

# NetSure™ 701<sub>NCBB</sub> DC Power System

■ DC Power for  
Business-Critical Continuity

## Key Features

- **Compact flexibility** — provides more space for revenue generating equipment
- **Constant power** — delivers more current at lower voltages to meet load or recharge demand
- **Wide operating range** — operates in the most demanding environments with operating input voltage from 85VAC to 290VAC
- **Meets industry standards** — Designed to NEBS™ Level 3 and UL 1801
- **Eight programmable binary inputs** — form C contacts for external alarm or control functions
- **Eight user programmable outputs** — eight sets of form C alarm relay contacts are available
- **Remote Access** — TCP/IP, web browser, SNMP compatible with the advanced controller
- **Compliant with global standards** — delivers quality, performance and dependability no matter what the application or location demands to meet changing demands

## Description

The NetSure™ 701<sub>NCBB</sub> power system is a modular -48VDC power system available in various configurations and capacities up to 600 amps. A basic system consists of a power shelf that incorporates a standard or advanced controller and up to five 3200W plug-in rectifiers, and an initial distribution panel with up to 20 plug-in positions accommodating bullet nose type fuse holders rated 1 to 100 amps or circuit breakers rated 1 to 250 amps and up to 10 positions for connecting batteries with or without protection devices. For smaller loads, an optional plug-in 10 position fuse module (up to 20A fuses) is available occupying 3 mounting position.

A second power shelf that accommodates up to six 3200W plug-in rectifiers and a second distribution panel with plug-in positions for load & battery protection devices can be added to increase the system capacity to 600A. An optional low voltage disconnect can be configured for battery disconnect in each distribution.



NetSure™ 701<sub>NCBB</sub> View  
300 amp

## Application

The NetSure™ 701<sub>NCBB</sub> power system is a front access system designed to be mounted in standard 23" frames or used in embedded applications with standard 23" mounting, with or without batteries. The system is rated for full continuous operation from -40°C to +40°C (with excursions to 55°C) and is designed to meet NEBS™ Level 3.

The system is designed to supply a filtered and regulated -48VDC source to any telecommunication equipment requiring up to 600 amps capacity such as POP sites, customer premises, outdoor cabinets, CEVs, vaults or shelters, and small Central Offices. Specific applications include: DLC, xDSL, DSLAM, broadband communications, multiplexers, radio base stations, microwave and PBX.



NetSure™ 701<sub>NCBB</sub> Front View  
600 amp

  
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# NetSure™ 701<sub>NCBB</sub> DC Power System



Power Shelves

## Power Shelves

The NetSure™ 701 power shelves are 5.25" (3U) high, 14.5" deep and 23" wide. The initial power shelf mounts five rectifier modules and a controller module. The supplementary shelf mounts 6 rectifier modules. The shelves provide front to back ventilation with zero clearance required above or below.

Each rectifier position provides interconnection points for the AC input, the DC output, and the control and alarm data bus (CAN protocol). The total output capacity is 330 amps for the initial shelf and 400 amps for the supplementary shelf. Each shelf provides connecting points for individual single phase 208/240VAC feeds, one per rectifiers.

The AC supply can be brought into the shelf through knockouts at the left rear or front side of the first shelf and at the right rear or front of the second shelf to accommodate both front and rear access applications. DC output connection between shelves and distribution panels is made through internal bussing and cables.



R48-3200 Rectifier

## R48-3200 Rectifier Modules

The NetSure™ 701 system uses 3200W constant power switch mode rectifier modules. Rectifiers have a DC operating range of -42.0 to -58VDC. The 3200W module provides 3200W from 176 to 290VAC with current limiting at 67 amps. Output power is linearly de-rated from 176VAC to 85VAC and above 45°C.

In the typical operating range, the rectifiers have a power factor greater than .99, total harmonic distortion less than 5% and efficiencies of up to 92%. The rectifiers are hot swappable and have an integrated speed controlled field replaceable fan. Three LED indicators provide visual status of normal operation, alarm, rectifier failure alarm, and fan failure alarm.



