

UPS & Power Quality Products

South Asia



Powering Business Worldwide

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Uninterruptible Power Supplies

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Corporate overview

Powering Business Worldwide

Founded in 1911, Eaton® Corporation is a diversified industrial manufacturer and a global leader in various industrial markets, including:

- Electrical systems and components for power quality, distribution and control
- Hydraulics components, systems and services for industrial and mobile equipment
- Hydraulics, fuel and pneumatic systems for commercial and military aircraft
- Intelligent truck drivetrain systems for safety and fuel economy
- Automotive engine air management systems, powertrain solutions and specialty controls for performance, fuel economy and safety

With 2009 sales of \$11.9 billion USD, Eaton employs 70,000 persons all over the world and sells products to customers in more than 150 countries.



Sustainable by Design



Sustainability has always been at the heart of Eaton's business – this means meeting the current needs of our society while enabling future generations to meet their own needs. Sustainable design for our products means helping our customers utilise electrical power more efficiently while significantly improving environmental performance.

At Eaton, we apply the ISO 14001, an international environmental management system, on-site and R&D certification to all of our facilities.

In addition, to clearly demonstrate and communicate the environmental value of the products to customers and consumers, Eaton has developed a rigorous evaluation process based on the guidelines of international organisations such as the International Standards Organisation (ISO). Eaton products and services meeting the environmental standards of this process earn the Eaton "Green Leaf" label. Though all of our products are designed to meet government standards and public expectations for protecting the environment, "Green Leaf" products and solutions go well beyond normal standards to provide exceptional benefit to our customers and the environment.

We also care for the way our parts and materials are supplied. Eaton is a part of Green Suppliers Network, a network that helps its component suppliers to develop "Lean and Clean" manufacturing processes that result in reduced waste and saved money, all while reducing their impact on the environment.

For more information on how Eaton is Sustainable by Design, please visit www.eaton.com/sustainability.



An Eaton Green Solution

Power Quality Business

Eaton Power Quality Division, a part of the Electrical Sector, has more than 45 years of experience in designing and producing innovative power quality products. The result is an expansive portfolio of products, which help to protect our customer's business processes, critical applications and systems from all power problems and failures.

Eaton product and service range

- AC UPS from 350 VA to 4000kVA
- DC systems of all sizes
- A broad portfolio of rack-based power distribution units (ePDU®)
- Software and connectivity products for power management and remote control
- Technical support and maintenance
- Complete power quality solutions

Eaton products are manufactured in Finland, USA, China, Taiwan, India, India, Brazil, UK and New Zealand.



About Eaton's Pulsar Series Solutions



Eaton offers the largest selection of power management and protection solutions available in the industry. From the desktop to the data centre, from AC-powered to DC-powered equipment, Eaton is your one-stop partner for all your power needs.

Eaton's Pulsar series solutions provide the confidence that power problems will not disrupt your systems, data and operation.

Eaton Corporation's acquisition of MGE Office Protection Systems (November 2007) created a larger, stronger power quality business with a globally enhanced competitive position and a wide range of single-phase UPS products, expertise and resources. Through the acquisition, Eaton has secured its position as the world's second-largest manufacturer and supplier of single-phase UPS products, delivering even greater value to its customers. In fact, the majority of Fortune 500 companies rely on Eaton for their power protection, distribution and management solutions.

MGE Office Protection Systems products are a part of the Pulsar series of solutions offered by Eaton. The products are designed and manufactured to offer secured power products and solutions for enterprises, small business and homes, with a range of uninterruptible power systems and surge suppressors.

With all our products, Eaton strives for continued success in leveraging technical innovation to develop next-generation solutions. Our power quality portfolio was designed to fulfill specific customer requirements, complement a new or pre-existing solution, and to deliver a comprehensive solution.

Single-Phase Products And Solutions

Eaton's power management solutions are based on protecting the nine most common power problems present in any environment. This unique approach makes your product selection decisions about power protection much simpler. The nine power problems listed below are potentially harmful to both your data and your hardware.

The Level 3 UPS primarily protects against three of the nine power problems including power failures, power sags and power surges. This essential, cost-effective protection is necessary in order to prevent damage such as data loss, file corruption, flickering lights, hardware damage and equipment shutoff. For example, if the utility fails you could lose all of your work-in-progress. The Level 3 UPS offers a degree of protection against the remaining power problems and is most commonly used to protect single workstations and point-of-sale (POS) equipment.

Level 5 UPS are most effective against five power problems (power failures, power sags, power surges, under-voltage and over-voltage) and offer a degree of protection against other power problems. Some of the damages you risk by not using a Level 5 UPS include premature hardware failure, data loss and corruption, data error, keyboard lockup, storage loss and system lockup. Level 5 UPS are recommended for small network systems - all the way up to enterprise networking environments.

Level 9 UPS protects against all nine power problems: power failures, power sags, power surges, under-voltage, electrical line noise, over-voltage, frequency variation, switching transients and harmonic distortion. Level 9 comprehensive protection minimises the opportunity for component stress, burnt circuit boards, data crashes and program failures. Level 9 UPSs offer the highest level of power protection available and are always recommended for mission-critical applications like server farms, hospitals and Voice Over Internet Protocol (VOIP) applications.

Eaton products offer three levels of power protection: Level 3, Level 5 and Level 9, plus the rugged FERRUPS® product line that provides protection from eight potential problems in harsh environments. Based on the parameters defined by your application, you can select a UPS from the level that best matches your power protection needs.

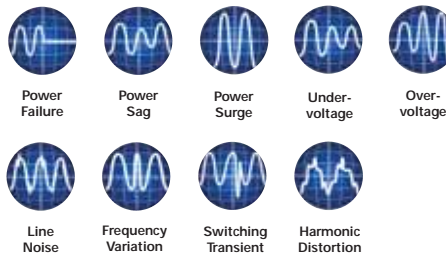
Basic solution: Protection from three potential problems



Intermediate solution: Protection from five potential problems



Complete solution: Protection from all nine potential problems



Nova AVR



Technology: Level 5 (Line-Interactive)
Rating: 625/1250 VA
Configuration: Tower

The NOVA AVR range of UPS units provide the user with cost effective and rugged protection against electrical interference and power outages:

- Line Interactive technology (automatic voltage correction via Booster + Fader)
- Wide tolerance to fluctuations in the Power Management via USB interface

Personal Solution-Pac software can be interfaced with NOVA AVR for advanced Power management (UPS monitoring, automatic system shutdown).

Telephone / Modem / Broadband line filtering for total IT protection

The NOVA AVR is equipped with protection for the telephone / fax / modem and Internet line, including ADSL - essential in order to prevent surge and the destruction of sensitive electronic components. Ideal protection for 1 to 3 PCs, either in a business environment or at home.

The NOVA AVR range of UPS units provide the user with cost effective and rugged protection against electrical interference and power outages, Ideal protection for 1 to 3 PCs, either in a business environment or at home.

