Pulsar Esprit

3–13.5 kVA

High Availability UPS for Internet Servers

MGE UPS SYSTEMS all new Pulsar Esprit has been specifically designed to meet the needs of Internet Service Providers & Application Service Providers. Esprit provides total power availability with redundant UPSs for the price of a regular, single UPS. This redundant combination, called Power Cluster, has been pioneered exclusively by MGE.

Pulsar Esprit *has been designed with the Internet in mind:*
For the first time, it is possible to remotely monitor an UPS using **XML tags** to perform automatic actions. This breakthrough technology is the result of MGE's heavy investment in research and development. They provide ISPs with the best combination of power availability and cost. With the revolutionary Esprit **Power Cluster**, MGE brings affordable, total power availability to smaller ISPs and mid-size businesses with 3 to 15 servers.

Pulsar Esprit World First. . .

- First high availability UPS with maximum reliability at an affordable cost (Power Cluster)
- First UPS with infinitely expandable batteries
- First UPS to provide "redundant hot swap" battery capability
- First server-grade UPS with built-in USB communications
- First UPS in its class with HID protocol for seamless integration with Windows 2000
- First UPS managed with XML tags

Advanced Features

- High availability power + maximum reliability = MGE Power Cluster
- Web-based management using XML
- Standard USB communications
- Seamless integration with Microsoft Windows 2000
- Redundant battery back-up potential
- Redundant battery chargers (with additional batteries)
- Plug-in convenience up to 8.5 kVA
- Can be installed by non-technical personnel
- Capable of long duration backup

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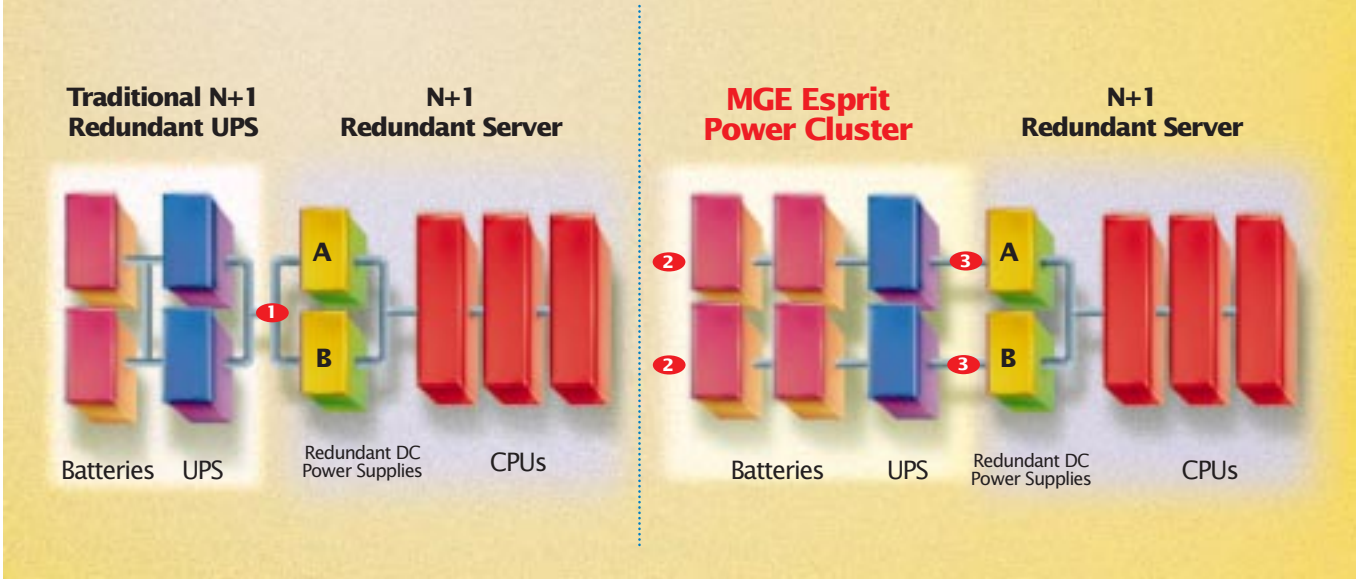
Maximum Availability and Reliability

Power redundancy for servers with multiple power supplies

Most servers provide multiple power supplies for N+1 redundancy. To maintain high availability of the system when considering power, a redundant configuration as offered with the Esprit Power Cluster is better than traditional N+1 redundant UPSs:

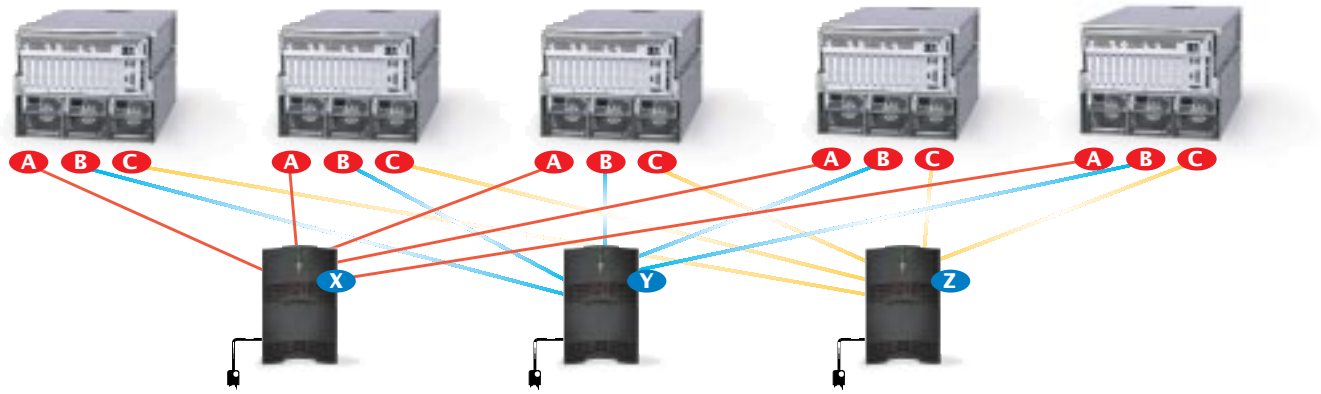
Configuration	Comments
1 Single point of failure	Traditional redundant UPSs are paralleled at their outputs and provide a worrisome single point of failure.
2 Redundant power paths	With Esprit, power sharing is achieved within each server on the DC bus.
3 Redundant power sources	Input power connections of servers will be connected to 2 (or 3) different Esprit modules, providing 2 (or 3) different sources, eliminating a single point of failure.
Esprit, for the first time, provides total power availability combined with maximum reliability	MGE's advanced engineering & design significantly reduces the component count for high availability and reliability at an affordable price. Traditional N+1 UPS redundancy can provide power availability at the expense of reliability with multiple sub-assemblies that increase the chance of costly failures.

The Power Cluster Advantage



Example of 5 PC servers with 3 redundant power supplies:

- Select a 4.5 kVA Esprit Power Cluster
- Connect the first power supply A of each server to the Esprit X
- Connect the second power supply B of each server to the Esprit Y
- Connect the third power supply C of each server to the Esprit Z
- Connect each Esprit to a separate wall outlet.



Easy Connections and Installation

Plug-In convenience up to 9 kVA
Simple installation: simply plug the system in, up to 9 kVA


Esprit 3.1
(L5-30)


Esprit 4.5
(5-50)


Esprit 6
(L14-30)


Esprit 9
(14-50)

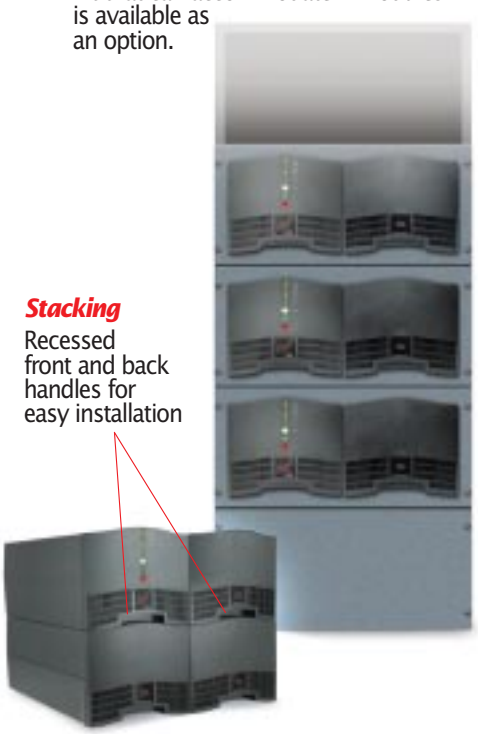
Electronic Module (Esprit 3.1)

Multiple Communications ports
- RS232 port
- USB port

Versatile output receptacles
Various combinations of receptacles make it easy to connect any type of server to your Esprit

Redundant battery path
Each UPS is equipped with two battery connectors:
- Battery modules are user hot-swappable with no risk of power interruption during the exchange
- Parallel battery modules avoid the single point of failure generated by daisy-chained battery modules.

