PRODUCT RANGE CATALOGUE

APRIL 2014

salicru

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UNINTERRUPTIBLE POWER SUPPLIES (UPS)
LIGTHING FLOW DIMMER-STABILISERS
DC POWER SYSTEMS
STATIC INVERTERS
PHOTOVOLTAIC INVERTERS
VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

salicru

Since its founding in 1965, **Salicru, S.A.** has designed, manufactured and commercialised power electronics products for the key sectors of the energy market.

Salicru's mission is to provide innovative solutions and services to increase our customers' productivity through the provision of high-quality power supplies that will be continuous, clean, affordable, reliable and ecologically-friendly, in both alternating and direct current.

Salicru has the broadest national coverage and 7 international subsidiaries, with sales to over 40 countries worldwide, with over 600,000 units operating and running. The company is ISO-9001 and ISO 14001 certified, and its products are designed and produced in full respect of the Environment.

In a technological firm such as ours, research and innovation are essential to maintain our competitive edge and presence on the market. Therefore, we dedicate 4% of our annual turnover to R&D, which is well above the national average of 0.9% or the European average of 1.4%.

The main product lines are:

- UPS (Uninterruptible Power Supplies): Electronic protection with autonomy for all kinds of critical environments, ranging from 400 VA to several MVA.

- Lighting flow dimmer-stabilisers: Energy and CO_2 emission saving for lighting installations.

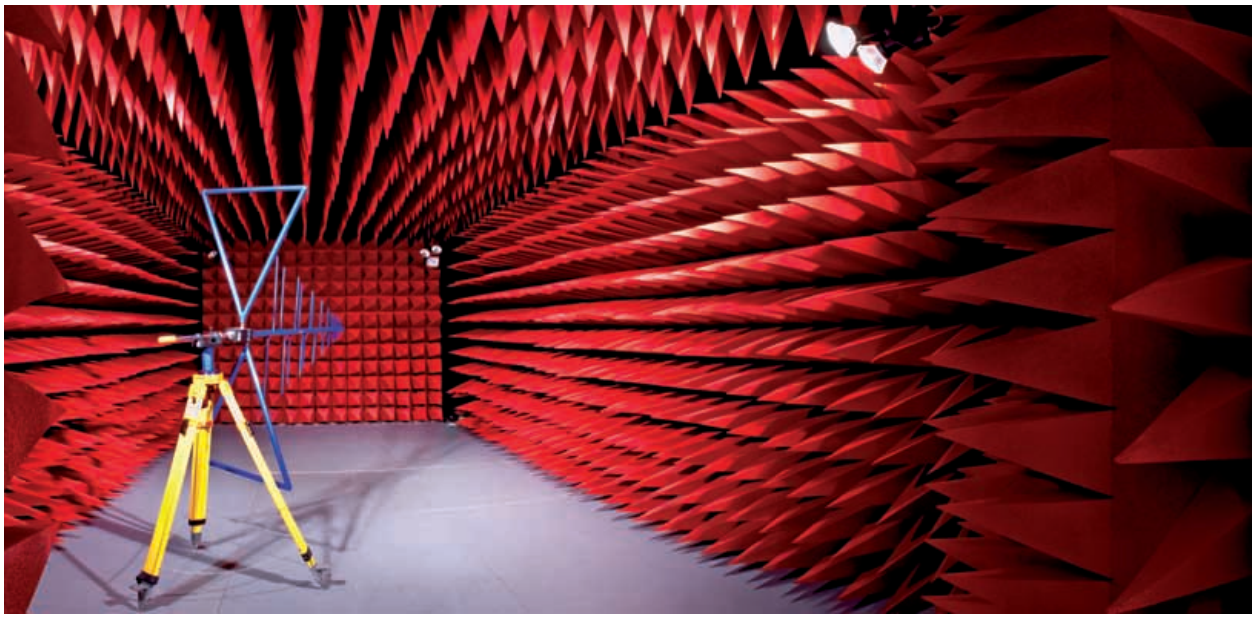
- DC systems and inverters: Solutions for AC/DC and DC/AC power supplies.

- Photovoltaic solar inverters: Generation of AC grid tied voltage using solar energy.

- Voltage stabilisers: Regulating of the electrical supply.

Protection and continuity solutions

According to different studies, 40% of faults occurring in computer systems are caused by disturbances in the electrical power supply (far more than those caused by computer viruses)



also affecting productivity losses derived from inactivity and the resources needed for restoring the damage caused.

Energy efficiency

Salicru is aware of the gradual fall in the availability of natural resources used to produce energy and also of the growing need to reduce energy consumption while maintaining the same energy services without affecting comfort and quality of life and protecting the Environment and assuring supply while encouraging sustainable behaviour in its use.

Salicru's investment in the Environment is longstanding: since the first lighting flow dimmer-stabiliser **(ILUEST+)** came out in the early 1990s, to the photovoltaic solar inverters **(EQUINOX)**, the will of the company has always been to produce equipment that is not only respectful of the Environment but also actively participates in preserving it.