Easy to use and maintain

Very simply, the NOVA AVR uses:

- 3 indicator lamps to display the principal states (ON/OFF, Replace Batteries, Fault), supplemented by audible alarms
- The batteries are easy to replace\ Its cold start function can turn the NOVA AVR into a mobile power source for IT equipment

TECHNICAL SPECIFICATION	625 AVR	1250 AVR
Rating (VA / Watt)	625 VA / 360 W	1250 VA / 660 W
Characteristic		
Input voltage	165 V to 280 V	160 V to 290 V
Output voltage	230 V	230 V
Frequency	50/60 Hz auto-detection	50/60 Hz auto-detection
Surge protection	Total energy dissipation: 220 Joules	Total energy dissipation: 220 Joules
Protection	Fuse Circuit breaker (user resettable circuit breaker)	Fuse Circuit breaker (user resettable circuit breaker)
Data line protection	Protection for Telephone/Modem/Internet line, including ADSL	
Connection		
Output	3 x IEC*	4 x IEC*
Technology	Line Interactive with Booster +18% and Fader-15%	Line Interactive with Booster +18% and Fader-15%
Battery		
Battery recharging	Continuous battery recharging, even if the ON/OFF button is set to OFF	
Battery monitoring	Battery replacement indicator (red LED)	Battery replacement indicator (red LED)
Replaceable battery	Access via the front panel	Access via the front panel
Startup without mains power (cold start)	Can be used as a mobile power source	Can be used as a mobile power source
User interface	1 illuminated ON/OFF button, 1 Fault and Overload LED, 1 battery Fault LED + audible alarms	
Interface		
Power management port	USB (on Nova AVR USB)	USB (on Nova AVR USB)
Power management	Software supplied with the UPS & free download from www.powerquality.eaton.com	
Typical runtime for 1 PC (min)	20	30
Typical runtime for 2 PC (min)	8	15
Typical runtime for 3 PC (min)	/	8
Technical standard		
Safety and EMC	EN 50 091 - IEC 62 040 - CE logo	EN 50 091 - IEC 62 040 - CE logo
Dimension and weight		
Dimension (HxWxD in mm)	143x125x350	188x170x376
Weight (kg)	5.9	12.8
Part number		
With USB	66823SG	66824SG

*2 IEC cables supplied

Ellipse ASR



Technology: Level 3 (Standby)
Rating: 600 - 1500 VA
Configuration: Tower / Rack

- Ellipse ASR UPSs not only provide a battery backed up supply to keep equipment operating when there is a power cut but also provide effective protection against damaging surges
- Ellipse ASR (Advanced Surge Reduction) UPSs include a high performance surge protective device which complies with IEC 616431
- Ellipse ASR UPS also protects telephone, broadband and Ethernet for complete protection

The widest range of sockets

4 IEC sockets (600/750 models) or 8 IEC sockets (1000/1500 models).

The greatest flexibility

Extra flat for easy installation in all business environments:

- Vertical box format or below the desk
- Horizontal under a monitor
- 19" rack mounted (optional 2U kit)

The best compatibility with computer equipment.

The Ellipse ASR is designed for compatibility with a wide variety of computers:

- Combined USB and serial ports
- Power management software
- Available under Windows, Linux and Mac OS

Monitoring and system shutdown

- UPS control panel
- Log
- Alarms sent by SMS or e-mail
- When there is a long power cut, the system shuts down (or hibernated under Windows) and restarts automatically
- Advanced personalisation features for expert users
- Compatible with Windows / MacOS / Linux
- USB or serial port connection
- Supplied on CD-ROM and can be downloaded from www.eaton.com/powerquality

TECHNICAL SPECIFICATION	600 USBS	750 USBS	1000 USBS	1500 USBS
Rating (VA / Watt)	600/360	750/450	1000/600	1500/900
Technology	Standby	Standby	Standby	Standby
Characteristic				
Input voltage	184V to 264V (adjustable from 161V to 284V)		184V to 264V (adjustable from 161V to 284V)	
Output voltage	230V (settable to 220V, 230V, 240V)		230V (settable to 220V, 230V, 240V)	
Frequency	50-60Hz autoselect	50-60Hz autoselect	50-60Hz autoselect	50-60Hz autoselect
Surge protection	Integral surge protection device to IEC 61643-1, Total surge absorption: 525 Joules			
Circuit breaker	with reset	with reset	with reset	with reset
Connection				
IEC socket	4	4	8	8
UNI socket	2 x IEC 2 x UNI	2 x IEC 2 x UNI	4 x IEC 4 x UNI	4 x IEC 4 x UNI
Socket with surge protection & backup / socket with surge protection for peripheral	3/1	3/1	4/4	4/4
Battery				
Replaceable battery	Compact sealed lead acid	Compact sealed lead acid	Compact sealed lead acid	Compact sealed lead acid
Battery charger	Operates when the UPS is under power		Operates when the UPS is under power	
Cold start (no mains)	Yes	Yes	Yes	Yes
Deep discharge protection	4 hours	4 hours	4 hours	4 hours
Battery replacement indicator	LED + audible alarm	LED + audible alarm	LED + audible alarm	LED + audible alarm
50% load backup (min)	15	13	18	16
70% load backup (min)	7	6	9	8
Communication				
Communications port	Combined USB and serial port		Combined USB and serial port	
Software supplied as standard	Compatible with: Windows, Linux, Novell, Mac OS X		Compatible with: Windows, Linux, Novell, Mac OS X	
Line protection	Tel/Fax/Modem/Internet/Ethernet (available for all models)			
Standard				
Safety	IEC/EN 62040-1-1, IEC/EN 60950, CB Report, CE mark		IEC/EN 62040-1-1, IEC/EN 60950, CB Report, CE mark	
EMC	IEC 62040-2 / EN 50091-2	IEC 62040-2 / EN 50091-2	IEC 62040-2 / EN 50091-2	IEC 62040-2 / EN 50091-2
Surge protection	IEC 61643-1	IEC 61643-1	IEC 61643-1	IEC 61643-1
Mounting, color, dimension and weight				
Dimension (HxWxD in mm)	270x82x265	270x82x265	305x80x312	317x80x390
Weight (kg)	4.2	4.4	8.1	11
19" rack mounting kit	2U	2U	2U	2U
Colour	Titanium Grey	Titanium Grey	Titanium Grey	Titanium Grey
Part number				
UNI	66771	66775	66779	66783
IEC	66772	66776	66780	66784

Ellipse MAX



Technology: Level 5 (Line-Interactive)

Rating: 600 - 1500 VA

Configuration: Tower / Rack

Availability

- Line Interactive technology: Ellipse MAX provides effective protection, even in disturbed electrical environments. Fluctuations in voltage are automatically corrected by an AVR device (booster/fader), without using the batteries
- Surge protection: Ellipse MAX includes a high performance surge protective device which complies with IEC 616431 standard
- Robust: A wide tolerance of input voltage avoids excessively frequent changeover to battery power. This means that maximum capacity is always available

Value

- Easy installation: Ellipse MAX USB models are supplied with power management software & communications cables

Flexibility

- Connection: 4 or 8 standard IEC outlets (IEC version also available)
- Integration: Ellipse MAX can be installed in vertical position over & under the desk, or horizontally under a monitor
- Rackable: the optional 2U kit allows you to install the Ellipse MAX in a 19" rack
- Power management: the Ellipse MAX models feature a combined USB and serial port

Associated communication

Personal SolutionPac power management software: the essential option

Monitoring and system shutdown

- UPS control panel
- Log
- Alarms sent by SMS or e-mail
- When there is a long power cut, the system shuts down (or hibernated under Windows) and restarts automatically
- Advanced personalisation features for expert users

Practical

- Compatible with Windows / MacOS / Linux
- USB or serial port connection
- Supplied on CD-ROM and can be downloaded from www.eaton.com/powerquality

