Efficient Reliable Compact Scalable

E·T·N

Powering Business Worldwide

Modern Businesses Demand More

Availability

The modernization of business IT networks increasingly involves the convergence of voice and data communications systems. The growth of this technology reflects an increased dependence on it and consequently, controlled shutdowns are no longer acceptable. Businesses rely on and expect continuity of service – always. Because when it stops, so does the business.

99% uptime is no longer adequate so longer reserve run times are necessary for converged data networks with IP telephony as well as system/data processing requirements which are commonly 24/7.

Efficiency

Soaring energy costs are another aspect that can not be ignored when looking at power system options for converged data networks. Network power requirements can be a considerable drain on an organization's bottom line.

Government initiatives are increasingly common and industry groups such as the Green Grid and Climate Savers are developing guidelines for best practices. They promote new technologies for lower energy consumption, and basically highlight the need for greater power efficiency in businesses.

Flexibility

Flexible power systems are important to accommodate business growth and affordability. Convenient scalability allows capital expenditure to match what is needed without additional spending on excess capacity

Modularity aids system operating efficiency while safe and simple 'plug and go' in-house installation with little or no maintenance reduces the operating costs, making it more affordable still.

Power systems need to be intelligent to protect assets like expensive batteries, and easy to use, but customizable to the requirements of any organization.

Businesses should consider all of these attributes when considering a suitable network power system.

Why Choose Enterprise for your IT Application Power Source?

Superior Reliability and Protection of Equipment:

The Enterprise DC UPS architecture is inherently more reliable than an AC UPS. A direct link between the load and the batteries at all times, avoids any reliance on moving parts (eg switches) whose failure or delay exposes critical equipment to harmful transients, harmonics and high switching voltages.

Modular DC rectifiers provide built in system redundancy that pre-empts any potential failure, ensuring no single point of failure.

DC architecture eliminates the need for system maintenance by-pass – failure of by-pass protection can cause expensive damage. The Enterprise DC UPS never directly exposes equipment to the utility AC power. It provides the secure reliability that has been enjoyed for over 100 years by the telecom industry world wide.

High Efficiency:

Fewer end-to-end power conversions compared to a double conversion AC UPS means the Enterprise DC UPS is more efficient to operate, producing less wasted energy in the form of heat, thus also contributing less to the demand on power for cooling. Using Eaton® Energy Saver Rectifiers, system operating efficiency can exceed 96%.

Long Reserve Run Times:

When utility AC power cuts out, Enterprise DC power systems provide long run times on battery because the battery is connected directly to the load. No conversion is required that will tax the battery life; hence more power is available for the critical load.

Convenient and Cost-Effective Scalability:

For more output capacity or more reserve run time, adding more rectifiers or more batteries to an Enterprise DC system is cost-effective and easy. The Enterprise's modular rectifiers means that system size can be closely matched to a growing load power demand, further ensuring optimal system operating efficiency and avoiding the need to over capitalize on capacity.
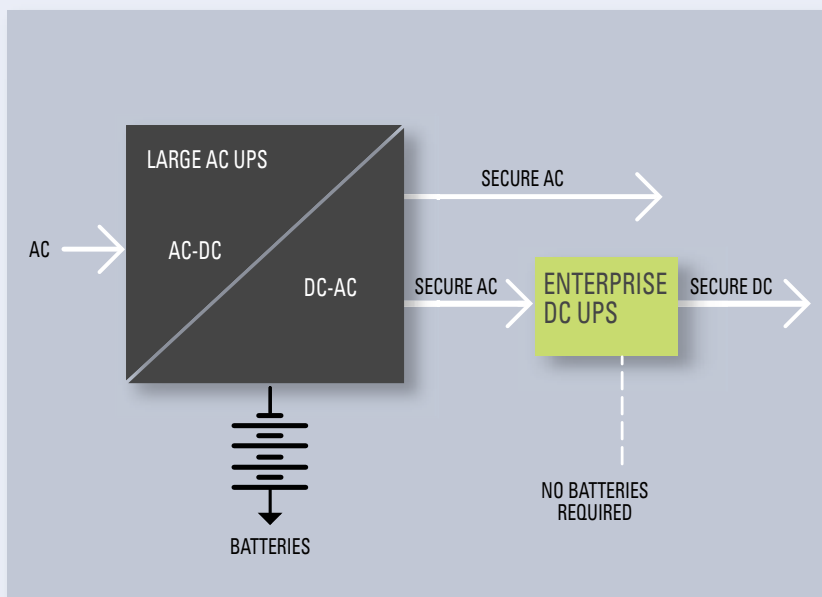
Low Maintenance:

Few moving parts means fewer and simpler maintenance requirements which can usually be done by in-house staff with the inherent safety of a 48Vdc system, compared to a 230Vac system where electrical contractors are probably required.
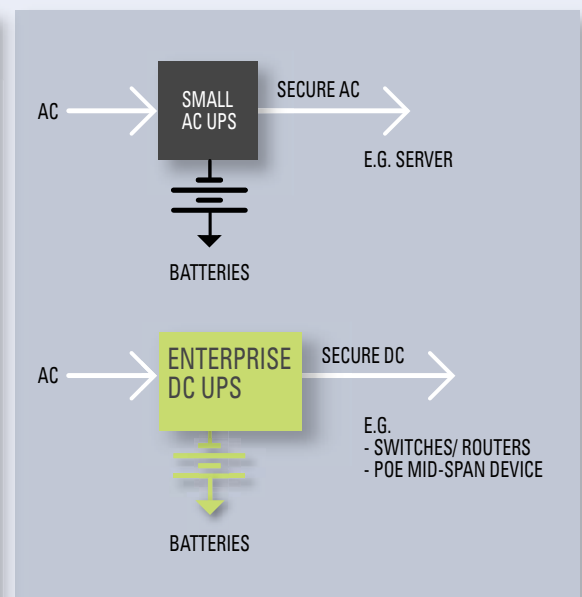
Applications:

- Secure power to customer premises equipment (CPE) such as network termination equipment (NTE)
- Secure power to mixed equipment facilities
- Secure power to converged VoIP/data networks
- Redundant power supply (RPS) to bolster Ethernet routing switch capacity (ie PoE)
- Secure power to mid-span devices
- Secure power to IP routers
- Secure power to PABX

AC UPS and DC UPS in series

LARGE AC UPS
AC-DC
DC-AC
AC
SECURE AC
SECURE AC
ENTERPRISE DC UPS
SECURE DC
NO BATTERIES REQUIRED
BATTERIES

AC UPS and DC UPS in parallel

AC
SMALL AC UPS
SECURE AC
E.G. SERVER
BATTERIES
AC
ENTERPRISE DC UPS
SECURE DC
E.G.
- SWITCHES/ ROUTERS
- POE MID-SPAN DEVICE
BATTERIES

Meeting modern ICT converged data power requirements

Efficient
Reliable
Compact
Scalable

ES ENERGY SAVER VERIFIED SOLUTION

EPS2

EPS5

Enterprise features suit a modern business environment

- Highly reliable proven DC architecture and telecom grade equipment
- High efficiency operation – over 96% with Energy Saver Rectifiers
- Cost effective and simple expansion - add capacity with modular increments
- Long reserve run times
- Maintenance-free life

- Safe, simple installation – 48Vdc 'plug and go' auto-configuration
- Extensive LAN/WAN communications capabilities
- Sophisticated automated system & battery monitoring and control
- Compact 2U or 3U (including distribution) rack mounting
- Modular slim-line 'plug and go' batteries

SMARTER ENERGY

2000W Energy Saver Rectifier

The Enterprise DC UPS is fully compatible with Eaton's Energy Saver DC Rectifier which offers system efficiency of over 96%.

All of Eaton's modular rectifiers offer capacity increments that can closely match load growth for optimal efficiency and cost-effectiveness.

All of Eaton's rectifiers offer high peak-efficiency profiles and very wide efficiency–load profiles which further helps to ensure the system is operating at, or near peak efficiency, for most loads.

