OUR SOLUTIONS

NOVEMBER 2021

salicru

ENERGY EFFICIENT SOLUTIONS

For over 55 years, **Salicru** has been able to adapt to the evolution of the power electronics market and constantly develop in all of its business areas. This has enabled the company to become a leading centre of technological transfer in the field of security electronics, as a way of responding to the new challenges and needs of society.

Salicru is Spain's market leading power electronics company. Founded in 1965, its main business is the development, manufacture and marketing of products designed to protect industrial, professional and household systems from problems caused by mains power supply disturbances.

Its main mission is to guarantee a continuous, clean, economical, reliable and ecological electricity supply to its customers, for which it offers a wide range of products capable of providing solutions for the most sensitive systems and most demanding markets.

In addition to developing, manufacturing and marketing products, the experience that Salicru has accumulated over its history has led it to also providing engineering and consulting services to its customers to assist them in resolving electricity supply issues.

Main product lines

To ensure this energy availability, Salicru offers the following ranges:

PRODUCTS	FUNCTIONALITY
Uninterruptible power supplies (UPS)	Electrical protection with backup for all kinds of critical environments
Photovoltaic solar inverters	AC voltage generation with mains connection from solar energy
Variable frequency drives	Efficient control of any application driven by asynchronous motors.
DC Systems	Solutions for AC/DC and DC/AC power supply
Transformers and autotransformers	Adjustment of mains voltage level
Voltage stabilisers	Regulation of electricity supply
Lighting flow dimmer-stabiliser	Energy savings and reduced CO_2 emissions for street lighting

Markets

Salicru offers its products and services to the industrial, electronic, computer, street lighting, telecommunications, energy efficiency and renewable energy markets.

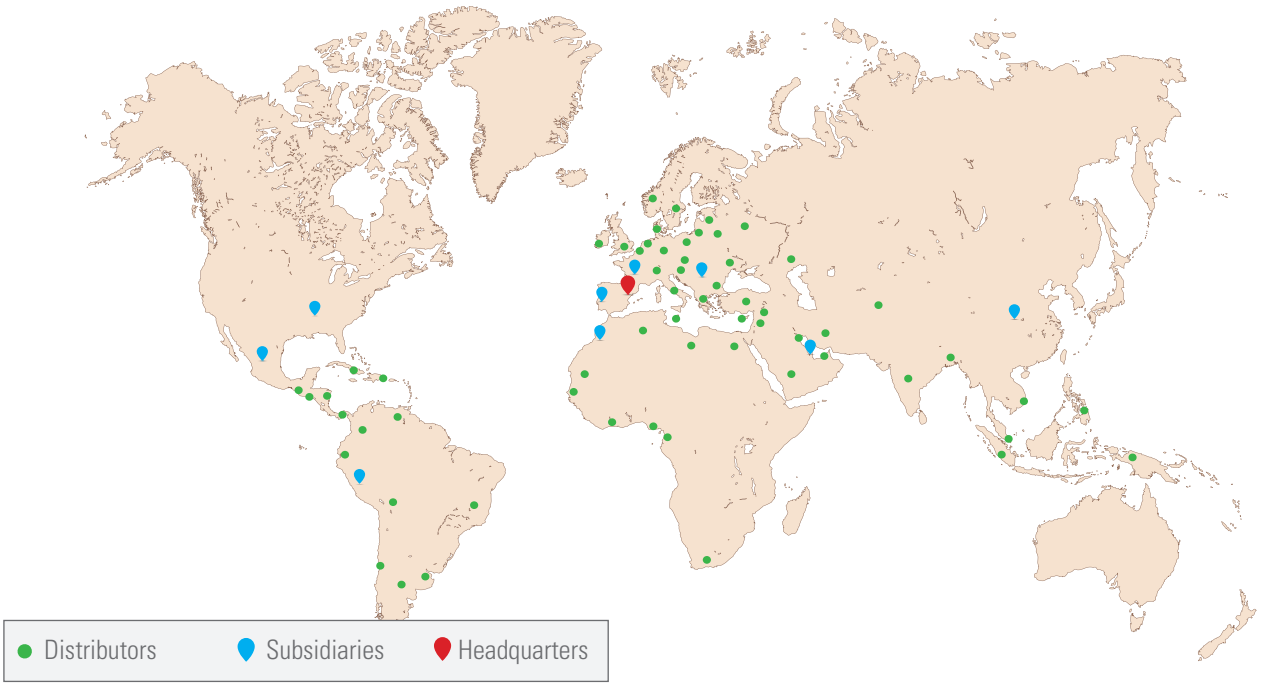
In Spain, among Spanish manufacturers, Salicru is the market leader in each of the segments in which it is present. This leadership is especially significant in the UPS market, a segment into which Salicru introduced Spain's first prototype in 1973.

Salicru distributes its products from its headquarters located in Palautordera (Barcelona) and from offices in Madrid, Valencia, Bilbao, Alicante, Malaga, the Balearic Islands, the Canary Islands, Zaragoza, Galicia, Asturias and Seville.

At international level, its entrepreneurial spirit and strategy of international expansion have led to Salicru currently being present in more than 70 countries, most notably in European, Asian and South American markets.

For its expansion strategy abroad, Salicru has ten subsidiaries located in Africa, China, France, Hungary, Mexico, Middle East, Morocco, Peru, Portugal and United States.

Salicru's consolidation of its international presence, which began in 1978, has led to it becoming a world leader in the design of electricity supply solutions.



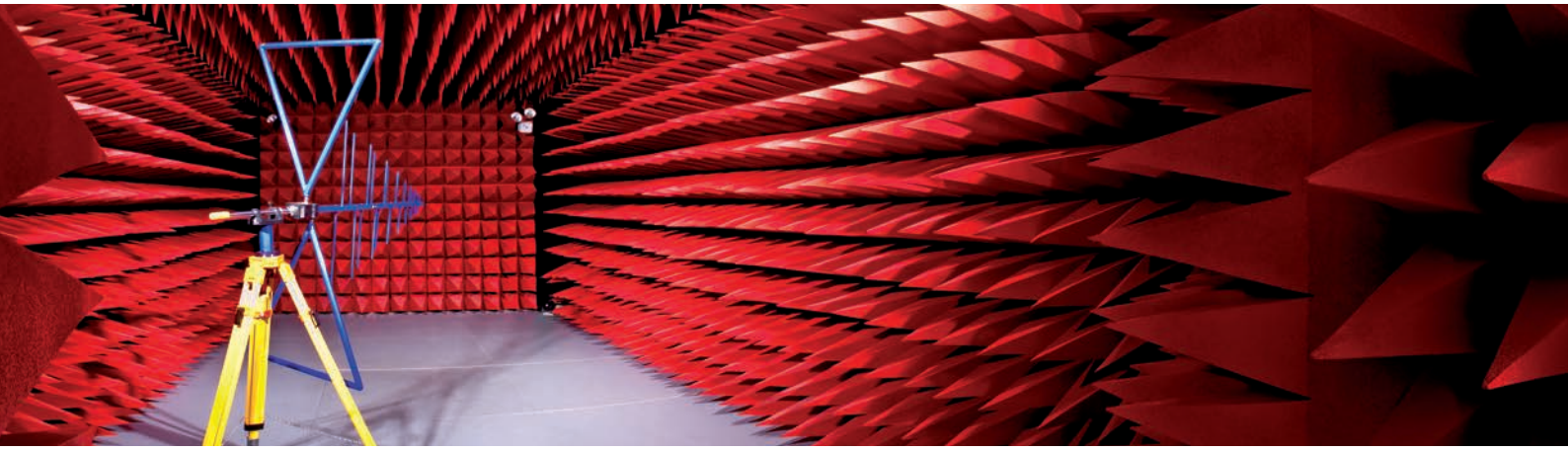
Research and Innovation

With the goal of continuously offering new solutions and products to its customers, Salicru never ceases to research and innovate. To achieve this, it allocates an average of 5% of its annual turnover to its R&D department, a percentage that is much higher than the 1.28% national average for technology companies and the 1.87% European average.

Salicru is committed to research, development and technological innovation as an industrial growth strategy. Through various lines of action, the company constantly strengthens its activities in this area with the goal of promoting a continuous process of product and service improvement, enhancing new technological capabilities and placing itself at the forefront of its sector.

An example of Salicru's commitment to innovation can be found in its new engineering activities: electric vehicles, variable speed drives, cutting-edge human interfaces and IoT devices and platforms. New resources to enable the company to undertake the full digitisation of its products and offer power electronics engineering solutions to other sectors such as electric mobility, high-speed rail and 3D printing, for which both custom designs and technical/economic feasibility studies are carried out.

The company has also opened an Internet of Things (IoT) section to respond to the new competitiveness needs of Industry 4.0. And, especially, to optimise the connectivity of Salicru's products and offer cloud solutions tailored to the protection and security needs of its customers.



Energy Efficiency

Salicru believes that energy efficiency is key to reducing energy consumption while maintaining energy services that, without diminishing comfort and current quality of life, protect the environment and encourage sustainable behaviour in their use.

For the company, energy efficiency is a corporate asset that provides greater competitiveness by contributing to the optimisation of associated processes and facilities, as well as reducing consumption and CO_2 emissions.

This is why, after 15 years of success in the utilisation of the energy of street lighting, the company has gone a step further and decisively opted for developing new products that will position it with greater strength in the energy efficiency and renewable energy market.

In addition, as one of the main cornerstones of Salicru's business strategy, all new energy efficiency applications and technologies are also applied to the manufacturing process of its own products.

Service

Salicru makes available to its customers its extensive experience of more than 55 years in the field of power electronics, experience that not only translates into a great variety of products but also extends to a wide range of services.

The most important of these is the company's Technical Service and Support (TSS), which is available both nationally and internationally, and enables us to be closer to customers and respond immediately to their needs.

In addition to this proximity to our customers, Salicru also has a Remote Management and Supervision System that offers the possibility of remotely controlling their devices. It is an interactive system that makes it possible to carry out operations on devices and be kept informed of their status, with the resultant savings on resources and costs.

Another service to highlight in this area is our 24/7 Remote Maintenance, which enables customers to focus all of their attention on managing their businesses and let us take care of their electrical protection needs.

References

Salicru's professionalism has been recognised by its customers, many of whom are extremely loyal in using its products and services. These customers are leading companies in different sectors that require maximum electricity supply reliability to ensure that their businesses are able to operate.

- ABB
- Abertis
- ADIF
- AENA
- Air liquide
- Alstom Power
- Arcelor Mittal
- Axa
- Banc de Sabadell
- Bank of China
- Basf
- Bayer
- BBVA
- Boehringer Inhelmein
- Bombardier
- Bouygues Telecom
- Cable & Wireless
- CAF
- Carrefour
- Cepsa
- China Central TV
- Cisco Systems
- Credit Lyonnais
- Dow Chemical
- Dubai Natural Gas
- EADS
- Ecopetrol
- EDP
- El Corte Inglés
- Enagás
- Endesa
- E.ON
- Ericsson
- Fagor
- FNAC
- Fujitsu
- Gallina Blanca Star
- Gazprom
- General Electric
- General Motors
- Hewlett Packard
- Hitachi
- Honeywell
- Iberdrola
- I.B.M.
- Indra
- Ingram Micro
- Intel
- Ikusi
- Kuwait Oil Company
- La Caixa
- Lafarge
- Lucent Technologies
- Maersk
- Mapfre
- Media Markt
- Mercadona
- Motorola
- Naturgy
- Nestlé
- Nokia
- Nortel
- One World
- Orange
- Otis
- Panasonic
- Pemex
- Pepsico
- Portugal Telecom
- REE
- Renault
- Repsol-YPF
- Roche Diagnósticos
- SAP
- Assurance Santa Lucía
- Siemens
- Sony
- Stanley
- Star Alliance
- Telefónica
- Texaco
- Thales
- Thomson
- Toshiba
- Unilever
- Universal Studios
- Vodafone
- Yokogawa

Unique projects

Salicru's prestige and experience have led it to participating in national and international projects which, due to their characteristics, can be considered as unique. Different kinds of projects carried out in collaboration with other customers, notable among which are the following:

- Branches and ATMs of the Bank of Riyadh (Saudi Arabia)
- Protection for the electricity grid of CaixaBank (Spain)
- Energy coverage for new AVE high-speed lines (Spain)
- Emergency power supply for the turbines of the Spanish Navy's F-100 frigates (Spain)
- Photovoltaic power for the 'Galápagos with its own electricity' project, the Galápagos Islands (Ecuador)
- Barcelona Airport's apron flood lights (Barcelona, Spain)
- Power for engine equipment control at Airbus' Bremen plant (Germany)
- Rural mobile telephone access project (Spain)
- Madrid and Bilbao Metro (Spain)
- Video signal protection for television broadcasting in 1st and 2nd division football stadiums (Spain)
- Protection for Barcelona and Zaragoza's traffic light systems (Spain)
- Protection for street lighting in Tunisia's main municipalities (Tunisia)
- Lighting for the access road to the Great Wall of China (Beijing, China)
- Protection for the Termosolar Borges power generation plant (Spain)

Figures

+ 55 years
of industrial activity

2 production centres:
Spain and China

+120.000 production
equipment per year

+2.000.000 operating
equipment around the world

14
National offices

10
International subsidiaries

+130
Countries where has installed devices

180 MVA / year
of secure power supply

5% of our turnover allocated to **R&D**

ISO 9001 and **ISO 14001**


salicru
ALWAYS ENERGY

Table of contents

Pictogram nomenclature

Output power factor = 0.9 and 1


Available backup extensions


SLC Greenergy Solutions

Accuracy <1% and <2%

Smart slot for SNMP and relays

2-year warranty

Management software

RS-232, RS-485 and relay interface

Advanced MPPT algorithm

Performance >97%

Control panel with LCD display

Smart-efficiency mode


Easy configuration

Pb-Ca and Ni-Cd batteries

Total input harmonic distortion (THDi)


High response speed

UPS · DC systems · Variable frequency drives · Solar inverters · Energy efficiency · Voltage stabilisers

Uninterruptible power supplies (UPS)

On-line double-conversion

EPO - Emergency power off

Swivel-mount control panel

Line-interactive UPS with sine-wave output


Tower/rack or convertible format

Frequency conversion function


Parallelable up to 3 and 4 units


Includes pedestal (tower) and supports (rack)

Separate bypass input

Maximum no. of modules per system 6 and 12

Rack mounting height of 1U and 2U

4 x UPS sockets / 2 x protection sockets

Maximum number of systems in parallel = 3

Permanent stabilisation

Auto and/or manual test on each startup

Maintenance bypass

2 x USB chargers


Batt-Watch

Eco-mode operation

Green-mode operation

Compatibility with APFC loads

Cold-start function for startup from batteries

USB, RS-232, RS-485 and relay interface

Economic guarantee

Solar inverters

- App EQX-sun
- 2 MPPT Trackers
- IP65 protection rating
- Integrated DC disconnector
- Compact size
- 3-level type T topology
- Cooling does not require fans
- 5-Year warranty

Voltage stabiliser

- Regulation range +/-15%
- RS-232 and relay interface

Energy Efficiency

- Saving >40%
- Pays for itself after 6-24 months

Transformers and Autotransformers

- IP20 protection rating
- DIN rail mounting
- Input and output multi-sockets
- Self-extinguishing housing
- Compact dimensions

Batteries (UBT)

- Pb-Ca type
- Monoblocks 12 V (battery block)
- Rated capacity 7 Ah - 24 Ah
- AGM type
- Flat board
- VRLA
- Recyclable
- Maintenance-free
- 3-5 year life

Variable frequency drives

- V/F selectable control
- Dynamic braking module
- Potentiometer
- Protection against DC overvoltage
- Advanced PID control
- Sleep / wake function
- Built-in EMC filter
- Isolated facilities
- Simple PLC and multi-step control
- Exterior console
- Automatic startup and shutdown
- Supervision app
- 16-speed multi-step control
- Tank detection
- RS-485 MODBUS interface
- Automatic energy saving

HOMES, OFFICES & SHOPS

Advanced and versatile protection of computer, telecommunications and multimedia equipment

We live in a society of digital information and technology, in the age of connectivity. In our homes, offices and small businesses, we have numerous computer and multimedia devices connected to the power supply which we also use to store large amounts of important personal and professional files and documents that are not in duplicate hard-copy form, which would be necessary in many cases.

These files and documents, as well as the technologies and systems associated with them, have high strategic value, but they also have one thing in common: they are all dependent on a stable and good-quality power supply to ensure uninterrupted enjoyment of their benefits. To make this possible, Salicru offers optimum solutions to ensure their integrity and maximum protection at all times.

Storms, lightning, excess demand... there are many different causes of electrical disturbances that can affect computer and electronic equipment in the office and home environments.

Numerous studies point to these faults in the power supply as the main problem that can affect a computer system and make it vulnerable. In fact, the main cause of data loss in digital environments is not viruses, but disturbances in the power supply, which account for almost half of all cases.

The economic impact of such loss on offices and shops can be considerable and can have serious repercussions for customers, suppliers and employees. It is calculated that out of every 100 disturbances, 40 cause data losses or incidents in connected loads.

Nor should we forget that these disturbances can also threaten the very integrity of computer, multimedia and telecommunications equipment by reducing their service life and, in severe cases, result in the need for replacement with the associated increase in costs.

Main electrical disturbances

In home, office and small business environments, the most common and harmful electrical disturbances for computer and electronic equipment connected to the power supply are usually the following:


Power cuts and micro-cuts


Undervoltages and voltage gaps


Transient and permanent overvoltages


High frequency disturbances

Solutions

Salicru's mission is to ensure optimum energy availability and advanced and versatile protection of computer and multimedia equipment in the home and office environments.

For advanced and versatile protection of computer, telephony and multimedia equipment in offices, businesses and homes, Salicru offers a wide range of uninterruptible power supplies (UPSs) and active electrical protectors.

PRODUCTS	FUNCTIONALITY
Uninterruptible power supplies (UPS)	These store energy to ensure continuity of AC supply
Active electrical protectors	Multi-socket power strips for powering and protecting equipment in the office and home

Uninterruptible power supplies (UPSs)

Current storage systems, servers and associated network electronics use miniaturised components that are more sensitive to electrical disturbances than their predecessors from previous generations.

This means that prolonged exposure to these disturbances without adequate protection can contribute to reducing the life of electronic components and to causing some of the most common faults, without us being able to perceive them in all of their magnitude.

To prevent such situations, the best solution for protecting home and office computer and electronic equipment from problems caused by mains disturbances is the uninterruptible power supply (UPS).

UPSs are synonymous with efficiency and savings for several reasons: firstly, they offer high-performance behaviour, which makes them more efficient sources of energy; secondly, they eliminate any load harmonics towards the power supply grid, making it higher quality. In addition, by eliminating mains fluctuations (power cuts, spikes, etc.), they prevent the shutdown of systems by minimising energy losses in the restoring of systems.

Salicru offers a wide range of UPSs to suit the specific needs of each facility. In addition, thanks to their advanced technology and versatile design, it is possible to protect different components found in homes, offices and businesses with a single device:

Computer network
PCs
Associated peripherals: monitors, printers, external hard drives, routers, etc.

IT systems
Servers
Telephony
ADSL/Fibre Optics
Router/switches

Active electrical protectors

Salicru's range of solutions for the protection of electronics in offices, businesses and homes is supplemented by the latest multi-socket active electrical protectors that act against overloads, overvoltages and atmospheric discharges, with different options available:

· Wide range of models (3, 5, 6 and 7 sockets)
· Dual USB charger for charging electronic devices
· Orientated sockets for easy connection
· Overvoltage indicator
· EMI/RFI filter for electrical noise reduction
· Master/slave function for energy saving
· Integrated cable winder

Salicru's active electrical protectors offer optimum power and protection for:

· PCs
· Monitors
· Printers
· Routers
· Hubs/switches
· External hard drives
· Telephones
· TV/LCD
· Home cinema
· Video consoles
· Hi-Fi
· Decoders
· DTT
· SAT
· DVD
· Home automation
· Home appliances

'PCs are subject to around 1,400 electrical problems a year.'

References

· AXA
· BBVA
· Banc de Sabadell
· Bank of China
· Carrefour
· Cepsa
· Credit Lyonnais
· El Corte Inglés
· FNAC
· La Caixa
· Mapfre
· Media Markt
· Mercadona
· Paradores
· Santa Lucía

Devices

SPS SAFE

Active electrical protectors

- Next-generation active electrical protectors.
- Wide range of models (3, 5, 6 and 7 sockets).
- Models with built-in dual USB charger.
- Orientated sockets for easy connection.
- Possibility of wall mounting.
- Surge control indicator.
- ON/OFF switch on all models.

SPS NET

Compact DC UPS with lithium-ion batteries

- 7800mAh Li-Ion battery.
- Wide input voltage range (90 V ÷ 265 V).
- 12 V DC output with no need for an external transformer.
- Battery life of up to 4 hours.
- Low self-consumption (<0.8 W).
- Compact and lightweight design.
- LED-bar battery life indicator.

SPS HOME

Off-line APFC multi-socket UPS 650VA and 850VA

- Off-line technology.
- 6-socket power strip design .
- 4 x sockets with UPS reserve and line protection.
- Orientated sockets for easy connection.
- Compatibility with APFC loads.
- USB interface with HID protocol.
- Telephone line/ADSL + Ethernet network protection 10/100Mb.

SPS SOHO+

Line-interactive UPS 500VA - 2,200VA with dual USB charger

- Line-interactive technology.
- Dual USB charger on the front (max. 2 Amp).
- Compatible with APFC (active power factor correction) loads.
- Complete LCD display with all information.
- Permanent stabilisation (AVR).
- USB communication interface with HID protocol.
- Monitoring software for Windows, Linux and Mac.

SPS ADVANCE T

Line-interactive sine-wave UPS tower 850VA to 3,000VA

- Line-interactive technology with sine-wave output.
- Permanent AVR stabilisation (buck-boost).
- Compact tower format.
- RS-232 and USB-HID communication interfaces.
- Monitoring and management software for Windows, Linux and Mac.
- Smart slot for SNMP adapter.

SLC TWIN PRO2

On-line double-conversion UPS 700VA to 3,000VA

- On-line double-conversion technology.
- Output power factor PF=0.9.
- Control panel with LCD screen and keypad.
- Tower format.
- UPS models with extra charger for backup extensions.
- USB HID interface for all models as standard.
- Intelligent slot for SNMP/relays.

SMES & LARGE CORPORATIONS & PUBLIC SECTOR BODIES

Tailor-made solutions to ensure the security of the power supply and protect sensitive information

In today's world, both the public and private sectors are committed to security and energy efficiency in their production and information systems.

What both have in common is that they need to store and process a large volume of information that requires the utmost security to guarantee absolute confidentiality and continuous availability.

Today, practically all companies and public authorities, whether medium-sized or large, have some sort of data centre, with the largest even having several. One of the most important factors that influences the creation of centres of this kind is the need to ensure continuity of service to customers, employees, suppliers, citizens and partner companies.

In these environments, physical protection of computer or communications equipment, as well as database servers that may contain critical or sensitive information, by systems that ensure a stable and permanent power supply is very important.

Main electrical disturbances

The electrical grid should always behave as an ideal source of voltage without disturbances. In practice though, this is not the case because of voltage drops and losses in the distribution system or reduced performance due to atmospheric conditions.

The electrical disturbances that can have a major impact on the day-to-day activities of SMEs, large corporations and public authorities are the following:


Power cuts and micro-cuts


Undervoltages and voltage gaps


Transient and permanent overvoltages


Harmonics


Voltage oscillation


Frequency fluctuations

Solutions

Salicru's uninterruptible power supplies (UPSs) feature the technology and know-how necessary to protect the facilities of SMEs, large corporations and public authorities from all kinds of electrical disturbance.

PRODUCTS	FUNCTIONALITY
Uninterruptible power supplies (UPSs)	These store energy to ensure continuity of AC supply

A UPS is a key factor to take into account when making decisions that affect the energy security of data centres. Incorporating them into this kind of centre accounts for approximately 3-5% of total expenditure, a relatively small percentage that could represent a considerable saving by preventing data losses.

Not to mention that flexibility, scalability and redundancy are parameters that are becoming increasingly important in the ICT market. Possessing equipment that can adapt to the specific growth needs of a company is a significant economic and operational advantage. For this reason, Salicru boasts a specific range of UPSs that feature modular technology, the last link in the evolutionary chain of these devices for critical applications, as it significantly improves power availability and notably increases the security of classic power supply systems.

Salicru's modular solutions ensure reliability, quality and continuity and provide improved protection for small and medium-power data centres, both modular and virtualised, as well as IT infrastructures and applications for associated critical processes, avoiding the enormous costs resulting from interruptions in the operation of data centres.

Applications

High design specifications coupled with great adaptability (optional extras, growth, communication, etc.) make Salicru's UPSs the best protection and security option for applications that require a high level of security against all kinds of electrical disturbances such as:

- Data centres
- Hosting
- Housing
- IT networks
- Routers
- Switches
- Hubs
- Server farms
- Voice and data networks
- IT servers
- CAD/CAM
- Document management
- Unified communications (UC)
- Video streaming
- ERP systems
- CRM platforms
- Business intelligence (BI)
- Virtualised servers

Main features

Salicru's different UPS series offer all of the necessary features for the protection of applications that require a high level of security.

Their most outstanding features correspond to the **SLC Greenergy** and **SMART** Solutions that Salicru has been promoting for a number of years through its research and development of innovative products to meet the new protection needs of its customers.

The **SLC Greenergy** Solution encompasses highly energy-efficient devices built with more than 80% recyclable materials and incorporating innovative options such as 'ecomode' and the prioritised output function for the most critical loads.

The **SMART** Solution features devices that have a set of services associated with the product such as management software, connectivity solutions, monitoring, communication encryption in SNMP environments, virtual server management, remote maintenance service and use of DSP processors.

Lastly, another of Salicru's outstanding systems is Remote Management and Supervision which offers the possibility of remotely controlling different power devices, batteries, converters, inverters, AC equipment, etc.

'50% of information losses are due to interruptions and disturbances in the power supply.'

References

- Cisco Systems
- Fujitsu
- Hewlett Packard
- Hitachi
- IBM
- Informática El Corte Inglés
- Ingram Micro
- Intel
- Panasonic
- SAP
- Siemens
- Sony
- Stanley
- Thomson
- Toshiba

Devices

SPS ADVANCE RT2

Line-interactive sine-wave UPS 800VA to 3,000VA

- Line-interactive technology with sine-wave output
- Permanent AVR stabilisation
- Output power factor PF=0.9
- Control panel with swivel mount LCD display and keypad
- Convertible tower/rack format (2U)
- Backup extensions available for all power ratings

SLC TWIN PRO2

On-line double-conversion UPS 700VA to 20kVA

- On-line double-conversion UPS
- Output power factor = 1 (up to 3kVA=0.9)
- Control panel with LCD display and keypad
- Parallelable up to 3 units (1)
- Eco-mode operation
- Tower format

(1) From 4kVA

SLC TWIN RT2

On-line double-conversion tower/rack UPS 700VA to 10,000VA with PF=1

- On-line double-conversion technology
- Output power factor PF=1 (1)
- UPS models with extra charger for backup extensions
- Smart slot for SNMP/potential-free contacts/MODBUS
- Programmable outputs for critical/non-critical loads (2)
- Parallelable up to 3 units (3)
- PDU strip for distribution of output loads (3)

(1) Except for backup extensions from 4kVA
(2) For devices of up to 3kVA
(3) For devices from 4kVA

SLC ADAPT / 2

On-line double-conversion modular rack UPS 10kVA to 1,500kVA

- On-line double conversion technology with modular architecture
- Possibility of parallel/redundant operation up to 1,500kVA
- Hot-pluggable and swappable plug & play modules
- Flexible configurations 1/1, 1/3, 3/1 and 3/3
- Control and management by means of LCD display, LEDs and keypad
- Smart-efficiency mode to optimise system performance
- Compact design to save space in server rooms

SLC CUBE4

Uninterruptible Power Supplies with IoT from 7.5 to 80 kVA

- On-line double conversion technology with three-level topology.
- Output power factor 1 (kVA=kW).
- Input power factor >0.99.
- Input current distortion rate (THDi) <3%.
- Nimbus IoT connection for monitoring, as standard.
- High energy efficiency (over 96% in On-line mode and up to 99% in Eco mode).

SLC X-PERT

Uninterruptible power supplies 80 to 400 kVA

- On-line, double-conversion and DSP control technology.
- Output power factor 1 (VA=W).
- Double input connection to increase availability.
- No transformer in the inverter, compact design and less weight.
- Parallel system for redundancy or capacity purposes.
- 10" touch screen for all models.
- Selectable on-line/eco-mode operation.

INDUSTRY

Maximum protection in the corporate environment

The supply of power in the industrial field is basic and essential to ensure maximum profitability.

For this reason, ensuring a continuous, reliable, efficient and economical electricity supply in industrial environments is as critical as it is vital to ensure maximum business competitiveness.

Salicru has over 50 years of service experience in the industrial field and has installed more than 800,000 devices around the world.

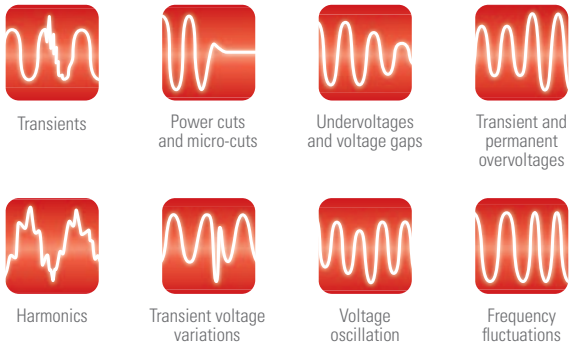
And always with the same maxim: be close to the customer to meet their needs.

Main electrical disturbances

The range of possible electrical problems that can affect industry is very extensive and can affect all kinds of industrial processes:

- Continuous manufacturing systems
- Control-command automations
- Instrumentation and measurement
- Supervision and control of processes
- Safety systems
- Etc.

Some of the electrical disturbances that most commonly occur in the industrial field are the following:



Solutions

If any of the external factors described disrupts electrical supply to industrial processes, it will inevitably have consequences for the productive capacity of companies, their economic profitability and their relationships with customers if they are unable to respond to demands within established time frames.

To prevent this from happening, Salicru has a wide-ranging portfolio that provides appropriate solutions to every type of problem or electrical disturbance, guaranteeing 24 hours of electrical power for the most sensitive systems in a sector as demanding as the industrial, and offering a continuous, clean, economical, reliable and environmentally friendly electrical supply within a wide range of power ratings, both in alternating and direct current.

In addition, thanks to the know-how acquired over more than 50 years of industrial activity, it can also offer solutions tailored to specific problems, work that is more typical in many cases of a power electronics engineering firm than a manufacturing company.

PRODUCTS	FUNCTIONALITY
Uninterruptible power supplies (UPSs)	These store energy to ensure continuity of AC supply
Voltage stabilisers	These ensure output voltage stability against voltage variations
Variable frequency drives	These control the rotating speed of machinery and motors
Power supplies	Devices capable of converting AC voltage into DC
Control transformers	Quality and versatility in low-power transformation

Uninterruptible power supplies (UPSs), voltage stabilisers, variable frequency drives and power supplies are some of the most outstanding solutions that Salicru offers today to meet the different needs of a sector as diverse as the industrial.

It is a range of solutions that provides maximum reliability in electrical protection, production and control systems and industrial processes that require the use of machinery that is highly sensitive to voltage variations, such as:

- Electric drives
- Electric furnaces
- Electrical discharge machines
- Graphic printing equipment
- Lathes
- Lifting devices
- Medical equipment
- Milling machines
- Numerical controls
- Polishers
- Presses
- Trimming machines
- TV repeater stations
- etc.

This is also the case, for example, for the most advanced technological processes such as ERP systems, CRM platforms and business intelligence tools.

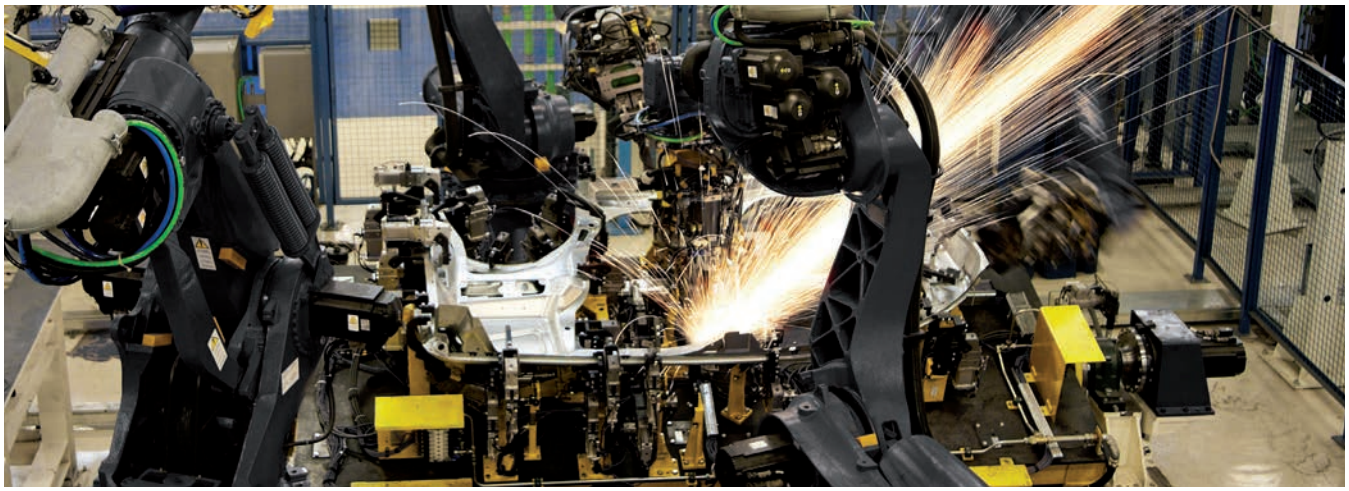
Main features

Salicru believes in innovation, and, because of this, its devices and associated services offer a recurring range of outstanding features that constantly seek to improve performance.

Aware, for example, of the current impact of energy expenditure on the industrial sector, Salicru has developed a number of devices with a high degree of energy efficiency that enable any devices connected to them to reduce both their consumption and environmental impact.

Another outstanding feature is the connectivity of its devices. Remote monitoring means saving on resources and gaining operational capacity, in addition to having a remote maintenance service that fully optimises upkeep.

'The main cause of data loss in the industrial world is not viruses, but the lack of electricity supply, which causes 40% of all losses'



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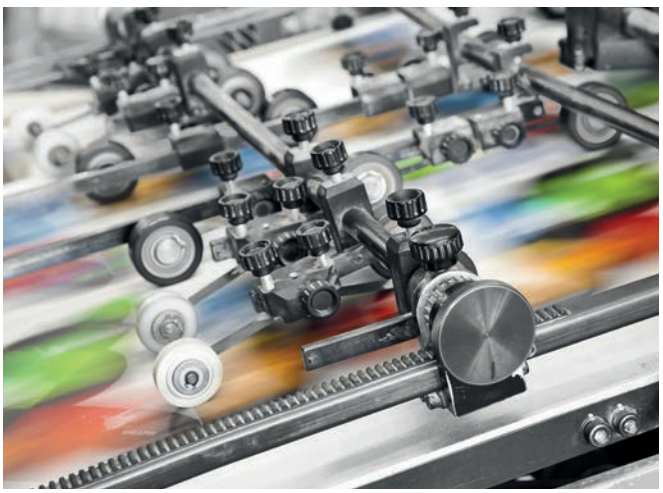
- BASF
- Bayer
- Boehringer Ingelheim
- Cepsa
- Dow Chemical
- EADS
- Gallina Blanca Star
- Galp Energia
- General Electric
- Honeywell
- Lafarge
- Nestle
- Otis
- Pepsico
- Renault
- Repsol
- Roche Diagnostics
- Unilever



Devices

SLC TWIN PRO2

On-line double-conversion UPS 700VA to 20kVA

- On-line double-conversion UPS.
- Output power factor = 1 (up to 3kVA=0.9)
- Control panel with LCD display and keypad.
- Parallelable up to 3 units. (1)
- Eco-mode operation.
- Tower format.

(1) From 4kVA

SLC CUBE 3+

Uninterruptible power supply 7.5kVA to 200kVA

- On-line double-conversion technology (VFI) with DSP control.
- Unity input power factor (PF=1).
- Very low input current distortion (THDi to < 1%).
- Total flexibility in input/output voltages. (1)
- Designed to withstand any kind of load.
- Batt-Watch function for monitoring and battery care.

(1) Single/single, single/three and three/single configurations up to 60kVA

IT-M

Single-phase command and control transformers

- Power range: 25 VA to 2000 VA.
- Typical input voltages up to 460 V.
- Voltage selection using jumpers included.
- Insulation class HC windings.
- Connection group Ii0.
- Protection against electric shock Class I.

CONTROLVIT

Variable frequency drives from 0.2kW to 500kW

- Selectable control: V/f, sensorless vector or torque control. (1)
- Automatic motor tuning (static and dynamic). (1)
- Built-in or optional EMC filter with easy connection. (1)
- Advanced PID process control.
- Automatic energy saving.
- Sleep/wake function for control of up to 3 pumps.

(1) Depending on model

DC POWER-L

Thyristor-controlled rectifiers 10A to 800A

- Microprocessor-controlled thyristor technology.
- Galvanic isolation between input and output via transformer.
- Ventilation by natural convection.
- Complete six-pulse bridge.
- Standard DC output earth fault detection.
- Electrolyte level detection for NiCd batteries (optional).
- Charging states: float, quick and exceptional.

EMI3

Servomotor voltage stabiliser 5 kVA to 1300 kVA

- Fast and efficient toroidal autotransformers for the entire power range.
- Output accuracy better than 1% (adjustable).
- In three-phase units, common or independent regulation per phase, unaffected by imbalances.
- Input regulation range ±15% standard.
- High efficiency, up to 97.5%.

INFRASTRUCTURES & ENERGY

High-performance protection for large critical applications

Transport, energy and water infrastructures are fundamental to carrying out the activities of countries, cities, companies and people.

Our professional and personal wellbeing largely depends on their proper functioning. And to ensure that they do, it is necessary for the energy supply that powers all of these infrastructures not to be disrupted by any electrical disturbance.

Because what would happen if air traffic control radar lost its electrical supply? Or if traffic lights did?

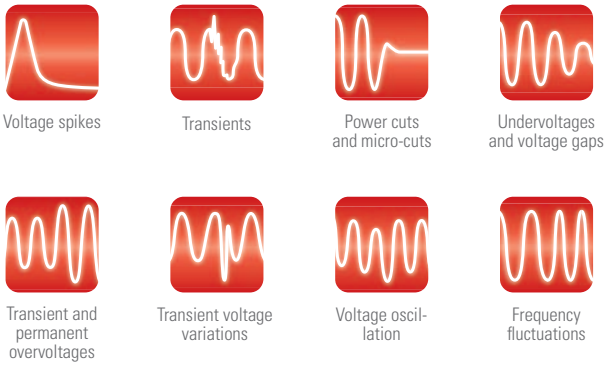
If there is a sector that due to its functioning could affect both our day-to-day wellbeing and the competitiveness of our professional work, it is undoubtedly that of infrastructures.

Airports, railways, ports and roads in transport infrastructures; electricity and fuel grids in energy infrastructures; and drinking and drainage water networks in water infrastructures constitute a collection of facilities, networks and services that are extremely critical to society. For this reason, and for their ability to influence the carrying out of other activities, they need a continuous and stable power supply, a supply that does not experience interruptions that affects normal operation.

Main electrical disturbances

A wide range of electrical disturbances, as diverse and varied as the infrastructure sector itself, can affect normal operation. In addition to voltage drops and losses in the conventional distribution system, the adverse climatic conditions to which this collection of infrastructures are subjected represent a serious determining factor that needs to be anticipated during planning and execution.

The main electrical disturbances in this sector are the following:



Solutions

To prevent these common electrical disturbances from occurring, Salicru offers a range of advanced technological solutions at the service of infrastructures as critical as those in this sector.

It consists of devices that can work individually or as a complement, depending on the type of facilities to which they are connected, and offer alternating current supply continuity solutions, stability against voltage variations, control of the speed of machinery motors and adjustment of the level of voltage coming from the distribution grid.

PRODUCTS	FUNCTIONALITY
Uninterruptible power supplies (UPSs)	These store energy to ensure continuity of AC supply
Variable frequency drives	These control the rotating speed of machinery and motors
DC/AC systems	These ensure output voltage stability against voltage variations
Transformers and autotransformers	These adjust the level of voltage coming from the distribution grid

Uninterruptible power supplies (UPSs)

Salicru has developed a range of **uninterruptible power supplies (UPSs)** whose features are ideal for large critical applications such as transport, power and water infrastructures, as they ensure the safeguarding of equipment and the proper management of systems.

They are devices that are capable of storing energy in a battery of accumulators that have the ability to convert the direct current of this battery into alternating current and provide electricity without interruptions in supply.

Variable frequency drives

There are increasingly different types of facilities that need to regulate the speed of their motors in order for them to adapt to changing load needs and for their energy consumption to be reduced. Salicru's variable frequency drives enable simple and efficient control of any application driven by asynchronous motors from 0.2kW to 500kW.

In the face of growing demand for energy in these facilities and also in many industrial processes, these variable frequency drives offer an effective solution to enhancing energy efficiency, producing significant financial savings and significantly improving the environment.

DC/AC systems

Ensuring the functioning of all of these infrastructures is essential for Salicru, and to achieve this, we also offer products that ensure alternative power sources, such as our **DC/AC systems**, devices that convert alternating into direct current (rectifiers, chargers) or direct into alternating current (inverters). They are specially designed to operate in very harsh and demanding operating environments, such as:

- Power generation plants
- Electrical substations
- Oil pipelines
- Gas pipelines
- Petrochemical plants
- Mines
- Railways
- Telecommunication facilities
- Hospitals
- Industrial processes

Transformers and autotransformers

Salicru's IT series of low-voltage electrical transformers and autotransformers are used as electrical isolation for the reduction of mains disturbances or to adjust the level of voltage coming from the distribution grid. Autotransformers, with their serially-connected coils that do not provide galvanic isolation, have the function of converting one voltage to another, and, as such, are a more economical solution than transformers.

Transformers are used in different types of industry, construction, energy technology and marine applications, such as electric motors, compressors, converters, cooling systems, UPSs and IT/TN networks. And autotransformers are used for adapting the voltage of the mains supply to the voltage required to power all kinds of load and machinery.

'93% of power supply problems are micro-cuts, which are easily preventable with a UPS.'

References

- ADIF
- AENA
- Alstom Power
- Bombardier
- CAF
- Cepsa
- Dimetronic
- Dow Chemical
- Dubai Natural Gas
- Ecopetrol
- EDP
- Enagas
- Endesa
- Eon
- Galp
- Gazprom
- Iberdrola
- Kuwait Oil Company
- Naturgy
- Pemex
- REE
- Repsol
- One World
- Siemens
- Star Alliance
- Texaco
- Thales Rail

Devices

SLC CUBE4

Uninterruptible Power Supplies with IoT from 7.5 to 80 kVA

- On-line double conversion technology with three-level topology.
- Output power factor 1 (kVA=kW).
- Input power factor >0.99.
- Input current distortion rate (THDi) <3%.
- Nimbus IoT connection for monitoring, as standard.
- High energy efficiency (over 96% in On-line mode and up to 99% in Eco mode).

SLC X-PERT

Uninterruptible power supplies 80 to 400 kVA

- On-line, double-conversion and DSP control technology.
- Output power factor 1 (VA=W).
- Double input connection to increase availability.
- No transformer in the inverter, compact design and less weight.
- Parallel system for redundancy or capacity purposes.
- 10" touch screen for all models.
- Selectable on-line/eco-mode operation.

DC POWER-S

DC energy systems

- Maximum power per system up to 81 kW.
- Flexible, scalable and N+n redundant systems, configurable for current demand and future expansion.
- Option of single or three-phase power supply.
- Power systems with output voltages of 24, 48, 110, 125 and 220 Vdc.
- High power density in modules, up to 27 W/in^3.

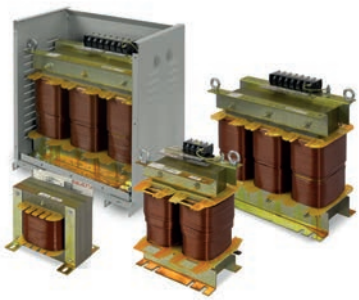
DC POWER-L

Thyristor-controlled rectifiers 10A to 800A

- Microprocessor-controlled thyristor technology .
- Galvanic isolation between input and output via transformer.
- Ventilation by natural convection.
- Complete six-pulse bridge.
- Standard DC output earth fault detection.
- Electrolyte level detection for NiCd batteries (optional).
- Charging states: float, quick and exceptional.

IT

Electrical transformers and autotransformers



- Class F insulators.
- Ventilation by natural convection (ANAN).
- Insulation class H windings.
- Power range: 1kVA - 300kVA.
- Single-phase Ii0 and three-phase Dyn11 connection configuration.
- Factors available: K-4, K-13 and K-20.
- Versions available: box or panel mounting.

CONTROLVIT

Variable frequency drives from 0.2kW to 500kW

- Selectable control: V/f, sensorless vector or torque control. (1)
- Automatic motor tuning (static and dynamic). (1)
- Built-in or optional EMC filter with easy connection. (1)
- Advanced PID process control.
- Automatic energy saving.
- Sleep/wake function for control of up to 3 pumps.

(1) Depending on model

TELECOM

The best technology and protection for a strategic and innovative sector

In order for telecommunications companies to offer their services, they need a constant and reliable electricity supply. That is, a supply without power cuts, disturbances or fluctuations that can affect the normal operation of telecommunication devices.

To prevent this from happening and affecting the competitiveness of our work and wellbeing in our daily lives, uninterruptible power supplies (UPSs) have been developed, devices that Salicru started manufacturing more than 50 years ago.

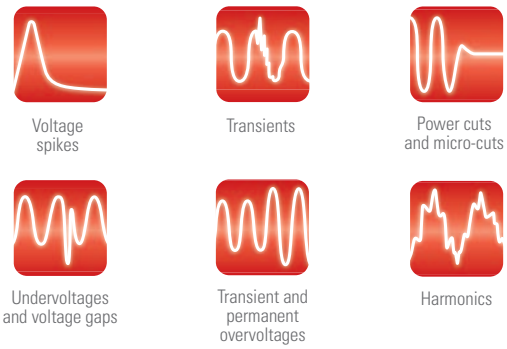
Few sectors, like that of telecommunications, better reflect the technological progress of recent years and its contribution to the development of the information society.

Because to talk today about telecommunications is to talk about the technology related to television, radio, landline and mobile telephones, voice and data networks and the Internet. Certain basic services that, in the event of disruption, can have major consequences for the economy, security, health, transport, etc., not to mention the loss of confidential information stored in data centres.

Therefore, due to their fundamental role in society, these critical infrastructures require very high levels of reliability in their numerous security protocols. And among those security protocols, UPSs play an essential role.

Main electrical disturbances

In the telecommunications sector, the most common electrical disturbances are the following:



Solutions

To prevent these disturbances in the power supply from affecting the services provided by the telecommunications sector, Salicru has a catalogue of numerous solutions that can be adapted to the different needs of operators.

It consists of a range of devices that can work individually or as a complement, depending on the type of facilities to which they are connected, and offer alternating current supply continuity solutions, stability of output voltage, conversion of direct/alternating voltage and energy storage.

In short, these are solutions that guarantee 24 hours of stable power supply for systems as sensitive as those used by the telecommunications sector.

PRODUCTS	FUNCTIONALITY
Uninterruptible power supplies (UPSs)	These store energy to ensure continuity of AC supply
DC/AC systems	Devices that convert alternating current into direct and direct current into alternating
Inverters	Converters of direct voltage into alternating voltage
Rectifiers	Converters of alternating voltage into direct voltage
Battery chargers	Devices that enable energy to be stored

Modular technology: the latest evolution in UPSs

Salicru has a wide range of UPS systems whose features are ideal for large critical applications, such as telecommunications infrastructures, as they safeguard equipment and ensure the proper management of systems.

In this sector, Salicru is firmly committed to modular UPS systems, devices that combine efficiency, flexibility, scalability, redundancy and reliability. These are devices that incorporate the most advanced technology, significantly improving the availability of energy and substantially increasing the security of classic power systems.

Modular technology and its advantages

Modular UPS systems consist of a large number of modules connected in redundant parallel and represent the logical evolution of parallel UPSs. What are its advantages?

- High reliability from manufacturing identical modules
- Redundancy and high availability
- Greater scalability
- Improved module performance
- Redundant static bypass
- Intelligent system management
- Drastic reduction of MTTR
- Adaptability to any kind of facility
- Optimisation of power converters
- Cycling to equalise the operation of all modules

Modular technology offers an especially important advantage in data centre level and tier classification, enabling data centres to obtain high ratings (Tier III or Tier IV). And this is possible not only because of the strict specifications of the UPS used, but also because of the complete design of the DC environment, cooling system and electrical distribution to the critical loads.

Another advantage of modular UPSs is reduced total cost of ownership (TCO) and operational expenses (OPEX), thanks to the maximum energy efficiency of their structure and global system with proper management of it. The other aspect to highlight is reduced capital expenditure (CAPEX), mainly because the manufacture of large numbers of identical modules enables the development of an economy of scale which improves the manufacturing costs of UPSs and guarantees high price competitiveness.

Other security devices

In addition to a permanent power supply, current telecommunication systems also need devices that store energy as an alternative, as is the case of DC/AC systems or battery chargers, which also meet the needs of a wide variety of critical loads that have to be correctly powered and protected.

Particularly suited to the telecommunications sector are rectifiers and inverters, which help to provide a high-quality AC power supply from a DC power source.

This is **Salicru**'s response to the expectations and needs of a sector as dynamic and in continuous technological evolution as that of telecommunications, with devices that offer functionalities to a wide range of services.

- Landline and mobile communications networks
- Broadband networks
- Data and telecommunications networks
- Transmission and communications devices
- Data centres (modular and virtualised)
- Calculation centres
- Document management centres
- Server/communications racks
- Unified communications (UC)
- Routers, switches, hubs, etc.
- Point-of-sale
- CAD/CAM
- Video streaming

References

- Abertis
- Bouygues Telecom
- Cable & Wireless
- China Central TV
- Ericsson
- Indra
- Ikudi
- Lucent Technologies
- Motorola
- Nokia
- Nortel
- Orange
- Portugal Telecom
- Siemens
- Telefónica
- Vodafone

'The installation of a UPS in a completely new data centre represents between 3 and 5% of total expenditure'

Devices

DC POWER-S

DC energy systems

- Maximum power per system up to 81 kW.
- Flexible, scalable and N+n redundant systems, configurable for current demand and future expansion.
- Option of single or three-phase power supply.
- Power systems with output voltages of 24, 48, 110, 125 and 220 Vdc.
- High power density in modules, up to 27 W/in^3.

