

## DATASHEET

# NE050AC48ATEZ Infinity Rectifier



## Feature and Advantages

- Compact – 1RU form factor provides high power density 24 Watts/in<sup>3</sup>
- Efficient – Peak efficiency of 95.6% occurs at 50% load matching sweet spots with customer use patterns.
- Flexibly provides 50 Amps of 48 Volt power.
- Operates over a broad temperature range (-40°C through +75°C).
- Starts and runs at any AC voltage from 95 to 305 V<sub>ac</sub>.
- 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.
- Extended service life – parallel operation with automatic load sharing ensures that units are not unduly stressed.

## Technical Specification

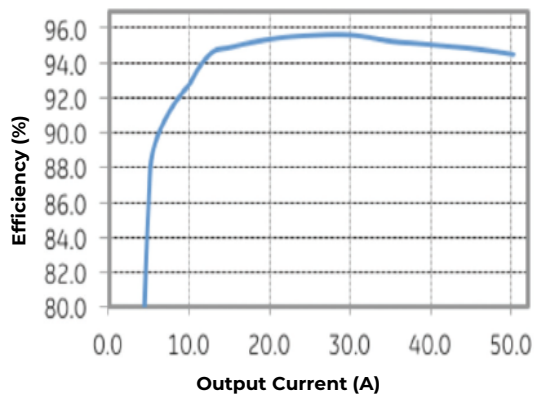
### Uncompromised Advanced Technology to Simplify Your Network

OmniOn Energy's NE050AC48 Infinity Single phase Rectifier is designed to efficiently transform energy from any AC source into the 48 Volt DC power needed for wireless cell sites. This means that one single rectifier can be used globally to meet all your 48V powering needs.

Efficiency is market leading for diode protected, true hot pluggable, 48 Volt rectifiers.

Efficiency vs. Output Current

(Temp: 25C, Vin: 240V<sub>ac</sub>, 60Hz)



The NE050AC48 offers a powerful combination of efficiency, network simplicity and reliability.

## A True System Solution

Infinity Rectifiers are part of the proven Infinity Power System particularly designed to meet the unique needs of wireless sites.

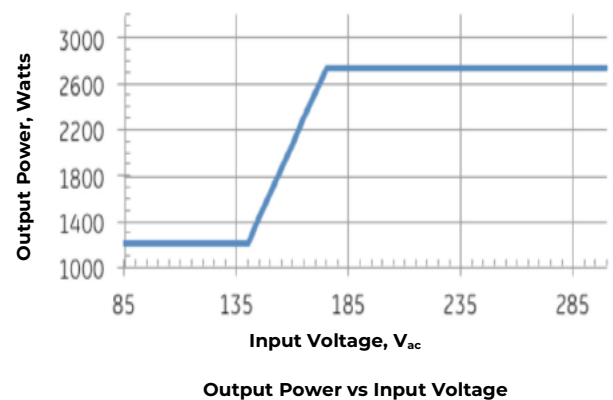
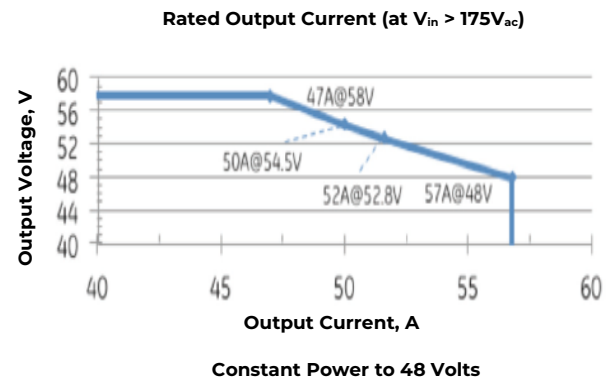
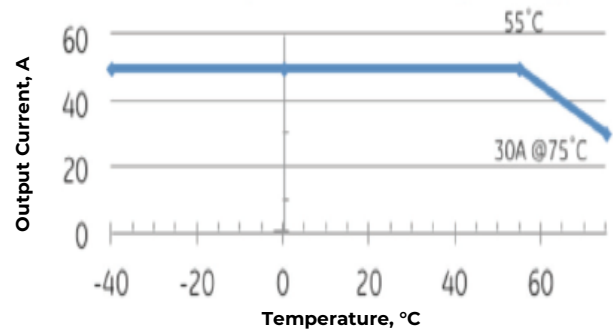
- Monitoring/control – the built in microprocessor controls and monitors all critical rectifier functions and communicates with the system controller using the built in Galaxy Protocol serial interface.
- Dual Voltage Compatible – unique connector pin designation allows the 48 Volt rectifier to be used in a “Universal” power shelf, alongside DC-DC converters supporting loads at 24 Volts dc.
- 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.
- Proportional Load Share – when paired with a NE075, both rectifiers share equal amount of load in relation to each unit's capacity.
- Meets most 3 phase needs. Works with 208V 3 Phase in a phase to phase configuration. Works from 480V 3 Phase in a line to neutral configuration.
- As part of the Infinity family of power system solutions, the NE050AC48 likely already has a complimentary shelf, battery and distribution system available to meet your power needs.