TECHNICAL SPECIFICATION	600 USBS	850 USBS	1100 USBS	1500 USBS
Rating (VA / Watt)	600 VA / 360 W	850 VA / 550 W	1100 VA / 660 W	1500 VA / 900 W
Technology	Line-Interactive High Frequency (Automatic Voltage Regulation)			
Characteristic				
Input voltage	165 V - 285 V (adjustable to 150V - 285 V)		165 V - 285 V (adjustable to 150V - 285 V)	
Output voltage (on battery)	230 V (adjustable to 220 V - 230 V - 240 V)		230 V (adjustable to 220 V - 230 V - 240 V)	
Frequency	50-60 Hz autoselect	50-60 Hz autoselect	50-60 Hz autoselect	50-60 Hz autoselect
Surge protection	Integral surge protection device to IEC 61643-1, Total surge absorption: 525 Joules			
Circuit breaker	with reset	with reset	with reset	with reset
Connection				
IEC socket	4	8	8	8
UNI socket	2 x IEC 2 x UNI	4 x IEC 4 x UNI	4 x IEC 4 x UNI	4 x IEC 4 x UNI
Socket with surge protection and backup / socket with surge protection for peripherals	3/1	4/4	4/4	4/4
Battery				
Replaceable battery	Compact sealed lead acid	Compact sealed lead acid	Compact sealed lead acid	Compact sealed lead acid
Battery charger	Operates when the UPS is under power		Operates when the UPS is under power	
Battery management	Battery test, Cold start (no mains), Deep discharge protection			
Battery replacement indicator	LED + audible alarm	LED + audible alarm	LED + audible alarm	LED + audible alarm
Typical backup times for 50 and 70% of the VA rating (min)	12/7	18/12	15/9	12/7
Communication				
Communication port	Combined USB & Serial port		Combined USB & Serial port	
Software supplied as standard	Compatible with : Windows, Linux, Novell, Mac OS X		Compatible with : Windows, Linux, Novell, Mac OS X	
Line protection	Tel/Fax/Modem/Internet and Ethernet 10/100 MB		Tel/Fax/Modem/Internet et Ethernet 10/100 MB	
Standard				
Safety	IEC/EN 60950-1, IEC/EN 62040-1-1, CB Report, CE mark		IEC/EN 60950-1, IEC/EN 62040-1-1, CB Report, CE mark	
EMC	IEC 62040-2 / EN 50091-2	IEC 62040-2 / EN 50091-2	IEC 62040-2 / EN 50091-2	IEC 62040-2 / EN 50091-2
Surge protection	IEC 61643-1	IEC 61643-1	IEC 61643-1	IEC 61643-1
Mounting, dimension and weight				
Dimension (HxWxD in mm)	314x82x301	314x82x410	314x82x410	314x82x410
Weight (kg)	5.75	10.2	10.2	10.2
19" rack mounting kit	2U	2U	2U	2U
Part number				
UNI	68547	68551	68555	68559
IEC	68548	68552	68556	68560

Evolution



Technology: Level 5 (Line-Interactive)
Rating: 1550 - 2000 VA
Configuration: Tower / Rack

Maximum availability

- **Powershare:** the Eaton Evolution output sockets are individually controlled to provide load-shedding to maximise the backup time and provide remote reboot and sequential start-up as standard
- **Continuous power supply:** Hot swappable batteries. The optional HotSwap MBP (Maintenance By-Pass) module allows the UPS to be replaced without interrupting the power supply
- **Pure sinewave output:** when operating in batterie mode the Eaton Evolution still provides high quality output signal for sensitive connected equipment

Minimum total cost of ownership

- **Line-interactive HF technology:** the best price/performance ratio
- **No additional cost:** RT models are provided with the rail kits
- **Remote supervision:** a wide range of options using the Eaton Software suite, including point-to-point power management, SNMP, relay outputs, etc

Total flexibility

- **Format:** Evolution is available in tower format, RT2U convertible rack/tower (2kVA model)
- **Communication:** the Evolution includes both serial and USB ports, plus remote On/Off connector and an extra slot for optional communication cards. The UPS comes with a complete Eaton software suite

TECHNICAL SPECIFICATION	1550	2000
Rating (VA / Watt)	1550 VA / 1100 W	2000 VA / 1600 W
Format	Tower	RT2U (tower/rack 2U)
Characteristic		
Technology	Line-Interactive High Frequency (Booster + Fader)	Line-Interactive High Frequency (Booster + Fader)
Input voltage and frequency range without using battery	160V-294V (adjustable to 150V-294V) 47 to 70 Hz (50 Hz system), 56.5 to 70 Hz (60 Hz system), up to 40 Hz in low-sensitivity mode (programmable using Personal Solution-Pac software)	
Output voltage and frequency	230 V (+6/-10 %) (Adjustable to 200 V (10 % derating of output power) / 208 V / 220 V / 230 V / 240 V), 50/60 Hz +/- 0.1 %	
Connection		
Output	4 IEC C13 (10 A)	8 IEC C13 (10 A)
Remotely controlled socket	2 groups of 1 x IEC C13 (10 A)	2 groups of 2 x IEC C13 (10 A)
Additional output with HS MBP	3 BS socket or 6 IEC 10 A socket or terminal blocks (HW version)	
Additional output with FlexPDU	6 BS socket or 12 IEC 10 A socket	6 BS socket or 12 IEC 10 A socket
Battery		
Typical backup times for 50 and 70% load (min)	14/7	14/7
Battery management	Automatic weekly test (period adjustable), automatic recognition of external battery unit => continuous maximisation of backup time + deep discharge protection	
Interface		
Communication port	1 USB port + 1 RS232 serial port and relay contacts (USB and RS232 ports cannot be used simultaneously) + 1 mini terminal block for remote ON/OFF and Remote Power Off	
Communications card slot	1 slot for NMC Minislot card or NMC ModBus/JBus or MC Contacts/Serial	
Operating condition, standard and approval		
Operating temperature	0 to 40°C	0 to 40°C
Noise level	< 40dbA	< 45 dBA
Performance - Safety - EMC	IEC/EN 62040-1-1 (Safety), IEC/EN 62040-2 EN 50091-2 class B (EMC), IEC/EN 62040-3 (Performance), IEC/EN 61000-4-2, 61000-4-3, 61000-4-4; 61000-4-5, 61000-4-6, 61000-4-8 (EMI)	
Approvals	CE, CB report, TÜV	
Dimension (HxWxD in mm) / Weight (kg)		
Dimension of the Tower	234x147x492	440x86.2x509 (2U)
Dimension of the Rack	-	86.2x440x509 (2U)
Weight of the Tower/Rack	16.53/20	25.7
Part Number		
Tower/Rack	68457	68460

Evolution S



Technology: Level 5 (Line-Interactive)
Rating: 1250 - 3000 VA
Configuration: Tower / Rack

Maximum availability

- **Powershare:** the Eaton Evolution S output sockets are individually controlled to provide load-shedding to maximise the backup time and provide remote reboot and sequential start-up as standard
- **Continuous power supply:** Hot swappable batteries. The optional HotSwap MBP (Maintenance By-Pass) module allows the UPS to be replaced without interrupting the power supply
- **Long backup times:** 1 to 4 EXB battery units can be added to the Evolution S
- **Pure sinewave output:** when operating in batterie mode the Eaton Evolution still provides high quality output signal for sensitive connected equipment

Minimum total cost of ownership

- **Line-interactive HF technology:** the best price/performance ratio
- **No additional cost:** all models are provided with tower stands and rail kits
- **Remote supervision:** a wide range of options using the Eaton Software suite, including point-to-point power management, SNMP, relay outputs, etc

Total flexibility

- **Format:** Evolution S is available in RT2U convertible rack/tower version (optimised for rack mounting) or RT3U (for tower or short-depth racks)
- **Connections:** with FlexPDU and HotSwap MBP the Evolution S can be connected by sockets or terminal blocks. They can be installed as required behind, on the side or on top of the unit
- **Compatible with high power factor loads:** the Evolution S are rated for 0.9 total power factor (1250 VA/1150 W, 1750 VA/1600 W, 2500 VA/2250 W and 3000 VA/2700 W)
- **Communication:** the Evolution S includes both serial and USB ports, plus remote On/Off connector and an extra slot for optional communication cards. The UPS comes with a complete Eaton software suite

