AROS

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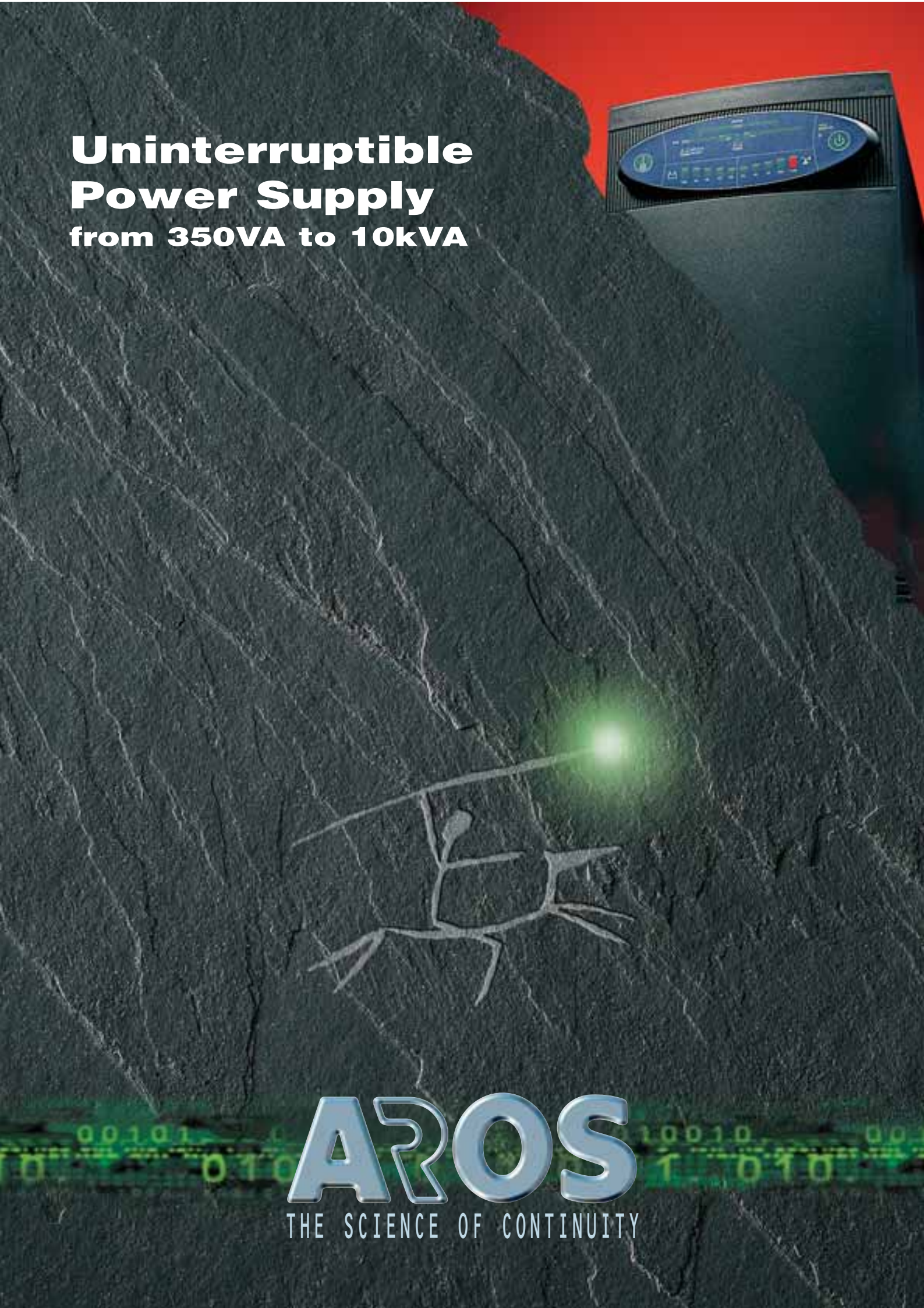
AROS PARTNER

6DOCCAT05UP02

Uninterruptible Power Supply

from 350VA to 10kVA



ARES

THE SCIENCE OF CONTINUITY

AROS, a history of research and continuity.

THE COMPANY

The company

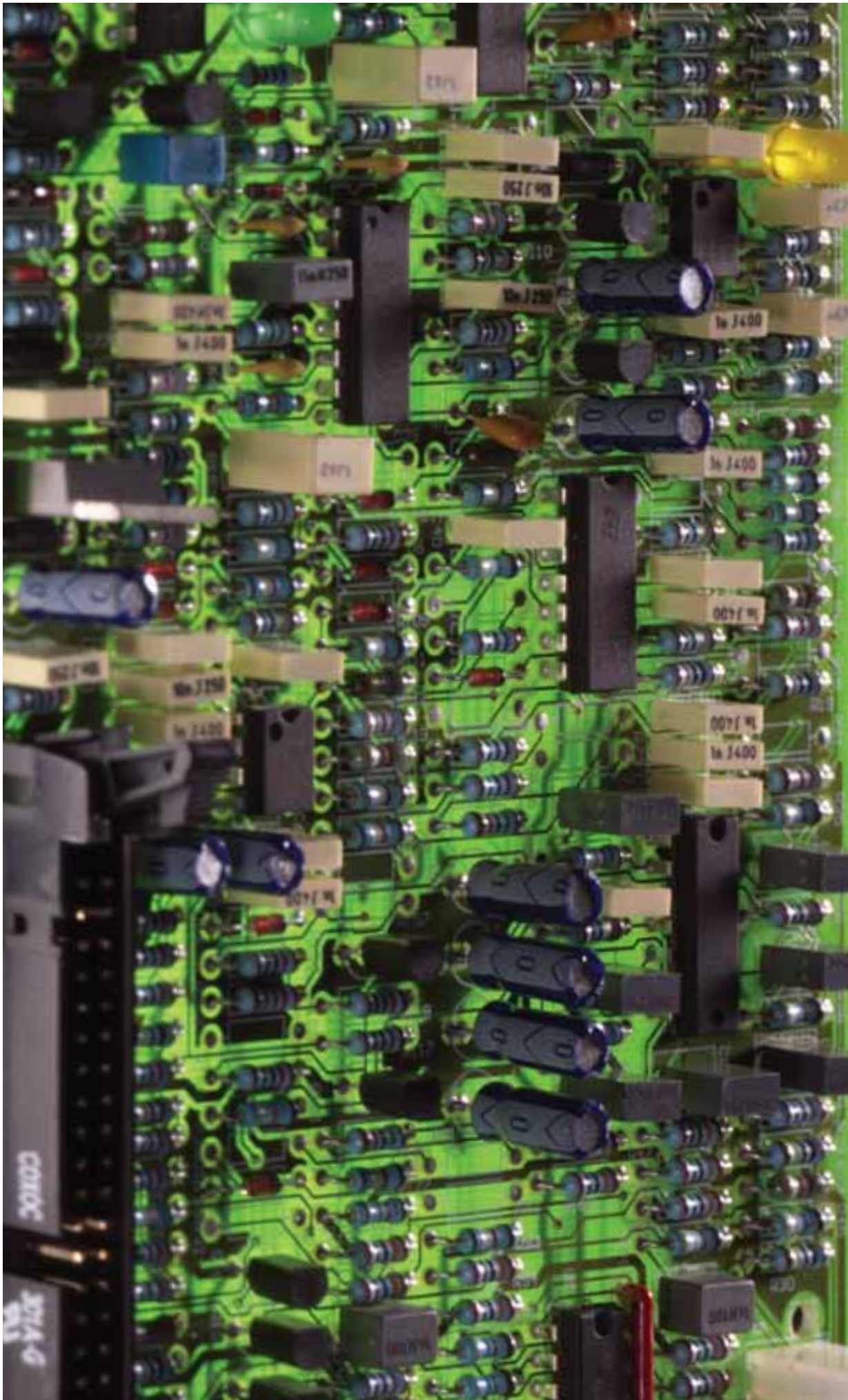
Continuous operation is the key word for AROS. It is the company's field of activity, a sophisticated technology upon which the efficiency of every electrical system depends. AROS has over 70 years of experience in this highly specialized sector and is currently a leading company in the field. But continuity is also AROS "trademark" as acknowledged by design and installation engineers: the will to strive constantly to achieve the highest production standards and to anticipate market demands. Thinking in this way brought AROS to set up the Research and Development team of about forty persons to better respond to the market requirements. The result is that today whoever thinks about emergency power supplies thinks AROS.

AROS was set up in 1935 and after just a few years established itself as the leading Italian manufacturer of voltage regulators, transformers and power supplies. In the fifties AROS was the first company in Italy to manufacture ballasts for fluorescent neon lamps and became the Italian leader in the field of components for lighting. In the eighties it designed, developed and produced switching power supplies for IBM computers. The company thus acquired know-how in PWM (Pulse-Width-Modulation) technology that enabled it to enter the UPS sector. This is now the most important field of activity for AROS, which has maintained its leadership in voltage regulators and components.

Steps to success

1935	Manufacture of radio loudspeakers
1940	Production of transformers for radios and electrical power supplies
1945	Entry on the market of the first power supplies (ballasts) for fluorescent neon lamps
1950-1959	Manufacture of magnetic reactors for fluorescent and discharge lamps
1960-1969	First suppliers of components for IBM - Manufacture of ferro-resonant regulators
1970-1979	Production of electronic components for regulators
1980-1989	Manufacture of uninterruptible power supplies (UPS), switching power supplies and electronic reactors
1990-1999	Expansion of the range of UPS for various applications (IT, industrial)
2000-2005	Growth and consolidation in the European UPS market

Entering the Research and Development department is like entering the heart of AROS. Here users' real problems are "filtered" by means of the latest technologies and transformed into successful products.



AROS

Highly trained personnel and state of the art technologies lie behind every project.

RESEARCH *and development*

Entering the Research and Development department means entering the heart of AROS. Here users' real problems are "filtered" by means of the latest technologies and transformed into successful products. Environmental simulators, sophisticated analysis tools, CAD systems: super specialized devices for super specialized design engineers to predict tomorrow's needs today, needs arising from developments in electronics and market trends. AROS dedicates its greatest resources to this team and has recently boosted the power area. This both consolidates the strength of its core business of Uninterruptible Power Supplies (UPS), components and voltage regulators, while mapping out its future course.

To understand the work carried out by the research team, just think of the technological "nodes" that are hidden behind the apparent functional linearity of a UPS system. To provide a high level of efficiency, withstand strong line interference, interact with surrounding systems that may not be homogeneous, comply with complex international safety standards, minimize the level of interference emitted towards the mains and towards the environment and finally, offer a degree of reliability that is increasingly demanded by new electronic systems.

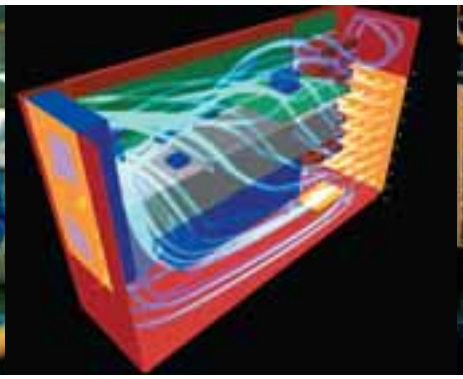
AROS products are intended for sophisticated devices – delicate electronic systems needing protection – and sophisticated devices are required to design, develop and produce them.

AROS

Intelligent devices.
Intelligent men.

AROS products are intended for sophisticated devices - delicate electronic systems needing protection - and sophisticated devices are required to design, develop and produce them. AROS Research Centre is at the cutting edge when it comes to the synthesis and analysis of cooling systems through the use of software for thermal analysis based on computational fluid dynamics and infrared cameras. This is just one example of how AROS engineers and technicians use state of the art computer-aided technologies to make AROS solutions increasingly competitive, not only in terms of performance and respect for the environment, but also as regards reducing operational costs.

AROS uses thermal analysis to study how the cooling properties inside a device change by modifying parameters such as the size and footprint of heat dissipators, the type and position of the fans, deflectors and ventilation grids, and by eliminating the critical areas (caused by the recirculation or stagnation of air at high temperatures within the UPS). All this to achieve uniform ventilation, significantly increasing the safety and performance of the system while retaining its compact size.



