

■ DC Power for *Business-Critical Continuity™*

*NetSure™ DC Power Solutions with
eSure™ High-Efficiency Technology*




EMERSON™
Network Power

NetSure solutions with eSure high-efficiency technology

Our Efficiency Without Compromise® promise

Among the array of ever-changing challenges facing today's telecom businesses, the growing concerns about energy consumption and increasing energy costs continue to dominate the industry. It's a challenge that places a premium on efficiency, and one that Emerson Network Power is responding to with products offering the highest efficiencies on the market – some approaching 97 percent. Any infrastructure solution today must reduce energy usage and carbon emissions – and minimize TCO.

Telecom architecture is changing. With remote areas of the network taking on a more important role, providers need strong outside-plant partners and solutions to keep pace. Reduced operating expenses and improved network performance are even more critical today, as is service quality, because of the growing number of bundled offerings.

But your telecom business continues to depend on reliability – reliability in delivering results, reliability in future-proofing your architecture and navigating through changes, reliability in ensuring that your systems have the synergy to be resilient while adapting to your customers' needs.

eSure technology – Reliability and efficiency

It's that unique blend of reliability and efficiency that continues to set the NetSure™ DC Power technology platform apart. As the paramount platform for integrated DC power technology, we lead the industry in high-efficiency performance, with products like the eSure™ rectifier – the next step in the evolution of the NetSure DC Power technology platform. Upgrading to the latest generation could result in considerable energy savings.

Best-in-class customized solutions

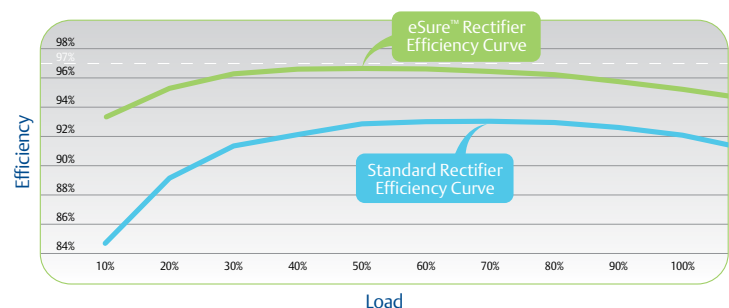
The NetSure DC Power technology platform leverages Emerson Network Power's range of products and services, creating an unprecedented amount of synergy within an integrated DC power solutions platform. By offering best-in-class power technologies engineered to meet each client's specific global, regional and local needs, every DC power solution can be customized to fit the exact application.

Simply, we let you focus on what's most important: staying connected to your customers. And we keep the connection open with a complete range of telecom services backed by global support from more than 150 service locations and over 2,000 certified professionals, each with knowledge and expertise in local safety, environmental and labor specifications.

The result: Emerson Network Power safeguards your reliability – your *Business-Critical Continuity™* – assuring that your peace of mind is guaranteed, your power ensured.

eSure™ R483200e rectifier for the NetSure™ 701 DC Power System

- Delivers best-in-class peak efficiency, approaching 97%
- Provides a 50% reduction in energy loss and CO₂ emissions, compared to standard-efficiency rectifiers





Breadth of applications

Structures/sites

- 1 Central office/MTSO site/CATV headend
- 2 Wireline remote office
- 3 Wireline remote terminals and cabinets
- 4 Radio base station/microwave site
- 5 Multidwelling unit (MDU)
- 6 Wireless cell site
- 7 Enterprise large data-center
- 8 Enterprise small data-center

Technology

- 1 VoIP integrated cabinet
- 2 Fiber to the curb (FTTC)
- 3 Fiber to the node (FTTN)
- 4 Microwave transmission
- 5 Enterprise servers
- 6 Wireline: IP SONET and soft-switching
- 7 Wireless: LTE, WiMAX and 3G

Products

- 1 NetSure 201 & 211
- 2 NetSure 501 & 502
- 3 NetSure 700 & 701
- 4 NetSure 801
- 5 NetSure DC Power Distribution
- 6 NetSure inverters
- 7 Batteries
- 8 NetPerform & EnergyMaster™ Telecom Services

Our NetSure DC Power technology platform fulfills the power needs of telecom providers that require reliability across different environments, from wireless and wireline networks to data centers.

Wireline – Fixed network

The NetSure DC Power technology platform supports your wireline needs and protects your bottom line. Emerson Network Power's world-class modular components are complemented by mechanical portions that are region specific, so our platform adapts to your wireline-network DC power requirements.

Wireless – Mobile network

You need prompt, dependable deployment and maintenance services for DC Power. The NetSure DC Power technology platform provides more than individual products; it provides engineer support, services and a complete power solution for radio-network controllers, base stations and all other wireless-network DC power needs.

Enterprise – Data-center network

With a tightly integrated array of products to support remote monitoring and various data-center DC power prerequisites, the NetSure DC Power technology platform provides data and voice networks with the tools these environments need for *Business-Critical Continuity* and protects against the direct and indirect costs of downtime.