TECHNICAL SPECIFICATION	1250	2500	3000
Rating (VA / Watt)	1250 VA / 1150 W	2500 VA / 2250 W	3000 VA / 2700 W
Format	RT2U (tower / rack 2U)	RT2U (tower / rack 2U)	RT2U (tower/rack 3U)
Characteristic			
Technology	Line-Interactive High Frequency (Booster + Fader)		
Input voltage and frequency range without using battery	160V-294V (adjustable to 150V-294V) 47 to 70 Hz (50 Hz system), 56.5 to 70 Hz (60 Hz system), up to 40 Hz in low-sensitivity mode (programmable using Personal Solution-Pac software.		
Output voltage and frequency	230 V (+6/-10 %) (Adjustable to 200 V (10 % derating of output power) / 208 V / 220 V / 230 V / 240 V), 50/60 Hz +/- 0.1 %		
Connection			
Input	1 IEC C14 (10 A) socket	1 IEC C20 (16 A) socket	1 IEC C20 (16 A) socket
Output	8 IEC C13 (10 A)	8 IEC C13 (10 A) socket 1 IEC C19 (16 A) socket	8 IEC C13 (10 A) socket 1 IEC C19 (16 A) socket
Remotely controlled socket	2 groups of 2 x IEC C13 (10 A)	2 groups of 2 x IEC C13 (10 A)	2 groups of 2 x IEC C13 (10 A)
Additional outputs with HS MBP	3 BS socket or 6 IEC 10 A socket or terminal blocks (HW version)		
Additional outputs with FlexPDU	6 BS socket or 12 IEC 10 A socket		
Battery			
Typical backup times for 50 and 70% load*			
Evolution S (min)	20/14	17/11	15/10
Evolution S + 1 EXB (min)	105/60	85/55	60/42
Evolution S + 4 EXB (min)	300/200	290/200	210/135
Battery management	Automatic weekly test (period adjustable), automatic recognition of external battery units => continuous maximisation of backup time + deep discharge protection		
Interface			
Communication port	1 USB port + 1 RS232 serial port and relay contact (USB and RS232 port cannot be used simultaneously) + 1 mini terminal block for remote ON/OFF and Remote Power Off		
Communications card slot	1 slot for NMC Minislot card (included in Netpack versions) or NMC ModBus/JBus or MC Contact/Serial		
Operating condition, standard and approval			
Operating temperature	0 to 40°C	0 to 40°C	0 to 40°C
Noise level	< 45 dBA	< 50 dBA	< 50 dBA
Performance - Safety - EMC	IEC/EN 62040-1-1 (Safety), IEC/EN 62040-2 EN 50091-2 class B (EMC), IEC/EN 62040-3 (Performance), IEC/EN 61000-4-2, 61000-4-3, 61000-4-4; 61000-4-5, 61000-4-6, 61000-4-8 (EMI)		
Approval	CE, CB report, TÜV	CE, CB report, TÜV	CE, CB report, TÜV
Dimension (HxWxD in mm) / Weight (kg)			
Dimension	86.2x440x509 (2U)	86.2x440x634 (RT2U) 130.7x440 x484 (RT3U)	86.2x440x634 (RT2U) 130.7x440 x484 (RT3U)
Weight of the Tower/Rack	24.3	33.8	33.8 (RT2U) - 34.3 (RT3U)
Dimension of EXB	See UPS	See UPS	See UPS
Weight of the EXB	30.4	41.7	41.7
Part Number			
Convertible Tower/Rack	68456	68461	68462
EXB Model	68470	68471	68471

* Runtimes are shown at 0.7 power factor. Backup times are approximate and may vary with equipment, configuration, battery age, temperature, etc.

Series 9 protection for all critical applications

EX



Technology: Level 9 (Double Conversion Online)
Rating: 1000 - 3000 VA
Configuration: Tower / Rack Convertible

Maximum availability

- Configuration. Double conversion on-line UPS with automatic by-pass and power factor correction
- Powershare. The EX output sockets are controlled to provide load-shedding to maximise the backup time and provide remote reboot and sequential start-up as standard
- Continuous power supply. Hot swappable batteries. The HotSwap MBP (Maintenance By-Pass) module allows the UPS to be replaced without interrupting the power supply
- Long backup times. 1 to 4 EXB battery units can be added

Minimum total cost of ownership

- Easy operation. Multilingual display. Access to a wide range of measurements and set-up menus
- Remote supervision. A wide range of options using the Solution-Pac supplied: SNMP and HTML, ModBus/JBus and relay outputs

Flexibility

- EX is available in tower format or RT2U convertible rack/tower version (for shallow rack mounting)
- Connections. With FlexPDU and HotSwap MBP, the RT2U models can be connected by sockets or terminal blocks
- Compatible with low power factor loads. EX is rated for 0.9 total power factor
- Interfaces. USB + serial + remote start/stop + slot for optional communications card
- ConnectUPS Web/SNMP Card
For connecting the UPS to an Ethernet 10/100 network, raising SNMP alarms and supervising the UPS using a simple browser interface
- Environmental Monitoring Probe
Monitoring the temperature, humidity and 2 relay contacts via SNMP or HTML
- Intelligent Power Manager
For comprehensive management of a set of UPS using a Windows PC
- Relay Interface Card
To provide UPS status outputs via relay contacts, emergency stop and a second serial port
- ModBus/JBus card
For combined SNMP, HTML and ModBus/JBus supervision

TECHNICAL SPECIFICATION	1000 - 1000 RT2U	1500 - 1500 RT2U	2000	3000
Rating (VA / Watt)	1000 VA / 900 W ⁽¹⁾	1500 VA / 1350 W ⁽¹⁾	2200 VA / 1980 W	3000 VA / 2700 W ⁽¹⁾
Technology	Online double conversion	Online double conversion	Online double conversion	Online double conversion
Format	Mini tower or RT2U (tower/rack 2U)		RT2U (tower / rack 2U)	RT2U (tower / rack 2U)
Characteristic				
Architecture	Online double conversion with automatic by-pass and power factor correction			
Input voltage and frequency range without using battery	100/120/140/160 V ⁽²⁾ to 284V - 40 to 70 Hz		100/120/140/160 V ⁽²⁾ to 284V - 40 to 70 Hz	
Output voltage and frequency	230V (adjustable to 200/208/220/240/250 V), 50/60 Hz auto-select or frequency converter mode ⁽³⁾			
Connection				
Input	1 IEC C14 (10A) socket	1 IEC C14 (10A) socket	1 IEC C20 (16A) or terminal block on HotSwap MBP Hard-Wired	
Output	6 IEC C13 (10A) socket	6 IEC C13 (10A) socket	8 IEC C13 (10A) socket + 1 IEC C19 (16A) socket	
Remotely controlled Powershare socket	2 independent groups: 2 + 1 IEC C13 (10A) socket		2 groups of 2 x IEC C13 (10A)	
Outputs with HotSwap MBP	6 IEC 10A socket or terminal blocks (HW version) or 3 BS socket			
Outputs with FlexPDU	12 IEC 10A socket	12 IEC 10A socket	12 IEC 10A socket	12 IEC 10A socket
Battery				
Typical backup times for 50 and 70% load				
EX (min)	18/12	13/9	17/12	15/10
EX + 1 EXB (min)	75/50	50/35	85/60	60/40
EX + 4 EXB (min)	250/200	180/120	285/200	190/150
Battery management	Automatic weekly test (period adjustable using LCD display or in software supplied), automatic recognition of external battery unit => continuous maximisation of backup time + deep discharge protection			
Interface				
Indicators and display	3 LEDs + adjustable multilingual display: display of measurement, access to control and set-up menu			
Communication port	1 USB port + 1 RS232 serial port and relay contact ⁽⁴⁾ + 1 mini terminal block for remote ON/OFF and emergency stop			
Communications slot	1 slot for NMC Minislot card or NMC ModBus/JBus or MC Contact/Serial			
Operating condition, standard and approval				
Operating temperature noise level	0°C to 40°C continuous, 45 dBA		0°C to 40°C continuous, 45 dBA	
Performance - Safety - EMC	IEC/EN 62 040-3 (VFI-SS-113), IEC/EN 62 040-1-1, IEC/EN 60 950-1 (RD), IEC/EN 62 040-2 C1 Class			
Approval	CE, TÜV GS, CB report, cTUV-US		CE, TÜV GS, CB report, cTUV-US	
Dimension (HxWxD in mm) / Weight (kg)				
Tower	440x242x153 / 15 kg	490x242x153 / 18 kg	640x86x440 (2U) / 31kg 490x131x440 (3U) / 30 kg	640x86x440 (2U) / 31kg 490x131x440 (3U) / 30 kg
Rack	86.5x438x483	86.5x438x483	86x440x640 131x440x490	88x440x640 131x440x490
Tower EXB	440x242x153 / 21 kg	440x242x153 / 21 kg	490x131x440 (3U) / 42 kg	490x131x440 (3U) / 42 kg
Rack EXB	483x86.5x438 (2U) / 24.5 kg	483x86.5x438 (2U) / 24.5 kg	490x131x440 (3U) / 42 kg	490x131x440 (3U) / 42 kg
Part Number				
Tower	68181	68183	68401	68403
Rack	68182	68184	68401	68403
EXB	68185	68185	68405	68405

