

Power Management Solutions



A comprehensive communication suite for all ranges of MGE power solutions:

► **data protection**

Shutting down and restarting servers automatically

► **alarm notification**

Local and remote messages (e-mail, SMS, pager)

► **supervision**

The main parameters of the uninterruptible power supply can be managed using a Web browser, Network Management System or multi-UPS supervisor

► **remote control**

The equipment connected to the UPS can be turned on and off

THE UNINTERRUPTIBLE POWER PROVIDER

MGE
UPS SYSTEMS

Goal: improve equipment reliability and guarantee data integrity

Uninterruptible power supplies are usually used as a backup source in case of a power failure to prevent downtime. This type of protection is essential but is only partially effective if the user is not able to control the situation. With power management, the user is notified immediately of the status of the equipment and can initiate automatic actions depending on the events, control the power supply remotely and manage the electrical equipment more effectively.



Instantaneous notification

- alerts users of power supply faults and shows how much time remains until the battery is fully discharged;
- alerts remote network administrators by sending a message by e-mail, cell phone, pager or fax.



Shutting down server and PC operating systems

The back-up time of a UPS may not be adequate to provide power during prolonged power outages.

When the battery is nearly discharged, the software associated with the UPS:

- initiates the sequence of operations programmed by the user;
- automatically closes all open system files;
- shuts down the computer.

Log of UPS events and measurements



- logs events, at night or over weekends, for example;
- monitors on-site power quality

- Manage critical situations using pre-set automatic actions
- Monitor equipment more easily
- Control the power supply to critical equipment remotely, etc



Ideal for IT applications



Ideal for network applications

Linux and MGE UPS's

More and more businesses and administrative bodies are using open source software, in particular for Web server type applications.

For several years, MGE UPS SYSTEMS has been very proactive by contributing to the Open Source project for UPS support, and is committed to providing the latest power management applications under Linux.

For further information, visit www.mgeups.com/opensource



Individual workstations

A point-to-point (RS232 or USB) link between the UPS and the IT system to be protected provides adequate protection for a server or a workstation and its peripherals.

The operating system "plug and play" solution

Some operating systems, such as Windows, have built-in UPS functions for critical tasks.

MGE UPS SYSTEMS are Plug and Play: when the UPS is connected to the system using a USB cable, the operating system detects the UPS automatically and installs the appropriate drivers.

Personal Solution-Pac

To provide more control and settings than those provided by the operating system's drivers, MGE UPS SYSTEMS "Personal Solution-Pac" can be used to fine-tune the shutdown parameters and provide additional features such as controlling individual devices, programming responses to events, predicting back-up time in case of power failure, etc