Integrated systems for indoor and outdoor applications

These systems come in extremely dense packages that can be mounted in any indoor or outdoor application for wireless and wireline networks and can be optimized to meet requirements cost-effectively, while allowing for easy expansion in the future.

NetSure DC Power cabinetized solutions allow regional configuration centers to “put together” an almost unlimited number of configurations, easily and quickly, to fulfill site-specific requirements.

A typical NetSure DC Power cabinetized-solution power system includes batteries, cabinet and integrated electronics, where applicable.

Key features

- Compact flexibility – Provide more space for revenue-generating equipment
- Constant power – Deliver more current at lower voltages, to meet load or recharge demand
- Modular design – Simple to install and operate; allow users to grow system in cost-effective increments
- Compliant with global standards – Deliver quality, performance and dependability, no matter what the application or environment demands, to meet changing needs
- Remote access – Provide options allowing users to view, control and interact with the system, using TCP/IP, RS-232, web browser (HTTP) or SNMP
- Cabinet – Robust and space-efficient system enclosure with earthquake protection
- Flexible solutions – Complete range of power solutions.



NetSure 211
North America & EMEA
-48 VDC
up to 6kW
up to 125A



NetSure 501
EMEA
-48 VDC
up to 24kW
up to 500A



NetSure 502
North America
-48 VDC
up to 36kW
up to 750A



NetSure 501
China
-48 VDC
up to 8.5kW
up to 180A



NetSure 700
North America
+24 VDC
up to 200kW
up to 4000A



NetSure 700
EMEA & Asia Pacific
+24 VDC
up to 11kW
up to 230A



NetSure 801
EMEA
-48 VDC
3-phase input
up to 700kW
up to 14500A



NetSure 801
North America
-48 VDC
up to 960kW
up to 20000A



NetSure 802
North America
-48 VDC
up to 720kW
up to 1500A

Configurability and flexibility

These systems display the flexibility for one family within the NetSure DC Power technology platform to be custom-configured for various applications within the data- and telecommunications-network infrastructure.



NetSure 701
EMEA
-48 VDC
up to 384kW
up to 8000A



NetSure 701
North America
-48 VDC
up to 230kW
up to 4800A



NetSure 701
South America
-48 VDC
up to 192kW
up to 4800A



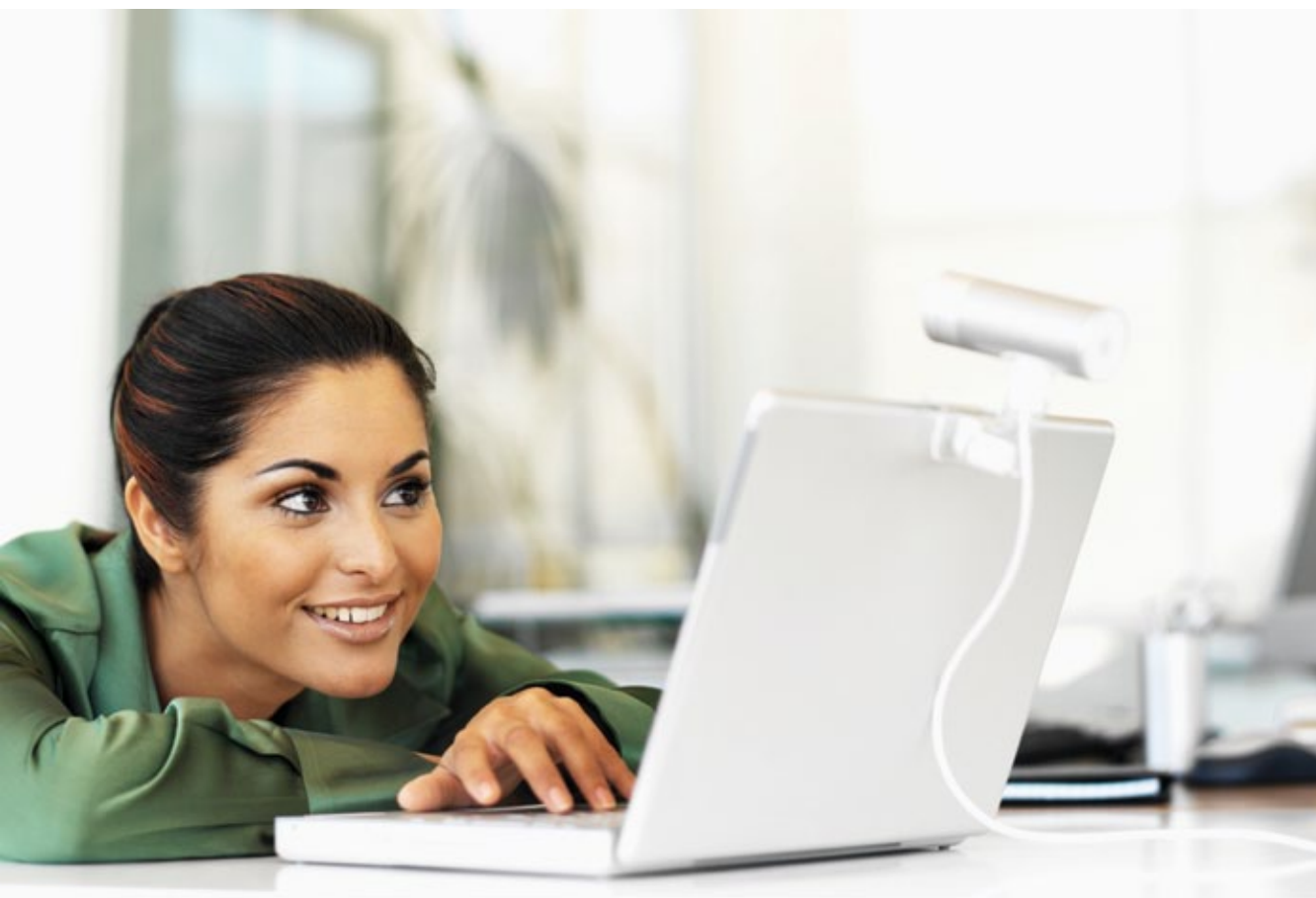
NetSure 701
EMEA
Bulk system
-48 VDC
up to 384kW
up to 8000A