1: Maximum rating with EXB battery units: EX 1000 = 800 W, EX 1500 = 1200 W, EX 3000 = 2400 W

2: Lower limits for <20%, <33%, <66%, >=66% of nominal power (VA). For active output power greater than 0.7 and 0.8 nominal rating, the lower limit is 180V and 190V respectively.

3: Derated by 15% when used as a frequency converter.

4: USB and RS232 serial ports cannot be used simultaneously.

Superior de-centralised power protection for medium to high

MX



Technology: Level 9 (Double Conversion Online)
Rating: 5 - 20 kVA
Configuration: Tower / Rack Convertible

Continuous power supply

- Two front access hot-swappable sub-modules (power and battery) for maintenance without load interruption
- Automatic battery test
- Internal bypass built-in to supply the load, even if the UPS fails
- Large input voltage and frequency ranges to avoid using the batteries unnecessarily

Flexible

- Can be used as a free-standing tower unit or 19" rack-mounted: only 3U for MX 5000 and 15000 16U for MX Frame
- LCD multilingual display with mimic and LEDs for rapid view of the UPS status, diagnostics and event log
- Outputs: IEC 10A and 16A outlet sockets and hardwired outputs
- Built-in Powershare system for remote reboot of the equipment connected, sequential start-up or load shedding while operating from battery to maintain the power to critical loads
- MX Frame is compatible with three phase or single phase supplies
- Backup time: 10 mins up to 2 hours by adding 3U battery extension modules

Minimum total cost of ownership (TCO)

- More power with an output power factor of 0.9
- When the power supply needs to be upgraded, the MX 5000 can be paralleled to provide 8 kVA or 10 kVA using the ModularEasy kit: without extra cost on the initial purchase
- MX Frame is a modular system with 5 kVA sub-modules paralleled to provide up to 20 kVA or 15 kVA with redundancy

Communications

- Solution Pac 2 suite supplied for remote supervision
- Intelligent Power Manager for supervision via Ethernet. IPM is compatible with standard network management systems (Tivoli, CA unicenter, HP Openview)
- Compatible with Network Shutdown Module for monitoring a number of UPS and shutting down the servers on the network

TECHNICAL SPECIFICATION	5 kVA	15 kVA	20 kVA
Rating (kVA) / (kW)	5 kVA / 4,5 kW	15 kVA / 13, 5 kW	20 kVA / 18 kW
Technology	VFI-SS-113, online double conversion with power factor correction, convection cooled static bypass switch		
Paralleling			
Maximum rating / redundancy ⁽¹⁾	10 kVA / 5 kVA + 5 kVA redundancy	15 kVA / 10 kVA + 5 kVA redundancy / 5 kVA + 2 x 5 kVA redundancy	20 kVA / 15 kVA + 5 kVA redundancy / 10 kVA + 2 x 5 kVA redundancy
Input			
Number of phase, input connection	L + N, terminals up to 6 mm ²	L + N or 3P + N, terminals up to 35 mm ² , separate or common AC normal and AC bypass	
Nominal voltage	200/208/220/230/240/250 V	200/208/220/230/240/250 V (L + N) or 380/400/415 V (3P + N)	
Voltage range without using battery ⁽²⁾	120 - 280 V	120 - 280 V (L + N), 250 - 465 V (3P + N)	
Input frequency range, THDI	40-70 Hz, < 7%	40-70 Hz, < 7%	40-70 Hz, < 7%
Output			
Output connection ⁽³⁾	terminals + 8 IEC C13 (10A) + 2 IEC C19 (16A)	terminals + 8 IEC C13 (10A) + 4 IEC C19 (16A)	
Remotely controlled Powershare socket	2 groups (2 IEC C13 10A per group)	2 groups (2 IEC C13 10A per group)	2 groups (2 IEC C13 10A per group)
Output voltage and frequency ⁽⁴⁾ , THDU, efficiency ⁽⁵⁾	200/208/230/240 / 250 V, 50 / 60 Hz autoselect, frequency converter as standard, <2%, 97%		
Backup time			
MX standard backup time @ 70% load	10 min	8 min	8 min
MX + EXB / MX + 2 EXB / MX + 3 EXB	35 / 60 / 95 min	35 min (3 EXB)/60 min (6 EXB)/90 min (9 EXB) ⁽⁷⁾	35 min (4 EXB)/60 min (8 EXB)/90 min (12 EXB)
Communication			
Slot	1 slot or 2 slots (Frame) compatible with ConnectUPS, NMC ModBus/JBus, Contact/Serial		
Port	Remote Power off (RJ11), 5 output contact (DB9), setup using Solution-Pac(8) (USB and DB9-serial port), EXB module detection (RJ45), paralleling (DB 15)		
Operating condition, standard and approval			
Performance, safety, EMC, surge protection	IEC/EN 62 040-3, IEC/EN 62 040-1-1, IEC/EN 62 040-2 class A (class B as option), 4 kV IEC 61 643, UL 1778 and CSA 22.2 ⁽⁹⁾		
Operating temperature, noise, approval	0°C to 40°C continuous, 45 dbA(10), UL, TÜV, GS mark, CB, C-Tick, CE, IEC 61 931		
Dimension (HxWxD in mm) / Weight (kg)			
MX RT standard backup tower	444.5x130.6x735 / 57 kg	Tower 690 (795 mm casters) x444.5x735 / 250 kg Rack 16U x 444.5, compatible with 800-1000 mm deep rack	
MX RT standard backup rack	3Ux444.5 compatible with 800-1000 mm deep rack	Tower 690 (795 mm casters) x444.5x735 / 250 kg Rack 16U x 444.5, compatible with 800-1000 mm deep rack	
MX EXB battery unit tower / rack	444.5x130.6x650 / 3U x 444.5 / 70 kg	dimension same as MX Frame / 194 kg for 15 kVA, 239 kg for 20 kVA	
MX ModularEasy, paralleling kit	dimension same as EXB battery unit / 10kg	/	/
Part number			
Convertible Tower/Rack	68504	68513	68514
EXB	68515	/	/

1: 2 MXs can be paralleled using ModularEasy.