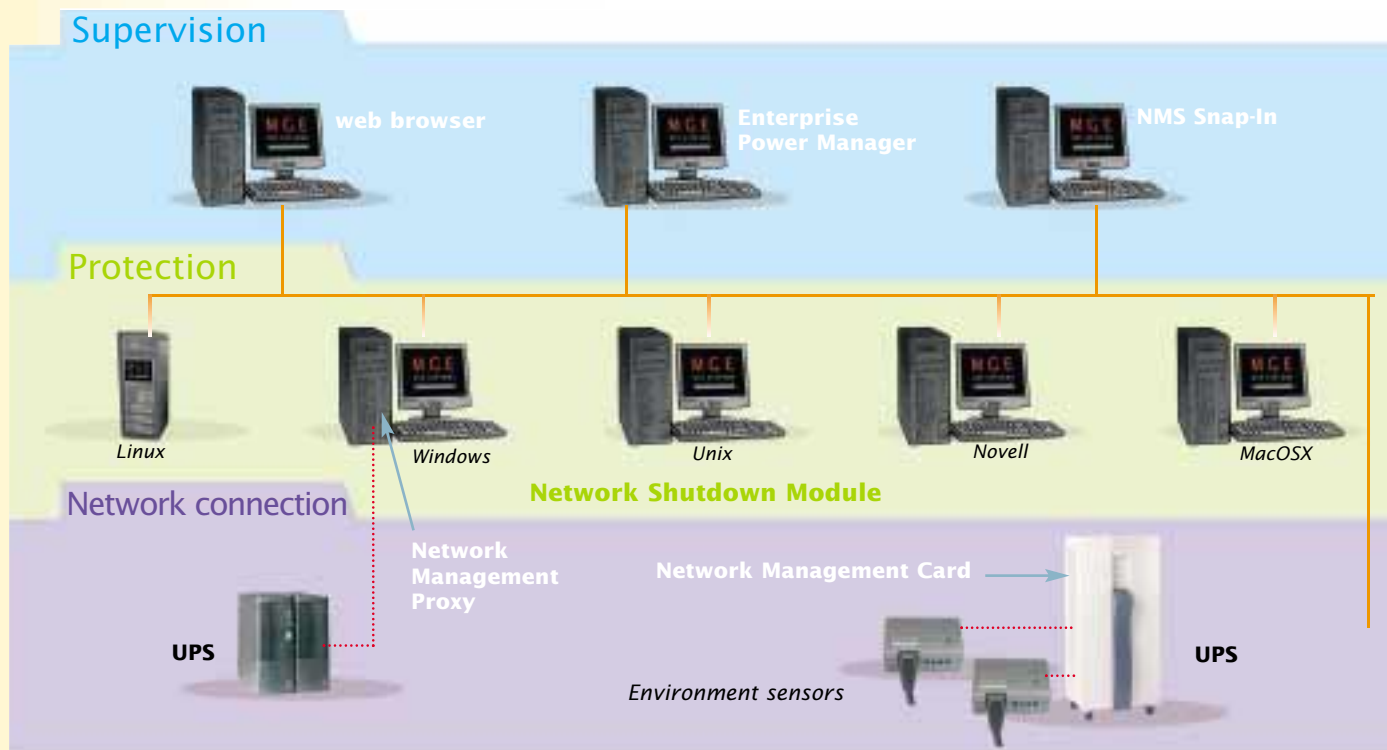


Network applications

MGE UPS SYSTEMS has developed a comprehensive, simple and coherent range of products for power management of servers and other systems requiring protection.

This range provides 3 main functions:

- ▶ connecting UPS systems to an IP network;
- ▶ total protection of servers and equipment: alarms, shutdown, etc;
- ▶ active supervision of the whole system.



Connection to IP networks

There are 2 ways of connecting a UPS to an IP network:

- ▶ adding a network management card to the UPS which becomes the interface to the network.
- ▶ using a nearby PC or server connected to the network as a proxy.

Network Management Card

These cards are recommended for central UPS systems that protect a complete network or for UPS systems providing back-up for critical equipment.

With its embedded card, the UPS has its own IP address with local intelligence to:

- ▶ serve Web pages with reports, settings and alarms;
- ▶ interface with SNMP-based network management consoles such as HP Openview, IBM Tivoli Netview and Computer Associates Unicenter;
- ▶ communicate with shutdown software installed on the servers to be protected.

A more specialised XML/Web card is recommended for the advanced supervision of three-phase UPS's



Network Management Proxy

The NMP is a more economical solution for small UPS systems. It allows a UPS to be controlled over the network without adding to the basic cost of the UPS.

The proxy software agent is installed on the system to which the UPS is connected via a USB or RS232 port.

The NMP agent provides both XML and SNMP protocols and is used to manage a UPS remotely using a standard browser or a network management console.

Protection: shutting down servers



The shutdown module is a highly efficient program with quiet installation and centralised configuration.

To ensure system and data integrity, a computer operating system must be shut down in the correct sequence.