Standard Control Unit

## Controller Modules

Two controller modules will be available for use in the NetSure™ 701<sub>NCBB</sub> system — the standard controller (SCU) is available now and the advanced controller (ACU) will be available later. Both controllers have a graphical LCD display with six navigation keys. The local alarm display uses LED indicators for controller status and system major and minor alarms. Eight user programmable input ports and eight user programmable output ports with form C contacts are included. In addition to traditional system alarms and controls, the controllers provide event and alarm history logs and an inventory log. The SCU can be accessed locally and the ACU can be accessed remotely using a built-in web based multi-language Graphical User Interface. Local connection on the SCU is made through the RS-232 port. The ACU can be locally accessed through the RS-232 or the TCP/IP port.

Remote access is made through a dial up network connection with a modem connected to the system's RS-232 port, or through a network LAN connection to the TCP/IP port (RJ45 jack). The following battery management capabilities are provided on both controllers: battery database, temperature compensation, battery discharge test, low voltage disconnect and charge control. The ACU also offers advanced site monitoring and control features including statistics, PLC functions and advanced Energy Savings algorithms.



Distribution Panel

## Distribution Panels

Three models of distribution are available for the NetSure™ 701 system. The panels are 5.25" (3RU) high, 14.5" deep and 23" wide, with a discharge capacity of 300 amps and a charge capacity of 330 amps. Each panel is equipped with either 16, 18 or 20 positions for load protection (circuit breakers or fuses), 10, 8 or 6 positions for battery protective devices or a battery connection kit, a battery current shunt, and an optional LVD circuit factory-wired for battery disconnect. Two panels are required to operate above 300A of load and will offer the added benefit of allowing for load shedding functionality.

Each distribution panels provide local fuse and/or circuit breaker alarm indication by means of a red LED indicator. One side of the protection device plugs into a main rail bus, while the other side plugs into a removable load clip designed to facilitate cabling operations. Load clips are available in three sizes – single, double or quad position. The single position accommodates circuit breakers or fuse holders with TPS fuses from 1 to 65 amps. Double position load clips accommodate circuit breakers from 70 to 150 amps and fuses from 70 to 100 amps. Quad load clips accommodate circuit breakers from 225 to 250 amps.

## Batteries

The NetSure™ 701 system can be configured with a wide range of batteries to suit specific load and reserve requirements. Battery connections are made to the initial distribution panel through protection devices or directly using the factory installed Battery Connection Module.

# NetSure™ 701NCBB DC Power System



BAU 48/4

### Battery Asymmetry Unit (BAU 48/4)

BAU 48/4 detects battery backup system failures by comparing the total and the central point voltages in battery strings. Battery cell failures, open circuit or short circuit failures causes voltage changes

that activate a preset voltage difference alarm. The unit can be connected to Emerson Network Power Controllers (SCU, ACU, System Manager SP/IP).

## NetSure™ 701NCBB General Specifications

### System Characteristics

Nominal system voltage	-48VDC
Rated output capacity	600 amps discharge, 730 amps charge with two distribution panels
Rectifiers	Up to 11 -48VDC, 3200W rectifiers
Controller	
Standard	SCU (available now)
Advanced	ACU (available later)
Distribution	16/10, 18/8 or 20/6 Distribution Panels (Load/Batteries)

### Environmental

Operating temperature	-40°F to 104°F (-40°C to 40°C) continuous operation
Storage and transportation	-40°F to 167°F (-40°C to 75°C) Relative humidity below 95% (non-condensing)
Seismic rating	Telcordia GR-63-CORE, zone 4
NEBS™	Designed to meet NEBS™ Level 3
Safety	UL per subject letter 1801, UL60950 (for US and Canada), CE marked, FCC part 15, subpart B and Telcordia GR-1089-CORE & Emissions for Class B , EN 300 386

## R48-3200 Rectifier Specifications

### Electrical Specifications

#### AC input

Nominal Voltage	Single phase 208/240VAC
Operating Voltage Range	85VAC to 290VAC
Frequency	45 Hz to 65 Hz
Power factor (PF)	>0.99 from 50% to 100% load
Total Harmonic Distortion	<5% from 50% to 100% load
Input Current	14.5 amp at 240VAC (Max 20.0 amp)
Inrush Current	Peak does not exceed 1.5 times the RMS input current at any load under input current within rated input voltage range.