2: At 70% load.

3: 4 IEC C13 (10A) 2 m long cables for use with retention clips (8 cables for use with MX Frame).

4: Frequency conversion for non-paralleled units only.

5: Economy mode, 91% in normal mode.

6: At 70% nominal rating with power factor 0.7 typical values after 3 charge/discharge cycles, with 3-5 year old batteries. Weekly battery test without interrupting the load (daily or monthly if required). EXB compatible with 0.8 power factor loads.

7: With MX Frame EXB (4 battery units).

8: Solution-Pac CD-ROM supplied as standard.

9: Applicable to US models.

10: 50 dbA above 5 kVA.

EX RT



Technology: Level 9 (Double Conversion Online)
Rating: 7 - 11 kVA
Configuration: Tower / Rack Convertible

High-availability

- Hot swappable UPS and battery modules
- Internal bypass and maintenance bypass included as standard
- The UPS can be connected to two independent electrical sources (sources 1 and 2 can be common or separate)
- Large input voltage range without draining the battery: 230V + 20% to - 30% single phase and 400V + 15% to - 20% three phase
- Batteries tested automatically at regular intervals and protected against deep discharge
- N+1 redundancy supported by two single units

Wide choice of backup times

- From 10 minutes to 2 hours with battery modules or up to 8 hours using the CLA charger module
- Optional Battery Integration System for automatic recognition of battery modules and minimising size

Ergonomy

- Multilingual LCD display and LEDs for rapid view of the UPS status and the operating log
- Self diagnosis and fault messages

Computer

- Tower / 6U Rack convertible
- Comprehensive range of Power Distribution Units for convenient power distribution within the rack

Industrial

- Compatible with all types of generator set
- Can be integrated into building management systems
- Steel casing
- Operating temperature up to 45°C
- Meets marine vibration test requirements

Battery Integration

System to support up to 8 modules (1 hour runtime + 1 transformer module). Ideal for critical applications requiring high operating continuity. Compatible with the most demanding environments.

Power management

- Solution-Pac 2 software suite on CD Supplied as standard
- Optional ConnectUPS SNMP/Webcard Connect to Ethernet, alarms and supervision using a Web-interface

EMP Environmental Monitoring Probe

- SNMP and Web monitoring of temperature + RH + status of 2 contacts
- NMS Supervision through Intelligent Power Manager or NMS integration kit: HP Openview, Tivoli Netview, CA Unicenter
- Jbus/Modbus card For connecting the UPS to a building management system

TECHNICAL SPECIFICATION	7 kVA	11 kVA
Technology	online double conversion with PFC (Power Factor Correction) system ⁽¹⁾	
Active power kVA / kW	7 / 4.9	11 / 8
Rated input voltage	200/208/220/230/240/250V single phase or 380/400/415V three phase	
Input voltage range	(- 30%; + 20%) 230 V; (- 20%, + 15%) 400 V	(- 30%; + 20%) 230 V; (- 20%, + 15%) 400 V
Input, output frequency range	40-70 Hz, 50 / 60 HZ autoselection, frequency converter as a standard	
Output voltage / THDU	200/208/230/240 /250 V +/- 2%; THDU < 2%	200/208/230/240 /250 V +/- 2%; THDU < 2%
Overall efficiency	normal mode 91%, eco mode 97%	normal mode 91%, eco mode 97%
THDI	THDI < 5% ⁽²⁾	THDI < 5% ⁽²⁾
Crest factor / short circuit current	3:1 / 100 A	3:1 / 150 A
Overload capacity	>150% 500 ms; 150% 30 s; 125% 60 s; 110% 120 s	>150% 500 ms; 150% 30 s; 125% 60 s; 110% 120 s
Temperature operating	45°C for 8 Hrs ⁽³⁾ , 40°C continuous	45°C for 8 Hrs ⁽³⁾ , 40°C continuous
Back-up times⁽⁴⁾ at 70% load		
from 10 up to 15 min	Standard: 1 power mod. 3U + 1 battery mod. EXB 3U = 6U	Standard: 1 power mod. 3U + 1 battery mod. EXB 3U = 6U
from 15 up to 20 min	Standard + 1 battery mod. EXB 3U = 9U	Standard + 1 battery mod. EXB 3U = 9U
from 40 up to 65 min	Standard + 2 battery mod. EXB 3U = 12U	Standard + 2 battery mod. EXB 3U = 12U
Connection		
Input /output	terminal block for 13 mm ² (stranded cable) or 10 mm ² (solid cable)	
Communication		
Port type	6 voltage free contacts DB9 2 A 48 V DC, 1 RS 232, RJ11 for remote emergency power off	
Slot	1 slot for inter-unit communication card	1 slot for inter-unit communication card
Standard and certification		
Performance and safety	IEC 62040-1/IEC 60950/UL 1778 and CSA 22.2 ⁽¹⁾	IEC 62040-1/IEC 60950/UL 1778 and CSA 22.2 ⁽¹⁾
EMC	IEC 62040-2; EN 50091-2; FCC class A ⁽¹⁾ , EMC B level ⁽⁵⁾	IEC 62040-2; EN 50091-2; FCC class A ⁽¹⁾ , EMC B level ⁽⁵⁾
Certification	UL(2)/TUV, GS mark,CB, C-Tick,CE, IEC 68-2-6 (vibration tests Marine approval)	
Dimension (HxWxD in mm) ; weight (single phase input / three phase input)		
EX RT standard backup tower	444.5x261.2x700 88.3 kg / 89.5 kg	444.5x261.2x700 94.2 kg / 95.3 kg
EX RT standard backup Network Pack rack mounting	261.2 (6U) x444.5x700 96.1 kg / 97.3 kg	261.2 (6U) x444.5x700 102 kg / 103.1 kg
Comet EX RT Power module	444.5x130.6x700 / 130.6 (3U) x444.5x700 23 kg / 24.2 kg	444.5x130.6x700 / 130.6 (3U) x444.5x700 24.9 kg / 26 kg
Battery module EXB RT	444.5x130.6x650 / 130.6 (3U) x444.5x650 64.5 kg	444.5x130.6x650 / 130.6 (3U) x444.5x650 68.5 kg
EX RT CLA module / EX RT Transformer	130.6 (3U) x444.5x650 / 12 kg / 87 kg	130.6 (3U) x444.5x650 / 12 kg / 87 kg
Part number		
Single phase	68070	68110
Three phase	68074	68114
EXB	68078	68118

1: applicable to single phase models.

2: single phase input value.

3: at nominal output power for 230 V or 400V input and 230V output.

4: typical values after 3 discharge cycles, batteries 3-5 years, longer backup times available using the CLA or EXB module, ask for details. 5: option for single phase model.

STS 16



With the Pulsar STS 16, power from 2 independent sources can be supplied to servers and circuit equipment which only have one input power supply

Redundancy

At present, only top-of-the-range servers are equipped with a dual electrical power supply. In their original form the majority of these types of equipment - including concentrators, switches, auto-routers, invoicing servers, SMS servers and middle-of-the range servers - are single connection, that is to say they have only one electrical input supply. With the Pulsar STS, every rack of critical equipment can be connected to a redundant power supply.

Both sources (primary and secondary) are connected, in a very straightforward manner, to the STS in the base of the rack. The Pulsar STS then controls the redundancy of this electrical power supply. If the primary source fails, transfer to the secondary source is automatic and instantaneous.

Simple and cost-effective

Considering its advanced design, the price of the Pulsar STS is highly competitive compared with the 'dual power supply' options available from suppliers of computer equipment. 1U high, the unit can be installed easily within the rack. Five LEDs indicate the status of the sources and the STS.

