-DC converters. Primary voltage is supported by rectifiers and battery reserve, while secondary voltage is supported by DC-DC converter modules. Primary voltage can be -48V or +24V.

The Infinity M Power System has primary voltage capacity for +24V and -48V power up to 1,600A; secondary voltage capacity is up to 300A per expansion module.

### Shelf / Bay Options

Infinity M systems may be equipped in a 7 ft 23" relay rack; a half height rack for mounting on battery stands; or mounting rails for field install applications. The distribution module is 14U (24.5") tall and accommodates up to 80 single voltage or selectable voltage bullet breaker positions. Universal shelves are 1U tall with four slots that accept any Infinity series rectifier or converter interchangeably in any power slot. This allows the available slots to be filled with the mix of power modules desired. The only restriction is whether AC power is applied to the shelf. This gives extreme flexibility in the provisioning of power modules within the system.

### Infinity Rectifier and Converter Family

The Infinity M offers DC rectifiers and converters for both +24V to -48V and -48V to +24V applications. Rectifiers and converters are color coded to quickly identify both the voltage and whether it is a rectifier or converter (orange for +24V and blue for -48V).

Rectifier and Converter Options:

- NE100AC24 Rectifier, 100A/24V Output
- NE050AC48 Rectifier, 50A/48V Output
- NE075AC48TEZ Rectifier, 75A/48V Output
- NE075DC24 Converter, 75A/24V Output
- NE030DC48 Converter, 30A/48V Output

### Pulsar Plus Controller

The Infinity M utilizes the industry leading Pulsar Plus controller with Ethernet and SNMP communications to deliver extensive monitoring and control features with remote access.

## Benefits

### Reliability

- Distributed fault tolerance
- Proven field performance
- Controller continuity

### Intelligence

- Industry leading controller features
- Ethernet interface for remote access
- Centralized network management

### Investment Protection

- Module Compatibility
- Power Shelf Growth
- Secondary Voltage flexibility +24V / -48V
- Flexible Upgrade Options

### On Time Delivery

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

### Total Efficiency

The Lineage Power Total Efficiency™ (TE) architecture reduces energy loss and lowers cooling costs by 50-70%. TE products will prioritize sustainable energy sources like solar, wind, water and fuel cells over traditional utility grid or diesel generator sources – and they will intelligently respond to smart grid information to reduce consumption during peak demand periods. Active Rectifier Management (ARM) and Battery Charging Optimization (BCO) features increase efficiency on current and legacy power infrastructures. The Total Efficiency architecture addresses issues end-to-end based on our proven experience and expertise in batteries, power distribution, DC energy systems, AC-DC power supplies, and DC-DC board mounted power to deliver a solution that is more safe, reliable and energy efficient than alternatives from our competitors.

# Infinity Rectifiers and Converters

- **Compact** - 1RU form factor providing high power density (24 W/in3)
- **Dual Voltage compatibility** – the unique connector pin designation allows the rectifier to be used in a "universal" power shelf, alongside rectifiers or DC-DC converters with different output voltages.
- **Plug and Play** – installation of the rectifier in a shelf connected to a compatible system controller initializes all set up parameters automatically. No adjustments are needed.
- **Extended service life** – parallel operation with automatic 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.

## Applications

- Telecommunications networks
- Digital subscriber line (DSL)
- Indoor/outdoor wireless
- Routers/switches
- Fiber in the loop
- Transmission
- Data networks
- PBX