# Technical Specification (continued)

## Electrical Specifications

INPUT VOLTAGE & OUTPUT POWER	
Response to AC Input Voltage	Operates according to figure, turning on at all $V_{in}$ above $90V_{ac}$ . Output power $1200W < 140V_{ac}$ $2725W > 175V_{ac}$ Output power follows linear path between defined points. 300V max excursion voltage
AC Input Current	15A max @ $120V_{ac}$ 15 - 10.5 16A @ $200-277V_{ac}$
Inrush Current	<18A after narrow EMI capacitor peak
Power Factor	0.98 @ loads over 50%
THD	< 5% @ loads over 50%
Harmonics	EN6100-3-2
Holdover	15 milliseconds, with $V_{out, final} > 42 V$
Frequency	45-66Hz or Dc

OUTPUT	
$V_{out}$	+42-58V <sub>dc</sub> range Default = 54.5 V <sub>dc</sub>
$I_{out}$	22A @ low input line 50A @ high input line
Regulation	± 0.05% w/controller, 2% over life load and temperature
Dynamic Response	20 to 80% load step settles to less than 1% in 5 ms
Ripple	100 mV <sub>rms</sub> , 250 mV <sub>p-p</sub>
Voice Noise	<55dB <sub>BrnC</sub>
Efficiency	Approaching 96%
Start Up	Start up is monotonic
Soft Start	Starts up into fully discharged batteries.
Walk In	Current walk in over 8 to 10 seconds, can be disabled
Overload Shutdown	Shuts down with no damage when presented with a 15 milliohm short
Thermal Protection	Derates at 55°C and self protects with recoverable shutdown above 75°C



## Technical Specification (continued)

### Environmental, Compliance & Physical

Operating Ambient Temperature Range	-40°C to +75°C (Output derates at 2%/°C beginning at 55°C)
Cooling Method	Front to back airflow with onboard temperature controlled fans
Operating Relative Humidity	0 - 95% (non-condensing) for use in a controlled environment
Electromagnetic Compatibility	FCC Part 15, EN 55032 (CISPR32), EN 55035, Level A, GR-1089
Lightning Surge	EN/IEC 61000-4-5 Level 4 (Error free), ANSI C62.41 Category B 100 kHz ring and 1.2/50µs combination waves (6kV damage free)
Agency Certifications* Planned	ANSI/UL* 62368-1 and CAN/CSA† C22.2 No. 62368-1 Recognized, DIN VDE‡ 0868-1/A11:2017 (EN62368-1:2014/A11:2017)
Heat Release	158 Watts, or 539 BTU/hr at full load of 2725 Watts, Noise<60 dBA @ 25° C
Mean Time Between Failure (MTBF)	300k Hours @ 25°C per Telcordia SR-332, Method 1, Case 3
Height x Width x Depth, Weight, Packaged Weight	1.63x5.23x13.85in (42x133x352mm), 5.05 lbs (2.2 kg), 5.95 lbs (2.7kg)