Quality not only as an objective but also as an indispensable condition for every product: this is AROS.

AROS

Millions of users believe in AROS because AROS believes in excellence.

quality **QUALITY**

Quality not only as an objective but also as an indispensable condition for every product: this is the creed that AROS abides by and which is centred around the certification of its quality system. AROS is certified UNI EN ISO 9001:2000 for the design and development, manufacture, sales and after-sales service of its products. This certification guarantees stringent and constant control of its corporate processes. The result is not just higher product quality and reliability but also a philosophy focused on understanding customers' present and future requirements, complying with their requests and aiming to exceed their expectations.

DET NORSKE VERITAS

QUALITY SYSTEM CERTIFICATE

With so much trade taking place across borders, conformity assessment has become an important component of the world economy. Before they are put on the market, all AROS products are subjected to testing for conformance with specifications complying with ISO 9001:2000 standards.

For AROS, a product is not technologically complete unless it "incorporates" a level of support that resolves users' problems.

AROS

The service rendered to customers every day makes AROS a partner.

For AROS, a product is not technologically complete unless it "incorporates" a level of support that resolves users' problems. High resolution capacity, low intervention times: this formula has been one of the keys to its success on the domestic and European markets. A formula that finds concrete application in services such as Teleguard, the remote support service that remotely manages and controls the UPS 24 hours a day. Choosing AROS means being able to connect on-line with the Control centre, being informed in real time on the status of the UPS and obtaining immediate action in emergencies. AROS combines this advanced service for its users with training activities for technical and commercial operators, on its own premises or at the customer's site.

AROS offers a technical consultancy and pre-sales service and provides end users, installers and design engineers with on-line support to determine the best AROS product for the required application.
An excellent way to find out what it means to AROS to be its customers' partner.


REPLACE BATTERY
AROS
AROS
AROS

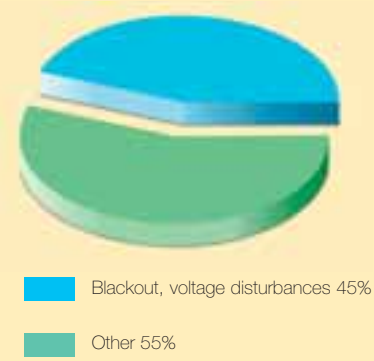
Index

Uninterruptible Power Supplies (UPS)

Transfer switch

Power problems

BLACKOUT, VOLTAGE DISTURBANCES



Why an Uninterruptible Power Supply?

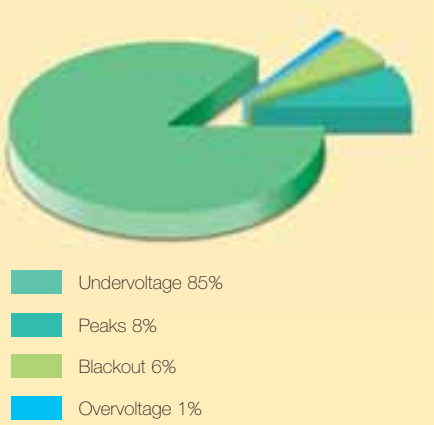
Data centres, servers, LAN nodes and telecommunication systems must always be protected against possible problems in the power supply. Sudden blackouts and variations in the mains supply may lead to system malfunctions and severe data losses. But even other electrical equipment can cause damage or inconvenience if there is a breakdown in the mains. Just think of the check-out systems in a supermarket, lighting systems and industrial production units, not to mention safety systems, pumping systems and automatic devices in general.

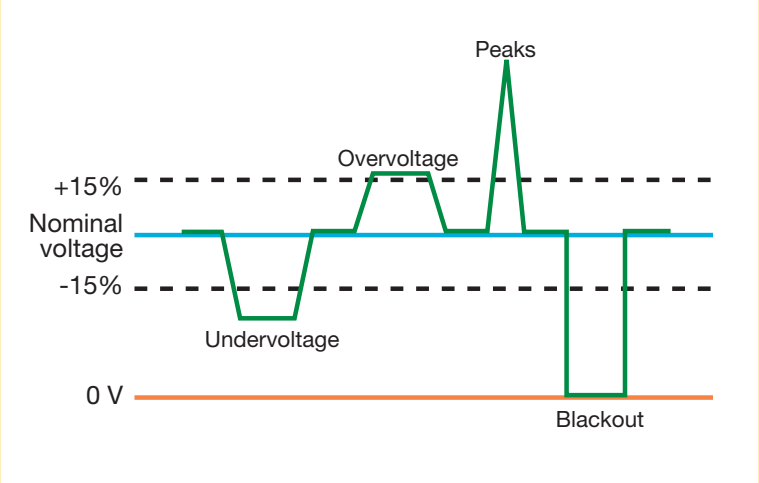
Power problems are caused by various sources such as distribution network faults, system switching, weather and environmental conditions, heavy equipment or simply just faulty maintenance.

The simplest and most effective way of coping with these disturbances is to install a UPS unit (UPS stands for Uninterruptible Power Supply). Acting as an interface between the mains and the loads, the UPS guarantees the continuity and the quality of the electrical power supplied to the loads, whatever the condition of the mains may be. In fact these systems stabilise the voltage perfectly, eliminating all disturbances.
They even supply voltage when the mains fails, by means of a series of batteries which give a back up time that is generally sufficient to guarantee the safety of persons and of the system.

In order to decide which type of appliance is able to guarantee the best level of protection, you must know the types of mains problems that can disturb your systems.

TYPE OF MAINS DISTURBANCES





CEI, CENELEC and IEC are the recognized standardization bodies respectively at national, European and international level. Such standardization guarantees the compliance with CE Directives.

Technical Standards

Safety

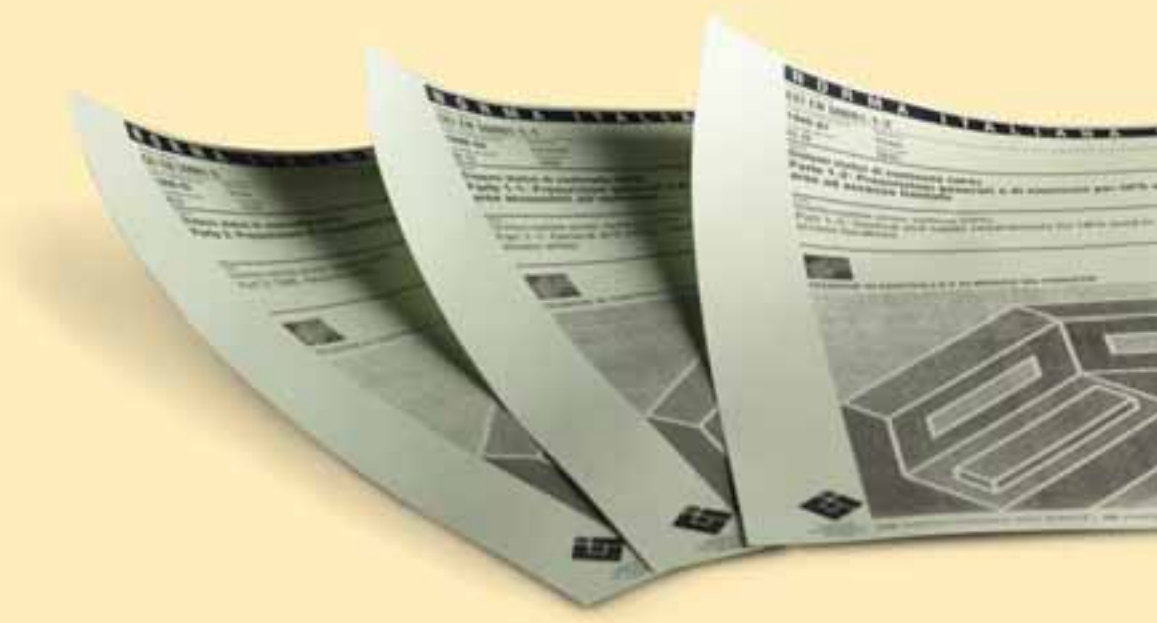
EN IEC 62040-1-1, EN 50091-1-1 are the reference standards regulating the basic safety requirements which UPS equipment must fulfil to grant users safety in restricted areas.
EN IEC 62040-1-2, EN 50091-1-2 are the reference standards regulating general and safety requirements for UPS used in locations with limited access.

Electromagnetic Compatibility

This is the capacity of equipment to work without being disturbed (immunity) and without disturbing (emisssion) other equipment due to electromagnetic disturbances on electric wires and irradiated.
EN 50091-2 is the reference standard which also defines the testing procedures.

Performances

The reference document is the Performance Requirements EN 62040-3. It is a guide for a better understanding between manufacturer and user since it defines which performance must be declared as well as the relevant testing methods.
All AROS UPS's have been designed and built in accordance with all the above standards and therefore bear the CE mark.



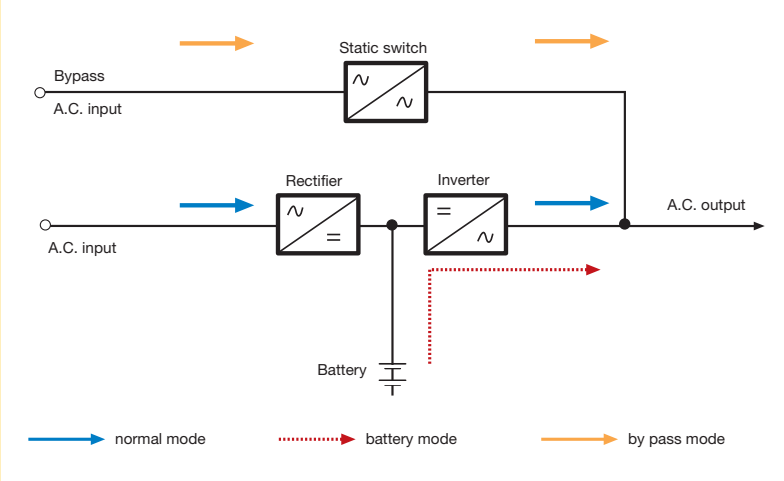
Types of Uninterruptible Power Supply (UPS)

On-Line Uninterruptible Power Supply (VFI)

On this type of UPS, also known as a double conversion UPS, the inverter draws its power continuously from the rectifier (converter). The current is completely regenerated by its transformation from AC to DC and back to AC, guaranteeing a constant level of quality, regardless of disturbance on the mains power source.

By carrying out continuous double conversion, an On-Line UPS significantly attenuates electrical noise, which might otherwise damage a computer. When the AC input supply is not within the voltage and frequency tolerances, the battery is used to power the inverter. The inverter continually supplies the critical load with a true sinewave current.

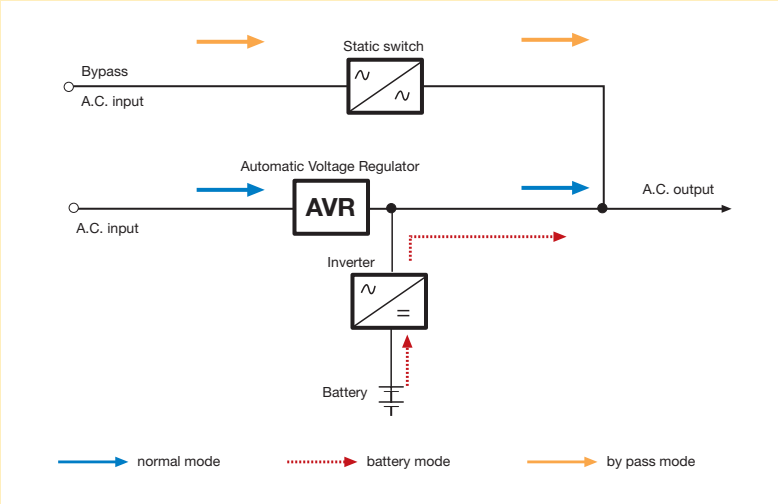
If a converter/inverter failure occurs, the continuity of the load power can be improved by activating the bypass source using a transfer switch.