DELEGATIONS AND TECHNICAL SUPPORT & SERVICE (TSS)

BARCELONA
BILBAO
CORUNNA
GIJÓN
LAS PALMAS DE G. CANARIA
MADRID
MÁLAGA
MURCIA
PALMA DE MALLORCA
PAMPLONA
SAN SEBASTIÁN
SEVILLE
VALENCIA
VALLADOLID
ZARAGOZA

SUBSIDIARIES

CHINA
FRANCE
HUNGARY
MEXICO
MOROCCO
PORTUGAL
SINGAPORE

REST OF WORLD

ALGERIA
ARGENTINA
BELGIUM
BRAZIL
BULGARIA
CHILE
COLOMBIA
CUBA
CZECH REPUBLIC
ECUADOR
EGYPT
GERMANY
INDONESIA
IRELAND
JORDAN
KUWAIT
MALAYSIA
NETHERLANDS
PERU
PHILIPPINES
POLAND
RUSSIA
SAUDI ARABIA
SWEDEN
SWITZERLAND
THAILAND
TUNISIA
UAE
UNITED KINGDOM
UNITED STATES OF AMERICA
URUGUAY
VENEZUELA
VIETNAM

salicru SMART SOLUTIONS — Design adaptable to any operating environment

Solutions designed with eco-efficient criteria

ISO 9001:
Quality management

ISO 14001:
Environmental management

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MARKETS + DISTURBANCES

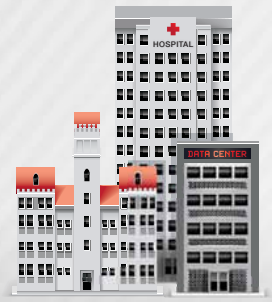
DISTURBANCES

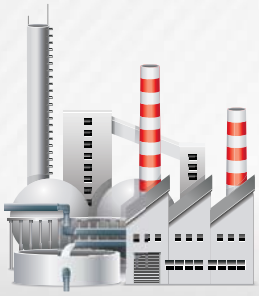
Spikes | Burst transients | Dropouts & blackouts | Sags & undervoltages | Surges & overvoltages

HOMES, OFFICES & SHOPS
Advanced and versatile protection of computer, telecommunications and multimedia equipment

SMES, LARGE CORPORATIONS AND PUBLIC SECTOR BODIES
Tailor-made solutions to ensure the security of the power supply and sensitive information

INDUSTRY
Maximum protection in the corporate environment





SOLUTIONS

SPS HOME
Off-line UPS 400 VA & 600 VA

SPS SOHO+
Line-interactive UPS
from 400 VA to 2,000 VA

SPS ADVANCE RT
Sinewave Line-interactive
rack/tower UPS
from 750 VA to 3,000 VA

SLC TWIN PRO
Single phase parallelable
On-line double conversion UPS
from 700 VA to 20 kVA

SLC TWIN RT
Single phase rack/tower
On-line double conversion UPS
from 700 VA to 10 kVA

DC POWER-S
DC power systems
from 1 kW to 81 kW

OPTIMUS
Compact DC power systems
300 W & 700 W

FAC P
DC power systems
from 1 kW to 170 kW

DC POWER-L
Thyristor rectifiers
from 25 A to 200 A

CS-IS/CS WAVE MDL
DC/AC inverters
from 1 kVA to 24 kVA

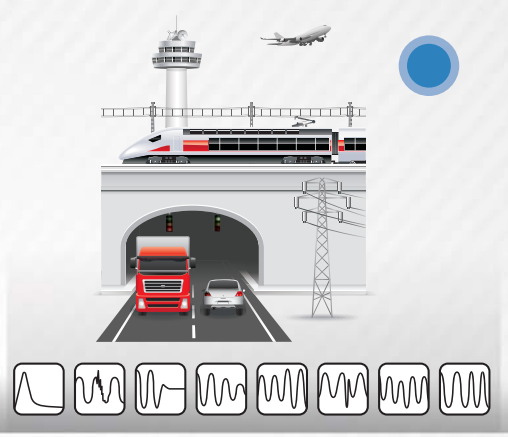
salicru POWER SOLUTIONS

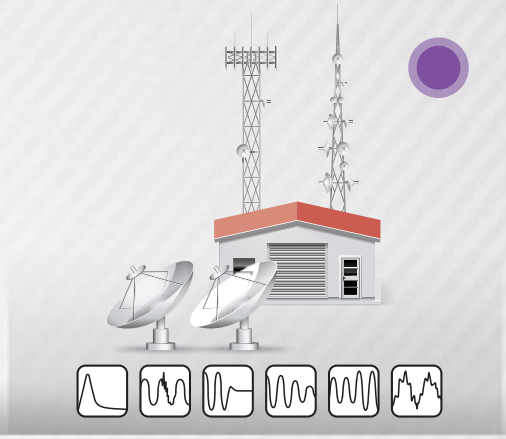
Harmonics | Notches | Noise waveform distortions | Flickers | Frequency variations

INFRASTRUCTURES & ENERGY
High-performance protection for large critical applications

TELECOMMUNICATIONS
The best way to meet the expectations and needs of telecom operators

ENERGY EFFICIENCY & RENEWABLES
Commitment to eco-efficiency and renewable energy as a corporate value





SLC ADAPT
Modular On-line UPS
from 10 kVA to 100 kVA

SLC CUBE3+
Three phase On-line UPS
from 7.5 kVA to 200 kVA

SLC XTRA
Three phase On-line UPS
from 100 kVA to 800 kVA

SICRES
Telemaintenance service

SOFTWARES
Management & monitoring

RE3
Electronic voltage stabilisers
from 300 VA to 250 kVA

EMI3
Servomotor voltage stabilisers
from 5 kVA to 330 kVA

ILUEST+ CR
Lighting flow dimmer-stabilisers
from 7.5 kVA to 45 kVA

ILUEST+ MT
Lighting flow dimmer-stabilisers
from 3.5 kVA to 120 kVA

SICRES x ILUEST
Telemanagement to ILUEST+

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HOMES, OFFICES & SHOPS

Advanced and versatile protection of computer, telecommunications and multimedia equipment

The computer systems of companies, regardless of the size of the business, have become nerve centres for information and management, and vital for optimum day-to-day operation. The dependency that they create is proportional to the uses and benefits that IT technologies provide, not to mention their constant evolution, which helps to increase the competitiveness of companies.