# NetSure™ 701NCBB DC Power System

## R48-3200 Rectifier Specifications (continued)

**Input Protection** If the input voltage decreases or increases beyond a non-adjustable predetermined value, the rectifier circuitry inhibits, disabling the output. The rectifier will recover automatically when the AC input is re-established within specification limits. Over current is protected by an internal fuse

**Operating Efficiency** 92% peak  
>90% from 40% to 100% load at 240VAC

### DC Output

**Output Voltage Range** -42.0VDC to -58.0VDC

**Output Power** Constant power limiting operation  
3200W maximum from 176VAC to 290VAC  
1450W @ 120VAC  
540W @ 85VAC

**Output Current** 50 to 67amps

**Regulation** Voltage is regulated within  $\pm 0.5\%$  for all specified input and load variations Voltage drift  $\pm 0.2\%$  in any eight-hour period, with constant input voltage, constant load, and less than  $-5^{\circ}\text{C}$  change in ambient temperature

**Voice Band Noise** The voice-frequency noise generated by a rectifier does not exceed 32dBnC output noise

**Wide Band Noise** Wide band noise generated by a rectifier is less than 100mVrms in any 3 kHz band between 10kHz and 20MHz and less than 50mV rms over 20Mhz  
Peak to peak ripple voltage is less than 100mV from dc up to 100Mhz

**Psophometric Noise** <1mV at 5% to 100% of rated load

### Protection

**Current Limiting** The output current is limited to 67 amp

**Over current** Internal fuse

**High Voltage Shutdown** If rectifier detects over voltage, it will turn off. After 5 seconds, it will restart and if it encounters an over voltage within 5 minutes it will turn off and remain off until reset.

### Operating Specifications

**Temperature** -40°F to 131°F (-40°C to 45°C) at full rated output. Output is derated up to 167°F (75°C)

**Altitude** -200 ft to 6,500 ft (-60 m to 2000 m) at full rated output  
Output power is derated above 6,500 ft (2000 m)

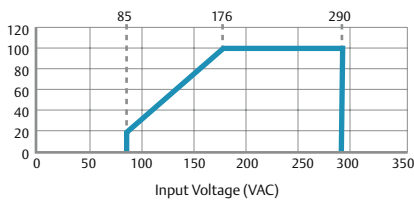
**Humidity** 0 to 95% relative humidity (non-condensing)

**Storage conditions** -40°F to 167°F (-40°C to 75°C) Relative humidity below 95% (non-condensing)

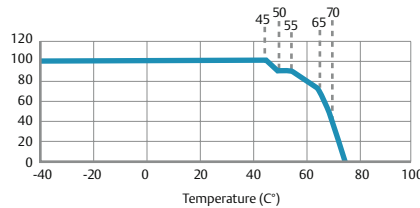
**Ventilation** Front to back speed-controlled fan (field replaceable)

**Seismic** Telcordia GR-63-CORE for Zone 4

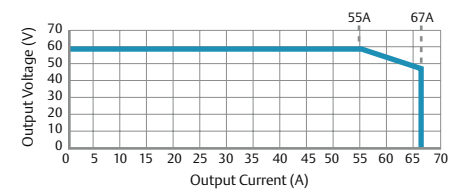
**Output power vs. Input voltage at Tamb <45°C**



