

NetSure™ ITS Series

12V DC Power Shelf



Benefits

- High power density – up to 26.4 kW (12V DC at 2200 A) per shelf in three rack units (5.25")
- Hot swappable – allows for system expansion without disruption
- Expandable – parallel up to three shelves per system for up to 79.2 kW (12V DC at 6600 A) per system
- Operates over a wide AC input voltage range with multiple input configurations
- Safety compliance – UL 60950, CAN/CSA-C22.2 No. 60950-1-03, GR-3160, CE mark, RoHS, REACH

Standard Features

- Ethernet interface to rack management system via SNMP
- System alarming
- Current and power limiting
- Over-voltage protection
- Load sharing
- Over-temperature protection
- Emergency shutdown

Compact, modular design provides a total DC power for a wide range of data rack applications.

Description

The modular NetSure™ ITS Series, 12V DC power system provides up to 6600 amps at 12 volts DC via high efficiency switch mode rectifiers rated at 3300 watts (275 amps) each. It can be configured with up to three shelves rated at 2200 amps each. The system also accommodates a System Control Card (SCC) that controls and monitors the rectifiers while communicating to the rack management system.

The modular design allows the power system's capacity to expand as your system needs grow. Each 12V DC power shelf can accept a combination of nine

individual, plug-in rectifiers that can be easily installed live without system interruption. Each shelf provides 26400 watts (2200 A max) at 12V DC in three rack units (5.25") of height. The SCC can manage up to three shelves for a maximum system capacity of 79200 watts (6600 A max) at 12V DC.

Application

The NetSure 12V DC power system is ideal for data center racks and cabinets, either custom or standard (such as Open Compute Project).

Ordering Information

Model Number	Part Number	Description
PSS12/2000-19BC	588706100xx	12V DC power main shelf
PSS12/2000-19B	588706000xx*	12V DC power expansion shelf
M520H	1M520HNA	12V DC System Control Card (SCC)
R12-3300	1R123300	12V rectifier, 3300 watts

* Several options are available.



12V Rectifier



12V DC Power System
with Nine 12V Rectifiers and SCC

Technical Specifications

Input

Voltage, Shelf	208VAC to 240VAC three-phase (3-wire + PE) with range of 176 VAC to 264 VAC 230/400VAC to 240/415VAC nominal three-phase (4-wire + PE) with range of 195/338VAC to 264/457VAC 277/480VAC nominal three-phase (4-wire + PE) with range of 235/407VAC to 310/537VAC
Voltage, Rectifier and BBU	200 VAC / 208 VAC / 220 VAC / 240 VAC / 277 VAC nominal single-phase with range of 176 VAC to 305 VAC
Current, Rectifier	20.2 amps maximum at full power and 176 VAC
Circuit Protection	Fuses located in each line input of rectifiers
Efficiency	94% typical

Output

Voltage	12.3 VDC nominal, adjustable from 12.0 VDC to 13.2 VDC
Current, Shelf	2200 amps maximum
Current, Rectifier	275 amps maximum at 12.0 VDC (3300 watts maximum)
Regulation	Steady state output voltage remains within ±1 % of the pre-adjusted voltage for any load current from no load to full load and over the specified input voltage range
Dynamic Response	For a step load change within the range of 10 % to 90 % of full rated current, the maximum voltage transient will not exceed 5 % of the initial steady state voltage
Filtering	Wide band noise does not exceed 120 mV peak to peak

Protection

Over-Voltage	Each rectifier will automatically shut down and lock out should its output voltage exceed a value set by the controller, maximum set point is 13.2 VDC. Unit will automatically attempt to restart once. A second (backup) over-voltage protection circuit will shut down and latch off the unit if the voltage exceeds 14.0 VDC
Over-Current	Adjustable from 25 amps to 275 amps per rectifier
Power Limit	Non-adjustable limit of 3300 watts maximum per rectifier
Over-Temperature	Each rectifier will automatically shut down if the internal temperature of the module exceeds a predetermined value. Operation will automatically resume after the over-temperature condition is removed
Internal Fault On Output	Each rectifier contains an output blocking (ORing) circuit which prevents an internal fault in the unit from affecting the bus voltage

Physical Characteristics - Weight and dimensions (H x W x D)

Shelf	20 kg (44 lb) without AC cords, 132 mm x 483 mm x 696 mm (5.2" x 19" x 27.4)
Rectifier	3.0 kg (6.6 lb), 124 mm x 41.4 mm x 453 mm (4.9" x 1.6" x 17.8")

Environmental

Operating Temperature	-10 °C to +45 °C (+14 °F to +113 °F)
Storage Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity	0 % to 95 % relative humidity, non-condensing
Altitude	-200 feet to 10000 feet, maximum operating ambient temperature should be derated linearly (3 °C per 1000 ft.) at elevation above 6000 ft
EMC	This unit conforms to the requirements of FCC Part 15, Subpart B, Class A and EN 300 386, Class A for radiated and conducted noise
Safety Compliance	UL 60950, CAN/CSA-C22.2 No. 60950-1-03, GR-3160, CE mark, RoHS, REACH