The same occurs in the home environment: we live in a society of digital information and technology. In our homes, we have numerous computer and multimedia systems connected to the Internet in which we also store large amounts of files and documents containing personal data that are not in duplicate hard-copy form.

Storms, lightning and excess demand are just some of the many different causes of electrical disturbances (ranging from micro power cuts to overvoltages, or voltage spikes, and electrical interference) that can affect electrical equipment in the office and home environments.

Numerous studies have shown that the main cause of data loss in digital environments is not viruses but, in fact, disturbances in the power supply, which account for almost half of all cases.

The economic impact of such loss on shops and SMEs can be considerable and can have serious repercussions for clients, suppliers and employees. Nor should we forget that these disturbances can also threaten the very integrity of computer, multimedia and telecommunications equipment by reducing their useful life and, in severe cases, resulting in the need for replacement with the associated increase in costs.

For these two reasons, uninterruptible power supply (UPS) systems have now become essential to ensure a continuous, optimum and stable power supply. **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. To achieve this, it offers a wide range of UPS solutions using existing technologies - stand-by, line- interactive and On-line double conversion - covering power ratings that range from 300 VA to several MW with all communication possibilities - SNMP, remote management, task killers, and all options to suit the specific needs of each installation. This range of solutions is complemented by protective power strips that protect against overloads, overvoltages and lightning.

With their advanced technology and versatile design, it is possible to protect, with a single device, the different components of a computer network such as PCs and all associated peripherals (monitor, printer, external hard drive, router, etc.), multimedia systems (TV, decoder, DVD player, home cinema, HiFi, DTT, etc.), IT systems and servers, and telephone/ADSL connections.

salicru SMART SOLUTIONS

GREENERGY SLC SOLUTIONS

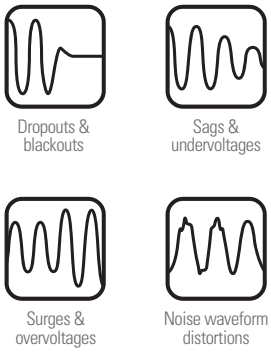
SGS

SGS

HOMES, OFFICES & SHOPS

Advanced and versatile protection of computer, telecommunications and multimedia equipment

Disturbances



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- Ikea
- La Caixa
- Mapfre
- Media Markt
- Mercadona
- Paradores de turismo
- Seguros Santa Lucía

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Solutions

SPS AUTO

12 VDC to 230 VAC converter + USB charger

Salicru's **SPS AUTO** units are converters that supply the necessary electrical power in 230 VAC and 5 VDC. The input connection using the car (or ship) lighter socket and the 230 VAC schuko output has a power of 150 W, whereas the 5 VDC output is via USB port with a charge of 2 A.

SPS SAFE

Electric active protector

SPS.SAFE 6+
6 schuko mains with EMI/RFI. Overload + surge + phone protection..

SPS.SAFE 7+
7 schuko mains with EMI/RFI. Cable wrap-organizer device.

SPS.BOOK
Folding design for connection ease. USB 2.0 double charger (1A).

SPS.MASTER
Master / Slave intelligent electric protect. 6 schuko mains (1 Master + 5 Slave)




SPS HOME

Off-line UPS 400 VA & 600 VA

- Off-line technology.
- Multiple base design with 6 schuko sockets.
- 4 sockets with UPS protection; all sockets with overvoltage protection.
- USB port for monitoring and file closing software.
- Telephone / ADSL line protection by RJ-45 port.
- Batteries user replaceable.

SPS SOHO+

Off-line UPS 400 VA - 2,000 VA

- Line-interactive UPS.
- Automatic voltage regulation AVR.
- LCD display with information on all parameters.
- UPS/PC communication via USB port.
- Monitoring software for Windows, Linux, Unix and Mac.
- Cold Start function to allow start-up without mains.
- Automatic restart when mains returns.

SPS ADVANCE RT

Sine-wave Line-interactive UPS 750 VA - 3,000 VA

- Line-interactive UPS with sine-wave output.
- Output power factor = 0.9.
- Permanent stabilisation.
- Directable graphic screen.
- Power/rack convertible.
- Rack assembly height of 2U.
- Includes pedestal (tower) and ears (rack).
- Green-mode function.

(*) Spain only (**) Rest of the world

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LIGTHING FLOW DIMMER-STABILISERS
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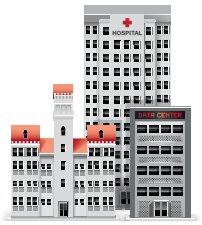


SMES, LARGE CORPORATIONS AND PUBLIC SECTOR BODIES

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

The business community is increasingly aware of the need to have at its disposal equipment that enables more efficient use of energy and it does not consider such equipment as an expense, but as an investment for the protection of its productive assets. This is particularly evident in large companies because executives and businesspeople clearly understand that an uninterruptible power supply (UPS) is synonymous with efficiency and savings.

