

ORDERING GUIDE

# 596 Rectifier Retrofit



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## 596 Rectifier Retrofit

- Replace discontinued 596 product with Plug-and-Play module
- Saved distribution and cabling infrastructure
- NEBS and CEus Certified InfinityTE Rectifiers
- Efficiency approaching 97%

### Overview

OmniOn Energy has offered the 596 family of rectifiers from the early 1990s. 596 rectifiers can be found in the GPS4812, 2424, PXS Shelves, and OCS Cabinet applications. These power systems have a long history of service and through the evolution of technology have experienced a series of rectifier upgrades. To date, all changes have included the continued use of the original rectifier case. This new 596 replacement allows these legacy power systems to be upgraded with modern rectifiers, while leaving the distribution, shelves and frame in place.

To accommodate the OmniOn Energy Infinity TE series of rectifiers, a host-carrier is installed in each rectifier slot for a seamless transition to the Total Efficiency™ (TE) rectifier technology. Functionally, the Infinity TE rectifiers are designed to work with all existing controllers where the 596 rectifier was used. This would include the Vector, Pulsar, Pulsar Plus, Millennium 1 & 2 as well as the Galaxy SC controllers.

Replacing all the rectifiers will gain the greatest system efficiency, however the existing 596 units can continue to work side by side with the new Infinity TE series of rectifiers. No change is needed to the output distribution, batteries, or LVD contactor of these plants with this upgrade.

The Infinity TE rectifiers provide a cost-effective means of modernization and growth to this installed base of 596 rectifiers. For most applications the upgrade process is no more than the removal of the 596, replacement with a carrier and the insertion of the new Infinity TE rectifier.

### Infinity Rectifier

The Infinity TE rectifier series offers modules for use in +24V to -48V applications. Rectifiers are color coded to quickly identify voltage.

Rectifier Options:

- NE100AC24ATEZ Rectifier, 100A/24V Output
- NE050AC48ATEZ Rectifier, 50A/48V Output

### 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 emergency support
- Standard building blocks

## Total Efficiency

The OmniOn Energy 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 TE Rectifiers

- Compact - 1RU form factor providing high Power density (24 W/in<sup>3</sup>)
- 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