A software module must be installed on the protected servers to automate various functions in case of a power problem, such as:

- ▶ executing a script to close all applications running on the server;
- ▶ initiating a shutdown sequence or hibernation after a pre-set timeout or just before total battery discharge to maintain service continuity;
- ▶ restarting the operating system automatically or in manual mode when the mains power is restored;
- ▶ personalising alarm messages for events concerning the UPS, etc.

MGE shutdown modules can be used with both Network Management Cards as well as with the Network Management Proxy.

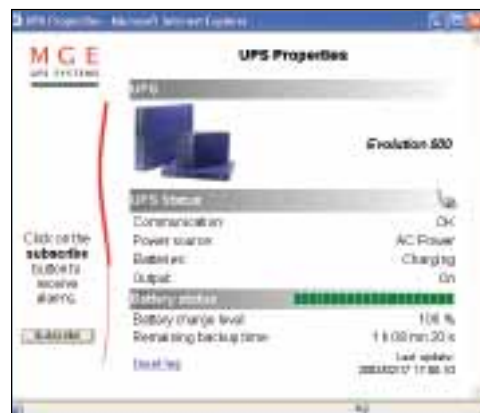
UPS systems supervision

Supervision using a Web browser

UPS systems can be supervised using a standard Web browser to provide details of all UPS parameters, measurements and settings, from any point in the network, simply using the IP address of each UPS.

Supervision using a Network Management System

Enterprise network administrators have the same level of details for UPS systems as for servers and switches using one of the snap-ins designed for the best known Network Management Systems, such as HP OpenView, IBM Tivoli and CA Unicenter. MGE UPSs meet SNMP standards (MIB RFC 1628 or MIB MGE), which cover all the MGE UPS SYSTEMS product specific functions. They can be easily incorporated into Network Management Systems or server management systems such as HP/Compaq Insight Manager 7 for auto-detection, monitoring, colour-coded alarms on each device's icon, etc.



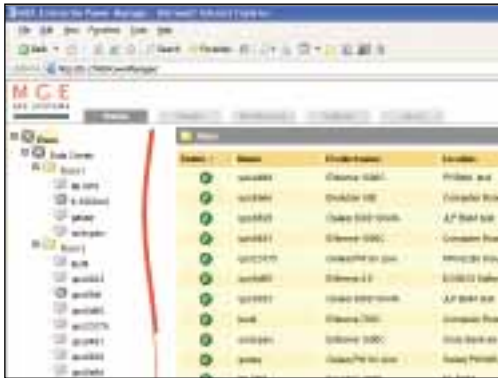
Supervision using Enterprise Power Manager

Easy supervision of a group of UPS systems

Enterprise Power Manager is a system for managing networked UPS systems more easily and at lower cost than the major NMS platforms, as well as being dedicated to power management functions.

The manager of the UPS group has an overall, consolidated view of the main operating parameters of all the UPS systems. This information is accessible from any workstation using a standard Web browser.

He can easily sort the UPS overviews according to the most critical parameters (location, system status, etc). Alarms are centralised and transmitted, if required, by e-mail or SMS. The log of events and operations helps preventive management of the various UPSs.



An overall view of the UPS network

Simple to deploy, and using industry standards

When it is installed, the Enterprise Power Manager can carry out a scan for all the UPS systems from MGE and other suppliers supporting the standard UPS MIB. The user is then presented with a layout that can be configured easily, as required, according to the type of UPS, location, operating status, etc

Advanced power management

Clicking on an UPS in the layout shows detailed information about the operating and configuration parameters in a dedicated window.

Enterprise Power Manager uses Secure Sockets Layer (SSL) and several levels of password (administrator, user, etc) for complete security,

Simple, economical and scalable

A version limited to 5 UPS is available free with each network UPS, on the "Solution-Pac 2" CD-ROM. This version can also be used to evaluate the software for a more extensive network before purchasing an Enterprise Power Manager for 50 or more UPS systems.

Additional functions

Remote On/Off Control

As a UPS can be turned on and off remotely, it becomes a smart IT equipment switch.