From both an economic and social responsibility perspective, there is no doubt that organisations need to commit themselves to security and energy efficiency, especially with regard to critical and large-scale investments and infrastructures or in the storage and processing of large amounts of information, such as in hospitals, universities, public sector bodies and large corporations.

Moreover, virtually all medium-sized and large companies have some sort of data processing centre (DPC), while the largest may even have several. One of the most important factors that influences the creation of centres of this type is the need to ensure continuity of service to clients, employees, citizens, suppliers and business partners. In these areas, physical protection by a UPS system of computer or communications equipment, as well as database servers that can contain critical and/or sensitive information, is essential.

A key factor to consider when making decisions that affect energy security is the fact that the installation of a UPS, as part of a complete installation of a new DPC, only represents approximately 3 to 5% of the total investment, which is a relatively small percentage considering the significant savings it can provide in terms of preventing data loss, resulting in it becoming a strategic advantage for the company.

Moreover, flexibility and scalability are two characteristics that are becoming increasingly important in the ICT market, as having equipment to suit the specific growth needs of a company is a significant economic and operational advantage. This is why innovation is key to **Salicru's** strategy of offering products that meet clients' current requirements and providing them with rack installation possibilities or the opportunity to expand power capacities.

Salicru has the technology and know-how to offer clients highly-versatile, tailor-made solutions for the protection of these types of facilities in SMEs, public sector bodies and large corporations. Its advanced technology enables monitoring, remote management, modularity and growth in parallel. Rigorous but, at the same time, flexible and agile production processes make **Salicru** the perfect partner in the search for tailor-made solutions.

Salicru SMART SOLUTIONS

GREENERGY SLG SOLUTIONS

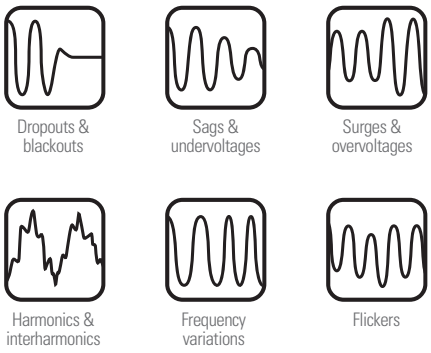
SGS

SGS

SMES, LARGE CORPORATIONS AND PUBLIC SECTOR BODIES

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

Disturbances



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- Intel
- Panasonic
- SAP
- Siemens
- Sony
- Stanley
- Thomson
- Toshiba

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Solutions

SPS ADVANCE RT — Sine-wave Line-interactive UPS 750 VA - 3,000 VA

- Line-interactive UPS with sine-wave output.
- Output power factor = 0.9.
- Permanent stabilisation.
- Directable graphic screen.
- Power/rack convertible.
- Rack assembly height of 2U.
- Includes pedestal (tower) and ears (rack).

SLC TWIN PRO — Double conversion On-line UPS from 700 VA to 20 kVA

- Double conversion On-line UPS.
- Output power factor = 0.9 (up to 3 kVA = 0.8).
- Input current Total Harmonic Distortion (THDi) <5%.
- Control panel with LCD display or graphic display and keyboard.
- Option of parallel up to 4 units.(1)
- Eco-mode operation.
- Tower format

(1) From 4 kVA

SLC TWIN RT — Rack/tower On-line UPS from 700 to 10.000VA

- Double conversion On-line UPS.
- Output power factor = 0.9.
- Input current Total Harmonic Distortion (THDi) <5%.
- Directable LCD display.
- Convertible between tower and rack.
- Up to 2 units in parallel.(1)

(1) From 4 kVA

SLC ADAPT — Modular UPS from 10 to 100 kVA

- Double-conversion, On-line technology.
- Completely independent UPS module.
- Subracks of 50 kVA and 100 kVA with 10 kVA modules.
- Compact and light inverter/ondulator UPS format (9 kg x module).
- Power upgrading and redundant set up by adding modules.
- Possible three phase/single-phase configurations up to 40 kVA.
- System efficiency up to 96% (3-level inverter).

SLC CUBE3+ — Uninterruptible power supply from 7.5 kVA to 200 kVA

- 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.

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

SLC X-TRA — Uninterruptible power supply from 100 kVA to 800 kVA

- 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%.
- High energy efficiency between 95% and 96%.
- Selectable operation inverter/Smart Eco-mode.

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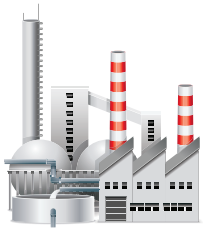

INDUSTRY

Maximum protection in the corporate environment

Power supply in industry is basic and essential to ensure maximum corporate profitability. For this reason, ensuring a high-quality power supply in industrial environments is as critical as it is vital.

The range of possible electrical problems that can affect industrial processes - continuous manufacturing and automated command and control systems, instrumentation and measurement, process monitoring and control, safety systems, critical applications, and many more - is extensive and requires appropriate solutions for each type of problem or electrical disturbance.

Voltage spikes, power outages, over/undervoltages, micro power cuts, frequency variations, excess demand, etc., are some of the electrical problems that commonly occur in the industrial field. If any of these factors disturb the power supply of industrial processes and affect productive capacity, economic profitability will inevitably be affected.

To ensure that these processes are not disturbed by these external agents, it is necessary to have security mechanisms in place to guarantee proper operation.

Salicru has several product lines that can solve the various problems and electrical disturbances that can affect these industrial processes: uninterruptible power supply systems, voltage stabilisers, power supplies and, ultimately, thanks to its know-how, tailor-made solutions for specific problems.