## Key Features

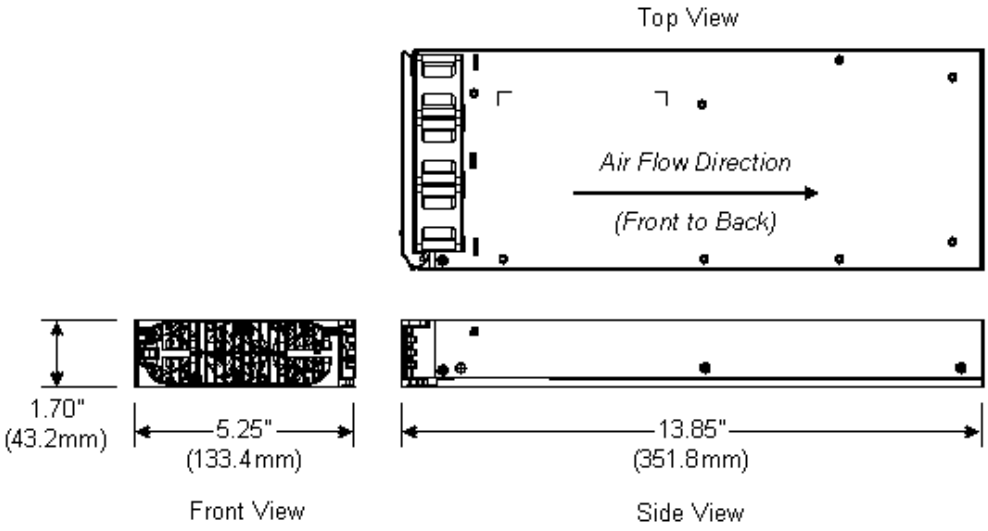
- Extended temperature range
- Redundant fan cooling
- Front panel LED indicators
- 1U height, hi power density
- 220/110 V AC input
- Digital load sharing
- Hot pluggable
- RoHS compliant

## Specifications

| Input | NE100AC24 | NE050AC48 | NE075AC48TEZ | NE030DC48 | NE075DC24 |
|---|---|---|---|---|---|
| Voltage Range<br>- High-Line<br>- Low-Line | <br>175-275Vac<br>85-140Vac | <br>175-275Vac<br>- | <br>175-275Vac<br>85-140Vac | 21-30Vdc<br>-<br>- | 42-60Vdc<br>-<br>- |
| Input Current | 14.9A @208Vac<br>12.9A @240Vac | 14.5A @208Vac<br>12.6A @240Vac | 20.7A @208Vac<br>17.9A @240Vac | 63A @27Vdc<br>81A @21Vdc | 41A @54.5Vdc<br>54A @42Vdc |
| Input Frequency | 45 – 66Hz | 45 – 66Hz | 45-66Hz | - | - |
| Power Factor | 0.98 at>50% load | 0.98 at>50% load | 0.98 at>50% load | - | - |
| Efficiency | 92% | 93% | 96+% | - | - |
| Total Harmonic Distortion | 5% at full load | 5% at full load | 5% at full load | - | - |
| **Output** | | | | | |
| Voltage Adjust Range | 21-29Vdc | 42-58Vdc | 42-58Vdc | 46-57Vdc | 23-28Vdc |
| Voltage Nominal | 27.25V | 54.5V | 54.5Vdc | 52.0V | 27.2V |
| Regulation(with controller) | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| Ripple | 100mV rms | 100mV rms | 100mV rms | 100mV rms | 100mV rms |
| Psophometric Noise | 2 mV | 2 mV | 2mV | 2 mV | 2 mV |
| Output Current<br>- High-Line<br>- Low-Line | <br>100A @27.25V<br>44A @27.25V | <br>50A @54.5V<br>- | <br>50A@54.5V<br>22A@54.5V | 30A @52.0V<br>-<br>- | 75A @27.2V<br>-<br>- |
| Heat Dissipation @ max out | 237W / 808 BTU/hr | 205W / 699 BTU/hr | 215W / 734 BTU/hr | 154W / 525 BTU/hr | 202W / 689 BTU/hr |

