NE055AC48ATEZ (CC150042305) Infinity Rectifier

NE055AC48ATEZ Infinity Rectifier

Uncompromised Advanced Technology to Simplify Your Network

OmniOn Power™ NE055AC48ATEZ Infinity Single-phase Rectifier is designed to efficiently transform energy from any AC source into the 48 Volt DC power needed for Central Office, MTSO, wireless cellular sites, data center, and other integrated cabinet applications. This means that one single rectifier can be used globally to meet all your 48V powering needs.

Product efficiency is market leading for protected, true hot pluggable, 48 Volt rectifiers.

The NE055AC48ATEZ offers a powerful combination of efficiency, network simplicity and reliability.

A True System Solution

Infinity rectifiers are part of the proven Infinity Power System platform particularly designed to meet the unique needs of the ever-changing network landscape.

- Monitoring / control – built in multiple microprocessors control and monitor all critical rectifier functions and communicate with the system controller over an isolated RS485 interface using Galaxy Protocol (GP).
- Dual Voltage Compatible - unique connector pin designation allows the 48 Volt rectifiers to be used in “Universal” power shelves, alongside DC-DC converters supporting loads at 24 or 5 Volts dc.
- Plug and Play – installation of the rectifier in a shelf connected to a compatible system controller automatically initializes all set up parameters to standard defaults. Field adjustments through controller.
- Proportional Load Share – system controller digitally manages rectifier outputs by sharing equal amount of load in relation to each unit’s capacity.
- OSME – Output Standby Mode Enable/Disable feature in NE055AC48ATEZ allows unit to power-up into Standby after an AC cycle when coordinated with shelf IDs. Unit is taken out of standby through system controller command.

Features and Advantages

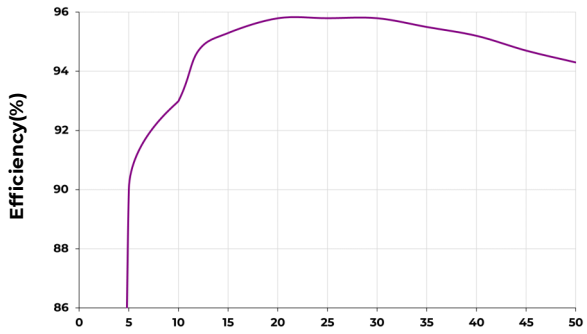
- Compact - 1RU form factor provides high power density 34 Watts/Cubic inch.
- Efficient - Peak efficiency of 95.7 % occurs at 50% load.
- Provides 55 Amps (3kW) of 48 Volt power from both conventional and sustainable sources of energy.
- Starts and runs at any AC voltage from 95 to 275 V_{AC}.
- Operates over a broad temperature range (-40°C through +75°C).
- Fail safe performance – hot insertion capabilities allow for rectifier replacement without system shutdown; soft start and inrush current protection prevents nuisance tripping of upstream breakers.
- Extended service life – parallel operation with automatic load sharing ensures that units are not unduly stressed.

Electrical Specifications

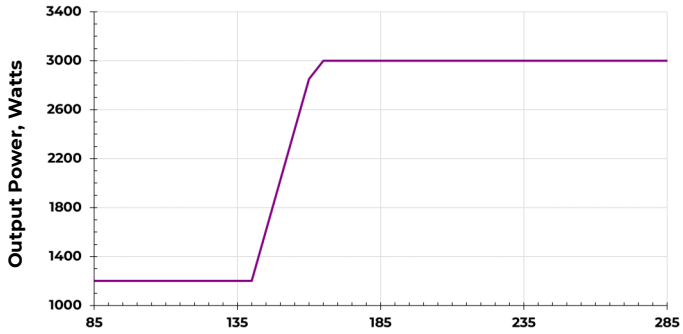
Input Voltage & Output Power	
Response to ac input voltage	Operates according to figure, turning on at all V_{in} above $90V_{AC}$. Output power: 1200W < $140V_{AC}$ 3000W @$140V_{AC}$ to $303V_{AC}$ Output power follows linear path between defined points. 300V max excursion voltage.
Ac input current	15A max @$120V_{AC}$ 16A @200-$240V_{AC}$
Power Factor	0.98@loads over 50%
THD	< 5% @loads over 50%
Holdover	15 milliseconds, with $V_{out\ final}$ >21 V for 24V rectifiers and >42V for 48V rectifiers (Not in compliance with Telcordia requirements: in regulation at full load at 60Hz and $175V_{AC}$. GR-947-CORE, section 3.7.)
Frequency	45-66Hz or DC

Output	
V_{out}	+42 - $58V_{DC}$ range Default = 54.5 V_{DC}
I_{out}	22A @ low input line 55A @ high input line
Regulation	± 1% w/controller
Ripple	100 mV_{rms}, 250 mV_{p-p}
Efficiency	Approaching 96%
Soft Start	Starts up into fully discharged batteries.

