

Infinity C™ DC to DC Power System

Models 663-664



- Negative (663) or Positive (664) Output
- Large plant features in a small plant package
- Battery management including discharge test
- Industry leading efficiency of 93%

Overview

The GE Infinity C introduces a new concept in flexibility, scalability, and functionality in small stand alone shelf power. The Infinity C DC to DC power system can be powered from any readily available DC battery plant and provides reliable, protected power to a variety of load devices. The system's configurable design enables users to tailor power capacity, input feed, and protection devices to fit numerous application spaces.

Input power feed may be 24VDC or 48VDC. Up to 4 slots are available for converters that feed a common output bus. Input power may be bulk fed to all power slots or individually feed to each slot. As many as 6 plug-in or bolt-in CB and 10 GMT positions can be equipped in a single shelf.

Shelf / System Options

A complete system requires only 2U (3.5") of space and mounts in a 19 inch frame or 23 inch frame with expansion brackets.

Each shelf is a complete system including a controller and distribution options.

Infinity Converters

The Infinity C offers DC to DC converters for both +24V to -48V and -48V to +24V applications. Converters are color coded to quickly identify the voltage (orange for +24V and blue for -48V).

Converter Options:

- NE075DC24 Converter, 75A/24V Output
- NE030DC48 Converter, 30A/48V Output

Pulsar Edge Controller

Infinity C features the Pulsar Edge controller delivering large system intelligence in a small system form factor. Ethernet connectivity with SNMP facilitates remote network management.

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
- Flexible Upgrade Options

On Time Delivery

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

Total Efficiency

The GE 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 competitive alternatives.



Infinity Converters



- **Compact** - 1RU form factor providing high power density (24 W/in³)
- **Dual Voltage compatibility** – the unique connector pin designation allows the converter to be used in a “universal” power shelf.
- **Plug and Play** – installation of the converter 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 converter functions and communicates with the system controller using the built in Galaxy Protocol serial interface.
- **Fail safe performance** – hot insertion capabilities allow for converter 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

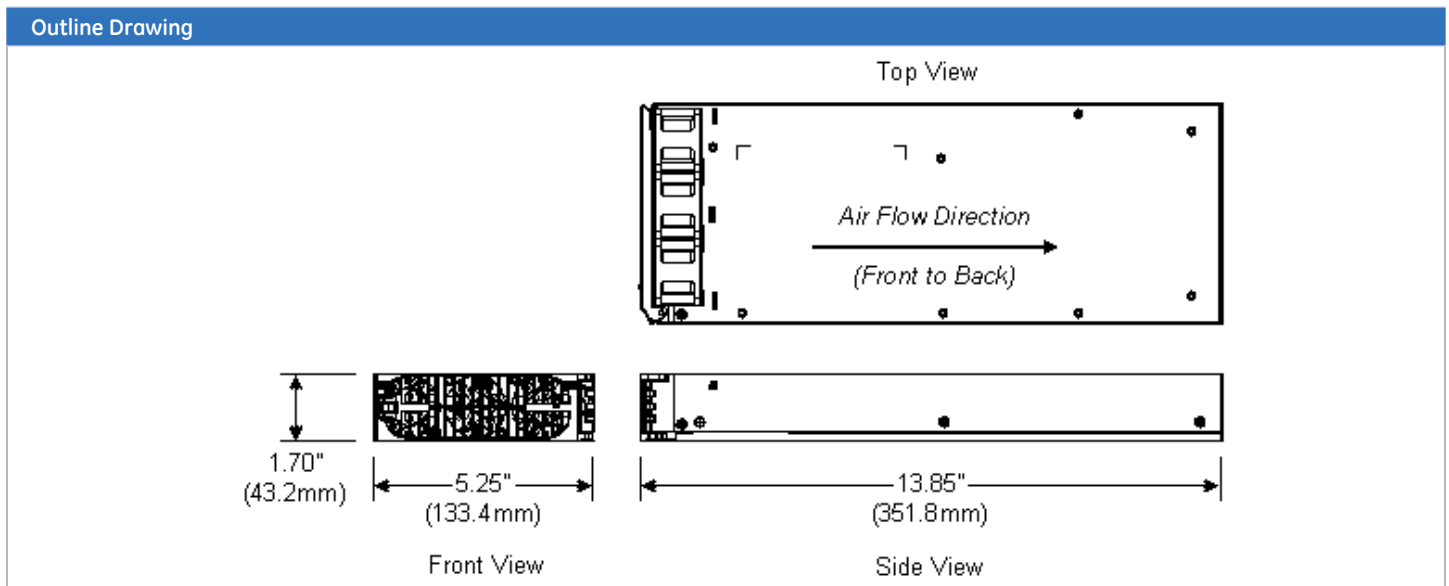
Key Features

- Extended temperature range
- Redundant fan cooling
- Front panel LED indicators
- 1U height, hi power density
- +24 or -48V input
- Digital load sharing
- Hot pluggable
- RoHS compliant