It is a set of solutions that provides maximum reliability in electrical protection for production and control systems, and for industrial processes that require the use of machinery that is highly sensitive to variations in voltage, such as milling machines, presses, trimming machines, lathes, polishing machines, electrical discharge machines, as well as electric drives and operations, numerical controls, electric furnaces, lifts, graphic printing equipment, medical equipment and TV repeater stations. This is also the case, for example, for the most advanced technological processes such as ERP systems, CRM platforms and business intelligence tools.

In the case of uninterruptible power supply (UPS) systems and voltage stabilisers, Salicru's solutions cover a wide range of power ratings, extensive communication options via interface and monitoring software, standard backup batteries and expansion options, etc., that suit the qualitative and quantitative growth needs of any type of industrial facility.

Salicru's experience in the industrial field is endorsed by its long track record of service and effective operation of more than 600,000 devices currently installed worldwide.

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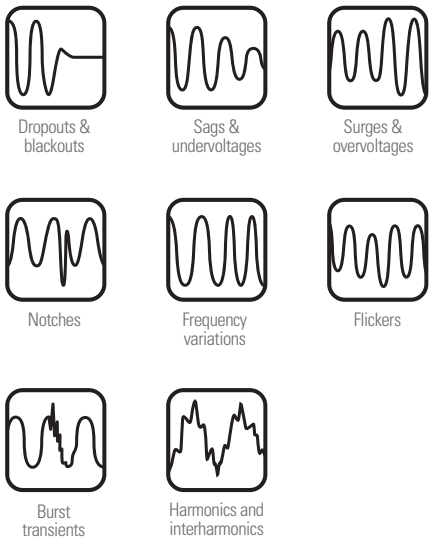
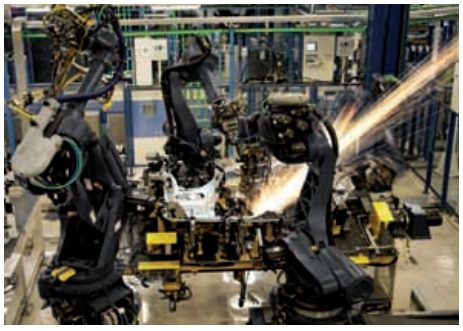
salicru SMART SOLUTIONS

INDUSTRY

Maximum protection in the corporate environment

Disturbances





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- Lafarge
- Nestle
- Otis
- Pepsico
- Renault
- Repsol
- Roche diagnostics
- Unilever

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Solutions

SLC TWIN PRO — Double conversion On-line UPS from 700 VA to 20 kVA

- Double conversion On-line UPS.
- Output power factor = 0.9 (up to 3 kVA = 0.8).
- Input current Total Harmonic Distortion (THDi) <5%.
- Control panel with LCD display or graphic display and keyboard.
- Option of parallel up to 4 units.(1)
- Eco-mode operation.

(1) From 4 kVA

SLC CUBE 3+ — Uninterruptible power supply from 7.5 kVA to 200 kVA

- 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.

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

SLC X-TRA — Uninterruptible power supply from 100 kVA to 800 kVA

- 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%.
- High energy efficiency between 95% and 96%.
- Selectable operation inverter/Smart Eco-mode.

EMI3 — Servomotor voltage stabiliser from 5 kVA to 330 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%.

RE3 — Electronic voltage stabiliser from 0.3 kVA to 250 kVA

- Ultra-fast regulation: reply speed under 100 ms.
- Control and test of all parameters by one microprocessor per phase.
- Static bypass, loads always supplied.
- Entirely static structure, without moving elements, greater reliability.
- Output precision better than 2%.
- Efficiency > 97%.

DC POWER-L — Thyristor rectifier from 25 A to 200 A

- 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: floating, fast and exceptional.

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INFRASTRUCTURES & ENERGY

High-performance protection for large critical applications

Airports, railways, ports and roads are essential infrastructures for carrying out the activities of cities, companies and people. The same is true of power (electricity and fuel networks) and water (drinking water and drain networks) infrastructures.

Our professional and personal wellbeing largely depends on their proper functioning. What would happen, for example, if air traffic control radar, traffic lights or railway signalling lost their power supply?

To prevent these kinds of situations from arising and affecting our wellbeing and the competitiveness of our professional work, uninterruptible power supply (UPS) systems exist. These are devices that not only provide enough power to prevent faults caused by power cuts, but also improve the quality of mains voltage, thus extending the useful life of the electrical, electronic and computer equipment connected to it.

Salicru, in line with its technological commitment, offers various ranges of UPS 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.

These devices are very compact, which greatly facilitates their installation, and made from over 60% recyclable materials.

Ensuring the functioning of all elements 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, which are designed to operate in harsh and demanding operating environments such as: power stations, electrical substations, oil and gas pipelines, petrochemical plants, mines, railways, telecommunications facilities, hospitals and industrial plants. DC systems are devices that convert alternating current into direct current (rectifiers, chargers) or direct current into alternating current (inverters). Such DC systems can store power in an accumulator battery, enabling an uninterrupted supply of DC or AC (through an inverter). They also have a control and monitoring system that enables input and output measurements, battery charging currents, control of priority and non-priority loads and communication channels with the outside to be managed.