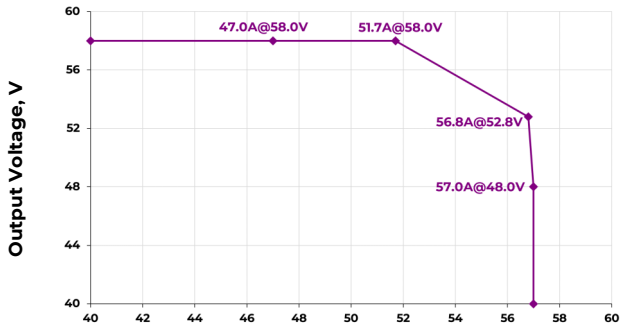
Characteristic Curves



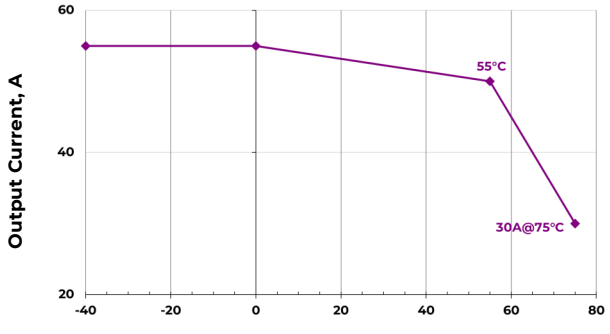
Efficiency, % Typical at $240V_{AC}$



Output Power vs Input Voltage



Constant power to 48 volts



Rated Output Current (at V_{IN} > $175V_{AC}$)

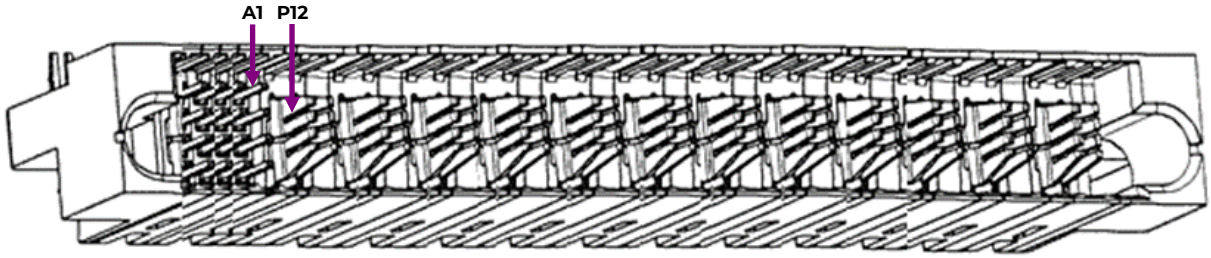
Environmental, Compliance & Physical

Operating Ambient Temperature Range	-40°C to +75°C (Output derates from 35°C/3000W to 55°C/2725W, and then 2%/°C till 75°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 55024, 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	UL1950, EN62368, CSA*234/950, NEBS GR-1089, GR-63-CORE
Heat Release	165 Watts, or 563 BTU/hr at full load of 3000 Watts
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 (2.7 kg)

Power Unit and Power Unit Shelf Connectors

Power Unit PWB															
A4	A3	A2	A1	-48V	-48V	RTN (-48 / +24V)	RTN (-48 / +24V)	RTN (-48 / +24V)	RTN (-48 / +24V)	+24V	+24V	+24V	PE/GND (ACEG)	L2/N	L1
B4	B3	B2	B1												
C4	C3	C2	C1												
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