SPS ADVANCE R

Line-interactive sine-wave UPS 1U rack 750 VA to 1,500 VA

- Line-interactive technology with AVR stabilisation (buck-boost).
- Pure sine wave.
- Ultra-compact 1U rack format.
- Efficiency of up to 98%.
- Compatible with APFC power supplies.
- LCD display + keys for operation and information.
- Smart slot for SNMP/potential-free contacts/Modbus.

SPS ADVANCE RT2

Line-interactive sine-wave UPS 800VA to 3,000VA

- Line-interactive technology with sine-wave output.
- Permanent AVR stabilisation.
- Output power factor PF=0.9.
- Control panel with swivel mount LCD display and keypad.
- Convertible tower/rack format (2U).
- Backup extensions available for all power ratings.

SLC TWIN RT2

On-line double-conversion tower/rack UPS from 700 VA to 10,000 VA with PF=1

- On-line double-conversion technology
- Output power factor PF=1. (1)
- UPS models with extra charger for backup extensions.
- Smart slot for SNMP/potential-free contacts/MODBUS.
- Programmable outputs for critical/non-critical loads. (2)
- Parallelable up to 3 units. (3)
- PDU strip for distribution of output loads. (3)

(1) Except for backup extensions from 4kVA (2) For devices up to 3 kVA.
(3) For devices from 4 kVA.

SLC ADAPT / 2

On-line double-conversion modular rack UPS 10kVA to 1,500kVA

- On-line double conversion technology with modular architecture.
- Possibility of parallel/redundant operation up to 1,500 kVA.
- Hot-pluggable and swappable plug & play modules.
- Flexible configurations 1/1, 1/3, 3/1 and 3/3.
- Control and management by means of LCD display, LEDs and keypad.
- Smart-efficiency mode to optimise system performance.
- Compact design to save space in server rooms.

SLC X-PERT

Uninterruptible power supplies 80 to 400 kVA

- On-line, double-conversion and DSP control technology.
- Output power factor 1 (VA=W).
- Double input connection to increase availability.
- No transformer in the inverter, compact design and less weight.
- Parallel system for redundancy or capacity purposes.
- 10" touch screen for all models.
- Selectable on-line/eco-mode operation.

ENERGY EFFICIENCY & RENEWABLES

Commitment to sustainability as a corporate value

Society in general and industry in particular demand equipment that, in addition to responding to their business needs, reduce energy consumption, save on economic costs and promote sustainable use to protect the environment.

For many years, as a corporate value to provide greater competitiveness, Salicru has been committed to renewable energy and the most advanced technology applied to energy efficiency through its SLC Greenergy Solutions line, which includes a wide range of products and services.

In addition to guaranteeing a stable, continuous, reliable and economic electricity supply to its customers, Salicru's mission is also to ensure an efficient and ecological electricity supply.

After 15 years of success with stabilisers-step-down light dimmers, the company has gone a step further and decisively opted for developing new products that will position it with greater strength in the energy efficiency and renewable energy market.

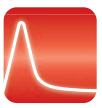
With this new range of products within its SLC Greenergy Solutions line, Salicru has reinforced its commitment to the implementation of 'clean' technologies in electrical equipment and systems and has expanded its market to new industrial and professional areas, offering its customers increasingly sustainable and competitive solutions.

Main electrical disturbances

The electrical disturbances that most commonly occur in the field of energy efficiency and renewables, and which are the source of multiple problems in all kinds of equipment and facilities, are the following:

Why? Because of the enormous advantages that this brings, such as efficient energy consumption, energy and economic savings, reduced production and maintenance costs, increased service lives of electrical and electronic equipment by reducing the risk of breakdowns, etc., not to mention reduced CO_2 emissions and decreased use of natural resources.

As one of the main cornerstones of Salicru's business strategy, all new energy efficiency applications and technologies are also applied to the manufacturing process of our products. This involves the integration of a range of parameters that allow us to obtain higher performance with less energy consumption and calorific detachment.


Voltage spikes


Undervoltages and voltage gaps


Transient and permanent overvoltages


High frequency disturbances

Solutions

Salicru offers its customers a range of sustainable and competitive solutions in electrical equipment and systems to contribute to minimising CO_2 emissions and reducing energy and economic costs. Solutions that also include eco-efficient benefits in materials and components as well as applied technology.

Under the SLC Greenergy Solutions line, Salicru manufactures and sells the following products: photovoltaic inverters, variable frequency drives for solar-powered water pumping and stabilisers-step-down light dimmers.

PRODUCTS	FUNCTIONALITY
Photovoltaic Inverters	Converters of direct current from solar panels into alternating current
Variable frequency drives for solar-powered water pumping	Water pumping using radiation captured by solar panels as an energy source
Lighting flow dimmer-stabilisers	Voltage stabilisers adapted to the application and energy control of street lighting

Photovoltaic inverters

EQUINOX is Salicru's series of solar inverters for transformerless mains connections characterised by being lightweight, compact and highly reliable, and whose installation and use have been facilitated to the maximum for greater operational convenience.

Thanks to its innovative technology, backed by the company's extensive experience in the power electronics market, these devices offer high performance in indoor and outdoor photovoltaic plants, ranging from small powers to large facilities through parallel inverters, obtaining configurations that provide a higher degree of reliability due to their modular design. The **EQUINOX** range includes powers in connection to single-phase or three-phase grid.

Variable frequency drives for solar-powered water pumping

Among Salicru's variable frequency drives is the Controlvit **CV30-PV** series. Its main function is to pump water using the radiation captured by solar panels as an energy source. The solar light energy obtained is transformed into direct current which powers the drive, and this in turn powers a submersible pump using alternating current, thus enabling water from the ground to be extracted. The extracted water can be stored in a tank or reservoir for subsequent use, or it can be used for direct irrigation, depending on the needs of the farm.

This functionality is extremely useful in locations that need a reliable, cost-effective water supply with a long service life and low maintenance costs. It is also environmentally friendly as it does not cause pollution or noise.

Lighting flow dimmer-stabilisers

More than two decades ago, **Salicru** pioneered a new way of accurately regulating street lighting with its range of **ILUEST** lighting flow dimmer-stabilisers, which make it possible to achieve significant energy and maintenance savings.

Since then, it has installed more than 27,000 lighting flow dimmer-stabilisers in countries such as Spain, China, France, Poland, Tunisia and Morocco, which have represented, among other parameters, energy savings of more than one million MWh and emission reductions of 250,000 tons of CO_2.

Salicru currently offers two state-of-the-art models, the **ILUEST+CR** and **ILUEST+MT**, which incorporate innovative modularity, power density and remote management elements.

'European countries consume less energy than 10 years ago, mainly thanks to increased energy efficiency'

Projects

· Aguascalientes Photovoltaic Park, **Mexico**
· Al-Muntazah Street Extension, **Qatar**
· Barcaldine Solar Farm, **Australia**
· Borges Thermosolar Plant, **Spain**
· 'Galapagos with its own electricity' project, Galapagos, **Ecuador**
· Tempoku Wind Farm, **Japan**
· Uribe Photovoltaic Solar Plant, **Chile**

References

· Abertis
· AENA
· Ashghal-Public Works Authority Qatar
· Autoroutes du Sud de la France (ASF)
· CASA-EADS
· General Electric
· Government of Tunisia
· Prodetur - Regional Government of Andalusia

Devices

EQUINOX S

Single-phase solar power inverters for mains connection from 2 to 6 kW

- Elegant design with aluminium housing and anodized finish.
- IP65 protection rating allows outdoor use.
- Plug & Play connection.
- Five power ratings. Adaptable to any kind of home or premises.
- Supervision of the installation via free EQX-sun.
- LCD for start-up, configuration and viewing of production data.
- 5-Year warranty, extendable to 20 years.

EQUINOX TM

Three-phase solar power inverters for mains connection from 5 to 10 kW

- Elegant design with aluminium housing and anodized finish.
- Compact size, minimizes the space required.
- 2 MPPT Trackers allow for roofs of most dimensions.
- Wide MPPT tracker voltage range for more flexible string design.
- Integrated DC disconnector.
- 3-Level type T topology provides high conversion efficiency and low distortion.
- Supervision of the installation via free EQX-sun

EQUINOX TL

Three-phase solar power inverters for mains connection from 15 to 30 kW

- Modular design facilitates installation and maintenance.
- High power density, reduced size.
- Intelligent DC combiner and integrated over-voltage protection to improve system flexibility and reduce its cost.
- Integrated power export limiting function.
- Supervision of the installation via free EQX-sun.
- LCD for start-up, configuration and viewing of production data.

CV30-PV

Variable frequency drives for solar-powered water pumping from 0.4 kW to 75 kW

- Integrated advanced MPPT algorithm.
- Automatic start-up and shutdown depending on solar radiation.
- Detection of dry well and full tank.
- Considerable reduction in the number of solar panels required thanks to the optional booster module (up to 2.2 kW).

SPS SAFE MASTER

Master/slave smart electrical protection

- 5 Schuko sockets
- One Schuko socket always powered.
- 2 USB 5 VDC charger sockets.
- Master/slave function.
- Automatic switching on/off of peripherals.
- EMI/RFI filter.

ILUEST+

Lighting flow dimmer-stabilisers from 3.5 kVA to 120 kVA

- Electronic regulation of light flow through static elements and state-of-the-art microprocessor control.
- Totally independent regulation per phase.
- Automatic bypass per phase with independent, manually actionable and enabled by default operation.
- Protection with programmable automatic reset due to overload and overtemperature.

SPS NET

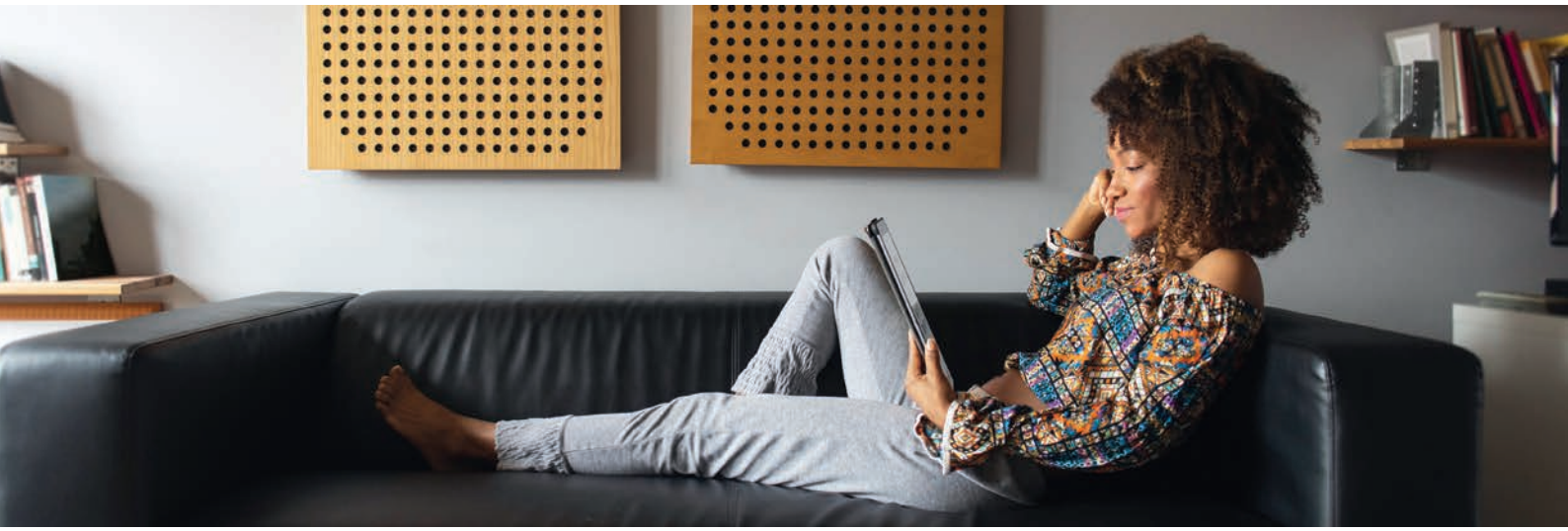
Compact DC UPS with lithium-ion batteries

SPS NET: Long battery life in case of power cuts in networking devices

Salicru's **SPS NET** is a compact Uninterruptible Power Supply (UPS) system that is specially designed to supply automated systems, modems and routers (+ONT) for a long period of time when a power failure occurs. **SPS NET** not only protects your equipment against power surges, but also gives you peace of mind in knowing that during a power outage you have enough energy stored in your 7800 mAh Li-Ion battery to keep the devices in your home network connected to the Internet, so you can keep in touch with your loved ones, continue a video conference or end the episode of your favourite series without consuming data on your 4G/5G tariff. **SPS NET** is easy to install and requires no technical knowledge to connect it to network devices such as routers, IP cameras, alarms or home automation systems. It generates no noise or heat and can be installed in any environment within a home or office.

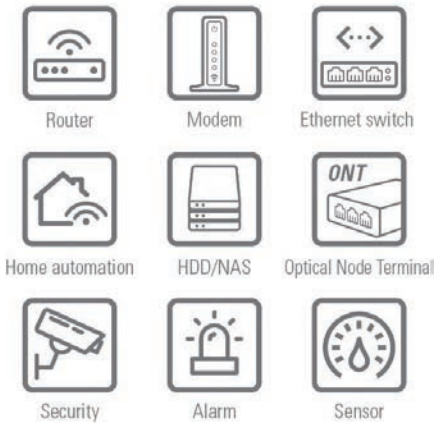
Applications: Staying connected to the Internet has become increasingly important

SPS NET recharges when connected to the mains and is the optimal solution for SMEs and home offices because it is designed to prevent downtime during a power failure. Video conferences, sending critical emails, staying connected to a virtual private network (VPN) or simply enjoying digital entertainment are all susceptible to unexpected Wi-Fi disruption due to a power outage and **SPS NET** provides you with peace of mind by ensuring that you stay connected when you need it most.



Performances

- 7800mAh Li-Ion battery.
- Wide input voltage range (90 V ÷ 265 V).
- 12 V DC output with no need for an external transformer.
- Battery life of up to 4 hours.
- Low self-consumption (<0.8 W).
- Generates zero noise or heat.
- Compact and lightweight design.
- Protection against lightning, surges and voltage peaks.
- LED-bar battery life indicator.
- ON/OFF button.
- Wall mounting possible.
- Dual output cable with connectors and adapters (x2) compatible with the vast majority of routers on the market.
- **3-Year warranty.**



Technical specifications

MODEL		SPS NET
INPUT	Rated voltage	90 V AC ~ 264 V AC
	Rated frequency	50 Hz ~ 60 Hz
OUTPUT	Rated voltage	12 V DC
	Voltage accuracy (battery mode)	± 5%
	Power	12 W (1 A.)
	Maximum power	25 W (2.1 A)
	Transfer time	0 ms.
	Admissible overloads in battery mode	Yes Output < 11.4 V for 10 s. Output < 10.8 V for 0.4 s.
	Admissible overloads in on-line mode	Yes Output < 11.7 V for 10 s.
BATTERY	Battery type	Lithium-Ion
	Rated voltage	3.7 V DC
	Capacity	7.8 Ah (3 × 2600 mAH)
	Charging voltage	4.2 V ± 0,05 V DC
	Recharge time	8 hours, @ 90% of capacity
	Back up time	Up to 4 hours
	No-load consumption	< 0.8 W
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
PROTECTION	Output short circuits	Yes (< 5 V for 3 ms.)
STANDARDS	Safety	EN62368-1
	Electromagnetic compatibility (EMC)	EN55032 Class A / EN61000-3-2 / EN61000-3-3 / EN55035
	Quality and environmental management	ISO 9001 & ISO 14001
CONTENTS	Contents of the box	1 × SPS NET, 1 × Dual DC cable, 1 × AC input cable, 2 × DC adapters, Quick guide, Warranty
WARRANTY	Warranty	3-years
DIMENSIONS	Depth × Width × Height (mm)	40 × 80 × 150
WEIGHT	Weight (kg)	0.33
CODE		658BB000005

SPS HOME

Off-line APFC multi-socket UPS 650 VA and 850 VA

SPS HOME: Ideal multi-socket solution for office or home environments

Salicru's **SPS HOME** series UPSs boast off-line technology, are available in 650 and 850 VA powers, feature a 6-socket design and have the capacity to protect loads with active power factor correction (APFC).

All of the 6 sockets feature overvoltage protection and 3 or 4 of them have autonomy backup for power failure situations. All of them are also conveniently orientated for easy connection of power supply transformers and are shuttered for child protection. To complete the protection, they also feature RJ45 sockets to protect telephone/ADSL/Ethernet connections from overvoltages and/or electrical noise.

And to facilitate the management and control of the UPS, the USB interface incorporates the HID protocol, which allows the configuration of parameters and the closing/hibernation of the PC. There is also the option of software packages for the monitoring and orderly closing of files for Windows, Linux and Mac.

Applications: Multiple protection against overvoltages and with backup reserve

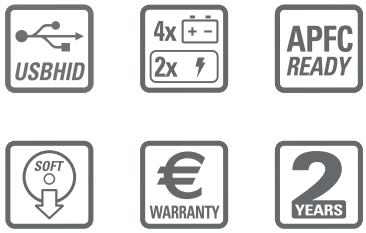
In the event of electrical disturbances –outages, micro-cuts, overvoltages and voltage spikes– as a result of various causes – storms, lightning, excessive demand and natural disasters– the best protection for all computer users who depend on a stable and correct power supply in a UPS. Salicru's **SPS HOME** series is, thanks to its multiple sockets, the ideal protection for single-user systems and all of their associated peripherals (HDD, monitor, printer (*), NAS, router/modem/switch, etc.).

(*) Laser printers must only be connected to the overvoltage protection sockets (surge protector).

Performances

· Off-line technology.
· Multiple base design with 6 sockets.
· 3 or 4 sockets with UPS protection; all sockets with over-voltage protection.
· On/Off multifunction pushbutton.
· Self-detection of 50 or 60 Hz frequency.
· LEDs indicating mains, battery mode and battery failure.
· USB port for monitoring and file closing software.
· Telephone/ADSL line protection by RJ-45 port.
· Batteries user replaceable.
· Cold Start function.
· Anchoring for wall fixture.
· Automatic restart after each power cut and at the end of autonomy.
· Economic guarantee for connected units up to €70,000. (1)

(1) Only European Union countries



Compatibility with APFC loads

The vast majority of power supplies for electronic devices are switched-mode (SMPS) and they are increasingly being equipped with active power factor correction (APFC) to minimise distortion caused to the electrical line. **SPS HOME** UPSs are compatible with all devices that incorporate these functionalities.

Salicru warranty

· 2-year warranty.
· On-line registry at www.salicru.com.
· Economic guarantee.
· Replacement of defective product at user's Office/Home.(1)
· Batteries covered by the warranty.

(1) Consult countries with this service

Range

MODEL SCHUKO	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 650 HOME	693CA000001	650 / 360	6 (4 UPS + 2 Prot.)	316 × 121 × 94	2.7
SPS 850 HOME	693CA000002	850 / 490	6 (4 UPS + 2 Prot.)	316 × 121 × 94	3

MODEL UK	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 650 HOME UK	693CA000003	650 / 360	6 (3 UPS + 3 Prot.)	316 × 121 × 94	2.7
SPS 850 HOME UK	693CA000004	850 / 490	6 (3 UPS + 3 Prot.)	316 × 121 × 94	3

Dimensions

SPS 650/850 HOME UK

SPS 650/850 HOME

Connections

1. UPS backup + overvoltage protection sockets.
2. Overvoltage protection sockets.
3. On/Off button.
4. AC input.
5. USB-HID interface.
6. RJ45 telephone/ADSL/Ethernet protection.
7. Resettable protection circuit breaker.
8. Replaceable battery, battery swap.

Technical specifications

MODEL		SPS HOME
TECHNOLOGY		Off-line
FORMAT		Socket design
INPUT	Rated voltage	230 V
	Voltage range	180 ÷ 270 V
	Rated frequency	50 / 60 Hz (auto-detection)
	Protection	Resettable breaker
OUTPUT	Rated voltage	230 V
	Voltage accuracy (battery mode)	±7%
	Waveform (battery mode)	Pseudo sine wave
	Frequency	50/60 Hz (same as input)
	Frequency accuracy (battery mode)	±1Hz
	Transfer time	4 ms (typical)
	Compatibility with APFC loads	Yes
BATTERY	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Recharge time	8 hours to 90%
	User replaceable battery	Yes
COMMUNICATION	Ports	USB (HID protocol)
	Monitoring software	For Windows, Linux and Mac
INDICATIONS	Type	LED
	Audible	Every 30 s for battery operation / Every 0.5 s for overload / Continuous for failure
OTHER FUNCTIONS	Self-charge	Yes, even with the device switched off
	Cold start (start-up from batteries)	Yes
	Automatic restart	Yes, after end of backup
	ADSL/fax/modem transient protector	Yes, 2 × RJ45 for tel/fax, Internet ADSL + Ethernet network 10/100 Mb
GENERAL	Operating temperature	0° C ÷ 40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl
	Acoustic noise at 1 metre	<40 dB
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN 62040-2
	Operation	EN 62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

SPS ONE

Line-interactive UPS 500 to 2000 VA

SPS ONE: The best electrical protection for home and professional office

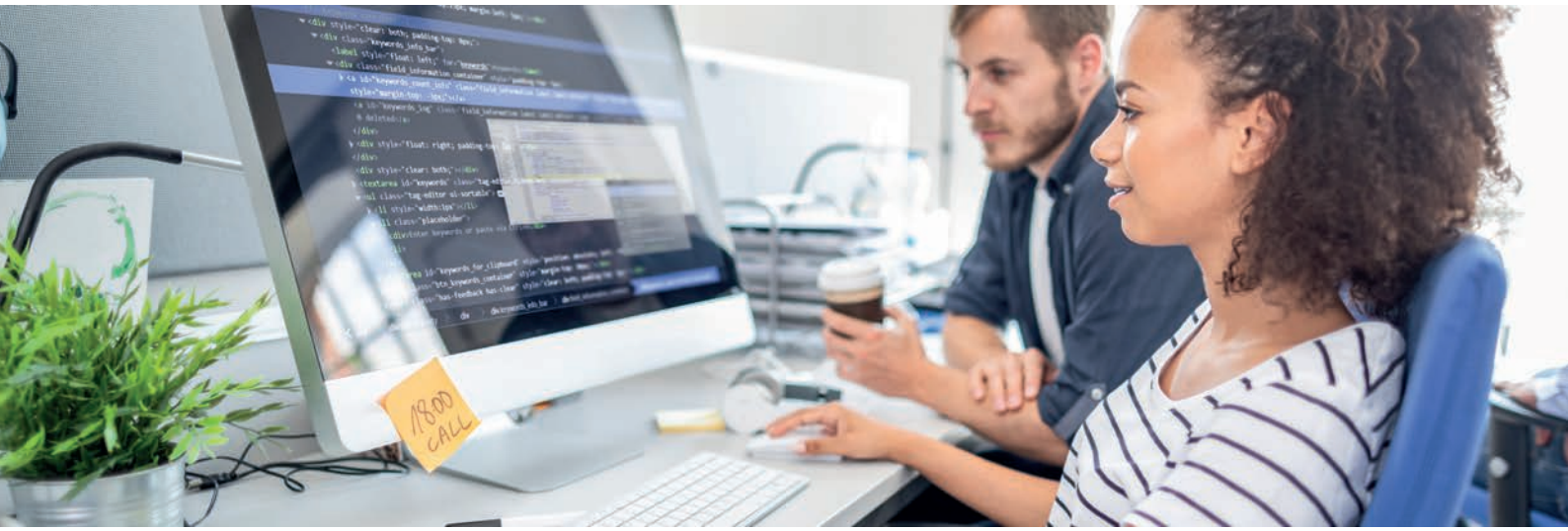
An uninterruptible power supply (UPS) in a mini tower format with Line-interactive topology, Salicru's **SPS ONE** series provides battery backup (with pseudo sine wave inverter output) and overload protection. During power failures, **SPS ONE** devices provide battery backup to enable computer systems to shut down properly and protect against data loss and electronics damage. Operation through automatic voltage regulation (AVR) to correct small voltage fluctuations without having to use the battery, thus extending its life. The AVR function is essential in areas where voltage fluctuations occur frequently.

It features a UPS/PC communication interface via USB with HID protocol, which allows parameter setting, UPS control and shutdown or hibernation of the computer through the USB port. Compatible with Windows, Linux and Mac operating systems. UPS management and monitoring software is also available for closing files/applications for Windows, Linux and Mac families. Free and downloadable from www.salicru.com.

The **SPS ONE** series is available in 500, 700, 900, 1100,1500 and 2000 VA power ratings.

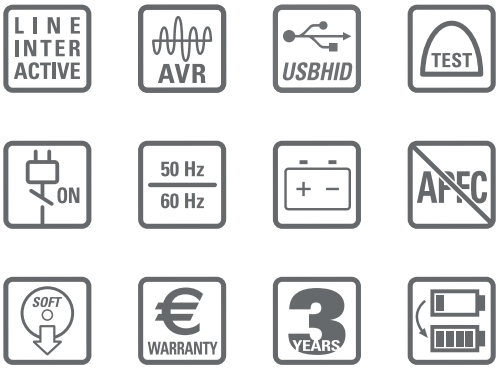
Applications: Essential security to ensure the continuity of typical office computing tasks.

The numerous computer and multimedia devices we have in our homes, offices and small businesses hold large amounts of personal and professional files and data. All of these systems, however, are highly dependent on one thing: a good quality, stable power supply to ensure that they can be used and enjoyed without interruption. The best solution to prevent interruptions, damage or data loss is the protection provided by a UPS from Salicru's **SPS ONE** series.



Performances

- Line-interactive technology.
- Backup battery for power supply interruptions.
- Overvoltage protection for sensitive devices.
- Automatic voltage stabilisation (AVR)
- Pseudo sine wave output voltage.
- USB interface with HID protocol for all models.
- Management and monitoring software for Windows, Linux and Mac.
- A single on/off button for ease of use.
- LED status indications.
- Automatic restart when power supply restored.
- Compact mini tower format.
- Protection against overloads, short circuits and transients.
- 3-year warranty.
- Economic guarantee for connected devices (EU countries only).
- SLC Greenergy solution.



USB interface with HID protocol

- Parameter configuration, UPS control and computer shutdown/hibernation through the USB port.
- Available for Windows, Linux and Mac environments.

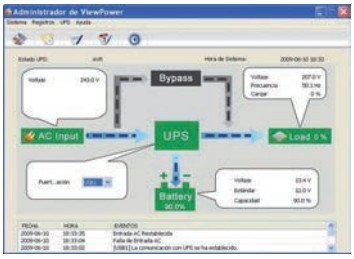
Salicru warranty

- Online registration at support.salicru.com.
- 3-year warranty.
- Replacement of the product at the user's office/home. (1)
- Batteries covered by the warranty.

(1) Consult countries with this service.

Software

- UPS monitoring and orderly closing of files/applications for Windows, Linux and Mac families.
- Free and downloadable from www.salicru.com.



Available sockets

Range

MODEL SCHUKO	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 500 ONE	662AF000001	500 / 240	2	300 × 101 × 142	3.5
SPS 700 ONE	662AF000002	700 / 360	2	300 × 101 × 142	4.45
SPS 900 ONE	662AF000003	900 / 480	2	300 × 101 × 142	4.9
SPS 1100 ONE	662AF000004	1100 / 600	4	320 × 130 × 182	8.2
SPS 1500 ONE	662AF000005	1500 / 900	4	320 × 130 × 182	10.4
SPS 2000 ONE	662AF000006	2000 / 1200	4	320 × 130 × 182	11

MODEL IEC	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 500 ONE IEC	662AF000013	500 / 240	4	300 × 101 × 142	3.5
SPS 700 ONE IEC	662AF000014	700 / 360	4	300 × 101 × 142	4.45
SPS 900 ONE IEC	662AF000015	900 / 480	4	300 × 101 × 142	4.9
SPS 1100 ONE IEC	662AF000016	1100 / 600	6	320 × 130 × 182	8.2
SPS 1500 ONE IEC	662AF000017	1500 / 900	6	320 × 130 × 182	10.4
SPS 2000 ONE IEC	662AF000018	2000 / 1200	6	320 × 130 × 182	11

MODEL UK	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 500 ONE UK	662AF000007	500 / 240	2	300 × 101 × 142	3.5
SPS 700 ONE UK	662AF000008	700 / 360	2	300 × 101 × 142	4.45
SPS 900 ONE UK	662AF000009	900 / 480	2	300 × 101 × 142	4.9
SPS 1100 ONE UK	662AF000010	1100 / 600	4	320 × 130 × 182	8.2
SPS 1500 ONE UK	662AF000011	1500 / 900	2	320 × 130 × 182	10.4
SPS 2000 ONE UK	662AF000012	2000 / 1200	2	320 × 130 × 182	11

Dimensions

SPS 500÷900 ONE (UK/IEC)

SPS 1100 ONE (UK/IEC)

Technical specifications

MODEL		SPS ONE
TECHNOLOGY		Line-interactive
FORMAT		Tower
INPUT	Rated voltage	220 V / 230 V / 240 V AC
	Voltage range	Until 162 V ÷ 290 V
	Stabiliser	AVR Buck / Boost
	Rated frequency	50 / 60 Hz
	Auto~detection of frequency	Yes
	Protection	Thermal re-arm or fuse (depending on model)
OUTPUT	Rated voltage	220 V / 230 V / 240 V AC
	Voltage accuracy (battery mode)	±10%
	Waveform (battery mode)	Simulated sineware
	Frequency	50 / 60 Hz ± 1 Hz (1)
	Transfer time	2 / 6 ms
	Socket type	Schuko (DIN), english (UK) or IEC
BATTERY	Battery type	Enclosed batteries Pb-Ca without maintenance, sealed, design life 3-5 years
	Recharge time	4-6 hours until 90% capacity
	User replaceable battery	Yes
	Back up time	Up to 20 minutes
	Battery replacement alarm	Yes
COMMUNICATION	Ports	USB HID
	Monitoring software	Compatible with Windows, Linux, Unix and Mac
	Downloadable from	support.salicru.com
INDICATIONS	Type	LED
	Operating modes	Normal / Stabilisation (AVR) / Battery
	Mains present	Green LED
	Alarm	Output battery mode, low battery (back up time), charger failure and overload
	Audible	Every 10 s for battery operation. Every 1 s for low battery. Every 0.5 s for overcharge. Continuous for fault 2 s for battery replacement.
	Failure	Red LED
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Automatic restart	Yes, after the end of back up time
GENERAL	Operating temperature	0º C ÷ + 40º C
	Relative humidity	Utill 90%, without condensation
	Maxium operating altitude	2,400 masl
	Acoustic noise at 1 metre	< 40 dB
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN-IEC 62040-12
	Operation	EN 62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Battery mode

SPS SOHO+

Line-interactive UPS 500 VA - 2200 VA with dual USB charger

SPS SOHO+: Optimum electrical protection for office environments and systems

Salicru's **SPS SOHO+** series UPS systems stand out for their Line-interactive technology, compatibility with APFC (active power factor correction) loads and their dual USB charger on the front – all in a power range from 500 to 2,200 VA and versions with Schuko or IEC sockets.

Line-interactive systems use AVR (buck-boost) automatic voltage regulators to reduce possible fluctuations in input voltage, thereby lowering battery use, extending battery life and providing maximum backup if necessary.

They also feature a USB interface with HID protocol for control, parameter setting and computer shutdown/hibernation. Also available is a software package for the management and monitoring of associated environments, including virtualised systems.

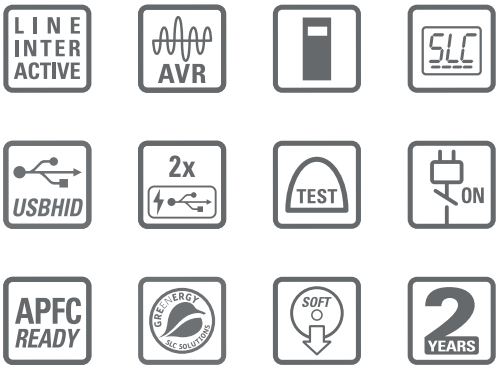
The range consists of models with the following power ratings: 500, 650, 850, 1,200, 1,600 and 2,200 VA.

Applications: Electrical security when doing business

Salicru's **SPS SOHO+** series UPS systems are ideal for the protection of computer/office environments from single-user management, design or communications stations to small networks composed of one server, various workstations and all associated peripherals. At the same time, they allow the charging of mobile devices through the two built-in USB ports. They are therefore suitable for shops, self-employed professionals, small offices, franchises, dealers, etc.

Performances

· Line-interactive technology.
· Dual USB charger on the front (max. 2 Amp).
· Compatible with APFC (active power factor correction) loads.
· Complete LCD display with all information.
· Permanent stabilisation (AVR).
· USB communication interface with HID protocol.
· Monitoring software for Windows, Linux and Mac.
· Schuko or IEC sockets available.
· Resettable input thermal protection.
· Cold start function for start-up without mains.
· Automatic restart when power restored.
· Automatic frequency detector 50 or 60 Hz.
· Protection against overloads and short circuits.
· SLC Greenergy solution.



Display

1. Battery level available (25-50-75-100% and end of backup).
2. Connected load level (25-50-75-100% and overload).
3. Input voltage.
4. Output voltage.
5. Normal operation.
6. AVR operation (stabilisation).
7. Battery operation (power cut CA).
8. Device fault.

Software

UPS monitoring and management software, allowing the orderly closing of files and programs in the event of prolonged power cuts. Valid for Windows, Unix, Linux and Mac.

Mac · Windows · vmware · Linux · CITRIX XenServer

Range

MODEL SCHUKO	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 500 SOHO+	647CA000001	500 / 300	2	290 × 100 × 143	4.4
SPS 650 SOHO+	647CA000002	650 / 360	2	290 × 100 × 143	4.4
SPS 850 SOHO+	647CA000003	850 / 480	2	290 × 100 × 143	5.2
SPS 1200 SOHO+	647CA000004	1200 / 720	4	364 × 139 × 195	10.4
SPS 1600 SOHO+	647CA000005	1600 / 960	4	364 × 139 × 195	10.7
SPS 2200 SOHO+	647CA000006	2200 / 1200	4	364 × 139 × 195	11

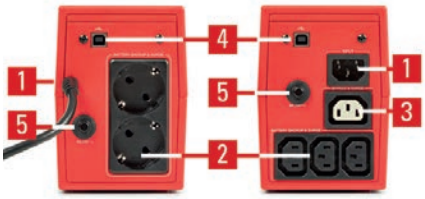
MODEL IEC	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 500 SOHO+ IEC	647CA000007	500 / 300	3 batt + 1 prot	290 × 100 × 143	4.4
SPS 650 SOHO+ IEC	647CA000008	650 / 360	3 batt + 1 prot	290 × 100 × 143	4.4
SPS 850 SOHO+ IEC	647CA000009	850 / 480	3 batt + 1 prot	290 × 100 × 143	5.2
SPS 1200 SOHO+ IEC	647CA000010	1200 / 720	4 batt + 2 prot	364 × 139 × 195	10.4
SPS 1600 SOHO+ IEC	647CA000011	1600 / 960	4 batt + 2 prot	364 × 139 × 195	10.7
SPS 2200 SOHO+ IEC	647CA000012	2200 / 1200	4 batt + 2 prot	364 × 139 × 195	11

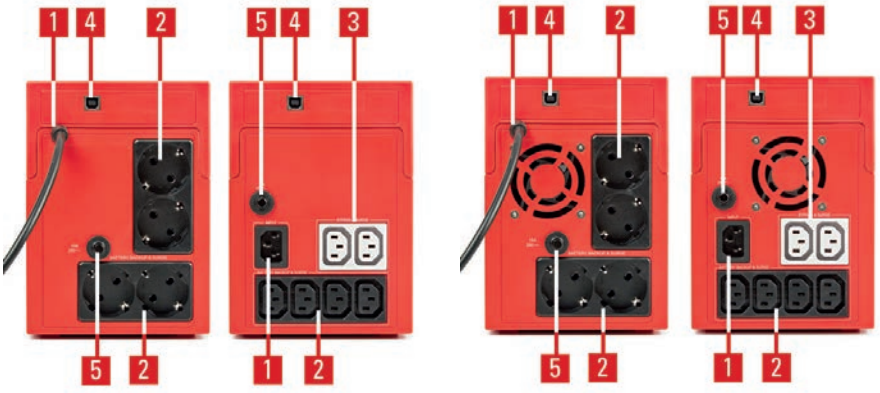
Dimensions

SPS 500÷850 SOHO+ (IEC)

SPS 1200÷2200 SOHO+ (IEC)

Connections





1. AC input.
2. UPS sockets.
3. Sockets with surges protection.
4. USB port.
5. Thermal rearmable input.

Technical specifications

MODEL		SPS SOHO+
TECHNOLOGY		Line - interactive
FORMAT		Tower
INPUT	Rated voltage	230 V
	Voltage range	162 ÷ 290 V
	Stabiliser	AVR (Buck & Boost)
	Rated frequency	50 / 60 Hz (auto-detection)
	Protection	Resettable thermal cutoff
OUTPUT	Rated voltage	230 V
	Voltage accuracy (battery mode)	±10%
	Waveform (battery mode)	Pseudo sine wave
	Frequency	50 / 60 Hz (auto-detection)
	Frequency accuracy (battery mode)	±1Hz
	Compatibility with APFC loads	Yes
	Socket type	Schuko or IEC
BATTERY	Protection	Against deep discharge, against short circuit by means of fuse
	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Recharge time	2-4 hours to 90%
COMMUNICATION	Ports	USB (HID protocol)
	Monitoring software	For Windows, Linux and Mac
INDICATIONS	Type	LCD
	Values	Input and output voltage / Input and output frequency / Battery voltage / % of load
	Levels	Connected load / Overload / Battery / Low battery
	Operating modes	Normal / Stabilisation (AVR) / Battery / Fault
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Automatic restart	Yes, after end of backup
USB CHARGER	Quantity	2 ports
	Voltage	5 Vdc
	Maximum current	2,0 A
GENERAL	Operating temperature	0° C ÷ +40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2400 m.a.s.l.
	Acoustic noise at 1 metre	<40 dB (1)
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN-62040-2
	Operation	EN-62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) <45 dB for 1600 and 2200 VA models

SPS ADVANCE T

Line-interactive sine-wave UPS tower 850 VA to 3000 VA

SPS ADVANCE T: Reliable protection in tower format for computer rooms

Salicru's **SPS ADVANCE T** series offers, as a UPS solution, optimum levels of efficiency and reliability for all critical devices that require power supply continuity and dependability. They come in a very compact tower format to save space in server and computer rooms. They also feature line-interactive technology to combat any fluctuations in the mains supply together with an output voltage that is always sine-wave, the highest quality possible to power all sensitive loads.

For easier and more convenient use, they feature a display that shows all necessary information on the operation of the device and power supply (input/output voltage, % load, % battery, etc.) and a wide range of communication options through the USB interface with HID protocol, monitoring and management software (downloadable) and integrated smart slot (SNMP).

Also noteworthy is their compatibility with current APFC (active power factor correction) power supplies.

The power range for the **SPS ADVANCE T** series is: 850, 1,000, 1,500, 2,000 and 3,000 VA.

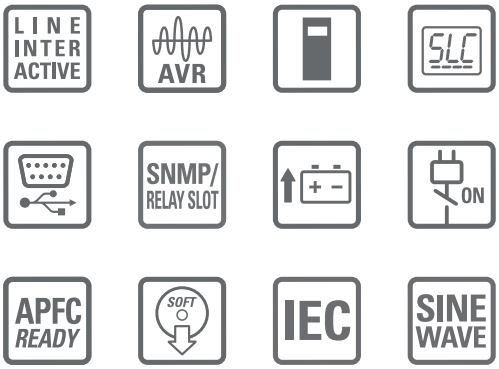
Applications: Reliable electrical backup with high availability

Salicru's **SPS ADVANCE T** series UPSs provide an optimum combination of features to protect all computer room equipment, from entry-level servers, through routers, switches, hubs, network devices and access points, to backup systems.

Performances

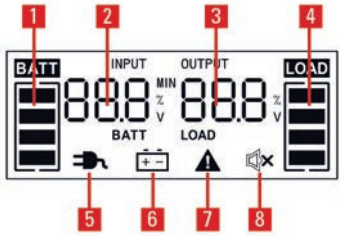
· Line-interactive technology with sine-wave output.
· Permanent AVR stabilisation (buck-boost).
· Compact tower format.
· RS-232 and USB-HID communication interfaces.
· Monitoring and management software for Windows, Linux and Mac.
· Smart slot for SNMP adapter.
· Compatible with APFC power supplies.
· Possibility of backup extension.(1)
· Complete display showing all operating information.
· IEC output sockets.
· Automatic battery test on each start-up.
· Cold-start function for start-up from batteries.
· SLC Greenergy solution.

(1) Through additional modules, except for 850 VA model.



Display

1. Level of battery available.
2. Values for input/battery/backup.
3. Values for output/charging.
4. Level of load connected.
5. Normal operation.
6. Battery operation (power cut).
7. Device fault.
8. Audible alarm and alarm cancellation.



Communications

· USB interface with HID protocol: Parameter configuration, UPS control and computer shutdown/hibernation through the USB port. Available for Windows, Linux and Mac.
· UPS management and monitoring software for closing files/applications for Windows, Linux, Unix and Mac. Free and downloadable from www.salicru.com.
· Smart slot for the connection of SNMP environment integration cards and signal cards via potential-free contacts or Modbus protocol.

Range

MODEL	CODE	POWER (VA / W)	NO. OF OUTPUT SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 850 ADV T	6A0EA000001	850 / 595	6 × IEC C13	327 × 140 × 191	11.25
SPS 1000 ADV T	6A0EA000002	1000 / 700	6 × IEC C13	327 × 140 × 191	11.36
SPS 1500 ADV T	6A0EA000003	1500 / 1050	6 × IEC C13	327 × 140 × 191	13.31
SPS 2000 ADV T	6A0EA000004	2000 / 1400	6 × IEC C13	327 × 140 × 191	14.18
SPS 3000 ADV T	6A0EA000005	3000 / 2100	4 × IEC C13 + terminals	416 × 196 × 342	29.68

Dimensions and weights for devices with standard backup

Dimensions

SPS 850÷2000 ADV T

SPS 3000 ADV T

Connections

1. Socket input.
2. Socket IEC output.
3. Intelligent slot for SNMP/web adapter.
4. RS-232 interface.
5. Emergency stop (EPO).
6. USB interface.
7. Thermal rearmable input.
8. Connection for battery module (only in models with extra charger).

Technical specifications

MODEL		SPS ADVANCE T
TECHNOLOGY		Line-interactive
FORMAT		Tower
INPUT	Rated voltage	230 V
	Voltage range 100% load	165 ÷ 290 V
	Stabiliser	AVR (Buck & Boost)
	Rated frequency	50 / 60 Hz (auto-detection)
	Frequency range	±5 Hz
	Protection	Resettable breaker
OUTPUT	Rated voltage	230 V
	Voltage accuracy (battery mode)	±10%
	Total harmonic distortion (THDv)	<5%
	Waveform (battery mode)	Pure sine wave
	Frequency	50/60 Hz (same as input)
	Frequency accuracy (battery mode)	±1 Hz
	Compatibility with APFC loads	Yes (1)
	Performance Stabiliser mode (AVR)	>92%
	Performance Battery mode	>80%
	Admissible overloads in battery mode	110% for 1 min / >130% immediate
	Admissible overloads in-line mode	110% 1min / 120% immediate
	Socket type	IEC C13
BATTERY	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Charge type	I/U (constant current/constant voltage)
	Recharge time	4 hours to 90%
	Battery test	Automatic on each start-up + manual
COMMUNICATION	Ports	RS-232 / USB (HID)
	Intelligent slot	Slot for SNMP/potential-free contacts/ MODBUS
	Monitoring software	For Windows, Linux and Mac
INDICATIONS	Type	LCD + keypad
	Values	Input and output voltage / % load / % battery / backup
	Levels	Connected load / overload / battery / low battery
	Alarm	Battery / low battery / overload / failure
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Emergency stop (EPO)	Yes
GENERAL	Operating temperature	0° C ÷ 40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl
	Acoustic noise at 1 metre	<45 dB (2)
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN 62040-2
	Operation	EN 62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Power degradation of 20%
(2) <50 dB for 3000 VA mode

SPS ADVANCE R

Line-interactive sine-wave UPS 1U rack 750 VA to 1500 VA

SPS ADVANCE R: High-density security in 1U rack format

Salicru's **SPS ADVANCE R** series UPSs feature line-interactive technology (AVR stabilisation with buck-boost regulation) and pure sine-wave output to power all kinds of critical load.

This technology enables a high level of efficiency to be achieved, providing significant savings in the total consumption of the rack. Also noteworthy is their compatibility with current APFC (active power factor correction) power supplies.

In terms of communications, the options are through the RS-232 interface and management and monitoring software for Windows, Linux and Mac systems, or through the available adapters (SNMP/Web adapter) to be inserted into the smart slot that the devices incorporate.

The series is available in powers of 750, 1,000 and 1,500 VA, all in 19" rack format and with a height of 1U. The depth is 216 mm for the 750 VA model and 485 mm for the 1,000 and 1,500 VA models.

Applications: High-performance compact solution

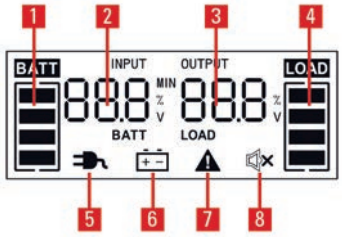
Specially designed for installation on racks with high occupancy density, Salicru's **SPS ADVANCE R** series UPSs, thanks to their height of only one U, enable space to be freed up for other devices. In addition, their IEC sockets facilitate the connection of all computing environment elements.

Performances

· Line-interactive technology with AVR stabilisation(buck-boost).
· Pure sine wave.
· Ultra-compact 1U rack format.
· Efficiency of up to 98%.
· Compatible with APFC power supplies.
· LCD display + keys for operation and information.
· Smart slot for SNMP/potential-free contacts/Modbus.
· RS-232 communication interface.
· Downloadable monitoring and management software for Windows, Linux and Mac.
· IEC output sockets.
· Automatic battery test on each start-up.
· Cold-start function for start-up from batteries.
· SLC Greenergy solution.

Display

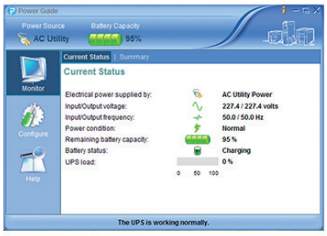
1. Level of battery available.
2. Values for input/battery/backup.
3. Values for output/charging.
4. Level of load connected.
5. Normal operation.
6. Battery operation (AC power outage).
7. Device fault.
8. Audible alarm and alarm cancellation.



Software

UPS monitoring and management software for closing files and applications.

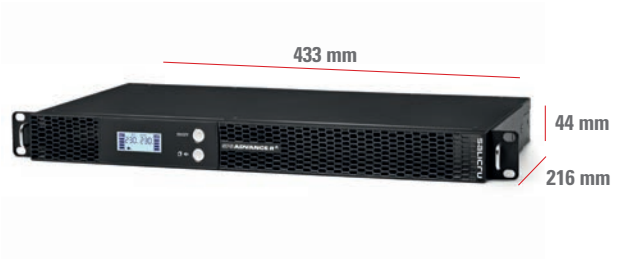
Compatible with Windows, Linux and Mac.



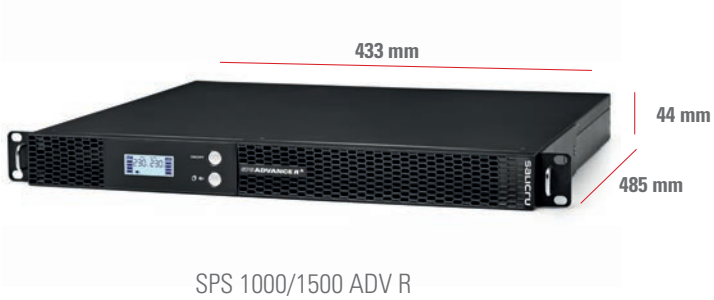
Range

MODEL	CODE	POWER (VA / W)	NO. OF OUTPUT SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 750 ADV R	6A0DA000001	750 / 450	4 × IEC C13	216 × 433 × 44	8.83
SPS 1000 ADV R	6A0DA000002	1000 / 600	4 × IEC C13	485 × 433 × 44	14.2
SPS 1500 ADV R	6A0DA000003	1500 / 900	4 × IEC C13	485 × 433 × 44	15.83

Dimensions



SPS 750 ADV R



SPS 1000/1500 ADV R

Connections

1. Input socket with fuse.
2. Output sockets (4 x IEC C13).
3. Intelligent slot for SNMP/web adapter.
4. RS-232 interface.
5. Emergency power off (EPO).

Technical specifications

MODEL		SPS ADVANCE R
TECHNOLOGY		Line-interactive
FORMAT		Rack 1U
INPUT	Rated voltage	230 V
	Voltage range 100% load	165 ÷ 290 V
	Stabiliser	AVR (Buck & Boost)
	Rated frequency	50 / 60 Hz (auto-detection)
	Frequency range	±5 Hz
	Protection	Fuse
OUTPUT	Rated voltage	230 V
	Voltage accuracy (battery mode)	±10%
	Total harmonic distortion (THDv)	<5% linear load / <10% non-linear load
	Waveform (battery mode)	Pure sine wave
	Frequency	50/60 Hz (same as input)
	Frequency accuracy (battery mode)	±1 Hz
	Compatibility with APFC loads	Yes (1)
	Performance Stabiliser mode (AVR)	>92%
	Performance Battery mode	>80%
	Admissible overloads in battery mode	110% for 1 min / 130% immediate
	Admissible overloads in-line mode	110% for 1 min / 130% immediate
	Socket type	IEC C13
BATTERY	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Charge type	I/U (constant current/constant voltage)
	Recharge time	4 hours to 90%
	User replaceable battery	Yes
	Battery test	Automatic on each start-up + manual
COMMUNICATION	Ports	RS-232 / DB9
	Intelligent slot	Slot for SNMP/potential-free contacts/ MODBUS
	Monitoring software	For Windows, Linux and Mac
INDICATIONS	Type	LCD + keypad
	Values	Input and output voltage / % load / % battery / backup
	Levels	Connected load / overload / battery / low battery
	Alarm	Battery / low battery / overload / failure
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Emergency stop (EPO)	Yes
GENERAL	Operating temperature	0º C ÷ 40º C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl
	Acoustic noise at 1 metre	<40 dB
STANDARDS	Safety	EN 62040-1/ EN 60950-1
	Electromagnetic compatibility (EMC)	EN 62040-2(C2)
	Operation	EN 62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Power degradation of 20%

SPS ADVANCE RT2

Line-interactive sine-wave UPS 800 VA to 3000 VA

SPS ADVANCE RT2: Effective protection for entry-level servers and IT equipment

Salicru's **SPS ADVANCE RT2** series is a range of UPS featuring line-interactive technology with sine-wave output voltage and convertible tower/rack format, the height being only 2U for all power ratings. In addition, its output power factor of 0.9 and compatibility with APFC (active power factor correction) type loads make it the best option for any type of load that requires protection.