**Output Power vs. Temperature at Uin>176VAC**



**Output voltage vs. Output current, max. output power 3200W**



# NetSure™ 701NCBB DC Power System

## R48-3200 Rectifier Specifications (continued)

Electromagnetic Interference (EMI) and compatibility (EMC)	FCC part 15, subpart B, class B EN 300 386-2, class B	
Audible noise	The rectifier does not produce sound levels above 50dBA, measured 1.5m above the floor and 0.5 m from the equipment	
Operation without batteries	Yes	
<b>Status / Alarm Indicators and Monitoring</b>		
Visual indicators	<i>Status</i>	<i>Visual indicator color</i>
	Normal operation	Green
	Alarm (V,T,unbalance)	Yellow
	Rectifier failure alarm	Red
	Fan failure alarm	Flashing red
Rectifier alarms & Status Settings	Transmitted to SCU or ACU on the communication bus using the CAN protocol The SCU or ACU controller establishes all rectifier settings	
Miscellaneous data	Each rectifier provides the controller a complete set of identification information about itself (product code, serial number, alarm history, etc.)	
<b>Rectifier Physical Specifications</b>		
Mounting	Plug-in installation	
Dimensions (H x W x D)	132 x 85.3 x 287 mm, 5.20 x 3.36 x 11.3 inches	
Weight	7.7 lbs. (3.5kg)	
Fire Resistance	All materials have flammability rating -UL 94 V0 or better All electrical components meet the Needle Flame Test per IEC 695-2-2	
Safety	The rectifier is UL recognized (UL60950) for USA & Canada and is CE marked	

## Distribution Panel Specifications

Capacity	Initial panel 16, 18 or 20 load positions, 6, 8 or 10 battery connections, 300 amp Battery shunt, optional LVD Supplementary panel Same as initial panel	
Protection devices	Circuit breaker Bullet Nose type with load clip 1 to 65 amp use single position load clip 70 to 150 amp use double position load clip with spacing restrictions, 200 to 250 amp use quad position load clip	
Fuses	Bullet Nose type with load clip TPS type 1 to 65 amp use double load clip TPS & TLS Type 70 to 100 amp use double load clip SAN-O type 0.18 to 20 amp with 10 Position Fuse Block	
Battery connections	Protected using circuit breakers up to 200 amp Hardwired using optional Battery Connection Kit	
Dimensions (H x W x D)	7.0" (177.8mm) x 23.0" (584mm) x 14.5" (368mm)	
Weight	Initial panel 27.5 lbs. (12.5kg) with LVD 24.3 lbs. (11.0kg) without LVD Supplementary panel Same	

# NetSure™ 701NCBB DC Power System

## Controller Specifications

### Standard Control Unit (SCU)

Display	LED status interface
Alarm output	8 programmable dry C contacts outputs
Alarm input	8 digital inputs
Control of rectifiers	Digital CAN bus
System configuration	6 navigational keys
Battery management	Low Voltage Disconnect, equalize (boost) Temperature compensation battery charging, charge current limiting, battery discharge testing

### Advanced Control Unit (ACU)

Display	LCD display with six navigation buttons	
Alarm output	8 programmable dry C contacts SNMP & Web (HTML)	
Alarm input	8 programmable inputs	
Control of rectifiers	Digital CAN bus	
Management	Battery Discharge Test Charge Control Low Voltage Disconnect (up to two LVDs) Temperature compensation battery charging	Equalize (boost) Statistics Energy savings algorithm
System configuration	Embedded Web Browser (HTTP)	
Communications ports	RJ45 jack for Ethernet port (TCP/IP) DB9 connector for RS-232	
Remote access	All essential functions and operational parameters through RS-232 modem and TCP/IP Ethernet with password security	

## Power Shelf Specifications

Capacity	
Initial shelf	5 Rectifiers, Controller position, 300 amp
Supplementary Shelf	6 Rectifiers, 360 amp
Dimensions (H x W x D)	5.25" (133mm) x 23" (584mm) x 14.5" (368mm)
Weight	Initial – 11.8 lbs. (5.35kg) Supplementary – 11.25 lbs. (5.1kg)
AC connections	Connections are made through 2 flexible conduits of 1". Each conduit can handle up to 3 individual rectifier wiring sets. Wires are terminated to a terminal block on the side of the shelf.
Recommended AC Service input	25 or 30 amp, 2-pole AC breaker per 208/240V feed

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**Emerson Network Power Energy Systems**  
1122 F St. Lorain, OH 44052  
Toll Free: 800-800-1280 (USA and Canada)  
Telephone: 440-246-6999 Fax: 440-246-4876  
Web: EmersonNetworkPower.com/EnergySystems

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# NetSure™ 701NVBB DC Power System

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Business-Critical Continuity