This function makes it possible, for example, to re-start a locked-up hardware device from a remote site. The parameters for automatic or manual mode can be enabled

Programming

This function can be used to program shutdown and re-start sequences for all UPS protected devices such as, for example, shutting down servers every evening at 08:00 PM and re-starting them the following morning at 06:00 AM, Monday through Friday.

Individual outlet control

Many systems from MGE provide Powershare™ capability for turning groups of outlets on and off.

This feature is useful in particular for:

- ▶ shedding non-critical systems when there is a power failure;
- ▶ defining start-up sequences;
- ▶ individual management of several IT systems connected to a central UPS.

Other options

Multislot

The "Multislot" concentrator can be used to connect a single UPS to several different networks.

It can also be used to connect a Galaxy, Comet S31 or Comet 3000 UPS to a network. The "Multislot", in this case, is fitted with a Network Management Card and connected to the UPS by a serial link.



Environment Sensor

UPS are often used in sensitive environments such as rack cabinets. Environmental conditions (temperature, humidity and door opening) can also affect the system availability. MGE UPS SYSTEMS therefore provides an environment sensor with a temperature sensor, humidity sensor and two switch inputs. It is designed to work with Network Management Cards and can be installed anywhere without problem.



Summary of power management functions

Individual workstations

Personal Solution-Pac*

	Windows Server 2003/XP/2000 versions NT/9X	Mac OS 9/OS X	Linux	IBM AIX 4.3, 5.1, 5.2 Sun Solaris WS 7,8, 9 PC 2.6, 7, 8 HP HP-UX 10.x, 11	Novell Netware 4.1x, 5.x, 6
Installation					
Connection	USB or RS232	USB	RS232 (USB with NUT Open-Source drivers)	RS232	RS232
Simple installation	yes, "plug and play"	yes	yes	yes	yes
Basic functions					
Automatic shutdown at end of back-up time	yes (+ hibernation)	yes	yes	yes	-
Automatic re-start	yes	yes	yes	yes	yes
Alarm messages	yes	yes	yes	yes	yes
Log file	yes	yes	yes	yes	yes
Alarm messages by e-mail	yes (+ pager et SMS)	-	yes	yes	-
GUI					
User interface	advanced	basic	semi graphic	semi graphic	Windows workstation
Graphic display of log file	yes	-	-	-	-
Contextual help	yes	-	-	-	-
Advanced functions					
Automatic execution of scripts	yes	yes	yes	yes	yes
Event and action configurations	yes	-	yes	yes	yes
ON/OFF programming	yes	-	-	-	-
Powershare™ outlet management	yes	-	-	-	yes

* Personal Solution-Pac is included with the UPS and is available from the Web site www.mgeups.com

Network applications

Connection to IP networks		
	Solution "Network Management Card" *	Solution "Network Management Proxy"
UPS compatibility	Minislot for Pulsar Evolution and EXtreme C Transverse for EXtreme, EX RT, Galaxy 3000, Galaxy PW and MultiSlot	Connection to a Proxy system Windows NT/2000/XP for USB or RS232
Network interface	10Base-T, 100Base-Tx	not applicable
Network protocols	TCP/IP, UDP, HTTP1.1, SNMPV1, Telnet, TFTP, SMTP, BOOTP, DHCP	not applicable / SNMP, XML, HTTP, HTTPS
SNMP traps	yes, with acknowledgement	yes -
MIB	IETF MIB, standard MIB II, MGE MIB IETF MIB,	standard MIB II, MGE MIB
Multi-server "shutdown" with different OS	50 (Shutdown Modules)	unlimited - tested with more than 250 clients
Alarms by e-mail / pager / SMS	yes	-
Export logs	yes	yes (local)
Integral real time clock	yes	yes (proxy system clock)
Remote control of UPS / Powershare™	yes	-
Settings / Maintenance	Local (RS232) or remote (HTTP or Telnet)	Local or remote (HTTP/HTTPS)
Simulation of shutdown	yes	yes
Environment measurements (temperature, humidity, contacts)	yes, with Environment sensor	-
e-Teleservice support	yes	-

* For advanced supervision of three-phase UPS and SSL, use the XML-Web card.
The servers are protected using the same Shutdown Modules.