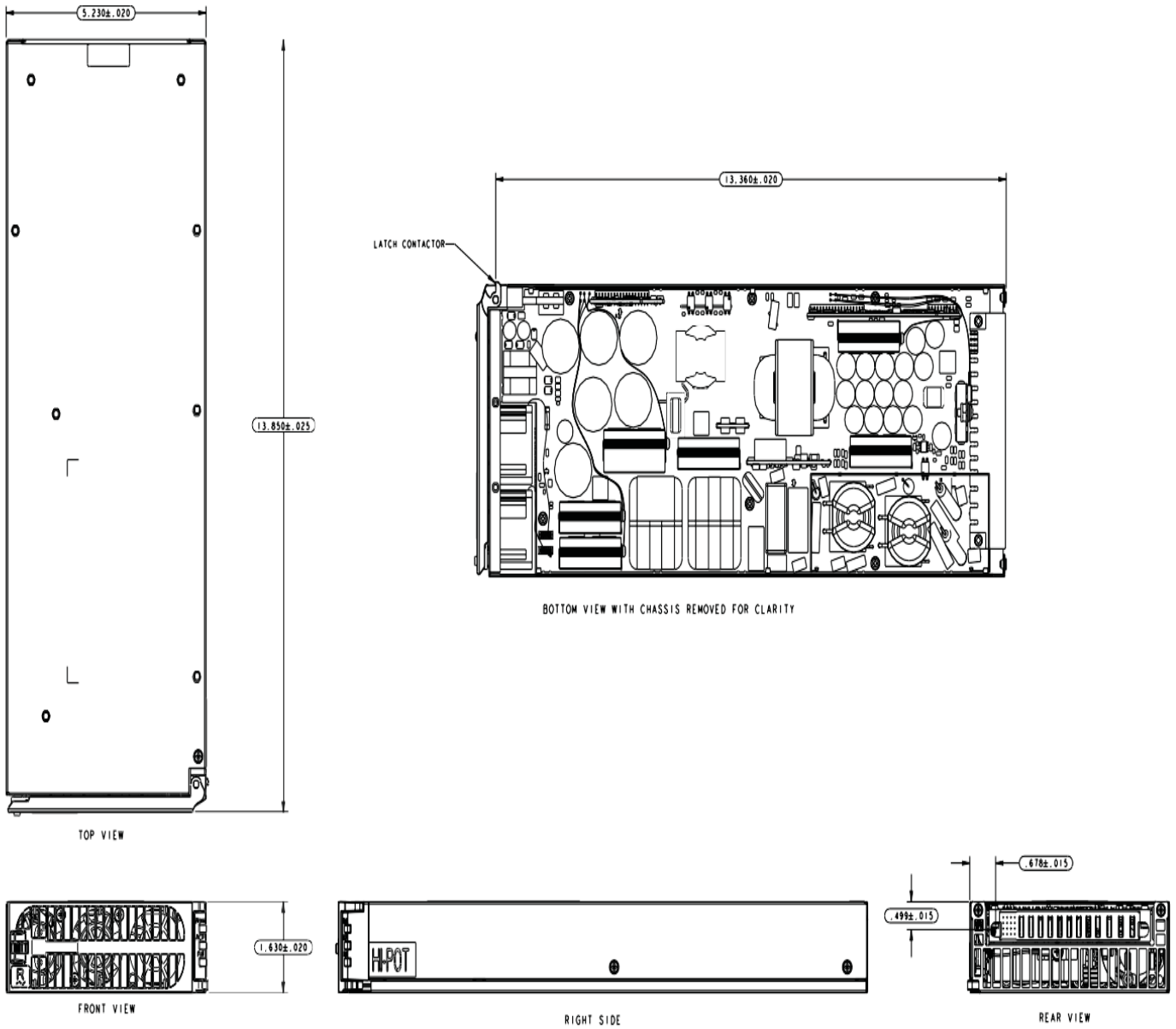
## Key Features

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

## Specifications

<b>Input</b>	<b>NE100AC24ATEZ</b>	<b>NE050AC48ATEZ</b>
Voltage Range	95-275Vac	95-275Vac
Input Current	15-12A @100-120Vac 15A @200-240Vac	15-12A @100-120Vac 15A @200-240Vac
Input Frequency	45 – 66Hz	45 – 66Hz
Power Factor	0.98 at>50% load	0.98 at>50% load
Efficiency	> 95% (Peak 95.6%)	> 96% (Peak 96.9%)
Total Harmonic Distortion	< 5% @loads over 50%	< 5% @loads over 50%
<b>Output</b>		
Voltage Adjust Range	21-29Vdc	42-58Vdc
Voltage Nominal	27.25V	54.5V
Regulation (with controller)	±0.5%	±0.5%
Ripple	100mVrms	100mVrms
Output Current High-Line Low-Line	100A @27.25V 44A @27.25V	50A @54.5V 22A @54.5V
Heat Dissipation @ max out	174W / 594 BTU/hr	158W / 539 BTU/hr
<b>Environmental</b>		
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	2000M max	
<b>Mechanical</b>		
Length (inch/mm)	13.85 / 352	
Width (inch/mm)	5.23 / 133	
Height (inch/mm)	1.63 / 42	
Weight (lb/Kg)	5.05 / 2.2	
<b>Safety and Standards Compliance</b>		
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 6/6	
EMC	European Directive 2004/108/EC; EN55022, Class A; EN55024; FCC, Class A; GR1089-CORE, Issue 5	

Outline Drawing



## Ordering Information – 596 Rectifier Retrofit

To accommodate the OmniOn Energy Infinity TE series of rectifiers, host-carrier is installed in each rectifier slot for a seamless transition to the Total Efficiency™ (TE) rectifier technology. Functionally, the Infinity TE rectifiers are designed to work with all existing controllers where the 596 rectifier was used. This would include the Vector, Pulsar, Pulsar Plus, Millennium 1 & 2 as well as the Galaxy SC controllers.

Replacing all the rectifiers will gain the greatest system efficiency, however the existing 596 units can continue to work side by side with the new Infinity TE series of rectifiers. No change is needed to the output distribution, batteries, or LVD contactor of these plants with this upgrade.

The Infinity TE rectifiers provide a cost-effective means of modernization and growth to this installed base of 596 rectifiers. For most applications the upgrade process is no more than the removal of the 596, replacement with a carrier and the insertion of the new Infinity TE rectifier.