Reliability

Designed to provide redundancy as close as possible to the equipment, the Pulsar STS deploys a 'break before make' technology based on relays:

- In the event of a short-circuit, the Pulsar STS ensures that the fault cannot affect the alternative source, so that power continues to be supplied to the fault-free equipment
- Power is transferred without overlap of the sources in order to prevent any node of reliability
- Even if it suffers a fault, the Pulsar STS continues to supply power to the equipment from the remaining available source

Associate communication

A simple and complete mimic diagram displays the various status of the sources and the Pulsar STS. An 'STS COM' communication port of the dry contact type indicates the status of the sources and the Pulsar STS:

- primary source
- source OK
- fault within the Pulsar STS

TECHNICAL SPECIFICATION	STS 16
Nominal current	16 A
Compatibility	with all uninterruptible power supplies which use on-line double conversion technology
Characteristic	
Voltage/input frequency	208/220/230/240 V +/- 12% ; 50/60 Hz
Output protection	1 thermal cutout per set of IEC 13 connectors
Connection	
Input	2 connecting cables with IEC C20 connector (16 A male connector)
Output	2 set of 3 IEC C13 connector
	1 set of 1 IEC C19 connector
Performance	
Transfer time	6 ms
Technical standard	
Safety	EN 50091-1
EMC	EN 50022/B, IEC 1000-4
Marking	CE, TÜV/GS/UL
Dimension (HxWxD in mm) / Weight (kg)	
Dimension	430x43x250
Net weight	5
Part number	
STS 16	66028

Flex PDU / HotSwap MBP / Comet PDU



FlexPDU - Having the right connectors just where you need them

- FlexPDUs (Power Distribution Units) are flexible mounting multiway socket blocks for easy connection of multiple loads or either free standing or rack-mounted UPSs
- FlexPDUs have a large number of sockets (12 IEC 10A sockets) which fit into a very compact unit (1U - 19")
- FlexPDUs are easy to implement into any type of installation: they can be rack mounted horizontally (1U) or vertically or directly onto all MGE RT format (rack/tower) UPSs

Comet PDU - Socket blocks for single phase UPS with output terminal blocks

- Comet PDUs (Power Distribution Units) make it easy to connect equipment to single phase UPS with output terminal blocks (Comet EX RT, etc)
- Comet PDU Power Distribution Units contain 8 IEC 10A and 4 IEC 16A sockets on a 2U rack mounting module
- All the outputs have retaining clips for highly reliable connections

HotSwap MBP- High availability for all UPSs up to 3 kVA

- HotSwap MBP provides a maintenance bypass for all UPSs up to 3 kVA: UPSs can be hot swapped or upgraded without interrupting the power supply
- HotSwap MBP has an IEC16A input connector with retaining clip for compatibility with any UPS now and in the future from Eaton or any other supplier
- HotSwap MBP units can be installed as required; at the back, side, top of the UPSs, or rackmounted (horizontally (1.5U) or vertically)



TECHNICAL SPECIFICATION	FlexPDU	HotSwap MBP	Comet PDU
Current rating	16 A	16 A	52 A
Voltage rating	220-230-240-250 V	220-230-240-250 V	220-230-240-250 V
Installation			
Format	1U (except BS) 19 rack-mounting with multi-position mountings "	>1U 19 rack-mounting with multi-position mountings "	2U 19 rack "
Installation	19 rack horizontal or vertical mounting or on RT UPSs "	19 rack or wall mounting "	
Dimension (HxWxD in mm)	44x483x80 (BS: 52x483x120)	52x483x120	89x483x90
Connection			
Input	1 IEC C20 (16A) connector and 2 cables (1 IEC 16A - 16A cable and 1 IEC 10A - 16A cable) for connection to any UPS	IEC models: 1 IEC C20 (16A) connector and 1 IEC 16A - 16A cable(1) HW (Hard-Wired): terminal block	Pre-wired 0.5 m cable for connection to the UPS terminal block
Output			
IEC	12 IEC 10A socket + 1 IEC 16A socket (with 2 circuit breakers)	6 IEC sockets + 1 IEC 16A socket (with 1 circuit breaker)	8 IEC 10A sockets + 4 IEC 16A socket (with 4 circuit breakers)
HW	NA	Terminal block	/
Cascading	yes, IEC 16A output socket (except HW)		
Retaining clip	retaining clip on the IEC input and output socket		
Operating condition, standard and approval			
Operating temperature	0°C to 45°C continuous	0°C to 45°C continuous	0°C to 45°C continuous
Performance - Safety - EMC	IEC models: IEC 60 320-1, EN 60 320-1 - HW models: IEC 60 950, EN 50 091		IEC/EN 60 320-1
Approval	CE	CE	CE
Part number			
IEC	68438	68433	/
BS	68437	68432	/
HW	/	68434	66857

Power Management Solutions



Improve equipment reliability and guarantee data integrity

Uninterruptible power supplies (UPSs) are used as backup systems in case of a power failure to prevent downtime. This type of protection is essential, but is only fully effective if the user is in control of the situation. With Eaton's Power Management Solutions, the user is notified immediately of the status of the power quality and distribution system and can initiate automatic actions depending on the events, control the system remotely and manage it more effectively.

Benefits of using Eaton's Power Management Solutions

- Real-time notification makes it easy to prevent or analyse possible failures immediately
- Helps to prevent data losses by enabling controlled shutdown of servers and PC operating systems
- View and analyse power events and measured values from recorded logs
- Save time and money with remote equipment control, which removes the need for additional site visits to restart equipment. It also enables prolonged runtime of essential equipment during power outages by allowing orderly remote shutdown of non-critical systems and processes

Connection to IP networks

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

- adding a Web/SNMP 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

Web/SNMP cards are recommended for central UPS systems that protect a complete network or for UPS systems providing backup for critical equipment. When the card is fitted, the UPS has its own IP address with local intelligence to:

- serve web pages with reports, settings and alarms
- plug in to SNMP-based network management systems such as Openview, IBM, Tivoli Netview and Computer Associates Unicenter
- communicate with shutdown software installed on the servers to be protected

Network Management Proxy

The Web/SNMP Proxy 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 Web/SNMP Proxy agent is used to manage a UPS remotely using a standard browser or network management system.

UPS system supervision

Supervision using a web browser

A Network Management Card enables UPS management using a standard web browser. The web interface provides details of all UPS parameters, measurements and settings, from any point in the network, by using the IP address of each UPS.

Supervision using a Network Management System (NMS)

SNMP protocol is the standard way of monitoring networked devices such as servers, switches, routers, disks and also UPSs, among other devices. Eaton Network Management Cards communicate with leading NMSs, for example HP OpenView, BM Tivoli and CA Unicenter, using SNMP. Network administrators can use the same familiar tools and alarm management methods for UPS monitoring as for any other piece of IT equipment. Eaton provides SNMP MIBs (Management Information Base) which cover all the Eaton product-specific functions and data. They can be easily incorporated into NMSs or server management software.

Supervision using Intelligent Power Manager

Easy supervision of power protection and distribution

Intelligent Power® Manager is a software tool for managing networked UPS and PDU systems more easily and at lower cost than the major NMS platforms, and is a dedicated tool for power management functions. Administrators have an overall, consolidated view of the main operating parameters of all UPS systems. The web-based interface is intuitive and easy to use while also having high configurability and powerful features. Devices can be grouped by function or location and sorted according to parameters like status description, type and location. Device icons can be freely placed on background images such as maps or floor plans to aid identification.

Powerful alarm management

Intelligent Power Manager centralises alarm management. It can collate several events into a single message and deliver the message via email or SMS. Events and actions are stored in a log to help in analysing and mitigating power problems. The calendar view provides quick way to get an overview of event history.