Types of Uninterruptible Power Supply (UPS)

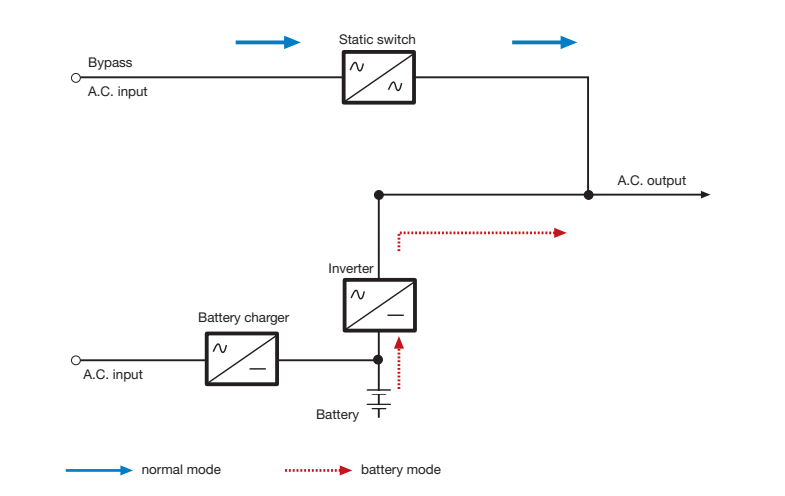
Line Interactive Uninterruptible Power Supply (VI)

On this type of UPS the inverter is connected in parallel to the AC input and also charges the battery (interactive operation in reversible mode).
When the AC input supply is not within strict amplitude and frequency tolerances, the load is powered by the inverter through the battery.
The normal inverter output waveform is a stepwave or squarewave.
This technique is rarely used for high power ratings as frequency regulation is not possible. Active Standby (or Line Interactive) technology is a recent development made possible by the advent of microprocessors. The UPS is fully controlled by a microprocessor which monitors the quality of the mains power supply and reacts to any variations. In the event of a power problem, the UPS transfers the load to the batteries to supply stabilised power. It is increasingly frequent to add a voltage compensation circuit, called a "booster", that is enabled in the event of prolonged voltage drops.



Passive Standby Uninterruptible Power Supply (Off-line) (VFD)

This type of UPS, also called Off-line UPS, is connected in parallel to the normal AC source. The current is filtered in order to attenuate the most frequent forms of disturbance. In the event of a power problem the UPS transfers the load to the batteries to supply stabilised power: the inverter only switches on when the mains fails or fluctuates outside the input voltage tolerances of the EMI filter or if it is fitted with Automatic Voltage Stabiliser (AVS).



Evaluation parameters

Apparent power (in VA or kVA)
It is defined as:

$P_{APP} = V \times I$
for single-phase load

$P_{APP} = V \times I \times \sqrt{3}$
for three-phase loads

where V is the load voltage supply and I is the current absorbed by the load in normal load conditions.
This information is normally shown on documents and/or load nameplates though it may be shown as an oversized value.

Active power (in W or kW)
It is defined as:

$kW = kVA \times \cos\varphi$
(where $\cos\varphi$ means power factor PF).

The $\cos\varphi$ value of loads is very seldom indicated, therefore a correct UPS sizing requires measurements of kVA absorbed by loads.
Experience, anyway, shows that typical loads of computer feature a PF between 0,65 and 0,8.

Considerations on the misleading concept of "computer power"
In the definition of the UPS rated power, the parameter values, defined as "computer power", "switching power", "actual power", power a particular temperature value, etc. are sometimes indicated.
Such arbitrary parameter values have no relation with apparent power and active power; they can be neither quantified nor defined and therefore must not be used for the correct sizing of the UPS.

Crest Factor
A linear load absorbs a sinewave current that shows an effective value (I_{EFF} usually measured and declared) and a peak value (I_{PK}). The Crest Factor value is defined as:

$$CF = \frac{I_{PK}}{I_{EFF}}$$

The nominal value for a linear load is CF = 1,41. Most loads applied to UPS's are non- linear load: they absorb distorted current with a CF value greater than 1,41 and require therefore higher peak currents thus resulting in an increased distortion of the output voltage than equivalent linear loads. Directive EN62040-3, indicates a typical non-linear load as CF=3, used for UPS testing, which may be used in the absence of other data.

Overload
Overloads are temporary requests from electrical equipment which exceed regular operation absorption. They are caused by current peaks which may occur when one or more users are switched on. In case the overload exceeds the admissible limits the UPS guarantees the energy supply via the automatic bypass line. For "On line" UPS's the transfer is effected without any break in power (transfer time = 0 ms). The "bypass" is a safety device with independent protection and auxiliary supply able to supply the load independently from the UPS also when the UPS is switched off or broken.

Input current harmonics
The UPS battery charger rectifier absorbs a distorted current containing harmonics that are multiples to the reference 50Hz frequency. These harmonics may cause voltage distortion which may affect the normal operation of non privileged user's.

The harmonics level of AROS UPS's complies with the present directive. However, in order to further reduce the presence of these harmonics variuos solutions are available such as the installation of Active Filetrs (Power Factor Controlled) or different Rectifier designs.

Runtime
The batteries supplied with the UPS's are valve regulated batteries (VRLA) known as sealed batteries with no electrolyte top-up, very low gas emission, suitable for installations in offices and public places with no need for special precautions. Batteries are normally supplied with the UPS and can either be installed in the same cabinet or in additional ones. AROS guarantees the power supply runtimes specifying the apparent load power and the power factor.

Remarks about the misleading concept of "typycal autonomy"
In defing the runtime it is often used the concept "typical autonomy (or runtime)" which has nothing to do with the real runtime based on the 100% load value expressed in W or kW (active power). The runtime that AROS shows on all its documentation have been calculaterd at 100% of the load.

Power quality and mains disturbance

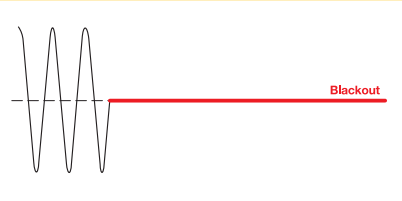
Electronic equipment functions properly as long as the utility is available and with high quality. Unfortunately not always this is possible because most of the power quality events are caused by factors beyond the control of the Distribution Company. These factors may occur either externally (in the network distribution system) or internally (in the facility when the system is located). External causes may be for example storm, lightning, high wind, tree limb contact, construction activities etc, while the internal causes may be switching of the machine, capacitor banks, fault or maintenance activities.

Depending on the events the power quality disturbances may vary in type, duration and intensity.

Typical power supply disturbances that cause major bad effects on your load are listen below.

Power outage

Power interruption for a time of more than 3s is called an outage or commonly “blackout”. This is normally caused by atmospheric accidents to the high voltage distribution network or a failure in the power supply equipment.



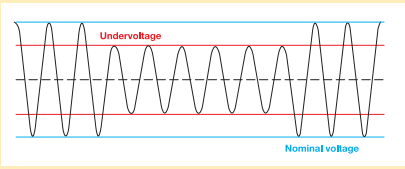
Blackout

Consequences:

- **Computer applications**
  Complete system shutdown with loss of data, possible hardware damage and long periods of employee inactivity.
- **Industrial applications**
  Huge impact in the production activity with consequent production loss and/or unexpected safety consequence.

Undervoltage

It is a voltage reduction in amplitude for a time between 10 ms to 1 s. expressed as a percentage from 10 and 100% of the rated voltage. This is caused for example by short circuits in the resident distribution systems or the large inrush current of the transformers.



Undervoltage

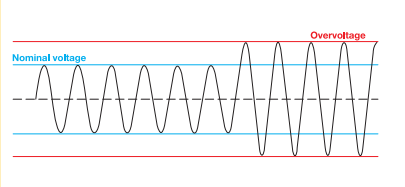
Consequences:

- **Computer applications**
  Overheating of the electronic components with consequent operational breakdown.

- **Industrial applications**
  Instability of asynchronous motors and loss of synchronization of synchronous motors, opening of contactors (voltage drop > 30%), power-off discharge lamps (voltage drop > 50% for 20-40 ms) with subsequent return of power after several minutes and consequent operational breakdown.

Overvoltages

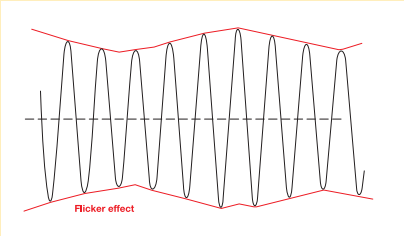
Overvoltage is an increase in voltage for a time of more than 10 ms. Overvoltages may be caused by the disconnection of major loads (interruption in manufacturing processes of industrial companies, reduction in the speed of electric motors, arc furnaces, rolling mills, etc.) or natural events such as lightning.



Consequences:
Faults in all electric/electronic equipment (100%<overvoltage<150%); e.g. damage to boards, power supplies, computers/servers, faults in lighting systems, etc.

Sag and Swell

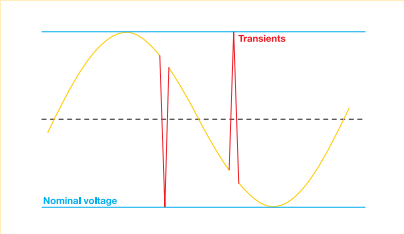
Any short term voltage decrease (sags) or increase (swell) for a time from half cycle to 3 seconds. It is normally caused by the equipment shutdown, circuit breaker operations, high peak current absorbed by the equipments, or short-circuit.



Consequences:
The major effects may be the loss of data or the lights flicker, very unpleasant for the people exposed to these effects.

Transients

Transients are rapid, very high overvoltages of up to 20 kV. They are caused mainly by lightning (which is random in its location, duration and amplitude) but also by faults on the high-voltage network, the switching of inductive loads or the powering of highly capacitive loads.

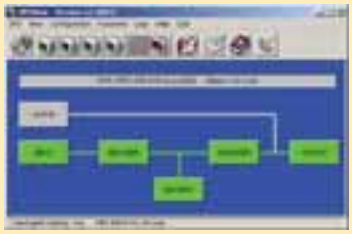


Consequences:
Transients destroy inadequately protected equipment (melting of wires, perforation of isolation in motors, badly-timed release of protection devices, etc.).

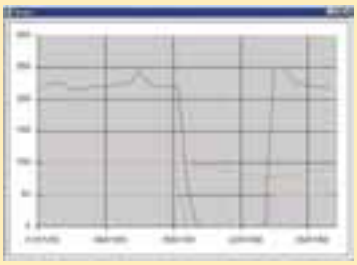
Software and accessories for total reliability in controls and communication

Watch&Save provides detailed graphical displays.

A standard screen displays information on the load, batteries status, alarms etc.



All information can be displayed in block format.



All changes in UPS operating statuses are logged and displayed in a graphical format.

Always attentive to the market requests, AROS offers the ideal solution for an efficient and intuitive remote UPS management.
Monitoring and control systems today require real-time performance, remote internet access and the use of mobile technology for anywhere, anytime fault and alarm notification. Watch&Save has been designed to all that.

Watch&Save

Watch&Save software ensures effective and intuitive management of the UPS. Important real time information such as the input and output voltage, the load applied, the battery status, is displayed in the form of bar graphs. The software is able to provide information even in the event of a fault, and can also programme the UPS for automatic weekly start-up and shutdown.
Watch& Save is available in two versions:
Standard - for the monitoring and management of a single UPS through serial port or LAN network;
Professional - for the monitoring and management of up to 16 UPS units through serial port or LAN network.

Features

Automatic and sequential shutdown
Watch&Save can perform scheduled, unattended and orderly shutdown of single and networked PCs, saving any active work and the most widely used applications Windows.

Multi-platform compatibility
Watch&Save uses the TCP/IP communication protocol to achieve standardized management and monitoring across the widest possible range of platforms. This makes it possible to monitor computers with different operating systems from a single console, for example monitoring a UNIX server from a PC with Windows and also connecting to UPS units located in different geographical areas using dedicated networks (intranet) or Internet.

Event scheduling
Watch&Save captures and stores all the events that take place detailing power-off and power-up scenarios, thus increasing system safety and power economy.