In terms of communications, it features an RS-232/USB interface (compatible with HID protocol) and a smart slot that can optionally hold an SNMP card, MODBUS or potential-free contacts; also available are software packages for local or virtual monitoring and management of protected devices.

And other outstanding features include: solutions for applications with long backup (by means of equipment with extra chargers and additional battery modules), swivel mount display and adapters (pedestal and lugs) for placing in tower or rack formats and programmable outputs (critical/non-critical loads) to extend the available backup.

The power range for the **SPS ADVANCE RT2** series is: 800, 1,100, 1,500, 2,000 and 3,000 VA.

Applications: Flexibility and versatility in the protection of IT environments

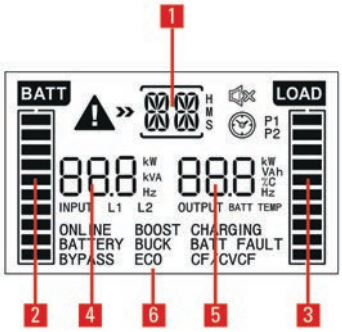
The features of the **SPS ADVANCE RT2** series make it a versatile solution for protecting a wide range of IT equipment such as basic servers, routers, switches, hubs and point-of-sale with high power density requirements and/or rack installation of servers/communications.

Performances

· Line-interactive technology with sine-wave output.
· Permanent AVR stabilisation.
· Output power factor PF=0.9.
· Control panel with swivel mount LCD display and keypad.
· Convertible tower/rack format (2U).
· Includes pedestal (pedestal mount) and lugs (rack mount).
· Backup extensions available for all power ratings.
· UPS models with extra charger for backup extensions.
· RS-232/USB-HID interface.
· Downloadable monitoring software for Windows, Linux and Mac.
· Smart slot for SNMP/potential-free contacts/MODBUS.
· ADSL/fax/modem protection.
· EPO – emergency power off.
· Programmable outputs for critical/non-critical loads.
· Manual and automatic battery test.
· Smart battery charger to shorten average recharging times.
· Battery recharging with device turned off.
· SLC Greenergy solution.

Display

1. Configuration values, fault codes and remaining backup.
2. Level of battery available.
3. Level of load connected.
4. Input values (current, voltage and frequency).
5. Output and battery values (current, voltage and frequency).
6. Operating mode.



Range

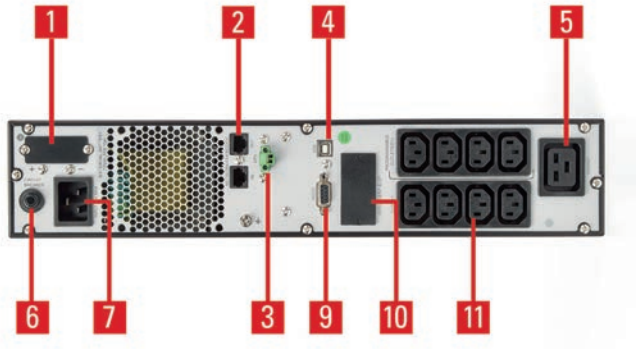
MODEL	CODE	POWER (VA / W)	NO. OF OUTPUT SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SPS 800 ADV RT2	6A0CA000001	800 / 720	8 × IEC C13	410 × 438 × 88	12.9
SPS 1100 ADV RT2	6A0CA000002	1100 / 990	8 × IEC C13	410 × 438 × 88	13.4
SPS 1500 ADV RT2	6A0CA000003	1500 / 1350	8 × IEC C13	510 × 438 × 88	19.5
SPS 2000 ADV RT2	6A0CA000004	2000 / 1800	8 × IEC C13	510 × 438 × 88	21.5
SPS 3000 ADV RT2	6A0CA000005	3000 / 2700	8 × IEC C13 + 1 × IEC C19	630 × 438 × 88	29.3

Dimensions and weights for devices with standard backup

Dimensions

SPS 800÷3000 ADV RT2

Connections



1. Connection for battery module (only in models with extra charger).
2. ADSL/fax/modem transient protector.
3. Emergency stop (EPO).
4. USB interface.
5. Socket IEC C19 (only for 3000 VA model).
6. Resettable thermal cutoff (fuse for 800 and 1100 VA models).
7. Plug (IEC C14 for 800, 1100 and 1500 VA models; IEC C20 for 2000 and 3000 VA models).
8. Fan.
9. RS-232 interface.
10. Smart slot for SNMP/potential-free contacts/ MODBUS.
11. Sockets (8 x IEC C13), programmable critical (x4) / non-critical (x4).

Technical specifications

MODEL		SPS ADVANCE RT2
TECHNOLOGY		Line-interactive with sine-wave output
FORMAT		Convertible tower/rack (2U)
INPUT	Rated voltage	208 / 220 / 230 / 240 V
	Voltage range 100% load	170 ÷ 280 V
	Stabiliser	AVR (Buck & Boost)
	Rated frequency	50 / 60 Hz (auto-detection)
	Frequency range	±5 Hz
	Protection	Fuse (800/1100) or resettable thermal cutoff (1500/2000/3000)
OUTPUT	Power factor	0.9
	Rated voltage	208 / 220 / 230 / 240 V
	Voltage accuracy (battery mode)	±1.5%
	Total harmonic distortion (THDv)	< 2% linear load / < 5% non-linear load
	Waveform (battery mode)	Pure sine wave
	Frequency	50/60 Hz (same as input)
	Frequency accuracy (battery mode)	±0.1Hz
	Admissible overloads in battery mode	< 120% off at 1 min / < 150% off at 10 s
	Admissible overloads in-line mode	< 120% off at 5 min / < 150% off at 10 s / >150 %: 1 s
	Programmable sockets	Yes, for critical / non-critical loads (4/4)
BATTERY	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Charge type	I/U (constant current/constant voltage)
	Recharge time	4 hours to 90%
	Battery test	Automatic on every start + one × week
CHARGER	Temperature voltage compensation	Yes
COMMUNICATION	Ports	RS-232/USB-HID
	Intelligent slot	Slot for SNMP/potential-free contacts/ MODBUS
	Monitoring software	For Windows, Linux and Mac
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Emergency stop (EPO)	Yes
	ADSL/fax/modem transient protector	Yes
	Green-function	Yes, automatic stop in battery mode with load <5%
	Smart fan speed	Yes, smart control of fan speed
	Site wiring fault	Yes, error detection of phase-neutral rotation and/or absence of earth
GENERAL	Operating temperature	0º C ÷ 40º C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (power degradation up to 5,000 m)
	Acoustic noise at 1 metre	< 45dB
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN 62040-2:2006(C2)
	Operation	EN 62040-3:2011
	Quality and environmental management	ISO 9001 & ISO 14001

SLC TWIN PRO2

On-line double-conversion UPS 700 VA to 3000 VA

SLC TWIN PRO2: Advanced on-line protection for sensitive and critical loads

Salicru's **SLC TWIN PRO2** series is a UPS range in a tower format equipped with on-line double-conversion technology and the latest features to make it an advanced protection system for sensitive and critical loads. High output power factor (PF=0.9) to ensure availability to all types of loads.

Full control through status information via LCD display and keypad. And extensive monitoring and communication options via the built-in USB HID interface, an intelligent slot for SNMP cards or relays and a wide range of software packages available – free monitoring version downloadable for Windows, Linux, Unix or Mac and packages available for multi servers or virtualised systems. For facilities that require more back-up time, there is a possibility of backup extensions using UPSs with extra charger and additional battery modules. Also notable is the possibility of Eco-mode operation to improve the efficiency of the device, EPO (emergency power off) functions, operation as a frequency converter and built-in battery test.

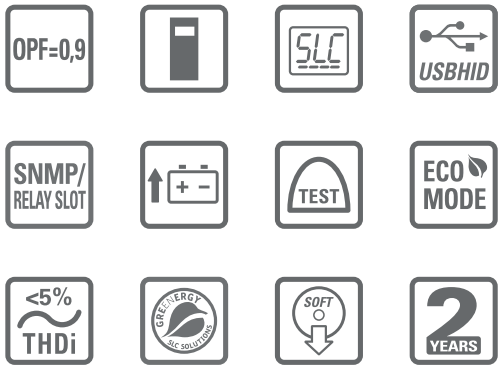
Salicru's **SLC TWIN PRO2** range is available in power ratings of 700, 1000, 1500, 2000 and 3000 VA.

Applications: High-performance features for single-phase environments of up to 3 kVA

Power supply failures in IT systems can cause losses as a result of downtime and the time taken to restore the system to normal operation, and damage to network hardware. Many other disturbances (micro power outages, voltage fluctuations, frequency variations, harmonics, transients, etc.) can also cause IT environments to malfunction.

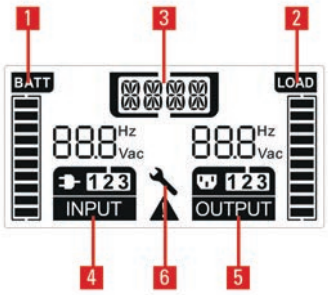
Performances

- On-line double-conversion technology.
- Output power factor PF=0.9.
- Control panel with LCD screen and keypad.
- Tower format.
- Backup extensions available for all power ratings.
- UPS models with extra charger for backup extensions.
- USB HID interface for all models as standard.
- Downloadable monitoring software for Windows, Linux, Unix and Mac.
- Intelligent slot for SNMP/relays.
- Eco-mode operation.
- Automatic frequency detector.
- Frequency conversion function.
- EPO – emergency power off.
- Schuko or IEC sockets available.
- Manual and/or automatic programmable battery test.
- Smart battery charger to shorten average recharging times.
- Battery recharging with device turned off.
- SLC Greenergy solution.



Display

1. Level of battery available.
2. Level of load connected.
3. Operation/alarm/fault status.
4. Input voltage and frequency.
5. Output voltage and frequency.
6. Settings mode.



Communications

- **USBHID UPS**: Enables control, parameter configuration and computer shutdown/hibernation via the USB port. Available with Windows, Linux for Mac.
- UPS monitoring and management software for closing files/applications in Windows, Linux, Unix and Mac environments. Free and downloadable from www.salicru.com.
- Intelligent slot for connecting SNMP or optocoupler cards.

Salicru warranty

- Online registration at www.salicru.com.
- 2-year warranty.
- Batteries covered by the warranty.
- Telephone technical support.

Range

MODEL SCHUKO	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC-700-TWIN PRO2	699CA000001	700 / 630	3	356 × 144 × 228	9.2
SLC-1000-TWIN PRO2	699CA000003	1000 / 900	3	356 × 144 × 228	10.2
SLC-1500-TWIN PRO2	699CA000005	1500 / 1350	4	399 × 190 × 327	17.4
SLC-2000-TWIN PRO2	699CA000007	2000 / 1800	4	399 × 190 × 327	18.4
SLC-3000-TWIN PRO2	699CA000009	3000 / 2700	4	399 × 190 × 327	22.7

MODEL IEC	CODE	POWER (VA / W)	NO. OF SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC-700-TWIN PRO2 IEC	699CA000011	700 / 630	4xC13	356 × 144 × 228	9.2
SLC-1000-TWIN PRO2 IEC	699CA000013	1000 / 900	4xC13	356 × 144 × 228	10.2
SLC-1500-TWIN PRO2 IEC	699CA000015	1500 / 1350	4xC13	399 × 190 × 327	17.4
SLC-2000-TWIN PRO2 IEC	699CA000017	2000 / 1800	4xC13	399 × 190 × 327	18.4
SLC-3000-TWIN PRO2 IEC	699CA000019	3000 / 2700	4xC13 + 1xC19	399 × 190 × 327	22.7

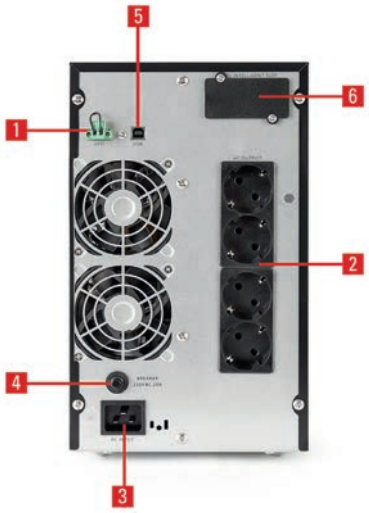
Dimensions and weights for devices with standard backup

Dimensions

SLC 700/1000 TWIN PRO2 (IEC)

SLC 1500÷3000 TWIN PRO2 (IEC)

Connections



1. Emergency stop (EPO).
2. Socket AC output (SCHUKO / IEC).
3. Socket AC input.
4. Thermal rearmable input.
5. USB HiD interface.
6. Intelligent slot for SNMP/relays.

Technical specifications

MODEL		SLC TWIN PRO2
TECHNOLOGY		On-line double-conversion
FORMAT		Tower
INPUT	Rated voltage	220 / 230 / 240 V
	Voltage range 100% load	176 ÷ 300 V
	Voltage range 40% load	100 ÷ 300 V
	Rated frequency	50 / 60 Hz
	Frequency range	±10%
	Power factor	≥0.99
	Protection	Resettable circuit breaker
OUTPUT	Power factor	0.9
	Waveform	Pure sine wave
	Rated voltage	220 / 230 / 240 V
	Voltage accuracy	±1%
	Total harmonic distortion (THDv)	<2%
	Synchronised frequency	±10%
	Free running frequency	±0.05 Hz
	Synchronous speed	1 Hz/s
	On-line performance	>89%÷92%
	Eco-mode performance	>98%
	Admissible overloads in battery mode	105% constant / 130% for 10 s / 150% for 1 s
	Admissible overloads in bypass mode	130% constant / 180% for 60 s
	Admissible overloads in-line mode	105% constant / 130% for 60 s / 150% for 10 s / >150% for 300ms
	Available socket formats	Schuko (DIN) o IEC
BATTERY	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Charge type	I/U (constant current/constant voltage)
	Recharge time	4 hours to 90%
	Battery test	Manual and/or automatic programmable
COMMUNICATION	Ports	USB HID
	Intelligent slot	Slot for SNMP/relays
	Monitoring software	For Windows, Linux and Mac
OPERATING MODES	On-line double-conversion	Yes
	Eco-mode	Yes
	Frequency converter (CVCF)	Yes (1)
GENERAL	Operating temperature	0° C ÷ 40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (power degradation up to 5,000 m)
	Acoustic noise at 1 metre	≤49 dB (100% load) / ≤41 dB (60% load)
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN 62040-2
	Operation	VFI (EN-62040-3)
	Quality and environmental management	ISO 9001 & ISO 14001

(1) up to 60% of the load

SLC TWIN PRO2

On-line double-conversion UPS 4 to 20 kVA

SLC TWIN PRO2: Enhanced protection for mid-range systems with single-phase power supply

Salicru's **SLC TWIN PRO2** series UPS systems feature on-line double conversion technology, currently the most advanced for the protection of critical systems as it provides a fully stabilised and filtered sinusoidal supply voltage. The systems come in a tower format and are available in power ratings of 4, 5, 6, 8, 10, 15 and 20 kVA.

The Salicru **SLC TWIN PRO2**'s output voltage is always single-phase, featuring a single-phase input of 4 to 20 kVA and a three-phase input of 8 to 20 kVA. All devices with single-phase input provide a unitary output power factor (1), the most optimum for systems and environments with high energy needs. Adaptability is another important feature thanks to the numerous operating modes available: On-line, Batteries, Eco-mode, Bypass, Frequency converter and Parallel redundant.

The possibilities of control and monitoring are varied: on the one hand, an LCD display + keypad for local operation of the device, and, on the other, various communication options (USB HID and RS-232 interfaces, and slot for SNMP, RS-485 and AS-400 cards) that enable the UPS to be integrated into standard or virtualised platforms for management, incident notification and remote maintenance.

(1) Except 15 and 20 kVA I / I models

Applications: Maximum continuity protection for sensitive and critical systems

Salicru's **SLC TWIN PRO2** series is the best option for providing a secure power supply to ERP systems, Business Intelligence, CRM solutions, intranets/extranets and corporate networks in the event of a wide range of possible disturbances (micro power outages, voltage fluctuations, frequency variations, harmonics, transients, etc.), which can cause irreparable damage or incur high costs in all of these critical systems.

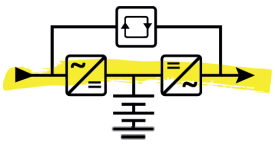
Performances

· On-line double conversion and DSP control technology.
· Output power factor PF=1[1].
· Compact tower format for space saving.
· Active power factor corrector for all input phases.
· Multiple operating modes for better adaptability.
· Equipped for parallel operation as standard, up to 3 devices.
· USB and RS-232 interface for all models as standard.
· Monitoring software for Windows, Linux, Unix and Mac (downloadable).
· Intelligent slot for SNMP/RS-485/optocoupler cards.
· Eco-mode operation for increased efficiency.
· Backup extensions available for all power ratings.
· Frequency conversion function.
· EPO - emergency power off.
· Manual and/or automatic programmable battery test.
· SLC Greenergy solution.

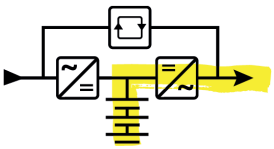
(1) PF=0.9 for devices with mono-phase input 15 and 20 kVA I/I, three-phase input SLC TWIN/3 PRO2 models

Operating modes

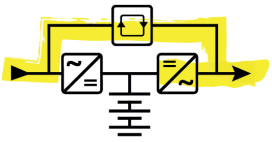
On-line double-conversion
Double voltage conversion (AC/DC + DC/AC), providing the best degree of safety to loads.



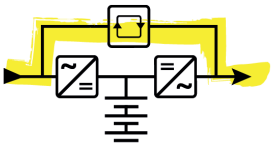
Batteries
In the event of power failure, the loads continue to be powered by means of batteries.



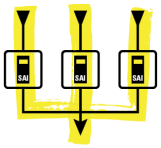
Eco-mode
Increased efficiency up to 99%, with immediate availability of full power.



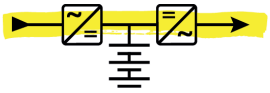
Bypass
In the event of any eventuality (incident, overload, etc.), the loads continue to be powered by the input voltage.



Parallel redundant
Increased safety (N+1) or capacity, with configurations of up to 3 devices.



Frequency converter
Adaptation of the output frequency to the needs of the load (50/60 Hz or 60/50 Hz).



Range

MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	INPUT /OUTPUT
SLC-4000-TWIN PRO2	699CB000001	4000 / 4000	592 × 250 × 576	81	I / I
SLC-5000-TWIN PRO2	699CB000002	5000 / 5000	592 × 250 × 576	82	I / I
SLC-6000-TWIN PRO2	699CB000003	6000 / 6000	592 × 250 × 576	83	I / I
SLC-8000-TWIN PRO2	699CB000004	8000 / 8000	592 × 250 × 576	84	I / I
SLC-8000-TWIN/3 PRO2	699CC000001	8000 / 7200	592 × 250 × 576	84	III / I
SLC-10000-TWIN PRO2	699CB000005	10000 / 10000	592 × 250 × 576	85	I / I
SLC-10000-TWIN/3 PRO2	699CC000002	10000 / 9000	592 × 250 × 576	85	III / I
SLC-15000-TWIN PRO2	699CD000001	15000 / 13500	815 × 250 × 826	164	I / I
SLC-15000-TWIN/3 PRO2	699CC000003	15000 / 13500	815 × 250 × 826	164	III / I
SLC-20000-TWIN PRO2	699CD000002	20000 / 18000	815 × 250 × 826	166	I / I
SLC-20000-TWIN/3 PRO2	699CC000004	20000 / 18000	815 × 250 × 826	166	III / I

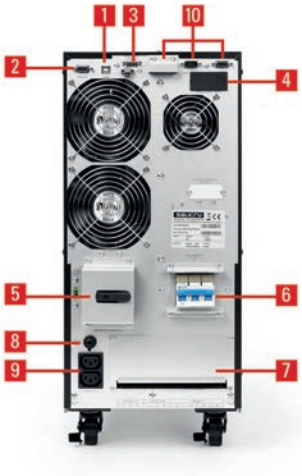
Dimensions and weights for devices with standard backup with 230 V input voltage or 3 x 400 V, 230 V output voltage.

Dimensions

SLC 4000÷10000 TWIN PRO2
SLC 8000/10000 TWIN/3 PRO2

SLC 15000/20000 TWIN PRO2
SLC 15000/20000 TWIN/3 PRO2

Connections



1. USB interface.
2. RS-232 interface.
3. Emergency stop (EPO).
4. Intelligent slot for SNMP / AS400 / RS485-Modbus.
5. Manual Bypass.
6. Input protector.
7. Terminal cover.
8. Thermal rearmable input.
9. Socket IEC output.
10. Parallel ports.

Technical specifications

MODEL		SLC TWIN PRO2 4-10 kVA	SLC TWIN/3 PRO2 8-20 kVA	SLC TWIN PRO2 15-20 kVA
TECHNOLOGY		On-line, double conversion, PFC with double DC bus		
FORMAT		Tower		
INPUT	Rated voltage	208 / 220 / 230 / 240 V (1)	3 × 380 / 400 / 415 V (3F +N)	208 / 220 / 230 / 240 V (1)
	Voltage range	110 ÷ 276 V (2)	3 × 190 ÷ 478+N (2)	110 ÷ 276 V (2)
	Rated frequency	50 / 60 Hz		
	Frequency range	±10%		
	Total harmonic distortion (THDi)	<4%	<5%	
	Power factor	≥0.99		
OUTPUT	Power factor	1	0.9	
	Rated voltage	208 / 220 / 230 / 240 V (1)		
	Voltage accuracy	±1%		
	Total harmonic distortion (THDv)	≤1% linear load; ≤4% non-linear load	≤2% linear load; ≤5% non-linear load	
	Synchronised frequency	±4 Hz		
	Free running frequency	±0.1 Hz	±0.05 Hz	
	Total performance in On-line mode	93% ÷ 94%	88% ÷ 90%	
	Admissible overloads	Up to 110% for 10 min; 130% for 1 min		
	Crest factor	3 a 1		
	Parallel	Yes, up to 3 units(3)		
BYPASS	Type	Hybrid		
	Transfer time	Nil		
MANUAL BYPASS	Type	No breaks		
BATTERY	Protection	Against power surges, undervoltages and alternating current components		
	Battery type	Pb-Ca sealed, AGM, maintenance-free		
	Charge type	I/U (constant current/constant voltage)		
	Recharge time	7 ÷ 9 hours to 90%	9 hours to 90%	
CHARGER	Temperature voltage compensation	Yes		
COMMUNICATION	Ports	USB, RS-232 and relay		
	Intelligent slot	Yes, ready for SNMP / AS400 / RS485-Modbus		
	Monitoring software	Downloadable for Windows, Unix, Linux and Mac		
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes		
OPERATING MODES	Eco-mode	Yes		
	Frequency converter (CVCF)	Yes (4)	Yes	Yes(5)
GENERAL	Operating temperature	0° C ÷ 40° C		
	Relative humidity	Up to 95%, non-condensing		
	Maxium operating altitude	2,400 masl (power degradation up to 5,000 m)		
	Acoustic noise at 1 metre	<58 dB ÷ <60 dB		
STANDARDS	Safety	EN-IEC 62040-1		
	Electromagnetic compatibility (EMC)	EN 62040-2 (C3)		
	Operation	VFI (EN-62040-3)		
	Quality and environmental management	ISO-9001 & ISO-14001		

(1) Power reduction to 90% for 208 V input
(2) With 50% load
(3) Power reduction to 90%
(4) Power reduction to 60%
(5) Power reduction to 40%

SLC TWIN RT2

On-line double-conversion tower/rack UPS from 700 VA to 3000 VA with PF=1

SLC TWIN RT2: High-performance On-line security for priority systems

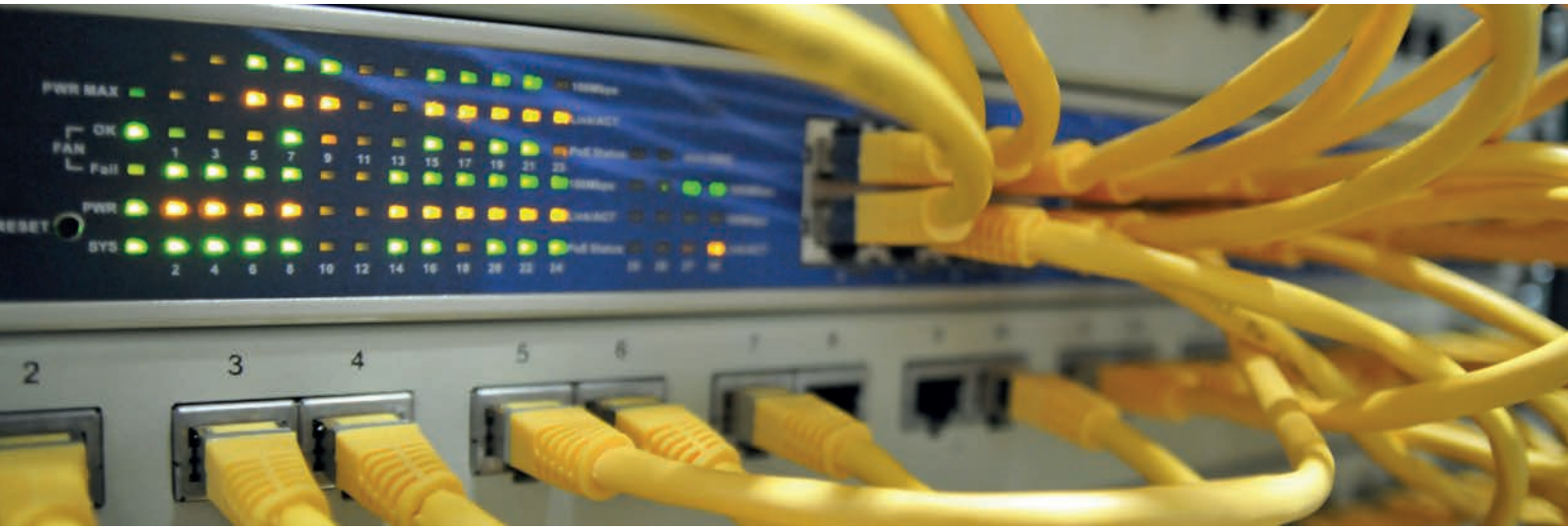
Salicru's **SLC TWIN RT2** UPS range is a highly advanced continuity solution for the electrical protection of critical systems. It combines the most reliable double-conversion technology (AC/DC-DC/AC) on the market and boasts a unity output power factor (VA=W) to enable it to power systems with high energy requirements, while offering high operating efficiency.

The range of power ratings from 700 VA(W) to 3,000 VA(W), it comes in a 2U, convertible to tower format, with a swivel mount LCD display, according to the needs of the facility. Also available are solutions with an extra charger and additional battery modules for applications that require greater backup.

In terms of communications, it features an RS-232/USB interface compatible with HID protocol and a smart slot that can optionally hold an SNMP card, MODBUS or potential free contacts; also available are software packages for local or virtual monitoring and management of protected devices. Other outstanding features include: 50/60 or 60/50 Hz frequency converter, emergency stop (EPO), and programmable outputs for critical/non-critical loads.

Applications: Continuous protection for critical systems

Salicru's **SLC TWIN RT2** series offers, in a compact format, all of the necessary features for the protection of applications that require a high level of security in the event of any type of electrical disturbance, such as IT servers, voice and data networks, CAD/ CAM, document management, unified communications (UC) and video streaming.



Performances

· On-line double-conversion technology.
· Output power factor PF=1.
· Convertible tower/rack format.
· Control panel with swivel mount LCD display and keypad.
· Includes pedestal (pedestal mount) and lugs (rack mount).
· Backup extensions available for all power ratings.
· UPS models with extra charger for backup extensions.
· RS-232 and USB-HID communication interfaces.
· Downloadable monitoring software for Windows, Linux and Mac.
· Smart slot for SNMP/potential-free contacts/MODBUS.
· ADSL/fax/modem line protection.
· Eco-mode operation.
· Programmable outputs for critical/non-critical loads.
· Frequency conversion function.
· SLC Greenergy solution.

Maximum performance in Eco mode

With performance of up to 99%, a significant energy saving can be achieved without reducing reliability and security in the protection of critical loads.

Higher power density

With a unity output power factor, maximum power in watts (W) is delivered, thereby optimising the always limited space in racks or server rooms.

Easy to install

Convertible tower/rack thanks to the accessories included (rack handles, tower pedestal), swivel mount display. Intuitive LCD for operation and configuration, with optical and audible warning devices. Easy segmentation of sockets between critical/ non-critical loads.

Range

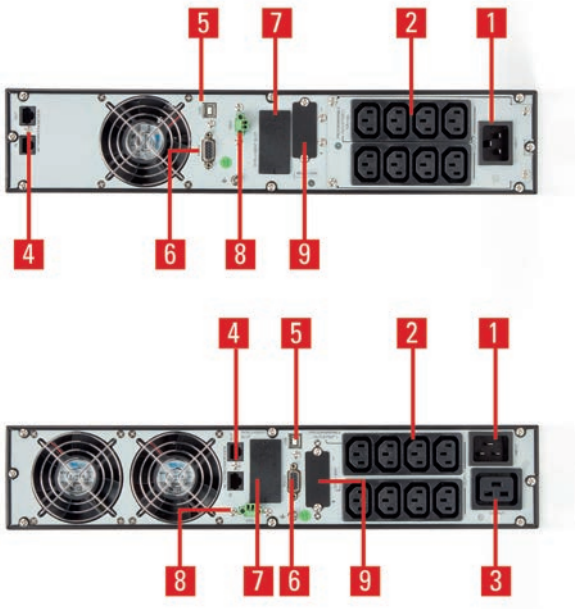
MODEL	CODE	POWER (VA / W)	NO. OF OUTPUT SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC-700-TWIN RT2	698CA000001	700 / 700	8 × IEC C13	410 × 438 × 88	14.1
SLC-1000-TWIN RT2	698CA000002	1000 / 1000	8 × IEC C13	410 × 438 × 88	14.1
SLC-1500-TWIN RT2	698CA000003	1500 / 1500	8 × IEC C13	410 × 438 × 88	15.5
SLC-2000-TWIN RT2	698CA000004	2000 / 2000	8 × IEC C13	510 × 438 × 88	19.5
SLC-3000-TWIN RT2	698CA000005	3000 / 3000	8 × IEC C13 + 1 × IEC C19	630 × 438 × 88	27.5

Dimensions and weights for devices with standard backup

Dimensions

SLC 700÷3000 TWIN RT2

Connections



1. Plug (IEC C14 for 700, 1000 and 1500 VA models; IEC C20 for 2000 and 3000 VA models).
2. Sockets (8 x IEC C13), programmable critical (x4) / non-critical (x4).
3. Socket IEC C19 (only for 3000 VA model).
4. ADSL/fax/modem transient protector.
5. USB interface.
6. RS-232 interface.
7. Smart slot for SNMP/potential-free contacts/ MODBUS.
8. Emergency stop (EPO).
9. Connection for battery module (only in models with extra charger).

Technical specifications

MODEL		SLC TWIN RT2 0.7-3 kVA
TECHNOLOGY		On-line double-conversion
FORMAT		Convertible tower/rack
INPUT	Rated voltage	200 / 208 / 220 / 230 / 240 V (1)
	Voltage range	110 ÷ 300 V up to 60% load
	Rated frequency	50 / 60 Hz (auto-detection)
	Frequency range	±10 Hz
	Total harmonic distortion (THDi)	≤5%
OUTPUT	Power factor	1
	Rated voltage	200 / 208 / 220 / 230 / 240 V (1)
	Voltage accuracy	±1%
	Total harmonic distortion (THDv)	< 2% linear load / < 4% non-linear load
	Synchronised frequency	±3 Hz
	Free running frequency	±0.1 Hz
	On-line performance	≥89 ÷ 91%
	Eco-mode performance	≥95 ÷ 97%
	Admissible overloads	< 130% for 5 min / < 140% for 30 s / <150 % for 1.5 s / 150 % for 100 ms
	Programmable sockets	Yes, for critical / non-critical loads (4/4)
BYPASS	Rated voltage	200 / 208 / 220 / 230 / 240 V (1)
	Frequency range	50/60Hz ±10 Hz
BATTERY	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Charge type	I/U (constant current/constant voltage)
	Recharge time	3 hours to 95%
CHARGER	Temperature voltage compensation	Yes
COMMUNICATION	Ports	USB-HID / RS-232
	Intelligent slot	Slot for SNMP/potential-free contacts/ MODBUS
	Monitoring software	For Windows, Linux and Mac
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Emergency stop (EPO)	Yes
	ADSL/fax/modem transient protector	Yes
OPERATING MODES	Frequency converter (CVCF)	Yes (2)
GENERAL	Operating temperature	0° C ÷ 55° C(3)
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (power degradation up to 5,000 m)
	Acoustic noise at 1 metre	<50 ÷ 55 dB
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN 62040-2(C2)
	Operation	EN 62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) 80% power reduction for 200 or 208 V devices
(2) 78% power reduction
(3) 4% power derating per each degree over 40°C

SLC TWIN RT2

On-line double-conversion tower/rack UPS from 4 kVA to 10 kVA with PF=1

SLC TWIN RT2: High reliability in critical server environments

Salicru's **SLC TWIN RT2** series models are uninterruptible power supplies with unrivalled electrical protection features for critical server environments. Their dual tower/rack format offers physical adaptability to any site and, together with the built-in PDU strip, provides maximum ease of connection of the loads to be protected. In addition, their unity output power factor (VA=W) increases the power density delivered and reduces the space required for the installation of the UPS.

The LCD screen is swivel-mounted according to the mounting format chosen for ease of handling. In terms of serial communications, they feature USB, RS-232 and relay interfaces, as well as a smart slot to optionally accommodate an SNMP card, MODBUS or potential-free contacts; also available are software packages for local or virtual monitoring and management of the protected devices.

For applications that require extended backup, additional battery modules and/or solutions with extra charger can be installed. And for applications that require redundant protection or increase the need for power, there is the option of connecting up to 3 devices in parallel.

Applications: Guaranteed operability for IT environments

Numerous environments can be protected by Salicru's **SLC TWIN RT2** series UPSs, such as virtualised or non-virtualised server systems, voice and data networks, ERP systems, CRM solutions, document management, etc., all of whose operability depends on the reliability of the electrical supply that powers them.

Performances

· On-line double-conversion technology.
· Output power factor PF=1.(1)
· Convertible tower/rack format.
· Control panel with swivel mount LCD display and keypad.
· Includes pedestal (pedestal mount) and lugs (rack mount).
· Backup extensions available for all power ratings.
· UPS models with extra charger for backup extensions.
· RS-232, USB and relay communication interfaces.
· Downloadable monitoring software for Windows, Linux and Mac.
· Smart slot for SNMP/potential-free contacts/MODBUS.
· Eco-mode operation.
· Parallelable up to 3 units.
· PDU strip for distribution of output loads.
· Frequency conversion function.
· SLC Greenergy solution.

(1) Except for backup extensions.

Maximum performance in Eco mode

With performance of up to 99%, a significant energy saving can be achieved without reducing reliability and security in the protection of critical loads.

Higher power density

With a unity output power factor, maximum power in watts (W) is delivered, thereby optimising the always limited space in racks or server rooms.

Easy to install

Convertible tower/rack thanks to the accessories included (rack handles, tower pedestal), swivel mount display. Intuitive LCD for operation and configuration, with optical and audible warning devices.

Range

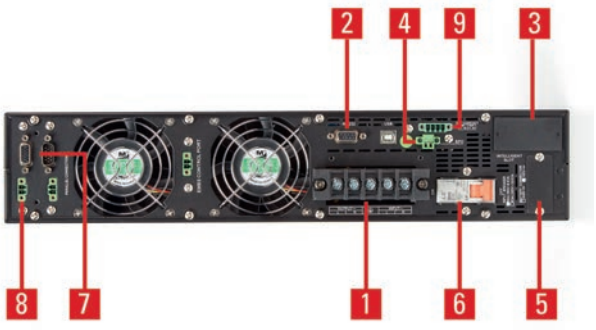
MODEL	CODE	POWER (VA / W)	NO. OF OUTPUT SOCKETS	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
KIT SLC-4000-TWIN RT2	698RQ000002	4000 / 4000	Terminals + PDU	688 × 438 × 176	63
KIT SLC-5000-TWIN RT2	698RQ000003	5000 / 5000	Terminals + PDU	688 × 438 × 176	63
KIT SLC-6000-TWIN RT2	698RQ000004	6000 / 6000	Terminals + PDU	688 × 438 × 176	63
KIT SLC-8000-TWIN RT2	698RQ000005	8000 / 8000	Terminals + PDU	688 × 438 × 176	74
KIT SLC-10000-TWIN RT2	698RQ000006	10000 / 10000	Terminals + PDU	688 × 438 × 176	74

Dimensions and weights for devices with standard backup

Dimensions

SLC 4000÷10000 TWIN RT2

Connections



1. Input/output terminals.
2. RS-232 interface.
3. Smart slot for SNMP/potential-free contacts/ MODBUS.
4. Emergency stop (EPO).
5. Connection for battery module (only in models with extra charger).
6. Input circuit breaker.
7. Parallel port.
8. Current distribution port.
9. Digital input/output.

Technical specifications

MODEL		SLC TWIN RT2 4-10 kVA
TECHNOLOGY		On-line double-conversion
FORMAT		Convertible tower/rack
INPUT	Rated voltage	208 / 220 / 230 / 240 V (1)
	Voltage range	110 ÷ 300 V up to 50% load
	Rated frequency	50 / 60 Hz (auto-detection)
	Frequency range	±4 Hz
	Total harmonic distortion (THDi)	≤4%
OUTPUT	Power factor	1 (2)
	Rated voltage	208 / 220 / 230 / 240 V(1)
	Voltage accuracy (battery mode)	±1%
	Total harmonic distortion (THDv) Linerar load	<1%
	Total harmonic distortion (THDv) Non~linear load	<4%
	Synchronised frequency	±4 Hz
	Free running frequency	±0.1 Hz
	On-line performance	≥93 ÷ 94%
	Eco-mode performance	≥99%
	Admissible overloads	< 110% for 10 min / < 130% for 1 min / > 130 % for 1 s
	Programmable sockets	Not applicable
	Parallel	Yes, up to 3 units(3)
STATIC BYPASS	Voltage (V)	208 / 220 / 230 / 240 V (1)
	Frequency range	50/60 Hz ±4 Hz
BATTERY	Protection	Against power surges, undervoltages and alternating current components
	Battery type	Pb-Ca sealed, AGM, maintenance-free
	Charge type	I/U (constant current/constant voltage)
	Recharge time	7 ÷ 9 hours to 90%
CHARGER	Temperature voltage compensation	Yes
COMMUNICATION	Ports	USB / RS-232 / relay
	Intelligent slot	Smart slot for SNMP / potential-free contacts / MODBUS
	Monitoring software	Yes, for Windows, Linux and Mac
OTHER FUNCTIONS	Cold start (start-up from batteries)	Yes
	Emergency stop (EPO)	Yes
OPERATING MODES	Frequency converter (CVCF)	Yes(4)
GENERAL	Operating temperature	0º C ÷ +40º C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (power degradation up to 5,000 m)
	Acoustic noise at 1 metre	<58-60 dB
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN 62040-2(C3)
	Operation	EN 62040-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) 90% power reduction for 208 V devices
(2) Except for devices with extended backup
(3) 90% power reduction
(4) 60% power reduction

SLC CUBE4

Uninterruptible Power Supplies with IoT from 7.5 to 80 kVA

SLC CUBE4: The most advanced continuity protection on the market

Salicru's **SLC CUBE4** Uninterruptible Power Supplies (UPS) are the most cutting-edge security solution for all critical systems and sensitive loads. They have a Nimbus cloud connection as standard for equipment monitoring and remote management options, incident notification, equipment health monitoring and preventive maintenance.

With three-level on-line technology and quad-core DSP control, they are three-phase input/output systems that offer a range of first-class features, including unity power factor (kVA=kW), very low input distortion (THDi <3%) and performance in excess of 96% in On-line Mode and 99% in Eco Mode. They also boast parallel growth capacity or unlimited redundant security(1).

Across the entire range, the batteries are included in the same cabinet, meaning the floor area occupied is reduced by up to 40%. They are compatible with all types of battery (including lithium-ion) and incorporate the Batt-Watch battery care system to maximise battery life and availability.

(1) For models up to 20 kVA. Maximum of four devices in parallel.

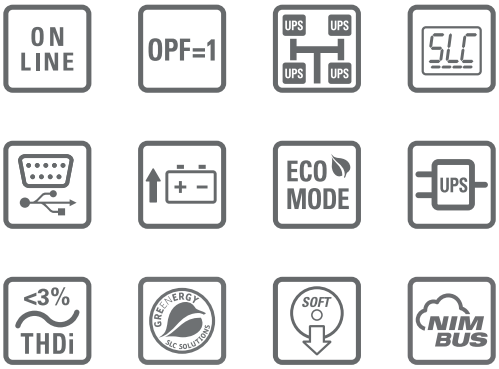
Applications: Maximum quality in protection

The protection offered by Salicru's **SLC CUBE4** UPS will optimise the security performance of medium-power edge computing solutions with virtualised environments, along with all of the associated critical processes: not only for IT applications, but also for industrial processes, telecommunications and infrastructure.

Performances

· On-line double conversion technology with three-level topology.
· State-of-the-art quad-core DSP control.
· Output power factor 1 (kVA=kW).
· Input power factor >0.99.
· Input current distortion rate (THDi) <3%.
· Nimbus IoT connection for monitoring, as standard.
· High energy efficiency (over 96% in On-line mode and up to 99% in Eco mode).
· Unlimited parallel system(1) for redundancy or capacity purposes.
· Single/single and three/single configurations only for up to 20 kVA.
· Batt-Watch battery care and management system.
· Batteries included on standard models throughout the range.
· Compatible with all battery types, including lithium-ion.
· Compatible with power generators.
· 5" touch screen for all models.
· USB, RS-232 and RS-485 interfaces, plus relays.
· Wide range of options available.
· SLC Greenergy solution.

(1) For models up to 20 kVA. Maximum of four devices in parallel.



Continuous surveillance

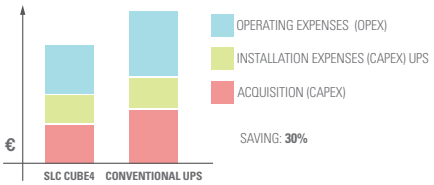
By integrating the equipment as a standard feature of Salicru's Nimbus-cloud, it is permanently monitored and provides a continuous analysis of the level of protection provided.

Remote maintenance

There are multiple remote maintenance options through the Nimbus Services connections, both in modalities and response, allowing immediate actions in case of incidents or advances on anomalous situations.

Very low TCO

The total cost of ownership (TCO) for an SLC CUBE4 has been carefully calculated in order to obtain a very low investment ratio over the operational lifetime of the UPS, leading to a saving of 30%.



Range

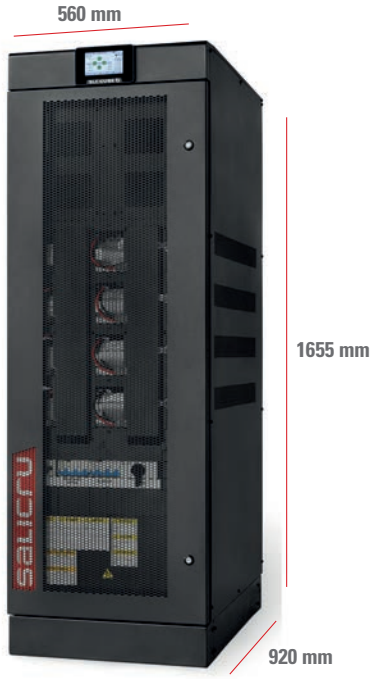
MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC-7,5-CUBE4	6B3AA000001	7.500 / 7.500	689 × 250 × 827	88
SLC-10-CUBE4	6B3AA000002	10.000 / 10.000	689 × 250 × 827	98
SLC-15-CUBE4	6B3AA000003	15.000 / 15.000	689 × 250 × 827	118
SLC-20-CUBE4	6B3AA000004	20.000 / 20.000	689 × 250 × 827	132
SLC-30-CUBE4	6B3AC000001	30.000 / 30.000	910 × 380 × 1045	229
SLC-40-CUBE4	6B3AC000003	40.000 / 40.000	910 × 380 × 1045	334
SLC-50-CUBE4	6B3AD000002	50.000 / 50.000	920 × 560 × 1655	450
SLC-60-CUBE4	6B3AD000003	60.000 / 60.000	920 × 560 × 1655	450
SLC-80-CUBE4	6B3AD000001	80.000 / 80.000	920 × 560 × 1655	540

Nomenclature, dimensions and weights for devices with input voltage of 3 x 400 V, output voltage of 3 x 400 V and standard backup.
This code corresponds olny to the UPS module. Consult code for battery module.

Dimensions

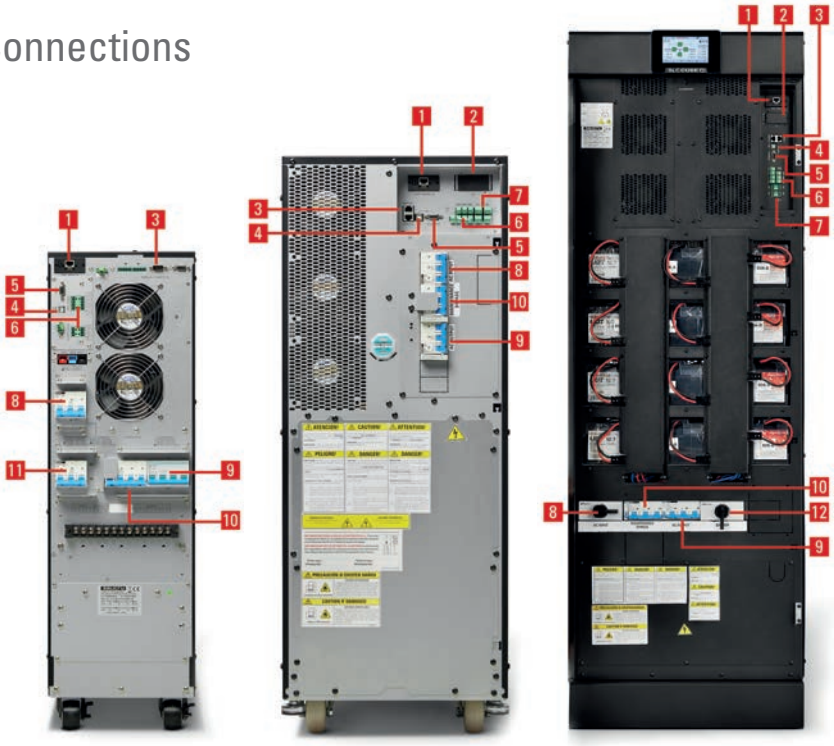
SLC-7.5÷20-CUBE4

SLC-30÷40-CUBE4



SLC-50÷80-CUBE4

Connections



1. Nimbus cloud card
2. Free communications slot
3. Parallel port
4. USB interface
5. RS-232/(485) interface
6. Digital Inputs
7. Relay indicators
8. Input circuit breaker/disconnector
9. Output circuit breaker
10. Manual bypass circuit breaker
11. Bypass circuit breaker
12. Battery disconnector

Technical specifications

MODEL		SLC CUBE4
TECHNOLOGY		On-line, double conversion, HF, DSP control
INPUT	Rated voltage	Three-phase 3 × 380 / 3 × 400 / 3 × 415 V (3F + N)
	Voltage range	7.5÷20 kVA: 110÷300 V (F-N) / 30÷80 kVA: 115÷265 V (F-N)
	Rated frequency	50 / 60 Hz
	Frequency range	7.5÷20 kVA: 46÷54 Hz / 56÷64 Hz / 30÷80 kVA: 46÷64 Hz
	Total harmonic distortion (THDi)	<3%
	Power factor	7.5÷20 kVA: ≥0.99 / 30÷80 kVA: 1 from 10% load
	Rectifier topology	Three-phase IGBT full wave, soft start, PFC, transformerless
OUTPUT	Power factor	1
	Rated voltage	Three-phase 3 × 380 / 3 × 400 / 3 × 415 V (3F + N)
	Dynamic accuracy	±2%
	Static accuracy	±1%
	Frequency	50 / 60 Hz
	Total performance in On-line mode	>96% (1)
	Performance in Smart Eco-mode	>99%
	Admissible overloads	125% for 10 min / 150% for 60 s / >150% for 20 ms
	Crest factor	3:1
MANUAL BYPASS	Type	Uninterrupted
STATIC BYPASS	Type and activation criteria	Solid state
	Transfer times in Smart Eco-mode (ms)	<10 ms
	Transfer to bypass	Immediate, for overloads exceeding 150%
	Retransfer	Automatic, after alarm deactivation
BATTERY	Battery type	Pb-Ca, VRLA, lead acid, gel, Ni-Cd, Li-Ion
	Charging voltage regulation	Batt-Watch
COMMUNICATION	Ports	1x RS232/RS485 + 1xUSB
	Relay interface	7.5÷20 kVA: 6 relays / 30÷80 kVA: 4 relays (programmable)
	Intelligent slot	1, for SNMP/ NIMBUS and relays
	Backlit LCD display	5" colour touch screen
GENERAL	Operating temperature	0° C ÷ +40° C (2)
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (3)
	Acoustic noise at 1 metre	7.5÷10 kVA: <55 dB / 15÷20 kVA: <57 dB / 30÷40 kVA: <54 dB / 50÷80 kVA: <62 dB
STANDARDS	Safety	IEC/EN 62040-1
	Electromagnetic compatibility (EMC)	IEC/EN 62040-2 C3
	Operation	VFI-SS-111 (IEC/EN 62040-3)
	Quality and environmental management	ISO 9001 & ISO 14001

(1) According to model.
(2) Up to 55°C with power derating.
(3) Power degradation for temperature altitudes, up to a maximum of 5,000 masl.

SLC CUBE3+

Uninterruptible power supply system from 7.5 to 200 kVA

SLC CUBE3+: Energy efficiency with superior electrical protection

Salicru's **SLC CUBE3+** series is a UPS range featuring high-performance, On-line double conversion (VFI) technology that provides a reliable, high-quality power supply and, at the same time, achieves significant energy and financial savings in terms of installation and operating costs.

