

NetSure™ 400V DC Power System

PRELIMINARY

Standard System Features

- 30kW capacity (15kW N+1)
- Hot pluggable 15kW rectifiers
- >96% power conversion efficiency
- Input to output isolation
- AC Input: 380V, 400V or 480V AC
- Up to (9) output load breakers
- Two battery trays for 10 minutes of runtime at 15kW
- Integration into standard IT rack
- cUL/EN 60950-1 (pending)
- Flexible design for other applications



A safe, reliable and efficient AC to DC power system intended for 400V DC critical power applications.

Description

The NetSure™ 400V DC Power System is the latest AC to DC Power System from Emerson Network Power designed for telecom and datacom facilities operating up to 400V DC. The foundation of the system is our patented, next generation 15kW eSure™ rectifier, featuring high frequency switching technology in a compact package. Equipped with eSure™ rectifiers, this 400V DC Power System offers high efficiency over a wide operating range in addition to exceptional NetSure™ reliability.

Designed for easy deployment in lab evaluation or field installations, all components of this system fit into standard 19" racks. The three major components are:

1. Power conversion and control sub-rack (6RU)
2. Output load distribution breaker sub-rack (6RU)
3. Battery trays (4RU each)

The standard 400V system is integrated into a compact 24U rack; additional configurations are available, both with and without batteries.

Safety features include operation with a high resistance mid-point ground. With permanent high resistance between both the positive and negative busses and ground [see Figure 1], personal safety is increased. Available current that could accidentally flow through an individual or equipment from line to ground is limited to a level consistent with today's 48V DC systems.

An independent, online ground fault detection (GFD) system is included to alert users to unintended insulation breakdowns in the system. The NetSure™ 400V DC Power System can also be factory configured for other grounding topologies upon request.

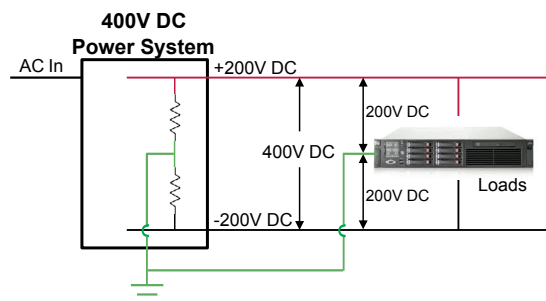


Figure 1: High Resistance Mid-Point Ground Schematic

PRELIMINARY

Battery Backup Time (minutes)

Load	Number of Strings/Trays				
	1	2	3	4	5
5kW	19	49	>60	>60	>60
10kW	7	19	36	49	>60
15kW		11	19	30	41
20kW		7	13	19	27
25kW		4	9	14	19
30kW		1	7	11	15

NOTE: Backup times based on 25°C ambient with fully charged batteries; discharge to 1.6vpc, 270VDC

Technical Specifications (System)

System Input	
Nominal voltage	380V, 400V, 480V AC; 3 phase, 4 wire
Input voltage range	Operating range 260-530VAC Full power: 304VAC to 530VAC; Derated: 260VAC to 304VAC
Input frequency	45Hz to 65Hz
Upstream breaker (recommended)	60A @ 400VAC, 45A @ 480VAC; 30kW power

System Output	
Voltage range	290 - 400VDC adjustable
Output power	30kW @ Vout > 336VDC
Voltage regulation	0.5% for full operating range
Grounding configurations	Std: High resistance mid-point grounding with ground fault detection Opt: Single-pole ground available
Efficiency	>96% for 30% to 100% load

Environmental	
Operating temperature	Range: -40 to 65 °C; Recommend 20-25 °C with batteries Full rating: -5 to 45 °C; Derating applies for +45 to +65 °C
Relative humidity	0-95% non condensing
Audible noise	< 60dB
EMI	EN 300 386, class A; FCC part 15 class A (pending)

Optional Battery Tray	
Battery type	High rate discharge lead acid (VRLA), flame retardant (V0) case
Battery capacity	35 Watt/cell, see run time table
Battery details	Std: 28 x 12V blocks; Energys Datasafe NPX-35TFR or equivalent 336VDC Nominal, 378VDC Float
Tray mechanical	4U high, 230 lb. (104 kg) installed

Mechanical Cabinet Specification (24U Standard System)	
Rectifier form factor	Hot pluggable module
Rectifier weight	22 lb. (10 kg)
Rack dimensions (H x W x D)	47" x 24" x 40" (1186 x 600 x 1000 mm)
Standard system weight	Approximately 750 lb. (240 kg) installed
Cabling details	Top or bottom cabling; front and rear access required
Available rack space	19" x 4U with (2) battery trays installed
Rack model	Knurr DCM 24U

Safety	
Safety agencies	cUL/EN 60950-1, IEC 60959 (pending)
Cabinet	IP 20

Note: Specifications subject to change without notice. Other configurations available.

Emerson Network Power Energy Systems

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System Overview



- 400V DC Load Distribution Sub-Rack**
Up to (9) circuit breakers, output from 6A-63A
Optional 125A main load breaker (req for UL)
- Power Conversion and Control Sub-Rack**
2 x 15kW rectifiers, ACU+ controller,
2 x AC input c.b., EPO, Ground Fault Detection
- Battery Tray**
28 x 35W/cell – 336V DC nominal; 378 DC float
Remote trip c.b.

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