Rack Mounting
Esprit's unique design lets you stack up electronic and battery modules as you want (up to 3 max.). A 5U rack mount kit that can accommodate 2 modules is available as an option.



Stacking
Recessed front and back handles for easy installation

Infinite battery runtime
You can "parallel daisy chain" as many battery modules as needed.

Multiple chargers
Each battery module includes its own internal charger:
- Fast recharge for any battery runtime
- A faulty charger doesn't prevent the recharge of the other battery strings.

Battery Module

Comprehensive Display and Controls

Internet-Grade Monitoring and Communications

All Esprit models come standard with built-in communications capabilities using either an RS232 or USB port. UPS-to-server communications is essential to secure the operation of your operating system during an extended power failure. The UPS will signal the O/S when its batteries are almost depleted to launch an orderly, graceful shutdown process to make sure all files are protected. This feature is vital for systems running unattended, such as Web servers.

Esprit communication is based on the new Microsoft's HID protocol, which will become the standard for any device interfaced with Windows 2000. By already implementing this industry standard, MGE offers seamless integration and faster, more reliable communications to its customers.

Operating Systems Supported	RS232	USB
Win 98 SE / Windows 2000	■	■
Win 95 OSR2 / NT 3.51 & 4	■	
Linux RedHat 5.2 kernel 2.0.x	■	
Linux RedHat 6.0 kernel 2.2	■	
Netware 3.12, 4.12, 5.0	■	
SCO 5.0x	■	
Unixware 7.x	■	

Web-based Management Using XML

MGE UPS SYSTEMS is currently chairing the W3C UPS industry workgroup, which will define an industry standard for power management over the Web. XML will quickly replace HTML as the protocol of choice for web-based management. HTML can only display information in a browser, it cannot easily send the data to another piece of software to perform an automatic action such as triggering a shut down command of the system or paging an administrator. MGE's **XML-@gent** runs on a Windows NT/2000 server and constantly monitors the status of the incoming power, publishing browser alerts during a power problem to all subscribing web-enabled nodes. MGE is the first UPS to offer Web-based management using the new XML/XSL (Extended Mark-up Language/Extended Style Language) specification for data communications

Windows

MGE has been partnering for several years with Microsoft to co-develop power management interfaces for Windows products. As a result, Windows 2000 will ship with a dedicated power panel for MGE's Esprit product. Simply connect your UPS to the PC and Windows 2000 will install automatically all the drivers to secure your operating system and its files during a power failure.

MGE ***power management software*** *is available for Windows 95/98/NT 4 and 2000 & is fully Plug & Play.*

Linux

MGE's popular Solution-Pac power management software is available for Linux. It provides a simple way to secure the operation of multiple Web servers during a power outage.

SNMP Management

Enterprise users can take advantage of the extensive TCP/IP-based communications offering developed by MGE.

Features include:

- Remote management from an NMS platform such as HP OpenView, CA Unicenter TNG, SunNetManager and more
- Shutdown of multiple servers running different operating systems
- Perform automatic actions based on power events such as paging the network administrator or sending an eMail
- Reboot a locked up server remotely using the **UM Switch** power controller (option)
- Monitor the temperature and humidity of the computer room with the **UM Sensor** environmental module (option)

