DATASHEET

# NE075AC48ATEZ+ Infinity Rectifier


## Uncompromised Advanced Technology to Simplify Your Network

OmniOn Power Energy's NE075AC48ATEZ+ 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 and wireless cellular 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, 48Volt rectifiers.

The NE075AC48ATEZ+ 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 – 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 rectifiers 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 NE050, 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.

## Feature and Advantages

- Compact – 1RU form factor provides high power density 34 Watts/Cubic inch.
- Efficient – Peak efficiency of 97.3% occurs at 50% load matching sweet spots with customer use patterns.
- Flexibly provides 75 Amps of 48 Volt power from both conventional and sustainable sources of energy.
- Starts and runs at any AC voltage from 95 to 305 Vac.
- 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 prevent nuisance tripping of upstream breakers.
- Extended service life – parallel operation with automatic load sharing ensures that units are not unduly stressed.

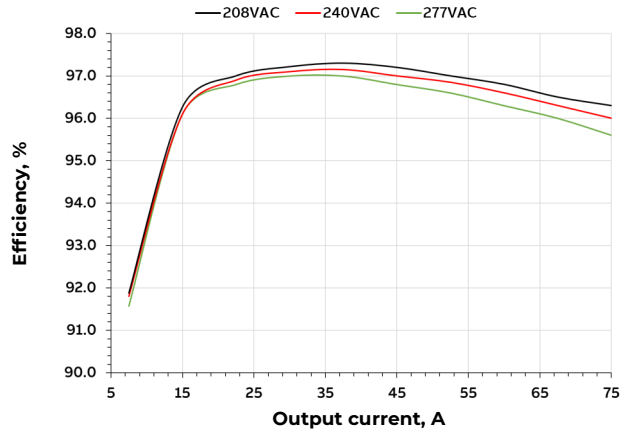
# Technical Specification

## Electrical Specifications

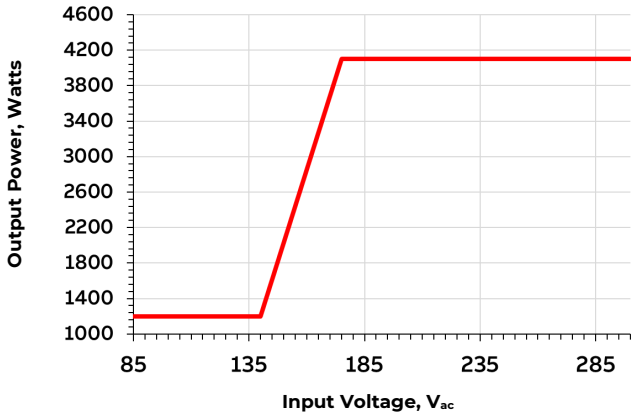
| INPUT VOLTAGE & OUTPUT POWER | |
|---|---|
| Response to AC Input Voltage | Operates according to figure, turning on at all Vin above 90Vac.<br>Output power 1200W < 140Vac<br>4087W > 175Vac<br>Output power follows linear path between defined points.<br>305V max excursion voltage |
| AC Input Current | 15A max @120Vac<br>22-16A @200-277Vac |
| Power Factor | 0.98 @ loads over 50% |
| THD | < 5% @ loads over 50% |
| Holdover | 15 milliseconds, with $V_{out\ final}$ >21 V |
| Frequency | 45-66Hz or Dc |

| OUTPUT | |
|---|---|
| $V_{out}$ | +42–58$V_{dc}$ range Default = 54.5 $V_{dc}$ |
| $I_{out}$ | 22A @ low input line<br>75A @ high input line<br>50A @ high line in older shelves |
| Regulation | ± 0.05 w/controller |
| Ripple | 100 $m_{Vrms}$, 250 $mV_{p-p}$ |
| Efficiency | Approaching 97.3% |
| Soft Start | Starts up into fully discharged batteries. |