Particularly noteworthy is the unit's input power factor (PF=1) and its extremely low distortion rate (THDi even lower than 1.5%), which help to reduce installation and operating costs, and contribute to improving the quality of the electrical grid.

The output power factor (PF=0.9) also stands out, providing optimum electrical protection for computer systems and low harmonic output distortion (THDv even lower than 0.5%), enabling it to protect any type of load (inductive, resistive, capacitive or mixed). In addition, the performance achieved (up to 95% in On-line mode and 98.4% in Smart Eco-mode) produces significant energy consumption savings and reduces air conditioning needs.

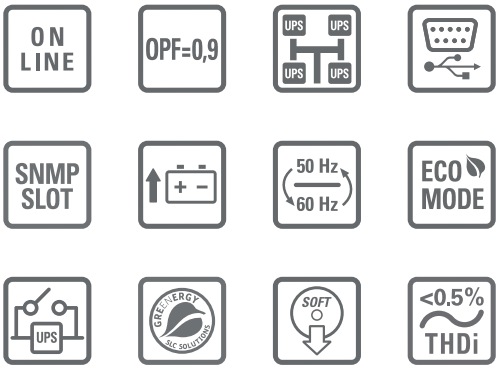
For a full optimum solution, the **SLC CUBE3+** provides maximum adaptability (even with the standard model), the possibility of parallel redundant expansion and extensive communication options. Finally, also worth noting is the unit's lightweight design and reduced dimensions, enabling it to be easily installed and ensuring that footprint is minimal.

Applications: Designed to protect any type of environment

High-end design features plus great flexibility capacity (options, power upgrading, communications...) make **SLC CUBE3+** series the best option to protect and secure a wide range of environments: data-centres, hosting, housing, IT-networks, server farms, voice and data networks...

Performances

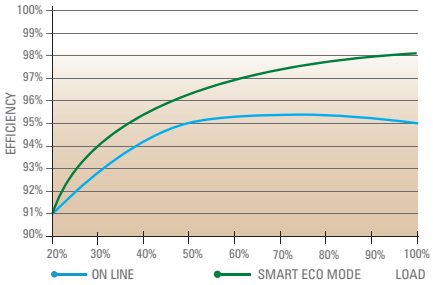
· On-line double conversion (VFI) technology with DSP control.
· Input power factor 1, for better performance.
· Very low input current harmonic distortion (THDi as low as <1.5%).
· Total flexibility in input/output voltage. (1)
· Designed to withstand any type of load.
· Batt-Watch function for monitoring and battery care.
· High output power factor (PF=0.9)(2).
· Very low output voltage distortion rate (THDv even lower than 0.5%).
· On-line mode efficiency of up to 95%.
· Smart Eco-mode efficiency of up to 98.4%.
· Touch screen 7" color. (3)
· Very compact design with minimal footprint.
· Can be integrated into the most advanced IT environments.
· Parallel redundant configuration (N+1) for critical installations. (4)
· Built with 80% recyclable materials.
· SLC Greenergy solution.



(1) Single/single, single/three and three/single configurations up to 100 kVA
(2) Only for three-phase input / output models. PF = 0.8 for other configurations
(3) According to model
(4) Up to 4 units

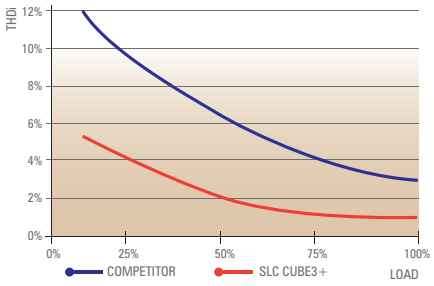
High efficiency

High performance in On-line and Smart Eco-mode operation.



Low harmonic distortion

The lowest harmonic distortion in the market.



Options

· Nimbus/Ethernet/SNMP adapter.
· Monitoring, management and shutdown software.
· 1 x additional RS-232/485 serial port.
· Extended backup times.
· Common battery set for parallel systems.
· BACS II, battery monitoring, regulation and alarms.
· Dual-level charger for NiCd batteries.
· Separate bypass line.
· Touch screen 7" color.(2)
· Single/single, single/three and three/single configurations.(1)
· External manual bypass.
· Temperature and humidity sensors.
· Frequency converter function.
· Backfeed protection.
· Isolation transformer and autotransformer.
· Parallel installation cable.
· Nimbus AS-400 extended relay card.
· Earthquake-proof feet.
· Other levels of protection.
· Batteries in rack.

(1) Up to 100 kVA
(2) Up to 60 kVA

Technical support and service

· Pre and post-sales advice.
· Start-up.
· Telephone technical support.
· Preventative/corrective intervention.
· Maintenance contracts.
· Remote maintenance contracts.
· Training courses.

Range

MODEL	CODE	POWER (VA / W)	Nº CABINETS (UPS + BAT)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	BAT DIMENSIONS (D × W × H mm)	BAT WEIGHT (Kg)
SLC-7,5-CUBE3+	681LA000009	7500 / 6750	1 + 0	770 × 450 × 1100	203	-	-
SLC-10-CUBE3+	681LA000004	10000 / 9000	1 + 0	770 × 450 × 1100	203	-	-
SLC-15-CUBE3+	681LA000017	15000 / 13500	1 + 0	770 × 450 × 1100	205	-	-
SLC-20-CUBE3+	681LA000024	20000 / 18000	1 + 0	770 × 450 × 1100	254	-	-
SLC-30-CUBE3+	681LB000006	30000 / 27000	1 + 0	770 × 450 × 1100	305	-	-
SLC-40-CUBE3+	681LB000010	40000 / 36000	1 + 0	770 × 450 × 1100	403	-	-
SLC-50-CUBE3+	681LC000001	50000 / 45000	1 + 1	770 × 450 × 1100	185	775 × 450 × 1100	295
SLC-60-CUBE3+	681LC000002	60000 / 54000	1 + 1	770 × 450 × 1100	185	775 × 450 × 1100	523
SLC-80-CUBE3+	681TD000001	80000 / 72000	1 + 1	880 × 590 × 1320	265	1050 × 650 × 1325	624
SLC-100-CUBE3+	681TD000002	100000 / 90000	1 + 1	880 × 590 × 1320	290	1050 × 650 × 1325	624
SLC-120-CUBE3+	681TD000003	120000 / 108000	1 + 1	880 × 590 × 1320	290	1050 × 650 × 1325	750
SLC-160-CUBE3+	681TE000001	160000 / 140000	1 + 1	850 × 900 × 1900	540	850 × 1305 × 1905	1595
SLC-200-CUBE3+	681TE000002	200000 / 180000	1 + 1	850 × 900 × 1900	550	850 × 1305 × 1905	1918

Nomenclature, dimensions and weights for units with input voltage 3 x 400 V, output voltage 3 x 400 V and standard backup time.
This code corresponds olny to the UPS module. Consult code for battery module.

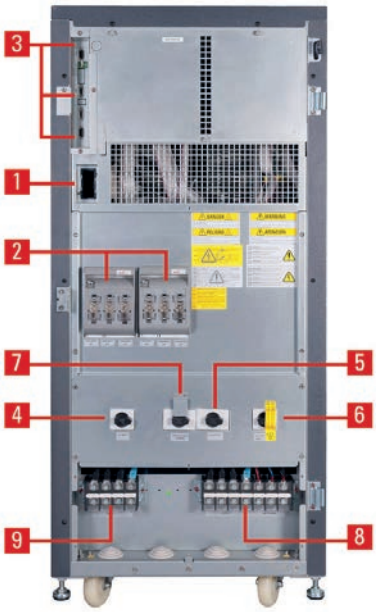
Dimensions

SLC-7,5÷60-CUBE3+

SLC-80÷120-CUBE3+

SLC-160/200-CUBE3+

Connections



1. Slot for card (option).
2. Internal protection fuses. 80 kVA equipments only.
3. Communication interfaces.
4. Circuit breaker switch / Input switch.
5. Output switch.
6. Fuse holder / switch power.
7. Manual bypass.
8. Output terminals.
9. Input and output terminals.

Technical specifications

MODEL		SLC CUBE3+
TECHNOLOGY		On-line, double conversion, HF, DSP control
INPUT	Rated voltage	Single-phase 220 / 230 / 240 V(1) / Three-phase 3 × 380 / 3 × 400 / 3 × 415 V (3P + N)
	Voltage range	+15% / -20% (configurable)
	Rated frequency	50 / 60 Hz
	Total harmonic distortion (THDi)	100% load: <1.5% / 50% load: <2.5% / 10% load: <6.0%
	Power factor	1 from 10% load
	Rectifier topology	Three-phase IGBT full wave, soft start, PFC, transformerless
OUTPUT	Power factor	0.9(2)
	Rated voltage	Single-phase 220 / 230 / 240 V(1) / Three-phase 3 × 380 / 3 × 400 / 3 × 415 V (3P + N)
	Dynamic accuracy	± 2% dynamic
	Static accuracy	± 1% steady
	Response time accuracy	20 ms for load steps 0% ÷ 100% and voltage drop up to -5%
	Total harmonic distortion (THDv)	<0.5% linear load / <1.5% (EN-62040-3)non-linear load
	Synchronised frequency	50/60 Hz ±5 Hz (selectable)
	Free running frequency	50/60 Hz ±0,05%
	Synchronous speed	From 1 Hz/s to 10 Hz/s (programmable)
	Total performance in On-line mode	7.5÷60 kVA: 92.0%÷93.0% / 80÷200 kVA: 94.0%÷95.0%
	Performance in Smart Eco-mode	Up to 98.4%
	Admissible overloads	125% for 10 min / 150% for 60 s / >150% for 20ms
	Crest factor	>3:1
MANUAL BYPASS	Type	No breaks
STATIC BYPASS	Type and activation criteria	Solid state, controlled by microprocessor
	Transfer times in Smart Eco-mode (ms)	4 ms (typical)
	Transfer times in On-line	Nil
	Transfer to bypass	Immediate, for overloads exceeding 150%
	Retransfer	Automatic, after alarm deactivation
BATTERY	Battery type	Lead acid, sealed, maintenance free
	Charging voltage regulation	Batt-Watch
COMMUNICATION	Ports	1 × RS232/RS485 + 1xUSB,with Modbus protocol
	Relay interface	4 × AC failure, bypass, low battery and general
	Intelligent slot	1, for SNMP
	Display from 80 kVA	Touch screen 7" color
	Display up to 60 kVA	LCD display, LEDs and keyboard
GENERAL	Operating temperature	0° C ÷ +40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (3)
	Acoustic noise at 1 metre	<52 dB(A)(4)
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN-62040-2
	Operation	VFI-SS-111 (EN-62040-3)
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Up to 60 kVA.
(2) Only for three-phase input / output models. FP = 0.8 for other configurations..
(3) <65 dB(A) for 80 to 120 kVA models / <70 dB(A) for 160 to 200 kVA models
(4) Power derating for higher altitudes up to 5000 masl.

SLC X-PERT

Uninterruptible power supplies 80 to 400 kVA

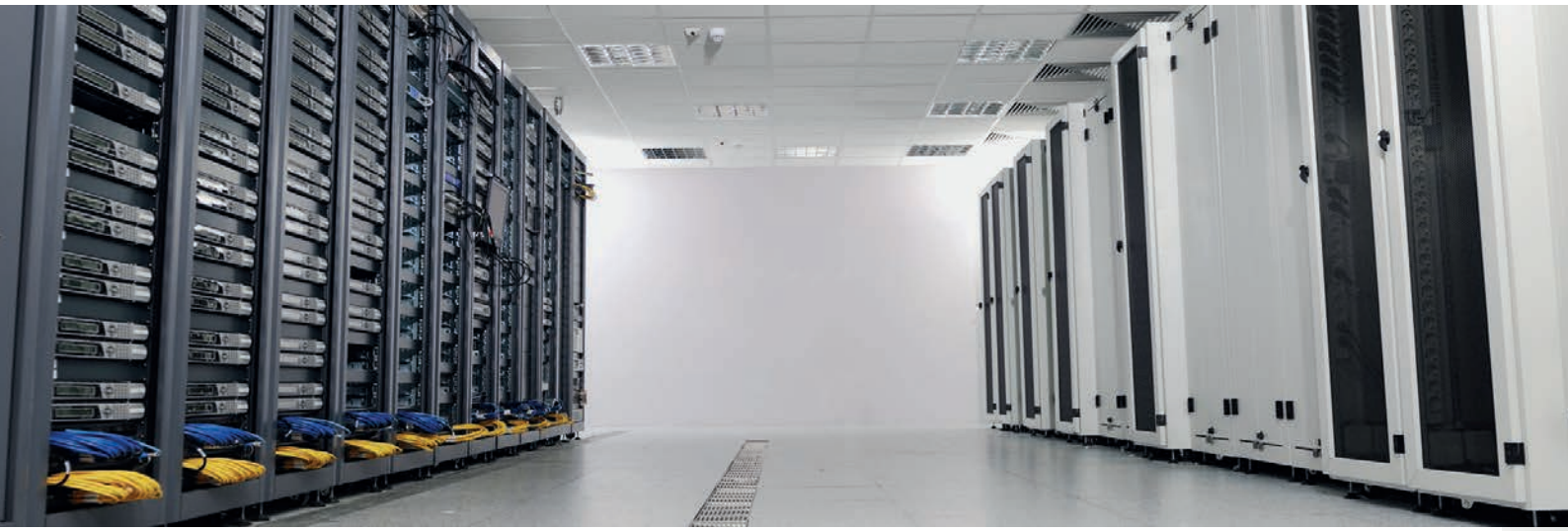
SLC X-PERT: High critical power facilities protected by high functionalities

Salicru's **SLC X-PERT** series consists of three-phase UPSs that combine very low total cost of ownership (TCO) with very high efficiency and compact design, providing high-quality uninterruptible power for all critical applications. The technology incorporated offers one of the highest efficiencies on the market in VFI mode and 100% of expected battery life.

The **SLC X-PERT** series maximises the use of the surface occupied thanks to its high power density design. Models from 200 kVA have complete front access, precluding the need for side or rear space, making them easy to maintain and installable side by side, back to back or against a wall. The common battery option further enhances the ability of the **SLC X-PERT** series to deliver low footprint solutions, freeing space for other equipment.

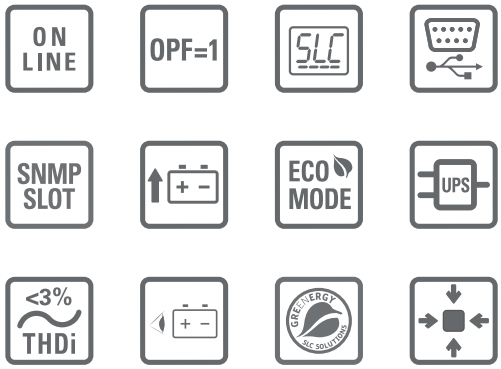
Applications: Guaranteed energy for all environments

Data centres: Ensures the functionality of environments and prevents losses caused by net failures.
IT-Networks: Prevent costs due to service interruptions or loss of information.
Financial services: Maintains online operability of financial transactions and operations.
Industrial processes: Protects productivity in electrically complicated environments.
Telecommunications: Prevents supply failures that can suspend communication between subscribers.
Infrastructures: Safeguards the instruments/equipment and ensures the proper management of the systems.



Performances

- On-line, double-conversion and DSP control technology.
- Output power factor 1 (VA=W).
- Input current distortion rate (THDi) <3%.
- Double input connection to increase availability.
- Input power factor >0.99.
- High energy efficiency, between 95% and 96% in normal mode and up to 97% in high-efficiency mode.
- No transformer in the inverter, compact design and less weight.
- Parallel system for redundancy or capacity purposes.
- Monitoring and care of batteries with Batt-Watch and longer life in high-efficiency mode.
- Compatible with power generators.
- 10" touch screen for all models.
- Selectable on-line/eco-mode operation.
- Calculation of the backup available in the event of lengthy power cuts.
- Extended life for consumables.
- Wide range of options available.
- SLC Greenergy solution.



High-efficiency mode

High-efficiency operating mode disconnects the DC bus battery when it is fully charged, enabling the DC voltage to be lowered to achieve performance of up to 97% working in on-line mode and in turn protecting and extending the life of the batteries.

Parallel systems featuring UPSs with different powers

For cases in which there is only one UPS and, due to expansion needs, it is necessary to install another device in parallel, the **SLC X-PERT** series enables two devices with different powers to parallel each other in parallel systems of 2 units. For example, a power of 125 kVA with a 100 kVA device.

Technical support and service

- Pre- and after-sales service.
- Commissioning.
- Telephone technical support.
- Preventative/corrective intervention.
- Maintenance contracts.
- Remote maintenance contracts.
- Training courses.

Options

- Parallel/redundant kit.
- Extended backup times.
- Common rectifier/bypass input.
- SNMP adapter.
- NIMBUS adapter for remote management.
- External output voltage synchronism.
- Backfeed protection.
- Transformer.
- Battery temperature sensor.
- Top cable entry.
- External maintenance bypass.
- Modbus protocol.

Heat loss

MODEL	HEAT LOSS 100% LOAD	COOLING
SLC-80-XPERT	4.20 kW	1000 m³ /h
SLC-100-XPERT	5.30 kW	1200 m³ /h
SLC-125-XPERT	6.60 kW	1200 m³ /h
SLC-160-XPERT	8.40 kW	1500 m³ /h
SLC-200-XPERT	9.40 kW	1800 m³ /h
SLC-250-XPERT	11.80 kW	2200 m³ /h
SLC-300-XPERT	14.10 kW	2300 m³ /h
SLC-400-XPERT	17.50 kW	4500 m³ /h

Range

MODEL	CODE	POWER (VA / W)	Nº CABINETS (UPS + BAT)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	BAT DIMENSIONS (D × W × H mm)	BAT WEIGHT (Kg)
SLC-80-XPERT	695KA000010	80000/80000	1+0	940 × 560 × 1800	300	-	-
SLC-100-XPERT	695KA000012	100000/100000	1+1	940 × 560 × 1800	320	855 × 1305 × 1905	829
SLC-125-XPERT	695KA000013	125000/125000	1+1	940 × 560 × 1800	360	855 × 1305 × 1905	829
SLC-160-XPERT	695KA000014	160000/160000	1+1	940 × 560 × 1800	380	855 × 1305 × 1905	1550
SLC-200-XPERT	695KA000006	200000/200000	1+1	970 × 880 × 1975	720	855 × 1305 × 1905	1862

Batteries located in cabinets.
Nomenclature, dimensions and weights for devices with input voltage 3 x 400 V, output voltage 3 x 400 V and standard backup.
This code corresponds olny to the UPS module. Consult code for battery module.

MODEL	CODE	POWER (VA / W)	Nº CABINETS (UPS + BAT)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	BAT DIMENSIONS (D × W × H mm)	BAT WEIGHT (Kg)
SLC-250-XPERT	695KA000007	250000/250000	1+1	970 × 880 × 1975	850	695 × 2500 × 2285	2171
SLC-300-XPERT	695KA000008	300000/300000	1+1	970 × 880 × 1975	930	695 × 2500 × 2285	2879
SLC-400-XPERT	695KA000009	400000/400000	1+1	970 × 1450 × 1975	1000	695 × 2500 × 2285	3414

Batteries located in banks.
Nomenclature, dimensions and weights for devices with input voltage 3 x 400 V, output voltage 3 x 400 V and standard backup.
This code corresponds olny to the UPS module. Consult code for battery module.

Dimensions

SLC-80÷160-XPERT

SLC-200÷300-XPERT

SLC-400-XPERT

Technical specifications

MODEL		SLC X-PERT
TECHNOLOGY		On-line, double-conversion, DSP control
INPUT	Rated voltage	Three-phase 3 × 380 V / 3 × 400 V / 3 × 415 V (3P+N)
	Voltage range	+15% / -20% (@ 3 × 400 V)
	Rated frequency	50 / 60 Hz (45-65 Hz)
	Frequency range	±10%
	Total harmonic distortion (THDi)	<3%
	Power factor	>0.99
OUTPUT	Power factor	1
	Rated voltage	Three-phase 3 × 380 V / 3 × 400 V / 3 × 415 V (3P+N)
	Total harmonic distortion (THDv) Non~linear load	<5%
	Synchronised frequency	±2 Hz
	Frequency	50 / 60 Hz
	High-efficiency performance	Up to 97%
	Eco-mode performance	≥98%
	Admissible overloads	125% for 10 min / 150% for 1 min
	Crest factor	3 a 1
STATIC BYPASS	Type and activation criteria	Solid state, microprocessor controlled
	Voltage (V)	Three-phase 3 × 380 V / 3 × 400 V / 3 × 415 V (3P+N)
	Transfer time (ms)	Nil
	Transfer to bypass	Immediate, for overloads exceeding 150%
	Retransfer	Automatic after alarm discontinuation
	Frequency range	±10% (selectable)
	Voltage range	±10% (selectable)
	Input	Independent
	Frequency	50 / 60 Hz
	Admissible overloads	1000% for 1 cycle
BATTERY	Battery type	Lead acid, sealed, maintenance free(1)
	Charge type	Type of charge IU (DIN 41773)
COMMUNICATION	Ports	RS-232, USB
	Backlit LCD display	10" touch screen
GENERAL	Operating temperature	0 ÷ +40ºC
	Relative humidity	95% non-condensing
	Maxium operating altitude	2400 m.a.s.l.(2)
	Acoustic noise at 1 metre	<60dB up to 160kVA; <65dB up to 300kVA; <72dB for 400kVA
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN-62040-2
	Operation	EN62040-3 (VFI-SS-111)
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Ni-Cd, Li-Ion and other types of battery available on request.
(2) Power degradation up to 5,000 masl.

SLC X-TRA

Uninterruptible Power Supplies from 100 to 800 kVA

SLC X-TRA: High performance protection for major critical applications

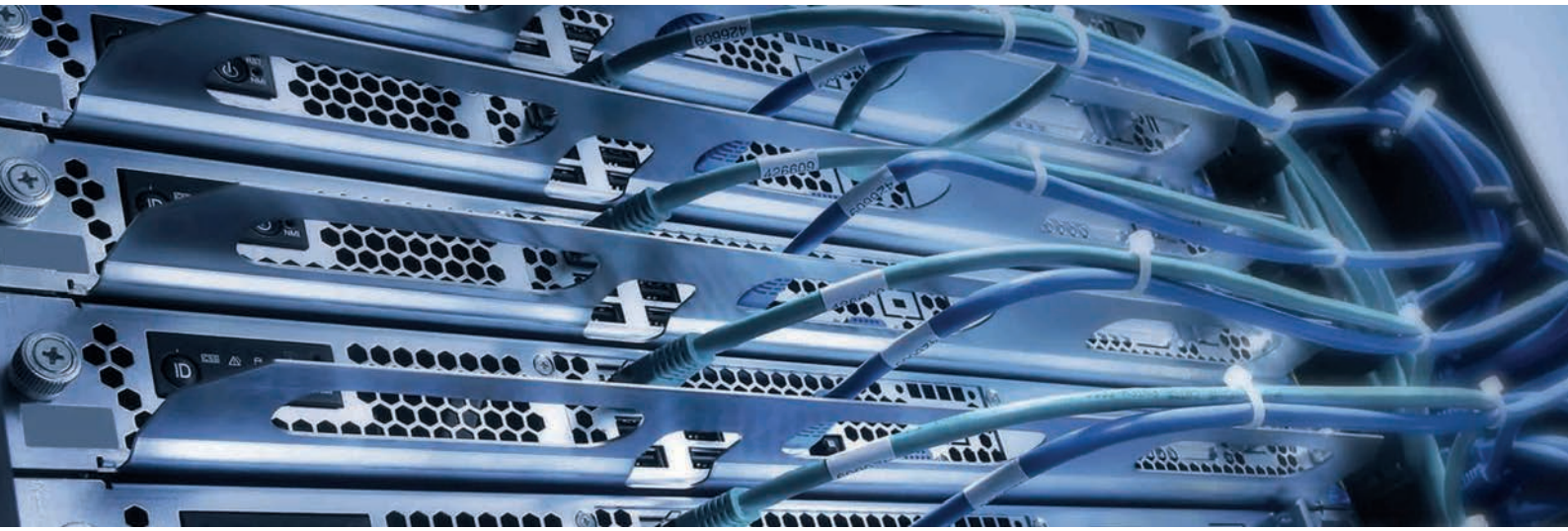
The **SLC X-TRA** series is one of the most reliable, high-performance three-phase Uninterruptible Power Supply system (UPS) on the market, and provides protection and quality energy for a wide range of applications. Based on the Voltage and Frequency Independent (VFI) mode of operation, it has been developed using double conversion IGBT technology with DSP control, which gives considerable savings in the costs of operation and installation while it offers maximum protection for the connected loads.

This series has been conceived to offer the best guarantees in meeting customers' requirements and needs and has been designed in full respect of the most demanding environmental regulations.

The **SLC X-TRA** series features power range from 100 to 800 kVA in a very compact format for easier installation. Plus, the reliability of the system can be increased with the installation of several redundant units or it can grow in parallel based on the needs of the installation.

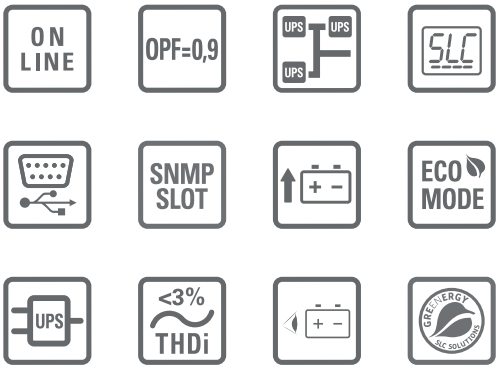
Applications: Guaranteed energy for all environments

Data centres: Ensures the functionality of environments and prevents losses caused by net failures.
IT-Networks: Prevent costs due to service interruptions or loss of information.
Financial services: Maintains online operability of financial transactions and operations.
Industrial processes: Protects productivity in electrically complicated environments.
Telecommunications: Prevents supply failures that can suspend communication between subscribers.
Infrastructures: Safeguards the instruments/equipment and ensures the proper management of the systems



Performances

· On-line, double conversion, DSP control.
· Double input connection to increase the availability.
· Input power factor >0.99.
· Total harmonic distortion of input current (THDi) < 3%.
· Efficiency between 95% and 96%.
· Zig-zag transformer on the output inverter.
· Parallel for redundancy or increase the power capacity.
· Compatible with generating sets.
· Inverter manual operation/Smart Eco-mode.
· Prepared to bear computer loads with FP <0.9.
· Batt-Watch battery monitoring and care.
· Calculates available back-up time in a long-term failure.
· Compact format to save on installation space.
· Easy installation, operation and maintenance.
· A wide range of control and monitoring options.
· Large variety of options available.
· SLC Greenergy solution.



Options

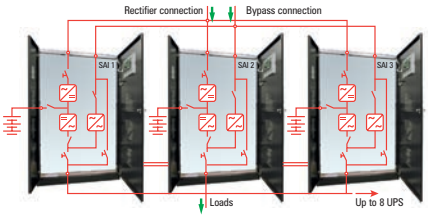
· Parallel/redundant kit.
· Extended autonomies.
· NiCd Batteries.
· BACS II.
· MODBUS protocol + RS-485 interface.
· Platform for remote telemanagement.
· Ethernet / SNMP adapter or GPRS modem.
· Monitoring, management and shutdown software.
· Common input connection.
· Top cable input.
· External manual bypass.

Technical support and service

· Advisory service before and after the sale.
· Start up.
· Telephone technical support.
· Preventive/corrective interventions.
· Maintenance contracts.
· Telemaintenance contracts.
· Training courses.

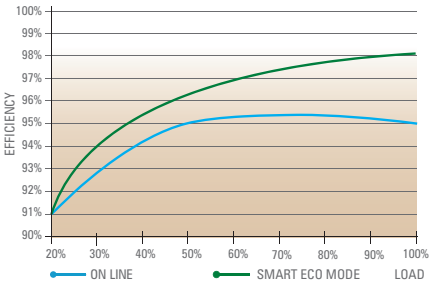
Parallel growth

The parallel UPS can be configured to achieve redundancy or increase the power capacity of the system. Parallel control is fully digital and works for active as well as reactive power in each phase, achieving an exact load distribution between the UPS units in transitory conditionsrs, y compris dans des conditions transitoires.



High efficiency

High performance both On-line mode (between 95% and 96%) and Smart Eco-mode (>98%), reducing operating costs, implementation costs (no need to oversize the wiring), air conditioning costs (without increasing cooling requirements) and working costs (saving energy consumed).



Range

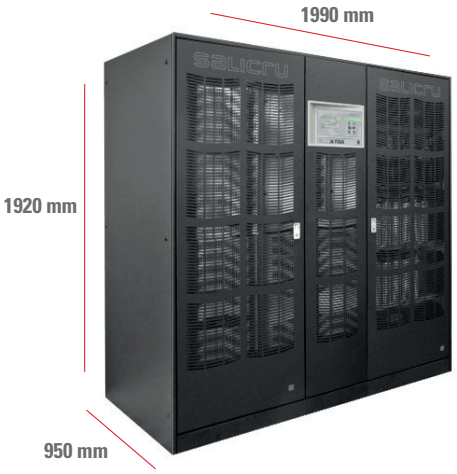
MODEL	CODE	POWER (VA / W)	Nº CABINETS (UPS + BAT)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	BAT DIMENSIONS (D × W × H mm)	BAT WEIGHT (Kg)
SLC-100-XTRA	695AA000002	100000 / 90000	1 + 1	825 × 815 × 1670	630	855 × 1305 × 1905	875
SLC-125-XTRA	695AA000003	125000 / 112500	1 + 1	825 × 815 × 1670	662	855 × 1305 × 1905	1370
SLC-160-XTRA	695AA000004	160000 / 144000	1 + 1	825 × 815 × 1670	720	855 × 1305 × 1905	1370
SLC-200-XTRA	695AA000005	200000 / 180000	1 + 1	855 × 1220 × 1905	870	855 × 1305 × 1905	1550
SLC-250-XTRA	695AA000006	250000 / 225000	1 + 1	855 × 1220 × 1905	1020	855 × 1305 × 1905	1800
SLC-300-XTRA	695AA000007	300000 / 270000	1 + 2	855 × 1220 × 1905	1200	855 × 1305 × 1905	1370
SLC-400-XTRA	695AB000001	400000 / 360000	1 + 2	950 × 1990 × 1920	1820	855 × 1305 × 1905	1800
SLC-500-XTRA	695AB000002	500000 / 450000	1 + 2	950 × 2440 × 2020	2220	855 × 1305 × 1905	1800
SLC-600-XTRA	695AB000003	600000 / 540000	1 + 2	950 × 2440 × 2020	2400	855 × 1305 × 1905	2125
SLC-800-XTRA	695AB000004	800000 / 720000	1 + 3	950 × 3640 × 1920	3600	855 × 1305 × 1905	1925

Nomenclature, dimensions and weights for units with input voltage 3 x 400 V, output voltage 3 x 400 V and standard backup time.
This code corresponds olny to the UPS module. Consult code for battery module.

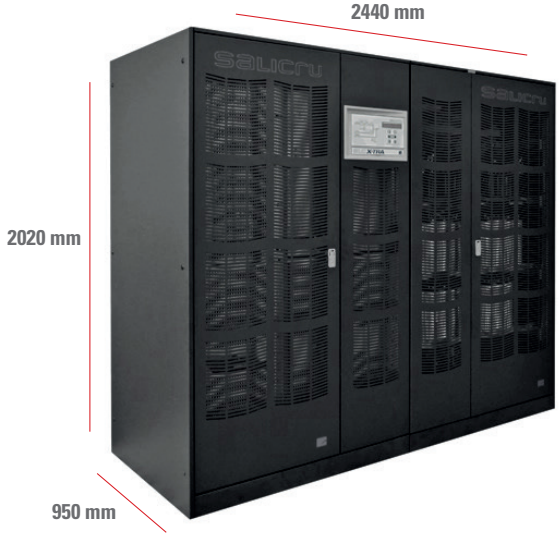
Dimensions

SLC-100÷160-XTRA

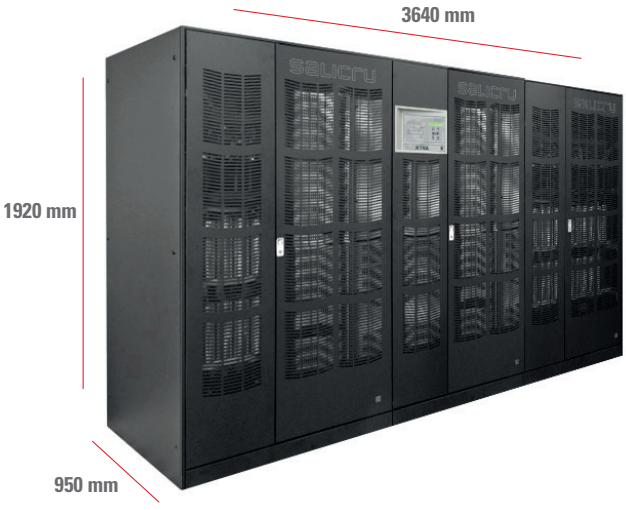
SLC-200÷300-XTRA



SLC-400-XTRA



SLC-500/600-XTRA



SLC-800-XTRA

Technical specifications

MODEL		SLC X-TRA
TECHNOLOGY		On-line, double conversion, DSP control
INPUT	Rated voltage	Three-phase 3 × 380 V / 3 × 400 V / 3 × 415 V (3Ph+N)
	Voltage range	+15% / -20% (@ 3 × 400 V)
	Rated frequency	50 / 60 Hz (45-65 Hz)
	Total harmonic distortion (THDi)	<3%
	Power factor	>0.99
OUTPUT	Rated voltage	Three-phase 3 × 380 V / 3 × 400 V / 3 × 415 V (3Ph+N)
	Accuracy	±1% Steady state; ±5% Dynamic state (100% unbalanced) < 20 ms recovery time
	Total harmonic distortion (THDv) Linerar load	<1%
	Total harmonic distortion (THDv) Non linear load	<5%
	Frequency	50 / 60 Hz
	On-line performance	95% - 96%
	Eco-mode performance	>98%
	Admissible overloads	125% for 10 min. / 150% for 1 min / 200% for 10 s />200% for 100ms
MANUAL BYPASS	Type	Without interruption
	100–300 kVA	Seriell
STATIC BYPASS	Type and activation criteria	Solid state, control by microprocessor
	Voltage (V)	Three-phase 3 × 380 / 3 × 400 / 3 × 415 V (3Ph + N)
	Transfer time (ms)	Nil
	Transfer to bypass	Immediate for overloads of over 150%
	Retransfer	Automatic after alarm disappearance
	Input	Independent
	Frequency	50 / 60 Hz
	Admissible overloads	1000% for 1 cycle
RECTIFIER	Structure	Three-phase IGBT complete wave, soft start and PFC
	Protection	Against transitory overvoltages
BATTERY	Battery type	Lead acid, sealed, maintenance free(1)
	Recharge time	4 hours, @ 80% of capacity
	Charging voltage regulation	Batt-Watch
	Battery test	Manual + Automatic
COMMUNICATION	Ports	RS-232, USB, Emergency Power Off (EPO), Port for monitoring battery switch
	Backlit LCD display	LCD + LED block diagram
GENERAL	Operating temperature	0º C ÷ +40º C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	< 2,400 m.s.n.m.
	Acoustic noise at 1 metre	< 60 dB
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN-62040-2
	Operation	VFI-SS-111 (EN-62040-3)
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Ni-Cd under request.

SLC ADAPT2

On-line double-conversion modular rack UPS with IoT 10 to 450 kW

SLC ADAPT2: Modularity, optimisation and efficiency in electrical safety for data centres

Salicru's **SLC ADAPT2** series UPSs are on-line double-conversion modular solutions for superior electrical protection, featuring DSP control and three-level IGBT technology.

Modularity: The range of modules available -10 and 15 kW- together with the different configurable systems -2, 3, 4 and 6 modules per system- enables adaptation to any environment, with the option of paralleling systems to achieve greater protection or increased power. Preventative diagnosis and frontal extraction of the modules drastically reduces intervention times (MTTR) and increases the availability of the system.

Optimisation: High power density, modules occupying only 2U of height require less space in data centres and reduce installation costs (TCO). Moreover, expenditure can be optimised by simply adding new modules in line with the pace of growth of the data centre.

Efficiency: The modules with a unity output power factor (kVA = kW) operate with an efficiency > 96% and a very flat performance curve for all working modes, resulting in less exertion when cooling and significant energy savings. They also feature various operating modes (Eco-mode, Hibernation, Smart-Efficiency, etc.), which further increase the performance and efficiency of the system.

IoT communication: They have a standard Nimbus cloud connection for equipment monitoring and remote management options, incident notification, equipment health monitoring and preventive maintenance.

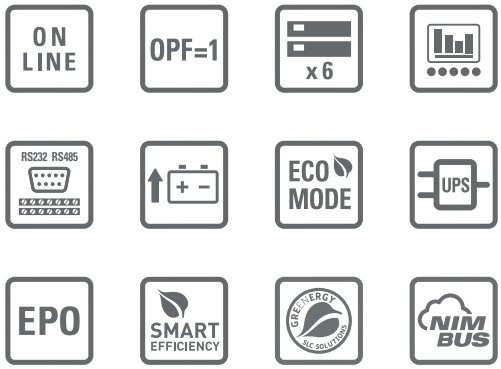
Applications: Scalable protection for better adaptation to growing needs

Salicru's **SLC ADAPT2** series modular solutions ensure reliability, quality and continuity and provide improved protection for small and medium-power data centres, both modular and virtualised, as well as IT infrastructures and applications for associated critical processes, avoiding the enormous costs resulting from interruptions in the operation of data centres.

Performances

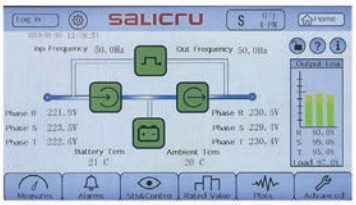
· Modular on-line double-conversion UPS solutions.
· Output power factor PF=1 (kVA=kW).
· High power density with 10 and 15 kW modules occupying only 2U of height.
· Maximum flexibility with 2, 3, 4 and 6 module systems.
· Parallel growth, up to 450 kW.
· Hot-pluggable and swappable plug & play modules.
· Input power factor >0.99.
· Flexible configurations 1/1, 1/3, 3/1 and 3/3.(1)
· Standard Nimbus IoT connection for monitoring.
· 7" LCD colour touchscreen, LEDs an keypad.
· On-line mode module efficiency > 96%.
· Eco-mode operation for improved efficiency.
· Smart hibernation mode to extend the life of the modules.
· Smart charger of up to 20% of the power of the system.
· RS-232, RS-485 and potential-free contact communication channels.
· SNMP/ Ethernet, relays and parallel kit, as options.
· Multi-platform management and monitoring software.
· SLC Greenergy solution.

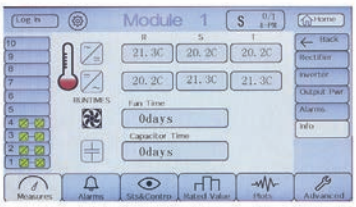
(1) For systems with 10 kW modules.



Display

· 7" colour touchscreen.
· Large touchpanel display that provides status information and useful records.





Built-in cabinet

Possibility of assembling the module systems in 1100/1600/2000 mm high cabinets with or without batteries included. Batteries can also be installed in additional cabinets.

Continuous surveillance

By integrating the equipment as a standard feature of Salicru's Nimbus-cloud, it is permanently monitored and provides a continuous analysis of the level of protection provided.

Remote maintenance

There are multiple remote maintenance options through the Nimbus Services connections, both in modalities and response, allowing immediate actions in case of incidents or advances on anomalous situations.

Range

MODULES	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC ADAPT2 10	694AB000008	10000 / 10000	590 × 436 × 85	15.3
SLC ADAPT2 15	694AB000009	15000 / 15000	590 × 436 × 85	15.5

SYSTEMS	CODE	NO. MODULES (#)	MODULE POWER (VA / W)	MAX. POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC-#/10-ADAPT2 20	694OQ000046	1 to 2	10000 / 10000	20000 / 20000	612 × 485 × 309	57
SLC-#/10-ADAPT2 40	694OQ000047	1 to 4	10000 / 10000	40000 / 40000	612 × 485 × 485	66
SLC-#/10-ADAPT2 60	694OQ000048	1 to 6	10000 / 10000	60000 / 60000	751 × 485 × 1033	100
SLC-#/15-ADAPT2 30	694OQ000059	1 to 2	15000 / 15000	30000 / 30000	612 × 485 × 309	58
SLC-#/15-ADAPT2 45	694OQ000060	1 to 3	15000 / 15000	45000 / 45000	612 × 485 × 485	71
SLC-#/15-ADAPT2 90	694OQ000061	1 to 6	15000 / 15000	90000 / 90000	751 × 485 × 1033	101

Nomenclature, dimensions and weights for devices with input voltage 3 x 400 V, output voltage 3 x 400 V.
Replace # with the number of system modules.
19'' rack format for 2, 3 and 4 slot systems.
Batteries located in additional cabinets.
The weight shown corresponds only to the system, without modules.

Dimensions

SLC ADAPT2 10
SLC ADAPT2 15

SLC-#/10-ADAPT2 20
SLC-#/15-ADAPT2 30

SLC-#/10-ADAPT2 40
SLC-#/15-ADAPT2 45

SLC-#/10-ADAPT2 60
SLC-#/15-ADAPT2 90

Technical specifications

MODEL		SLC ADAPT2	
Module power (VA/W)		10.000 / 10.000	15.000 / 15.000
TECHNOLOGY		On-line double-conversion, HF, DSP control	
INPUT	Rated single phase voltage	220 / 230 / 240 V	Not available
	Rated three-phase voltage (3P+N)	3 × 380 / 400 / 415 V	
	Voltage range	-40% +15% (1)	
	Frequency range	40 - 70 Hz	
	Total harmonic distortion (THDi)	≤3%	
	Power factor	>0.99	
OUTPUT	Power factor	1	
	Single phase rated voltage	220 / 230 / 240 V	Not available
	Rated three-phase voltage (3P+N)	3 × 380 / 400 / 415 V	
	Static accuracy	±1%	
	Total harmonic distortion (THDv)	≤1% linear load; <5.5% non-linear load	
	Frequency	50 / 60 Hz	
	Module performance (On-line)	> 96%	
	Performance in Smart Eco-mode	98%	
	Admissible overloads	<110% for 1 hour / <125% for 10 min / <150% for 1 min / >150% for 200 ms	
	Crest factor	3:1	
MANUAL BYPASS	Type	Uninterrupted (optional)(2)	
STATIC BYPASS	Type	Static thyristor	
	Transfer time (ms)	0 ms	
	Admissible overloads	<110% permanent / <150% for 1 min	
BATTERY	Battery type	Pb-Ca, VRLA, lead acid, gel, Ni-Cd, Li-Ion	
	Charger bus voltage	Configurable between +/-192 and +/-264 VDC	
	Charger maximum power (W)	20% of total system power	
COMMUNICATION	Display	7" touchscreen, LEDs and keypad	
	Ports	RS-232, RS-485 and relays	
	Intelligent slot	1 × Nimbus SNMP / 1 × Nimbus extended relays	
	IoT	Included; Nimbus service	
GENERAL	Operating temperature	0º C ÷ +55º C(3)	
	Relative humidity	Up to 95%, non-condensing	
	Maxium operating altitude	2,400 masl(4)	
	Acoustic noise at 1 metre	< 54 dB(A) (5)	
SYSTEMS	Maximum no. modules per system	2, 4, or 6	2, 3, or 6
	Maximum power per system	20, 40, 60 kW	30, 45, 90 kW
	Maximum no. modules systems	30	
	Maximum power per parallel system	300 kW	450 kW
STANDARDS	Safety	EN-IEC 62040-1	
	Railway	EN 50121-4 / EN50121-5	
	Electromagnetic compatibility (EMC)	EN-IEC 62040-2	
	Operation	VFI-SS-111 (EN-IEC 62040-3)	
	Quality and environmental management	ISO 9001 & ISO 14001	

(1) Depending on charge.
(2) Not included in subracks. Excellent for cabinet systems.
(3) Power derating for higher altitudes up to +40ºC.
(4) Power degradation for higher altitudes, up to a maximum of 5,000 masl.
(5) According to number of modules.

SLC ADAPT

Modular On-line double conversion UPS 25-1500 kVA

SLC ADAPT: Flexibility, availability and reliability in superior electrical protection

Salicru's **SLC ADAPT** series consists of modular On-line double conversion uninterruptible power supply (UPS) solutions with DSP control and three-level IGBT inverter technology.

Flexibility: It enables solutions to be configured from 25 kVA to 1500 kVA, thanks to the range of modules available (25, 30 and 50 kVA), different configurable systems (6, 8, 10 or 12 modules) and the parallel/redundant option of up to three 500 kVA systems. It also provides increased protection as needs grow - pay as you grow - thereby improving total cost of ownership (TCO).

Availability: Its hot-swap modules can be added or replaced during operation, thereby improving mean time to repair (MTTR) and reducing maintenance costs. In addition, the system's remote management, which can be integrated into any platform, also facilitates operation. And the extensive back-up options available, along with intelligent battery charging, ensure continuous operation of the protected critical loads.

Reliability: Its DSP control, based on three-level PWM technology, improves response effectiveness and, along with shared load redundancy, significantly extends the mean time between failures (MTBF).

Applications: Redundant protection for critical applications

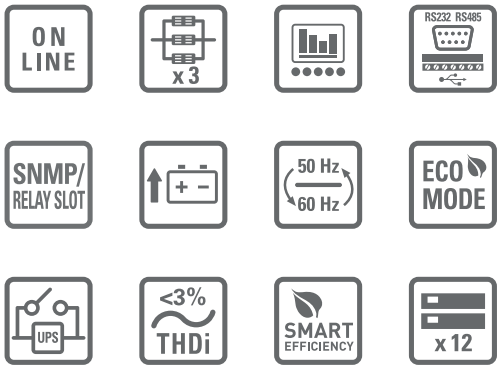
Data centres with all capacities, IT infrastructures, modular and virtualised data centres and applications for critical processes are some of the services that require high-level electrical protection to ensure reliable, continuous and high-quality operation, such as that provided by Salicru's **SLC ADAPT** series systems.

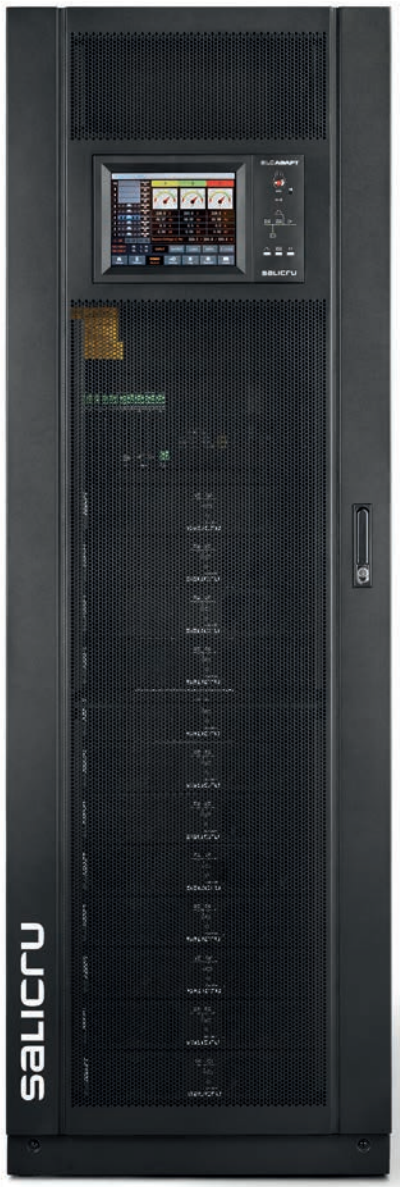
salicru SMART SOLUTIONS

Performances

· On-line double conversion technology with modular architecture.
· 25, 30 and 50 kVA modules with DSP control and three-level PWM technology.
· 6, 8, 10 or 12-module systems (up to 500 kVA per system).
· Possibility of parallel/redundant operation up to 1500 kVA.
· Hot-pluggable and swappable plug & play modules.
· Input power factor >0.99.
· Input current distortion (THDi) <3%.
· Three-phase input / output voltages.
· Output power factor = 1 (for module 25 kW) or 0,9 (for module 30 and 50 kVA).
· Control and management by means of LCD display, LEDs and keypad.
· Over 96% efficiency of modules in Online mode.
· 99% performance in Eco-mode operation.
· RS-232, RS-485, relays and USB(1) communication channels.
· Smart slots for extended relays and SNMP/Nimbus.
· Smart-efficiency mode to optimize system performance.
· Improved return on investment (ROI).
· Compact design to save space in server rooms.
· SLC Greenergy solution.

(1) Except for systems with 25 kW modules.





Display

Display consisting of operation keys, status LEDs and touch screen detailing all functions, measurements and alarms.

Options

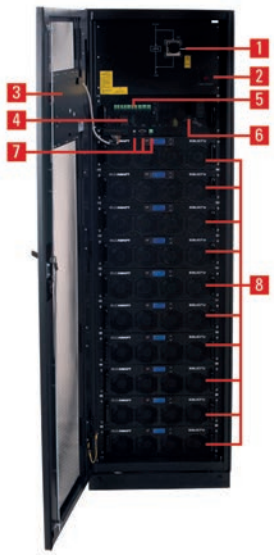
· Extended relays and SNMP/Nimbus adapter.
· Extended back-up times.
· Kit for parallel systems.
· Frequency converter operation.

Technical support and service

· Pre-sales and after-sales advice.
· Start-up. (1)
· Technical support by telephone.
· Preventive/corrective services.
· Maintenance contracts. (1)
· Training courses.

(1) Ask for local conditions

Connections



1. Manual bypass.
2. Start-up from batteries (Cold Start).
3. LCD display.
4. Bypass module.
5. Dry contacts.
6. Extended relays and SNMP / Nimbus slot.
7. RS-232, RS-485 and USB interfaces.
8. Power modules.

Range

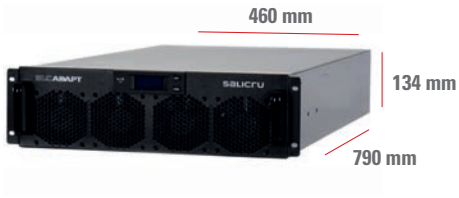
MODULES	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC ADAPT 25X	694AB000010	25000 / 25000	677 × 436 × 85	18
SLC ADAPT 30	694AB000003	30000 / 27000	790 × 460 × 134	34
SLC ADAPT 50	694AB000011	50000 / 45000	700 × 510 × 178	45

SYSTEMS	CODE	NO. MODULES (#)	MODULE POWER (VA / W)	MAX. POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
SLC-#/25-ADAPT 200X	694OQ000030	1 to 8	25000 / 25000	200000 / 200000	916 × 482 × 1550	178
SLC-#/25-ADAPT 300X	694OQ000057	1 to 12	25000 / 25000	300000 / 300000	960 × 650 × 2000	230
SLC-#/30-ADAPT 180	694OQ000018	1 to 6	30000 / 27000	180000 / 162000	1100 × 600 × 1600	199
SLC-#/30-ADAPT 300	694OQ000006	1 to 10	30000 / 27000	300000 / 270000	1100 × 600 × 2000	200
SLC-#/50-ADAPT 500	694OQ000031	1 to 10	50000 / 45000	500000 / 450000	1100 × 1300 × 2000	945

Nomenclature, dimensions and weights for devices with input voltage 3 x 400 V, output voltage 3 x 400 V.
Replace # with the number of system modules.
Batteries located in additional cabinets.
The weight shown corresponds only to the system, without modules.

