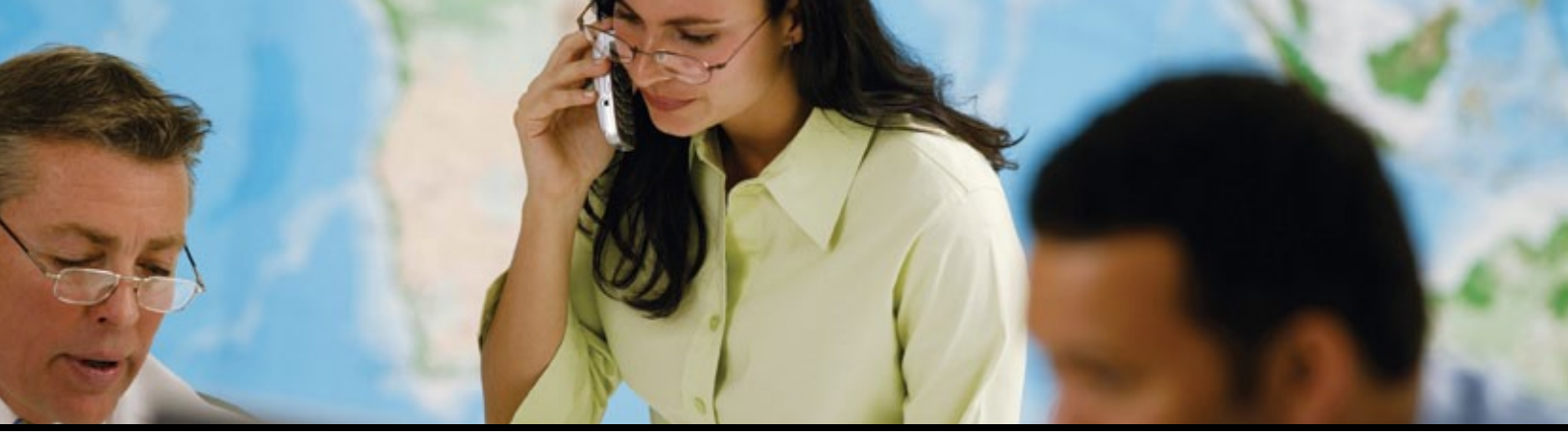
DC Power for
Business-Critical Continiuty™

NetSure™ 211 Series

DC Power System

EMERSON
Network Power



19-inch NetSure™ 211 power system, G1 configuration

Key Features

- **Compact system design –** the most compact configuration is only 1U high, including LVD, battery and load circuit breakers
- **Supporting 300mm deep cabinets (ETSI 300)** – for shallow cabinet applications
- **Front cable connections** – for easy access
- **NetSure™ rectifiers are designed to operate from -40°C to +75°C** – suitable for harsh environmental conditions
- **Remote control and monitoring flexibility** – Ethernet, SNMP, advanced battery management and AC service monitoring
- **Wide range of distribution circuit breakers (1A up to 50A)** – to meet application needs
- **Designed for ETSI compliance** – to meet industry standards

Description

The NetSure™ 211 is a very compact DC Power system available in both 19" and 23" 1U and 2U rack-mount configurations with an integrated distribution unit (MFU). The system features a 1000W rectifier that is shallow enough to support subrack mounting in a 300mm deep cabinet. Cables are connected on the front of the system to simplify equipment integration.

The shallow depth of this system opens up new application areas like street cabinets. Additionally, this system combines its compact height with at least 2kW of power including battery circuit breakers, distribution circuit breakers or fuses, as well as an LVD (low voltage disconnect).

The NetSure™ 211 Series offers alternative AC input configurations, cabinet configurations, battery shelf options, pre-configured output load kits, battery backup, and a variety of LVD options. The dynamic NetSure™ 211 -48V DC system is the ideal solution for power plants in the smaller access segment.

19-inch NetSure™ 211 power system, C1 configuration

The NetSure™ 211 is especially designed for all types of access applications in both fixed and wireless access networks, offering unmatched site installation flexibility.

Environmental Endurance

Great output power at high temperatures
NetSure™ 211 rectifiers deliver high output power in relation to ambient temperature conditions (see diagram 1), making them especially suitable for high-temperature environments.

Extremely wide AC voltage range window
The AC voltage input range vs. rectifier output is another extraordinary feature of this small system. The 1000W rectifier will deliver full power from 176 VAC to 300 VAC. From 85 VAC to 176 VAC the power level is derated (see diagram 2). The 500W rectifier will deliver full power from 104 VAC to 300 VAC.

Configurability for Space and Energy Efficiency

NetSure™ 211 comes in different shapes
This highly flexible DC power system, featuring efficiency levels greater than 92%, is available in 1U or 2U integrated distribution shelves. These alternatives are optimal for rack-mounting in any building, shelter or cabinet installation.