NetSure 701
China
-48 VDC
up to 35kW
up to 720A



NetSure 701
Asia Pacific
-48 VDC
up to 154kW
up to 3200A



Power conversion units

NetSure rectifiers utilize state-of-the-art DSP controls and soft-switching topologies, to provide conversion efficiency and sinusoidal input current under all operating conditions. Advanced cooling techniques and transient protection ensure reliable operation under abnormal or extreme temperatures and other environmental conditions. Their small size and plug-and-play design provide easy system expansion in existing or newly installed shelves, without configuration or setup adjustments.

These rectifiers offer wide input-voltage and operating-temperature ranges, are hot swappable and have an integrated speed-controlled, field-replaceable fan.

Key features

- Compact high-performance switch mode with sinusoidal input current, for low total harmonic distortion
- Plug-and-play technology
- Horizontal or vertical mounting positions
- Temperature range: -40°C to 65°C (-40°F to 149°F)
- Robust design for extremely high MTBF
- Wide AC operating range: single-phase rectifiers from 85–300 V, 3-phase rectifiers from 260–530 V

Rectifiers



eSure R48-3200e – front view



eSure R48-3200e – side view

*NetSure rectifiers are globally renowned, with over **1.25 million** units deployed and an unmatched reliability of less than 0.5% failure rate (200 years MTBF).*



R48-400



R48-800



R48-1800



R48-2000



R24-2500



R48-2500



R48-2900



R48-3200



R48-5800



System management

There are two versions of smart controllers available for the NetSure DC Power technology platform: SCU+ and ACU+. These controllers offer different monitoring functions and are hot swappable, to permit easy upgrades.

The SCU+ and ACU+ both enable remote monitoring of the telecom site's AC main supply, DC power plant, battery backup and site environment. They also provide for advanced battery management, such as sophisticated boost-charge control, remaining-time prediction, constant current test, scheduled test and fast test. The information and alarms from a specific site can be monitored or checked by means of a simple web browser or special monitoring software. The SCU+ and ACU+ also provide a built-in web interface for remote access, via a standard browser or the Emerson EnergyMaster™ network-management software.



ACU+ 1x2U – front view



ACU+ 1x2U – side view



ACU+ 2x2U – front view



ACU+ 2x2U – side view



SCU+ – front view

SCU+ key features

- Menu operated and user friendly
- Advanced battery management
- Control of rectifier and batteries
- Basic PLC function
- Visual and audible alarms
- 200-alarm history log
- RS-232 user-configurable digital inputs
- Hot-swappable and dry contacts
- Web and SNMP support
- Basic energy management

ACU+ key features

- All the functionalities of SCU+
- USB port
- Advanced PLC function
- Energy savings
- Up to 400-alarm history log
- Power split and master/slave, for system expansion
- Supports up to 16 supervision modules (SM AC, SM BAT, SM IO)

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Emerson Network Power, a business of Emerson (NYSE:EMR), is the global leader in enabling **Business-Critical Continuity™** from grid to chip for telecommunication networks, data centers, health care and industrial facilities. Emerson Network Power provides innovative solutions and expertise in areas including AC and DC power and precision cooling systems, embedded computing and power, integrated racks and enclosures, power switching and controls, monitoring, and connectivity. All solutions are supported globally by local Emerson Network Power service technicians. For more information on Emerson Network Power's full suite of solutions specifically supporting the communications network infrastructure, including NetXtend™ outside plant enclosures, NetSure™ DC power systems, and turnkey services, visit: EmersonNetworkPower.com/EnergySystems.

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Emerson Network Power.
The global leader in enabling *Business-Critical Continuity™*.

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|----------------|--|------------------------------|-------------------------------|
| ■ AC Power | ■ Embedded Computing | ■ Outside Plant | ■ Racks & Integrated Cabinets |
| ■ Connectivity | ■ Embedded Power | ■ Power Switching & Controls | ■ Services |
| ■ DC Power | ■ Infrastructure Management & Monitoring | ■ Precision Cooling | ■ Surge Protection |

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