| Environmental | |
|---|---|
| Operating Temperature | -40°C to +75°C (-40 to 167 °F) |
| Storage Temperature | -40°C to +85°C (-40 to 185 °F) |
| Power De-Rating | 2% per °C from +65°C to +75°C |
| Relative Humidity | 95% max, non-condensing |
| Altitude | 4,000M max |
| **Mechanical** | |
| Length (in. /mm) | 13.85 / 351.8 |
| Width (in. /mm) | 5.25 / 132.8 |
| Height (in. /mm) | 1.70 / 43.2 |
| Weight (lb / Kg) | 5.2 / 2.4 |
| **Safety and Standards Compliance** | |
| NEBs | Evaluated by independent NRTL test lab to Telcordia GR63 and GR1089-CORE, Issue 4 |
| Safety | CE mark to Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/E<br>UL 609501-1 Recognized<br>CSA C22.2 No. 60950-1-03 Certified |
| RoHS | Compliant to RoHS EU Directive 2002/95/EC |
| EMC | FCC and EN 55022, Class A; FCC, Class A |
| ESD | EN61000-4-2, Level 4 |

## Outline Drawing



# 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. Lineage Power 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.

## Applications

- Telecommunications networks
- Digital subscriber line (DSL)
- Indoor/outdoor wireless
- Routers/switches
- Fiber in the loop
- Transmission
- Data networks
- PBX

## Key Features

### Remote Access and Features

- Integrated 10/100Base-T Ethernet Network
  - TCP/IP
  - SNMP V2c for management
  - SMTP for email
  - Telnet for command line interface
  - DHCP for plug-n-play
  - FTP for rapid backup and upgrades
  - HTTP for standard web pages and browsers
  - 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

### 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 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

| 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 to 167 °F) |
| Operating Relative Humidity | 0 - 95% (non-condensing) |
| Storage Temperature Range | -40°C to +85°C (-40 to 185 °F) |
| Physical Specifications | Sizes vary by packaging option |
| Display | 8-line by 40-character with alarm context sensitive backlit LCD |
| EMC | FCC/EN55022 Class A, CISPR22 Level A |

| Agency Certifications | |
|---|---|
| Electrostatic Discharge | EN 61000-4-2 level 4 |
| Radiated Emissions | FCC Part 15, Class B<br>EN55022 (CISPR22), Class A |
| 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 |
| RoHS | Compliant to RoHS EU Directive 2002/95/EC |

# Infinity M System

Infinity M may be configured as a +24V or -48V single voltage power system or as a dual voltage power system that supports rectifiers and converters. The primary voltage is supported by +24V or -48V rectifiers and battery reserve, while secondary voltage is supported by DC-DC converters. Infinity-M includes dedicated 24V, 48V and return buses. The primary voltage capacity is 1,600A at 24V and 1,200A at 48V. Secondary voltage capacity is up to 600A. The system includes low voltage battery disconnect option for the primary voltage. A low voltage load disconnect option can be used for load shedding to maintain critical loads.

## Applications

- Wireless Telecom networks
- Central Office
- Indoor/outdoor wireless
- Transmission
- Data networks
- PBX

## Key Features

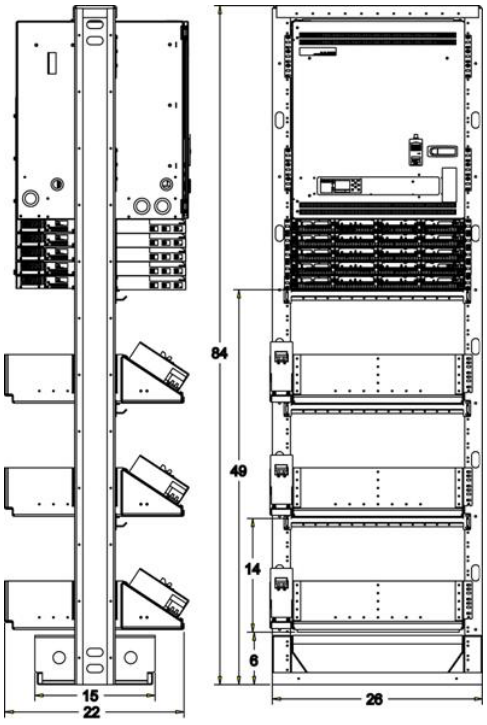
- Dual Voltage Flexibility
- Redundant fan cooling
- Front panel LED indicators
- 1U height, hi power density
- 220/110 V AC input
- Digital load sharing
- Hot pluggable
- RoHS compliant