## Key Features

- **Modular Design** — simple to install and operate; allows incremental cost-effective system growth
- **Single Point Adjustment** — no tools required to change settings and make adjustments; MCA controls up to 72 PCUs
- **Remote Access** — options allow users to view, control and interact with the system using an Ethernet, modem, RS 232 or LMS1000 interface
- **Plug'n'Play** — add PCUs without changing the settings and making adjustments; no system interruption
- **Front Accessible** — allows for easy installation, additions and maintenance
- **High Density** — compact design takes up less floor space; houses six 3200 watt PCUs per rectifier shelf (3RU), system can be configured with up to two bays
- **Constant Power** — delivers more current at lower voltages to meet load or recharge demand
- **Safety Compliance** — Designed to NEBS™ Level 3 compliance; UL Listed to UL subject 1801

New 3,200 watt constant power conversion units provide 55 to 67 amps (59 amps at 54.0VDC and 62 amps at 52.0VDC) with a current limit of 67 amps. With six units per shelf, these rectifiers provide 330 to 402 amps in three rack units (5.25-in.) of space.

## Description

The modular NetSure™ 701NVBB power system with 3,200 watt power conversion units (PCUs) provides up to 4,000 amps of power for -48 volt systems.

The basic components of the power system include the meter-control alarm unit (MCA), rectifier shelves which house the PCUs, and up to two modular distribution cabinets with rear copper bus inter-bay power connections, allowing the system to be expanded to either side of the main bay.

The NetSure™ 701 power system contains a powerful, microprocessor-based meter-control alarm system capable of monitoring and controlling up to 72 PCUs. The MCA provides a 16-character alphanumeric display, which can be activated at the touch of a keypad.

Each rectifier shelf can accommodate up to six plug'n'play PCUs, which are controlled by the MCA. Additional shelves can be added as load requirements increase.

The NetSure™ 701 distribution cabinet is modular by row and position. Four distinct distribution cabinet sizes are available to accommodate from one to four distribution panels. This allows the system to be configured in relay racks of various heights for installation in low-profile sites or atop batteries or other equipment to make more effective use of floor space. Several distribution panels are available offering different combinations of distribution positions, low voltage disconnect and battery disconnect options.



NetSure™ 701NVBB

  
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Enterprise : 87

# NetSure™ 701NVBB DC Power System

## Application

The NetSure™ 701NVBB system is ideal for wireline and wireless applications such as switch sites, co-location, huts and large vaults or enclosures.

### AC Input

Each rectifier shelf in the NetSure™ 701 power system allows for an AC input feed to each power conversion unit. There are conduit knockout openings on the rear and side of each shelf. Each conduit opening allows for installation of the (3) circuits necessary to power up the (3) PCUs on that side of the shelf. If space is a problem then an AC wireway option is available that will allow for the connection of the AC cables at the top of the bay. At the factory, cables are run from this connection point down into the shelves and enclosed in a sheet metal cover. Once again conduit knockouts are provided at that top of this cover.

### Distribution

The NetSure™ 701 power system includes a modular distribution product line that can be designed with one to two distribution cabinets – sized to accommodate from one to four distribution panels each. Each panel is rated at 500 amps load. The maximum load per distribution cabinet is 2000 amps. The two, three and four-row distribution cabinets can be interconnected via copper inter-bay bus bars for a total system capacity of up to 4,000 amps with two bays.

The system can also be expanded with additional bays that are not adjacent to each other via extended length communications cables and inter-bay power cabling. The distribution cabinet can be factory mounted in a relay rack or shipped loose for mounting in a customer supplied relay rack or cabinet rails.

A wide variety of panels provide multiple combinations of distribution positions, low voltage disconnect and battery disconnect. Distribution cabinets are front accessible, modular in design and are initially configured in the factory. Circuit breakers and/or fuse modules plug into the multi-position distribution panels to provide for easy installation. Distribution device options include 1 to 250 amp plug-in circuit breakers, 3 to 100 amp TPS-style fuses in plug-in holders, 100 to 600 amp GJ/218-style circuit breakers and 70 to 600 amp TPH-style fuses. These devices can be configured for both load and battery disconnect. A GMT fuse module is also available.