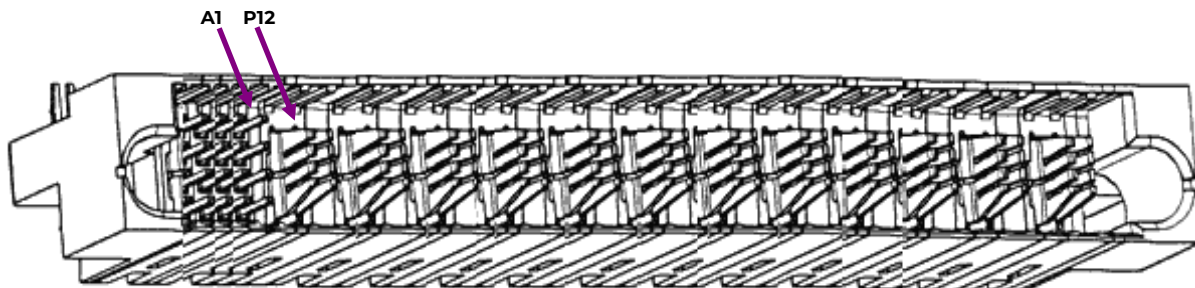
### Power Unit and Power Unit Shelf Connectors

#### Power Unit PWB

A4	A3	A2	A1	-48V	-48V	RTN	RTN	RTN	RTN	+24V	+24V	+24V	PE/ GND (ACEG)	L2/N	L1
B4	B3	B2	B1												
C4	C3	C2	C1			(-48/ +24V)	(-48/ +24V)	(-48/ +24V)	(-48/ +24V)						
D4	D3	D2	D1												
				P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1
4x Pins	4x Pins	4x Pins	4x Pins	Blade	Blade	Blade MFBL (long)	Blade MFBL (long)	Blade MFBL (long)	Blade MFBL (long)	Blade	Blade	Blade	Blade MFBL (long)	Blade	Blade

### OUTLINE DRAWING

Shown looking into the rear of the power unit



Power Unit Connector - AMP Multi-Beam XL (FCI # 51939-234LF or Tyco # 1900948-1)