Protection		Shutdown Module	
Installation			
Operating systems for servers protected		Windows Server 2003, XP, 2000, NT, Linux, Mac OS X, Netware, IBM AIX, HP-UX, SUN Solaris, any OS with Java 2	
Easy to deploy: quiet installation, centralised configuration, personalised package		yes (Mac OS/X only supports the centralised configuration)	
Basic functions			
Automatic shutdown		yes (shutdown + hibernation for Windows)	
Automatic system re-start		yes	
Alarm messages		yes	
Log file		yes	
Alarm messages by e-mail/pager/SMS		e-mail/pager/SMS for Windows and e-mail only for the others	
Advanced functions			
Automatic script execution or operations on events (power failure, low battery, etc)		yes	

Remote management and monitoring	
Web interface functions	
using a browser	
Status of UPS and log file with export	yes
Export des logs	yes
Unit ON/OFF and Powershare™ outlet control	yes (with Network Management Card connection)
Alarm notification by Internet	yes
Snap-in applications	
using Management-Pac 2	
Compliance to SNMP (RFC 1628)	Yes (Network Management Card)
Compatible with network management consoles	HP Open-View NNM 6.3/6.4/7 for Windows XP and HP-UX, IBM Tivoli Netview 7.1, AIX 5.1, Computer Associates Unicenter 3.0 & 3.1 for Windows, HP Insight Manager
Multi-UPS supervision	
using Enterprise Power Manager	
Server operating system	Windows NT, 2000, XP, 2003 Server
Browser and plug-ins supported	MS Internet Explorer, 5.x and above on Windows/Mac, Netscape 6.x and above on Windows, Linux, UNIX
Security	2 password levels and SSL for browser/server transactions
MGE compatible equipment with Internet access	Network Management Card - Transverse (66074) or Minislot (66244) XML-Web card – 66073 Network Management Proxy (Windows)
MGE compatible equipment without Internet access	SP WAN – UM Agent SNMP Proxy SNMP card – 66245 SNMP card – 66062 UM-Link
Other hardware supported	UPS complying with standard IETF UPS MIB (up-to-date list of UPS available on the Web site)
Alarms/notifications	e-mail, SMS, pager, broadcast
Multiple overviews of the system	yes (according to status, type, load, battery charge, etc)
Event log	yes, exports in Excel, Word, RTF formats

Ordering information

Connection to IP networks	
Network ManagementCard (SNMP/Web)	66244 "Minislot" for Pulsar Evolution and EXtreme C 66074 "Transverse" for EXtreme, EX RT, Galaxy 3000, Galaxy PW and MultiSlot
XML/Web card	66073 "Transverse" for EXtreme, EX RT, Galaxy 3000, Galaxy PW and MultiSlot
Network Management Proxy	on the Solution-Pac 2 CD-ROM delivered with most UPS or free from MGE UPS SYSTEMS Web site
Protection	
Network Shutdown Module	on the Solution-Pac 2 CD-ROM delivered with most UPS or free from MGE UPS SYSTEMS Web site
Remote management and monitoring	
Snap-in application for HP/Compaq Insight Manager	available free of charge from MGE UPS SYSTEMS Web site
Management-Pac 2	66923
Enterprise Power Manager	
5-UPS version	free with Solution-Pac 2 included with most UPS or free from the Web site
50-UPS version	Management-Pac 2 CD (66923) (rev. BA, available December 2004)
Unlimited number of UPS version	Enterprise Power Manager Gold CD (66924) (available January 2005)
Other options	
Multislot	66057 (IEC) / 66055 (DIN/USE)
Environment sensor	
for Network Management Cards	66846