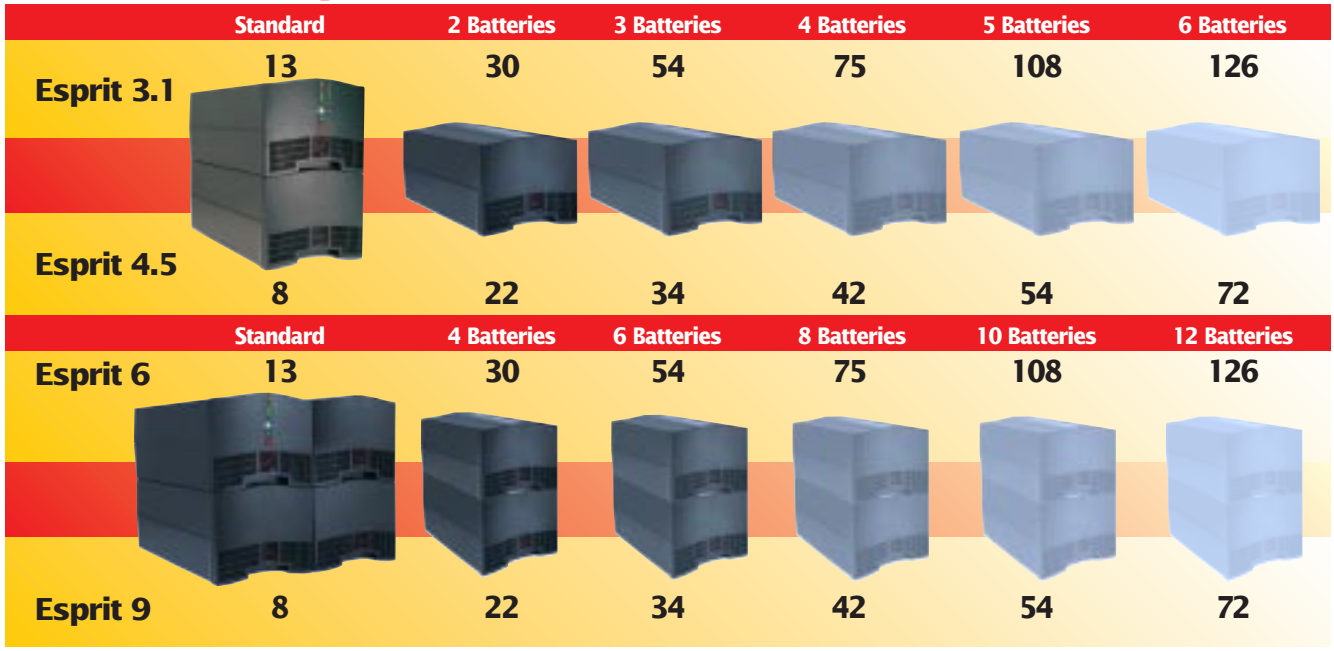
Connection to the network is achieved through an Ethernet/SNMP card that fits into the **MultiSlot** Communication Expander. The multiple slots available let you manage 2 or 3 redundant Esprit UPSs as one single system over the network.

Select the Esprit you need for your Web Servers

Model	Single UPS	Power Cluster (for servers with 2 redundant power supplies*)
Esprit 3.1	◗ 3-server protection ◗ 3.0 kVA ◗ 5U (in rack)	◗ 3-server protection ◗ 3.0 kVA ◗ 10U (in rack) ◗ Expand load to 6 kVA (with no redundancy)
Esprit 4.5	◗ 5-server protection ◗ 4.5 kVA ◗ 5U (in rack)	◗ 5-server protection ◗ 4.5 kVA ◗ 10U (in rack) ◗ Expand load to 9 kVA (with no redundancy)
Esprit 6	◗ 6-server protection ◗ 6 kVA ◗ 10U (in rack)	◗ 6-server protection ◗ 6 kVA ◗ Expand load to 12 kVA (with no redundancy)
Esprit 9	◗ 9-server protection ◗ 8.5 kVA ◗ 10U (in rack)	◗ 9-server protection ◗ 8.5 kVA ◗ Expand load to 17 kVA (with no redundancy)
Esprit 13.5	◗ 15-server protection ◗ 13.5 kVA ◗ 15U (in rack) ◗ 3 to 1 interface	◗ 15-server protection ◗ 13.5 kVA ◗ Expand load to 27 kVA (with no redundancy) ◗ 3 to 1 interface

* For servers with 3 redundant power supplies, add additional Esprit UPS.

Scalable Battery Runtimes (in Minutes)



Notes: [1]Example above requires adding one additional battery module to an Esprit 4.5 & will provide 22 minutes of runtime at full load. [2]For Esprit 6 & 8.5 kVA, battery modules must be added in pairs.

Pulsar Esprit Specifications

Dimensions and Weights

Esprit 4.5

Esprit 13.5 Power Cluster

Model		Single UPS Dimensions WxHxD (in.)	Weight (lbs.)	Power Cluster (for servers with 2 redundant power supplies) Dimensions WxHxD (in.) each	Weight (lbs.) each
Esprit 3.1	Electronic	1 ea. 8.5" x 7.25" x 19"	20	2 ea. 8.5" x 7.25" x 19"	20
	Battery	1 ea. 8.5" x 7.25" x 19"	80	2 ea. 8.5" x 7.25" x 19"	80
Esprit 4.5	Electronic	1 ea. 8.5" x 7.25" x 19"	20	2 ea. 8.5" x 7.25" x 19"	20
	Battery	1 ea. 8.5" x 7.25" x 19"	80	2 ea. 8.5" x 7.25" x 19"	80
Esprit 6	Electronic	1 ea. 17" x 7.25" x 19"	40	2 ea. 17" x 7.25" x 19"	40
	Battery	2 ea. 8.5" x 7.25" x 19"	80	4 ea. 8.5" x 7.25" x 19"	80
Esprit 9	Electronic	1 ea. 17" x 7.25" x 19"	40	2 ea. 17" x 7.25" x 19"	40
	Battery	2 ea. 8.5" x 7.25" x 19"	80	4 ea. 8.5" x 7.25" x 19"	80
Esprit 13.5*	Electronic	3 ea. 8.5" x 7.25" x 19"	20	6 ea. 8.5" x 7.25" x 19"	20
	Battery	3 ea. 8.5" x 7.25" x 19"	80	6 ea. 8.5" x 7.25" x 19"	80
	3 to 1 Interface	1 ea. 19" x 4" x 5.1"	20	2 ea. 19" x 4" x 5.1"	20