Top AC Wireway Input  
(cover removed)



Bottom AC Wireway Input  
(cover removed)



Modular Distribution Cabinets



# NetSure™ 701NVBB DC Power System

The NetSure™ 701NVBB power system's extensive monitoring capabilities, easy configuration and maintenance are all backed by the resources and quality reputation of a nationwide service organization.



MCA

### Monitoring/Control

The MCA provides a single point of adjustment for such features as float voltage, test/equalize voltage, high voltage shutdown and current limit for all PCUs in the entire power system. The rugged, temperature hardened LED display allows users to view specific alarm conditions, system measurements and system settings. All measurements and adjustments can be performed locally via the alphanumeric display on the front of the MCA panel or remotely via optional software and hardware. The

MCA provides local indicators and the ability to transmit various alarm conditions such as PCU failure, high voltage shutdown and AC failure. Remote and local communication is available using an Ethernet connection (web browser (HTTP) or SNMP), modem or RS-232 interface. In addition, the LORAIN® Monitoring System, LMS1000, can be configured into this system (refer to 586505500 documentation for specifications).



-48VDC NetSure™ 701NVBB  
with Battery Trays

### Battery Stand or Trays

The NetSure™ 701 power system can be configured with a NEBS™ Level 3 certified modular front access battery stand to provide an entire power plant in one bay. Available options include manual battery disconnect/protection, low voltage battery disconnect, battery current monitoring

and battery recharge current limit (refer to 588820000 documentation for specifications). Rack-mount battery trays are also available with optional battery disconnect circuit breakers.

# NetSure™ 701NVBB DC Power System



**Power Conversion Unit  
1R483200**

## Power Conversion Unit

The modular R48-3200 is a high frequency constant power PCU designed with the latest patented switch-mode technology using DSP (Digital Signaling Processor) functionality. Use of DSP technology results in fewer components and optimized operation. Plug'n'play technology allows for easy system configuration. System capacity can be increased by simply plugging an additional PCU into an existing rectifier shelf or a newly added expansion shelf — no adjustments or setup are required. The NetSure™ 701 power system can house up to 72 PCUs, which provide load power, battery float current and battery recharge

current. The PCUs are monitored and controlled by the MCA. The PCUs allow the user to appropriately size a power plant to meet specific applications.

## Rectifier Shelf

The NetSure™ 701 power conversion units are housed in modular rectifier shelves each of which accommodates six PCUs. The rectifier shelves are 23" (58.42cm) wide and 5.25" (13.33cm) high. System capacity can be easily expanded with additional shelves. A maximum of six rectifier shelves can be installed in each bay. An individual AC feed is provided for each rectifier on each rectifier shelf.

## NetSure™ 701NVBB General Specifications

### System Characteristics

Nominal System Voltage	-48VDC
Rated Output Capacity	
System	4000 amps
Bay	2000 amps
PCU	3200W PCU (R48-3200)
Shelf	330 amps to 402 amps
Distribution Panel	500 amps
Framework Type	Relay Rack (can be mounted in enclosures)
Mounting Width	23 Inches
Mounting Depth	18 Inches Single Bay 21 Inches Two Bays
Access	Front, sides and rear for installation, front for operation and maintenance
Control	Microprocessor (MCA)

### Environmental

Operating Temperature	-40°F to 104°F (-40°C to 40°C) continuous operation
Storage	-40°F to 185°F (-40°C to 85°C)
Humidity	0% to 95% relative humidity, non-condensing
Ventilation	Fan-cooled front to rear
EMI/RFI Suppression	Conforms to FCC rules Part 15, Subpart B, Class A and EN55022 Class A, radiated and conducted
Safety Compliance	UL Listed 1801, cUL, designed to NEBS™ Level 3