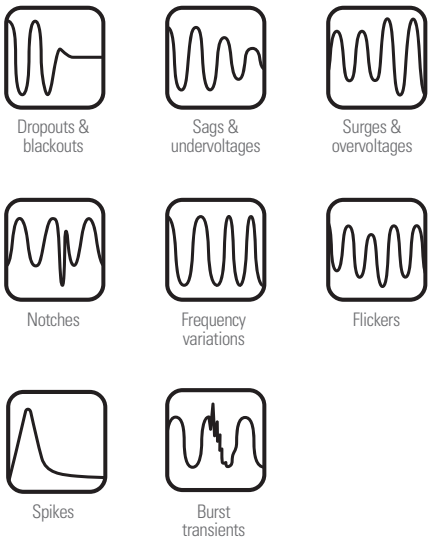
An array of advanced technological solutions at the service of highly-critical infrastructures.

salicru SMART SOLUTIONS

INFRASTRUCTURES AND ENERGY

High-performance protection for large critical applications

Disturbances



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- Gazprom
- Iberdrola
- Kuwait Oil Company
- Pemex
- REE
- Repsol
- Texaco
- Thales Rail
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Solutions

SLC TWIN RT

Rack/tower On-line UPS from 700 to 10.000VA

- Double conversion On-line UPS.
- Output power factor = 0.9.
- Input current Total Harmonic Distortion (THDi) <5%.
- Directable LCD display.
- Convertible between tower and rack.
- Up to 2 units in parallel.(1)
- Selectable and priority loads control.(2)

(1) From 4 kVA (2) Except 10 kVA

SLC ADAPT

Modular UPS from 10 to 100 kVA

- Double-conversion, On-line technology.
- Completely independent UPS module.
- Subracks of 50 kVA and 100 kVA with 10 kVA modules.
- Compact and light inverter/ondulator UPS format (9 kg x module).
- Power upgrading and redundant set up by adding modules.
- Possible three phase/single-phase configurations up to 40 kVA.
- System efficiency up to 96% (3-level inverter).

SLC CUBE 3+

Uninterruptible power supply from 7.5 kVA to 200 kVA

- 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.

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

SLC X-TRA

Uninterruptible power supply from 100 kVA to 800 kVA

- 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%.
- High energy efficiency between 95% and 96%.
- Selectable operation inverter/Smart Eco-mode.

DC POWER-L

Thyristor rectifier from 25 A to 200 A

- 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: floating, fast and exceptional.

DC POWER-S

DC power system

- 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.
- DC systems with output voltages of 48, 110 or 125 Vdc.
- High power density in the modules, up to 27 W/in^3.

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UNINTERRUPTIBLE POWER SUPPLIES (UPS)
LIGTHING FLOW DIMMER-STABILISERS
DC POWER SYSTEMS
STATIC INVERTERS
PHOTOVOLTAIC INVERTERS
VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

TELECOMMUNICATIONS

The best way to meet the expectations and needs of telecom operators

To talk about telecommunications is to talk about a strategic and innovative sector. In fact, 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 telephones, mobile telephones, voice and data networks and the Internet.

Telecommunications have become a determining factor in the development of the new digital society, which has also resulted in significant technological dependence.

In order for operators and other telecom companies to be able to offer their equipment and services on an industrial, professional and domestic level, they need a constant and reliable electricity supply without power cuts, disturbances and fluctuations affecting normal operation.

To prevent this from happening and affecting our wellbeing in our daily lives, and the competitiveness of our professional work, uninterruptible power supply (UPS) systems exist. These are devices that not only provide power to prevent faults caused by power cuts, but also improve the quality of mains voltage, thus extending the useful life of the technological equipment connected to them.

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. These devices are very compact, which greatly facilitates their installation, and made from over 60% recyclable materials.

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 extensive product range includes high-performance monitoring and remote-management devices that are essential for the optimisation of infrastructures that are generally widely dispersed.

This is Salicru's way of meeting the expectations and needs of a dynamic sector that is in constant technological evolution, such as that of telecommunications.

Salicru SMART SOLUTIONS

GREENERGY SLG SOLUTIONS

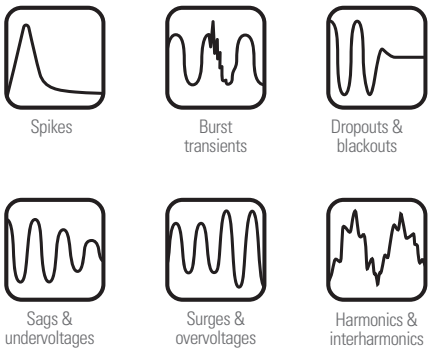
SGS

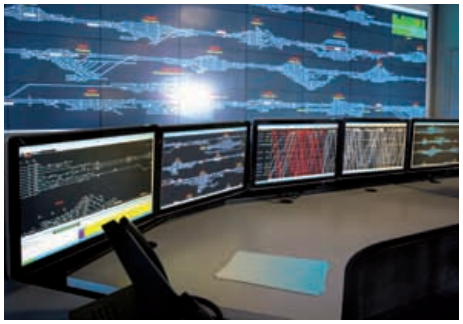
SGS

TELECOMMUNICATIONS

The best way to meet the expectations and needs of telecom operators

Disturbances





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- Portugal Telecom
- Siemens
- Telefónica
- Vodafone

Solutions

DC POWER-S — DC power 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.
- DC systems with output voltages of 48, 110 or 125 Vdc.
- High power density in the modules, up to 27 W/in^3.