Specifications

Input	NE030DC48	NE075DC24
Voltage Range	21-30Vdc	42-60Vdc
Input Current	63A @27Vdc 81A @21Vdc	41A @54.5Vdc 54A @42Vdc
Efficiency	92%	93%
Output		
Voltage Adjust Range	46-57Vdc	23-28Vdc
Voltage Nominal	52.0V	27.2V
Regulation (with controller)	±0.5%	±0.5%
Ripple	100mVrms	100mVrms
Psophometric Noise	2 mV	2 mV
Output Current	30A @52.0V	75A @27.2V
Heat Dissipation @ max out	154W / 525 BTU/hr	202W / 689 BTU/hr

Environmental	
Operating Temperature	-40°C to +65°C (-40°F to 149°F)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Humidity	< 95% non-condensing
Altitude	4000M (for altitudes above 2000M, peak operating temperature de-rates 0.656° C /100M; 4000M peak temperature rating is 62° C)
Mechanical	
Length (inch/mm)	13.85 / 351.8
Width (inch/mm)	5.23 / 133
Height (inch/mm)	1.63 / 42
Weight (lb/Kg)	5.6 / 2.54
Safety and Standards Compliance	
NEBs	Evaluated by independent NRTL test lab to Telcordia GR63, Issue 3 & GR 1089, Issue 5
Safety	UL 60950-1, 2nd Ed. Recognized CSA C22.2 No. 60950-1-03 Certified
RoHS	Compliant to RoHS EU Directive 2002/95/EC; RoHS 5/6
EMC	European Directive 2004/108/EC; EN55022, Class A; EN55024; FCC, Class A; GR1089-CORE, Issue 5
ESD	EN61000-4-2, Level 4



Pulsar Edge Controller



The Pulsar Edge controller delivers large system intelligence in a small system form factor. This family of controllers functions as a network interface controller (NIC) and as a full-featured battery plant controller to the Infinity C platform. Its thin modular plug-in form factor minimizes shelf space

Applications

- Enterprise Networks - Voice, Data, PoE
- Telecommunications networks

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

consumption allowing maximum power module and distribution capabilities yet provides nearly all the features found in controllers used in much larger power systems.

The Pulsar Edge controller is utilized in bulk power applications in data centers and enterprise applications. Ethernet connectivity with SNMP facilitates remote network management access through its front-accessible RS232 and is aided by the EasyView2 graphical user interface.

As a battery plant controller, it provides a complete set of features to monitor and control converters, batteries, and distribution.

- Transmission equipment
- Fiber in the loop

A flexible set of configurable inputs allow the Pulsar Edge to monitor a wide variety of system equipment and incorporate appropriate state information enabling a centralized point of management.

The 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.

- Routers/switches
- Data networks

Standard System Features

- Monitor and control of more than 40 connected devices
 - Maximum of 32 rectifiers
 - Maximum of 6 distribution control cards
 - Robust RS485 system bus
- Standard and user defined alarms
 - Alarm test
 - Assignable alarm severity: Critical, Major, Minor, Warning, and record-only
- Rectifier management features
 - Automatic rectifier restart
 - Active Rectifier Management (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

Specifications

General	
Operating Voltage	±24 Vdc, ±48 Vdc (Range: ±18 to ±60 Vdc)
Input Power	Less than 7W
Operating Temperature Range	-40°C to +70°C (-40°F to 156°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
EMC	FCC/EN55022 Class A, CISPR22 Level A

Agency Certifications	
Electrostatic Discharge	EN6100-4-2 level 4
Radiated Emissions	FCC Part 15, Class B 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

Ordering Information – Infinity C™

Models 663-664

The Infinity C can be configured in 19" wide framework. For 23" applications, mounting brackets can be used. Both +24V to -48V and -48V to +24V applications can utilize as little as 2U of rack space. Each shelf is a complete system including a controller and distribution options. The 19" shelf can hold up to four converter modules.

Key Features

- Negative (663) or Positive (664) Output
- Large plant features in a small plant package
- Battery management including discharge test
- Industry leading efficiency of 93%