Over 96% efficiency
2kW 48Vdc
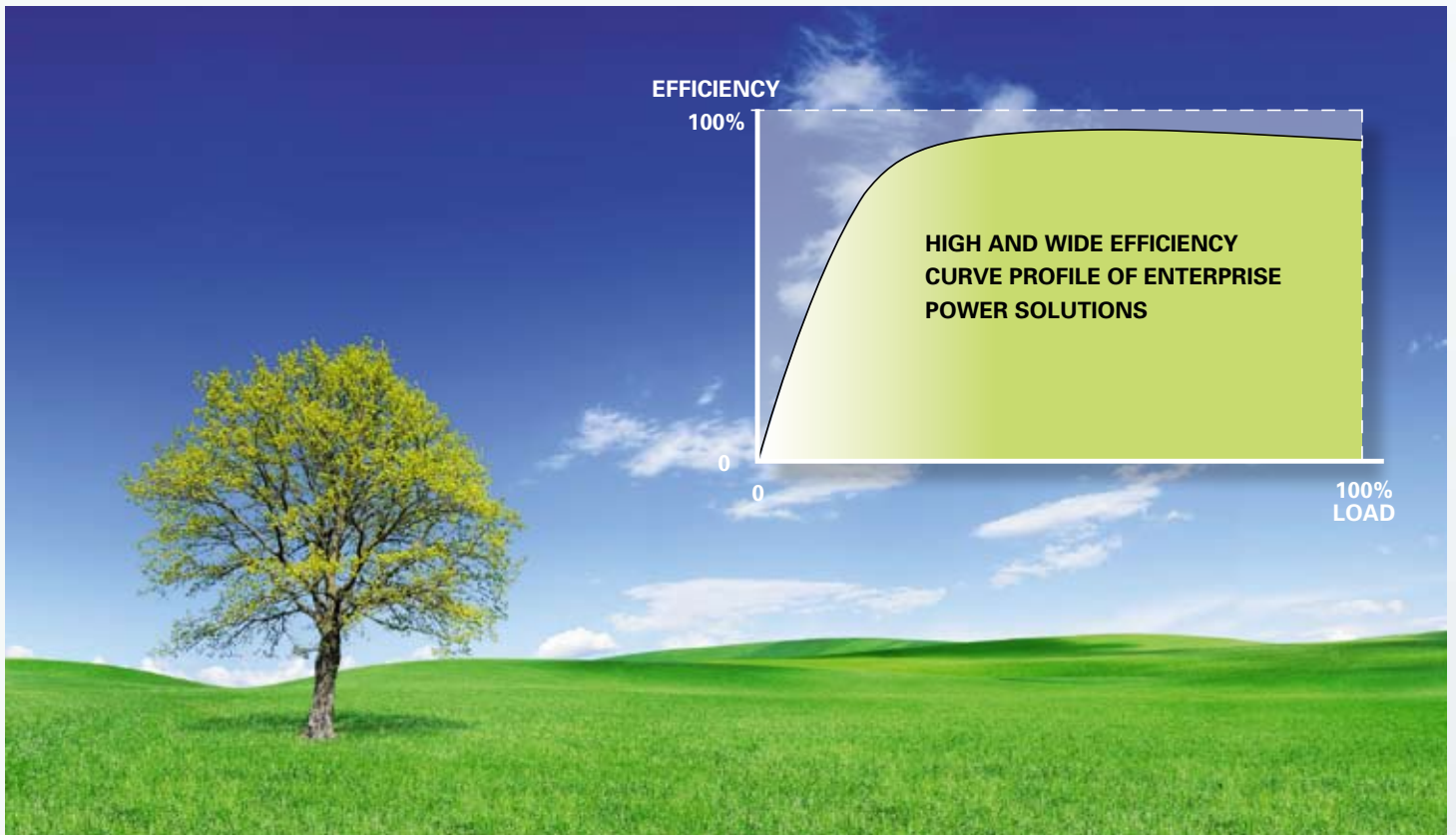## Enterprise IT power

An Eaton Green Product

EFFICIENCY
100%

HIGH AND WIDE EFFICIENCY CURVE PROFILE OF ENTERPRISE POWER SOLUTIONS

0

0

100%
LOAD

Cost Effective Scalable Modular Architecture

Modular hot-plug rectifiers

are the key building blocks to quick, easy, cost effective and efficient system expansion. The modular increments of the rectifiers permit high level system operating efficiency for any load, and without the expense of over investing in excess capacity.

The EPS2 power solution has capacity for up to two rectifiers. Additional capacity comes from the flexibility to fit either the 900W Enterprise, 1800W Access or 2000W Energy Saver rectifiers. The rectifier increments give a total system capacity range of 900W up to 4kW.