The largest companies in the world rely on MGE UPS SYSTEMS to protect their critical systems



Information technologies and telecoms

- > Alcatel
- > AOL
- > Apple
- > AT&T
- > Bell Atlantic
- > Bell South
- > British Telecom
- > Cegetel
- > Cisco
- > Cray Research
- > Deutsche Telefonwerke
- > EDS
- > France Telecom
- > HP/Compaq
- > IBM
- > Infosys
- > Interxion
- > Korean Telecom
- > LD Com
- > Microsoft
- > OptiGlobe
- > Raytheon Systems
- > SES Astra
- > Siemens
- > Sun Microsystems
- > Tenovis
- > Thrunet
- > Toshiba
- > Uninet
- > Wanadoo



Semiconductors

- > Agilent Tech. Inc
- > AMD
- > Amkor Anam
- > Cypress Semiconductors
- > Dallas Semicon
- > Fairchild Semicon
- > First Silicon
- > Fujitsu Semiconductor
- > Hager Technologies
- > Hitachi Electronics Engineering
- > Hyundai Electronics Amer
- > Lucent Technologies
- > Maxim Integrated Product
- > Motorola
- > NS Electronics Co., Ltd.
- > Philips Semiconductor
- > Pioneer Electronics
- > Rockwell Semiconductor
- > Samsung International
- > Philipps Seagate
- > Soitec
- > Sony Semiconductor
- > ST Microelectronics
- > SVA-NEC
- > TDK Semiconductor Corp.
- > Texas Instrument
- > Tyco Electronics Power
- > Wipro Ltd

Car manufacturers

- > Astra Honda Motor
- > Automobile Co Ltd
- > Caterpillar
- > Chrysler
- > Citroën
- > Daimler Chrysler
- > Fiat
- > Ford
- > General Motors Corp.
- > Harley Davidson
- > Honda
- > Jaguar Cars
- > Kawasaki
- > Mitsubishi
- > Nissan
- > Opel
- > Renault
- > Skoda Automobile
- > Toyota Motor Corp.
- > Volvo
- > Volkswagen
- > Yamaha

Industrial distribution

- > Grainger
- > Graybar Electric Corporation
- > Hagemeyer
- > Nedco
- > Rexel
- > Sonepar

Computer distribution

- > Banque Magnetique
- > Cellulose
- > CHS Electronics (Newco)
- > Escort Energi
- > Infoquest
- > Ingram Micro
- > MPS
- > Tech-Data
- > Santech Micro Group
- > Supercom



Oil and Gas

- > Air Liquide
- > Amoco Oil
- > Badak
- > BP
- > Chevron Oil & Gas
- > China National Offshore Oil Corporation
- > China Petroleum & Chemical Corporation
- > Cogema
- > Conoco
- > Dow Chemical
- > Exxon
- > Gaz de France
- > Michelin
- > Petronas
- > Pirelli
- > Qi Lu Petrochemical Corporation
- > Repsol
- > Santos
- > Shell
- > Sonatrach
- > TotalElfina
- > Vico



Air transport

- > Air France
- > Air Lanka
- > Alitalia
- > American Airlines
- > Boeing
- > British Aerospace
- > British Airways
- > Canadair
- > Continental Airlines
- > Cathay Pacific Airlines
- > Iberia
- > KLM
- > Lockheed
- > Northwest Airlines



Infrastructures

- > Alstom
- > Berlin Airport
- > Cairo Airport
- > Chantiers de l'Atlantique
- > F1 Sepang circuit
- > Federal Express
- > Hong Kong airport
- > Hong Kong MTR
- > JF Kennedy Airport
- > LAX
- > Madrid metro
- > Melbourne City Link Tunnel
- > Miami Harbour
- > Pearson Int'l Airport
- > Petronas Towers
- > Port of Miami
- > Putraya
- > Queen Mary II
- > Royal Caribbean
- > Shanghai Metro
- > Shanghai Pudong Int'l Airport
- > SNCF
- > Stuttgart Airport
- > Suez Canal