Dimensions

SLC ADAPT 25X



SLC ADAPT 30

SLC ADAPT 50

SLC-#/25-ADAPT 200X

SLC-#/25-ADAPT 300X

SLC-#/50-ADAPT 500

Technical specifications

MODEL		SLC ADAPT		
Module power (VA/W)		25.000 / 25.000	30.000 / 27.000	50.000 / 45.000
TECHNOLOGY		On-line double conversion, three-level PWM, DSP control		
INPUT	Rated three-phase voltage (3P+N)	3 × 380 / 400 / 415 V		
	Voltage range	-43% +20% (1)		
	Rated frequency	50 / 60 Hz		
	Frequency range	40 - 70 Hz		
	Total harmonic distortion (THDi)	≤3%		
	Power factor	>0.99		
OUTPUT	Power factor	1	0.9	
	Rated three-phase voltage (3P+N)	3 × 380 / 400 / 415 V		
	Accuracy	±1%		
	Total harmonic distortion (THDv)	≤1%		
	Frequency	50 / 60 Hz		
	Module performance (On-line)	>96%		
	Performance in Smart Eco-mode	99%		
	Admissible overloads	125% for 10 mins / 150% for 1 min		
	Crest factor	3:1		
MANUAL BYPASS	Type	Uninterrupted		
STATIC BYPASS	Type	Static thyristor		
	Three-phase voltage (V)	3 × 380 / 400 / 415 (3P + N)		
	Admissible overloads	<110% permanent / <150% for 1 min		
BATTERY	Battery type	Pb-Ca, VRLA, lead acid, gel, Ni-Cd, Li-Ion		
	Charging voltage regulation	Batt-watch		
	Charger maximum power (W)	20% of total system power		
COMMUNICATION	Display	7" touchscreen, LEDs and keypad	Touch panel 10.4" and LEDs	
	Ports	RS-232, RS-485 and relays	RS-232, RS-485, relays and USB	
	Intelligent slot	1 × Nimbus SNMP	1 × Nimbus SNMP/1 × Nimbus extended relays	
GENERAL	Operating temperature	0º C ÷ +55º C (2)		
	Relative humidity	Up to 95%, non-condensing		
	Maxium operating altitude	2,400 masl (3)		
	Acoustic noise at 1 metre	<65 dB(A)		<72 dB(A)
SYSTEMS	Maximum no. modules per system	8 or 12	6 or 10	10
	Maximum power per system	200 / 300 kW	180 / 300 kVA	500 kVA
	Maximum no. modules systems	30		
	Maximum power per parallel system	750 kW	900 kVA	1500 kVA
STANDARDS	Safety	EN-IEC 62040-1		
	Railway	EN 50121-4 / EN50121-5		
	Electromagnetic compatibility (EMC)	EN-IEC 62040-2		
	Operation	VFI-SS-111 (EN-IEC 62040-3)		
	Quality and environmental management	ISO 9001 & ISO 14001		

(1) Depending on load percentage.
(2) Power derating for higher altitudes up to +40ºC.
(3) Power degradation for temperature altitudes, up to a maximum of 5,000 masl.

CF CUBE3+

Frequency converter from 7.5 to 200 kVA

CF CUBE3+: Energy efficiency with superior electrical protection

Salicru's **CF CUBE3+** series is a Frequency Converters range featuring high-performance, On-line double conversion (VFI) technology that provides a reliable, high-quality power supply and, at the same time, achieves significant energy and financial savings in terms of installation and operating costs.

Particularly noteworthy is the unit's input power factor (PF=1) and its extremely low distortion rate (THDi even lower than 1%), which help to reduce installation and operating costs, and contribute to improving the quality of the electrical grid.

The output power factor (PF=0.9) also stands out, providing optimum electrical protection for computer systems and low harmonic output distortion (THDv even lower than 0.5%), enabling it to protect any type of load (inductive, resistive, capacitive or mixed). In addition, the performance achieved (up to 95%) produces significant energy consumption savings and reduces air conditioning needs.

For a full optimum solution, the **CF CUBE3+** provides maximum adaptability with extensive communication options. Finally, also worth noting is the unit's lightweight design and reduced dimensions, enabling it to be easily installed and ensuring that footprint is minimal.

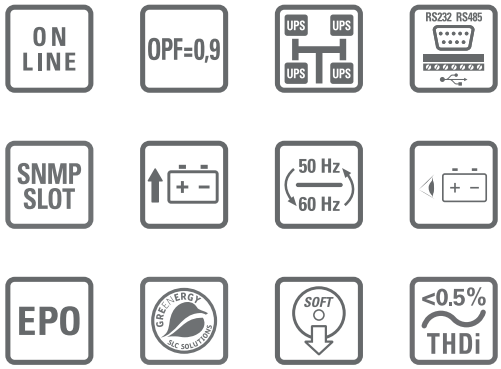
Applications: Designed to protect any type of environment

High-end design features plus great flexibility capacity (options, communications,…) make **CF CUBE3+** series the best option to protect and secure a wide range of environments: data-centres, hosting, housing, IT-networks, server farms, voice and data networks,…

Performances

· On-line double conversion (VFI) technology with DSP control.
· Input power factor 1, for better performance.
· Very low input current harmonic distortion (THDi as low as <1%).
· Total flexibility in input/output voltage. (1)
· Designed to withstand any type of load.
· Batt-Watch function for monitoring and battery care if required.
· High output power factor (PF=0.9).
· Very low output voltage distortion rate (THDv even lower than 0.5%).
· Efficiency of up to 95%.
· Touch screen 7" color.(2)
· Very compact design with minimal footprint.
· Can be integrated into the most advanced IT environments
· Built with 80% recyclable materials.
· SLC Greenergy solution.

(1) Single/single, single/three and three/single configurations up to 60 kVA
(2) According to model



Technical support and service

· Pre and post-sales advice.
· Start-up.
· Telephone technical support.
· Preventative/corrective intervention.
· Maintenance contracts.
· Remote maintenance contracts.
· Training courses.

Options

· Ethernet/SNMP adapter.
· Adapter for remote management.
· Monitoring, management and shutdown software.
· 1 x additional RS-232/485 serial port.
· Extended backup times.
· BACS II, battery monitoring, regulation and alarms.
· Single/single, single/three and three/single configurations.(1)
· Touch screen 7" color.(1)
· External manual bypass.
· Temperature and humidity sensors.
· External display.

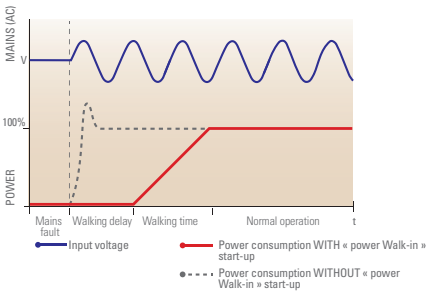
(1) Up to 60 kVA

Range

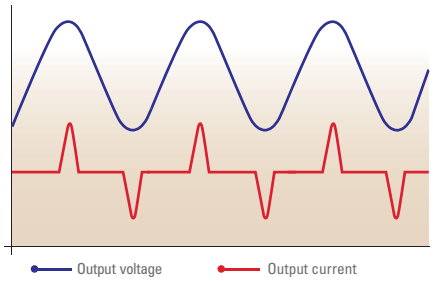
MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
CF-7,5-CUBE3+	681LM000001	7500 / 6750	775 × 450 × 1100	100
CF-10-CUBE3+	681LM000003	10000 / 9000	775 × 450 × 1100	100
CF-15-CUBE3+	681LM000005	15000 / 13500	775 × 450 × 1100	102
CF-20-CUBE3+	681LM000008	20000 / 18000	775 × 450 × 1100	105
CF-30-CUBE3+	681LM000009	30000 / 27000	775 × 450 × 1100	150
CF-40-CUBE3+	681LM000011	40000 / 36000	775 × 450 × 1100	175
CF-50-CUBE3+	681LM000013	50000 / 45000	775 × 450 × 1100	185
CF-60-CUBE3+	681LM000015	60000 / 54000	775 × 450 × 1100	185
CF-80-CUBE3+	681TK000004	80000 / 72000	880 × 590 × 1325	265
CF-100-CUBE3+	681TK000001	100000 / 90000	880 × 590 × 1325	290
CF-120-CUBE3+	681TK000005	120000 / 108000	880 × 590 × 1325	290
CF-160-CUBE3+	681TK000006	160000 / 144000	850 × 900 × 1905	540
CF-200-CUBE3+	681TK000003	200000 / 180000	850 × 900 × 1905	550

Nomenclature, dimensions and weights for units with input voltage 3 x 400 V, output voltage 3 x 400 V and standard backup time.

Power walk-in

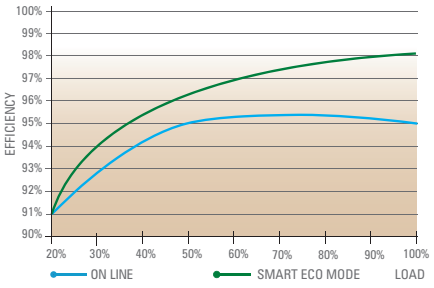


Excellent THDv output distortion



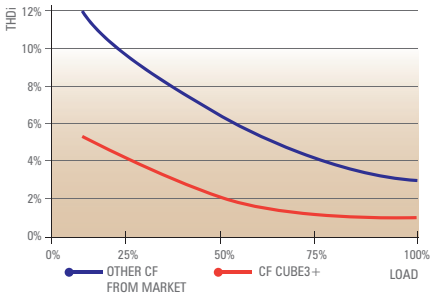
High efficiency

High performance.



Low harmonic distortion

The lowest harmonic distortion in the market.



Technical specifications

MODEL		CF CUBE3+
TECHNOLOGY		On-line, double conversion, HF, DSP control
INPUT	Rated voltage	Single-phase 120 / 127 / 220 / 230 / 240 V(1) / Three-phase 3 × 208 / 3 × 220 / 3 × 380 / 3 × 400 / 3 × 415 V (3P + N)(1)
	Voltage range	+15% / -20% (configurable)
	Rated frequency	50 / 60 Hz
	Total harmonic distortion (THDi)	100% load: <1.5% / 50% load: <2.5% / 10% load: <6.0%
	Power factor	1 from 10% load
	Rectifier topology	Three-phase IGBT full wave, soft start, PFC, transformerless
OUTPUT	Power factor	0.9
	Rated voltage	Single-phase 120 / 127 / 220 / 230 / 240 V(1) / Three-phase 3 × 208 / 3 × 220 / 3 × 380 / 3 × 400 / 3 × 415 V (3P + N)(1)
	Dynamic accuracy	± 2% dynamic
	Static accuracy	± 1% steady
	Response time accuracy	20 ms for load steps 0% ÷ 100% and voltage drop up to -5%
	Total harmonic distortion (THDv) Linerar load	<0.5%
	Total harmonic distortion (THDv) Non~linear load	<1.5% (EN-62040-3)
	Frequency	50/60 Hz ±0.05%
	Total performance in On-line mode	7.5÷60 kVA: 92.0%÷93.0% / 80÷200 kVA: 94.0%÷95.0%
	Admissible overloads	125% for 10 min / 150% for 60 s / >150% for 20ms
	Crest factor	>3:1
BATTERY	Battery type	Lead acid, sealed, maintenance free
	Charging voltage regulation	Batt-Watch
COMMUNICATION	Ports	1 × RS232/RS485 + 1xUSB,with Modbus protocol
	Relay interface	4 × AC failure, bypass, low battery and general
	Intelligent slot	1, for SNMP
	Monitoring software	For Windows, Linux and Mac
GENERAL	Operating temperature	0° C ÷ +40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 masl (3)
	Acoustic noise at 1 metre	52 dB(A)(2)
STANDARDS	Safety	EN-IEC 62040-1
	Electromagnetic compatibility (EMC)	EN-62040-2
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Single-phase 120 / 127 V available up to 30 kVA inclusive and three-phase 3 x 208 / 3 x 220 V available up to 100 kVA inclusive.
(2) <65 dB(A) for 80 to 120 kVA models / <70 dB(A) for 160 and 200 kVA models.
(3) Power derating for higher altitudes up to 5000 masl.

SOFTWARE USB/RS-232

Management, monitoring and ordered closure

SOFTWARE USB/RS-232: UPS-PC communication

The main function that we require from an Uninterruptible Power Supply (UPS) to protect a computer, is that in case of any electrical problem, power cut, peak voltage or line drop, the UPS protects us and continues to supply power to our computer either from the batteries or by voltage regulation.

However, the autonomy of the batteries is limited in time, so our computer will shut down abruptly when battery storage capacity has run out. This autonomy will depend on the power of our UPS and the load that supports it, therefore, we need to shut down/suspend our computer correctly before this occurs. The complete discharge of the batteries can occur at 8 minutes or 2 hours depending on the load that supports the UPS or battery capacity that we have.

What do we have to do and how do we turn our computer off/suspend it before the batteries run out?

First, connect the USB cable between UPS and Computer. If our UPS has a USB UPSHID function, this will recognise the UPS as if our computer had a battery fully integrated with the operating system, enabling its power functions without requiring any type of software. Therefore, if we only need the computer to be shut down/suspended according to the power configuration of our operating system, this is the best choice.

However, if we want to have additional features, such as sending alerts via e-mail, having an event log, or recording measurements, adjusting UPS parameters, etc., software must be installed for our particular UPS model.

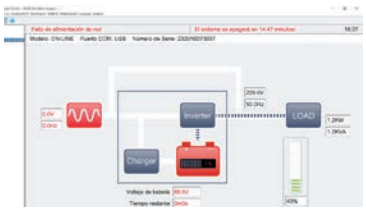
FEATURES	USB UPSHID	WINPOWER	VIEWPOWER	POWERMASTER
Graphic monitoring of the UPS status	–	●	●	●
Recording of events and measures	–	●	●	●
WEB application	–	●	●	●
Ordered closure/suspension of the UPS due to battery time	●	●	●	●
Ordered closure/suspension of the UPS due to remaining battery level %	●	●	●	●
Scheduled on/off of the UPS	–	●	●	●
Sending of alerts and notifications by e-mail (or SMS via GSM modem)	–	●	●	●
Network computers switched off (master/slave)	–	●	●	●
Multi-language	●	●	●	●
Support for virtual environments	–	●	●	●

(●) Included (–) Not included

Software Winpower

Winpower is a powerful UPS monitoring software, which provides an easy-to-use graphical interface to monitor and control the UPS device. The software provides complete protection for the computer system during a power failure. With this software, users can monitor the status of the UPS in the same LAN. Any UPS can also perform controlled shutdown of other computers in the same LAN.

Series: SPS Soho+ / SLC Twin Pro2 (0,7-3 kVA)
Available operating systems: MAC / Windows / Linux / VMware / Citrix XenServer



WINPOWER

Software Viewpower

Viewpower is an advanced software for the administration and management of the UPS. It allows remote monitoring and remote administration of one to several UPS devices in a network environment, either LAN or internet. It also provides statistical information on events and measures. **Viewpower** is the solution for managing the controlled shutdown of our computer system and preventing the loss of data.

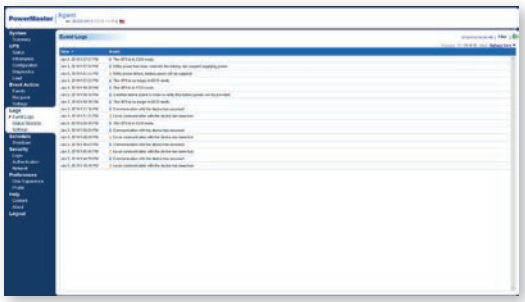
Series: SPS Advance RT2 / SLC Twin RT2 / SLC Twin Pro2 (4-20 kVA) / SLC Cube3+
Available operating systems: MAC / Windows / Linux / VMware

VIEWPOWER

Powermaster

UPS monitoring software, **Powermaster** is ideal for IT professionals to supervise and manage their UPS. It provides an orderly and unattended shutdown of network computers connected to the UPS during a power failure. Power alert notifications can be sent by e-mail. This software allows users remote access (from any PC in the local network with a web browser).

Series: SPS Home / SPS Advance T / SPS Advance R
Available operating systems: MAC / Windows / Linux

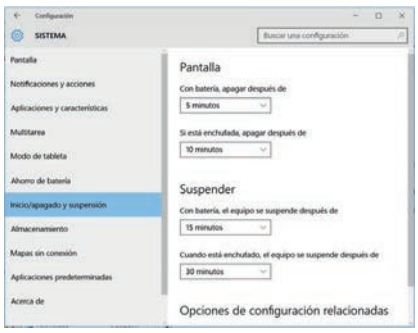


POWERMASTER

USB UPSHID

This function is incorporated in the operating system and detects the UPS as an additional battery to our computer system, allowing management from the operating system's power menu. Allowing you to turn off the computer or hibernate it after x minutes if you are working in battery mode.

Series: SPS Home / SPS Soho+ / SPS Advance T / SPS Advance R / SPS Advance RT2 / SLC Twin RT2 / SLC Twin Pro2 (0,7-3 kVA)
Available operating systems: MAC / Windows / Linux

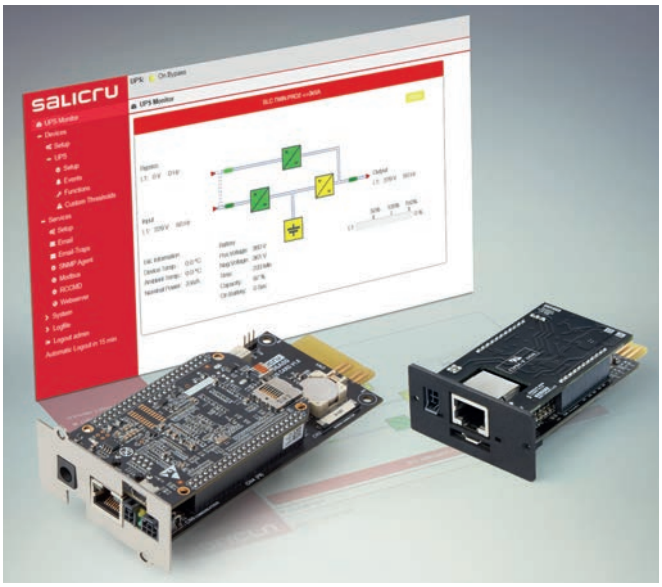


USB UPSHID

ETHERNET/SNMP/NIMBUS CLOUD NETWORK CARDS

Ordered closure of servers / MQTT IOT

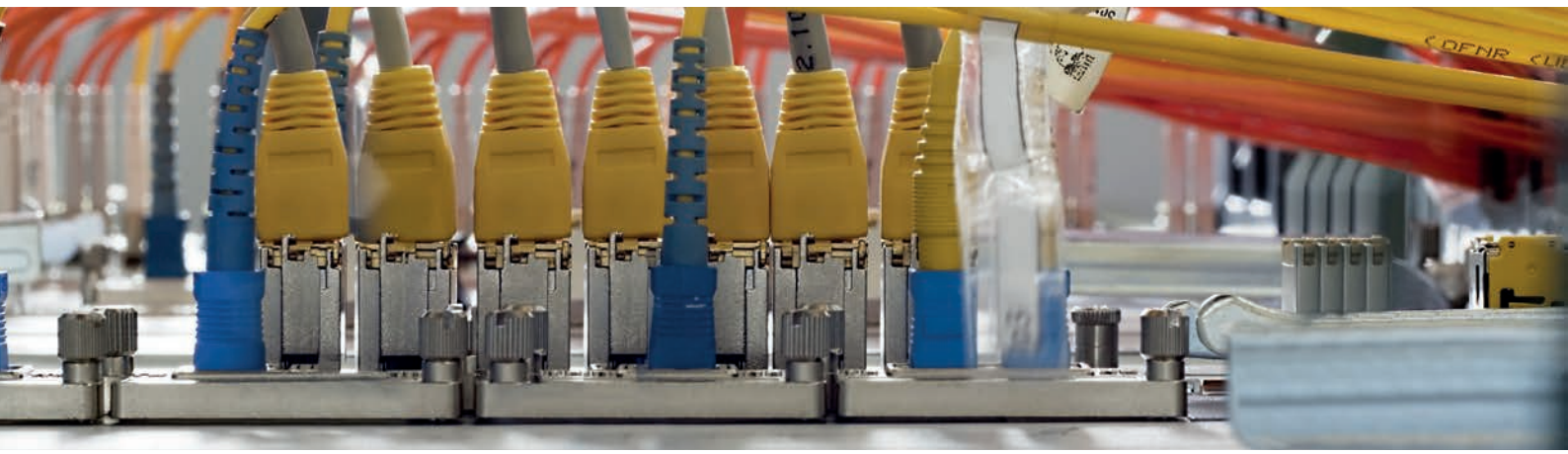
NIMBUS cloud / Ethernet / SNMP Network Cards: The best add-ons to protect your computer network



In case of any electrical problem - supply cut, voltage peak or line drop - the main function of an Uninterruptible Power Supply (UPS) is to protect the connected loads and continue supplying power to your computer network, either from the batteries or by voltage regulation. New IoT technologies, based on communications through MQTT channels, allow us to have a WEB application in the CLOUD so we can manage our equipment from anywhere with an Internet connection.

It is very important to monitor the UPS to see whether it is working properly at all times, so that it can notify us of its correct operation and/or manage the complete and ordered closure of our private computer network. This is why the installation of a local Ethernet Network card in the UPS or a NIMBUS Card is necessary, so that it can autonomously manage the different functions required by our computer network.

Salicru offers a complete range of Ethernet/SNMP/NIMBUS network cards to meet our customers' requirements.

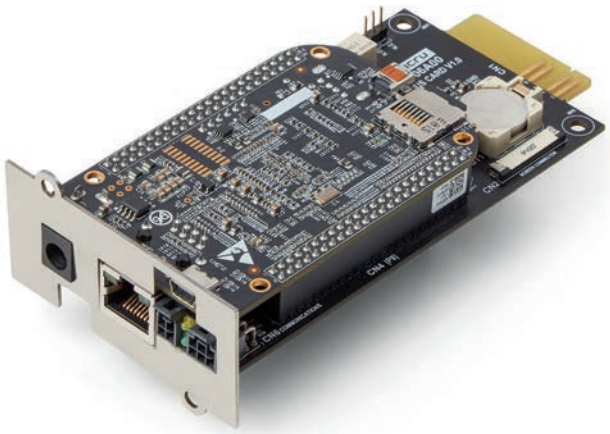


Nimbus Adapter / SNMP web adapter

Salicru's **NIMBUS** cards are designed and developed to offer different communication services to Salicru's customers. Its Linux Embedded operating system allows simultaneous management of 'Panel Web, Telemonitoring, SNMP, Modbus TCP and Server Shutdown' services.

It includes the following features:

- **Remote upgrade:** to manage new UPS models and additional services.
- **Panel Web:** visualisation of the available measurements, variables and alarms using a block diagram.
- **Telemonitoring: Salicru's** cloud connection functionality.
- **SNMP:** compatibility with UPS in accordance with the RFC1628 standard, for monitoring via Nagios software, Zabbix, etc.
- **MODBUS TCP:** display of measurements, variables and alarms for connection to PLC or SCADA software.
- **Server shutdown:** sending shutdown orders, using RCCMD`(optional) software.



Ethernet Adapter / SNMP WEB Adapter

The functions incorporated in these cards will be able to satisfy the most demanding requirements of IT administrators. They are quick to configure, which facilitates your work, have extensive options for monitoring and personalisation of events, complete off/on options (wake on lan) of our physical or virtual server farm, SNMP (v2, v3) and MODBUS gateway (tcp), special mention in the field of security allowing the use of SSL through digital certificates belonging to the client.

They also allow the connection and management of temperature / humidity probes, SMS sending via a GSM modem, and management of voltage-free contacts.

"Basic" Ethernet Adapter / SNMP WEB Adapter

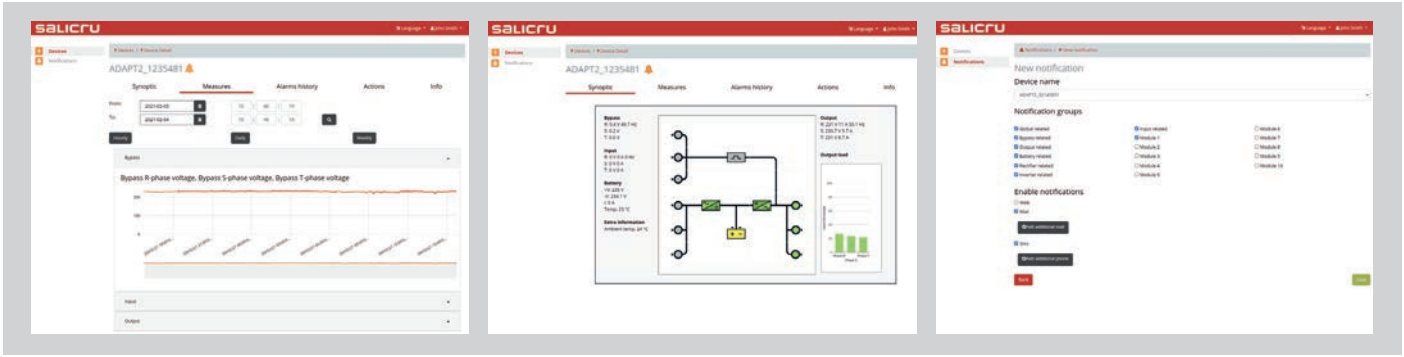
This low cost card allows basic local monitoring in the form of a table, automatic and non-customisable sending of e-mails and static event management. It is recommended for management using third-party software through SNMP (Nagios, Zabbix, Pandora, Prtg, OpenView, Tivoli, etc).

Nimbus Cloud, remote monitoring system, with 24/7 availability

Modern companies run their systems 365 days a year, and therefore require total electrical protection. **Salicru** equipment featuring the **NIMBUS** remote monitoring service offers a perfect complement to the service of the most demanding customers.

The **NIMBUS** remote monitoring system is comprised of 3 systems: the Nimbus Card (Embedded Linux Systems) housed inside the **Salicru** equipment and connected to the Internet either via the customer's corporate network or optionally via 3G/4G router; the Nimbus Cloud, a system that collects, organises and distributes the sensors and alarms sent by the **Salicru** equipment; and **Salicru's** team of Technical Support Service engineers who offer a 24/7 service providing answers to any questions that the customer may have.

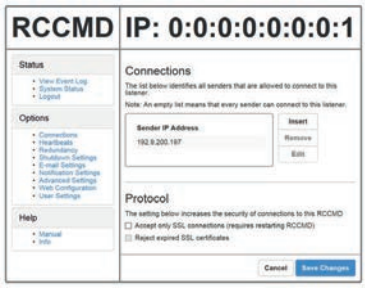
The Nimbus Card is based on the latest IoT technologies, featuring channel connection via MQTT and historical data collection via InfluxDB.

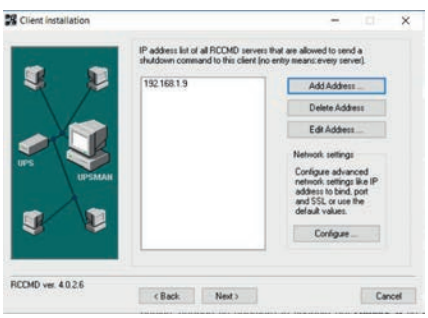


RCCMD: Remote shutdown application

Software agent for most physical/virtual operating systems. The different actions (shutdown, message, action) are executed by customisable scripts, after receiving the order from the Ethernet Adapter / SNMP WEB Adapter. Compatible with most operating systems, including virtual systems (vmware, citrix and hyperv).

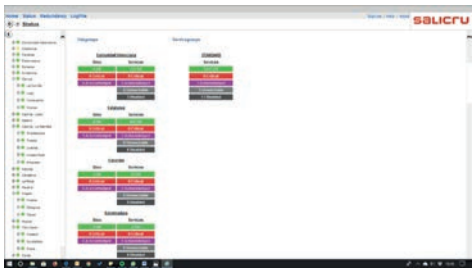
Software licensed by a physical server to be managed. Each adapter includes a license. For more servers, additional licenses must be purchased. It offers the SSL security option.

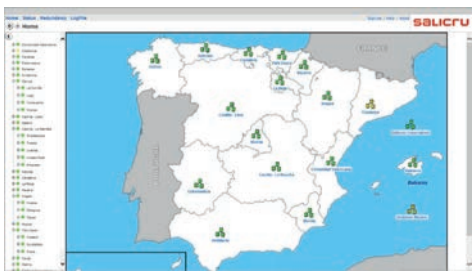




UNMS II: Unlimited Salicru's UPS management

Software for centralised monitoring of a large fleet of UPS installed in our company. The **UNMS II** is installed as a WEB service to facilitate monitoring and management. The **UNMS II** is a scalable software that has different licensing levels according to the equipment to be monitored, from the basic and free level, of 9 UPS devices, to installations of more than 2,500.





DESCRIPTION	NIMBUS ADAPTER/ SNMP WEB ADAPTER	ETHERNET ADAPTER / SNMP WEB ADAPTER	BASIC ETHERNET ADAPTER / SNMP WEB ADAPTER
Compatible with all series featuring Salicru slots	According to the lower compatibility list	Yes	No
Easy configuration assistant	Self configurable	Yes	No
Data visualisation	Graph, block diagram	Graph, block diagram	Table
Connection to the Salicru Cloud (IoT – MQTT)	Yes, for SLC CUBE4 and SLC ADAPT2 series	No	No
Ordered shutdown of servers	Yes, due to power failure and low battery alarm via RCCMD (optional) Software, for most physical / virtual Operating Systems	Yes, event activation by RCCMD software for most physical / virtual operating systems	Basic for Windows / Linux
SMTP configuration	No	Configurable, enables encryption, port customisation	Standard
Email notifications	Automatic, non-customizable text / message	Automatic and/or allows for customisation of alerts to be sent, and at what time	Automatic, non-customisable
SMS notifications	Yes (SMS sending via the cloud)	Yes (via optional modem)	No
Push notifications	Yes (Webserver)	No	No
Customisable events according to UPS values / measurements	No	Yes	No
SNMP compatibility	SNMP V2	SNMP V2 and V3	SNMP V2
MIB file compatibility	RFC1628, and private MIBs	RFC1628, and private extensions	RFC1628, and private extensions
History of events and measurements	Events and measures in graphical table, exportable to excel for DC power-S	Customisable, viewing of text and graphs, allows export to Excel	Events and measures in a table
API REST protocol	Yes	Yes	No
MODBUS protocol	TCP and RS232	TCP and RS232	No
BACnet protocol	No	Yes	No
IEC61850 protocol	Yes (DCS only)	No	No
LonWork, ProfiBus protocol	No	Optional	No
Remote SysLog	No	Yes	No
Secure access	2 levels of access, Engineer, Guest, SSH secure access	Via Configurable Login and Password	No
Manageable relays option	No	Yes	No
Optional Temperature / Humidity Probe	No	Yes	No
Firmware Upgrade	Yes	Yes	Yes
Remote Firmware Upgrade	Yes	No	No

COMPATIBILITY BY SERIES	NIMBUS ADAPTER/ SNMP WEB ADAPTER	ETHERNET ADAPTER / SNMP WEB ADAPTER	BASIC ETHERNET ADAPTER / SNMP WEB ADAPTER
SPS AVD R / SPS ADV T	–	●	–
SPS ADV RT2	–	●	●
SLC TWIN PRO2 0-3 kVA	–	●	●
SLC TWIN PRO2 4-20 kVA	●	●	●
SLC TWIN RT2	●	●	●
SLC CUBE3+	●	●	–
SLC CUBE 4	●	●	–
SLC X-PERT	●(1)	●	–
SLC X-TRA	●(1)	●	–
SLC ADAPT / 2	●	●	–
DC POWER S / DC POWER L	●	–	–
EMI 3	●	–	–

● Compatible – No compatible

(1) Optional RS485 required

SPS PDU

Power distribution unit

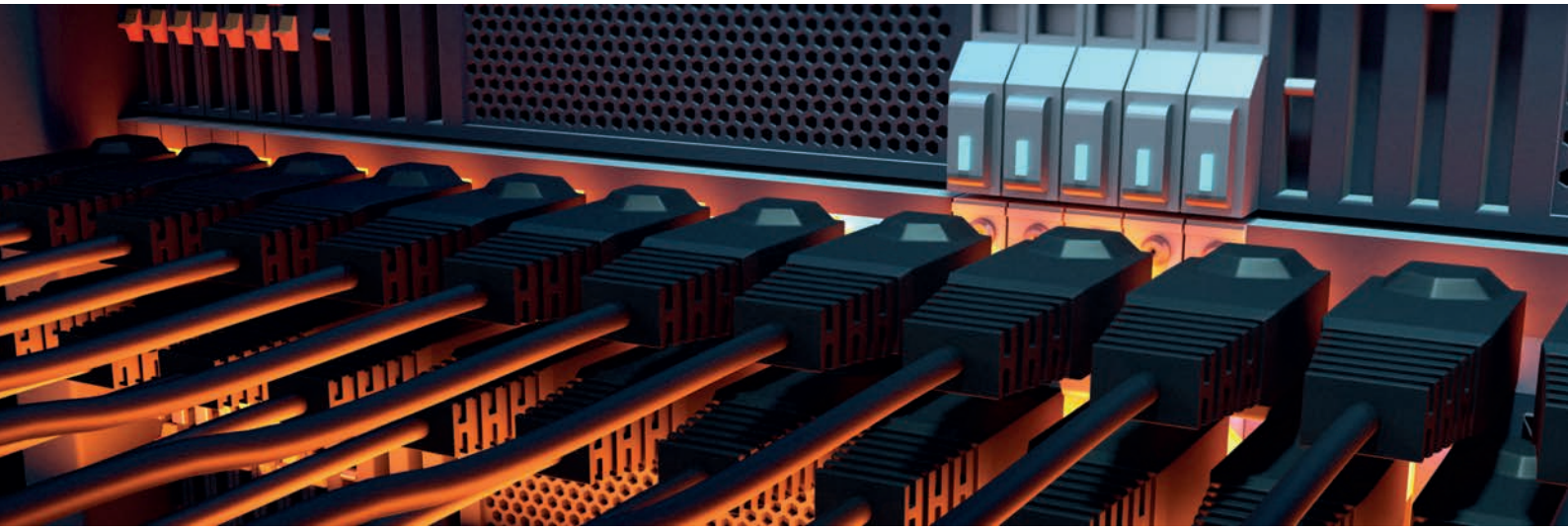
SPS PDU: Power supply to IT equipment on 19" rack

Salicru's power distribution units (SPS PDU) are designed to distribute power coming from an uninterruptible power supply (UPS), generator or the mains to multiple devices, such as network and server racks in data centres and computer rooms.

SPS PDU models incorporate an on/off switch with illumination and protective cover to prevent unwanted actions. The multi-position system allows the installation of fixing brackets in multiple combinations, both in depth (6 positions) and in inclination (5 positions). The entire range is in 1U 19" format and offers horizontal or vertical rack installation options.

Performances

- 1U - 19" aluminium profiles.
- Ease of installation and connection.
- Multiple depth positions (6 positions).
- Multiple inclination positions (90º / 45º / 0º / -45º / -90º).
- Illuminated on/off switch.
- Power supply at 250 V AC - 50/60 Hz.
- Schuko, UK, IEC and combined sockets available.
- On/off switch protective cover.
- Other configurations available on request.
- Vertical or horizontal installation.
- Connection quality and maximum socket safety.



Depth adaptation

Choice of up to 6 different installation depths to suit needs.

Inclination adaptation

Selection of different degrees of inclination to optimise the connection of the devices to be powered.

Switch protection

A removable cover protects the on/off switch from possible unwanted actions.

Range

MODEL	CODE	SOCKET INPUT TYPE	SOCKET OUTPUT TYPE	NO. OF OUTPUT SOCKETS
SPS 12F PDU C13/C14	680CA000002	C14	C13	12
SPS 8F PDU SCH/SCH	680CA000003	SCH	SCH	8
SPS 6F PDU UK/UK	680CA000004	UK	UK	6
SPS 3F+6F PDU UK+C13/C14	680CA000005	C14	UK + C13	3 + 6
SPS 4F+6F PDU SCH+C13/C14	680CA000006	C14	SCH + C13	4 + 6

Technical specifications

MODEL		SPS 12F PDU C13/C14	SPS 8F PDU SCH/SCH	SPS 6F PDU UK/UK	SPS 3F+6F PDU UK+C13/C14	SPS 4F+6F PDU SCH+C13/C14
Rated current (A)		10	16	13	10	
Rated voltage / frequency		100 / 250 V AC - 50 Hz / 60 Hz				
Socket input type		C14	SCH	UK	C14	
Socket type and quantity		C13 (12)	SCH (8)	UK (6)	UK (3) + C13 (6)	SCH (4) + C13 (6)
On/off switch		Yes				
Length of power cable		1.5				
Child protection in the sockets		Yes				
INDICATIONS	LED type	Yes				
GENERAL	Operating temperature	0º C ÷ 50º C				
	Storage temperature	-15º C ÷ 60º C				
	Relative humidity	Up to 95%, non-condensing				
	Maxium operating altitude	2,400 masl (power degradation up to 5,000 m)				
	Degree of protection	IP20				
	Installation	Fixing brackets in 3 positions 0º o ±45º				
STANDARDS	RoHS	Yes				
	Plugs, power strips and sockets	IEC 60884-1; UNE 20315-1-1; EN 60320-1; EN 60320-3		IEC 60884-1; BS 1363-1; BS 1363-2	IEC 60884-1; UNE 20315-1-1; EN 60320-1; EN 60320-3	
	Safety	IEC 60950 ; DIN EN 50525-2-11 ; IEC 61058-1:2002/A2:2008				
	Quality and environmental management	ISO 9001 and ISO 14001				
DIMENSIONS	Depth × Width × Height (mm)	51 × 443 × 44				
WEIGHT	Weight (kg)	0.8				

BM-R

Maintenance bypass 16, 40 or 63 A

BM-R: Continuity of supply during maintenance operations

Salicru's **BM-R** series maintenance bypasses enable the UPS to be completely disconnected without interrupting power supply to the loads. Their use is essential for maintenance and repair work, which, for reasons of safety, requires the elimination of any voltages present in the device. The **BM-R** series is available in currents of 16, 40 and 63 A, covering UPSs in the 0.7 to 10 kVA power range with single-phase input and output.

The 40 and 63 A models allow switching without passing through zero thanks to an auxiliary contact that communicates them with an **SLC TWIN RT2** series UPS and enables them to turn the device on, or not.

Performances

- Maintenance bypass in rack/wall format.
- Enables loads to operate during UPS maintenance or replacement.
- Simple operation by means of a switch.
- Manual UPS-mains and mains-UPS switching.
- Easy installation and connection.
- Suitable for single-phase devices from 0.7 to 10 kVA.
- Inputs and outputs through IEC sockets for 16 A model.
- nputs and outputs through terminals for 40 and 63 A models.
- Possibility of transfer from UPS to bypass. (1)
- Switching without passing through zero. (1)

(1) For 40 and 63 A models.

Technical specifications

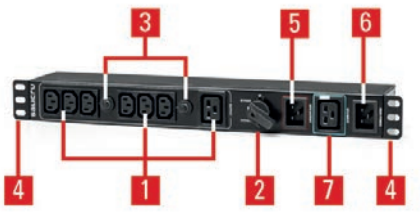
MODEL		BM-R 3 kVA	BM-R 6 kVA	BM-R 10 kVA
FORMAT		19" rack / wall		
INPUT	Rated voltage	208 / 220 / 230 / 240 V		
	Rated frequency	50 / 60 Hz		
	Rated current (A)	16	40	63
OUTPUT	Rated voltage	208 / 220 / 230 / 240 V		
	Rated current (A)	16	40	63
	Rated frequency	50 / 60 Hz		
CONNECTIONS	Input	1 × IEC C20	Terminals	
	UPS input	1 × IEC C19	Terminals	
	Output	1 × IEC C19 + 6 × IEC C13	Terminals	
	UPS output	1 × IEC C20	Terminals	
	Recommended cables	-	6 mm²	10 mm²
GENERAL	Operating temperature	0ºC ÷ +45ºC		
	Relative humidity	Up to 95%, non-condensing		
	Maxium operating altitude	2,400 masl		
STANDARDS	Safety	EN-60950-1		
	Quality and environmental management	ISO 9001 & ISO 14001		
DIMENSIONS	Depth × Width × Height (mm)	80 × 438 × 50	123 × 438 × 86	
WEIGHT	Weight (kg)	1.5	3	
CODE		6980P000029	6980P000022	6980P000023

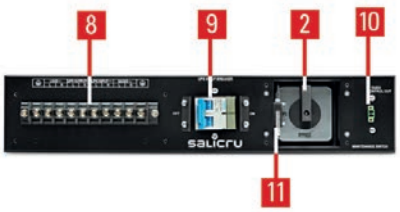
Dimensions

BM-R 16A

BM-R 40/63A

Connections





1. IEC connections or output terminals .
2. Manual bypass.
3. Thermal rearmable.
4. Screws to adapt the device to 19" rack format.
5. Socket output.
6. AC power supply IEC connector or input terminals.
7. AC input.
8. Input and output terminals AC.
9. Input circuit breaker switch (6 and 10 kVA models only).
10. Terminal strip to connect with the EBMS signal of the UPS.
11. Manual bypass signal auxiliary contact for signalling.

SPS ATS

Automatic transfer system

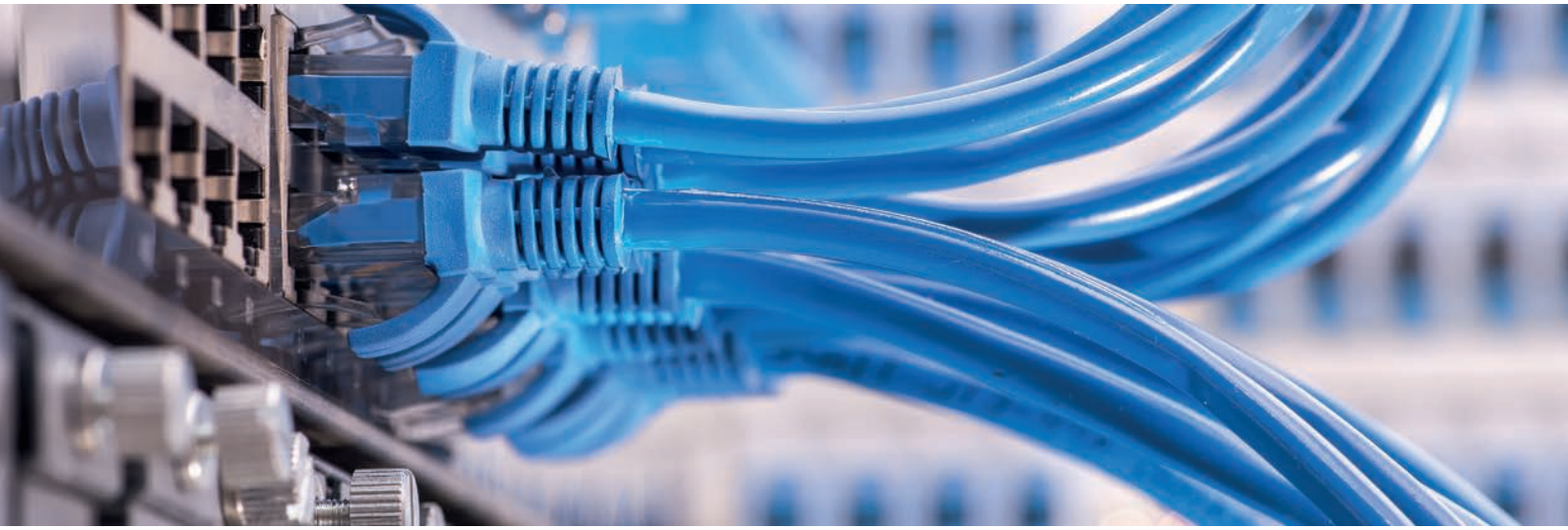
SPS ATS: An ideal solution for powering critical loads through two UPSs

Salicru's **SPS ATS** series is an automatic switch between two single-phase AC power lines which, starting from two sine-wave current power lines, supplies output voltage to the load(s). The switching can be automatic or manual. The LCD display and status LEDs continually report the status of the device, working mode and values of the main measurements.

It has extensive communication possibilities through integrated USB, RS-232 and potential-free contact interfaces, or optional inclusion on an SNMP platform. In addition, by means of the parameter-setting software available, parameters such as delays, overload levels, voltage and frequency ranges, line sensitivity, potential-free contacts, etc., can be set.

Performances

- Redundant energy system with two input sources.
- Manual or automatic switching between power lines.
- Extensive programming options for automatic switching.
- LCD display + LEDS for operation and control.
- IEC output connections.
- Easy installation on 19" rack.
- USB, RS-232 and potential-free contact interfaces.
- Parameter-setting and control software (for Windows OS).
- Smart slot for SNMP card.



Technical specifications

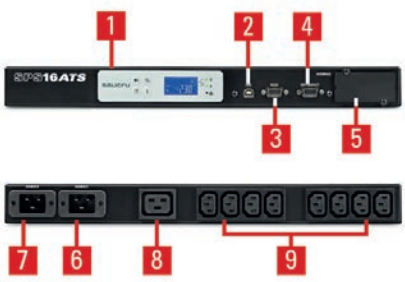
MODEL		SPS 16 ATS	SPS 32 ATS
INPUT	Rated voltage	200 / 208 / 220 / 230 / 240 V	
	Voltage range	150 ÷ 300 Vac	
	Rated frequency	50 / 60 Hz	
OUTPUT	Rated voltage	200 / 208 / 220 / 230 / 240 V	
	Rated current (A)	16 A	32 A
	Performance	>99%	
COMMUNICATION	Interface	RS-232, USB and potential-free contacts	
	Intelligent slot	For SNMP	
INDICATIONS	Information	Source A, source B, failure, overload, alarm, audible alarm silencer	
	Monitoring software	Yes, for Windows OS	
	Type	LCD + LEDs	
	Values	Voltage, current, frequency, % load, error code	
CONNECTIONS	Input	2 × IEC C20	Terminals
	Output	8x IEC C13 + 1x IEC C19	16x IEC C13 + 2x IEC C19
GENERAL	Operating temperature	0ºC ÷ +40ºC	
	Relative humidity	Up to 95%, non-condensing	
	Maxium operating altitude	2,400 masl	
STANDARDS	Safety	IEC-60950-1	
	Electromagnetic compatibility (EMC)	EN-55022; EN-55024	
	Quality and environmental management	ISO 9001 & ISO 14001	
DIMENSIONS	Depth × Width × Height (mm)	275 × 438 × 44	275 × 438 × 88
WEIGHT	Weight (kg)	4	6
CODE		658CB000001	658CB000002

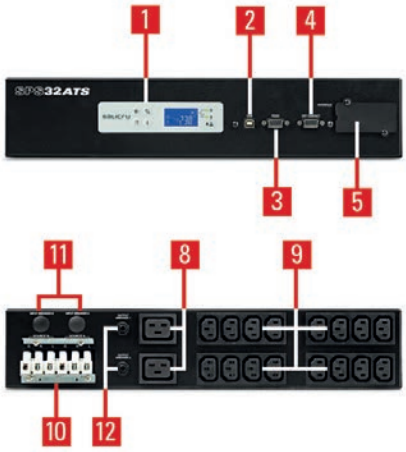
Dimensions

SPS 16 ATS

SPS 32 ATS

Connections





1. Control panel with swivel mount LCD display, keypad and LED.
2. USB interface.
3. RS-232 interface.
4. Interface to relays.
5. Intelligent slot.
6. IEC socket for A input.
7. IEC socket for B input.
8. Output IEC socket.
9. Group of 4 Output IEC socket.
10. Input terminals A/B.
11. Thermal rearmable input.
12. Thermal rearmable output.

UBT

Rechargeable AGM battery 4.5 Ah - 7 Ah - 9 Ah - 12 Ah - 17 Ah / 12 V

UBT: Powerful and reliable back-up storage

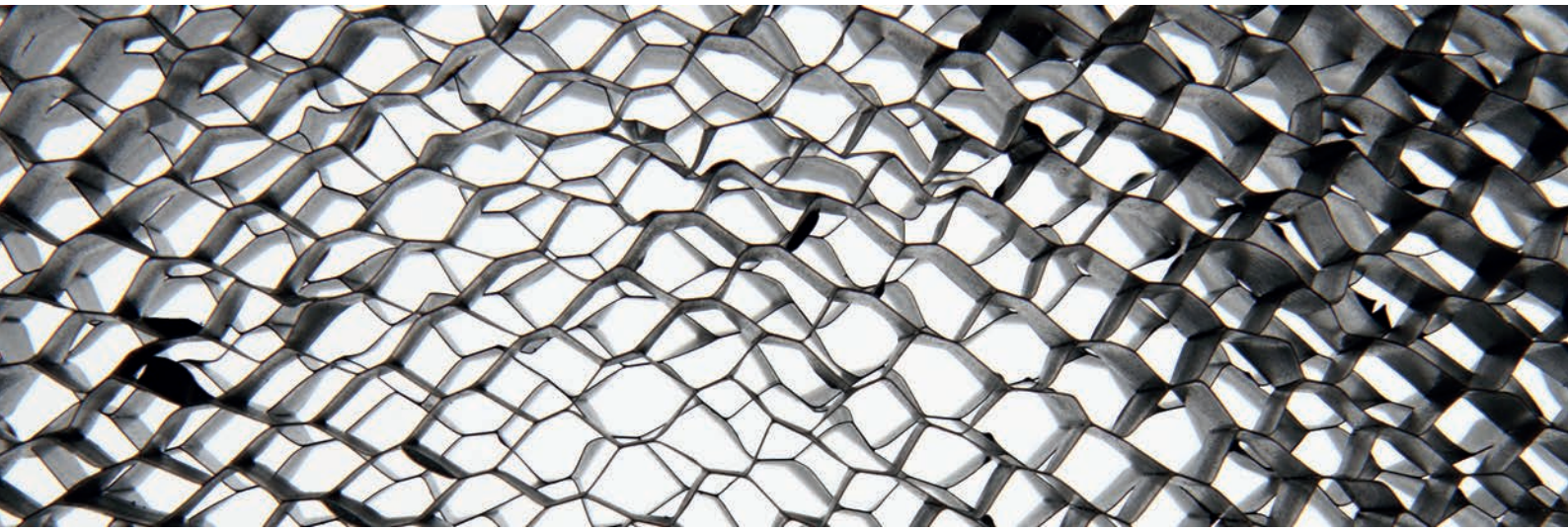
Salicru's **UBT** series batteries are extremely powerful and compact rechargeable lead-lead dioxide energy accumulators particularly suitable for UPSs and other security systems that require reliable and high-quality energy back-up.