Step 1: Select DC to DC Power System

Universal Bulk Output			
Output	Ordering Code	Model	Picture
	663-10ND24	+24V to -48V DC converter shelf with (4) power slots and (6) load breaker positions. Includes basic controller with (1) display.	
		J438663-664 L1	
	663-30ND24	+24V to -48V DC converter shelf with (3) power slots, (10) load GMTs, and (6) load breaker positions. Includes basic controller with (1) display.	
		J438663-664 L2	
	663-40ND24	+24V to -48V DC converter shelf with (4) power slots, (10) load GMTs, and (4) load breaker positions. Includes basic controller with (1) display.	
		J438663-664 L3	
	664-10ND48	-48V to +24V DC converter shelf with (4) power slots and (6) load breaker positions. Includes basic controller with (1) display.	
		J438663-664 L4	
	664-30ND48	-48V to +24V DC converter shelf with (3) power slots, (10) load GMTs, and (6) load breaker positions. Includes basic controller with (1) display.	
		J438663-664 L5	
	664-40ND48	-48V to +24V DC converter shelf with (4) power slots, (10) load GMTs, and (4) load breaker positions. Includes basic controller with (1) display.	
		J438663-664 L6	

Step 2: Select Mounting Frame





Ordering Code	Description
4320552CG	2RU, 19" to 23" frame mount bracket

Consult factory for other available configurations


Step 3: Select Alarm Cables


Alarm Cables		
Ordering Code	Model	Photo
CC848890161	5' Alarm output cable	
CC848890178	15' Alarm output cable	
CC848890186	50' Alarm output cable	
CC848890194	150' Alarm output cable	

Step 4: Select Converters


Converters			
	Ordering Code	Model	Photo
	109112471	21-29 Vdc input, 48V, 30A output	
30A		NE030DC48A	
	109142881	42-58 Vdc input, 24V, 75A output	
75A		NE075DC24A	
	109170668	Infinity Rectifier/Converter slot filler (full chassis)	
	4281051P	Blank panel for use in empty rectifier / converter positions	

Step 5: Select Distribution Components

Circuit Breakers				
Ordering Code	Amperage	Positions (Poles)	Min Wire Gauge	Photo
3050107P-2	2A	1	10	
3050107P-5	5A	1	10	
3050107P-10	10A	1	10	
3050107P-15	15A	1	10	
3050107P-20	20A	1	10	
3050107P-25	25A	1	10	
3050107P-30	30A	1	10	
3050107P-35	35A	1	10	
3050107P-40	40A	1	8	
3050107P-50	50A	1	6	
3050107P-60	60A	1	6	
3050107P-70	70A	1	2	
3050107P-80	80A	1	2	
3050107P-90	90A	1	2	

GMT Fuses			
Ordering Code	Amperage		Photo
405006222	0.25A		
3150439	0.5A		
405673146*	1.33A		
405181983	2A		
406976985	3A		
406159061	5A		
405725433	7.5A		
406159236	10A		

* Use as alarm fuse in TLS, TPS, & TPL fuse holders

Straight Lug (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		
Straight Lug (#10 bolt on 5/8" centers)					
405356171*	14-10	14-10	73		
405348178*	8	8	52		
406338400*	6	6	108		
Straight Lug (1/4" bolt on 3/4" centers)					
406338343	8	8	103		
406338442	6	6	110		
406338574	4	4	117		
406338673	2	-	122		
* Order 848201919 Hardware Kits (grade 2) for each Return Lug. Hardware is provided for Load Lugs.					

Shelf Specifications

Mechanical	
Height	3.5 inches (89mm)
Width (with mounting ears)	19 inches (482mm)
Depth	20 inches (508mm)
Weight (without converters)	27 Lbs (12.25kg)
Mechanical	
Operating Temperature	-40°C to +65°C (-40°F to 149°F)
Storage Temperature	-40°C to +85°C (-40°F to 185°F)
Humidity	< 95% non-condensing
Altitude	4000M (for altitudes above 2000M, peak operating temperature de-rates 0.656° C /100M; 4000M peak temperature rating is 62° C)
Safety and Standards Compliance	
NEBs Level 3	Evaluated by independent NRTL test lab to Telcordia GR63, Issue 3 & GR 1089, Issue 5
Safety	CSA C22.2 No. 60950-1-03 Certified for Canada and U.S.; UL 60950-1 First Ed.
RoHS	Compliant to RoHS EU Directive 2002/95/EC; RoHS 5/6
EMC	European Directive 2004/108/EC; EN55022, Class A; EN55024; FCC, Class A; GR1089-CORE, Issue 5
Agency Certifications	
CSA	CSA C22.2 No. 60950-1-03 and UL 60950-1 1st Ed.
EMI/EMC	European Directive 2004/108/EC; EN55022, Class A; EN55024; FCC, Class A; GR1089-CORE, Issue 5
NEBs Level 3	Evaluated by independent NRTL test lab to Telcordia GR63, Issue 3 & GR 1089, Issue 5

Additional Information

Product Documentation

CC848921016	Installation Manual
CC848836981	User guide for the Galaxy Pulsar Edge System Controller
CC848816612	Galaxy Pulsar Edge User Interface

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.ge.com/powerelectronics.



Contact Us

For more information, call us toll free at **+1 877 546 3243**, or +1 972 244 9288 and visit us on the web at www.ge.com/powerelectronics