# NetSure™ 701NVBB DC Power System

## R48-3200 Rectifier Specifications

### Electrical Specifications

#### AC Input

Nominal Voltage	Single phase 208/240VAC
Operating Voltage Range	186VAC to 256VAC
Frequency	45 Hz to 65 Hz
Power Factor (PF)	>0.98 from 50% to 100% load
Total Harmonic Distortion	≤5% from 50% to 100% load
Input Current	Max 20 amp
Inrush Current	Inrush current does not exceed 150% of the rated input steady state peak value.
Input Protection	If the input voltage decreases or increases beyond a non-adjustable predetermined value, the rectifier circuitry shuts down, disabling the output. The rectifier will recover automatically when the AC input is re-established and exceeds 95VAC (low voltage restart point) or when it decreases to 285VAC (high voltage restart point). Overcurrent is protected by an internal fuse.
Operating Efficiency	92% peak 90% minimum at full load

#### DC Output

Output Voltage Range	-42.0VDC to -58.0VDC
Output Power	Constant power limiting operation 3200W maximum from 176VAC to 290VAC 1600W @ 120VAC 600W @ 85VAC
Output Current	55 to 67 amps
Regulation	Steady state output voltage remains within +/-0.25% for any combination of input voltage from 5% to 100% load
Voice Band Noise	The voice-frequency noise generated by a rectifier does not exceed 32dBnC output noise from 10% to 100% load
Wide Band Noise	Does not exceed 250 mv peak-to-peak, or 100 mv rms per Telcordia GR-947-CORE
Psophometric Noise	Does not exceed 1 mv 10% to 100% load
Protection	
Current Limiting	The output current is limited to 67 amp
Over Current	Internal fuse
High Voltage Shutdown	If rectifier detects over voltage it will turn off. After 5 seconds it will restart; if it encounters an over voltage within 5 minutes it will turn off and remain off until reset.

# NetSure™ 701NVBB DC Power System

## R48-3200 Rectifier Specifications (continued)

### Environmental

Temperature	-40°F to 113°F (-40°C to 45°C) at full rated output
Altitude	Up to 6562' (2000m) at full rated output
Ventilation	Front to back with speed-controlled fan (field replaceable)
Audible Noise	The rectifier does not produce sound levels above 53dB(A), measured 0.6m in front of the rectifier, at the same horizontal line as the middle of the rectifier at 25°C

### Status / Alarm Indicators and Monitoring

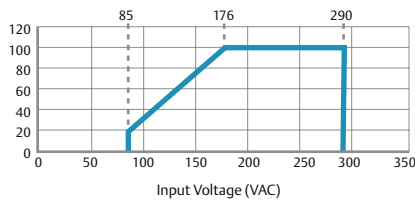
Visual Indicators	Status	Visual indicator color
	Normal operation	Green
	Alarm	Yellow
	Rectifier failure alarm	Red
	Fan failure alarm	Flashing red

Status Settings The MCA controller establishes all rectifier settings)

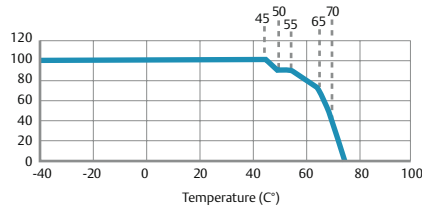
### Rectifier Physical Specifications

Mounting	Plug-in installation
Dimensions (H x W x D)	5.20 x 3.36 x 11.3 inches (132 x 85.3 x 287mm)
Weight	7.7 lbs. (3.5kg)
Safety Compliance	UL recognized (UL60950) for USA & Canada, CE marked

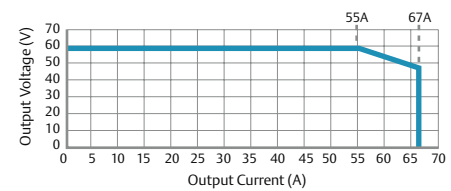
**Output power vs. Input voltage at Tamb <45°C**



**Output Power vs. Temperature at Uin>176VAC**



**Output voltage vs. Output current, max. output power 3200W**



## Additional Information

For additional specification, engineering and installation information use specification numbers 582126000 (power system) and 588705000 (power shelf for 3200W PCUs).

For ordering information, request SAG582126000, PD588705000.

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Emerson Network Power Energy Systems  
1122 F St. Lorain, OH 44052  
Toll Free: 800-800-1280 (USA and Canada)  
Telephone: 440-246-6999 Fax: 440-246-4876  
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