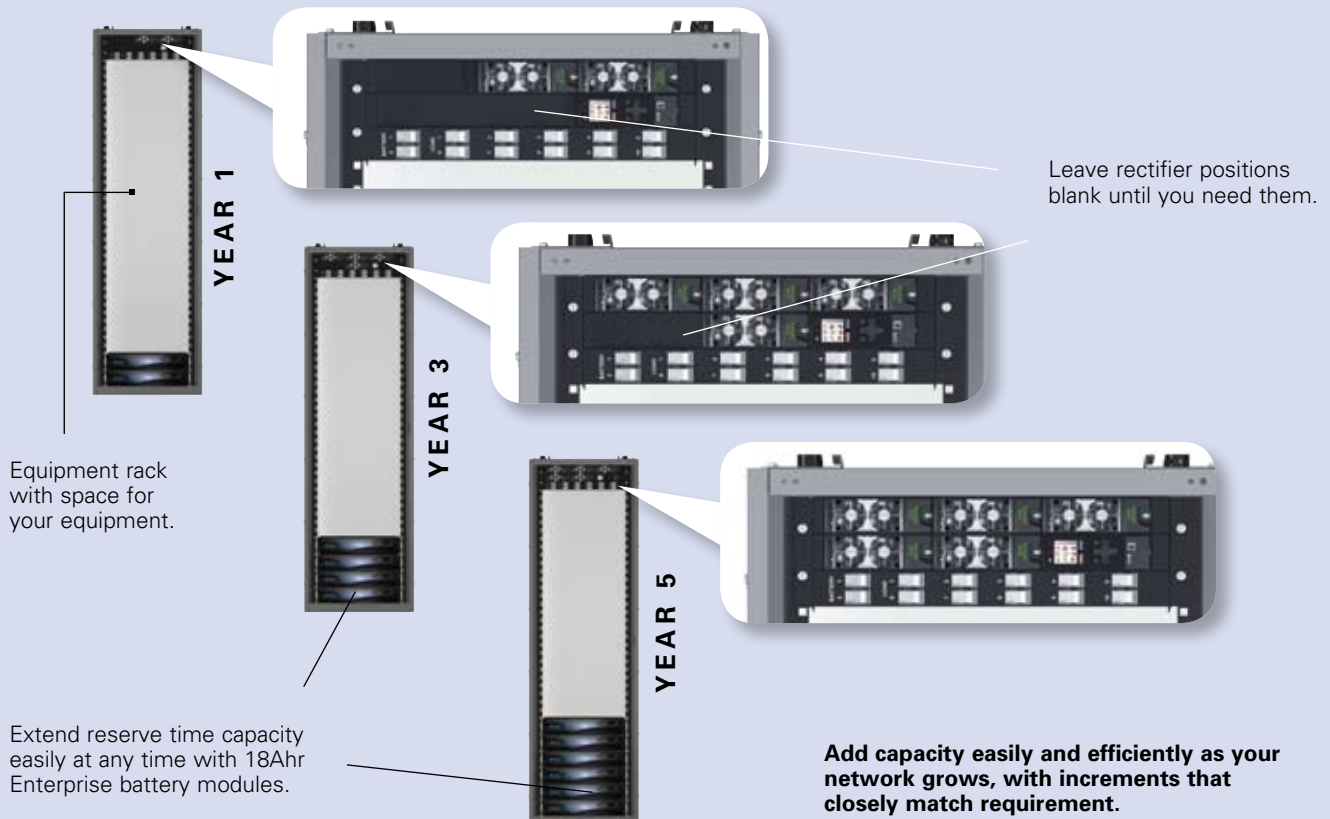900W Enterprise Power Rectifier

1800W Access Power Rectifier

2000W Energy Saver Rectifier

The EPS5 power solution has capacity for up to five 900W Enterprise Power Rectifiers. As with the EPS2, just leave rectifier positions empty until they are needed. The 900W rectifier increments give a total system capacity range of 900W up to 4.5kW.

900W Enterprise Power Rectifier

YEAR 1

YEAR 3

YEAR 5

Equipment rack with space for your equipment.

Extend reserve time capacity easily at any time with 18Ahr Enterprise battery modules.

Leave rectifier positions blank until you need them.

Add capacity easily and efficiently as your network grows, with increments that closely match requirement.

Sophisticated Control and Monitoring Makes Life Easy

The Enterprise system controller automatically monitors and regulates power system and battery variables so you don't have to. It provides system status information, warnings and alarms and it has extensive LAN/WAN communications capabilities to suit any organization.

- Auto recognition and configuration for easy 'hot plug & go' rectifier setup/expansion.
- A wide range of pre-configured yet customizable parameters such as alarm settings.
- Easy initial setup with either USB or onboard web server using our free DCTools software.
- Intelligent automated battery management to maximize battery life.

- Advanced connectivity options of built-in Ethernet interface, secure web server, SNMP agent and Mod-Bus.
- A distinctive user-friendly high-resolution color screen with multiple page views.

- Compatible with power management tools including Eaton's PowerManagerII™ or others such as HP Open View™, 3Com Network Director™ and SNMPc™ to name a few.

Enterprise Battery Module (EBM) - Optional

The EBM is the preferred integrated backup power source for Enterprise power solutions. Providing secure power during AC utility power failure for anything from orderly shutdowns through to extended run times for continuity of service. They are modular and easily scalable for increased backup capacity for a given output demand. Other battery options are available.

The EBM module is slim-line and rack mountable to suit the likely applications for these systems. The battery modules use simple 'plug and play' cables for connection to the Enterprise power solution without need for any specialized tools – easy to install in an IT environment.