Simple start up

Intelligent Power Manager is very easy to install – only a few clicks of the mouse are needed. Once running, the software discovers manageable power devices automatically and is operational in just a few seconds.

Informative views

Intelligent Power Manager features several view panels which summarise the operational status of a UPS. Users can choose the most relevant views for their needs. Complete information and control is only a click away, since there is a link to the web interface of each individual device.

Secure operation

Intelligent Power Manager uses Secure Sockets Layer (SSL) and several levels of password (administrator, user, and so on) for comprehensive security.

Scalable and cost efficient

A version of Intelligent Power Manager limited to 10 monitored devices is available free with each networked UPS. This version can also be used to evaluate the software for use with a more extensive network before purchasing the full version, which can be used to manage 100 or more power devices (UPSs and ePDUs).



Protection: shutting down servers

To ensure the integrity of the system and the data, a computer operating system must be shut down in the correct sequence. Dedicated shutdown software must be installed on the servers to execute various functions before the power supply is cut off. These functions include:

- executing a script to close applications running on the server
- initiating a shutdown sequence or hibernation after a preset timeout or just before total battery discharge
- rebooting the operating system automatically or manually when the mains power is restored
- showing UPS alerts to the user

The Network Shutdown Module can be used to carry out actions selectively for redundant UPS systems (servers with multiple power supplies, paralleled UPSs, etc.) to provide the highest availability and data integrity for the most critical data. Eaton Network Shutdown Modules operate equally well with Web/SNMP card and SNMP proxy systems and can easily be configured remotely via a browser.

Additional functions

Individual outlet socket control

The Network Shutdown Module can be used to carry out actions Many systems from Eaton have individual output receptacles for turning groups of devices on and off. This feature is particularly useful for:

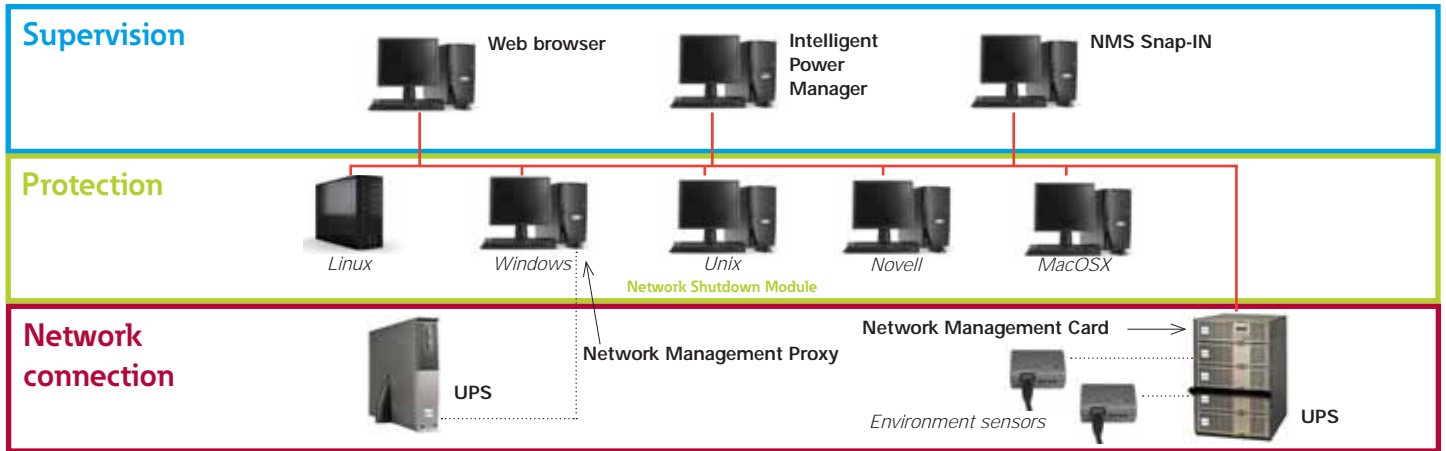
- shedding non-critical systems when there is a power cut
- defining start-up sequences
- individual management of several IT systems connected to a central UPS

Remote on/off control

As an entire UPS or some of its outlets can be turned on and off remotely, it becomes a smart IT equipment switch. This function makes it possible, for example, to restart a locked-up hardware device from a remote site. Outlet control can be automatic or manually controlled locally or remotely.

Saving energy function

This function can be used to program shutdown and restart sequences for all UPS-protected devices. For example, workstations, printers, network devices and selected servers can be shut down and powered off outside of business hours.



Other options

Environment Sensor for Web/SNMP card

UPSs are often used in sensitive environments such as computer bays. Environmental conditions (temperature, humidity and opening and closing of doors) can also affect system availability. To address this, Eaton provides an environment sensor which incorporates a temperature sensor, humidity sensor and two switch inputs. It is designed to work with Web/SNMP cards and can be easily installed in various environments.

Linux and Eaton uninterruptible power supplies

For several years Eaton has been actively supporting the trend towards open source software by providing the most advanced power management facilities. One example is the new Personal Solution Pac management system for Linux, which is based on the open source code to which Eaton has made a significant contribution.

Individual computer applications

When the UPS is protecting only one device the point-to-point link (RS232 or USB) is used.

The operating system 'plug-and-play' solution

Some operating systems, such as Windows, have built-in power management functions for critical tasks. Eaton's Pulsar series UPS units 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

Additional control and settings to those built in the operating system can be provided by the Eaton Personal Solution-Pac. This system can be used to fine-tune shutdown parameters and provide additional capabilities such as controlling individual devices, programming responses to events and calculating true backup time in case of mains power loss.

Connection to IP networks	
Network Management Card (Web/SNMP)	66 102 NMC "Minislot" for Eaton Evolution and Eaton Evolution S, Eaton EX, Eaton MX, Eaton MX Frame, Eaton EX RT
SNMP Proxy	On the Solution-Pac 2 CD-ROM delivered with most UPSs or free from the web: www.eaton.com/powerquality
Protection	
Network Shutdown Module	On the Solution-Pac 2 CD-ROM delivered with most UPSs or free from the web: www.eaton.com/powerquality
Remote management and monitoring	
Snap-in application for HP/Compaq Insight Manager	Available free of charge from the web: www.eaton.com/powerquality
Management-Pac	66923
Intelligent Power Manager	
Base license (up to 10 devices)	Available on the CD bundled with each UPS or free of charge from the web: www.eaton.com/powerquality
Support for 11 - 100 IP addresses	66925
Support for unlimited IP addresses	66926
Other option	
Environmental Sensor	66846

UPS Quick Selection Guide

Technology	VA Range	Model	Protection Against	Output	Cabinet Configuration	Output Socket	Extended Battery Capability
Standby/Off Line	600-1500VA	Ellipse ASR	Power Fail Power Sag Power Surge	1 Phase	Tower	IEC	-
		Nova	Power Fail Power Sag Power Surge Undervoltage Overvoltage		Tower	IEC	-
Line Interactive, Sine Wave	600-1500VA	Ellipse MAX	Power Fail Power Sag Power Surge Undervoltage Overvoltage		Tower	IEC	-
		Evolution			Tower/Rack	IEC	-
On Line, Double Conversion	1000-1500VA	Evolution	Power Fail Power Sag Power Surge Undervoltage Overvoltage Switching Transients Frequency Variations Line Noise Harmonic Distortion		Tower/Rack Convertible	IEC	
		EX			Tower	IEC	
	2200-3000VA	EX			Tower/Rack Convertible	IEC	
		MX			Tower/Rack Convertible	IEC & HW	
7000-11000VA	EXRT	Tower/Rack	IEC & HW				

Power through the disruptions.

For more product information please contact



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