## Specifications

| Input | Min | Typ | Max | |
|---|---|---|---|---|
| Voltage Range<br>- High-Line<br>- Low-Line | <br>175Vac<br>85Vac | <br>220Vac<br>110Vac | <br>275Vac<br>140Vac | <br>Only available in 24V Rectifiers |
| Frequency | 45Hz | 60Hz | 66Hz | |
| Power Factor | 98% | 99.5% | | |
| Efficiency | | Approaching 97% | | |
| Total Harmonic Distortion | | | 5% | |
| **Primary Output** | | | | |
| Nominal Voltage | 24Vdc | | -48Vdc | |
| Output Current | 1,600A | | 1,200A | |
| Vo Setpoint (factory) | 27.2Vdc±1% | | -54.5Vdc±1% | |
| Vo Range | +21Vdc to +29Vdc | | -42Vdc to -58Vdc | |
| Regulation | ±0.5% | | | |
| **Secondary Output** | | | | |
| Nominal Voltage | -48Vdc | | 24Vdc | |
| Output Current | 600A | | 600A | |
| Vo Setpoint (factory) | -54.5Vdc±1% | | 27.2Vdc±1% | |
| Vo Range | -42Vdc to -58Vdc | | +21Vdc to +29Vdc | |
| Regulation | ±0.5% | | | |
| **Mechanical** | | | | |
| Height (in. /mm) | 31.5 / 800 (Base system with 4 power shelves) | | | |
| Width (in. /mm) | 23 / 584.2 (Standard Frame) | | | |
| Depth (in. /mm) | 21 / 533.4 | | | |
| Weight (lb / Kg) | 350 / 159 (Base System with 4 power shelves and 7ft frame, no rectifiers) | | | |

| Environmental | |
|---|---|
| Operating Temperature | -40°C to +75°C (-40 to 167 °F) |
| Storage Temperature | -40°C to +85°C (-40 to 185 °F) |
| Power De-Rating | 2% per °C from +65°C to +75°C |
| Relative Humidity | 95% max, non-condensing |
| Altitude | 4,000M max |
| **Safety and Standards Compliance** | |
| NEBs | Evaluated by independent NRTL test lab to Telcordia GR63 and GR1089-CORE, Issue 4 |
| Safety | CE mark to Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/E<br>UL 60950¬1-1 Recognized<br>CSA C22.2 No. 60950-¬1-¬03 Certified |
| RoHS | Compliant to RoHS EU Directive 2002/95/EC |
| EMC | FCC and EN 55022, Class A; FCC, Class A |
| ESD | EN61000-4-2, Level 4 |

## Outline Drawing



# Ordering Information – Infinity M Power System

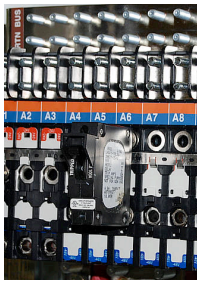
## Ordering Guide

Infinity M may be configured as a +24V or -48V single voltage power system or as a "dual voltage" power system that supports rectifiers and converters. The primary voltage is supported by +24V or -48V rectifiers and battery reserve, while secondary voltage is supported by DC-DC converters. The primary voltage capacity is 1,600A at both 24V and 48V. Secondary voltage capacity is up to 600A.

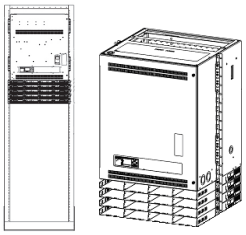
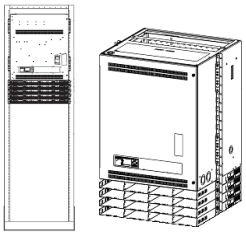
Infinity M systems may be equipped in a 7ft framework, a half height (42") frame for mounting on battery stands, or supplied frameless for field install applications.