Messages management
Watch&Save interacts with any equipment or appliance to provide alerting messages concerning the status of the UPS via e-mail, fax or SMS to a pre-defined list of persons.

Wap server integrated
Watch&Save allows the UPS monitoring through WAP mobile phone.

Multi-lingual support
Watch&Save supports 12 languages.

Software and accessories for total reliability in controls and communication

PowerNETGuard

PowerNETGuard software centralizes Uninterruptible Power Supply (UPS) management using network interface (SNMP) communications. Ideal for Data Centre managers and medium-to- large sized networks, PoweNETGuard uses the RFC1628 standard Management Information Base (MIB) and ensures standardised UPS management wherever they are located.

Features

- Centralised control of remote UPS via Ethernet with SNMP protocol,
- Multiple-level display of geographical areas, building plans, maps, etc.,
- Multi-user access with various levels of security,
- Compatible with NetMan and RFC1628 standard network interface (SNMP),
- Graphs of physical input and output values stored and backed up to file,
- Alarm notification via e-mail and SMS,
- Operating systems supported Windows (98, ME, NT, 2000 and XP), Linux, MacOSX, Solaris 8 and 9.

Operating systems supported (Standard version)
- Windows 95-0SR2
- Windows 95,98, Me, NT 4.0 and 2000, XP
- Linux
- Novell Netware 3.x, 4.x, 5.x, IntraNetWare
- Mac OS X, 9.x

Operating systems supported (Professional version)
- Windows 95-0SR2
- Windows 95,98, Me, NT 4.0 and 2000, XP
- Linux
- Novell Netware 3.x, 4.x, 5.x, IntraNetWare
- Mac OS X, 9.x
- IBM OS/2 Warp and Server,
- The most common operating systems such as:
  IBM AIX, HP UNIX, SUN Solaris INTEL and SPARC, SCO Unix and UnixWare, Silicon Graphic IRIX, Compaq True64 UNIX and DEC UNIX, BSD UNIX and FreeBSD UNIX, NCR

Communication Options

NetMan 101

NetMan 102

MultiCom 301

MultiCom 302

MultiCom 351

MultiCom 352

MultiCom 362

NetMan 101/102 - Network adapter

NetMan allows UPS monitoring and management across a LAN using the following network communication protocols: TCP/IP, HTTP and network interface (SNMP). NetMan is available in two different models:

- NetMan 101, (box version),
- NetMan 102, (slot version).

Features

- Compatible with Watch&Save and PowerNETGuard software,
- Settable via TELNET and a serial terminal,
- Supports the network interface (SNMP) standard communication protocol with proprietary RFC 1628 and MIB,
- Integrated Web server for browser-based display,
- TeleGuard modem compatible,
- Firmware upgradable option through serial port.

MultiCom 301/302 - (MODBUS/JBUS)

MultiCom 301/302 protocol converter may be used to monitor the UPS using the MODBUS/JBUS protocol on RS485 or RS232 serial lines. It will also manage a second, independent RS232 serial line that can be used to connect other devices such as Netman 101 or a PC that uses the Watch&Save software.

Features

- Configuration of the port for MODBUS/JBUS as RS232 or RS485,
- Management of two independent serial lines,
- Suitable for integration with Building Management Systems (BMS),
- LED signalling the communication flow,
- Firmware upgradeable through the serial port.

MultiCom 351/352 - Serial duplexer

MultiCom 351/352 is a serial duplexer that allows two devices to be connected to a single serial port on a UPS. It can be used where numerous serial connections and multiple polling of UPS are required, and is ideal for LAN networks with a firewall.

Features

- Cascading configuration giving a maximum of 4 serial ports,
- LED signalling of the communication flow,
- Firmware upgradeable through the serial port.

MultiCom 362

MultiCOM 362 provides a UPS with an additional RS232 serial interface or USB port. The USB port allows the UPS to communicate with Apple Macintosh computers as well as Windows and Linux operating systems.

Features

- Compatible with USB 1 or 2,
- Compatible with Watch&Save.

Communication Options

MultiCom 372

MultiCom 372

MultiCOM 372 provides a UPS with an additional RS232 serial interface port. The card has Emergency Power Off (EPO) and Remote Shut Down (RSD) inputs with terminal connections.

Features

- EPO and UPS shutdown interface,
- 12Vdc 80mA contact option.

MultiCom 382

MultiCom 382

MultiCOM 382 provides a set of relay contacts to provide UPS alarm and status indication. The contacts are connected through terminal connections. Signal contacts include Emergency Power Off (EPO), Remote Shut Down (RSD), On Battery, On Bypass, Alarm and Low battery. The contacts are changed over or normally open.

Features

- Max. 3A current at 250Vac,
- Signal contact customisation.

Modbus/Profibus converter box

This box is connected to the MultiCom 301 or 302 output and converts the Modbus in Profibus communication protocol.

Features

- Allows AROS UPSs to be compatible with BMS systems using the Profibus fieldbus,
- Applicable to all UPS range (except Rapido).

USB Converter

USB Converter

RS232-USB converter enables UPS units without a USB port to connect to Macintosh, Windows and Linux PCs with this type of port.

Features

- Compatible with USB 1.2,
- Compatible with Watch&Save.

Multi I/O, slot version

Multi I/O, box version

MULTI I/O

The Multi I/O device integrates the UPS communication with Environmental Communication devices. Complete configurability of the input and output signals.

Features

- 8 analogue or digital Inputs,
- UPS communication via RS232 link,
- 8 relay outputs configurable using the UPS RS232 input and/or the input coming signals from the site devices,
- RS232 output port with configurable messages,
- RS485 output port MDBUS /JUBUS with configurable messages.

UPS range Summary





	RAPIDO	PC PLANET	SYNCRO	E-SENTINEL	SENTINEL 6
Power Rating	350-550VA	400-550-650VA	800-1000-1500 2000VA	500-750-1000 1500-2000VA	700-1000-1500 2000-3000VA
Topology	Line Interactive	Line Interactive	Line Interactive	Line Interactive	On line Double conversion
Input Voltage	230V single-phase	230V single-phase	230V single-phase	230V single-phase	230V single-phase
Output Voltage	230V single-phase	230V single-phase	230V single-phase	230V single-phase	230V single-phase
Inveter Output transformer	–	–	–	–	–
Automatic bypass	–	–	–	–	●
Maintenace Internal bypass	–	–	–	–	–
Battery test	–	●	●	●	●
Deep Battery Discharge protection	–	●	●	●	●
ECO mode operation	–	–	–	–	–
SMART ACTIVE operation	–	–	–	–	–
STAND BY - OFF (Emergency ligthing - EN 50171)	–	–	–	–	–
Frequency Converter	–	–	–	–	●
Multimodule Configuration	–	–	–	–	–
Active filter	–	–	–	–	–
12- Pulse Rectifier	–	–	–	–	–
Input Current Harmonic Reduction filter (< 5 %)	–	–	–	–	–
Backfeed protection	●	●	●	●	●
Base Monitoring Software (Watch & Save)	downloading from internet	●	●	●	●
RS 232 port	-	●	●	●	●
USB port	●	–	–	●	–
Dry Contact	–	(1) ●	(1) ●	(1) ●	(1) ●

● Standard
❍ Optional

(1) Available only when the RS 232 port is not used for other functions







SENTINEL XR	SENTINEL 5 PLUS	SENTRY MULTISTANDARD 3/1	SENTRY MULTISTANDARD 3/3	SENTRY HPS 3/1	SENTRY HPS 3/3	SENTRY HPS 3/3
3300-4000 5000-6000VA	6-6,5-8-10kVA	10-15-20 kVA	10-15-20-30 40-60-80 kVA	8-10-15-20-30-40 60-80-100 kVA	10-15-20-30-40 60-80-100-120 160-200 kVA	250-300-400 500-600-800 kVA
On line Double conversion	On line Double conversion	On line Double conversion	On line Double conversion	On line Double conversion	On line Double conversion	On line Double conversion
230V single-phase	230V single-phase 400V three-phase*	230V single-phase 400V three-phase	400V three-phase	400V three-phase	400V three-phase	400V three-phase
230V single-phase	230V single-phase	230V single-phase	400V three-phase	230V single-phase	400V three-phase	400V three-phase
–	–	–	–	●	●	●
●	●	●	●	●	●	●
–	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	only from 30 to 100kVA	only from 100 to 200kVA	●
●	●	●	●	–	–	–
●	●	●	●	–	–	–
●	●	●	●	●	●	●
–	–	❍	❍	❍	❍	❍
–	–	❍	❍	–	–	–
–	–	–	–	–	❍ only from 60 to 200kVA	●
–	–	–	–	❍	❍	❍
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	❍	–	–	–	–	–
(1) ●	●	●	●	●	●	●

● Standard
❍ Optional

(*) Not available for 6kVA

UPS Options



	RAPIDO	PC PLANET (except PC Planet 400)	SYNCRO
SOFTWARE PACKAGES			
Watch & Save Professional		▲	▲
PowerNETGuard		▲	▲
COMMUNICATION OPTIONS			
Netman 101 - Box (TCP/IP, SNMP, HTTP)		▲	▲
Netman 102 - Slot (TCP/IP, SNMP, HTTP)			
MultiCom 301 - Box (MODBUS/JBUS)		▲	▲
MultiCom 302 - Slot (MODBUS/JBUS)			
Modbus/Profibus converter box		▲	▲
MultiCom 351 - Box (serial duplexer)		▲	▲
MultiCom 352 - Slot (serial duplexer)			
MultiCom 362 (RS232 + USB)			
MultiCom 372 (additional RS232 port and EPO)			
Multicom 382 (Dry contact extension + EPO)			
Multi I/O (Site Monitoring and Alarm configuration)		▲	▲
USB converter		▲	▲
AS400 Interface		▲	▲
Modem GSM			
OTHER OPTIONS			
External Battery temperature sensor			
Display Remote Monitor panel			
Maintenance Bypass cabinet			▲
IRMS	▲	▲	▲
Input isolation transformer	on request	on request	on request

▲ Option available






E-SENTINEL	SENTINEL 6	SENTINEL XR	SENTINEL 5 PLUS	SENTRY MULTISTANDARD	SENTRY HPS
▲	▲	▲	▲	▲	▲
▲	▲	▲	▲	▲	▲
▲	▲	▲	▲	▲	▲
Only 2000VA	▲	▲	▲	▲	
▲	▲	▲	▲	▲	▲
Only 2000VA	▲	▲	▲	▲	
▲	▲	▲	▲	▲	▲
▲	▲	▲	▲	▲	▲
Only 2000VA	▲	▲	▲	▲	
		▲	▲		
		▲	▲		
		▲	▲		
▲	▲	▲	▲	▲	▲
	▲		▲		
▲	▲	▲	▲	▲	▲
		▲	▲	▲	▲
				▲	▲
▲	▲		▲	▲	▲
▲	▲	up to 4kVA		on request	on request
▲	▲	▲	▲	▲	▲
on request	on request	on request	on request	on request	on request

▲ Option available

UPS range summary: rack version

	E-SENTINEL RACK	SENTINEL 6 RACK	SENTINEL XR RACK
Power Rating	500-750-1000-1500-2000VA	700-1000-1500-2200-3000VA	3300-4000-5000-6000VA
Topology	Line Interactive	On line Double conversion	On line Double conversion
Input Voltage	230V single-phase	230V single-phase	230V single-phase
Output Voltage	230V single-phase	230V single-phase	230V single-phase
Inveter Output transformer	–	–	–
Automatic bypass	–	●	●
Maintenace Internal bypass	–	–	–
Battery test	●	●	●
Deep Battery Discharge protection	●	●	●
ECO mode operation	–	–	●
SMART ACTIVE operation	–	–	●
STAND BY – OFF (Emergency ligthing – EN 50171)	–	–	●
Frequency Converter	–	●	●
Battery expansion capability	only 2000VA	(2) ●	●
Backfeed protection	●	●	●
Base Monitoring Software (Watch & Save)	●	●	●
RS 232 port	●	●	●
USB port	●	–	●
Dry Contact	(1) ●	(1) ●	(1) ●

● Standard
❍ Optional

(1) Available only when the RS 232 port is not used for other functions
(2) Not available for 700VA