Shown looking into the rear of the power unit



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

Signals and Signal Pins

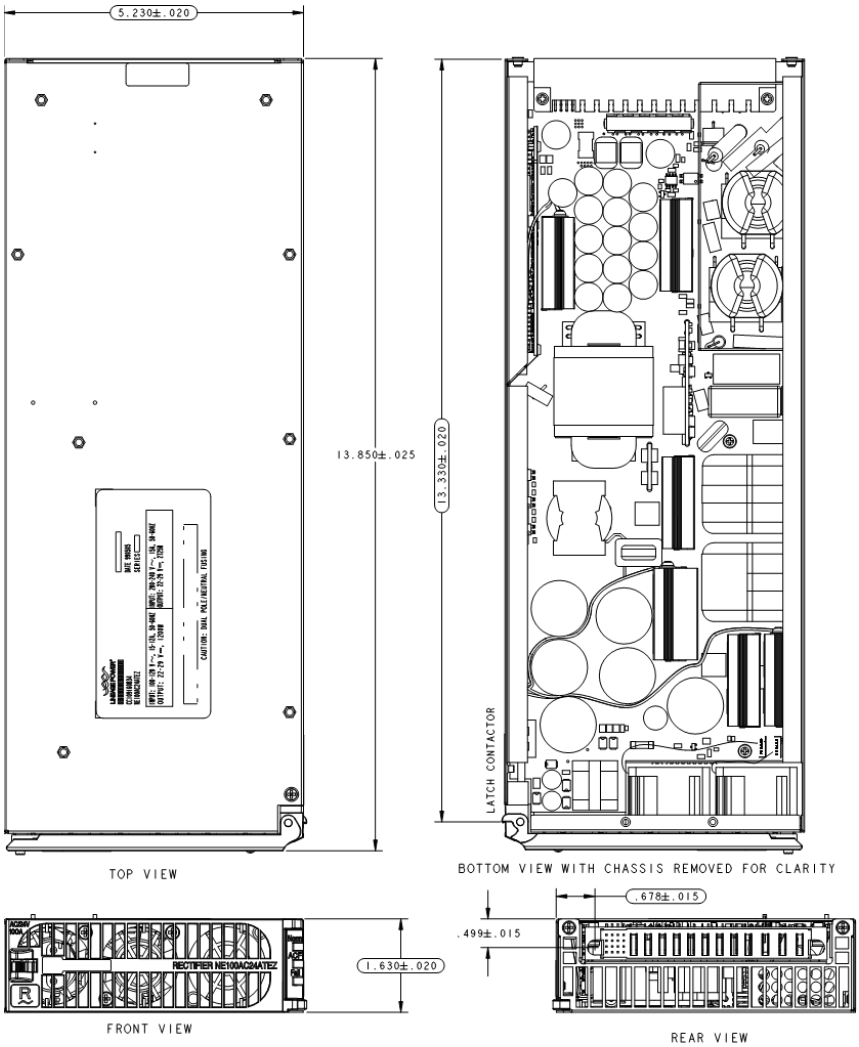
Pin	Length	Signal	Description
A1	Long	RS-485-	non-Inverting RS-485 signal line (RS-485 A)
B1	Long	RS-485+	Inverting RS-485 signal line (RS-485 B)
C1	Long	Factory Programming	Reserved for Factory Programming - Open Circuit in the system shelf
D1	Long	Return	• Signal Return for PSIDn, SIDn, & Interlock • Power Units Connect Return to NE Common Return internally. • Power Units diode isolate the Return signals from each Power Slot.
A2	Long	PSID0	Power Slot Address 0
B2	Long	PSID1	Power Slot Address 1
C2	Long	PSID2	Power Slot Address 2

- Logic 1 = Open Circuit (~3.3V). Logic 0 = Connection to the Return signal (~0.7V).
- Left slot (front view) is Power Slot 1 and has address 000B.
- Power Slot ID signals are connected directly to the Return signal at each Power Slot or left open.

Signals and Signal Pins (Continued)

Pin	Length	Signal	Description	Description
D2	Long	SID3	Shelf Address 3	• Logic 1 = Connection to Return signal (~0.7V). Logic 0 = Open Circuit (~3.3V). • Shelf addresses 1 (00001B) through 31 (11111B) are valid. Shelf address 0 (00000B) is invalid. Address 31 (11111B) disables comm. fail LED • Power Unit Shelf ID signals connect to Shelf Return left open
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	• Disables power conversion within a Power Unit when not connected to the Return signal • Power Unit Shelves connect Interlock directly to the Return signal at each Power Slot.	
B4	Long	Factory Programming	Reserved for Factory Programming – Open Circuit in the system shelf.	
C4	Long			
D4	Long			

Physical Interface Dimensions



OmniOn Power Inc.
601 Shiloh Rd.
Plano, TX USA

omnionpower.com