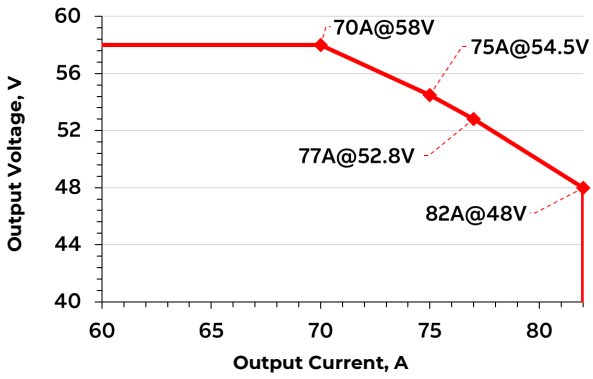
## Characteristic Curves



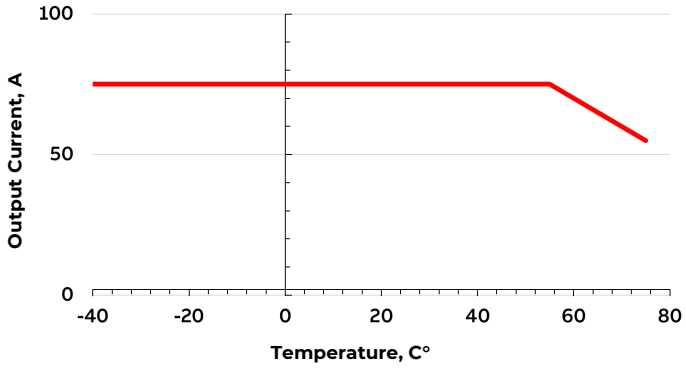

**Efficiency vs Output Current (Temp: 25°C, Vin: 208/240/277Vac, Freq: 60Hz)**




**Output Power vs Input Voltage**




**Constant Power to 48 Volts**




**Rated Output Current (at $V_{in}$ > 175$V_{ac}$)**

# 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 55022 (CISPR22), EN 55024, Level A, GR-1089 |
| Lightning Surge | EN/IEC 61000-4-5 Level 4 (Error free), ANSI C62.41 Category B 100 kHz |
| Agency Certifications* Planned | UL1950, EN60950, CSA*234/950, NEBS GR-1089, GR-63-CORE, RoHS 6/6 |
| Heat Release | 266 Watts, or 908 BTU/hr at full load of 4087 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 | 1.63x5.23x13.85in (42x133x352mm), 5.90 lbs (2.7 kg), 6.95 lbs (3.2kg) |

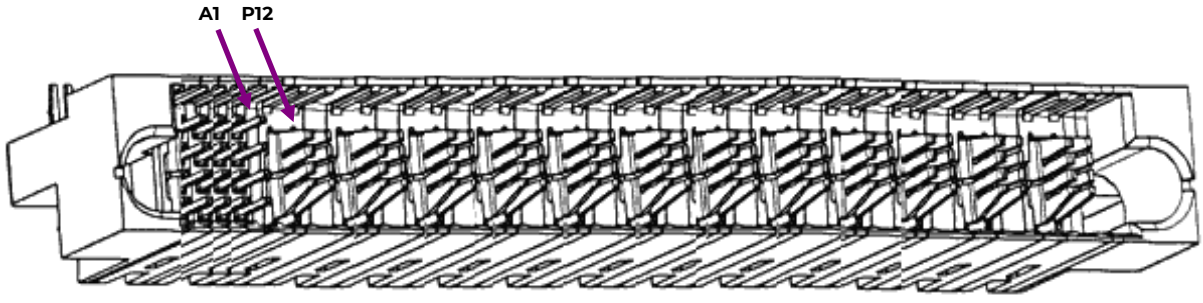
## Power Unit and Power Unit Shelf Connectors

**Power Unit PWB**

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A4 | A3 | A2 | A1 | -48V | -48V | RTN | RTN | RTN | RTN | +24V | +24V | +24V | PE/ GND | L2/N | L1 |
| B4 | B3 | B2 | B1 | | | (-48/ +24V) | (-48/ +24V) | (-48/ +24V) | (-48/ +24V) | | | | | | |
| 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 |

