



RT12 HVDC UPS



overview

The RT12 High Voltage DC (HVDC) UPS is a modular, fault-tolerant, compact DC power system, with advanced battery management features. When combined with a suitable battery it provides a complete DC secure power solution for 120VDC and 240VDC systems.

The RT12 HVDC UPS can be mounted in open or enclosed 19" racks of 400mm depth or greater. Up to four (4) 2.4kW rectifier power modules can be fitted in a standard 4U 19" rack format, providing up to 9.6kW of reliable power.

The RT12 HVDC UPS is a complete solution, offering AC distribution for all rectifier power modules, DC power distribution for load and battery, intelligent battery management, and web-based network connectivity, all within a compact format. Optional features include AC supply monitoring, and battery cell monitoring.

Power capacity can be expanded by increasing the height of the system and adding more rectifier power modules.

specifications

- Input (Full Power):
185 - 275 VAC, 1Φ L-N
320 - 477 VAC, 3Φ L-L
(Neutral Required)
- Output: 120VDC or 240VDC
- Power: 2.4 up to 9.6kW (higher power available upon request)
- Power Factor: > 0.99
- Harmonic Distortion: < 5%
- Efficiency: > 92%
- Operating Temperature: -40 to 70°C
- Designed to UL60950-1, IEC61000, ETSI EN300019

applications

- Data Center Servers
- Substation Battery Chargers
- Switch Tripping Chargers
- Remote Power Supplies
- Photovoltaic Systems

key features

Complete Solution

The compact format contains everything required: Controller, rectifier power modules, power distribution, battery management, alarm relays, and network connectivity.

Compact and Flexible

Suits 120VDC and 240VDC secure power systems. Constant power capability delivers more recharge current to minimize recovery time. Zero clearance required above or below the HVDC UPS.

"Hot-Swap" and "Plug & Play"

All modules (including the MCSU-4 controller) are field replaceable without tools and without reprogramming.

Extensive Battery Management

Includes temperature compensated float voltage, battery capacity and reserve time estimation, recharge current limiting, and controlled current discharge testing. The optional BCM4 offers individual cell monitoring.

Earth Leakage

Enables the display of leakage current on the MCSU-4 controller or remote monitor screen.

Easy-To-Use Remote Management System

Connections via TCP/IP, USB, RS-232 or HTTP, SNMP and Modbus interface capability. Automatic system time synchronization capability and email notification.

Rugged Design

Rated for continuous operation from -40°C to +70°C, over a wide AC supply range 85-300VAC. Tolerates loss of AC supply neutral.

excellence in data-center power technology



description

RT12 High Voltage DC (HVDC) UPS

The **RT12 HVDC UPS** is a 19" rack mount unit in 4U. The HVDC UPS format maximizes rack capacity for revenue generating equipment by having front to rear ventilation, requiring zero clearance above and below.



The RT12 HVDC UPS accepts AC power over a wide range of voltage and frequency (85-300VAC, 45-66Hz) and is equipped with AC terminations at the rear,

configurable for single or three-phase AC supply. Terminals are provided at the rear for DC load and battery connections as well.

Rectifier Power Module

The **RT12-120V/20A** and **RT12-240V/10A** are switched mode rectifier (SMR) power modules that deliver up to 2.4kW of output power.



RT12 Switched Mode Rectifier

- 2.4kW output per SMR
- RT12 120V - 20A @ 120Vdc
- RT12 240V - 10A @ 240Vdc

The RT12 suits nominal AC supply voltages between 208VAC and 240VAC and will continue to operate down to 85VAC at reduced power. The RT12 will operate at full power from 185VAC up to 300VAC and will not be damaged when exposed to overvoltage of up to 440VAC thereby tolerating loss of neutral of the AC supply. The RT12 is internally protected against voltage transients.

Each SMR is cooled by inbuilt speed control fans, allowing operation at temperatures up to +70°C. Power output is internally regulated to prevent rectifier damage under abnormal environmental conditions. The RT12 can be removed from and plugged into a live system without use of any tools.

System Management

The hot-pluggable **MCSU-4** controller manages the HVDC UPS and provides local and remote user access to all the system parameters and alarms.

The front panel includes a 2x16 character display, menu navigation keys and a USB port for PC access.

The MCSU-4 digitally controls the system voltage, SMR load sharing, provides battery management and monitoring, and is designed for fail-safe operation. All system parameters are backed up within the HVDC UPS, independent of the controller, to enable "hot-swap" replacement of the controller without reprogramming or loss of alarm history.

The MCSU-4 provides advanced asset management information for each SMR, such as electronic serial number, number of hours of operation, and the kWh-hours supplied. A user-configurable "sleep-mode" feature automatically shuts-down rectifier power modules when not required, thereby extending service life and increasing system efficiency.

Other features include ambient and battery temperature sensing, earth leakage current detection, AC voltage monitoring, and alarm and event logging.

Network & Connectivity



MCSU-4 Controller



WebCSU Interface

The MCSU-4 coupled with the **WebCSU** interface provides HTTP, SNMP, automatic system time synchronization capability and TCP/IP access for the

WinCSU-2 Windows® based remote monitoring and control software. Industrial communication protocols such as Modbus, DNP3 and Profibus are also available via 3rd party gateway converters.

Battery Management

The MCSU-4 provides advanced battery management, such as user-configurable battery float voltage temperature compensation, charge current limiting, adjustable charging schemes, and automatic battery discharge testing.

The optional **BCM4** module provides voltage monitoring of individual battery cells or monoblocs. Using the WinCSU-2 software, each individual battery cell voltage is logged and plotted during a controlled discharge test. This allows for rapid identification of any cell requiring servicing or replacement.



Battery Cell Monitor (BCM4)



Ordering Guide



AC Input Voltage

- 230VAC (Wye, L-N)
(Available in 3Φ, neutral required)
- 208VAC (Delta, L-L)

DC Output Voltage

- 120Vdc
- 240Vdc

Number of Switched Mode Rectifiers (SMR)

- 2.4kW (1 x RT12)
- 4.8kW (2 x RT12)
- 7.2kW (3 x RT12)
- 9.6kW (4 x RT12)

Optional Features (You may select more than 1)

- Battery Cell Monitoring
- Mains Input Monitoring

Remote Connectivity

- SNMP
- Modbus
- DNP3

Temperature Sensors

- Battery Temperature Sensor
(Required for battery temperature compensation)
- Ambient Temperature Sensor

Select ONLY 1 of the 3 available options & specify rating

Option 1 - 2 x Battery MCB

- i. Specify Battery MCB1 current rating
 10A 16A 20A 25A 32A 40A 50A 63A
- ii. Specify Battery MCB2 current rating
 10A 16A 20A 25A 32A 40A 50A 63A

Or Option 2 - 2 x Load MCB

- i. Specify Load MCB1 current rating
 10A 16A 20A 25A 32A 40A 50A 63A
- ii. Specify Load MCB2 current rating
 10A 16A 20A 25A 32A 40A 50A 63A

Or Option 3 - 1 x Battery MCB + 1 x Load MCB

- i. Specify Battery MCB1 current rating
 10A 16A 20A 25A 32A 40A 50A 63A
- ii. Specify Load MCB2 current rating
 10A 16A 20A 25A 32A 40A 50A 63A

key features

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