Healthcare

- > Alexandra Hospital
- > Balestier Medical Centre
- > Bumrungrach Hospital
- > Cebu Doctors Hospital
- > Ceidar-Sinai Medical
- > Centre hospitalier universitaire vaudois
- > Hospital San Jose Mty, Mexico
- > Institut Pasteur
- > JFK Hospital
- > Mayo Clinic
- > Mount Alvenia Hospital
- > Queen Elisabeth Hospital, China

- > Raffles Hospital, Singapore
- > Royal Hospital of Riyad
- > Shanghai Xin Hua Hospital
- > US Army Hospital, Japan

Pharmaceuticals industry

- > Abbot Laboratories
- > Azko Nobel Chemicals
- > Astra Zeneca
- > Aventis
- > Ciba-Geigy
- > GE Medical
- > Madras Medical
- > Merck
- > Mérieux
- > Novartis pharmaceuticals
- > Pfizer
- > Roche Vitamins
- > Smithkline Beecha



Banks, financial institutions and insurance companies

- > Abbey National plc
- > ABN Amro
- > ANZ Grindlays Bank
- > Bank One
- > Bank of America
- > Bank of China
- > Bank of Montreal
- > Barclays Bank
- > BNP Paribas SA
- > Charles Schwab
- > Citibank
- > Commerzbank
- > Crédit Agricole
- > Crédit Lyonnais
- > First Bangkok City Bank
- > Fortis Bank NV/SA,
- > GE Capital
- > Hong Kong Bank
- > ICICI Bank
- > Industrial & Commercial Bank of China
- > Merrill Lynch
- > Progressive Insurance
- > Royal Bank
- > Shanghai Stock Exchange
- > Singapore Stock Exchange
- > Société Générale
- > Thai Military Bank
- > The Agricultural Bank of China
- > The Chase Manhattan Bank
- > UBS AG
- > Visa



Administration

- > Assemblée Nationale
- > FBI
- > GIC, Singapore
- > Great Hall of People
- > Ministry of Finance, China

- > Ministry of Foreign Affairs, China
- > Ministry of Power Industry, China
- > NASA
- > PakNavy
- > Palais de l'Élysée, France
- > Royal Air Force
- > Royal Thai Air Force
- > Saudi Arabian Ministry of Interior
- > Sénat, France
- > Swedish Air Force
- > The White House
- > URA, Singapore
- > US Department of Public Safety
- > US Social Security Services
- > US Pentagon
- > US United Bureau of the Census



Entertainment and media

- > ABC Radio Networks
- > ABC Television Network
- > Agence France Presse
- > Aladdin Casino
- > Arte
- > Bangkok Broadcasting & Tv
- > BBC
- > Beijing Daily
- > Caribbean Int'l News
- > CCTV
- > CNBC
- > C-Span
- > Directv
- > El Jazeera
- > El Periódico
- > ESPN
- > Fox Communications
- > Fox T.V.
- > HBO
- > La Vanguardia
- > Los Angeles Times
- > Lucas Film, Ltd.
- > Mediaset
- > MGM Studios
- > National Geographic
- > Newsweek
- > NBC Broadcast Network
- > New York Daily News
- > Newsweek
- > Office Of Cuba Broadcast
- > Radio Film & Tv Bureau China
- > Tibet
- > Radio Vietnam
- > Rai
- > Reuters
- > RTL Television
- > Si Chuan Cable TV
- > Sky Latin America
- > Stratosphere Casino
- > Telecinco
- > Telemundo Network Inc.
- > The New York Times
- > Time Warner
- > Times Mirror Magazines
- > TX Australia
- > Universal Studios
- > Viacom Cable
- > Voice of America

For more information about the solutions available from MGE UPS SYSTEMS and our worldwide presence, visit our website at <http://www.mgeups.com>

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