### Key Features

- Replace discontinued 596 product with Plug-and-Play module
- Saved distribution and cabling infrastructure
- NEBS and CEus Certified Infinity TE Rectifiers
- Efficiency approaching 97%















### Conversion Chart

Match the existing rectifier in column 1-3 with the appropriate solution found in either columns 4-5 or 6-8. The associated Ordering Code will match one of the depicted solutions found in step 1.

596 Rectifier			Carrier With Rectifier /Ordering Code	Carrier Only Name/Ordering Code	TE Rectifier		
1	2	3	4	5	6	7	8
596A	107598120	48V/50A	Carrier 596D_1_NE050AC48ATEZ	CC109167581	Carrier 596D_1 _48v carrier only	CC109168927	CC109158878
596A2	108796400	48V/50A	Carrier 596D_1_NE050AC48ATEZ	CC109167581	Carrier 596D_1 _48v carrier only	CC109168927	CC109158878
596D	108962895	48V/100A	Carrier 596D_2_NE050AC48ATEZ	CC109167573	Carrier 596D_2 _48v carrier only	CC109159918	CC109158878
596B2	108067182	24V/100A	Carrier 596B_1_NE100AC24ATEZ	CC109167598	Carrier 596B_1 _24v carrier only	CC109159926	CC109160834
596B3	108036476	24V/100A	Carrier 596B_1_NE100AC24ATEZ	CC109167598	Carrier 596B_1 _24v carrier only	CC109159926	CC109160834
596B4	108687765	24V/100A	Carrier 596B_1_NE100AC24ATEZ	CC109167598	Carrier 596B_1 _24v carrier only	CC109159926	CC109160834
596B5	108969874	24V/125A	Carrier 596B_1_NE100AC24ATEZ	CC109167598	Carrier 596B_1 _24v carrier only	CC109159926	CC109160834
596B6	108982893	24V/125A	Carrier 596B_1_NE100AC24ATEZ	CC109167598	Carrier 596B_1 _24v carrier only	CC109159926	CC109160834

## Step 1: Select Rectifier Carrier





Selections in item 1 include all the necessary components to convert the 596 rectifier slot to accept the Infinity TE rectifier. Regardless of the chosen solution, existing 596 rectifiers (596A2, 596D, 596B4, 596B5, 596B6) remain compatible with the upgrade solution. Where growth may occur, the user may apply the upgrade solution including a 596 carrier and the Infinity TE type rectifier or continue to use the appropriate 596 rectifier if available.

Output	Ordering Code	Description	Photo
	CC109167573	(1) Carrier 596D, (2) NE050AC48ATEZ replaces 596D rectifiers	
100A			
	CC109167581	(1) Carrier 596D, (1) NE050AC48ATEZ replaces 596A and 596A2 rectifiers	
50A			
	CC109167598	(1) Carrier 596B, (1) NE100AC24ATEZ replaces 596B2, B3, B4, B5 and B6	
100A			
	CC109168927	(1) Carrier 596D for (1) 48v rectifier no rectifier include	
	CC109159918	(1) Carrier 596D for (2) 48v rectifiers no rectifiers included	
	CC109159926	(1) Carrier 596B for 24v rectifier no rectifier included	



## Step 2: Rectifiers

Each 24 volt rectifier carrier may be equipped with one 100 Amp Infinity TE rectifier. The two slot 48V carrier (CC109165573 or CC109159119) may only be used to replace 596D rectifiers. The single slot 48V carrier (CC109167581 or CC109168927) may be used with any 596A, A2 or D applications.

Output	Ordering Code	Description	Photo
	CC109160834	95 - 145Vac input, 24V, 44A Output, 175 - 275Vac input, 24V, 100A output; 145 - 175 linear output increase from 44A to 100A	
100A		NE100AC24ATEZ	
	CC109158878	95 - 145Vac input, 48V, 22A Output, 175 - 275Vac input, 48V, 50A output; 145 - 175 linear output increase from 22A to 50A	
50A		NE050AC48ATEZ	



## 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

OmniOn Energy 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

OmniOn Energy 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

OmniOn Energy 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

[omnionpower.com](https://www.omnionpower.com)

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