Options for UPS rack version

	E-SENTINEL RACK	SENTINEL 6 RACK	SENTINEL XR RACK
SOFTWARE PACKAGES			
Watch & Save Professional	▲	▲	▲
PowerNETGuard	▲	▲	▲
COMMUNICATION OPTIONS			
Netman 101 - Box (TCP/IP, SNMP, HTTP)	▲	▲	▲
Netman 102 - Slot (TCP/IP, SNMP, HTTP)	only 2000VA	▲	▲
MultiCom 301 - Box (MODBUS/JBUS)	▲	▲	▲
MultiCom 302 - Slot (MODBUS/JBUS)	only 2000VA	▲	▲
Modbus/Profibus converter box	▲	▲	▲
MultiCom 351 - Box (serial duplexer)	▲	▲	▲
MultiCom 352 - Slot (serial duplexer)	only 2000VA	▲	▲
MultiCom 362 (RS232 + USB)			▲
MultiCom 372 (additional RS232 port and EPO)			▲
Multicom 382 (Dry contact extension + EPO)			▲
Multi I/O (Site Monitoring and Alarm configuration)	▲	▲	▲
USB converter		▲	▲
AS400 Interface	▲	▲	▲
Modem GSM			▲
OTHER OPTIONS			
Display Remote Monitor panel	▲	▲	
External bypass cabinet rack 16A	▲	▲	up to 4kVA
IRMS	▲	▲	▲

▲ Option available

Rapido

Safety and simplicity of use

Rapido is a range of multi-socket UPS systems recommended to power electrical loads in IT environments such as computers, video terminals, printers and various accessories. Available from 350VA to 550VA, Rapido comes with 1 IEC 320 input socket (complete with fuse), 4 Schuko output sockets, 1 telephone line socket, 1 USB socket and 3 signalling LEDs. Three Schuko output sockets are connected to the internal batteries which, in the event of a mains blackout, are able to power the electrical loads connected to them for long enough to allow the correct shutdown. The purpose of the remaining output socket is to attenuate any electrical interference on the mains.

Rapid installation, robustness and attractive design

Rapido is suitable for floor installation or can be wall mounted by means of screws (not supplied).
Rapido is very robust and has an attractive design, making it suitable for use in professional environments or in the home.

Replacing the batteries

A simple and fast procedure is all it takes to replace spent or inefficient batteries inside the UPS.

Advanced communication

The "Watch&Save" software provided ensures effective and intuitive management of the UPS. The most important information such as the input and output voltage, the load applied or any faults, is displayed in the form of bar graphs.

Start-up/shutdown programming

The "Watch&Save" software can be used to programme the fully automatic start-up and/or shutdown of the UPS.

Automatic restart

Following an extended power failure causing the UPS to shut down due to the end of the internal batteries back-up time, Rapido will restart automatically when the mains power supply returns.

Protection of the telephone line

Rapido comes with an RJ45/RJ11 telephone socket to guarantee the protection of its telephone line/modem from any mains overvoltages.

Applications

Personal computers and peripherals, TV, Hi-Fi, DVD, phone, fax, modem.

Rapido

Technical data

Input	Rapido 350	Rapido 550
Nominal voltage	220-230-240 V	
Voltage range	185-265 V	
Input frequency	50/60 Hz (autosense)	
Accepted frequency	±2,5 Hz	
Input sockets	No.1 IEC 320 (10A)	

Output	Rapido 350	Rapido 550
Power (VA/W)	350/225	550/355
Nominal voltage (in battery operation)	230 V ±5%	
Nominal voltage (in mains operation)	220-230-240 V	
Wave form	pseudosinusoidal	
Output sockets	No. 3 schuko (UPS) + No. 1 schuko (filtered)	

System	Rapido 350	Rapido 550
Transfer time	4 ms max.	
Batteries (No./V/Ah)	1/12/4,5	1/12/5
Battery type	maintenance free sealed lead-acid	
Battery recharging time	6-8 h	
AC-AC efficiency	99%	
Communication port	USB (only for Windows)	
Protections	excessive battery discharge - overloads – short-circuits	
Noise at 1 m	<40 dBA	
Operating temperature	0÷40°C, optimal for batteries +15÷+25°C	
Relative humidity	0÷90 % non condensing	
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3	
Marks	CE ; GS/TÜV	
Telephone line protection	RJ45/RJ11 filtered socket	

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
350	Rapido 350	6	Internal	120x322x88	3
550	Rapido 550	6	Internal	120x322x88	3

PC Planet

Minimum consumption
PC Planet is a range of UPS systems with LINE INTERACTIVE technology providing a reduction in energy consumption and 99% efficiency.

Voltage stability
PC Planet's automatic voltage regulator (AVR) is able, for mains voltage variations not exceeding + 20% / -25%, to stabilize the output voltage at values between -15% /+17%. For voltage variations greater than + 20% / -25% the unit powers the load from the battery via the inverter, providing an output voltage stabilized at ± 5%.

Timer for programmed shutdown (via software)
This feature allows fully automatic programmed and timed start-ups and shutdowns.

Automatic restart
The UPS is programmed to restart automatically when the mains power supply returns after switching off due to the end of back-up time following a prolonged power failure.

Total microprocessor control
Digital control considerably improves the reliability of the UPS, reduces unit dimensions and weight, and significantly increases control and communications capabilities.

Battery optimization
The UPS periodically and automatically performs a battery efficiency test. The batteries are recharged by means of a rapid charge battery charger. The UPS is thus always guaranteed maximum back-up time. The PC Planet range also comes with a device to protect against deep discharges, which can significantly reduce the expected life of the batteries.

Reduced noise
Through the use of high frequency components and fan speed control, the noise level of the UPS is under 40 dBA.

Advanced communication
The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

Protection of the telephone line
PC Planet comes with an RJ45/RJ11 telephone socket to guarantee the protection of its telephone line/modem against any overvoltages.

Applications
Personal computers, small computer networks.

PC Planet

Technical data

Input	PC Planet 400	PC Planet 400S	PC Planet 550S	PC Planet 650S
Nominal voltage	230 V			
Voltage range	+25% -25% (without battery discharging)			
Input frequency	50/60 Hz (autosense)			
Accepted frequency	±5%			

Output	PC Planet 400	PC Planet 400S	PC Planet 550S	PC Planet 650S
Power (VA/W)	400/240	400/240	550/330	650/400
Nominal voltage (in battery operation)	230 V ±5%			
Nominal voltage (in mains operation)	the AVR circuit regulates the output voltage from +17% to –15% with input variation of ±25%			
Wave form	step-wave			
Output sockets	No. 3 IEC 320 (10A)			

System	PC Planet 400	Planet 400S	PC Planet 550S	PC Planet 650S
Transfer time	2 ms typical, 4 ms max.			
Batteries (No./V/Ah)	1/12/4	1/12/4	1/12/7	1/12/9
Battery type	maintenance free sealed lead-acid			
Battery recharging time	6-8 h			
AC-AC efficiency	99%			
Communication port	–	RS232		
Protections	overcurrent – short-circuit – excessive battery discharge			
Noise at 1 m	<40 dBA			
Operating temperature	0÷40 °C optimal for batteries +15÷+25°C			
Relative humidity	0÷90 % non condensing			
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3			
Marks	CE ; GS/TÜV			
Telephone line protection	–	RJ45/RJ11 type filtered socket		

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
400	PC Planet 400	6	Internal	110x325x152	5,8
400	PC Planet 400S	6	Internal	110x325x152	5,9
550	PC Planet 550S	6	Internal	110x325x152	6,2
650	PC Planet 650S	6	Internal	110x325x152	6,3

Syncro

Minimum consumption
Syncro is a range of UPS systems with LINE INTERACTIVE technology, providing a reduction in energy consumption and 99% efficiency.

Voltage stability
Syncro's automatic voltage regulator (AVR) is able, for mains voltage variations not exceeding + 20% / - 25%, to stabilize the output voltage at values between -15% / +17% with respect to the nominal voltage.
For voltage variations greater than + 20% / - 25%, the unit powers the load from the battery via the inverter, providing an output voltage stabilized at ±5%.

Timer for programmed shutdown (via software)
This feature allows fully automatic programmed and timed start-ups and shutdowns.

Automatic restart
The UPS is programmed to restart automatically when the mains power supply returns after switching off due to the end of back-up time following an extended mains power failure.

Total microprocessor control
Digital control considerably improves the reliability of the UPS, reduces unit dimensions and weight, and significantly increases control and communications capabilities.

Battery optimization
The UPS periodically and automatically performs a battery efficiency test. The batteries are recharged by means of a rapid charge battery charger. The UPS is thus always guaranteed maximum back-up time. The Syncro range also comes with a device to protect against deep discharges, which can significantly reduce the expected life of the batteries.

Reduced noise
Through the use of high frequency components and fan speed control, the noise level of the UPS is kept under 40 dBA.

Advanced communication
The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

Protection of the telephone line
Syncro comes with a RJ45/RJ11 telephone socket to guarantee the protection of its telephone line/modem against any overvoltages.

Applications
Personal computers, small/medium computer networks

Syncro

Technical data

Input	Syncro 800	Syncro 1000	Syncro 1500	Syncro 2000
Nominal voltage	230 V			
Accepted voltage range	+20% -25%			
Input frequency	50/60 Hz (autosense)			
Accepted frequency	±5%			

Output	Syncro 800	Syncro 1000	Syncro 1500	Syncro 2000
Power (VA/W)	800/480	1000/600	1500/900	2000/1200
Nominal voltage (in battery operation)	230 V ±5%			
Nominal voltage (in mains operation)	the AVR circuit regulates the output voltage from +17% to –15% with input variation of ±25%			
Wave form	step-wave			
Output sockets	No. 4 IEC 320 (10A)			

System	Syncro 800	Syncro 1000	Syncro 1500	Syncro 2000
Transfer time	2 ms typical, 4 ms max.			
Batteries (No./V/Ah)	2/12/7	2/12/7	2/12/9	3/12/9
Battery type	maintenance free sealed lead acid			
Battery recharging time	6-8 h			
AC-AC efficiency	99%			
Communication port	RS232			
Protections	overcurrent – short circuit – excessive battery discharge			
Noise at 1 m	<40 dBA			
Operating temperature	0÷40°C, optimal for batteries +15÷+25°C			
Relative humidity	0÷90 % non condensing			
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3			
Telephone line protection	RJ45/RJ11 type filtered socket			

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
800	Syncro 800	5	Internal	140x375x180	14
1000	Syncro 1000	6	Internal	140x375x180	14
1500	Syncro 1500	6	Internal	140x375x180	15
2000	Syncro 2000	6	Internal	140x410x214	20

e-Sentinel

Protection guaranteed
e-Sentinel guarantees protection of the devices connected to it in the event of a power failure, impulsive overvoltages from the mains power supply and mains voltage fluctuations.

Minimum consumption
e-Sentinel is a range of UPS systems with LINE INTERACTIVE technology and sine output voltage; this technology provides a reduction in energy consumption and 98% efficiency.

Voltage stability
e-Sentinel's automatic voltage regulator (AVR) is able, for mains voltage variations not exceeding + 21% / - 25%, to stabilize the output voltage at values between -15% / +11%. For voltage variations greater than + 21% / - 25%, the unit powers the load from the battery via the inverter, providing an output voltage stabilized at ± 5%.

Timer for programmed shutdown (via software)
This feature allows fully automatic programmed and timed start-ups and shutdowns.

Automatic restart
The UPS is programmed to restart automatically when the mains power supply returns after switching off due to the end of back-up time following a prolonged power failure.

Total microprocessor control
Digital control improves system reliability considerably, allows reductions in dimensions and weight, and significantly increases control and communication capabilities.

Battery optimization
The UPS periodically and automatically performs a battery efficiency test. The batteries are recharged by means of a rapid charge battery charger. The UPS is thus always guaranteed maximum back-up time. It also comes with a device to protect against deep discharges, which can reduce the expected life of the batteries.

Protection of the telephone line
e-Sentinel comes with a RJ45/RJ11 Net/Tel socket to guarantee the protection of its telephone or network line from any overvoltages.