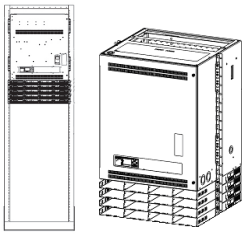
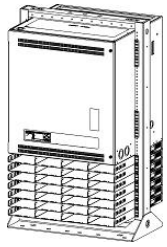
### Features

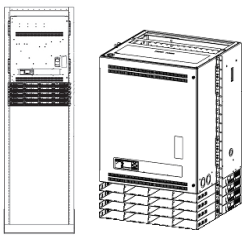
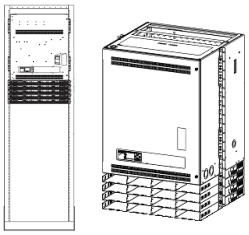
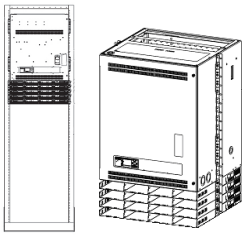
- Infinity Series Rectifiers for +24V and -48V applications.
- Dual Voltage Bus architecture for easy growth and voltage migration
- DC-DC Converter support for dual voltage systems
- DC Distribution for both voltages, with Selectable Voltage panel availability
- Temperature hardened harsh environments. (-40ºC to +75ºC)
- Compact size: Base System with 4 power shelves occupies 18 RU (31.5 in) of 23" rack space (21" depth)
- Frame options – Factory installed in 7ft or 42" tall, 23" wide frame or field installed in user supplied frame
- Battery connections, LVBD and LVLD options.
- Plug-N-Play Pulsar Plus controller with Web based interface for local and remote (LAN) access.
- Distribution options include 3A-250A bullet style circuit breakers, large G-J breakers to 600A and GMT fuses



# Step 1: Select the Base Power System

| -48V Primary voltage systems | | | | |
|---|---|---|---|---|
| **Output** | **Ordering Code** | **Model** | **Frame** | **Picture** |
| -48V | CC109152220 | 800A -48V single voltage system, includes 65 bullet breaker positions, plus 8 positions for large breakers, 4 Universal power shelves in 7ft Zone 4 frame, Door Mounted Pulsar 843C Controller, NO LVBD | 7ft x 23" (Approx 34" open at bottom) |  |
| 800A | | H5692448, G103, G843C, G220, G614, G622(2) | System Width 23" | |
| -48V | CC109152212 | 1,200A -48V single voltage system, includes 65 bullet brekaer positions, plus 8 positions for large breakers, 6 Universal power shelves in 7ft Zone 4 frame, Door Mounted Pulsar 843C Controller, NO LVBD | 7ft x 23" (Approx 30" open at bottom) |  |
| 1200A | | H5692448, G103, G843C, G220, G614, G622(2), G300 (2) | System Width 23" | |

| -48V Primary voltage systems with +24V converters | | | | |
|---|---|---|---|---|
| **Output** | **Ordering Code** | **Model** | **Frame** | **Picture** |
| -48V +24V | CC109146610 | 800A 48V system, includes 80 cb positions (65 positions primary voltage and 15 positions secondary voltage), 4 Universal Power shelves, in 7ft Zone 4 frame (maximum 1200 lbs.), Door Mounted Pulsar 843C Controller, NE830 Voltage Monitor, LVBD | 7ft x 23" (Approx 34" open at bottom) |  |
| 48V, 800A<br>24V, 300A | | H5692448, G104, G220, G600N, G615, G622-2, G843C | System Width 23" | |
| -48V +24V | CC109136917 | 1,000A 48V system, includes 55 cb positions (40 positions primary voltage and 15 positions secondary voltage), 5 Universal Power shelves, in 42", half height frame, Door Mounted Pulsar 843C Controller, NE830 Voltage Monitor, NO LVBD | 42" x 23" |  |
| 48V, 1000A<br>24V, 300A | | H5692448, G102, G843C, G830, G220, G615, G622, G300 | System Width 23" | |