Salicru's **UBT** battery range includes 4.5 Ah, 7 Ah, 9 Ah, 12 Ah and 17Ah models, all at 12 V.

The sulphuric acid electrolyte is absorbed by the separators and plates. And these in turn immobilised. They are designed using gas recombination technology which eliminates the need for the regular addition of water by controlling the evolution of hydrogen and oxygen during charging. The battery is completely sealed and watertight and therefore maintenance free, enabling it to be used in any position. If the battery is accidentally overcharged, resulting in the production of hydrogen and oxygen, a number of special one-way valves allow the gases to escape to avoid interior overpressure.

Applications:

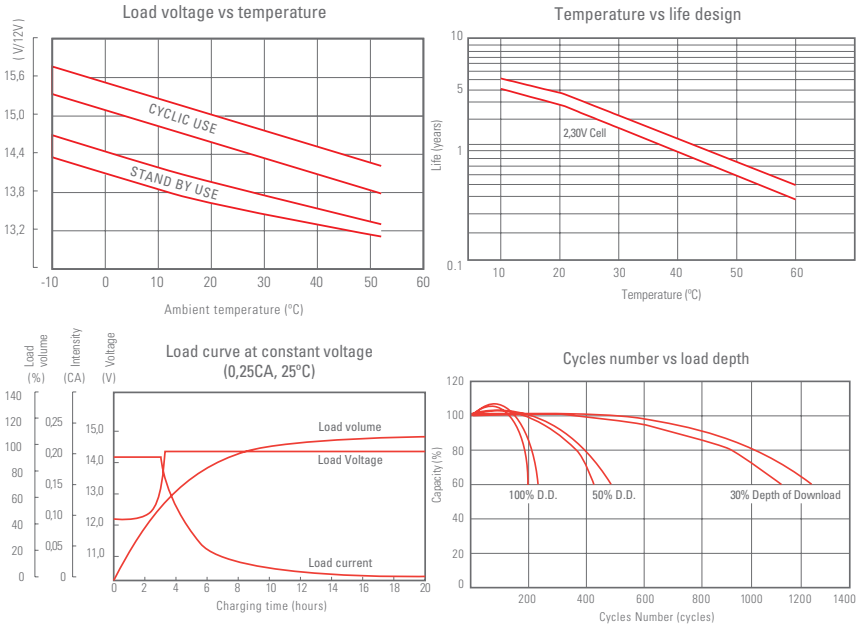
Uninterruptible power supply systems (UPS), emergency lighting systems, signalling systems, communications and electrical equipment, broadcasting systems, lift automation panels, electronic cash registers, etc.



Performances

· AGM technology for efficient gas recombination of up to 99% and free of maintenance or adding water.
· No restrictions for air transport, compliance with IATA/ICAO Special Provision A67.
· Can be mounted in any position.
· Lead designed by computer with calcium/tin alloy rack for high energy density.
· Long service life in both float and cyclic applications.
· Maintenance-free.
· Low self-discharge

Behaviour charts



Battery construction

COMPONENT	RAW MATERIAL
Positive plate	Lead dioxide
Negative plate	Lead
Container	ABS
Lid	ABS
Safety valve	Rubber
Terminal	Copper
Separator	AGM
Electrolyte	Sulphuric acid

Battery compatibility vs series

	UBT 12/4.5	UBT 12/7	UBT 12/9	UBT 12/12	UBT 12/17
SPS Home	●	-	-	-	-
SPS One	-	●	●	-	-
SPS Soho+	-	●	●	-	-
SPS Advance T	-	●	●	-	-
SPS Advance R	-	-	-	-	-
SPS Advance RT2	-	●	●	-	-
SLC Twin PRO2 0-3 kVA	-	●	●	●	-
SLC Twin PRO2 4-20 kVA	-	●	●	-	-
SLC Twin RT2 0-3 kVA	-	●	●	-	-
SLC Twin RT2 4-10 kVA	-	●	●	-	-
SLC Cube4	-	●	●	-	-
SLC Cube3+	●	●	●	●	-
SLC Adapt / 2	●	●	●	●	●

Dimensions

UBT 12/4.5

UBT 12/7

UBT 12/9

UBT 12/12

UBT 12/17

Technical specifications

MODEL		UBT 12/4.5	UBT 12/7	UBT 12/9	UBT 12/12	UBT 12/17
Nominal voltage (V)		12				
Number of cells		6				
Rated capacity at 25°C	20 hours	4.5 Ah (0.23 A, 10.5 V)	7.0 Ah (0.35 A. 10.5 V)	9.0 Ah (0.45 A. 10.5 V)	12 Ah (0.6 A. 10.5 V)	17 Ah (0.85 A. 10.5 V)
	10 hours	4.2 Ah (0.42 A, 10.5 V)	6.5 Ah (0.65 A, 10.5 V)	8.4 Ah (0.84 A, 10.5 V)	11 Ah (1.12 A, 10.5 V)	16 Ah (1.59 A, 10.5 V)
	5 hours	3.85 Ah (0.77 A, 10.5 V)	6 Ah (1.2 A, 10.5 V)	7.7 Ah (1.54 A. 10.5 V)	10.25 Ah (2.05 A. 10.5 V)	14.55 Ah (2.91 A, 10.5 V)
	1 hour	27 Ah (2.95 A, 10.5 V)	4.2 Ah (4.59 A, 9.6 V)	5.4 Ah (5.9 A, 9.6 V)	7.2 Ah (7.86 A, 9.6 V)	10.5 Ah (11.1 A, 9.6 V)
Internal resistance		≤30 mΩ(1)	≤25 mΩ(1)	≤19 mΩ(1)		≤17 mΩ(1)
Self-discharge		3% (2)				
Operating temperature range	Discharge	-15°C ÷ +50°C				
	Charge	-10°C ÷ +50°C				
	Storage	-20°C ÷ +50°C				
Maximum discharge current		68 A (5s)	105 A (5s)	135 A (3s)	180 A (5s)	225 A (5s)
Short-circuit current		400A	480A	630A		710A
Dimensions	Depth	90 mm ±1 mm	151 mm ±1 mm			181 mm ±1 mm
	Width	70 mm ±1 mm	65 mm ±1 mm		98 mm ±1 mm	77 mm ±1 mm
	Height	101 mm ±1 mm	94 mm ±1 mm		95 mm ±1 mm	167 mm ±1 mm
Overall dimensions (with connectors)	Height	107 mm ±1 mm	100 mm ±1 mm		101 mm ±1 mm	167 mm ±1 mm
Weight		1.5 Kg	2.1 Kg	2.50 Kg	3.4 Kg	5.00 Kg
CODE		013BS000006	013BS000001	013BS000002	013BS000003	013BS000004

(1) Fully charged battery at 25°C
(2) Reduction of capacity per month at 20°C (average)

CV10

Variable frequency drives from 0.2 kW to 2.2 kW

CV10: Compact, flexible and easy-to-use single-phase input drives

Salicru's **Controlvit CV10** variable frequency drive series offers the most competitive solution for a wide range of applications. With a single-phase input voltage, it is designed to operate with low-power motors and has very complete hardware that features, among other things, a removable keypad with built-in potentiometer, dynamic braking unit, RS-485 Modbus communication and natural cooling in equipment of up to 0.75 kW.

Boasting an optimised and elegant design, it has advanced functions that are not typical in its segment, such as automatic energy- saving, PID control, shutdown by operating time, 16-speed multi-step control and basic sleep/wake mode.

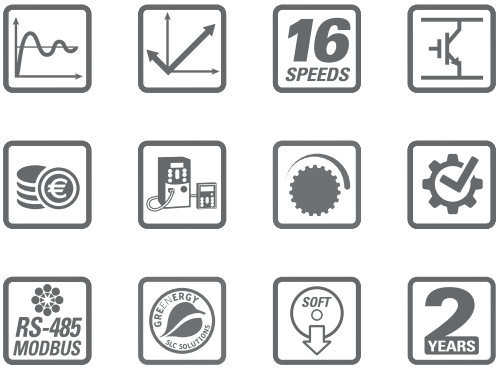
In addition to all of this, also notable is Salicru's service, particularly its technical support during commissioning, and its two-year warranty, which includes immediate replacement in the event of fault.

Applications:

The **CV10** is suitable for use with low-power motors of up to 2.2 kW which can be supplied with 230 Vac three-phase voltage. Its most common applications are: fans, extraction hoods, belt conveyors, pumps, agitators, mixers, saws, vibrators, dispensers, separators, blowers, industrial dryers, mobile advertising, high-speed doors, barriers, mobile trolleys and machinery in general.

Performances

- V/f control.
- Built-in potentiometer.
- Remote control with removable keypad.
- Optional EMC filter with easy connection.
- Advanced PID process control.
- Automatic energy saving.
- Built-in dynamic braking unit.
- DC braking.
- Simple sleep/wake function for control of one pump.
- 16-speed multi-step control.
- RS485 Modbus RTU communication.
- Natural cooling (without fan) for power ratings 0.2 ÷ 0.75 kW. Fans with on/off control and easy replacement for 1.5 and 2.2 kW.
- Automatic torque boost.
- Possibility of increasing/decreasing operation speed with external push buttons. (Up down operation).
- Shutdown by operating time.
- Dynamic current limitation.
- Optimised size.
- Intuitive parameter setting by keypad and using VITdrive software.
- SLC Greenergy solution.



Display

1. Indication of inverter status.
2. Indication of magnitude that appears on the display.
3. 5-digit LED display.
4. Potentiometer: enables setpoint to be changed.
5. Enter function codes / Confirm.
6. Enables movement between menus or digits.
7. Stops operation / Reset in the event of fault.
8. Increase/decrease data or raise/lower a function code.
9. Enables programming mode entry and exit.
10. Selectable function: JOG speed, spin reversal, change of operation method.
11. Enables start-up command to be given.

Software

- Allows parameter setting of the equipment and facilitates commissioning and maintenance.
- Local and remote monitoring.

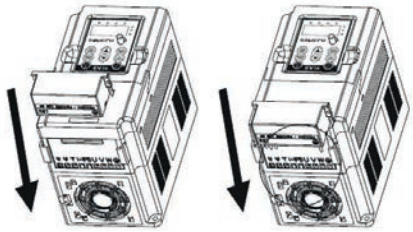
Technical support and service

- Pre- and after-sales service.
- Telephone technical support.
- Training courses.

Salicru warranty

- Online registration at www.salicru.com.
- 2-year warranty.

Easy installation of category C3 EMC filter



Range

MODEL	CODE	POWER (kW)	INPUT CURRENT (A)	OUTPUT CURRENT (A)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
CV10-002-S2	6B1AA000001	0.2	4.9	1.6	134 × 85 × 145	1.4
CV10-004-S2	6B1AA000002	0.4	6.5	2.5	134 × 85 × 145	1.4
CV10-008-S2	6B1AA000003	0.75	9.3	4.2	153 × 85 × 145	1.7
CV10-015-S2	6B1AA000004	1.5	15.7	7.5	153 × 100 × 170	1.7
CV10-022-S2	6B1AA000005	2.2	24	10	153 × 100 × 170	1.7

Power supply voltage: Single-phase 230 V

EMC Filters - Category C3

MODEL	VOLTAGE (V)	INVERTER	DIMENSIONS (F x AN x AL mm.)
IPF-EMC-CV10-008-S2	Single-phase 230 V	CV10…-S2 (0.2 ÷ 0.75 kW)	32 x 70 x 29
IPF-EMC-CV10-022-S2		CV10…-S2 (1.5 ÷ 2.2 kW)	32 x 81 x 32

Dimensions

CV10-002÷008-S2

CV10-015/022-S2

Connections

1. LED display.
2. Built-in potentiometer.
3. Operation keys.
4. Power terminal.
5. control terminal.
6. Output relay.

Technical specifications

MODEL		CV10
INPUT	Rated voltage	Single-phase 220 V (-15%) ÷ 240 V (+10%)
	Rated frequency	50/60 Hz / Allowed range: 47 ÷ 63 Hz
OUTPUT	Rated voltage	Three-phase, 0 ÷ 100% of input voltage
	Frequency	0 ÷ 400 Hz
	Admissible overloads	150% for 1 min; 180% for 10 s; 200% for 1s
	Maximum distance	<50 m without filter / between 50 and 100 m install chokes / >100 m sine wave filter
CONTROL SPECIFICATIONS	Type of motor	Asynchronous
	Method of control	V/f
	V/f characteristics	Linear and user defined
	Degree of control	1% of maximum output frequency
	Speed fluctuation	±5%
	Braking unit	Built-in
INPUT SIGNALS	Digital	4/5 programmable inputs, NPN logic Selectable polarity, virtual activation by communication, on/off delay times
	Analogue	1 input, 0 ÷ 10 V / 0 ÷ 20 mA. Built-in potentiometer
OUTPUT SIGNALS	Relay	1 multifunction output. Selectable standby mode (NO or NC) Maximum 3 A / 250 VAC, 1 A / 30 VDC. On/off delay
	Power Supply	24 V (±10%) 100 mA
	Analogue	1 selectable output 0 ÷ 10 V / 0 ÷ 20 mA, proportional to frequency, current, speed, voltage, torque, etc.
	Digital	1 multifunction open collector output (50 mA / 30 V) Selectable polarity and on/off delay
	Communication port	RS-485 Modbus-RTU
OPERATION	Method	Keypad (removable up to 5 m), control terminal and communication
	Frequency setting	Digital, analogue, multi-step, PID, Modbus communication
	Protection	Overcurrent, overvoltage, low voltage, inverter overheating, phase loss, overload, underload, etc.
FILTERING	EMC filter	Category C3 with easy connection as option
GENERAL	Ambient temperature	-10 ÷ 50°C (1% derating per degree exceeding 40°C)
	Degree of protection	IP20
	Cooling	0.2 ÷ 0.75 kW: Natural by radiator / 1.5 and 2.2 kW: Forced by fan
	Installation	Wall mounting
STANDARDS	Safety	EN 61800-5-1
	Electromagnetic compatibility (EMC)	EN 61800-3 C3
	Quality and environmental management	ISO 9001 & ISO 14001

CV30

Variable frequency drives from 0.4 kW to 7.5 kW

CV30: General-purpose vector variable frequency drives

Salicru's **Controlvit CV30** variable frequency drive series stands out for its design, reliability, compact size and ease of use. The high quality of its components, advanced features and versatility make it the ideal variable frequency drive for the actuation of low-power motors (0.4 kW to 7.5 kW) in the vast majority of applications, being available for both single-phase (230 VAC) and three-phase (400 VAC and 230 VAC) supply voltages.

Its advanced sensorless vector control, which has two different algorithms depending on the required performance, ensures high torque even when working at very low speeds. In addition to all of this, it features an automatic energy-saving function which achieves significant consumption reductions, mainly in ventilation, water treatment and irrigation applications.

Applications:

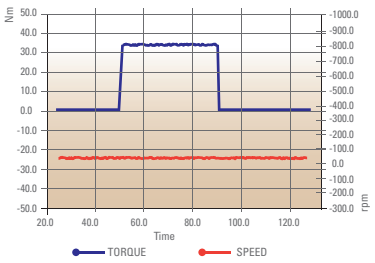
The **CV30** can be incorporated into the vast majority of machinery, and can control pumps and fans. Some of its common applications are: belt conveyors, agitators, compressors, hoists, saws, vibrators, presses, polishers, barriers and high-speed doors, centrifugal and submersible pumps, blowers, separators, industrial washing machines, mobile trolleys, positioners, ornamental fountains, dispensers, air extraction equipment, fans, advertising and mobile stages, meat, textile and packaging machinery, etc.

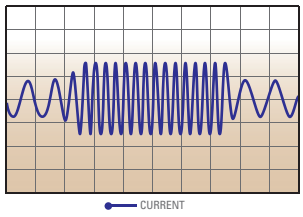
Performances

· Selectable control: V/f, sensorless vector or torque control.
· EMC filter, built-in or optional for easy connection (depending on model).
· Automatic motor auto tuning (static and dynamic).
· 150% torque at 0.5 Hz.
· Advanced PID process control.
· Simple sleep/wake function for control of one pump.
· Simple PLC (automatic cycle) and 16-speed multi-step control.
· RS485 Modbus RTU communication.
· Built-in potentiometer.
· Remote control with removable or optional keypad (depending on model).
· Intuitive parameter setting.
· Compact size and side-by-side installation (depending on model).
· DIN rail mounting (depending on model).
· Built-in dynamic braking unit.
· DC braking.
· Automatic energy saving and kWh meter.
· Pulse train input (max. 50 kHz).
· Fly-start function.
· Numerous inputs/outputs (4/5 digital inputs, 1 pulse input, 2 analogue inputs and 2 analogue outputs, 2 relay outputs, 1 transistor output).
· Cooling fans with On/Off control and easy replacement.
· Monitoring and parameter setting using VITdrive software.
· SLC Greenergy solution.

Advanced vector control

In the event of a sudden change in load with the motor running at 0.5 Hz, the speed remains constant and the assembly is capable of providing the torque demanded at full load.





Technical support and service

· Pre- and after-sales service.
· Commissioning.
· Telephone technical support.
· Training courses.

Software

· Allows parameter setting of the equipment and facilitates commissioning and maintenance.
· Local and remote monitoring.

Salicru warranty

· Online registration at www.salicru.com.
· 2-year warranty.

Range

MODEL	CODE	POWER SUPPLY VOLTAGE	POWER (kW)	INPUT CURRENT (A)	OUTPUT CURRENT (A)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
CV30-004-S2	6B1BA000001	Single phase 230 V	0.4	6.5	2.5	123 × 80 × 160	1.3
CV30-008-S2	6B1BA000002	Single phase 230 V	0.75	9.3	4.2	123 × 80 × 160	1.3
CV30-015-S2	6B1BA000003	Single phase 230 V	1.5	15.7	7.5	140 × 80 × 185	1.6
CV30-022-S2	6B1BA000004	Single phase 230 V	2.2	24	10	140 × 80 × 185	1.6
CV30-008-4	6B1BC000001	Three-phase 400 V	0.75	3.4	2.5	140 × 80 × 185	1.4
CV30-015-4	6B1BC000002	Three-phase 400 V	1.5	5	4.2	140 × 80 × 185	1.4
CV30-022-4	6B1BC000003	Three-phase 400 V	2.2	5.8	5.5	140 × 80 × 185	1.4
CV30-040-4F	6B1BC000004	Three-phase 400 V	4	13.5	9.5	167 × 146 × 256	3.9
CV30-055-4F	6B1BC000005	Three-phase 400 V	5.5	19.5	14	167 × 146 × 256	3.9
CV30-075-4F	6B1BC000006	Three-phase 400 V	7.5	25	18.5	196 × 170 × 320	6.5
CV30-004-2	6B1BB000001	Three-phase 230 V	0.4	3.7	2.5	140 × 180 × 185	1.4
CV30-008-2	6B1BB000002	Three-phase 230 V	0.75	5	4.2	140 × 180 × 185	1.4
CV30-015-2F	6B1BB000003	Three-phase 230 V	1.5	7.7	7.5	167 × 146 × 256	3.9
CV30-022-2F	6B1BB000004	Three-phase 230 V	2.2	11	10	167 × 146 × 256	3.9
CV30-040-2F	6B1BB000005	Three-phase 230 V	4	17	16	167 × 146 × 256	3.9
CV30-055-2F	6B1BB000006	Three-phase 230 V	5.5	21	20	196 × 170 × 320	6.5
CV30-075-2F	6B1BB000007	Three-phase 230 V	7.5	31	30	196 × 170 × 320	6.5

EMC Filters - Category C3

MODEL	VOLTAGE (V)	INVERTER	DIMENSIONS (F x AN x AL mm.)
IPF-EMC-CV30-022-S2	Single phase 230 V	CV30…-S2 (0.4 ÷ 2.2 kW)	38 x 69 x 31
IPF-EMC-CV30-022-2/4	Three-phase 400 V Three-phase 230 V	CV30…-4 (0.75 ÷ 2.2 kW) CV30…-2 (0.4 ÷ 0.75 kW)	

Dimensions

CV30-004/008-S2

CV30-015/022-S2
CV30-008÷022-4
CV30-004/008-2

CV30-040/055-4F
CV30-015÷040-2F

CV30-075-4F
CV30-055/075-2F

Technical specifications

MODEL		CV30
INPUT	Rated voltage	Single phase 220 V (-15%) ÷ 240 V (+10%) / Three-phase 380 V (-15%) ÷ 440 V (+10%) Three-phase 220 V (-15%) ÷ 240 V (+10%)
	Rated frequency	50/60 Hz / Allowed range: 47 ÷ 63 Hz
OUTPUT	Rated voltage	Three-phase, 0 ÷ 100% of input voltage
	Frequency	0 ÷ 400 Hz
	Admissible overloads	150% for 1 min; 180% for 10 s; 200% for 1s
	Maximum distance	<50 m without filter / between 50 and 100 m install chokes / >100 m sine wave filter
CONTROL SPECIFICATIONS	Type of motor	Asynchronous
	Method of control	V/f, sensorless vector control, torque control
	V/f characteristics	Linear, quadratic (3 types), user defined
	Degree of control	1% of maximum output frequency
	Speed fluctuation	±0.3% (in vector control mode)
	Braking unit	Built-in
INPUT SIGNALS	Digital	4/5 programmable inputs, PNP or NPN logic 1 pulse input, maximum frequency 50 kHz Selectable polarity, virtual activation, on/off delay times
	Analogue	2 inputs, AI2: 0 ÷ 10 V / 0 ÷ 20 mA and AI3: -10 ÷ 10 V Built-in potentiometer
OUTPUT SIGNALS	Relay	2 multifunction NO/NC switching outputs Maximum 3 A / 250 VAC, 1 A / 30 VDC. Selectable polarity and on/off delay
	Power Supply	24 V (±10%) 200 mA
	Analogue	2 selectable outputs 0 ÷ 10 V / 0 ÷ 20 mA, proportional to frequency, current, speed, voltage, torque, etc.
	Digital	1 multifunction open collector output (50 mA / 30 V) Selectable polarity and on/off delay
	Communication port	RS-485 Modbus-RTU
OPERATION	Method	Keypad, control terminal and communication. Removable keypad up to 30 m for models 3ø 380 ≥ 4 kW and 3ø 230 ≥ 1.5 kW. For other models, remote keypad (up to 30 m) as optional extra.
	Frequency setting	Digital, analogue, pulse train, multi-step, simple PLC, PID, Modbus communication
	Protection	Overcurrent, overvoltage, low voltage, inverter overheating, phase loss, overload, underload, etc.
FILTERING	EMC filter	Category C3 built-in for 3ø 380 V ≥ 4 kW and 3ø 230 V≥ 1.5 kW inverters. Category C3 with easy connection for others as option
GENERAL	Ambient temperature	-10 ÷ 50°C (1% derating per degree exceeding 40°C)
	Degree of protection	IP20
	Cooling	By easy-to-maintain fans
	Installation	Side-by-side type on DIN rail or wall mounting for 1ø 230 V / 3ø 380 V ≤2.2 kW and 3ø 230 V ≤0.75 kW inverters. Wall of cabinet or flange mounting for other inverters.
STANDARDS	Safety	EN 61800-5-1
	Electromagnetic compatibility (EMC)	EN 61800-3 C3
	Quality and environmental management	ISO 9001 & ISO 14001

CV50

Variable frequency drives from 0.75 kW to 500 kW

CV50: High-performance multifunction vector frequency drives

Salicru's **Controlvit CV50** variable frequency drive series covers power ratings that range from 0.75 kW to 500 kW. They are suitable for both constant and variable torque applications (power duality), and therefore allow the costs of the system to be optimised by adapting to the type of load to be regulated.

They stand out for their design, reliability, ease of use and versatility, being suitable both for low-power applications, where it is necessary to have good control precision, and high-power applications, where it is important to maintain the appropriate torque and ensure continuity of operation.

Thanks to their automatic energy-saving function, they achieve significant consumption reductions, mainly in ventilation, water treatment and irrigation applications.

Applications:

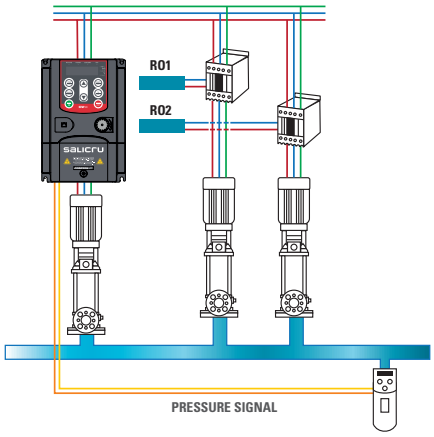
The **CV50** is a dual inverter, meaning that it can work in constant and variable torque applications. For this reason, they are suitable for use in the following applications: pumps, fans, HVAC applications, compressors, extruders, mills, presses, mining industry and machinery in general.

Performances

- Selectable control: V/f, sensorless vector or torque control.
- Built-in EMC filter.
- Power duality: constant torque / variable torque.
- Advanced sleep/wake function for control of up to 3 pumps.
- Motor auto-tuning motor tuning (static and dynamic).
- 150% torque at 0.5 Hz.
- Advanced PID process control.
- Simple PLC (automatic cycle) and 16-speed multi-step control.
- RS485 Modbus RTU communication.
- Built-in potentiometer.
- Remote control with removable or optional keypad.
- Intuitive parameter setting.
- Compact size.
- Built-in dynamic braking unit (≤30 kW).
- DC braking.
- Automatic energy saving and kWh meter.
- Pulse train input (max. 50 kHz).
- Fly start function.
- Numerous inputs/outputs (8 digital inputs, 1 pulse input, 2 analogue inputs and 2 analogue outputs, 2 relay outputs, 1 transistor output, 1 pulse output).
- Cooling fans with On/Off control and easy replacement.
- Monitoring and parameter setting using VITdrive software.
- SLC Greenergy solution.

Pumping systems

- The CV50 inverter enables the creation of a pressure unit with up to three pumps (main pump + two fixed auxiliary pumps).
- By means of a signal provided by the transducer, automatic PID pressure control is performed.
- The setpoint can be set via keypad, an analogue signal or RS485 Modbus communication.
- Features two level parameter setting modes for sleep or wake: % of sensor pressure or by frequency.



Technical support and service

- Pre- and after-sales service.
- Telephone technical support.
- Maintenance contracts.
- Training courses.

Salicru warranty

- Online registration at www.salicru.com.
- 2-year warranty.

Range

MODEL	CODE	CONSTANT TORQUE			VARIABLE TORQUE			DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
		POWER (kW)	CURRENT INPUT (A)	CURRENT OUTPUT (A)	POWER (kW)	CURRENT INPUT (A)	CURRENT OUTPUT (A)		
CV50-008-4F	6B1CA000001	0.75	3.4	2.5	-	-	-	175 × 126 × 186	2.5
CV50-015-4F	6B1CA000002	1.5	5	3.7	-	-	-	175 × 126 × 186	2.5
CV50-022-4F	6B1CA000003	2.2	5.8	5	-	-	-	175 × 126 × 186	2.5
CV50-040-4F	6B1CA000004	4	13	9	5.5	19.5	14	181 × 146 × 256	4.1
CV50-055-4F	6B1CA000005	5.5	19.5	14	7.5	25	18.5	181 × 146 × 256	4.1
CV50-075-4F	6B1CA000006	7.5	25	18.5	11	32	25	216 × 170 × 320	7.4
CV50-110-4F	6B1CA000007	11	32	25	15	40	32	216 × 170 × 320	7.4
CV50-150-4F	6B1CA000008	15	40	32	18.5	47	38	216 × 170 × 320	7.4
CV50-185-4F	6B1CA000009	18.5	47	38	22	56	45	216 × 230 × 342	9
CV50-220-4F	6B1CA000010	22	56	45	30	70	60	245 × 255 × 407	11
CV50-300-4F	6B1CA000011	30	70	60	37	80	75	245 × 255 × 407	11
CV50-370-4F	6B1CA000012	37	80	75	45	94	92	325 × 270 × 555	32
CV50-450-4F	6B1CA000013	45	94	92	58	128	115	325 × 270 × 555	32
CV50-550-4F	6B1CA000014	55	128	115	75	160	150	325 × 270 × 555	32
CV50-750-4F	6B1CA000015	75	160	150	90	190	180	365 × 325 × 680	67
CV50-900-4F	6B1CA000016	90	190	180	110	225	215	365 × 325 × 680	67
CV50-1100-4F	6B1CA000017	110	225	215	132	265	260	365 × 325 × 680	67
CV50-1320-4F	6B1CA000018	132	265	260	160	310	305	360 × 500 × 870	110
CV50-1600-4F	6B1CA000019	160	310	305	185	345	340	360 × 500 × 870	110
CV50-1850-4F	6B1CA000020	185	345	340	200	385	380	360 × 500 × 870	110
CV50-2000-4F	6B1CA000021	200	385	380	220	430	425	360 × 500 × 870	110
CV50-2200-4F	6B1CA000022	220	430	425	250	485	480	380 × 750 × 1410	165
CV50-2500-4F	6B1CA000023	250	485	480	280	545	530	380 × 750 × 1410	165
CV50-2800-4F	6B1CA000024	280	545	530	315	610	600	380 × 750 × 1410	165
CV50-3150-4F	6B1CA000025	315	610	600	350	625	650	380 × 750 × 1410	165
CV50-3500-4F	6B1CA000026	350	625	650	400	715	720	560 × 620 × 1700	450
CV50-4000-4F	6B1CA000027	400	715	720	-	-	-	560 × 620 × 1700	450
CV50-5000-4F	6B1CA000028	500	890	860	-	-	-	560 × 620 × 1700	450

Power supply voltage: Three-phase 400 V

Dimensions

CV50-040/055-4F

CV50-075÷150-4F

CV50-220/300-4F

Technical specifications

MODEL		CV50
INPUT	Rated voltage	Three-phase 380 V (-15%) ÷ 440 V (+10%)
	Rated frequency	50/60 Hz / Allowed range: 47 ÷ 63 Hz
OUTPUT	Rated voltage	Three-phase, 0 ÷ 100% of input voltage
	Frequency	0 ÷ 400 Hz
	Admissible overloads	Constant torque: 150% for 1 min; 180% for 10 s; 200% for 1s Variable torque: 120% for 1 min
	Maximum distance	<50 m without filter / between 50 and 100 m install chokes / >100 m LC filter
CONTROL SPECIFICATIONS	Type of motor	Asynchronous
	Method of control	V/f, sensorless vector control, torque control
	V/f characteristics	Linear, quadratic (3 types), user defined
	Degree of control	1% of maximum output frequency
	Speed fluctuation	±0.3% (in vector control mode)
	Braking unit	Built-in for &le30 kW, external (optional) for ≥37 kW
INPUT SIGNALS	Digital	8 programmable inputs, PNP or NPN logic 1 pulse input, maximum frequency 50 kHz Selectable polarity, virtual activation, On/Off delay times
	Analogue	2 inputs, AI2: 0 ÷ 10 V / 0 ÷ 20 mA and AI3: -10 ÷ 10V Built-in potentiometer
OUTPUT SIGNALS	Relay	2 multifunction NO/NC switching outputs Maximum 3 A / 250 VAC, 1 A / 30 VDC Selectable polarity and on/off delay
	Power Supply	24 V (±10%) 200 mA
	Analogue	2 selectable outputs 0 ÷ 10 V / 0 ÷ 20 mA, proportional to frequency, current, speed, voltage, torque, etc
	Digital	1 multifunction open collector output (200 mA / 30 V) 1 selectable output between pulses (max. 50 kHz) and open collector Selectable polarity and on/off delay
	Communication port	RS-485 Modbus-RTU
OPERATION	Method	Keypad, control terminal and communication Removable keypad up to 200 m for models ≥ 18.5 kW For other models, remote keypad (up to 200 m) as optional extra
	Frequency setting	Digital, analogue, pulse train, multi-step, simple PLC, PID, Modbus communication
	Protection	Overcurrent, overvoltage, low voltage, inverter overheating, phase loss, overload, underload, etc
FILTERING	EMC filter	Built-in. Category C3
	DC reactor	Installable in inverters ≥37 kW
GENERAL	Ambient temperature	-10° ÷ 50°C (3% derating per degree exceeding 40°C)
	Degree of protection	IP20
	Cooling	By easy-to-maintain fans
	Installation	Wall, flange and floor mounting for ≥ 220 kW
STANDARDS	Safety	EN 61800-5-1
	Electromagnetic compatibility (EMC)	EN 61800-3 C3
	Quality and environmental management	ISO 9001 & ISO 14001

CV30-PV

Variable frequency drives for solar water pumping systems from 0.4 kW to 75 kW

CV30-PV: Variable frequency drives for solar water pumping systems

The **CV30-PV** drive allows water to be pumped using the radiation captured by solar panels as an energy source. The solar light energy obtained is transformed into direct current which powers the drive, and this in turn powers a submersible pump using alternating current, thus enabling water from the ground to be extracted. The extracted water can be stored in a tank or raft of storage for subsequent use, or it can be used for direct irrigation, depending on the needs of the farm.

This system is highly useful in locations that need a reliable, cost-effective water supply with a long service life and low maintenance costs. It is also environmentally friendly as it does not cause pollution or noise.

Applications:

The main application of the **CV30-PV** drive is agricultural irrigation, either by accumulating water in a tank for subsequent use or by direct irrigation from a well.

Other applications include domestic consumption in isolated areas, livestock water supply, fish farming, municipal and forestry irrigation, and desert control.

Performances

· Integrated advanced MPPT algorithm: Maximum power point tracking of solar panels with double PID control and 99% efficiency.
· Automatic start and stop depending on the solar radiation.
· Easy configuration: It is only necessary to set a few parameters.
· Optimum functioning at all times, adapting to environmental conditions.
· Multiple protections: Particularly notable are its overvoltage protection and warning against reverse polarity in the photovoltaic input, and automatic overtemperature derating.
· Detection of dry well and full tank.
· Considerable reduction in the number of solar panels required thanks to the optional booster module (up to 2.2 kW).
· Possibility of isolated and switched power supply (mains or diesel generator) through the installation of an optional module.

Booster module

The BOOST MOD-320-PV module enables the number of solar panels required to power the system to be greatly reduced, resulting in considerable financial savings and simplified installation. It also allows automatic switching to the mains or a power generator. It can be used in drive models of up to 2.2 kW.

Automatic switching module

ATS MOD-...-4PV modules enable an automatic switching installation to be carried out. When the energy available in the solar panels is insufficient to power the drive, the system switches to the mains or generator, and switches back when the energy is sufficient.

Technical support and service

· Pre- and after-sales service.
· Telephone technical support.

Salicru warranty

· Online registration at www.salicru.com.
· 2-year warranty.
· Replacement of equipment up to 30 kW.

Range

MODEL	CODE	POWER (kW)	OUTPUT CURRENT (A)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	SOLAR PANEL CONFIGURATION (MODULES PER STRING * NUMBER OF STRINGS)			
						Power: 270 ± 5Wp Voc: 38.5 V		Power: 320 ± 5Wp Voc: 45.8 V	
						Without BOOSTER	With BOOSTER	Without BOOSTER	With BOOSTER
CV30-008-S2 PV	6B1DA000001	0.75	4.2	123 × 80 × 160	1.3	11*1	5*1	9*1	4*1
CV30-015-S2 PV	6B1DA000003	1.5	7.5	140 × 80 × 185	1.6	11*1	8*1	9*1	7*1
CV30-022-S2 PV	6B1DA000002	2.2	10	140 × 80 × 185	1.6	11*1	N/D	9*1	N/D

DC power supply voltage: 200 ÷ 400 V / Mains supply voltage: Single-phase 230 V

MODEL	CODE	POWER (kW)	OUTPUT CURRENT (A)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)	SOLAR PANEL CONFIGURATION (MODULES PER STRING * NUMBER OF STRINGS)			
						Power: 270 ± 5Wp Voc: 38.5 V		Power: 320 ± 5Wp Voc: 45.8 V	
						Without BOOSTER	With BOOSTER	Without BOOSTER	With BOOSTER
CV30-008-4 PV	6B1DC000011	0.75	2.5	140 × 80 × 185	1.4	18*1	5*1	15*1	4*1
CV30-015-4 PV	6B1DC000010	1.5	4.2	140 × 80 × 185	1.4	18*1	8*1	15*1	7*1
CV30-022-4 PV	6B1DC000001	2.2	5.5	140 × 80 × 185	1.4	18*1	12*1	15*1	10*1
CV30-040-4F PV	6B1DC000002	4	9.5	167 × 146 × 256	3.9	19*1	N/D	16*1	N/D
CV30-055-4F PV	6B1DC000003	5.5	14	167 × 146 × 256	3.9	18*2	N/D	15*2	N/D
CV30-075-4F PV	6B1DC000004	7.5	18.5	196 × 170 × 320	6.5	18*2	N/D	15*2	N/D
CV30-150-4F PV	6B1DC000005	15	32	196 × 170 × 320	6.5	18*4	N/D	15*4	N/D
CV30-220-4F PV	6B1DC000006	22	45	184 × 200 × 340	11	18*6	N/D	15*6	N/D
CV30-370-4F PV	6B1DC000007	37	75	202 × 250 × 400	17	18*9	N/D	15*9	N/D
CV30-550-4F PV	6B1DC000008	55	115	238 × 282 × 560	27	18*13	N/D	15*13	N/D
CV30-750-4F PV	6B1DC000009	75	150	238 × 282 × 560	27	18*18	N/D	15*18	N/D

DC power supply voltage: 300 ÷ 750 V / Mains supply voltage: Three-phase 400 V
N/A: Not available

Dimensions

CV30-015/022-S2 PV
CV30-008÷022-4 PV

CV30-220-4F PV

CV30-550/750-4F PV

Technical specifications

MODEL		S2 models	4 / 4F models
PHOTOVOLTAIC INPUT	Recommended DC input	200 ÷ 400 V	300 ÷ 750 V
	Recommended MPPT voltage	330 V	550 V
	Maximum DC voltage	440 V	800 V
	Starting voltage	200 V (80 V with booster)	300 V (80 V with booster)
	Minimum DC voltage	150 V (70 V with booster)	250 V (70 V with booster)
MAINS INPUT	Voltage	Single-phase 220 V (-15%) ÷ 240 V (+10%)	Three-phase 380 V (-15%) ÷ 440 V (+10%)
	Frequency	50/60 Hz Permitted range: 47 ÷ 63 Hz	
OUTPUT	Rated voltage	Three-phase, 0 ÷ 100% of the input voltage.	
	Admissible overloads	150% for 1 min; 180% for 10 s; 200% for 1s	
	Maximum distance	<50 m without filter / between 50 and 100 m install chockes / >100 m sine-wave filter.	
INPUT SIGNALS	Digital	5 programmable inputs, PNP or NPN logic. Selectable polarity, on/off delay times.	
	Analogue	Drives ≤ 2.2 kW: Not available / Drives ≥ 4 kW: 2 inputs, AI2: 0 ÷ 10V / 0 ÷ 20 mA and AI3: -10 ÷ 10 V	
OUTPUT SIGNALS	Relay	Drives ≤ 2.2 kW: 1 multifunction NO/NC switching output / Drives ≥ 4 kW: 2 multifunction NO/NC switching outputs Maximum 3 A / 250 Vac, 1 A / 30 Vdc	
	Analogue	Drives ≤ 2.2 kW: Not available / Drives ≥ 4 kW: 2 selectable outputs 0 ÷ 10 V / 0 ÷ 20 mA	
	Digital	Drives ≤ 2.2 kW: Not available / Drives ≥ 4 kW: 1 multifunction open collector output (50 mA / 30V)	
	Communication port	Drives ≤ 2.2 kW: 1 RS-485 Modbus RTU port + 1 RS-422 port / Drives ≥ 4 kW: 1 RS-485 Modbus RTU port	
SPECIFIC PROTECTIONS	Faults	Overvoltage, undervoltage, overcurrent, reverse polarity connection, communication failure with the booster module, broken hydraulic sensor.	
	Alarms	Weak light, underload, full tank.	
FILTERING	EMC filter	Drives ≤ 2.2 kW: Category C3 with easy connection as option / Drives ≥ 4 kW: Category C3 integrated	
GENERAL	Ambient temperature	- 10 ~ 50°C (1% derating per degree exceeding 40°C).	
	Degree of protection	IP20	
STANDARDS	Safety	EN 61800-5-1	
	Electromagnetic compatibility (EMC)	EN 61800-3 C3	
	Quality and environmental management	ISO 9001 & ISO 14001	

ACV30-PV

Solar-powered pumping cabinets

ACV30-PV: Complete solution for solar-powered pumping facilities

The **ACV30-PV** cabinets offer a fully finished solution for solar-powered pumping facilities that use pumps of up to 5.5 kW. Depending on the model, they can be mounted indoors or outdoors, and offer the option of isolated systems (powered solely by solar panels), systems with automatic switchover to the power generator or mains, and systems with manual switchover.

They incorporate the **CV30-PV** drive, which is specifically designed for solar-powered pumping, and depending on the model they also include the **BOOST MOD-320-PV** booster module, which significantly reduces the number of panels required. They are equipped with the necessary protection at the solar panel input (DC circuit breaker and over-voltage protector) and, where applicable, the AC input (circuit breaker and contactor). As the distance between the drive and the pump can be considerable, all models are fitted with an output ferrite in order to prevent potential pump breakdowns; moreover, for particularly long distances (usually over 100 metres), the option of cabinet-mounted sine-wave filters is available.

To ensure full control of the system, the cabinets also include a water level sensor and digital clock/timer. This can be used to protect the pump against dry operation, and to set the system's operating times. Without a doubt, it is a solution that offers installers tremendous convenience and reliability, owing to the fact that potential issues with mounting and configuration are reduced to a minimum.

Applications:

The main application of the **ACV30-PV** solar-powered pumping cabinets is agricultural irrigation, either via the accumulation of water in a tank or feeder pool for subsequent use or via direct irrigation from a well.

Other applications include domestic consumption in isolated areas, livestock water supply, fish farming, municipal and forestry irrigation, and desert control.

Performances

- Simple to install and configure.
- Indoors or outdoors mounting.
- Isolated power supply or with automatic/manual switchover.
- Optional booster module.
- DC circuit breaker.
- AC circuit breaker for models with switchover to the generator or mains.
- DC over-voltage protector (Type II, 1,000 VDC).
- 24 VDC water level sensor + weights.
- Clock/timer for ON/OFF control.
- Control console and ON/OFF switch on the cabinet door (indoor mounting).
- Status indicator lights and ON/OFF switch on the cabinet door (outdoor mounting).
- Output ferrite.
- ATS automatic switchover module (>2.2 kW models with switchover).
- Optional cabinet-mounted sine wave filter, recommended for systems where the distance between the drive and the pump is over 100 metres.

Indoor mounting model

For added convenience, these models incorporate a control console mounted on the door of the cabinet. Thanks to this design feature, users do not need to open the cabinet in order to change the parameters or check the status of the system. Moreover, ample space has been set aside to incorporate additional control elements, in accordance with the needs of each facility.

Outdoor mounting model

For these models, the ON/OFF control and system status indicators are accessed via buttons on the door of the cabinet, thereby maintaining a high level of protection. The cabinet also includes a rain canopy to provide even more protection against inclement weather.

Dimensions

ACV30-PV Indoor mounting

ACV30-PV Outdoor mounting

Range

MODEL	CODE	MOUNTING	TYPE OF SYSTEM	BOOSTER	PUMP VOLTAGE (V)	MAXIMUM PUMP POWER (kW)
ACV30-015-S2 PV IAB	6B1BS000001	Indoor	Isolated	Yes	3 × 230	1.5
ACV30-022-4 PV IAB	6B1BS000002	Indoor	Isolated	Yes	3 × 400	2.2
ACV30-015-S2 PV IAD	6B1BS000003	Indoor	Isolated	No	3 × 230	1.5
ACV30-022-S2 PV IAD	6B1BS000004	Indoor	Isolated	No	3 × 230	2.2
ACV30-022-4 PV IAD	6B1BS000005	Indoor	Isolated	No	3 × 400	2.2
ACV30-055-4F PV IAD	6B1BS000006	Indoor	Isolated	No	3 × 400	5.5
ACV30-015-S2 PV IGB	6B1BS000007	Indoor	Automatic switchover to the generator	Yes	3 × 230	1.5
ACV30-022-S2 PV IGB	6B1BS000008	Indoor	Automatic switchover to the generator	Yes	3 × 230	2.2
ACV30-022-4 PV IGB	6B1BS000009	Indoor	Automatic switchover to the generator	Yes	3 × 400	2.2
ACV30-055-4F PV IGD	6B1BS000010	Indoor	Automatic switchover to the generator	No	3 × 400	5.5
ACV30-015-S2 PV IRB	6B1BS000011	Indoor	Automatic switchover to mains power	Yes	3 × 230	1.5
ACV30-022-S2 PV IRB	6B1BS000012	Indoor	Automatic switchover to mains power	Yes	3 × 230	2.2
ACV30-022-4 PV IRB	6B1BS000013	Indoor	Automatic switchover to mains power	Yes	3 × 400	2.2
ACV30-055-4F PV IRD	6B1BS000014	Indoor	Automatic switchover to mains power	No	3 × 400	5.5
ACV30-015-S2 PV IMB	6B1BS000015	Indoor	Manual switchover	Yes	3 × 230	1.5
ACV30-022-S2 PV IMB	6B1BS000016	Indoor	Manual switchover	Yes	3 × 230	2.2
ACV30-022-4 PV IMB	6B1BS000017	Indoor	Manual switchover	Yes	3 × 400	2.2
ACV30-055-4F PV IMD	6B1BS000018	Indoor	Manual switchover	No	3 × 400	5.5
ACV30-015-S2 PV EAB	6B1BS000019	Outdoor	Isolated	Yes	3 × 230	1.5
ACV30-022-4 PV EAB	6B1BS000020	Outdoor	Isolated	Yes	3 × 400	2.2
ACV30-015-S2 PV EAD	6B1BS000021	Outdoor	Isolated	No	3 × 230	1.5
ACV30-022-S2 PV EAD	6B1BS000022	Outdoor	Isolated	No	3 × 230	2.2
ACV30-022-4 PV EAD	6B1BS000023	Outdoor	Isolated	No	3 × 400	2.2
ACV30-055-4F PV EAD	6B1BS000024	Outdoor	Isolated	No	3 × 400	5.5
ACV30-015-S2 PV EGB	6B1BS000025	Outdoor	Automatic switchover to the generator	Yes	3 × 230	1.5
ACV30-022-S2 PV EGB	6B1BS000026	Outdoor	Automatic switchover to the generator	Yes	3 × 230	2.2
ACV30-022-4 PV EGB	6B1BS000027	Outdoor	Automatic switchover to the generator	Yes	3 × 400	2.2
ACV30-055-4F PV EGD	6B1BS000028	Outdoor	Automatic switchover to the generator	No	3 × 400	5.5
ACV30-015-S2 PV ERB	6B1BS000029	Outdoor	Automatic switchover to mains power	Yes	3 × 230	1.5
ACV30-022-S2 PV ERB	6B1BS000030	Outdoor	Automatic switchover to mains power	Yes	3 × 230	2.2
ACV30-022-4 PV ERB	6B1BS000031	Outdoor	Automatic switchover to mains power	Yes	3 × 400	2.2
ACV30-055-4F PV ERD	6B1BS000032	Outdoor	Automatic switchover to mains power	No	3 × 400	5.5
ACV30-015-S2 PV EMB	6B1BS000033	Outdoor	Manual switchover	Yes	3 × 230	1.5
ACV30-022-S2 PV EMB	6B1BS000034	Outdoor	Manual switchover	Yes	3 × 230	2.2
ACV30-022-4 PV EMB	6B1BS000035	Outdoor	Manual switchover	Yes	3 × 400	2.2
ACV30-055-4F PV EMD	6B1BS000036	Outdoor	Manual switchover	No	3 × 400	5.5

Technical specifications

MODEL		3x230 pumps	3x400 pumps
PHOTOVOLTAIC INPUT	Recommended DC input	200 ÷ 400 V	300 ÷ 750 V
	Recommended MPPT voltage	330 V	550 V
	Maximum DC voltage	440 V	800 V
	Starting voltage	200 V (80 V with booster)	300 V (80 V with booster)
	Minimum DC voltage	150 V (70 V with booster)	250 V (70 V with booster)
	DC protection	DC circuit breaker and overvoltage protector (Type II, 1,000 VDC)	
MAINS INPUT	Voltage	Single-phase 220 V (-15%) ÷ 240 V (+10%)	Three-phase 380 V (-15%) ÷ 440 V (+10%)
	Frequency	50/60 Hz Permitted range: 47 ÷ 63 Hz	
	AC protection	AC circuit breaker and contactor (for models with automatic switchover to the mains)	
OUTPUT	Rated voltage	Three-phase, 0 ÷ 100% of the input voltage.	
	Admissible overloads	150% for 1 min; 180% for 10 s; 200% for 1s	
	Maximum distance	Install a sine wave filter if the distance between the drive and pump is > 100 m	
INPUT SIGNALS	Digital	5 programmable inputs, PNP or NPN logic. Selectable polarity, on/off delay times.	
	Analogue	Drives ≤ 2.2 kW: Not available / Drives ≥ 4 kW: 2 inputs, AI2: 0 ÷ 10V / 0 ÷ 20 mA and AI3: -10 ÷ 10 V	
OUTPUT SIGNALS	Relay	Drives ≤ 2.2 kW: 1 multifunction NO/NC switching output / Drives ≥ 4 kW: 2 multifunction NO/NC switching outputs Maximum 3 A / 250 Vac, 1 A / 30 Vdc	
	Analogue	Drives ≤ 2.2 kW: Not available / Drives ≥ 4 kW: 2 selectable outputs 0 ÷ 10 V / 0 ÷ 20 mA	
	Digital	Drives ≤ 2.2 kW: Not available / Drives ≥ 4 kW: 1 multifunction open collector output (50 mA / 30V)	
	Communication port	Drives ≤ 2.2 kW: 1 RS-485 Modbus RTU port + 1 RS-422 port / Drives ≥ 4 kW: 1 RS-485 Modbus RTU port	
OPERATION	Method	Indoor mounting: control console on the door of the cabinet and ON/OFF control via switch or clock/timer. Outdoor mounting: buttons on the door of the cabinet and clock/timer.	
	Pump protection	24 VDC water level sensor	25 VDC water level sensor
	Types of system	Isolated (powered solely by solar panels Automatic switchover to the generator Automatic switchover to the mains Manual switchover (to the power generator or mains)	
SPECIFIC PROTECTIONS	Faults	Overvoltage, undervoltage, overcurrent, reverse polarity connection, communication failure with the booster module, broken hydraulic sensor.	
	Alarms	Weak light, underload, full tank.	
FILTERING	EMC filter	Drives ≤ 2.2 kW: Category C3 with easy connection as option / Drives ≥ 4 kW: Category C3 integrated	
GENERAL	Ambient temperature	- 10 ~ 50°C (1% derating per degree exceeding 40°C).	
	Degree of protection	Indoor and outdoor versions	
STANDARDS	Safety	EN 61800-5-1	
	Electromagnetic compatibility (EMC)	EN 61800-3 C3	
	Quality and environmental management	ISO 9001 & ISO 14001	

DC POWER-S

DC power systems

DC POWER-S: Compact, flexible and modular DC power supply systems

Salicru's **DC power-S** energy systems feature the following components: DC-S rectifier modules, subracks, a control and monitoring system, a communications module and a DC distribution unit, all situated in a closed cabinet with the possibility of including batteries.