Each EBM has an 18Ahr capacity and is service maintenance free for the life of the battery module. Battery function is monitored and controlled by the system controller for complete battery protection.

Example: One EBM provides >30mins run time with a 900W load (see diagram on back page).

EPS2 and EPS5: Brief Technical Specifications

AC Supply Nominal: 120V, 240V
Operating Range: 90V – 275V

Power Factor[†] >0.99 (50 – 100% output current)

Efficiency[†] 91 - 96.4% (50 – 100% output current)

DC Output Voltage Range
43 – 57.5V

DC Output Power (maximum*)[†]
EPS2 240VAC: APR48-ES: 4.0kW
APR48-3G: 3.6kW
EPR48-3G: 1.8kW
EPS2 120VAC: APR48-ES: 2.3kW
APR48-3G: 2.2kW
EPR48-3G: 1.1kW
EPS5 240VAC: EPR48-3G: 4.5kW
EPS5 120VAC: EPR48-3G: 2.25kW

* based upon 2 rectifiers fitted to the EPS2-3G and 5 rectifiers fitted to the EPS5-3G, refer to rectifier data sheets

Operating Temperature Range
Rated: -10°C to +50°C [-14°F to +122°F]
Extended*: -40°C to +70°C [-40°F to +158°F]

*Output current is derated above 50°C [122°F]

Dimensions H, W, D
EPS2: 2U, 19″ mounting, 13.2″ [335mm]*
EPS5: 3U, 19″ mounting, 13.2″ [335mm]*

* Additional clear depth space is required for exhaust air.

DC Distribution Module
12-way circuit breakers (2 x Battery, 10 x Load)
Circuit breaker type: Magnetic/Hydraulic, push fit type
Battery circuit breakers: Heinemann AC1R Series
Typical ranges available: 30A, 40A, 50A, 60A
Load circuit Breakers: Heinemann JC1S Series
Typical ranges available: 6A,10A, 15A, 20A, 25A, 30A

System Controller
SC200

Communication Features
USB direct
10BaseT Ethernet, TCP/IP, SNMP, On board web server
RS232 to external PSTN or GSM modem (modem not included)

Rectifier Blank Panels
For unused rectifier positions

DCTools
Configuration software.
Free download from: www.powerware.com/downloads

PowerManagerII
Remote control and monitoring software

Certifications
All products comply with international standards.

North America	UL (Canada, USA), FCC Class B
Europe	CE
Australia and New Zealand	C-Tick

In the interests of continual product improvement all specifications are subject to change without notice.

Enterprise Battery Module (EBM): Brief Technical Specifications

DC Output Voltage 48V nominal

DC Output Capacity 18Ahr
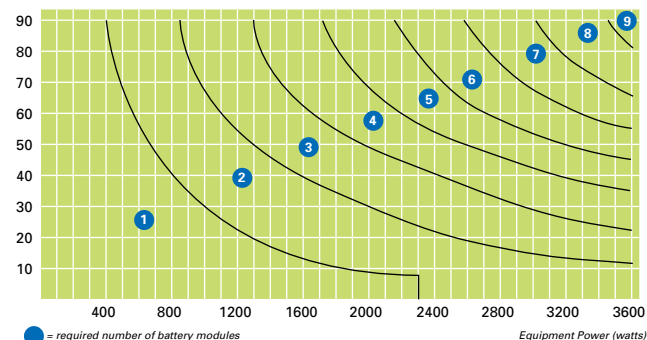
Weight 29.5kg [65lb]

Dimensions (H,W,D*):
85mm (2U), 432mm (19″ mounting), 487mm

*additional space is required at the rear for cables.

Typical Run time values* (see graph)

Battery Run Time (minutes)

= required number of battery modules   Equipment Power (watts)

*Battery times are approximate and vary depending upon factors such as:

- load configuration
- battery charge
- battery age and temperature

* Other battery options available - consult your local Eaton agent.

EBM Part Ordering Codes

Extended: PW5130 48V EBM RM
Battery Module: P/N 103006587-6591

Enterprise System Ordering Codes

Enterprise: EPS2-421-6000
Power System: EPS5-421-6000

Battery Connection Cables
CKBATT-02 Eaton EBM 5130 connection cable, 2000mm long.
or
CKBATT-01 'other batteries' connection cable, 2000mm long.

Customer Connection Equipment Cable
CKLOAD-00 10xload cable sets, 1000mm long

EBM Rack Mounting Kit
Included with EBM5130 as standard

RoHS COMPLIANT

† Power factor, efficiency and DC output power are dependant on rectifier model fitted. Refer to the rectifier data sheet for further details.