| +24V Primary voltage systems with -48V converters | | | | |
|---|---|---|---|---|
| **Output** | **Ordering Code** | **Model** | **Frame** | **Picture** |
| +24V -48V | CC109141974 | 1,200A 24V system, includes 80 cb positions (65 positions primary voltage and 15 positions selectable voltage), 4 Universal Power shelves, LVBD, 7ft Zone 4 frame, Door Mounted Pulsar 843C Controller, NE830 Voltage Monitor, LVBD | 7ft x 23" (Approx 34" open at bottom) |  |
| 24V, 1200A 48V, 120A | | H5692448, G103, G843C, G830, G210, G618, G622(2), 600N | System Width 23" | |
| +24V -48V | CC109141990 | 1800A 24V system, includes 80 cb positions (65 positions primary voltage and 15 positions selectable voltage), 7 Universal power shelves in 7ft Zone 4 frame (maximum 1200 lbs.), Door Mounted Pulsar 843C Controller, NE830 Voltage Monitor, NO LVBD | 7ft x 23" (Approx 34" open at bottom) |  |
| 24V, 1800A 48V, 120A | | H5692448, G104, G843C, G830, G210, G618, G622(2), G300 (3) | System Width 23" | |
| +24V -48V | CC109141966 | 1,200A 24V system, includes 80 cb positions (65 positions primary voltage and 15 positions selectable voltage), 4 Universal Power shelves, in 7ft Zone 4 frame (maximum 1200 lbs.), Door Mounted Pulsar 843C Controller, NE830 Voltage Monitor, NO LVBD | 7ft x 23" (Approx 34" open at bottom) |  |
| 24V, 1200A 48V, 120A | | H5692448, G104, G843C, G830, G210, G618, G622(2) | System Width 23" | |

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# Notes:

# Step 2: Select Rectifiers and Converters

| Rectifiers | | | |
|---|---|---|---|
| | Ordering Code | Model | Photo |
| R ~ | CC109138302 | 95-150Vac input, 24V, 45A output<br>175-275Vac input, 24V, 100A output |  |
| 100A | | NE100AC24 | |
| R ~ | CC109124913 | 175-275Vac input, 48V, 50A output |  |
| 50A | | NE050AC48 | |
| R ~ | CC109163473 | 95-150Vac input, 48V, 25A output<br>175-275Vac input, 48V, 75A output |  |
| 75A | | NE075AC48TEZ | |

| Converters | | | |
|---|---|---|---|
| | Ordering Code | Model | Photo |
| C ⎓ | CC109112471 | 21-29 Vdc input, 48V, 30A output |  |
| 30A | | NE030DC48 | |
| C ⎓ | CC109142881 | 42-58 Vdc input, 24V, 75A output |  |
| 75A | | NE075DC24 | |

# Step 3: Select Alarm Cables

| Alarm Cables | | |
|---|---|---|
| Ordering Code | Model | Photo |
| CC848817651 | 50ft Auxiliary input alarm cable for Pulsar Plus Controller |  |
| CC848817668 | 150ft Auxiliary input alarm cable for Pulsar Plus Controller | |
| CC109157442 | 15ft alarm cable for Pulsar Plus Controller | |
| CC848817635 | 50ft alarm cable for Pulsar Plus Controller | |
| CC848817643 | 150ft alarm cable for Pulsar Plus Controller | |

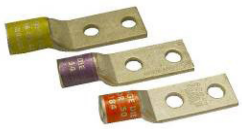
# Step 4: Select Distribution Components

*Note: Infinity M systems all support plug-in (bullet style) breakers or fuse modules. Larger breakers can be 2 or even 3 poles. The multi-pole breakers MUST be used with the appropriate multi-pole adapter to parallel the poles for proper operation.*