## Technical Specification (continued)

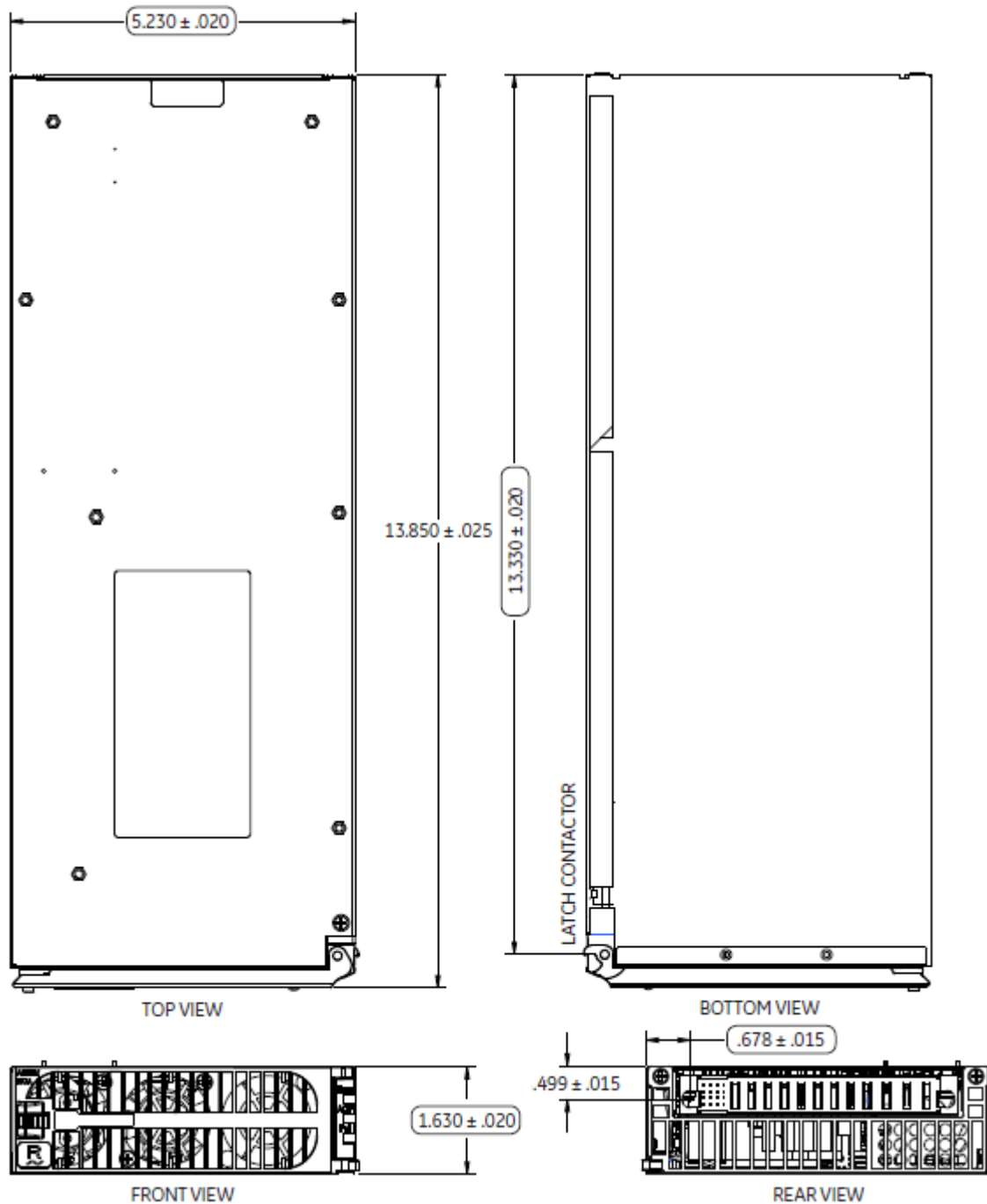
### Signals and Signal Pins

PIN	LENGTH	SIGNAL	DESCRIPTION	
A1	Long	RS-485-	Non-Inverting RS-485 signal line (RS-485 A)	
B1	Long	RS-485+	Inverting RS-485 signal line (RS-485 B)	
C1	Long	Factory Programming	Reserved for Factory Programming – Open Circuit in the system shelf.	
D1	Long	Return	<ul style="list-style-type: none"> <li>Signal Return for PSIDn, SIDn, &amp; Interlock</li> <li>Power Units Connect Return to NE Common Return internally.</li> <li>Power Units diode isolate the Return signals from each Power Slot.</li> </ul>	
A2	Long	PSID0	Power Slot Address 0	<ul style="list-style-type: none"> <li>Logic 1 = Open Circuit (~3.3V). Logic 0 = Connection to the Return signal (~0.7V).</li> <li>Left slot (front view) is Power Slot 1 and has address 000B.</li> <li>Power Slot ID signals are connected directly to the Return signal at each Power Slot or left open.</li> </ul>
B2	Long	PSID1	Power Slot Address 1	
C2	Long	PSID2	Power Slot Address 2	
D2	Long	SID3	Shelf Address 3	<ul style="list-style-type: none"> <li>Logic 1 = Connection to Return signal (~0.7V). Logic 0 = Open Circuit (~3.3V).</li> <li>Shelf addresses 1 (00001B) through 31 (11111B) are valid. Shelf address 0 (00000B) is invalid. Address 31 (11111B) disables comm. fail LED</li> <li>Power Unit Shelf ID signals connect to Shelf Return left open</li> </ul>
A3	Long	SID4	Shelf Address 4	
B3	Long	SID5	Shelf Address 5	
C3	Long	SID6	Shelf Address 6	
D3	Long	SID7	Shelf Address 7	
A4	Short	Interlock	<ul style="list-style-type: none"> <li>Disables power conversion within a Power Unit when not connected to the Return signal</li> <li>Power Unit Shelves connect Interlock directly to the Return signal at each Power Slot.</li> </ul>	
B4	Long	Factory Programming	Reserved for Factory Programming – Open Circuit in the system shelf.	
C4	Long			
D4	Long			

## Technical Specification (continued)

### Physical Interface Dimensions

#### OUTLINE DRAWING



## Change History (excludes grammar & clarifications)

Revision	Date	Description of the change
1.2	12/06/2021	Updated as per template
1.3	06/21/2023	Hide /missing content corrected on page - 2
1.4	10/20/2023	Updated as per OmniOn template
1.5	01/04/2024	Update to change FS to DS

**OmniOn Power Inc.**

601 Shiloh Rd.  
Plano, TX USA

[omnionpower.com](http://omnionpower.com)

We reserve the right to make technical changes or modify the contents of this document without prior notice. OmniOn Power does not accept any responsibility for errors or lack of information in this document and makes no warranty with respect to and assumes no liability as a result of any use of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of OmniOn Power. This document does not convey license to any patent or any intellectual property right. Copyright© 2023 OmniOn Power Inc. All rights reserved.