DC power-S system rectifier modules are available in power ratings of 1000, 2000 and 2700 W and output voltages of 24, 48, 110 and 125 Vdc. Its modular design enables up to 4 modules to be installed in a 19" 2U subrack, achieving very high power density.

The control and monitoring system manages the entire system: input and output measurements, battery charging currents, control of priority and non-priority loads and communication channels with the outside. The maximum number of rectifiers controlled by a control system is 3 , enabling systems to achieve power ratings of up to 81 kW with N+n redundant configuration options.

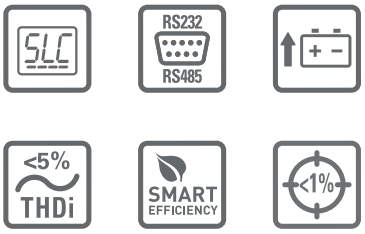
The basic version of the communications module has: three programmable relays, a battery temperature sensor and an RS-232/485 channel. Extended version features a slot for an Ethernet/ SNMP adapter, an NiCd electrolyte level detection input and six additional relays.

Applications: Redundant protection for critical applications

Salicru's **DC power-S** energy systems provide a high-level power supply to always critical telecommunications systems,ensuring excellent operation without unexpected outages. Because of its modular nature, it can also be expanded according to needs, thereby optimising the investment. Typical applications include: fixed and mobile communications networks, broadband access networks and data and telecommunications networks.

Performances

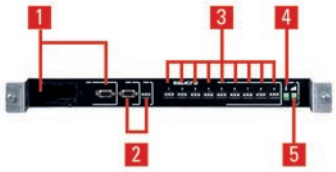
- Maximum power per system up to 81 kW.
- Flexible, scalable and N+n redundant systems, configurable for current demand and future expansion.
- High power density in the modules, up to 27 W/in3.
- High efficiency, up to 95% even with low load.
- Option of single or three-phase power supply.
- DC systems with output voltages of 24, 48, 110, 125 or 220 Vdc.
- Wide operating temperature range from -20º C to +55º C.
- Wide input voltage range from 90 Vac to 290 Vac with power derating.
- Input power factor 1 for better performance.
- Modular design of the rectifiers and control system.
- Output current sharing between rectifiers.
- Front access for easy installation and maintenance.
- Hot-swap and hot-plug functions with automatic adjustment for module connection/disconnection.
- LLVD and BLVD - disconnection of non-priority loads and for low battery voltage.
- Full local control and monitoring system with LCD backlit (4x40 characters).
- Communication unit for remote monitoring.
- Monitoring software via Ethernet/SNMP.
- Smart-mode to maximise MTBF (Mean Time Between Failures).



Communications

1. Slot for the telemagement or RS-232 interface.
2. RS-485 serial ports. MODBUS communication protocol.
3. Programmable relay (x6) interface.
4. Battery temperature measurement input.
5. NiCd electrolyte level detection input. (1)

(1) Only extended version.



SMART mode

Load sharing in normal operation.

Load sharing and cycling of rectifiers in Smart-mode operation.

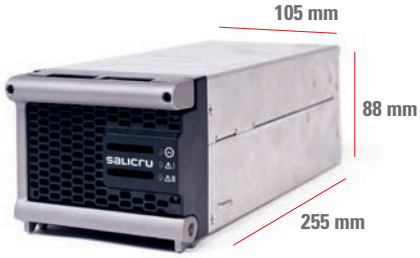
Options

- Surge protector.
- Output voltage dropping diodes.
- Positive, negative or isolated output voltages.
- Sealed or open PbCa batteries, NiCd, etc.
- Extended communications module.
- Other degrees of IP protection.
- Wireless-link communication.
- Non priority loads diconnector.

Range

MODEL	POWER (W)	CURRENT (A)	OUTPUT VOLTAGE (VDC)	CURRENT PER SYSTEM (A)	POWER PER SYSTEM MODEL (kW)
DC-36-S	1000	36	24	36 ÷ 1080	1 ÷ 30
DC-18-S	1000	18	48	18 ÷ 540	1 ÷ 30
DC-8-S	1000	8	110	8 ÷ 240	1 ÷ 30
DC-7-S	1000	7	125	7 ÷ 210	1 ÷ 30
DC-4-S	1000	4	220	4 ÷ 120	1 ÷ 30
DC-70-S	2000	70	24	70 ÷ 2100	2 ÷ 60
DC-36-S	2000	36	48	36 ÷ 1080	2 ÷ 60
DC-16-S	2000	16	110	16 ÷ 480	2 ÷ 60
DC-15-S	2000	15	125	15 ÷ 450	2 ÷ 60
DC-8-S	2000	8	220	8 ÷ 240	2 ÷ 60
DC-50-S	2700	50	48	50 ÷ 1500	2,7 ÷ 81
DC-22-S	2700	22	110	22 ÷ 660	2,7 ÷ 81
DC-20-S	2700	20	125	20 ÷ 600	2,7 ÷ 81
DC-10-S	2400	10	220	10 ÷ 300	2,4 ÷ 74

Dimensions

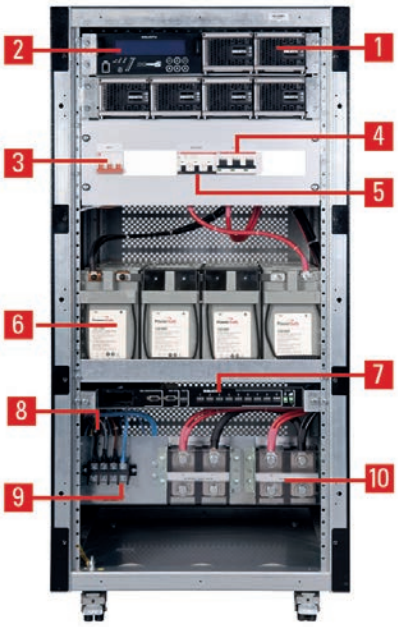


POWER MODULE

CONTROL MODULE

2 SUBRACK MODULES

Connections



1. Rectifier module
2. Centralised control
3. Input protection
4. Output distribution
5. Batteries protection
6. Batteries
7. Extended communication
8. Surge protector
9. Input terminals
10. Output terminals

Technical specifications

MODEL		DC POWER-S
INPUT	Rated voltage	120 / 127 / 220 / 230 / 240 V; 3x208 / 220 / 380 / 400 / 415 V (3F+N)
	Voltage range	90 ÷ 290 Vac
	Rated frequency	50/60 Hz
	Total harmonic distortion (THDi)	<5%
	Power factor	>0.99 (PFC)
	Performance	Up to 95.5%
OUTPUT	DC nominal voltage	24, 48, 110, 125, 220 V
	Accuracy	±1%
	Output voltage setting	-15% +25% (1)
	Maximum power (W)	30 / 60 / 81 kW
	Rectifier module power	1000 / 2000 / 2700 W
	Psophometric noise	<2 mV
	Load sharing between modules	Active parallel
	Maximum number of parallel modules	30
BATTERY	Protection	Against overvoltage, undervoltage and overload
	Battery type	PbCa or NiCd
	Charge type	Constant I/U in accordance with DIN 41773
	Recharge time	Up to 80% in 4 hours (0.2C)
	Voltage/temperature compensation	Yes, customisable (mV/°C)
	Electrolyte level detection (NiCd battery)	Optional
COMMUNICATION	Ports	RS-232/485 - 7 relays
	Intelligent slot	Yes, one / Optional
PROTECTION	Input and output	Circuit breakers
	Battery	Fuses + switch
GENERAL	Operating temperature	-20ºC ÷ +55ºC (2)
	Storage temperature	-40ºC ÷ +70ºC (3)
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	3,000 masl(4)
	Dielectric strength (Input - Output)	2000V @1 minuto para 24, 48 Vdc / 4000 V @ 1 minuto para 110, 125, 220 Vdc
	Degree of protection	IP20
	Cooling	Forced
	Acoustic noise at 1 metre	<55 dB(A)
	Mean time between failures (MTBF)	250,000 hours
	Mean time to repair (MTTR)	15 minutes
STANDARDS	Safety	IEC/EN 61204-7, IEC/EN 60950-1
	Electromagnetic compatibility (EMC)	IEC/EN 61204-3
	Quality and environmental management	ISO 9001 & ISO 14001

(1) -9% + 25% for voltages 110Vd
(2) Power degradation for temperatures higher than 45°C.
(3) Without batteries
(4) Power degradation from 2000 m.a.s.l.

DC POWER-L

Thyristor rectifiers 10 A - 800 A

DC POWER-L: Charging systems for stationary batteries

Salicru's **DC power-L** range of rectifiers/battery chargers, based on microprocessor-controlled thyristor technology, provides high-quality and reliable protection for critical DC loads.

The **DC power-L** series covers the range between 10 A and 800 A with outputs from 24 to 220 Vdc. The output accuracy is better than +/- 1% and the system is designed to charge open or sealed lead acid and nickel cadmium batteries.

All alarms, monitoring and status indicators (via display and LEDs) are managed through a digital control system. Each type of battery requires special charging characteristics, which are managed by the controller. The systems are completely customisable to the specific characteristics and needs of each client and application.

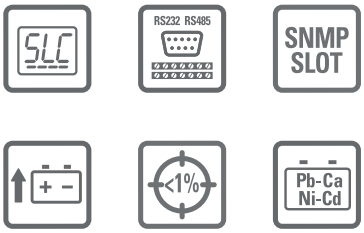
The robust design ensures that the installation requires low maintenance and can work for long periods without special attention.

Applications: Efficient, reliable and robust solutions

DC power-L systems are designed to protect DC loads of maximum criticality and to operate with nickel cadmium or lead acid batteries in harsh and demanding operating environments, such as power plants, electrical substations, oil and gas pipelines, petrochemical plants, mines, railways, telecommunications facilities, hospitals, industrial plants, etc.

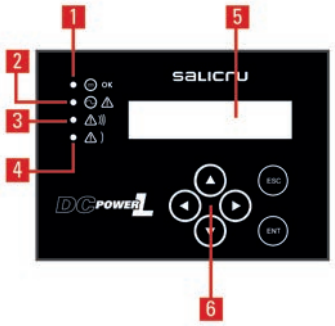
Performances

· Microprocessor-controlled thyristor technology.
· Galvanic isolation between input and output via transformer.
· Complete six-pulse bridge.
· Ventilation by natural convection.
· Standard DC output earth fault detection.
· Electrolyte level detection for NiCd batteries (optional).
· Charging states: floating, fast and exceptional.
· Robust and compact design.
· High power density.
· Monitoring of all equipment parameters through LCD display.
· Possibility of redundant parallel operation.
· Operation with lead acid or nickel cadmium batteries.
· Temperature-compensated float voltage.
· Automatic disconnection in the event of minimum battery voltage or temperature.
· Extensive configuration options.
· High MTBF and low MTTR.
· Easy installation, start-up and maintenance.



Display

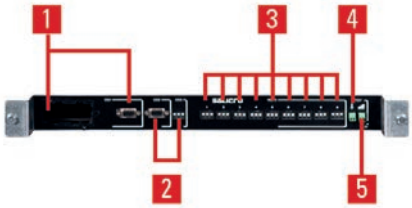
1. Output voltage indicator.
2. Input voltage fault indicator.
3. Urgent alarm indicator (customisable).
4. Non-urgent alarm indicator (customisable).
5. LCD display with multiple languages.
6. Navigation keys.



Communications

1. Slot for the telemagement or RS-232 interface.
2. RS-485 serial ports. MODBUS communication protocol.
3. Programmable relay (x6) interface.
4. Battery temperature measurement input.
5. NiCd electrolyte level detection input. (1)

(1) Only extended version.

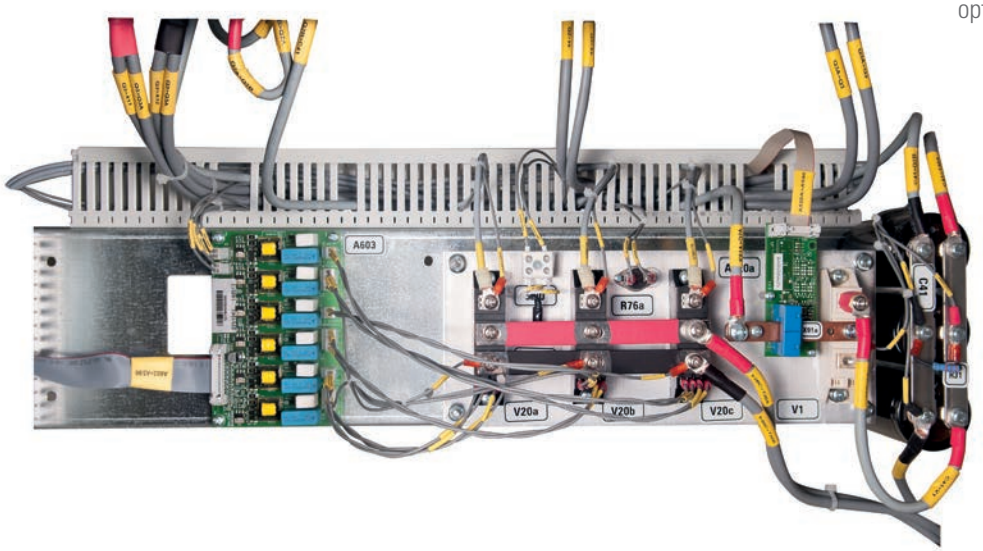


Options

· 12-pulse rectifier with isolation transformer.
· Voltage drop diodes.
· TCP/IP interface.
· Heater.
· Output diodes for parallel operation.
· Different types of batteries (SLA, lead acid, nickel cadmium, etc.).
· Other degrees of protection.
· Other input voltages on request.
· Top cable entry.
· Schuko outlet socket.

Technical support and service

· Pre and post-sales advice.
· Multiple maintenance and telemaintenance options.



Range

MODEL	OUTPUT CURRENT (A)	INPUT VOLTAGE (VAC)	OUTPUT VOLTAGE (VDC)
DC-10-L	10	120 / 230	24 / 48 / 110 / 120 / 125 / 220
DC-20-L	20	120 / 230	24 / 48 / 110 / 120 / 125 / 220
DC-30-L	30	120 / 230	24 / 48 / 110 / 120 / 125 / 220
DC-50-L	50	120 / 230	24 / 48 / 110 / 120 / 125 / 220
DC-25-L	25	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-50-L	50	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-75-L	75	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-100-L	100	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-150-L	150	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-200-L	200	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-250-L	250	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-300-L	300	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-350-L	350	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-400-L	400	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-450-L	450	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-500-L	500	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-600-L	600	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-700-L	700	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220
DC-800-L	800	3 × 208 / 3 × 220 / 3 × 400	24 / 48 / 110 / 120 / 125 / 220

Check for other output currents.

Dimensions

DC-10÷100-L

DC-150÷800-L

Technical specifications

MODEL		DC POWER-L
TECHNOLOGY		Thyristor
INPUT	Rated voltage	120 / 230 V (F + N); 3 × 208 / 3 × 220 / 3 × 400 V (3F + N)
	Voltage range	±15%
	Rated frequency	50/60 Hz
	Frequency range	±5%
	Power factor	0.85
	Performance	>85%
OUTPUT	DC nominal voltage	24 V, 48 V, 110 V, 120 V, 125 V, 220 V
	Float voltage	2.27 V/cell (Pb) / 1.4 ÷ 1.45 V/el (NiCd)
	Fast charging voltage	2.5 V/cell (Pb) / 1.5 V/el (NiCd)
	Exceptional charging voltage/formation	2.7 V/cell (Pb) / 1.65 V/el (NiCd)
	Accuracy	±1%
	Ripple	<1% (1)
	Single phase current	10 / 20 / 30 / 50 A(2)
	Three phase current	25 / 50 / 75 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 / 600 / 700 / 800 A(2)
BATTERY	Protection	Against overvoltage and undervoltage
	Battery type	PbCa (sealed or open) or NiCd
	Charge type	IU constant as per DIN 41773
	Charging current	0.1 to 0.3 C adjustable
	Recharge time	Up to 80% in 4 hours (0.2 C)
	Voltage/temperature compensation	Yes, customisable as per battery specifications (mV / °C)
	No. of cells Pb	12 (24 V) / 24 (48 V) / 55 (110 V) / 60 (120 V) / 62 (125 V) / 110 (220 V)
	No. of elements NiCd	19 (24 V) / 38 ÷ 39 (48 V) / 81 ÷ 86 (110 V) / 88 ÷ 94 (120 V) / 92 ÷ 96 (125 V) / 161 ÷ 173 (220 V)
COMMUNICATION	Ports	RS-232/485 - 6 Dry contacs
	Intelligent slot	Yes, one / Optional
	Protocol	MODBUS Yes
PROTECTION	Input and output	Circuit breaker
	Battery	Fuses
	Soft start	Yes
GENERAL	Operating temperature	-10º C ÷ +55º C (3)
	Storage temperature	-20º C ÷ +70º C (4)
	Relative humidity	Up to 95% non-condensing
	Maxium operating altitude	Up to 3000 m.a.s.l.(5)
	Dielectric strength (Input - Output)	2500 V @1 min
	Degree of protection	IP20
	Cooling	Natural
STANDARDS	Safety	IEC/EN 61204-7, IEC 60146-1-1
	Electromagnetic compatibility (EMC)	IEC/EN 61204-3 class A
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Premium version
(2) Includes battery charging current (Ibat). In Premium, Ibat version. can power loads
(3) Power degradation from +40ºC
(4) Without batteries
(5) Power degradation from 1000 m.a.s.l.

CS-IS

DC power converters

CS-IS: High performance DC/AC industrial converters

Salicru's **CS IS** series DC/AC converters are based on technically advanced solutions such as PWM technology and digitally controlled servo systems so as to obtain: high performance, low distortion (THDv < 2%) and elevated stability. Moreover, they offer excellent tolerance to short-circuits, polarity inversion protection and the possibility of operating in Eco-mode.

The line is available in power ranges between 1000 and 20000 VA, with admissible continuous incoming voltage from 48 Vdc to 220 Vdc nominal input.

Applications: Energy conversion for industrial plants

Salicru's **CS IS** series provides quality AC power from a DC power source (normally batteries) for the most varied of industrial applications such as cogeneration and biomass plants, gas generators, water distributors, power stations and substations, telecommunications, etc..

Performances

- Polarity inversion protection DC.
- Availability in a wide range of voltages and outgoing power.
- Broad range of input voltage variation.
- LCD display comes standard.
- Communication through relay interface and RS-232 / RS-485.
- Excellent dynamic behavior.
- Automatic restart to re-establish incoming power.
- Ramp start.
- 19" rack or box casing.

Options

- Static bypass.
- EMI filters.
- Isolation transformer on the bypass line.
- Psofometric filter.
- Anti-harmonic filter.

Technical support and service

- Pre-sales and post-sales consultation service.
- Several maintenance and remote maintenance methods.

Range

MODEL	POWER (VA)	INPUT VOLTAGE (VDC)	DIMENSIONS (D × W × H mm)		WEIGHT (Kg)
			BOX	RACK	
CS 1000-IS	1000	48,110,120,125,220	385 × 440 × 180	385 × 483 × 4U	36
CS 2000-IS	2000	48,110,120,125,220	385 × 440 × 180	385 × 483 × 4U	49
CS 3000-IS	3000	48,110,120,125,220	385 × 440 × 180	385 × 483 × 4U	57
CS 4000-IS	4000	110,120,125,220	600 × 440 × 270	600 × 483 × 6U	63
CS 5000-IS	5000	110,120,125,220	600 × 440 × 270	600 × 483 × 6U	68
CS 6000-IS	6000	110,120,125,220	725 × 440 × 270	-	84
CS 8000-IS	8000	110,120,125,220	640 × 630 × 1310	-	120
CS 10000-IS	10000	110,120,125,220	640 × 630 × 1310	-	135
CS 15000-IS	15000	220	640 × 630 × 1310	-	150
CS 20000-IS	20000	220	640 × 630 × 1310	-	170

Dimensions and weights for models without bypass nor filters and 230 Vac output voltage. Ask for another power needs and/or configurations.
Dimensions for power models 1000, 2000 and 3000 with voltages ≥110 Vdc.

Technical specifications

MODEL		CS IS
INPUT	Rated voltage	48 V, 110 V, 120 V, 125 V, 220 V
	Voltage range	- 17%, + 20%
OUTPUT	AC nominal voltage	120 V, 220 V, 230 V, 240 V
	Accuracy	± 2%
	Synchronised frequency	0.1 Hz ÷ 9.9 Hz in increments of 0.1 Hz
	Free running frequency	± 0.05%
	Frequency	50 / 60 Hz
	Synchronous speed	1 Hz/s
	Performance	Up to 92%
	Admissible overloads	150% for 30 seconds / 125% for 45 seconds
GENERAL	Operating temperature	- 10° C ÷ + 40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2400 m.a.s.l
	Cooling	Forced
STANDARDS	Safety	EN 62368-1
	Electromagnetic compatibility (EMC)	EN 61000-6-3; EN 61000-6-1
	Quality and environmental management	ISO 9001 & ISO 14001

CS WAVE MDL

Power converters 48Vdc to 230Vac

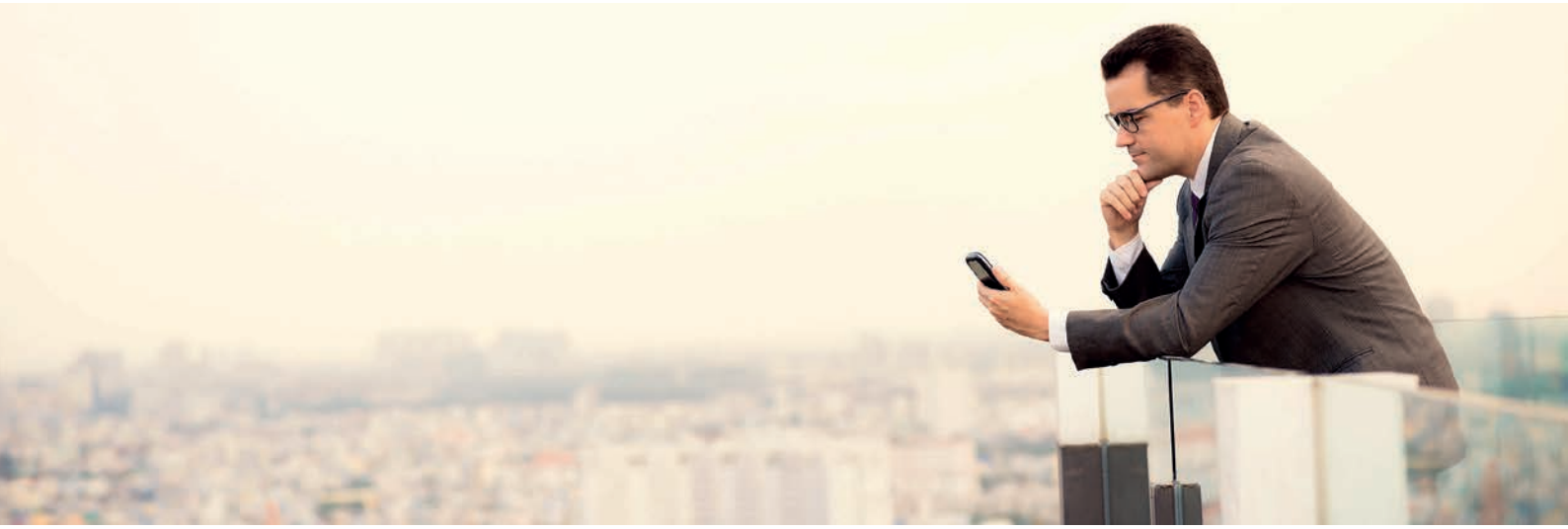
CS WAVE MDL: DC/AC converters for telecommunications

Today's telecommunications systems include a large variety of critical loads that must be correctly powered and protected. Salicru's **CS WAVE MDL** is based on the modular architecture that can be adapted to any growth and/or redundancy needs.

The maximum configurations allows up to 24 kVA in models with 1 or 1.5 kVA, which are supplemented by the modules: static bypass (STS), LCD display, communications and/or manual bypass with distribution.

Applications: AC power for Telecom systems

Normally for mobile or land-line telecommunications systems not able to connect to the mains, that need autonomous solutions providing power from back-up elements (batteries, fuel-cell,...).



Performances

· DSP Design (Digital Signal Processor).
· Back-feed protection standard (in configurations with STS).
· All Master technology for better reliability.
· Senoidal output.
· Hot-Swap.
· High density power.
· Polarity inversion protection.
· Smart ventilation control.

Technical support and service

· Pre-sales and post-sales consultation service.
· Several maintenance and remote maintenance methods.

Options

· Static bypass up to 12 kVA.
· LCD display.
· Communications interface.
· Manual bypass with distribution.

Range

MODEL	CODE	POWER (VA)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
CS 1000-WAVE MDL 48/230	651AA000000	1000	270 × 215 × 44	2.5
CS 1500-WAVE MDL 48/230	651AA000001	1500	270 × 215 × 44	3

Technical specifications

MODEL		CS WAVE MDL
TECHNOLOGY		DSP; All Master
INPUT	Rated voltage	40.5 Vdc ÷ 58 Vdc
	Psophometric noise	<=1 mV
OUTPUT	Rated voltage	230 Vac
	Power (VA)	1000 / 1500
	Frequency	50 / 60 Hz
	Performance	> 89%
	Admissible overloads	150% for 20 seconds
MANUAL BYPASS	Type	Distribution: 2 × 20 A + 1 × 32 A + 1 × 50 A / 5 position selector
STATIC BYPASS	Transfer time (ms)	< 5 ms
	Voltage range	176 ÷ 276 Vac
COMMUNICATION	Ports	RS-232, RS-485, USB, SNMP and free contacts
INDICATIONS	Type	LCD Display (Input / Output / Alarms / General)
SYSTEMS	Maximum no. modules per system	15 × 1500 VA or 24 × 1000 VA
	Maximum power per system (kVA)	22,5 k VA × 1500 VA / 24 kVA × 1000 VA
STANDARDS	Safety	IEC 62368-1
	Electromagnetic compatibility (EMC)	EN 61000-6-3; EN 61000-6-1
	Quality and environmental management	ISO 9001 & ISO 14001

FAC Q

Battery chargers

FAC Q: Battery chargers for industrial applications

Salicru's Battery Charger **FAC Q** serie, the technology used in high quality power supplies for telecommunications equipment, are characterised by their architecture based on high frequency switching and offering numerous additional services as opposed to other solutions, which gives greater profitability in the industrial process.

The **FAC Q** serie are easily adaptable to a wide range of possible applications and contribute to maintaining a clean, reliable environment. On the mechanical level, the **FAC Q** are characterised as offering the wall solution as the most effective in hospitals.

Applications: Electrical Protection And Battery Charging

The **FAC Q** series is especially conceived to correctly supply all kinds of emergency lighting, surgery lamps, security and alarm circuits, power supply circuits to machines with irreversible processes, converters, breakers, etc.

Performances

· Switched technology.
· High efficiency and precision.
· Low output voltage curl.
· Great flexibility in powers and voltages.
· Permanent protection against short circuits and overloading.
· Excellent dynamic behaviour.
· Capacity to withstand large starting peaks.
· High power factor.
· Low starting current.
· Lower weight and heating.

Options

· Ni-Cd batteries.
· Voltmeter / Ammeter.
· Version I: Normal Contactor / Emergency.

Technical support and service

· Pre-sale and after sale advisory service.
· Multiple formulae for maintenance and telemaintenance.

Technical specifications

MODEL		FAC Q
INPUT	Rated voltage	230 V ± 10%
	Rated frequency	50 / 60 Hz
	Power factor	0.7
	Protection	Circuit breaker
	Performance	> 85%
OUTPUT	DC nominal voltage	Normal 24 V AC / Emergency 24 V DC
	Rated current (A)	Depending on the model
	Accuracy	± 1%
	Ripple	< 200 mVpp
	Power	250, 350, 500, 600, 700 W
BATTERY	Protection	Circuit breaker
	Charging current	3 A
	Protection against overvoltages andun-dervoltages	Yes
	Ni-Cd / Pb-Ca	Optional / Yes
	Charge type	I / U
COMMUNICATION	Ports	Standard relay interface
SIGNALLING	LED synoptic	Yes
	Acoustic end of autonomy	Yes
GENERAL	Operating temperature	0° C ÷ + 40° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2400 m.a.s.l.
	Degree of protection	IP21
	Isolation	> 10 MΩ
	Cooling	Natural
	Acoustic noise at 1 metre	< 40 dB
STANDARDS	Safety	EN 60950-1
	Electromagnetic compatibility (EMC)	EN 61204-3
	Quality and environmental management	ISO 9001 & ISO 14001

IT M

Single-phase command and control transformers

IT M: Quality and versatility in low-power transformation

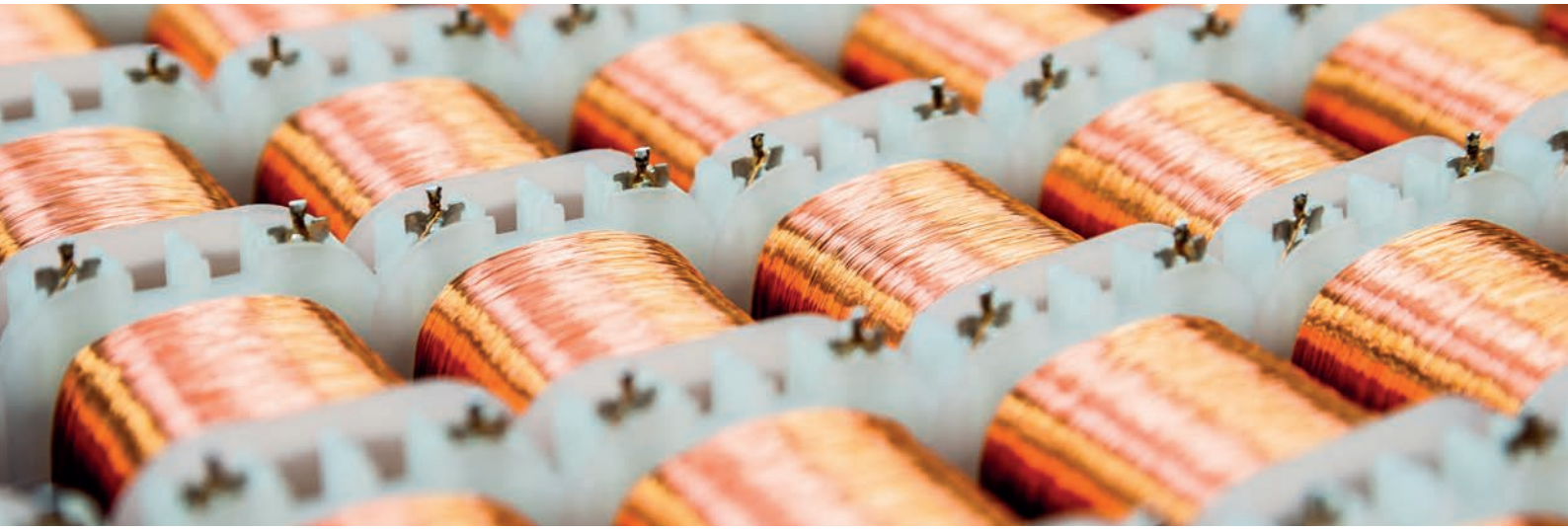
Salicru has been designing and manufacturing low-voltage electrical transformers for more than 50 years, both for use as an independent solution and as part of its wide range of power electronics solutions. The single-phase control transformers from its **IT M** series have been calculated and designed following the most stringent technical criteria, and tested using the most modern technologies. They are mainly used to adjust mains voltage levels and adapt them to that required by different applications in the industrial, tertiary and residential sectors.

They are also used as electrical insulation to power devices that need circuit separation, as well as to provide a safety voltage in locations that require it. The transformers from the **IT M** series are highly versatile thanks to their double or triple primary voltage and double secondary voltage, which is obtained by choosing between serial or parallel connection using the metal jumpers included.

Applications: Control, command, insulation and safety

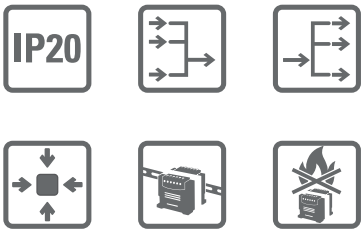
The transformers from the **IT M** series fulfil four purposes required by a large variety of facilities: control, command, insulation and safety. Because of this, they can be used in many different applications in industrial, tertiary and residential sectors. They are widely used in the construction of electrical panels due to their compact size, ease of mounting and the flexibility offered by having several voltage sockets.

They supply a large amount of instantaneous power which enables the coils of contactors, relays, protections and other devices usually present on panels to be correctly magnetised.



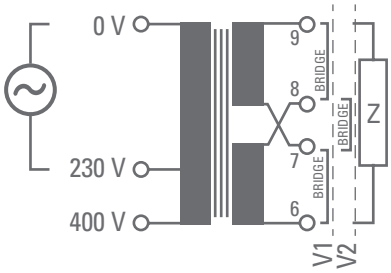
Performances

· Power range: 25 VA to 2000 VA.
· Typical input voltages up to 460 V.
· Voltage selection using jumpers included.
· Insulation class F (H for IP00 models).
· Insulation class HC windings.
· Connection group Ii0.
· Protection against electric shock Class I.
· Resin-impregnated copper windings.
· High-protection and anti-corrosive black resin finish.
· Windings protected by self-extinguishing housing with adapter for DIN rail up to 250 VA (IP20 models).
· Tropicalised.
· Low heat loss.
· Low weight and compact dimensions.



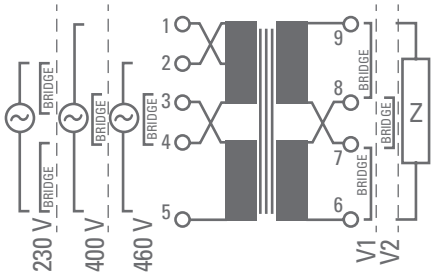
Connection diagram 1

· Input iA: 230 V – 400 V
· Output oR: 12 V (V1) – 24 V (V2)
· Output oS: 24 V (V1) – 48 V (V2)
· Output oT: 115 V (V1) – 230 V (V2)



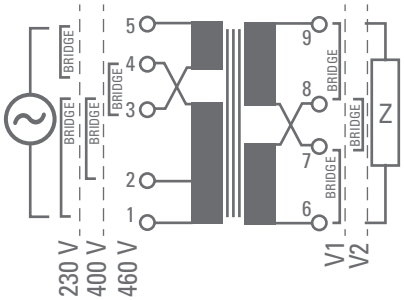
Connection diagram 2

· Input iB: 230 V – 400 V - 460 V
· Output oR: 12 V (V1) – 24 V (V2)
· Output oS: 24 V (V1) – 48 V (V2)
· Output oT: 115 V (V1) – 230 V (V2)



Connection diagram 3

· Input iB: 230 V – 400 V - 460 V
· Output oR: 12 V (V1) – 24 V (V2)
· Output oS: 24 V (V1) – 48 V (V2)
· Output oT: 115 V (V1) – 230 V (V2)



Range

MODEL	POWER (VA)	INPUT VOLTAGE	OUTPUT VOLTAGE	PRESENTATION
IT M-# E iAoR	25 ÷ 100	230 - 400 V	12 -24 V	Encapsulated IP20 / Diagram 1
IT M-# E iBoR	160 ÷ 800	230 - 400 - 460 V	12 -24 V	Encapsulated IP20 / Diagram 2
IT M-# E iAoS	25 ÷ 100	230 - 400 V	24 - 48 V	Encapsulated IP20 / Diagram 1
IT M-# E iBoS	160 ÷ 1300	230 - 400 - 460 V	24 - 48 V	Encapsulated IP20 / Diagram 2
IT M-# TC iBoS	1600 ÷ 2000	230 - 400 - 460 V	24 - 48 V	IP00 / Diagram 3
IT M-# E iAoT	25 ÷ 100	230 - 400 V	115 - 230 V	Encapsulated IP20 / Diagram 1
IT M-# E iBoT	160 ÷ 1300	230 - 400 - 460 V	115 - 230 V	Encapsulated IP20 / Diagram 2
IT M-# TC iBoT	1600 ÷ 2000	230 - 400 - 460 V	115 - 230 V	IP00 / Diagram 3

For other powers, voltages and/or presentations, please enquire.

Dimensions

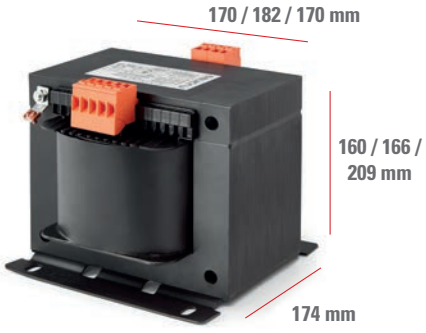
IT M-25÷100 E iAoR
IT M-25÷100 E iAoS
IT M-25÷100 E iAoT

IT M-160/200 E iBoR
IT M-160/200 E iBoS
IT M-160/200 E iBoT

IT M-250÷400 E iBoR
IT M-250÷400 E iBoS
IT M-250÷400 E iBoT

IT M-500/630 E iBoR
IT M-500/630 E iBoS
IT M-500/630 E iBoT

IT M-800÷1300 E iBoR
IT M-800÷1300 E iBoS
IT M-800÷1300 E iBoT



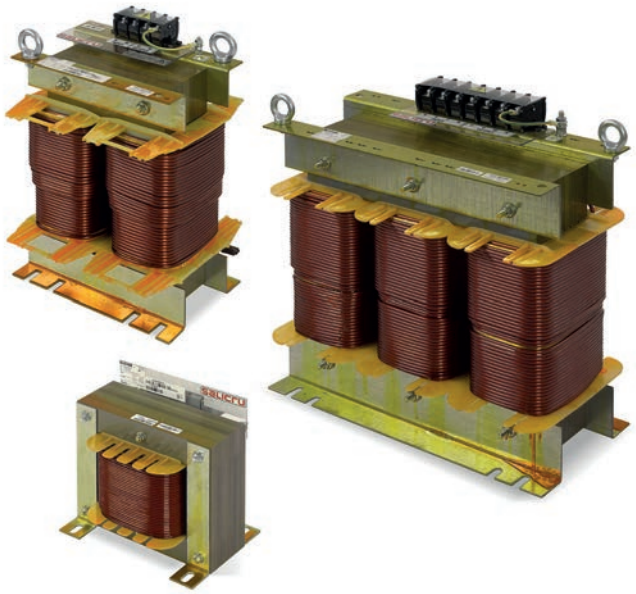
IT M-1600/2000 TC iBoS
IT M-1600/2000 TC iBoT

Technical specifications

MODEL		IT M
ELECTRICAL	Input/Output	Single-phase
	Power range	25 VA a 2000 VA
	Power factor	1
	Connection group	Ii0 (with jumpers)
INPUT	Single phase voltage	Pow ≤ 100 VA: 230-400 V / Pow > 100 VA: 230-400-460 V
	Rated frequency	50 / 60 Hz
OUTPUT	Single phase rated voltage	12-24 V (separation of circuits and safety) / 24-48 V (separation of circuits and safety) / 115-230 V (separation of circuits)
	Frequency	50 / 60 Hz
	Single phase short-circuit voltage	25 VA: 6,7%; 100 VA: 5,9%; 250 VA: 4,9% 500 VA: 3,3%; 1000 VA: 2,7%; 2000VA: 2%
MANUFACTURE	Insulators	Insulation class F (140°C) Temp=40°C for models with protection rating IP20 Insulation class B (120°C) Temp=45°C for models with protection rating IP00
	Windings	Insulation class H (200ºC)
	Windings material	Copper
	Impregnation	Synthetic and polymerised resin
	Ventilation	ANAN
GENERAL	Version	Pow ≤ 1300 VA (≤ 800 VA for 12-24 V output): Windings protected by self-extinguishing housing with adapter for DIN rail up to 250 VA. Pow > 1300 VA (> 800 VA for 12-24 V output): Base plate according to DIN 41308. High-protection, anti-corrosive and tropicalised black resin finish.
	Colour (box version)	Black with orange terminals
	Electrical protection	Against electric shock Class I
	Degree of protection	IP20 for Pow ≤ 1300 VA (≤ 800 VA for 12-24 V output) / IP00 for Pow > 1300 VA (> 800 VA for 12-24 V output)
	Test voltage	4.5 kV pri-sec - 2.5 kV sec-earth
	Terminal type	Screw terminals
STANDARDS	Safety	EN-61558- Directive 2006/95CEE UNE20324-EN60529
	Quality and environmental management	ISO 9001 & ISO 14001

IT

Electrical transformers and autotransformers



IT: Simple concepts, effective solutions

Salicru has been designing and manufacturing low voltage electrical transformers and autotransformers for more than 50 years, for use as **IT series** standalone solutions, or integrated within its wide range of power electronics solutions (uninterruptible power supplies, voltage stabilisers, rectifiers, etc.). At the same time, we have continuously improved our own production methods and processes in order to meet the needs of our customers and also for special requirements.

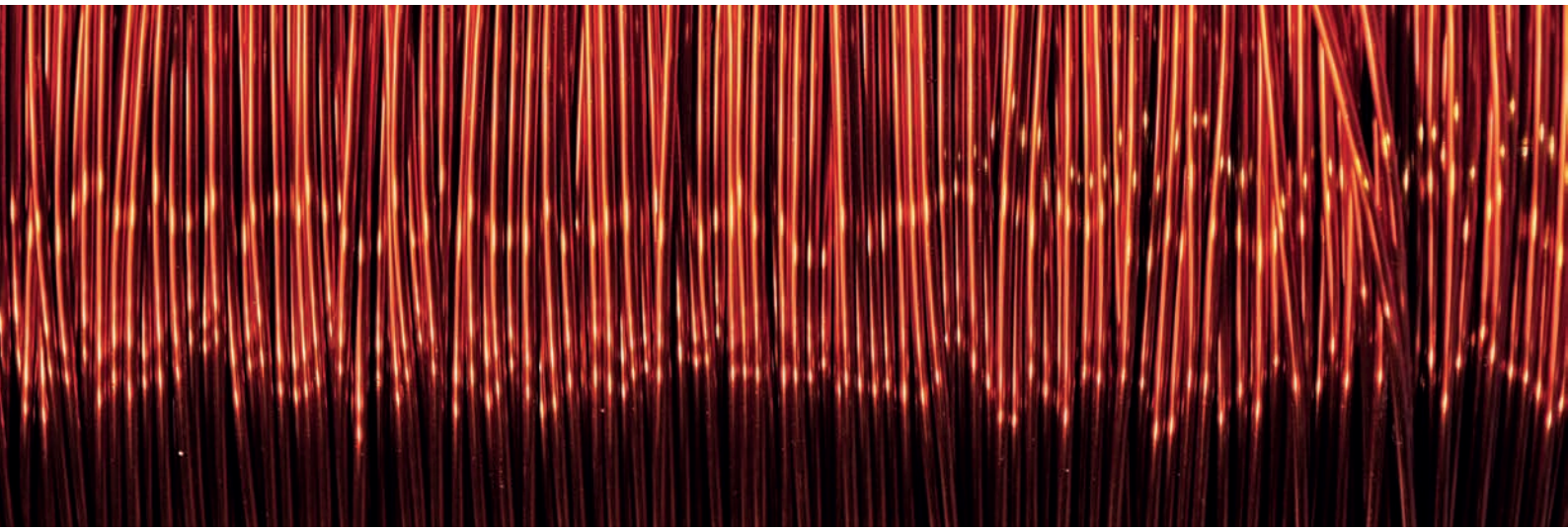
Single-phase and three-phase transformers are used as electrical isolation for reducing mains disturbances or adjusting the level of voltage coming from the grid. Autotransformers, on the other hand, with their serially-connected coils that do not provide galvanic isolation, have the function of converting one voltage to another, and, as such, are a more economical solution than transformers.

The transformers and autotransformers from Salicru's **IT series** are of the dry variety, made from low-loss magnetic plate and windings impregnated with class-H resin, and connected by means of clamp terminals or screws for pressure terminals. They can be manufactured with other voltages, regulation sockets, additional electrostatic screens, heat shields, etc., on request.

Applications: Adaptation and/or filtering of the supply voltage

Transformers are used in different types of industry, construction, energy technology and marine applications, such as electric motors, compressors, converters, cooling systems, UPSs and IT/TN networks. On the request of the customer, transformers can be manufactured for different voltages and frequencies, and feature, for example, an electrostatic screen between the primary and secondary windings, different finishes, wheels or other attachments.

And autotransformers are used for adapting the voltage of the mains supply to the voltage required to power all kinds of load and machinery.



Range

MODEL	TYPE	POWER (kVA / kW)	VOLTAGE	PRESENTATION
IT-T	Transformer	1 ÷ 100	Single-phase / Single-phase	Panel mounting
IT-T	Transformer	1 ÷ 100	Single-phase / Single-phase	Box
IT-T	Transformer	1 ÷ 300	Three-phase / Three-phase	Panel mounting
IT-T	Transformer	1 ÷ 300	Three-phase / Three-phase	Box
IT-ATR	Autotransformer	1 ÷ 300	Three-phase / Three-phase	Panel mounting
IT-ATR	Autotransformer	1 ÷ 300	Three-phase / Three-phase	Box

For other powers and versions, please enquire.

Technical specifications

MODEL		IT	
ELECTRICAL	Input/Output	Single-phase	Three-phase
	Power range	1 ÷ 100 kVA	1 ÷ 300 kVA
	Power factor	1	
	Connection group	Ii0	Dyn11(1)
INPUT	Rated voltage	100 ÷ 750 V	3 × 190 ÷ 750 V
	Rated frequency	50 / 60 Hz	
	Magnetising current	< 6 In	
OUTPUT	Rated voltage	100 ÷ 750 V	3 × 190 ÷ 750 V
	Voltage drop (100% load)	< 4%	<5%
	Frequency	50 / 60 Hz	
	Performance	> 95%	
	Short-circuit voltage	< 2.6%	<3.1%
MANUFACTURE	Insulators	Class 155 (F)	
	Windings	Class 180 (H)	
	Windings material	Aluminium	
	Impregnation	Unsaturated polyester imide resin, low emission	
	Ventilation	ANAN	
GENERAL	Operating temperature	-25ºC ÷ +40ºC (climate class C2)	
	Storage temperature	-25ºC ÷ +75ºC	
	Relative humidity	Up to 95% non-condensing	
	Maxium operating altitude	2,400 masl	
	Version	Panel mounting or metal box	
	Colour (box version)	RAL 7035	
	Eye bolts for elevation	Yes, on units weighing more than 15 kg	
	Degree of protection	IP00 panel mounted version - IP23 boxed version	
	Heat loss (100% load)	<4.5%	<5%
	Vacuum heat loss	< 1.5%	
	Isolation voltage	3000 V input/output for 1 minute	
	Terminal type	Screw terminals	
OPTIONAL	K factor	K-4 / K-13 / K-20	
	Windings material	Copper	
	Wheels	For devices in box version	
	Isolation	Class 2 (Double isolation)	
STANDARDS	Safety	EN 61558-2-4 / EN 60076-11	
	Quality and environmental management	ISO 9001 & ISO 14001	

(1) Others available on request

RE3

Electronic voltage stabilisers from 300 VA to 250 kVA

RE3: The fastest and the most accurate electronic regulation system of the market

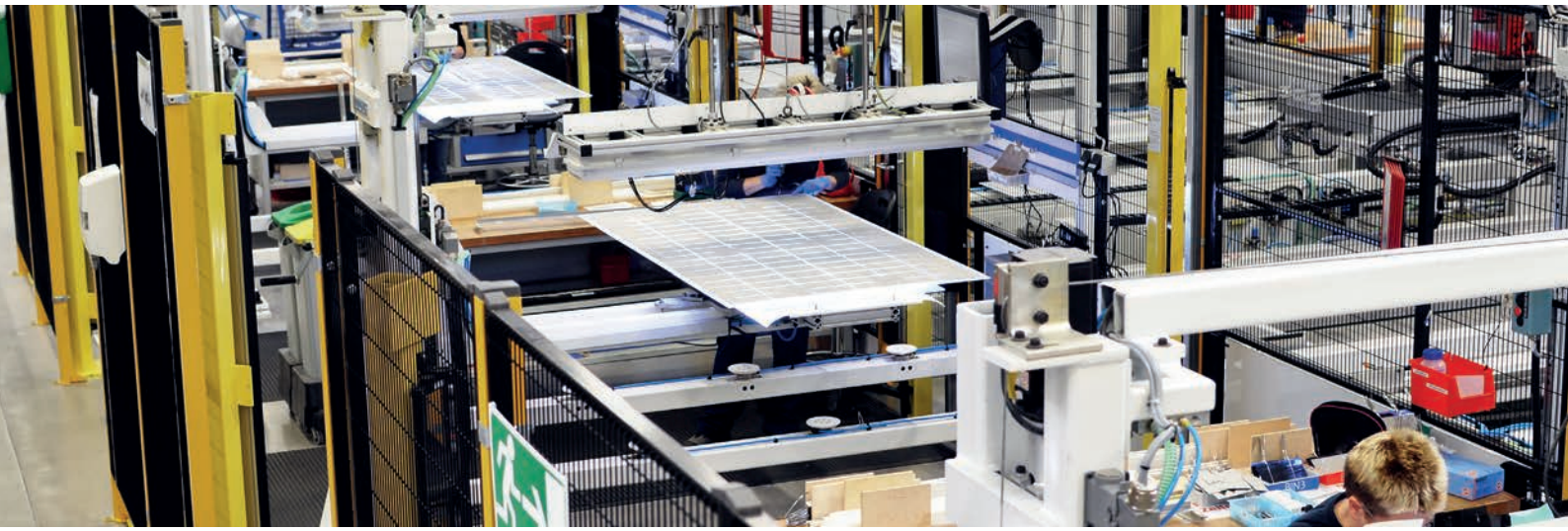
In today's electronic environment, saturated and highly unstable, where fluctuations in the power supply voltage are more than frequent, voltage stabilisers play a very important role in guaranteeing stable voltage to loads more sensitive to such variations.