| Bullet Style Load Circuit Breakers | | | | |
|---|---|---|---|---|
| **Ordering Code** | **Amperage** | **CB Positions (Poles)** | **Min Wire Gage** | **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 | |
| CC848808551 | 100 | 2 | 2 |  |
| 408185353 | 125 | 2 | 2 | |
| 408185346 | 150 | 2 | 1/0 | |
| 408564941 | 200 | 3 | 2/0 |  |
| 408573975 | 225 | 3 | 4/0 | |
| 408535752 | 250 | 3 | 4/0 | |
| CC848756916 | 2-pole Adapter bus for 100-150A breakers (order 2 per 2 pole breaker to accommodate load and return lugs) | | |  |
| CC848756924 | 3-pole Adapter bus for 200-250A breakers (order 2 per 3 pole breaker to accommodate load and return lugs) | | |  |

| Bullet Style Fuse Holder and TPS Fuses | | | | |
|---|---|---|---|---|
| **Ordering Code** | **Amperage** | **WP-92461 List** | **Min Wire Gage** | **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<br>(Alarms on Blown Fuse or Fuse Head Removal) | | | |
| CC408617410 | Bullet Fuse Holder, TFD-101-011-10 (Alarms on Blown Fuse Only) | | | |
| **Bullet Style GMT Fuse Holder and GMT Fuses** | | | | |
| 405006222 | 0.25A | | | |
| 406976894 | 0.5A | | | |
| 405673146 | 1.33A | | | |
| 405181983 | 2A | | | |
| 406976985 | 3A | | | |
| 406159061 | 5A | | | |
| 405725433 | 7.5A | | | |
| 406159236 | 10A | | | |
| 406473959 | 12A | | | |
| 406700690 | 15A | | | |
| CC109103157 | 6-pos GMT Bullet Fuse Holder (Requires 2 bullet postions) | | | |
| 408515823 | Fuse Puller | | | |

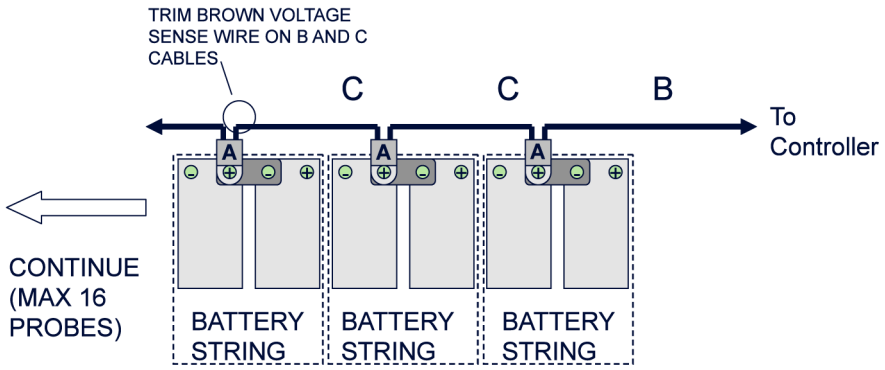
| KS22012 GJ Style Breaker Kits for Field Installation of Group 617 / 614 Distributions | | |
|---|---|---|
| **Ordering Code** | **Description** | **Photo** |
| CC109127635 | 150A Single Pole Breaker |  |
| CC109127627 | 250A Single Pole Breaker | |
| CC109127486 | 400A Two Pole Breaker |  |
| CC109151767 | 600A Three Pole Breaker |  |

| Terminal Lugs for Bullet Style Breakers and TPS Fuses (1/4" bolt on 5/8" centers) | | | | |
|---|---|---|---|---|
| **Ordering Code** | **STR Wire GA (Class B)** | **Flex Wire GA (Class I)** | **WP-91412 List** | **Photo** |
| 406021626 | 8 | 8 | 75 |  |
| 405347519 | 6 | 6 | 3 | |
| 405347576 | 4 | 4 | 5 | |
| 405348202 | 2 | - | 54 | |
| 405347683 | - | 2 | 8 | |
| **Terminal Lugs for Battery and Large Breakers (3/8" bolt on 1" centers)** | | | | |
| 406338665 | 2 | - | - |  |
| 405348228 | 1/0 | - | - | |
| 405348236 | 2/0 | 1/0 | - | |
| 406021725 | - | 2/0 | - | |
| 405348251 | 4/0 | - | - | |
| 405347923 | - | 4/0 | - | |
| 407890763 | 350 | - | - | |
| 407890748 | - | 350 | - | |
| 406335141 | 750 | - | - | |
| 407890730 | - | 750 | - | |