NetSure™ 211 is easily integrated into any Emerson outdoor enclosure when a pre-manufactured space-efficient outdoor solution is needed. The system can also be shipped loose or mounted in indoor cabinets with battery shelves.

Application

The NetSure™ 211 Series is designed for both telecom and datacom networks with small access requirements. Street cabinets are a good example of this application, where most cabinets require a maximum depth of only 300mm.

The small footprint of the NetSure™ 211, combined with an advanced controller (ACU+) with master/slave functionality that extends to any other power system makes this solution the ideal replacement for older equipment.

Diagram1: R48-1000 Output Power vs. Temperature at 264V > Vin >176Vac

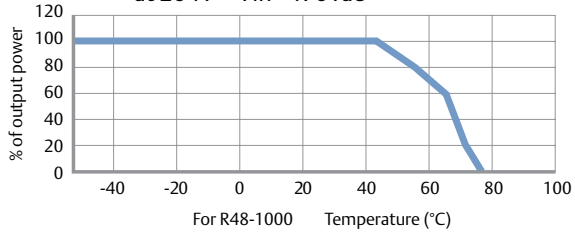
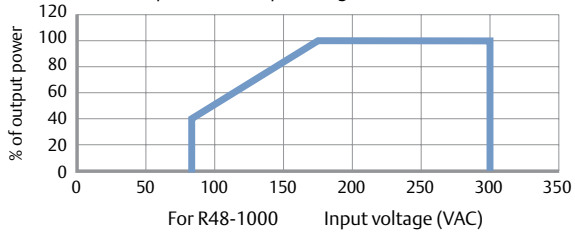


Diagram2: Output Power vs. Input Voltage at Tamb <45°C

Output Power vs. Input Voltage and Vo > 48V at Tamb >45°C



The NetSure™ 211's extensive battery management capabilities, easy configuration and maintenance are all backed by the resources and quality reputation of a worldwide service organization

Basic Configurations

The NetSure™ 211 system is designed around a number of interchangeable building blocks that combine to form the most flexible configurations available in the market.

General 1U – G1

Our most compact system, the G1, is only 1U high, providing 2000W of power with circuit breaker protection. This configuration offers a unique combination of features such as the compact height and depth, two rectifiers, LVD, controller with SNMP and (load- plus battery) circuit breakers.

This 1U rectifier shelf with two rectifiers (for 19" shelves) or three rectifiers (for 23" shelves) includes a distribution unit equipped with up to 6 hydraulic-magnetic circuit breakers, ranging from 1A to 30A. A high current hydraulic-magnetic battery circuit breaker is also available in the 1U height. These breakers are currently available in 32A, 40A, and 50A sizes.

General 2U – G2

This double capacity 2U system offers 4kW of power, 2 LVDs and 12 circuit breakers. In addition, the G2 can be configured with the ACU+ controller and optional extension connection boards for site and signaling connectivity.

Compact 1U – C1

This compact 1U configuration with two rectifier slots, has an MFU with up to 10 distribution points. The C1 also includes an LVD contactor and our SCU+ controller. Eight of the fuses are 10A, two of the fuses are 20A, and the configuration also provides a 30A battery fuse.

Bulk 1U – B1

The bulk configuration, B1, is suitable for applications with existing distribution. As opposed to a "typical" bulk system, our B1 includes rectifiers, battery circuit breakers and LVD functionality. This system is easily embedded in applications where DC distribution is separate or not required.

Extension Distribution Unit – XDU

The XDU is designed for more extreme circuit breaker requirements, supporting 2 circuit breakers up to 50A and 10 circuit breakers up to 30A (12 total). The XDU can be combined with the B1. When combined, the XDU extension unit is factory mounted on the B1 bulk shelf and delivered as a single system ready for installation.