Advanced communication
The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

Extending the back-up time
Battery expansion is envisaged for the e-Sentinel 200 model, so as to increase the back-up time of the UPS.

Applications
Small/medium computer networks, Local Area Networks (LAN), Workstations, Servers, EPOS (Electronic Point of Sale) systems.

e-Sentinel

Technical data

Input	e 50	e 75	e 100	e 150	e 200
Nominal voltage	230 V				
Accepted voltage range	-25% +21% (without battery discharging)				
Input frequency	50/60 Hz (autosense)				
Accepted frequency	±10%				

Output	e 50	e 75	e 100	e 150	e 200
Power (VA/W)	500/335	750/500	1000/670	1500/1000	2000/1340
Nominal voltage (in battery operation)	230 V ±5%				
Nominal voltage (in mains operation)	the AVR circuit regulates the output voltage from +11% to –15% with input variation of -25% +21%				
Wave form	sinewave				
Voltage distortion	<2%				
Frequency variation (in battery operation)	50/60 Hz autosetting , ±1%				
Output sockets	No. 4 IEC 320 (10A)				

System	e 50	e 75	e 100	e 150	e 200
Transfer time	2 ms				
Batteries (No./V/Ah)	2/12/7	2/12/7	2/12/9	4/12/7	5/12/7
Battery type	maintenance free sealed lead-acid				
Battery recharging time	approx 8 h				
AC-AC efficiency	98%				
Communication port	USB, RS232, Slot for communication cards				
Protections	overcurrent – short circuit – excessive battery discharge – overvoltage undervoltage - overtemperature				
Noise at 1 m	<40 dBA				
Operating temperature	0÷40 °C , optimal for batteries +15 ÷ +25 °C				
Humidity	90 % non-condensing				
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3, surge IEC 801-5				
Telephone line protection	RJ45/RJ11 type filtered socket				

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
500	e-Sentinel 50	8	Internal	158x400x231	13
750	e-Sentinel 75	5	Internal	158x400x231	14
1000	e-Sentinel 100	5	Internal	158x400x231	14
1500	e-Sentinel 150	6	Internal	158x400x231	20
2000	e-Sentinel 200	6	Internal	158x485x340	25

Battery cabinets for longer autonomy

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
2000	Batt. exp. S5 A7	20	5x7Ah	158x565x340	16
2000	Batt. exp. S5 A12	30	5x12Ah	158x565x340	24

e-Sentinel Rack

Protection guaranteed
e-Sentinel Rack guarantees protection of the devices connected to it in the event of a power failure, impulsive overvoltages from the mains power supply and mains voltage fluctuations.

Minimum consumption
e-Sentinel Rack is a range of UPSs with LINE INTERACTIVE technology and sine output voltage; this technology provides a reduction in energy consumption and 98% efficiency.

Voltage stability
e-Sentinel Rack's automatic voltage regulator (AVR) is able, for mains voltage variations not exceeding + 21% / - 25%, to stabilize the output voltage at values between -15% / +11%. For voltage variations greater than + 21% / - 25%, the unit powers the load from the battery via the inverter, providing an output voltage stabilized at ± 2%.

Timer for programmed shutdown (via software)
This feature allows fully automatic programmed and timed start-ups and shutdowns.

Extending the back-up time
Battery expansion is envisaged for the e-Sentinel Rack 200 model, enabling the back-up time of the UPS to be increased.

Battery optimization
The UPS periodically and automatically performs a battery efficiency test. The batteries are recharged by means of a rapid charge battery charger. The UPS is thus always ensured maximum back-up time. It also comes with a device to protect against deep discharges, which can reduce the expected life of the batteries.

Advanced communication
The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

Manual By -pass 16A

Manual By-pass
The By-pass provides the possibility of excluding a UPS for maintenance without any interruptions or disturbances of the load supply.

Protection of the telephone line
e-Sentinel Rack comes with an RJ45/RJ11 Net/Tel socket to guarantee the protection of its telephone line or the network from any overvoltages.

Applications
Small/medium computer networks, Local Area Networks (LAN), Workstations, Servers, POS (Point of Sales) systems.

e-Sentinel Rack

Technical data

Input	e-Rack 50	e-Rack 75	e-Rack 100	e-Rack 150	e-Rack 200
Nominal voltage	220-230-240 V				
Accepted voltage range	-25% +21% (without battery discharging)				
Input frequency	50/60 Hz (autosense)				
Accepted frequency	±10%				

Output	e-Rack 50	e-Rack 75	e-Rack 100	e-Rack 150	e-Rack 200
Power (VA/W)	500/335	750/500	1000/670	1500/1000	2000/1340
Nominal voltage (in battery operation)	230 V ±5%				
Nominal voltage (in mains operation)	the AVR circuit regulates the output voltage from +11% to –15% with input variation of -25% +21 %				
Wave form	sinewave				
Distortion	<2%				
Frequency in battery operation	50/60 Hz autosetting, ±1%				
Output sockets	No. 4 IEC 320 (10A)				

System	e-Rack 50	e-Rack 75	e-Rack 100	e-Rack 150	e-Rack 200
Transfer time	2 ms				
Batteries (No./V/Ah)	2/12/7	2/12/7	2/12/9	4/12/7	5/12/7
Battery type	maintenance free sealed lead-acid				
Battery recharging time	8 h				
AC-AC efficiency	98%				
Communication port	USB, RS232, Slot for Netman 102, Multicom 302, Multicom 352, Profibus				
Protections	overcurrent – short circuit – excessive battery discharge – overvoltage undervoltage - overtemperature				
Noise at 1 m	<40 dBA				
Operating temperature	0÷40° C, optimal for batteries +15÷+25 °C				
Humidity	90% non-condensing				
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3, surge IEC 801-5				
Telephone line protection	RJ45/RJ11 type filtered socket				

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
500	e-Sentinel Rack 50	8	Internal	19”x450x2U	19
750	e-Sentinel Rack 75	5	Internal	19”x450x2U	19
1000	e-Sentinel Rack 100	5	Internal	19”x450x2U	19
1500	e-Sentinel Rack 150	6	Internal	19”x450x2U	26
2000	e-Sentinel Rack 200	6	Internal	19”x450x3U	34

Battery cabinets for longer autonomy

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
2000	Batt. exp. A7	18	5x7Ah	19”x440x3U	16
2000	Batt. exp. A12*	22	5x12Ah	19”x440x4U	23

Note
1U= 44,43 mm
19”= 483 mm
* With built-in battery charger to reduce recharging time.

Sentinel 6

Absolute protection

Sentinel 6 is a range of UPSs with ON-LINE double conversion technology and with “zero” transfer time.
The load is always powered by the inverter, which supplies true sinusoidal voltage that is free from electrical interference.

High immunity against Electromagnetic Disturbances

The unit will have high immunity against the electromagnetic disturbances coming from intended Radio frequency emitters according to the standard IEC 61000-4-2 (Level 4) IEC 61000-4-2 (Level 3) IEC 61000-4-4 (Level 4), IEC 61000-4-5 (Level 4).
Total microprocessor control Digital control of the appliance considerably improves system reliability, reduces unit dimensions and weight, and significantly increases control and communications capabilities.

Battery optimization

The UPS periodically performs a battery efficiency test. The batteries are not activated during micro interruptions (40 ms), which are the most common type of mains interference, since the required power is drawn from the capacitors banks.
This system (battery saving) extends the life of the batteries.
The Sentinel 6 range will also include the deep battery discharge feature to protect the battery.

Advanced communication

The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

Communication slot

Sentinel 6 comes with an expansion slot for optional communication boards which make Sentinel 6 compatible with the main communication options: Netman 102, MultiCom 302, RS232 + RS485 ports, Multi Com 352.

The UPS comes with an expansion slot for optional communication boards such as Netman and MultiCom.

SENTINEL 6 - 700

SENTINEL 6 - 1000/1500

SENTINEL 6 - 2000

SENTINEL 6 - 3000

Automatic restart

The UPS is programmed to restart automatically when the mains power supply returns after switching off due to the end of back-up time following a prolonged power failure.

Extending the back-up time

Battery expansion is envisaged to increase the back-up time of the UPS. For longer back-up time it is available Sentinel 6 POWER without internal batteries but with powerful battery recharger.

Reduced noise

Through the use of high frequency components and fan speed control, the noise level of the UPS is under 45 dBA.

Stand-by

When stand-by mode is selected, the inverter is switched off and the battery charges. This is useful when the unit is not in use.

Protection of the telephone line

Sentinel 6 comes with an RJ45/RJ11 Net/Tel socket to guarantee the protection of its telephone or network line against any overvoltages.

Applications

Small/medium computer networks, Local Area Networks (LAN), Workstation, Servers, EPOS (Electronic Point of Sale) systems.

Sentinel 6

Technical data

Input	S6-700	S6-1000	S6-1000 POWER	S6-1500	S6-2000	S6-2000 POWER	S6-3000	S6-3000 POWER
Input Rectifier								
Nominal voltage	220 - 230 - 240 V							
Min. Voltage without battery discharging	170 V							
Nominal frequency	50 / 60 Hz							
Power factor	> 0,97							
Nominal current (A)	2,7	3,6	4,8	7,2	7,5	10	10,5	14
Input bypass								
Input voltage range	180-264 V							
Input frequency tolerance	± 5%							

Output	S6-700	S6-1000	S6-1000 POWER	S6-1500	S6-2000	S6-2000 POWER	S6-3000	S6-3000 POWER
Power (VA/W)	700/490	1000/700	1000/700	1500/1050	2000/1400	2000/1400	3000/2100	3000/2100
Nominal voltage	220 - 230 - 240 V							
Wave form	sinusoidal							
Voltage stabilty - steady state	1.5 %							
Voltage stabilty - dynamic state	< 5 % in 20 ms							
Voltage distortion @ linear load	≤ 3%							
Voltage distortion @ non-linear load (EN 50091-1-1)	≤ 5%							
Frequency	autosense							
Frequency tolerance	± 0,2%							
Crest factor	3 : 1							
Overload	110% for 30 min, 130% for 30 s, 150% In for 10 s, > 150% for 500 ms							
Output sockets	No. 4 IEC 320 (10A)				No. 6 IEC 320 (10A)		No. 6 IEC 320 (10A) No. 1 IEC 320 (16A)	

System	S6-700	S6-1000	S6-1000 POWER	S6-1500	S6-2000	S6-2000 POWER	S6-3000	S6-3000 POWER
Transfer time	0 ms							
AC-AC efficiency	86%	88%						
Batteries (No./V/Ah)	2/12/7	3/12/7	-	4/12/7	8/12/7	-	8/12/7	-
Communication ports	RS232 + Communication Slot (TCP/IP, HTTP,SNMP, JBUS, MODBUS, PROFIBUS)							
Protections	excessive battery discharge - overcurrent - shortcircuit - overvoltage - undervoltage - overtemperature							
Noise at 1mt	< 45 dBA							
Operating temperature	0 ÷ 40°C, optimal for batteries 15 ÷ 25°C							
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3							
Battery charger (A)	1	1	4	1	1	8	1	8
Telephone line protection	RJ45/RJ11 type filtered socket							

Sentinel 6

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
700	Sentinel 6 700	6	Internal	158x400x231	12
1000	Sentinel 6 1000	6	Internal	158x400x231	14
1000	Sentinel 6 1000 POWER	-	-	158x400x231	8
1500	Sentinel 6 1500	6	Internal	158x500x231	19
2000	Sentinel 6 2000	10	Internal	192x460x340	34
2000	Sentinel 6 2000 POWER	-	-	192x460x340	14
3000	Sentinel 6 3000	6	Internal	192x460x340	35
3000	Sentinel 6 3000 POWER	-	Internal	192x460x340	14

Battery cabinets for longer autonomy

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
1000	Batt. exp. S6 A7*	20	3x7Ah	158x400x231	15
1000	Batt. exp. S6 A12*	30	3x12Ah	158x400x231	19
1000 POWER	Batt. exp. S6 A24	40	3+3x12Ah	158x473x340	33
1000 POWER	Batt. exp. S6 A24+A24	90	2x(3+3x12Ah)	2x(158x473x340)	66
1500	Batt. exp. S6 A7	15	4x7Ah	158x400x231	17,5
1500	Batt. exp. S6 A12	25	4x12Ah	158x400x231	23
1500	Batt. exp. S6 A24	50	4+4x12Ah	158x473x340	41
2000	Batt. exp. S6 A7	30	8x7Ah	158x473x340	30
2000	Batt. exp. S6 A12	45	8x12Ah	158x473x340	41
2000 POWER	Batt. exp. S6 A12+A12	60	2x(8x12Ah)	2x(158x473x340)	82
2000 POWER	Batt. exp. S6 A38	120	8x38Ah	215x655x630	131
2000 POWER	Batt. exp. S6 A38+A38	240	2x(8x38Ah)	2x(215x655x630)	262
3000	Batt. exp. S6 A7	15	8x7Ah	158x473x340	30
3000	Batt. exp. S6 A12	25	8x12Ah	158x473x340	41
3000 POWER	Batt. exp. S6 A12+A12	35	2x(8x12Ah)	2x(158x473x340)	82
3000 POWER	Batt. exp. S6 A38	60	8x38Ah	215x655x630	131
3000 POWER	Batt. exp. S6 A38+A38	180	2x(8x38Ah)	2x(215x655x630)	262

* This battery cabinet can not be used in parallel with other battery cabinets.