CS IS — DC power converters

- Availability in a wide range of voltages and outgoing power.
- Broad range of input voltage variation.
- LCD display comes standard.
- Communication through relay interface or RS-232 / RS-485.
- Excellent dynamic behavior.

CS WAVE MDL — 48 DC power converters

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

OPTIMUS — Compact DC power systems

- Suitable for single phase or three-phase supplies.
- Great power density.
- Easy installation and maintenance.
- High MTBF.
- High efficiency.
- Low cost operation and maintenance.
- Battery charging current limitation.

FAC-P — DC power systems

- Suitable for single phase or three-phase supplies.
- Great power density.
- Easy installation and maintenance.
- Low cost operation and maintenance.
- High MTBF.
- High efficiency.
- Battery charging current limitation.

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ENERGY EFFICIENCY AND RENEWABLES

Commitment to eco-efficiency and renewable energy as a corporate value

Energy efficiency is defined as the reduction of energy consumption while maintaining the same energy services, ensuring continued comfort and quality of life, protecting the environment, guaranteeing supply and promoting sustainable behaviour in its use. Today, society demands equipment that, in addition to responding to its business needs, saves energy and costs, and is environmentally friendly.

Encouraging the development of new technologies that contribute to more responsible energy consumption is, without doubt, one of the cornerstones of **Salicru's** corporate strategy. For years, it has been firmly committed to renewable energy and the most advanced technology applied to energy efficiency through its SLC Greenergy Solutions line, which includes stabilisers-step-down light dimmers and solar inverters.

The former have become the equipment of choice for street lighting projects as they make it possible to achieve savings of up to 40% on electricity bills. More than two decades ago, **Salicru** pioneered a new way of accurately regulating street lamps with its range of stabilisers-step-down light dimmers, which make it possible to achieve significant energy and maintenance savings.

Since then, it has installed more than 27,000 devices in countries like Spain, China, France, Poland, Tunisia and Morocco.

In Spain,15,000 have been installed with total potential annual energy savings of 558,000 MWh, reductions in CO_2 emissions of over 130,000 tons and cost savings of more than 50 million euros.

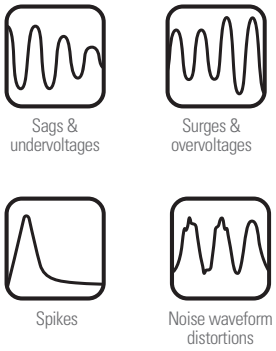
Salicru's solar inverters, which are designed for domestic and commercial installation, convert direct current from solar modules into the alternating current required for connection to the low-voltage electricity distribution system. Their main competitive advantage is that they make it possible to achieve increases of up to 10% in production.

Their innovative technology, backed up by **Salicru's** extensive experience in the power electronics market, ensures high performance in low and high-power solar photovoltaic facilities, both indoors and outdoors. A wide range of communication capabilities are also offered: all of the units feature an LCD and/or graphic display screen to facilitate viewing of a facility's data and local or remote communication devices.

ENERGY EFFICIENCY AND RENEWABLES

Commitment to eco-efficiency and renewable energy as a corporate value

Disturbances



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- Guangzhou (China)
- Lyon (France)
- Madrid (Spain)
- Málaga (Spain)
- Rabat (Morocco)
- Reims (France)
- Rennes (France)
- Tunis (Tunisia)
- Shangai (China)
- Valencia (Spain)

Solutions

ILUEST+ CR

Lighting flow dimmer-stabilisers from 7.5 to 45kVA

- Stabilisation better than ± 1% + saving voltage periods = savings > 40%.
- Continuous regulation of the output voltage, no voltage steps; higher lamp lifetime.
- Lineal and programming ramps.
- High response time.
- RS-232 port + MODBUS protocol, as standard.

ILUEST+ MT

Lighting dimmer-flow stabilisers from 3.5 to 120 kVA

- 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.

ILUCOM

Remote management for street lighting

Salicru's **ILUCOM** street lighting management system, which operates in conjunction with the company's **ILUEST+** range of lighting flow dimmer-stabilisers, enables powerful and effective, local or remote, management of any type of control cabinet from any mobile device connected to the Internet, without the need for any major infrastructure and deployment.

SICRES

Telemanagement to ILUEST

By incorporating the **SICRES** network card, Salicru offers a telemaintenance service through an Internet connection, which enables the state of the complete fleet of equipment (including cartography) to be known at all times and failures in the equipment and/or the control centres to the anticipated.

EQUINOX

Photovoltaic inverters 2.8 kW - 4 kW - 5 kW - 10 kW

- PWM technology with transformerless electronic insulation.
- Maximum Power Point Tracker system (MPPT).
- High conversion efficieny > 97%.
- Power factor > 0.99.
- Plug & Play connect.
- Multi-string connection choice: 1 to 3 MPPT.
- Indoor and outdoor versions.
- GFCI (Ground Fault Circuit Interruptor) so as to avail grounding leak advanced control.

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SPS HOME Off-line UPS 400 VA & 600 VA

SPS HOME: Full protection for office and domestic units

The numerous types of electrical disturbances (e.g. mains failures, power cuts, blackouts, over-voltages,…) arising from the various causes (e.g. storms, lightning, excessive demand, natural disasters, accidents etc...) present problems to all electricity users, and a constant challenge to all computer users who depend on a correct and stable power supply to be able to work safely and efficiently. Electrical problems are responsible for the largest number of faults in computer systems, far more even than those caused by computer viruses. The best solution is therefore to seek protection with an Uninterruptible Power Supply.