23-inch NetSure™ 211 power system, G1 configuration

NetSure™ 211 System Specifications

	General 1U 19"	General 1U 23"	General 2U 19"	General 2U 23"	Compact 1U 19"	Bulk 1U 19"	Bulk 1U 23"
AC Input							
Maximum input current per rectifier	≤ 7A						
AC connection (single phase)	per two rectifiers					per rectifier	
Input current limitation feature	Yes						
DC Output							
Voltage adjustment range	-36 to -59						
Maximum output current A	40A	60A	80A	120A	40A	60A	80A
Maximum number of rectifiers	2	3	4	6	2	3	4
Maximum power (watts)	2000W	3000W	4000W	6000W	2000W	3000W	4000W
Number of distribution connections (amp size)	6 (1A-30A)		12 (1A-30A)		8 (10A) and 2 (20A)	2 (2A-32A)	
Type of protection for distribution	Mini circuit breakers, hydraulic / magnetic				Fuses		
Number of battery connections (amp size)	1 (32A, 40A, 50A)		2 (32A, 40A, 50A)		1 (30A)	1 (32A, 40A, 50A)	
Type of protection for batteries	Mini circuit breakers, hydraulic / magnetic				Fuse	Mini CB, hydraulic / magnetic	
Mechanical							
System width (inches)	19"	23"	19"	23"	19"	19"	23"
System height (rack units)	1U	1U	2U	2U	1U	1U	1U
Dimensions [H x W x D (mm)]	43 x 437 x 280	43 x 529 x 280	88 x 437 x 280	88 x 529 x 280	43 x 437 x 280	43 x 440 x 280	43 x 532 x 280
Weight (without rectifiers)	8kg	9kg	12kg	13kg	7kg	7kg	8kg
Environmental							
Operating temperature (subrack)	-40°C to +80°C						
Non-derating temperature range (subrack)	-5°C to +60°C						
Non-derating temperature range (subrack) when mounted in 300mm compact cabinet	-5°C to +45°C (worst case)						
Relative humidity	<90%						
EMC	EN 300 386-2 class-B, FCC part 15 class B						
Safety	IEC 60950, EN 60950-1						
Cabinet IP & shelf (with options installed)	IP 20						

NOTE: For rectifier and controller data, please refer to the respective datasheet.

Rectifiers

Emerson's goal to deliver the most reliable DC power systems in the industry is dependent upon its rectifiers. All NetSure™ rectifiers are hot swappable with an integral multi-speed cooling fan and a tri-LED status indicator. NetSure™ rectifiers are globally renowned with over one million units deployed, offering unmatched reliability.

R48-1000

Rated for 1000W constant output power, the R48-1000 delivers full power from 176 VAC to 300 VAC.

R48-500

The R48-500 rectifier is rated for 500W constant output power and is housed in the same body as the R48-1000, making the two rectifiers compatible and exchangeable. This rectifier delivers full power from 104 VAC to 300 VAC.

Control Units

All of the control units for NetSure™ DC power solutions are designed for robustness and are hot swappable with a full, uninterruptible power supply. These controllers are used in Emerson's complete range of NetSure™ DC Power systems, so the interface is well recognized for any power system range you select (see individual data sheet for comprehensive details on each control unit).

ACU+ controller with display

SCU+ (with display)

SCU+ is our new standard controller offering world class functionalities packaged in a slim 1 by 2U robust module. Functions include advanced alarm monitoring and reporting. Flexible alarm settings are programmable to support effective relay signaling. Advanced battery management is provided by functions like temperature controlled charging, boost charging, battery discharge test, battery capacity prediction and battery current limitation.

An intelligent configuration file download capability minimizes installation time and allows planned network conformity. An RS232 serial port or the local display is available for setting and local/remote monitoring.

SCU+ (without display)

Our SCU+ without display offers the same functions as the standard SCU+ but with more advanced remote communication by its embedded Web server and SNMP broadcast service for remote alarm signaling.

SCU+ (with display & Web/SNMP)

This feature-rich controller offers both a display and Web/SNMP, combining the functions of the other two controllers. It can be used as a replacement for all others, if needed.

Emerson Network Power provides a complete range of communications network infrastructure solutions and services built on an industry-leading reputation for quality, reliability and value

ECO Mode

ECO mode, our innovative power saving feature, is available on all of Emerson's new controllers. ECO mode optimizes the usage of the rectifiers, thereby saving power and increasing the system efficiency.

ACU+

The ACU+ is our most advanced controller. In addition to the SCU+ functionality, including display and Web/SNMP, the ACU+ also offers advanced system management. The ACU+ has the added advantage of enabling extensive site monitoring through the use of SM Modules.

Extension Connection Boards

Factory or field installed extension boards for the G2 system extend the controller's functionality. Available interconnection boards are:

IB1: 4 signaling relays and 4 digital inputs for site alarm monitoring

IB2: 8 signaling relays, 8 digital inputs for site alarm monitoring and 2 analog temp. sensors

EIB: 8 DC voltage inputs for battery measurement. Additionally, when combined with the ACU+, the EIB also provides 3 DC current measurements and 2 temperature sensor inputs.

The Local Presence of a Global Organization

To be profitable, your wireline and wireless networks must be properly deployed and individual sites must perform reliably, night and day. Emerson Network Power understands this and offers an array of global installation and support services.

In short, you can focus on keeping your customers connected, knowing you have Emerson Network Power global service coverage, with over 150 service locations worldwide and 2,000 certified professionals with local knowledge behind you.

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Learn more about Emerson Network Power products and services at: **EmersonNetworkPower.com**.

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