Sentinel 6 Rack

Absolute protection

Sentinel 6 Rack is a range of UPSs with ON- LINE double conversion technology and with “zero” transfer time.
The load is always powered by the inverter, which supplies true sinusoidal voltage that is free from electrical interference.

High immunity against Electromagnetic Disturbances

The unit will have high immunity against the electromagnetic disturbances coming from intended Radio frequency emitters according to the standard IEC 61000-4-2 (Level 4) IEC 61000-4-2 (Level 3) IEC 61000-4-4 (Level 4), IEC 61000-4-5 (Level 4).
Total microprocessor control Digital control of the appliance considerably improves system reliability, reduces unit dimensions and weight, and significantly increases control and communications capabilities.

Battery optimization

The UPS periodically performs a battery efficiency test. The batteries are not activated during micro interruptions (40 ms), which are the most common type of mains interference, since the required power is drawn from the capacitors banks.
This system (battery saving) extends the life of the batteries.
The Sentinel 6 Rack range will also include the deep battery discharge feature to protect the battery.

Advanced communication

The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

Communication slot

Sentinel 6 Rack comes with an expansion slot for optional communication boards which make Sentinel 6 Rack compatible with the main communication options:
Netman 102, MultiCom 302, RS232 + RS485 ports, Multi Com 352.

Automatic restart

The UPS is programmed to restart automatically when the mains power supply returns after switching off due to the end of back-up time following a prolonged power failure.

Extending the back-up time

Battery expansion is envisaged to increase the back-up time of the UPS. For longer back-up time it is available Sentinel 6 Rack POWER without internal batteries but with powerful battery recharger.

Manual By -pass 16A

Reduced noise
Through the use of high frequency components and fan speed control, the noise level of the UPS is under 45 dBA.

Stand-by
When stand-by mode is selected, the inverter is switched off and the battery charges. This is useful when the unit is not in use.

Protection of the telephone line
Sentinel 6 Rack comes with an RJ45/RJ11 Net/Tel socket to guarantee the protection of its telephone or network line against any overvoltages.

Manual By-Pass
The By-pass provides the possibility of excluding a UPS for maintenance without any interruptions or disturbances of the load supply.

Applications
Small/medium computer networks, Local Area Networks (LAN), Workstation, Servers, EPOS (Electronic Point of Sale) systems.

Sentinel 6 Rack

Technical data

Input	S6R 700	S6R 1000	S6R 1000 POWER	S6R 1500	S6R 2200	S6R 2200 POWER	S6R 3000	S6R 3000 POWER
Nominal voltage	220-230-240 V							
Min. Voltage without battery discharging	170 V							
Nominal frequency	50 / 60 Hz							
Power factor	>97%							
Nominal current (A)	3,8	5	6,2	7,2	10	13,8	14,4	16

Input	S6R 700	S6R 1000	S6R 1000 POWER	S6R 1500	S6R 2200	S6R 2200 POWER	S6R 3000	S6R 3000 POWER
Input voltage range	180-264 V							
Input frequency tolerance	± 5%							

Output	S6R 700	S6R 1000	S6R 1000 POWER	S6R 1500	S6R 2200	S6R 2200 POWER	S6R 3000	S6R 3000 POWER
Nominal power (VA/W)	700/490	1000/700	1000/700	1500/1050	2200/1540	2200/1540	3000/2100	3000/2100
Nominal voltage	220-230-240 V							
Wave form	sinusoidal							
Voltage stability	static 1,5%, dynamic ≤ 5%							
Voltage distortion	≤ 3% (linear load), ≤ 6% (non-linear load)							
Frequency	50/60 Hz +/- 2%							
Crest factor	3:1							
Overload	110% for 30 min, 130% for 30 s, 150% In for 10 s, > 150% for 500 ms							

System	S6R 700	S6R 1000	S6R 1000 POWER	S6R 1500	S6R 2200	S6R 2200 POWER	S6R 3000	S6R 3000 POWER
Transfer time	0ms							
AC-AC efficiency	86%				88%			
Batteries: No./V/Ah	2/12/7	3/12/7	/	4/12/7	8/12/7	/	8/12/7	/
Communication ports	RS232 + Communication slot (TCP/IP, HTTP, SNMP, JBUS, MODBUS, Profibus)							
Protections	overcurrent – short circuit – excessive battery discharge – overvoltage – undervoltage – overtemperature							
Noise at 1 m	<45 dBA							
Operating temperature	0-40° C, optimal for batteries +15 ÷ +25°C							
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3							

Sentinel 6 Rack

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
700	Sentinel 6 Rack 700	6	In UPS	19''x390x2U	13
1000	Sentinel 6 Rack 1000	6	In UPS	19''x390x2U	16
1000	Sentinel 6 Rack 1000 POWER	_	_	19''x390x2U	9
1500	Sentinel 6 Rack 1500	6	In UPS	19''x480x2U	21
2200	Sentinel 6 Rack 2200	10	In UPS	19''x480x2U+U2	38
2200	Sentinel 6 Rack 2200 POWER	_	_	19''x480x2U	13
3000	Sentinel 6 Rack 3000	6	In UPS	19''x480x2U+2U	38
3000	Sentinel 6 Rack 3000 POWER	_	_	19''x480x2U	14

Battery cabinets for longer autonomy

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
1000	Batt. exp. S6R A7	20	3x7Ah	19''x390x2U	12
1000	Batt. exp. S6R A14	30	3+3x7Ah	19''x390x2U	19
1000 POWER	2 x (Batt.exp. S6R A14)	45	2x(3+3x7Ah)	2x(19"x390x2U)	38
1500	Batt. exp. S6R A7	15	4x7Ah	19''x480x2U	15
1500	Batt. exp. S6R A14	28	4+4x7Ah	19''x480x2U	25
2200	Batt. exp. S6R A7	30	8x7Ah	19''x480x2U	25
2200 POWER	4 x (Batt. exp. S6R A7)	60	4x(8x7Ah)	4x(19"x480x2U)	100
3000	Batt. exp. S6R A7	15	8x7Ah	19''x480x2U	25
3000 POWER	3x(Batt. exp. S6R A7)	30	3x(8x7Ah)	3x(19"x480x2U)	75

Note
1 U= 44,83 mm
19"= 483 mm

Sentinel XR

REAR PANEL SENTINEL XR 3300-4000VA

REAR PANEL SENTINEL XR 5000-6000VA

Absolute protection

Sentinel XR is a range of UPSs with ON-LINE double conversion technology and with zero transfer time. The load is always powered by the inverter, which supplies a true sinusoidal voltage and current free from electrical interference.

Maximum versatility

Sentinel XR can either be placed on the floor or inserted in a 19" Rack. The UPS can be converted from the Tower version to the Rack version simply by rotating the control panel to 90° and applying the handles.

Easy battery replacement

The batteries can be replaced while the UPS is working off the Inverter (hot swap replacement) without any disturbances to the load.

Stand-by

When the UPS is not used, it can be set to stand-by mode. The inverter will be switched off and the battery is kept charged. This operating mode is suitable for Emergency Escape Lighting (CPSS- Central Power Supply System) as per standard EN 50171.

Communication slot

Sentinel XR is provided with an expansion slot for optional communication cards that enable the UPS to dialog using the main communication standards such as: second RS232 port, serial port duplexer, Ethernet network agent with TCP/IP, HTTP and SNMP protocol, RS232 + RS485 port with JBUS / MODBUS protocol, signalling relay card.

Advanced communication

The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.

The UPS comes with an expansion slot for optional communication boards such as Netman and MultiCom.

Four operating modes

• On Line (VFI)

The load is powered by the Inverter and the output power supply is independent from the input supply voltage and frequency fluctuations.

• Eco Mode

To optimise the efficiency the load is powered from the mains as preferred source. If the mains voltage exceeds the tolerance values, the UPS switches to the normal ON LINE double conversion operating mode.

• Smart Active

When the power supply quality is very unstable of course the user is unable to define which is the best operating mode between On line or ECOMode. Smart Active function solves this problem as it selects the best operation mode depending on the input power quality.

• Stand-by-off

When mains power is available the UPS will not power the load; when mains is not available the UPS will power the load using the battery power supply. This feature makes the UPS ideal for emergency lighting power supply.

Advanced diagnostics

A backlit display provides the most important measurements relating to the UPS.

Extending the back-up time

Battery expansion is envisaged to increase the back-up time of the UPS. Battery chargers can be used to reduce recharging times.

Programmable output socket

Using UPSTools configuration software it is possible to set the cut-off sequence of the output sockets. It is a very important feature in emergency conditions to be able to classify the loads by different priorities.

Manual By-Pass

The By-pass provides the possibility of excluding a UPS for maintenance without any interruptions or disturbances of the load supply.

Applications

Servers, Local Area Networks (LAN), data centers, telecommunications, Industrial equipment, electro-medial equipment, Emergency Lighting.

Display LCD custom

Manual By -pass 16A

Sentinel XR

Technical data

Input	SXR-3300	SXR-4000	SXR-5000	SXR-6000
Nominal voltage	220-230-240 V			
Accepted voltage range	0-276 V			
Min. Voltage without battery discharging	164 V @ 100% load (84V @ 50% load)			
Nominal frequency	40 / 72 Hz			
Power factor	>0,98			

By-pass line	SXR-3300	SXR-4000	SXR-5000	SXR-6000
Voltage range	180 – 264 V (selectable in Economy mode and Smart Active mode)			
Frequency range	± 5% (user configurable)			

Output	SXR-3300	SXR-4000	SXR-5000	SXR-6000
Power (VA/W)	3300/2300	4000/2400	5000/3500	6000/4200
Voltage	220-230-240 V (selectable)			
Wave form	sinewave			
Voltage range	static ± 1,5%; dynamic ≤5% in 20ms			
Voltage distortion	<3% @ linear load; <6% @ non-linear load (EN 50091-1-1)			
Frequency	50 or 60 Hz selectable			
Crest factor	3:1 (up to 100% load)			
Overload	150% for 4s			
Output connections	No. 1 IEC (16A) + 2 No. IEC (10A)		IN/OUT terminal board + No. 2 IEC (10A)	

System	SXR-3300	SXR-4000	SXR-5000	SXR-6000
Transfer time	0 ms (2 ms Eco mode)			
AC-AC efficiency	90% On-line, 98% Eco mode			
Batteries (No./V/Ah)	9/12/7	9/12/7	16/12/7	16/12/7
Communication ports	RS232 + Communication Slot (TCP/IP, HTTP,SNMP, JBUS, MODBUS, PROFIBUS)			
Protections	overcurrent – short circuit – excessive battery discharge – overvoltage undervoltage – overtemperature			
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 , Directives 73/23, 93/68, 89/336 EEC, EN 62040-3			
Noise at 1 m	<40 dBA			
Operating temperature	0÷40°C , optimal for batteries +15÷+25°C			
Positioning	tower or rack 19” 4U			