The Salicru **RE** series of electronic stabilisers, based on a completely static structure of high efficiency, fast reply speed and excellent output precision, are made in single phase or three phase configuration and in a range of powers from 300 VA to 250 kVA.

The three-phase units are conceived with a completely phase-independent regulation in order to avoid possible regulation problems due to imbalance in the loads. Moreover, the units include a static bypass to guarantee the power supply in the event of a possible fault.

Applications: Assured industrial processes

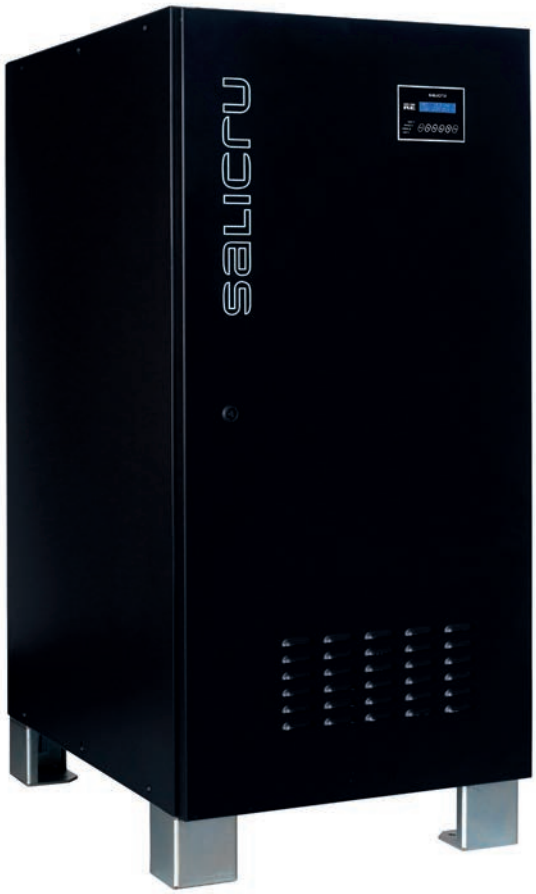
Many are the industrial processes where voltage stability is essential: from a wide range of applications where the numerical control processors and automatons are entrusted with guaranteeing the final result, up to all kinds of calculation centres, computer peripherals, transmission and communications equipment, laboratory equipment, etc.



Performances

- Power range, single and three-phase, up to 250 kVA.
- Ultra-fast regulation: reply speed under 100 ms.
- Digital control and parameters setting independent per phase.
- Entirely static structure, without moving elements, greater reliability.
- Static bypass, loads always supplied.
- In three-phase units, independent regulation per phase, immune to imbalances.
- Output precision better than ±2%.
- ±15% input regulation margins standard.
- Efficiency > 97%.
- Isolation transformer or ultra-isolation on unit output. (1)
- LCD Display, as standard, from 6 kVA single-phase or 15 kVA three-phase.
- Detection of voltage input or output (max/min) out of margins, as standard. (2)
- Comunication slot. (2)
- Overtemperature detection. (2)
- Do not introduce harmonics, or alter the power factor of the installation.
- Unaffected by line voltage harmonics; stabilisation based on true RMS.
- Stable operation in the event of load and/or voltage variations.
- Highly robust and reliable (high MTBF).
- Overvoltage surge supresion protection.
- More than 80% recyclable materials.

(1) Option
(2) For models with LCD display



Display

1. LCD 2x16 characters.
2. Navigation keys.
3. LEDs (alarm, bypass, normal operation and communications).

Options

- Relay interface.
- Manual maintenance bypass.(1)
- Protection of high-low voltage with manual or automatic reset (output voltage disconection when out of range).
- Isolation transformer (T).
- Ultra-isolation transformer (NS).
- Current transformers for measures of current, power (kVA / kW) and power factor.
- Overload protection. (1)
- Telemanagement card. (1)
- Extended communications module. (1)
- Extended ambient operating temperature from -20ºC.
- Input & output circuit breaker.

(1) Models with display

Technical support and service

- Pre-sale and after sales advisory service.
- Numerous maintenance and remote maintenance options.

Range

MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
RE-309-2	606AY000390	300	280 × 210 × 185	6
RE-609-2	606BY000390	600	280 × 210 × 185	6
RE-1009-2	606CY000390	1000	280 × 210 × 185	9
RE-2009-2	606EG000390	2000	390 × 250 × 195	19
RE-3009-2	606EY000390	3000	390 × 250 × 195	22
RE-4509-2	606FW000390	4500	460 × 300 × 220	35
RE3 M 6-2	6A3AA000001	6000	620 × 250 × 500	44
RE3 M 9-2	6A3AA000002	9000	620 × 250 × 500	58
RE3 M 12-2	6A3AA000003	12000	590 × 340 × 580	67
RE3 M 15-2	6A3AA000004	15000	590 × 340 × 580	69
RE3 M 20-2	6A3AA000005	20000	590 × 340 × 580	103
RE3 M 25-2	6A3AA000006	25000	590 × 340 × 580	127
RE3 M 30-2	6A3AA000007	30000	590 × 340 × 580	154
RE3 M 40-2	6A3AA000008	40000	590 × 340 × 580	170
RE3 M 50-2	6A3AA000009	50000	590 × 340 × 580	186

230 V 50 Hz input / 230 V 50 Hz output and ± 15% input range. For models with isolation transformer and other configurations, consult. Others powers upon request.

MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
RET 3-4	606EY050390	3000	680 × 340 × 240	32
RET 6-4	606GU050390	6000	680 × 340 × 240	61
RET 9-4	606IA050390	9000	630 × 390 × 520	68
RE3 T 15-4	6A3BA000001	15000	905 × 460 × 705	80
RE3 T 20-4	6A3BA000002	20000	905 × 460 × 705	117
RE3 T 30-4	6A3BA000003	30000	905 × 460 × 705	164
RE3 T 45-4	6A3BA000004	45000	905 × 460 × 705	225
RE3 T 60-4	6A3BA000005	60000	905 × 460 × 705	260
RE3 T 75-4	6A3BA000006	75000	850 × 615 × 1315	317
RE3 T 100-4	6A3BA000007	100000	850 × 615 × 1315	343
RE3 T 125-4	6A3BA000018	125000	850 × 615 × 1315	438
RE3 T 150-4	6A3BA000015	150000	850 × 615 × 1315	650
RE3 T 200-4	6A3BA000016	200000	850 × 815 × 2115	850
RE3 T 250-4	6A3BA000050	250000	850 × 815 × 2115	1050

3 x 400 V 50 Hz input / 3 x 400 V 50 Hz output and ± 15% input range. For models with isolation transformer and other configurations, consult. Others powers upon request

Dimensions

RE3 M 6/9-2

RE3 T 75÷150-4

RE3 T 200/250-4

Technical specifications

MODEL		RE3
INPUT	Single phase voltage	120 V, 220 V, 230 V, 240 V
	Three-phase voltage	3 × 208 V / 3 × 220 V / 3 × 380 V / 3 × 400 V / 3 × 415 V (3F + N) (1)
	Regulation range	±15% (2)
	Frequency range	47.5 ÷ 63 Hz
OUTPUT	Single phase rated voltage	120 V, 220 V, 230 V, 240 V
	Three-phase rated voltage	3 × 208 V / 3 × 220 V / 3 × 380 V / 3 × 400 V / 3 × 415 V (3F + N) (1)
	Accuracy	Better than ± 2%
	Total harmonic distortion (THDv)	Nil
	Frequency	48 ÷ 63 Hz
	Response time	<100 ms
	Performance	> 97%
	Admissible overloads	200% for 1 minute
BYPASS	Type	Static
GENERAL	Ambient temperature	-10° C ÷ + 45° C (2)
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2400 m.a.s.l.
	Cooling	Natural or forced depending on power rate
	Acoustic noise at 1 metre	< 45 dB(A)(3)
	Mean time between failures (MTBF)	60,000 hours
	Mean time to repair (MTTR)	30 minutes
	Electrical noise attenuation on common mode	With isolation transformer > 40 dB / With ultra-isolation transformer > 120 dB
STANDARDS	Safety	IEC 62103
	Electromagnetic compatibility (EMC)	EN-61000-6-4; EN-61000-6-2
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Ask for other setting
(2) Other ranges under request
(3) <65 dB(A) for models with forced ventilation

EMi3

Servomotor voltage stabiliser 5 kVA - 1300 kVA

EMI3: Constant stabilisation and savings in overvoltages

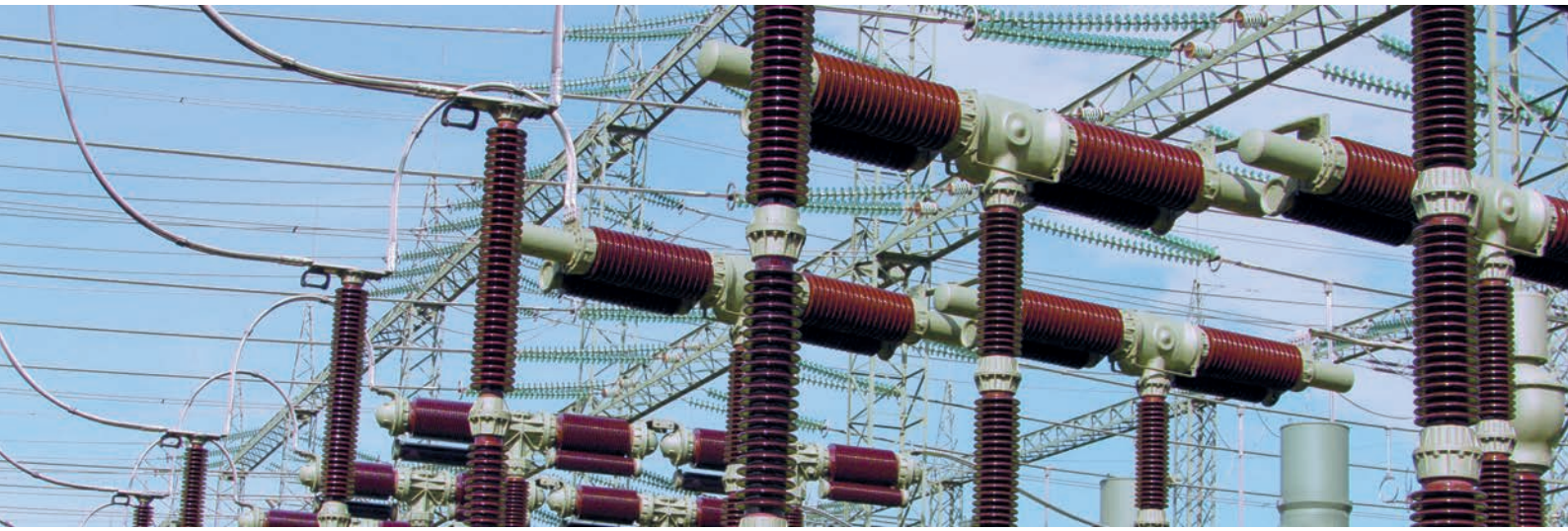
Issues such as the constant variation of loads connected to the mains, interference generated by the loads themselves, possible failures in distribution lines, voltage drops due to the length of the lines and problems caused by lightning make it impossible to have an electricity supply with a stable voltage. Salicru's **EMi3** servomotor voltage stabilisers are the ideal solution to protect sensitive equipment from constant voltage fluctuations in the power supply.

Moreover, in the event of drops in the total consumption of a power line, voltage tends to rise, causing overconsumption in the equipment that remains connected. By using a stabiliser, overconsumption can be eliminated, thereby producing significant cost savings and ensuring that connected loads function within the voltage range for which they were designed.

The operating principle is based on regulation, by means of a control circuit, of the variable autotransformer that supplies the voltage for the booster transformer in series, either in phase or in phase opposition, to achieve the rated value of the output voltage.

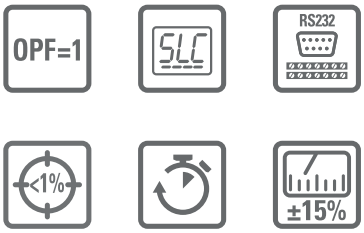
Applications: Effective protection for all types of critical load

Actions and operations in electrical substations, electric ovens, numerical controls, lifts, graphic printing equipment, production lines, medical equipment, TV repeater stations, machine tools (milling machines, trimming machines, presses, lathes, polishing machines, electrical discharge machines, etc.) are some of the applications, because of their power, extremely reactive nature and high sensitivity to voltage variations.



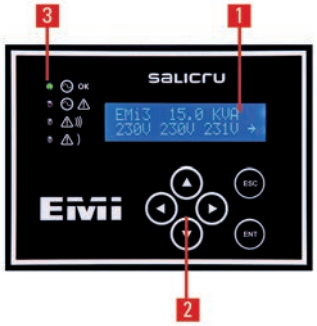
Performances

- Power range, single and three-phase, up to 1300 kVA.
- Fast and efficient toroidal autotransformers for the entire power range.
- Output accuracy better than 1% (adjustable).
- In three-phase units, independent regulation per phase, unaffected by imbalances.
- Input regulation range ±15% standard.
- High efficiency, up to 97.5%.
- High speed regulation, up to 70 V/s.
- Full LCD display for stabiliser control and monitoring.
- Guaranteed output stability through a MosFET servo control.
- Unaffected by line voltage harmonics; stabilisation based on true RMS.
- Stable operation in the event of load and/or voltage variations.
- Wide operating temperature range (-10°C to +55°C).
- Dry contact interface (2 standard and up to 11 optional).
- No harmonics injection.
- Mechanically-optimised design, easier maintenance.
- Transient overloads of up to 1000% of the rated admissible.
- Highly robust and reliable (high MTBF).
- Quiet operation.
- Overvoltage surge supresion protection.
- More than 80% recyclable materials.



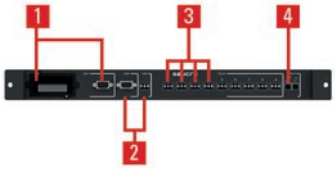
Display

1. LCD 2x16 characters.
2. Navigation keys.
3. LEDs (alarm, bypass, normal operation and communications).



Communications

1. Slot for remote management or RS-232 interface.
2. RS-485 serial ports. MODBUS communications protocol.
3. Programmable dry contact interface (x5).
4. Digital input.



Options

- Output current, power and overload measurement.
- Maximum and minimum output voltage protection.
- Manual and automatic bypass.
- Overload contactor.
- Communications and relay module.
- Other regulation ranges.
- Galvanic isolation transformer.
- Output circuit breaker.
- Extended ambient operating temperature from -20ºC.

Range

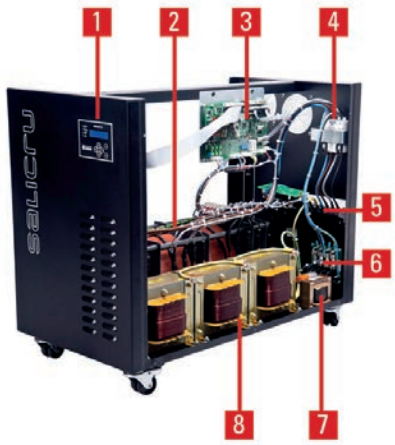
MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
EMi3 M 5-2	6A5DA000001	5000	580 × 340 × 580	45
EMi3 M 7,5-2	6A5DA000002	7500	580 × 340 × 580	59
EMi3 M 10-2	6A5DA000003	10000	580 × 340 × 580	60
EMi3 M 15-2	6A5DA000004	15000	895 × 460 × 705	115
EMi3 M 20-2	6A5DA000005	20000	895 × 460 × 705	119
EMi3 M 25-2	6A5DA000006	25000	895 × 460 × 705	196
EMi3 M 30-2	6A5DA000007	30000	895 × 460 × 705	209
EMI3 M 40-2	6A5DA000008	40000	895 × 460 × 705	325
EMI3 M 50-2	6A5DA000009	50000	640 × 604 × 1315	450

Nomenclature, dimensions and weights for models: Input 230 V 50 Hz / Output 230 V 50 Hz and input range +/-15%.
Others powers and/or other input ranges on request.

MODEL	CODE	POWER (VA / W)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
EMI3 T 15-4F	6A5FA000002	15000	895 × 460 × 705	131
EMI3 T 20-4F	6A5FA000003	20000	895 × 460 × 705	174
EMI3 T 35-4F	6A5FA000004	35000	895 × 460 × 705	229
EMI3 T 55-4F	6A5FA000005	55000	640 × 604 × 1315	379
EMI3 T 70-4F	6A5FA000006	70000	640 × 604 × 1315	500
EMI3 T 90-4F	6A5FA000007	90000	840 × 604 × 2115	538
EMI3 T 110-4F	6A5FA000008	110000	840 × 604 × 2115	582
EMi3 T 140-4F	6A5FA000009	140000	840 × 604 × 2115	857
EMi3 T 175-4F	6A5FA000010	175000	840 × 1204 × 2115	1159
EMi3 T 220-4F	6A5FA000011	220000	840 × 1204 × 2115	1227
EMi3 T 275-4F	6A5FA000012	275000	840 × 1204 × 2115	1298
EMi3 T 330-4F	6A5FA000013	330000	840 × 1204 × 2115	1450
EMI3 T 375-4F	6A5FA000016	375000	840 × 1604 × 2115	1642
EMI3 T 450-4F	6A5FA000022	450000	840 × 1604 × 2115	1870
EMI3 T 500-4F	6A5FA000023	500000	840 × 1604 × 2115	2820
EMI3 T 600-4F	6A5FA000024	600000	840 × 1604 × 2115	3600
EMI3 T 800-4F	6A5FA000025	800000	840 × 3204 × 2115	3900
EMI3 T 1000-4F	6A5FA000026	1000000	840 × 3204 × 2115	4350
EMI3 T 1300-4F	6A5FA000027	1300000	840 × 3204 × 2115	5610

Nomenclature, dimensions and weights for models: Input 3x400 V 50 Hz / Output 3x400 V 50 Hz, input range +/-15% and independent regulation per phase.
Others powers and/or other input ranges on request.

Connections



1. Display LCD
2. Variable autotransformer
3. Control PCB
4. Input protection
5. Input and output terminals
6. Surge protection
7. Motor supply transformer
8. Booster transformer

Technical specifications

MODEL		EMi3
INPUT	Single phase voltage	120 / 220 / 230 / 240 V
	Three-phase voltage	3x208 / 3x220 / 3x380 / 3x400 / 3x415 V (3F+N)(1)
	Regulation range	±15%(2)
	Frequency range	47.5 ÷ 63 Hz
OUTPUT	Single phase rated voltage	120 / 220 / 230 / 240 V
	Three-phase rated voltage	3x208 / 3x220 / 3x380 / 3x400 / 3x415 V (3F+N) (1)
	Accuracy	± 3% (adjustable between 1% ÷ 5%)
	Output voltage setting	± 10%
	Total harmonic distortion (THDv)	<0.2%
	Frequency	48 ÷ 63 Hz
	Regulation speed	Up to 70 V/s
	Performance	Between 96.5% and 97.5%
	Voltage disconnection value	Adjustable (3)
	Admissible overloads	Up to 200% for 20 s
	Possible load variation	0 ÷ 100%
	Power factor influence	Independent
COMMUNICATION	Ports	2 Dry contacts / RS-232 (4)
	Intelligent slot	One (4)
INDICATIONS	Type	LCD display (2x16 characters) + 4 status LEDs
GENERAL	Ambient temperature	-10° C ÷ +55° C(2)
	Storage temperature	-20° C ÷ +85° C
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 m.a.s.l.
	Cooling	Natural or forced depending on power rate(5)
	Acoustic noise at 1 metre	<45 dB(A)(6)
	Mean time between failures (MTBF)	60,000 hours
	Mean time to repair (MTTR)	30 minutes
STANDARDS	Safety	IEC-62103
	Electromagnetic compatibility (EMC)	EN-61000-6-4; EN-61000-6-2
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Ask for other settings
(2) Other ranges available on request
(3) With optional voltage maximum-minimum
(4) Mutually exclusive ports
(5) Forced from 20 kVA for single phase and 55 kVA for three-phase
(6) <65 dB(A) for models with forced ventilation

ILUEST+CR

Lighting flow dimmer-stabiliser

ILUEST+CR: Regulation + Telemanagement = Saving

With today's modern street lighting systems, it's not enough to reduce the voltage to supply the lamps to obtain energy savings. The criteria are different nowadays and the requirements have increased in accordance with the growth of street lighting. Applying the most advanced technology possible is needed as well as telemanagement, monitoring and parameterisation of the complete block of units in order to guarantee the sustainability of the lighting system.

The **ILUEST+CR** series of advanced lighting flow dimmer-stabilisers from Salicru, takes over from its highly successful and field-tested predecessor, has vast improvements in critical aspects of modularity, power density, protection and telemanagement. As a result, greater flexibility in areas of power growth, maintenance, commissioning and equipment integration can be better realized along with superior reliability and shorter payback periods.

The **ILUEST+CR** series is available in a wide range of powers, has 3 implementation variants - indoor, outdoor and OEM Kit - and several possibilities of monitoring. Used in conjunction with our powerful telemanagement technology, the ILUEST+CR is now the state-of-the-art reference in lighting regulation and control.

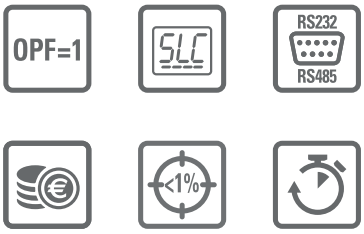
Applications: Lighting savings and management

The **ILUEST+CR** is suitable for use in many areas, both industrial and commercial e.g. roads and highways, road bridges & tunnels, airports, hospitals, commercial centres, ports, railroads, car parks and many more. The superior supervisory and remote control capability of the **ILUEST+CR** will result in the better and more efficient management of lightings, regardless of their applications.

As an example, our studies have shown that a town of 10,000 inhabitants with 1,700 public lighting points would consume an average of 1,210 MW of electricity per year. By using just 20 units of the **ILUEST+CR** rated 20 kVA each, potential annual savings of 490 MW can be realized, translated to 270 Tm less CO2 to the atmosphere.

Performances

· Bi-directional 'Buck' converter with IGBTs, electronic, static and transformerless.
· Continuous regulation of the output voltage, no voltage steps; higher lamp lifetime.
· Lineal and programming ramps.
· High response time.
· Stabilisation better than ± 1% + saving voltage periods = savings > 40%.
· LCD display, as standard.
· Protections with automatic programming rearm due to overload and overtemperature.
· Protections with fuses (1) and against lightning arrestors.(2)
· Automatic bypass per phase, independent operating, manual operating (3), active by default and break before make.
· RS-232 port + MODBUS protocol, as standard.
· Telemanagement card built in completely.(4)
· Duty cycle adapted to the warm up curve of the lamp.
· Programming of two saving levels and start voltage via LCD display.
· Average payback of the investment between 6 and 24 months.(5)
· Low weight and dimensions, higher power density.
· No harmonic injection to mains.
· SLC Greenergy solution.

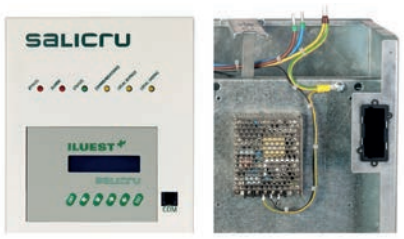


(1) In the equipment.
(2) MOV (Metal Oxid Vasistor).
(3) Through stated input or keypad.
(4) In frontal slot provided for this purpose.
(5) Estimated 0.09 €/kWh rate.

Monitoring

All of the units, regardless of the format, include synoptic panel as standard, comprised of:

· **LCD panel**: It provides input / output voltages, frequency, load and saving percentage levels, output currents, active power, apparent power, power factor, load type and temperature. It includes timer, astronomical clock and event data logger.
· **Communication ports**: RS-232 via RJ-45 connector for local PC monitoring.
· **MODBUS protocol**.



Options

· External or internal manual bypass.
· GSM/GPRS modem.
· Telemanagement card.
· Digital I/O card (digital inputs and outputs).
· Atmospheric gas discharger.

Technical support and service

· Customized studies and simulations of the saving and payback.
· Extended warranties (under request).
· Multiple formulae of maintenance and telemaintenance.

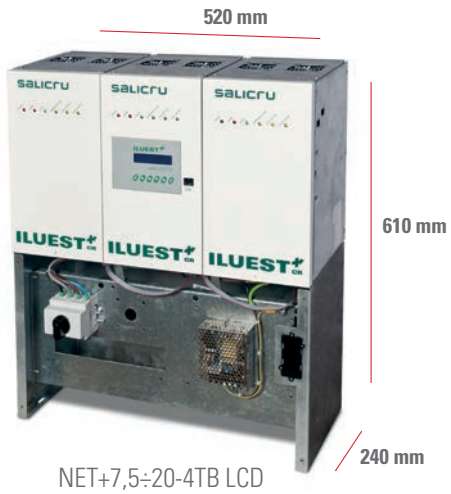
Range

MODEL KIT OEM	CODE	POWER (kVA)	NO. MODULES	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
KIT NET+ 7,5-4-LCD	657BA000001	7.5	3	172 × 172 × 310	11
KIT NET+ 10-4-LCD	657BA000002	10	3	172 × 172 × 310	11
KIT NET+ 15-4-LCD	657BA000003	15	3	172 × 172 × 310	12
KIT NET+ 20-4-LCD	657BA000004	20	3	172 × 172 × 310	12

MODEL INDOOR	CODE	POWER (kVA)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
NET+ 7,5-4TB LCD	657AA000056	7.5	240 × 520 × 610	29
NET+ 10-4TB LCD	657AA000057	10	240 × 520 × 610	30
NET+ 15-4TB LCD	657AA000058	15	240 × 520 × 610	31
NET+ 20-4TB LCD	657AA000059	20	240 × 520 × 610	33

Nomenclature, dimensions and weight for models: 3x400 V / 50 Hz input/output.
For models with outdoor implementation, consult.

Dimensions



NET+7,5÷20-4TB LCD

Implementations

Indoor version

Outdoor version

KIT OEM

Technical specifications

MODEL		ILUEST+CR
TECHNOLOGY		Bidirectional 'Buck' converter with IGBTs, electronic, static and transformerles
INPUT	Rated voltage	230 V / 3 × 400 V
	Regulation range	+ 25% / - 7% nominal voltage; + 25% / - 17% saving voltage HPSV; + 25% / - 10% saving voltage MV/MH
	Rated frequency	48 ÷ 65 Hz
	Module protection	Input/output fuses / electronic for temperature, overload
	Protection for phase	Fuse
OUTPUT	Rated voltage	Adjustable 215 V to 230 V (220 V as standard)
	Accuracy	Better than ± 1%
	Soft start voltage	Preselectable (1) and adjustable
	Saving voltage	Adjustable 180 V to 210 V
	Speed ramp setting	From 1 V/minute to 6 V/minute
	Response time	< 40 ms
	Regulation	Linear and independent per phase
	Performance	96% ÷ 98%
	Phase unbalancing	100% permissible
	Permissible overload	Through LCD panel or via telemanagement card communication
	Admissible overloads	150% for 30 seconds; 120% for > 1 minute
BYPASS	Type	No break
	Features	Automatic, reversible, independent per phase, independent operating, input for manual activation
	Activation criteria	Overtemperature, overload, fault, output fault, manual activation
	Rearm	Automatic by alarm cancelling. Quantity of retries: 5; time between retries: 2 minutes
COMMUNICATION	Ports	RS-232 and RS-485 (2)
	Monitoring	Telemanagement card(2)
GENERAL	Operating temperature	– 20° C ÷ + 55° C (3)
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 m.a.s.l.
	Acoustic noise at 1 metre	<48 dBA (with typical load)
	Mean time between failures (MTBF)	60,000 hours
	Mean time to repair (MTTR)	30 minutes
IMPLEMENTATIONS	Indoor	Modules built in assembling base (chassis of sheeted steel at carbon cold with drills to fix to the wall)
	Outdoor	Indoor built in a poylester cabinet
	OEM kit	Modules + Supports + Control wiring + Power Supply
STANDARDS	Safety	UNE AENOR EA 0032:2007
	Electromagnetic compatibility (EMC)	IEC 62041
	Operation	UNE AENOR EA 0033:2007
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Depending on type of lamp
(2) Optional
(3) 4% power derating per each degree over 45ºC

ILUEST+MT

Lighting flow dimmer-stabilisers

ILUEST+MT: Savings as always with extra control

It is undeniable that regulating street lighting is a common practice for most city governments and the entities responsible for their maintenance as, without a doubt, it leads to obvious significant financial benefits. Moreover, the monitoring and control requirements related to the systems have notably increased in recent times with a demand for more and better remote maintenance and monitoring tools for the units and lighting panels that produce tangible improvements in terms of the quality and optimised management.

Salicru **ILUEST+MT** series is a next generation lighting flow dimmer-stabiliser designed to optimise the control and management of today's street lighting systems, taking communication capability to a higher level: 1) lighting control via an astronomical clock built into the LCD panel, as a standard, and lighting control in the feeder pillar, and 2) complete telemanagement of a block of units via web interface using an optional card and a GSM/GRPS model, all governed by the control software.

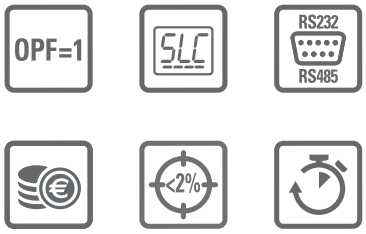
Applications: Affordable energy efficiency for lighting

All of these, from urban street lighting (avenues, streets, roads, ring roads, roundabouts, bridges, etc.) to lighting in industrial areas, shopping centres, car parks, hospitals, ports, railway stations or airports, can benefit from the advantages given by the **ILUEST+MT** in such important aspects as rationality in light levels, maintenance and telemaintenance of the installations and electrical consumption.

Performances

· Electronic lighting flow adjustment by static elements and next generation microprocessor control.
· Entirely independent adjustment per phase.
· Automatic bypass per phase, independent operation, manually operation and active by default.
· Protection with automatic programming rearm due to overload and overtemperature.
· LCD display with astronomical clock, time programmer and relay to control lighting line head, as standard.
· Efficiency > 97%.
· Instantaneous stabilisation in all operating states.
· Suitable for all kinds of discharge lamps (including metal halide).
· Fine adjustments of all voltage levels and output precision improved by ± 2%.
· Selectable start-up voltage.
· Two levels of saving adjustable via LCD display.
· Significant increase in the life span of the lamps.
· Savings of over 40%.
· Easy installation alongside the feeder pillar or inside it.
· Average payback of the investment between 6 and 24 months.(2)
· SLC Greenergy solution.

(2) Estimated 0.09 €/kWh rate



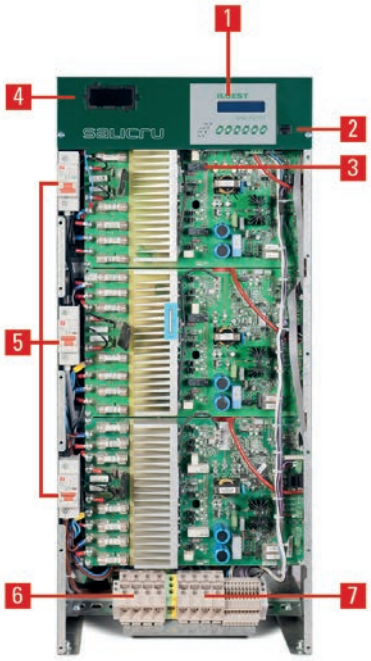
Options

· Telemanagement card.
· GSM/GPRS modem.
· Manual bypass to electrically isolate the unit during maintenance work.
· Automatic bypass by contactors, per phase or common.
· Atmospheric gas discharger.
· Digital I/O card.

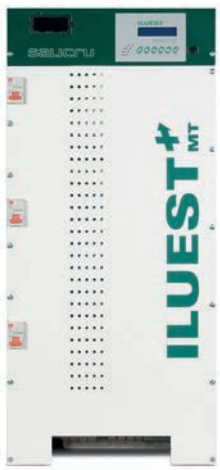
Technical support and service

· Customized studies and simulations of the saving and payback.
· Extended warranties (under request).

Connections



1. Control panel with swivel mount LCD.
2. Communication BUS connector with control panel.
3. RS-232 interface.
4. Slot for telemanagement card (option).
5. Input circuit breaker switch.
6. Output terminals.
7. Input terminals.



Range

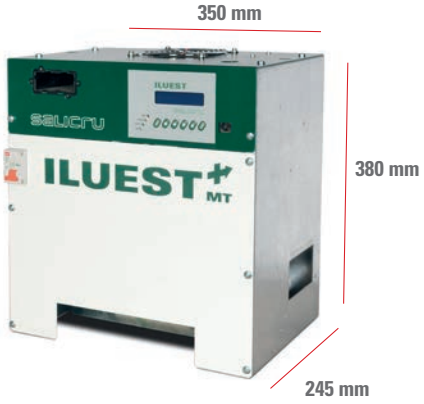
INDOOR	CODE	POWER (kVA)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
NA+ 3.5-2	692BA000000	3.5	245 × 350 × 380	42
NA+ 5-2	692BA000001	5	245 × 350 × 380	43
NA+ 7,5-2	692BA000002	7.5	245 × 350 × 380	45
NA+ 10-2	692BA000003	10	245 × 350 × 380	46
NA+ 15-2	692BA000004	15	245 × 350 × 380	50
NA+ 20-2	692BA000005	20	245 × 350 × 380	67

Nomenclature, dimensions and weight for models: 230 V / 50 Hz input/output.
For models with outdoor implementation, consult.

INDOOR	CODE	POWER (kVA)	DIMENSIONS (D × W × H mm)	WEIGHT (Kg)
NAT+ 7.5-4	692BA000006	7.5	245 × 350 × 800	60
NAT+ 10-4	692BA000007	10	245 × 350 × 800	80
NAT+ 15-4	692BA000008	15	245 × 350 × 800	81
NAT+ 20-4	692BA000009	20	245 × 350 × 800	82
NAT+ 25-4	692BA000010	25	245 × 350 × 800	90
NAT+ 30-4	692BA000011	30	245 × 350 × 800	95
NAT+ 45-4	692BA000012	45	245 × 350 × 800	139
NAT+ 60-4	692BA000013	60	355 × 350 × 1100	181
NAT+ 80-4	692BA000014	80	355 × 350 × 1100	204
NAT+ 100-4	692BA000015	100	350 × 800 × 1070	214
NAT+ 120-4	692BA000016	120	350 × 800 × 1070	225

Nomenclature, dimensions and weight for models: 3x400V / 50 Hz output.
For models with outdoor implementation, consult.

Dimensions



NA+3.5÷20-2

NAT+7.5÷45-4

NAT+60/80-4

Technical specifications

MODEL		ILUEST+MT
TECHNOLOGY		Static and electronic regulation by microprocessor control
INPUT	Rated voltage	120 V, 220 V, 230 V, 240 V / 3 × 208 V, 3 × 220 V, 3 × 380 V, 3 × 400 V, 3 × 415 V (3Ph + N) (4)
	Regulation range	+ 33% / - 8% nominal voltage; + 4% / - 29% saving voltage HPSV; + 10% / - 24% saving voltage MV/MH
	Rated frequency	48 ÷ 63 Hz
	Protection for phase	Single pole MCB
OUTPUT	Rated voltage	120 V, 220 V, 230 V, 240 V / 3 × 208 V, 3 × 220 V, 3 × 380 V, 3 × 400 V, 3 × 415 V (3Ph + N) (4)
	Accuracy	Better than ± 2%
	Soft start voltage	Preselectable (1) and adjustable
	Saving voltage	180 V (fase-neutro) ajustable para VM, VSAP, HM y fluorescencia
	Speed ramp setting	From 1 V/minute to 6 V/minute
	Response time	< 100 ms.
	Regulation	Independent per phase
	Performance	> 97%
	Phase unbalancing	100% permissible
	Permissible overload	Through LCD panel or via telemanagement card communication
	Admissible overloads	150% for 30 seconds; 120% for > 1 minute
BYPASS	Type	Static
	Features	Automatic and independent per phase
	Activation criteria	Overtemperature, overload, fault, output fault, manual activation
	Rearm	Automatic by alarm cancelling. Quantity of retries: 5; time between retries: 2 minutes
COMMUNICATION	Ports	RS-232 and RS-485 (2)
	Monitoring	Telemanagement card (2)
GENERAL	Operating temperature	- 40º C ÷ + 55º C (3)
	Relative humidity	Up to 95%, non-condensing
	Maxium operating altitude	2,400 m.a.s.l.
	Acoustic noise at 1 metre	< 35 dBA
	Mean time between failures (MTBF)	60,000 hours
	Mean time to repair (MTTR)	30 minutes
IMPLEMENTATIONS	Indoor	Modules built in assembling base (chassis of sheeted steel at carbon cold) with drills to fix to the floor
	Outdoor	Indoor built in a poylester cabinet
STANDARDS	Safety	EN-60950-1
	Electromagnetic compatibility (EMC)	EN-61000-6-2; EN-61000-6-3
	Operation	UNE AENOR EA 0033-2007
	Quality and environmental management	ISO 9001 & ISO 14001

(1) Depending on type of lamp
(2) Optional
(3) 4% power derating per each degree over 45ºC
(4) Ask for other settings

BACS

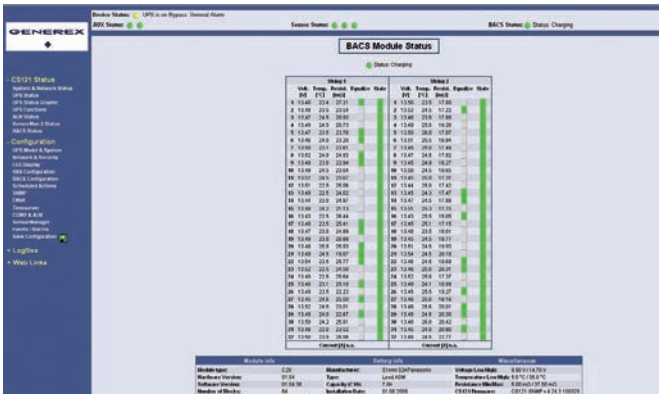
Battery analysis and care system

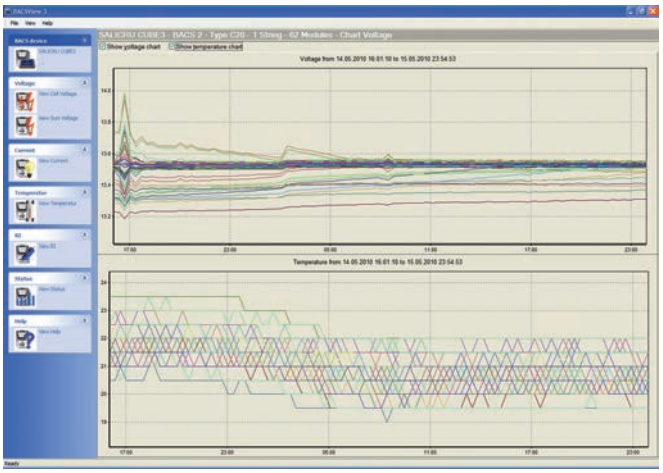
BACS: the 3rd generation of the battery management system

Monitoring, regulation and alarm system for lead-acid batteries. Ensuring full battery system operability, preventing unexpected or unnoticed faults caused by defective batteries, extending the lifetime of the batteries and helping to presence system reliabitily.

The 3rd generation of the Battery Analysis and Care System, **BACS**, is a network-integrated battery monitoring and management system. It regularly checks the internal resistance, temperature and voltage of each individual battery. It is also possible to adjust the charging voltage of each battery and manage environmental measurements (temperature, humidity, hydrogen gas content) and applications (UPS systems, rectifiers, DC systems, inverters and other devices). This ensures that the batteries always remain in optimum operating conditions. The system's ability to constantly monitor and individually control the charging voltages for each battery ensures battery availability at all times - making the so-called Achilles heel of UPS systems (or any other power device) a thing of the past.

BACS is suitable for all lead-based (AGM, gel, sealed and open lead-acid), nickel-based and lithium-ion batteries.

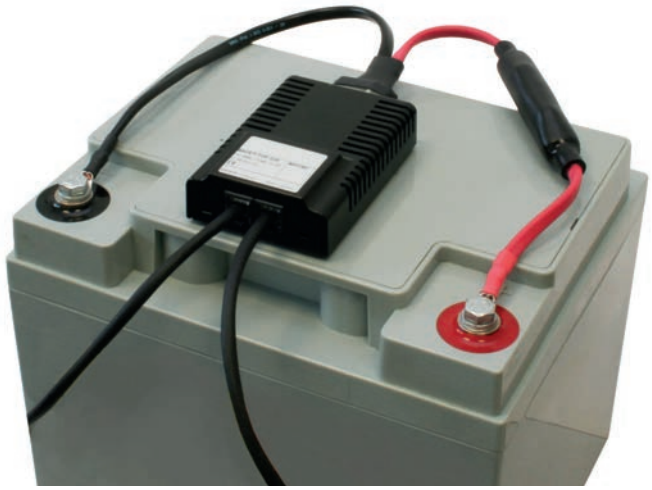


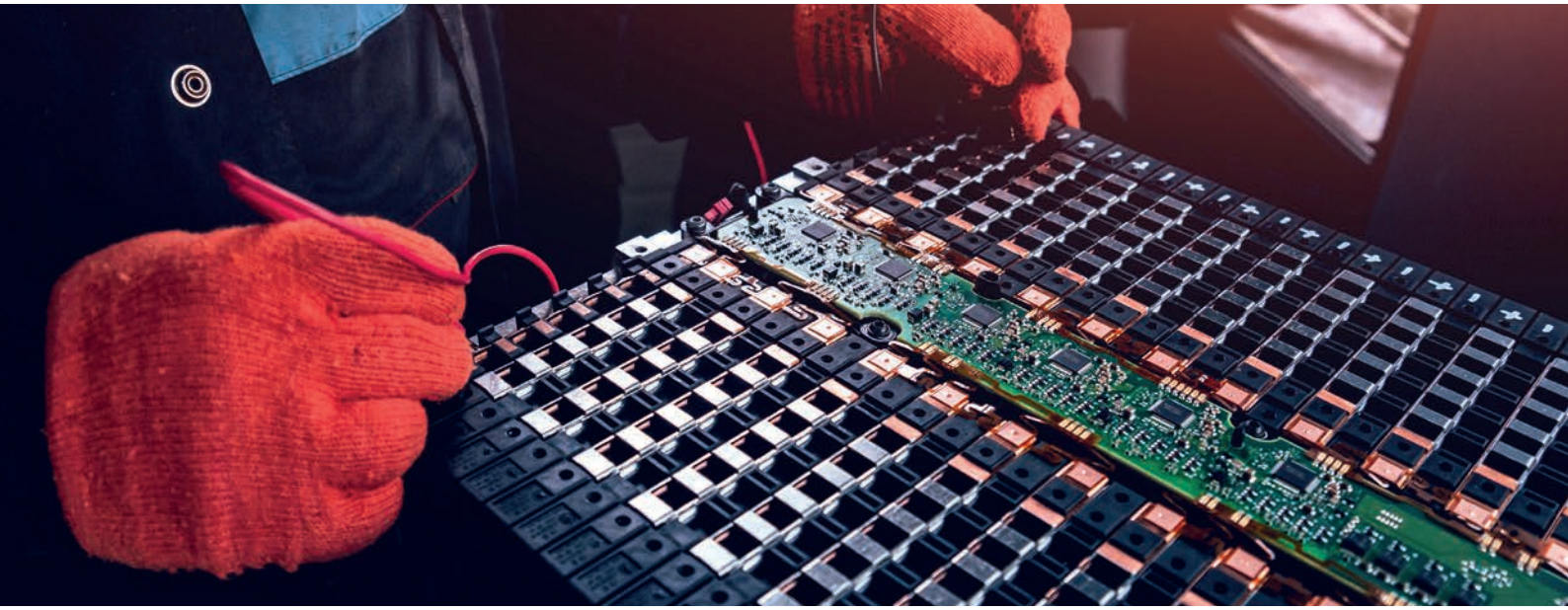


Monitoring software

Technology

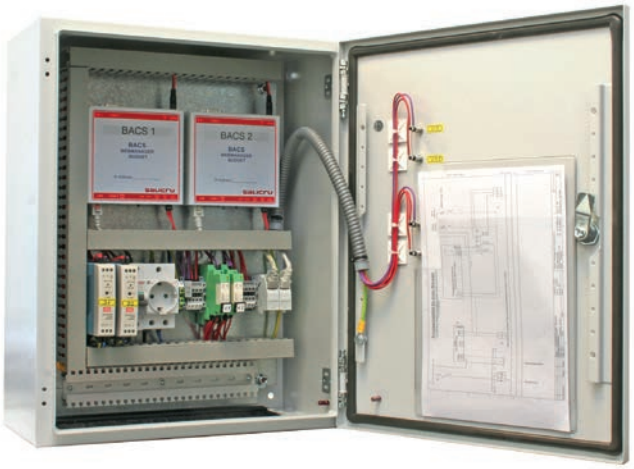
· The system is designed to monitor and control batteries individually or in battery blocks, providing a symmetrical charging process.
· Individual voltage regulation: even distribution of the voltage supplied by the charger.
· Protection against any unexpected individual overcharging (gassing), drying out or full discharge of batteries.
· Sulphation problems are prevented through visualisation and communication of sulphation levels.
· Protection for nearby batteries against charging voltage faults in one battery.
· Through its equalising system, it ensures optimum capacity for battery systems throughout their lifetimes.
· Intensive and comprehensive analysis in one battery of the power supply system.
· Available for sealed lead batteries (2, 6, 12 and 16 V) and Ni-Cd, Ni-MH, lithium-ion batteries (1.2 to 3 V) with capacities ranging from 7 Ah to 5000 Ah.





Advantages

· Increased durability and battery pack capacity.
· Replacement of full battery packs as a precautionary measure is not necessary.
· Batteries can be used up until the end of their useful lives.
. Costly monitoring and maintenance routines are no longer required.
· Unexpected or unnoticed battery faults are avoided.
· Optimisation of battery capacity.
· Cheaper monitoring per battery.



Technical specifications

MODEL	WEBMANAGER
PROCESSOR AND MEMORY	32-Bit RISC processor, 32 MB storage / 64 MB RAM
POWER CONSUMPTION	At 24 V / 100 mA for BACS module +10 mA
INTERFACE	3 x RS-232 interfaces, including 1 for the battery bus 1 x RJ10 for the battery bus converter 1 battery bus converter included 1 x RJ45, 10/100 Mbit Ethernet connector
DIMENSIONS	Housing: 69 x 30 x 126 mm (L x W x H) Card: 60 x 20 x 130 mm (L x W x H) (slot format)
WEIGHT	Housing: 110 g Card: 90 g
TEMPERATURE	0-60°C, maximum humidity 90% non-condensing

MODEL	BATTERY MODULE
POWER CONSUMPTION	30 mA en modo normal < 8 mA en Modo Sleep (Rev 1.4) < 1 mA en Modo Sleep (Rev 1.6)
MEASUREMENT TOLERANCE	Internal resistance <10% Voltage <0.1% Temperature <5%
INTERFACES	2 x RJ10 for BACS battery bus Internal RS-232 interface 1 x button for addressing Temperature sensor -10 to 100°C Measurement value (depending on type) 1.3V - 16V LED display (green LED)
HOUSING	ABS housing (UL certified, cooling by non-flammable fins)
DIMENSIONS	80 x 55 x 27 mm (L x W x H)
WEIGHT	75 g
TEMPERATURE	0-60°C, maximum humidity 90% non-condensing
PROTECTION DEGREE	IP30

Webmanager

- **BACS** WEBMANAGER manages up to 330 BACS modules in 10 series/strings of batteries.
- Each battery is managed individually.
- The power supply voltage range is 9-30 V.
- It fully replaces the UPS' SNMP adapter.
- Simple DIN rail installation.
- Relay alarms for use in the network.

Battery modules

- Individual monitoring of batteries in a 7 to 5000 Ah range.
- Pb-Ca batteries: 2, 6, 12 and 16V.
- Ni-Cd, Ni-MH, Litium- Ion batteries: 1.2 to 3V.
- "Equalising" principle: even distribution of charging voltage across all batteries, up to 150 mA for each one.
- Efficient uniformity of voltage levels in batteries of up to 300 Ah.
- Minimal heat dissipation at the highest voltage regulation.

Technical specifications

MODELO	BUS CONVERTER 2 (standard)
CONSTRUCTION	Conversion and galvanic separation of the BACS battery bus to the WEBMANAGER
POWER CONSUMPTION	Wall wart 12 V/ 800 mA (default for up to 160 modules) Optional 12 V/ 1400 mA for up to 256 modules
INTERFACES	2 x RJ10 for BACS battery bus 1 x RJ12 for COM3 of the WEBMANAGER 1 x MiniDin8 interface/RS-232 for serial connection to PC For CONVERTER 3, an adapter is required (see below) 1 x DC connector for mains power supply

MODEL	BUS CONVERTER 3 (optional)
CONSTRUCTION	The same as CONVERTER 2, but with an additional LED display, acoustic alarm with acknowledge button and potential-free contacts (2-pole screw terminals for maximum 1 mm² cross section, 125 Vac, 60 Vdc and 1 A). Also included is a second RJ10 bus for the BACS battery bus (ring)
OPCIONAL	Adapter from mini-8 to RS-232 with 1.5 m mini-8 connection cable
HOUSING	Grey polystyrene housing
DIMENSIONS	Measurements: 91.5 x 67 x 25 mm (L x W x H)
WEIGHT	120 g
TEMPERATURE	0-60°C, maximum humidity 90% non-condensing

Bus coupling

- Easy installation through rapid connection of bus cables with Velcro fastening.
- Cables with special crimping are not necessary.
- Pre-assembly of the measurement cables prior to the installation of the batteries.
- Easy and rapid reinstallation of modules.

Bus cable

Measurement cable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NETHERLANDS
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PHILIPPINES
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ROMANIA
RUSSIA
SAUDI ARABIA
SENEGAL
SINGAPORE
SWEDEN
SWITZERLAND
SYRIA
TUNISIA
TURKEY
UKRAINE
UNITED ARAB EMIRATES
URUGUAY
VENEZUELA
VIETNAM

PRODUCT RANGE

Uninterruptible Power Supply Systems (UPS)
Solar inverters
Variable Frequency Drives
DC Systems
Transformers and Autotransformers
Voltage Stabilisers
Electric Active Protectors
Batteries

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NB: Salicru can offer other power electronics solutions depending on the specifications of the application or the technical requests.