## 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)

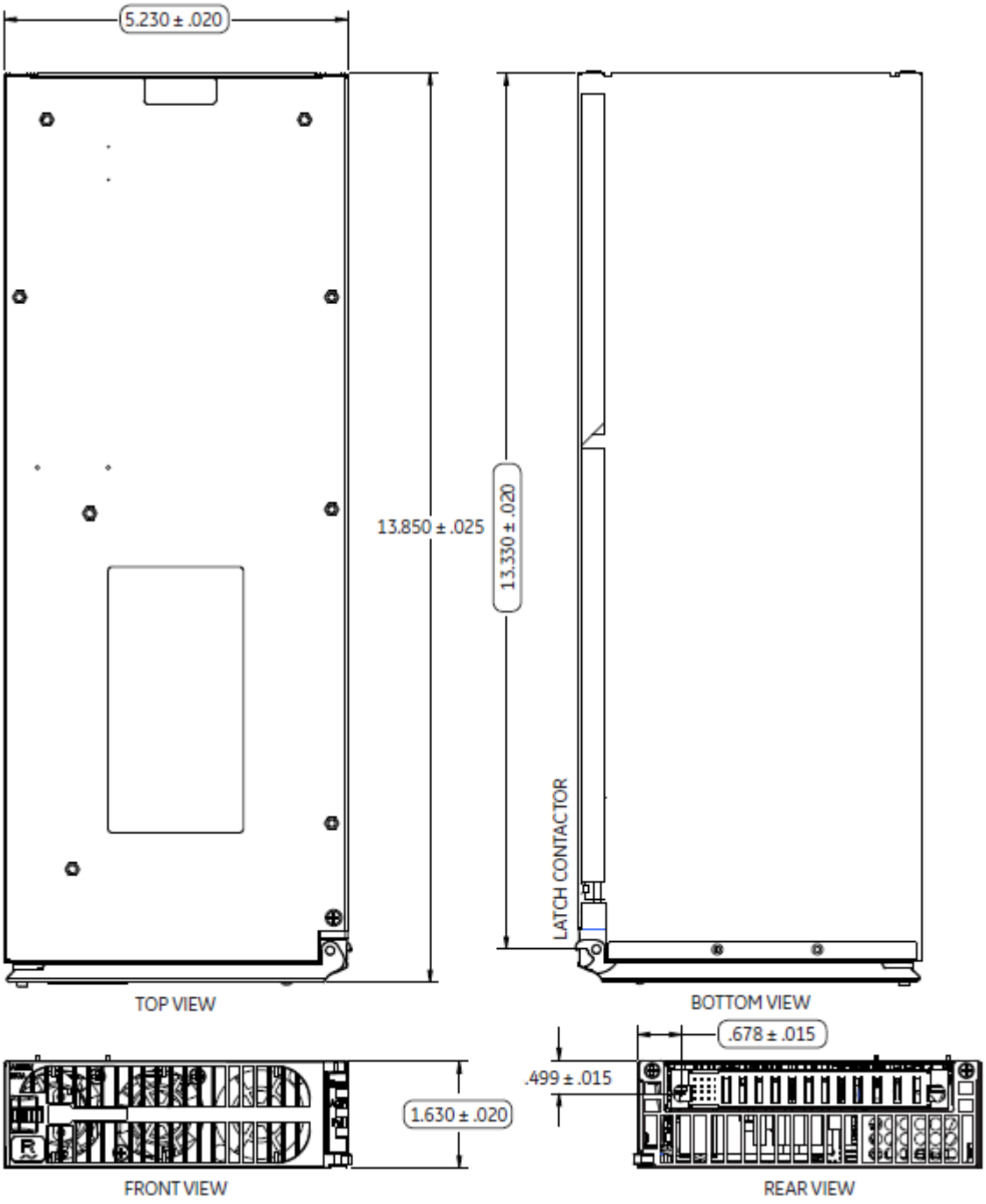
## Signals and Signal Pins

| PIN | LENGTH | SINAL | 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<br>• Power Units Connect Return to NE Common Return internally.<br>• Power Units diode isolate the Return signals from each Power Slot. | |
| A2 | Long | PSID0 | Power Slot Address 0 | • Logic 1 = Open Circuit (~3.3V). Logic 0 = Connection to the Return signal (~0.7V).<br>• Left slot (front view) is Power Slot 1 and has address 000B.<br>• Power Slot ID signals are connected directly to the Return signal at each Power Slot or left open. |
| B2 | Long | PSID1 | Power Slot Address 1 | |
| C2 | Long | PSID2 | Power Slot Address 2 | |
| D2 | Long | SID3 | Shelf Address 3 | • Logic 1 = Connection to Return signal (~0.7V). Logic 0 = Open Circuit (~3.3V).<br>• Shelf addresses 1 (00001B) through 31 (11111B) are valid. Shelf address 0 (00000B) is invalid. Address 31 (11111B) disables comm. fail LED<br>• 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<br>• 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 | | | |

# Technical Specification (Continued)

## Physical Interface Dimensions

### OUTLINE DRAWING



## Change History (excludes grammar & clarifications)

| Revision | Date | Description of the change |
|---|---|---|
| 1.0 | 03/20/2023 | Initial release |
| 1.1 | 10/20/2023 | Updated as per OmniOn template |
| 1.2 | 01/04/2024 | Updated to change FS to DS |

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