*Esprit 13.5 consists of 3 each Esprit 4.5 plus 1 3 to 1 interface

Sizing Guide and Battery Runtimes

Single UPS	3 PC servers	4 PC servers	5 PC servers	6 PC servers	2 RISC servers	9 PC servers	12 PC servers	15 PC servers
Esprit 3.1	17							
Esprit 4.5	20	12	8					
Esprit 6	45	26	18	15	13			
Esprit 9	48	33	22	20	15	10		
Esprit 13.5*	100	70	55	47	40	25	18	13

Note: In a Power Cluster configuration, the battery runtimes given above will double.

Characteristics

	Esprit 3.1	Esprit 4.5	Esprit 6	Esprit 9
Electrical				
Power (VA/W)	3000/2016	4500/3150	6000/4032	8500/6000
Input voltage range	100/120/127 Volts +10% -15%	100/120/127 Volts +10% -15%	208/220/240 Volts+10%-15%	208/220/240 Volts+10%-15%
Output voltage range	100/120/127 Volts	100/120/127 Volts	100/120/127/200/208/220/240 Volts	
Output frequency regulation	50/60 Hz +/- 0.5 Hz			
Surge protection	420 joules	420 joules	630 joules	630 joules
Efficiency (on battery)	> 94%	> 94%	> 94%	> 94%
Waveform	Compatible with multiple server-grade, Power Factor Corrected (PFC) power supplies**			
Batteries				
Number and type	12 x 12V/7Ah	12 x 12V/7Ah	24 x 12V/7Ah	24 x 12V/7Ah
Recharge time	4 hours to 80%	4 hours to 80%	4 hours to 80%	4 hours to 80%
Battery life expectancy	4-5 years	4-5 years	4-5 years	4-5 years
User connections				
Input power cord	6 feet w/ L5-30P	6 feet w/ 5-50P	6 feet w/ L14-30P	6 feet w/ 14-50P
Output receptacles	L5-30 & 4 x 5-15	5-50 & 4 x 5-15	L14-30, L6-30 & 6 x 5-15	14-50, L6-30 & 6 x 5-15
Communication ports	1xRS232 & 1xUSB			
Software included	Solution-Pac Power Management suite			
Environment				
Safety	UL, cUL 1778			
Surge protection	ANSI C62.41			
Noise level	45 dBA max.			
Operating temperature	32-105 F			
Manufacturer certifications	FCC, ISO 9001			
Warranty	2 years, parts and labor electronics (battery modules:1year)			
Warranty extension (option)	3 years, parts and labor incl. batteries			
Environmental	Recyclable components, packing & documentation, recycled materials, used battery recovery			

**Independent test lab report available on MGE's web site

MGE UPS SYSTEMS

Made in USA · Designed for Microsoft Windows NT Windows 98 · Novell · c UL us LISTED · MGE GREEN SWEEP Call MGE to return your UPS for free recycling to a US EPA-certified recycling center and help protect our environment.

USA (headquarters)
1660 Scenic Avenue
Costa Mesa, CA 92626
tel (800) 523-0142
(714) 557-1636
fax (714) 557-9788

CANADA
#9, 2798 Thamesgate Dr.
Mississauga, ON L4T 4E8
tel (905) 672-0990
(877) 672-0990
fax (905) 672-7667

BRAZIL
Avenida Guido
Caloi 1985 (GALPAO 23)
Guarapiranga
Sao Paulo - SP, CEP 05802
tel (55) 11-5890-3323
fax (55) 11-5890-3353

ARGENTINA
Thames 91
1609 San Isidro
Prov de Buenos Aires
tel (54) 11-4766-8777
fax (55) 11-4766-6008

www.mgeups.com
info@mgeups.com

esprit 101
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