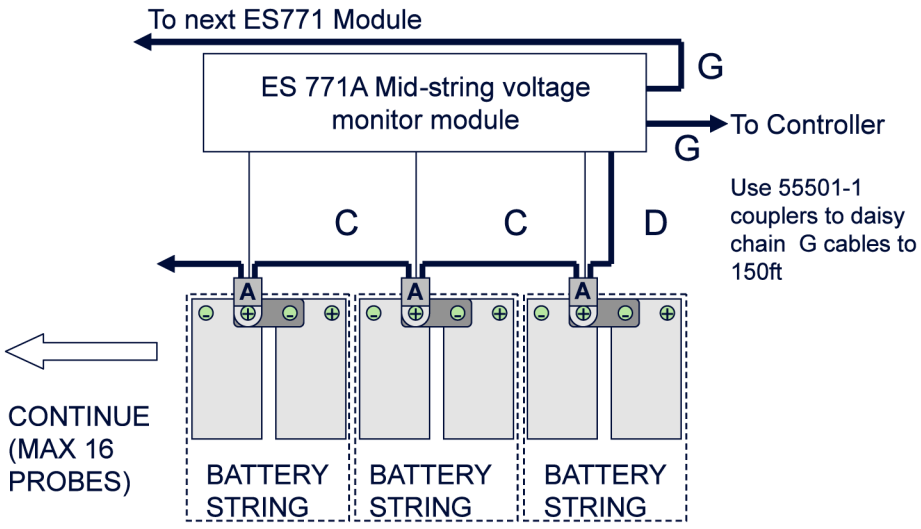
# Step 5: Select Battery Monitoring

| Ordering Code | Description | | Photo |
|---|---|---|---|
| CC109142980 | QS873A Thermal Probe (A) | |  |
| CC848817024 | 10 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) | |
| 108958422 | ES771A Battery Voltage Monitor Card | | |
| CC848791517 | 2-1/2 ft wire set | (D: ES771A to thermal probe) | |
| 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 (for extending item G above) | | |

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.




Temperature Measurement




Temperature and Voltage Measurement

# Shelf Specifications

| Mechanical | |
|---|---|
| Height | 14RU main cabinet plus 1RU per power shelf – Base system 18RU (49 inches / 1244mm) |
| Width (with mounting ears) | 23 inches (584mm) |
| Depth | 21 inches (534mm) |
| Weight (without rectifiers) | Approximately 350lbs (160kg) – Main System cabinet, 7 power shelves, 7ft frame |
| **Environmental** | |
| Operating Temperature Range | -40°C to +75°C (-40 to 167 °F) |
| Operating Relative Humidity | 0 - 95% (non-condensing) |
| Storage Temperature Range | -40°C to +85°C (-40 to 185 °F) |
| EMC | FCC, EN 55022, CISPR22, Level A, conducted and radiated |
| Immunity | FCC and CISPR22 (EN55022) Class A2 |
| **Agency Certifications** | |
| UL | Canada/US UL60950/UL1801 |
| EMI/EMC | CISPR class B conducted and radiated |
| CE | CE mark meets 73/23/EEC and 93/68/EEC directives |

# Additional Information

## Product Documentation

H5692448: Ordering Guide
A copy of the appropriate installation manuals below ship with each system.

CC848815325: H5692448 Installation Guide

CC848815341: Advanced Features User Guide for the Pulsar Plus Controller, 167-792-183

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## Notes:

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## Notes:

## 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

Lineage Power 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

Lineage Power 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

Lineage Power 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.

The Lineage Power Infinity M comes with a 2 year hardware warranty. For full warranty terms and conditions please go to www.lineagepower.com/warranty.

## Contact Us

For more information, call Lineage Power toll free at **877-LINEAGE (877-546-3243)**, or +1 972 244 9288 and visit us on the Web at **lineagepower.com**







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