Sentinel XR

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
3300	Sentinel XR 3300 [1]	6	Internal	175x520x455	38
4000	Sentinel XR 4000 [1]	6	Internal	175x520x455	38
5000	Sentinel XR 5000 [2]	10	Internal	175x660x455	64
6000	Sentinel XR 6000 [2]	8	Internal	175x660x455	64

Battery cabinets for longer autonomy

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
3300	Batt. exp. SXR A7	15	9x7Ah	175x520x455	30
3300	Batt. exp. SXR A14 [3]	30	9+9x7Ah	175x520x455	50
3300	Batt. exp. SXR A38 [3]	70	9x38Ah	215x655x630	145
4000	Batt. exp. SXR A7	15	9x7Ah	175x520x455	30
4000	Batt. exp. SXR A14 [3]	30	9+9x7Ah	175x520x455	50
4000	Batt. exp. SXR A38 [4]	60	9x38Ah	215x655x630	145
5000	Batt. exp. SXR A7	25	16x7 Ah	175x660x455	65
5000	Batt. exp. SXR A12 [3]	35	16x12 Ah	175x660x455	88
5000	Batt. exp. SXR A12+A12 [3]	65	2x(16x12 Ah)	2x(175x660x455)	176
6000	Batt. exp. SXR A7	20	16x7 Ah	175x660x455	65
6000	Batt. exp. SXR A12 [3]	30	16x12 Ah	175x660x455	88
6000	Batt. exp. SXR A12+A12 [3]	60	2x(16x12 Ah)	2x(175x660x455)	176

Note
1 U= 44,43 mm
19"= 483 mm

[1] Tower/Rack convertible by means of a handles kit provided as standard. Dimensions: 19"x520x4U.
[2] Tower/Rack convertible by means of a handles kit provided as standard. Dimensions: 19"x660x4U.
[3] With battery charger to shorten recharging time.
[4] With battery charger to shorten recharging time, only tower version.

Sentinel 5 Plus

SUITABLE FOR EMERGENCY LIGHTING APPLICATIONS

Absolute protection

Sentinel 5 Plus is a range of UPSs with ON-LINE double conversion technology and with “zero” transfer time. The load is always powered by the inverter, which supplies true sinusoidal voltage that is free from electrical interference.

High immunity to lightning

A device providing protection from input and output overvoltages means that Sentinel 5 Plus is able to withstand input overvoltages of up to 6kV, in accordance with IEC 801-5, thus ensuring the maximum protection to the powered load.

Total microprocessor control

Digital control of the appliance considerably improves system reliability, reduces unit dimensions and weight, and significantly increases control and communications capabilities.

Battery optimization

The UPS periodically performs a battery efficiency test. The batteries are not actuated during microinterruptions (40 ms), which are the most common type of mains interference, since the required energy is drawn from a group of capacitors. This system (battery saving) extends the life of the batteries. A similar feature is provided by the Active Control (LRCD) of the battery current even during the discharge phase, which means that the alternating components on the battery can be eliminated.The Sentinel 5 Plus range also comes with a device to protect against deep discharges, which can affect the expected battery life.

Advanced communication

The Aros Watch & Save software ensures effective and intuitive management of the UPS. Important information such as the input and output voltage, the load applied, the remaining back-up time, etc., is displayed in the form of bar graphs. The software is able to provide information even in the event of a failure, and can also programme the UPS for automatic weekly start-up and shutdown.
The UPS also contains the following hardware interfaces:

- RS232 serial port,
- Dry contacts,
- EPO (Emergency Power Off) contact for UPS shutdown from the remote emergency button.

The UPS comes with an expansion slot for optional communication boards such as Netman and MultiCom.

The UPS comes with an expansion slot for optional communication boards such as Netman and MultiCom.

Extending the back-up time

Battery expansion is envisaged to increase the back-up time of the UPS. Battery chargers can be used to reduce recharging times.

Mimic panel

The Sentinel 5 Plus range comes with an on-board mimic panel. This provides information on the operating status of the UPS by means of LEDs, an LCD display made up of two rows of 20 characters, an audible indicator and five control buttons.
Maximum safety for personnel The UPS has a back feed protection device that prevents any back feed current from the UPS towards the mains power supply, thus ensuring the safety of maintenance personnel.

Maximum flexibility

The UPS can be connected to a single phase or three phase mains supply (except for 6000 VA). This can be carried out directly at the installation site. The UPS can be programmed to operate as a frequency converter with batteries.

Reduced noise

Through the use of high frequency components and fan speed control, the noise level of the UPS is under 45 dBA.

Low consumption

Three different operating modes are provided with a view to reduce power consumption. These modes can be programmed to suit the requirements of the user and of the load to be powered:

- Economy Mode: the UPS uses Line Interactive technology; the load is powered from the mains, the energy consumption is reduced and the efficiency is improved.
- Smart Active Mode: the UPS automatically selects On Line or Line Interactive operating mode according to the quality of the mains supply, by monitoring the number, frequency and type of disturbances that are present.
- Stand by Off (back-up unit): the UPS only powers the loads when there is a mains failure. The inverter starts operation gradually in order to avoid inrush currents.
  This feature makes the UPS ideal for emergency lighting power supply.

Remote support service

TELEGUARD is a remote trouble-shooting system which can signal any kind of unexpected event in real time. Any fault is immediately signalled, 24 hours a day, 365 days a year, to the AROS control centre, which can take immediate action either remotely or on site. Your UPS is always under the watchful eyes of an AROS expert. Plus, a report is provided periodically, detailing all the significant events that have taken place during the monitored period.

Display of the UPS internal temperature.

Display of the load applied to the UPS.

Display of the remaining battery backup time and battery charge percentage.

Applications

Local Area Networks (LAN), Servers, Data centers, Industrial PLCs, Cash registers, Emergency devices (lights/alarms), Electro-medical devices.

Sentinel 5 Plus

Technical data

Input	S5P-6000	S5P-6500	S5P-8000	S5P-10000
Nominal voltage	230 V single-phase	230 V single-phase or 400 V three-phase + N		
Accepted voltage range	0-276 V			
Voltage without battery discharging	170 V @ 100% load (140 V @ 50% load)			
Input frequency	50/60 Hz			

By-pass	S5P-6000	S5P-6500	S5P-8000	S5P-10000
Voltage range	186 – 264 V (selectable in Economy Mode and Smart Active Mode)			
Frequency range	selected frequency ± 5 Hz			

Output	S5P-6000	S5P-6500	S5P-8000	S5P-10000
Power (VA/W)	6000/4200	6500/4600	8000/5600	10000/7000
Nominal voltage	220-230-240 V (selectable)			
Voltage range	static ±1%; dynamic ≤5% in 20ms			
Voltage distortion	<2% @linear load, <5% @ non-linear load			
Frequency	50/60 Hz (selectable or autorange)			
Crest factor	3:1			
Overload	125% for 120s – 150% for 30s			
Output sockets	terminal	terminals + No. 2 IEC 320 (10A) for local networks		

System	S5P-6000	S5P-6500	S5P-8000	S5P-10000
Transfer time	0ms (<10ms Eco Mode)			
AC-AC efficiency	92%	91% single-phase, 92% three-phase (98% Eco Mode)		
Batteries (No./V/Ah)	18/12/7	30/12/7		
Battery recharging time	6-8 h			
Communication port	RS232 + Communication Slot (TCP/IP, HTTP,SNMP, JBUS, MODBUS, PROFIBUS)			
Remote control	Emergency Power Off			
Protection	overcurrent – short circuit – excessive battery discharge – overvoltage undervoltage - overtemperature			
Noise at 1 m	<40 dBA			
Operating temperature	0÷40 °C, optimal for batteries +15÷+25°C			
Humidity	90% non-condensing			
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. A, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3			

Sentinel 5 Plus

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
6000	S5 Plus 6000	8	Internal	283x805x585	100
6500	S5 Plus 6500	15	Internal	283x805x735	135
8000	S5 Plus 8000	12	Internal	283x805x735	135
10000	S5 Plus 10000	10	Internal	283x805x735	135

Battery cabinets for longer autonomy

Power (VA)	Model	Back-up (min)	Batteries	Dimensions WxDxH (mm)	Weight (kg)
6000	Batt. exp. S5P A7	22	18x7Ah	283x805x735	80
6000	Batt. exp. S5P A12*	32	18x12Ah	283x805x735	120
6000	Batt. exp. S5P A24*	60	18+18x12Ah	283x805x735	190
6500	Batt. exp. S5P A7	35	30x7Ah	283x805x735	112
6500	Batt. exp. S5P A12*	60	30x12Ah	283x805x735	175
8000	Batt. exp. S5P A7	30	30x7Ah	283x805x735	112
8000	Batt. exp. S5P A12*	45	30x12Ah	283x805x735	175
10000	Batt. exp. S5P A7	20	30x7Ah	283x805x735	112
10000	Batt. exp. S5P A12*	35	30x12Ah	283x805x735	175

*With built-in battery charger to shorten the recharging time.

IRMS (Intelligent Redundant Multi-Switch)

MIMIC PANEL

Operating principle

IRMS is a device based on relay technology that improves electrical supply continuity. It can install and manage up to eight network users from a single point, using one or two independent power sources, either directly from the mains power supply or via an UPS or a combination of both. IRMS can connect each user (up to eight, each with a maximum power requirement not greater than 3A) to either of the two power sources.

Full protection against mains failures and load faults

Whenever the mains fails or one source fluctuates outside acceptable parameters, IRMS will automatically switch the connected load over to the alternative power source without overlap. Switching is not only performed in the event of mains failure but also if a fault occurs on one of the load. In case of short circuits or overloads, IRMS disconnects the load to prevent problems on any of the others.

Simple mimic panel

A LCD panel provides detailed reports on the operational status of your equipment.

Hot swap function

If the primary source fails, IRMS transfers to the secondary source without any break in the power supply to your application.

Installation

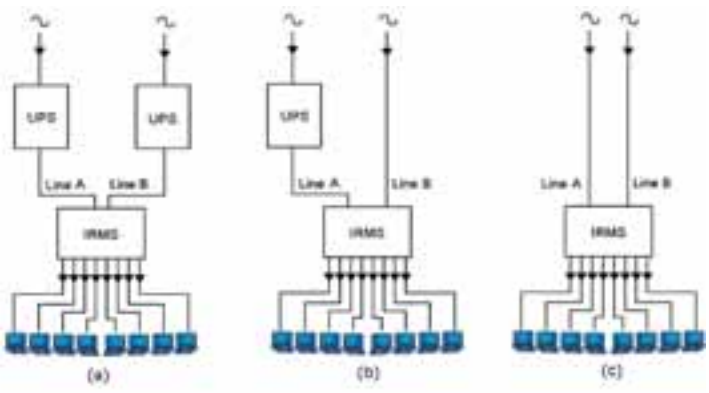
IRMS has been designed for installation in a 19" rack-mount cabinet.

Communication

SNMP Network adapter and RS232 serial ports allow and facilitate communication with installed power protection equipment.

Applications

e-Business, ISP/ASP, Local Area Networks (LAN), Servers farms, servers.



Input	Multi-Switch (2 inputs – 8 outputs)
Nominal voltage	180-265 V
Frequency	50/60 Hz
Maximum load for each input	16 A
Input sockets	No. 2 IEC 320 (10 A)

Output	Multi-Switch (2 inputs – 8 outputs)
Power	8 output sockets 4A
Output voltage	depending on the input voltage
Maximum load for each output	4 A
Output sockets	No. 8 IEC 320 (10A)

System	Multi-Switch (2 inputs – 8 outputs)
Operating temperature	0÷40°C
Humidity	90% non-condensing
Max. storage conditions	6000m / 0÷40°C
Max. operating altitude	3000 m
Protections	overcurrent – overvoltage – undervoltage – back-feed protection
Protection degree	IP 20
Noise at 1 m	<25 dBA
Standards	safety EN 62040-1, EMC IEC 62040-2 and EN 50091-2 lev. B, Directives 73/23, 93/68, 89/336 EEC, EN 62040-3
Dimensions WxDxH (mm)	19"x360x2U
Weight (kg)	5
Communication interface	serial on DB 9 connector

Note
1U= 44,43 mm
19"= 483 mm