The Salicru **SPS HOME** series Uninterruptible Power Supply, with Off-line technology, come in power ratings of 400 VA and 600 VA and are the best possible protection for both domestic and professional single-post computer environments.

Each UPS provides 6 output sockets with sufficient capacity for the central unit and all of the associated peripherals. In order to achieve greater total protection, telephone/ADSL protection is provided, preventing the entry of overvoltages and/or electrical noise through the telephone line. Completing the overall protection, the UPS units come complete with monitoring and file closing software to facilitate orderly shutdowns in the event of extended power cuts.

Performance

· Off-line technology.
· Multiple base design with 6 schuko sockets.
· 4 sockets with UPS protection; all sockets with overvoltage 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.
· Enabling self test at startup.
· 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.

SPS HOME

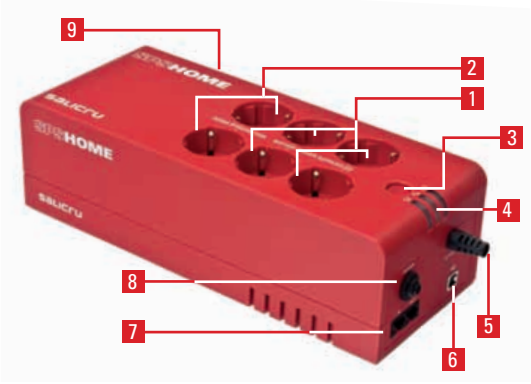
Applications: Versatile protection for single-post environments

Designed in multiple base format, the **SPS HOME** series UPS have 6 schuko bases duly turned to enable trafo connections and with child protection by obturators, with a capacity in computer systems to protect both the PC and all of its associated peripherals (screen, printer, external hard disk, router, …).

SPS HOME

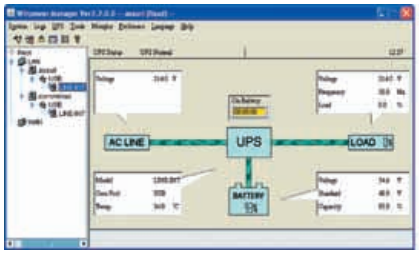
Off-line UPS 400 VA & 600 VA

Description



1. 4 x UPS sockets.
2. 2 x overvoltage protection sockets.
3. On / Off multifunction pushbutton.
4. LED indicators.
5. AC input.
6. USB port.
7. RJ-45 telephone / ADSL protection.
8. Protection breaker.
9. Anchoring for wall fixture.

Software WinPower



· UPS monitoring and management software for closing files/applications.
· Supports Windows, Linux, Unix and Mac.

Complete solution

· **SPS HOME** series UPS.
· UPS / PC USB connection wire.
· Quick start guide.
· Warranty certificate.
· Economic guarantee.

Salicru warranty

· On-line registry at **www.salicru.com.**
· 2-year warranty.
· Batteries covered by the warranty.

TECHNICAL SPECIFICATIONS

MODEL		SPS HOME
TECHNOLOGY		Off-line
INPUT	Nominal voltage	230 V
	Voltage range	Up to 170V – 265V
	Nominal frequency	50 or 60 Hz
	Frequency range	±10%
	Frequency self-detection	Yes
OUTPUT	Voltage	230 V
	Voltage precision (1)	±10%
	Frequency (1)	50 or 60 Hz
	Frequency precision (1)	±1%
	Wave form (1)	Pseudo sinusoidal
	Socket type	Schuko
	No. sockets with autonomy + protection	4
	No. sockets with protection	2
	Transfer time	2/6 ms
PROTECTION	Input	Breaker, user-resettable
	Overload	AC mode and battery mode
	Short-circuit	Immediate interruption
	Protection against peaks	480 joules, 2 ms
	Data line	Tel / Fax, modem, ADSL internet + Ethernet 10/100 Mb
BATTERY	Type	Sealed, lead-calcium, free-maintenance, useful life 3-5 years
	Recharging time	8 hours
	Autonomy	Up to 20 minutes
	Replacement	By the user
	Protection	Against deep discharge
		Fuse against short-circuit
FUNCTIONS	Cold start	Yes
	Autotest	At each starter
	Automatic restart	Yes
INDICATIONS	Mains present	Green LED
	Battery mode	Yellow LED
	Battery failure	Red LED
ALARMS	Battery mode output	Audible alarm every 5 seconds
	Low battery (end of autonomy)	Audible alarm every second
	Inverter failure	Permanent alarm
COMMUNICATION	Port	USB
	Software	Monitoring and management for the Windows, Linux, Unix and Mac
GENERALS	Maximum altitude	3,500 m.a.s.l.
	Relative humidity	Up to 95% without condensing
	Temperature	0°C ÷ +40°C
	Acoustic noise @ 1 metre	<40 dB
STANDARDS	Safety	EN-62040-1-1; EN-60950-1
	Electromagnetic compatibility (EMC)	EN-62040-2
	Quality and Environmental Management	ISO 9001 and ISO 14001

(1) Battery mode.

Data may change without previous notice.

RANGE

MODEL	UPS POWER (VA / W)	TOTAL POWER (VA / W)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
SPS.400.HOME	400 / 200	1,150 / 1,150	295 x 120 x 85	3.2
SPS.600.HOME	600 / 300	1,150 / 1,150	295 x 120 x 85	3.5

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UNINTERRUPTIBLE POWER SUPPLIES (UPS)
LIGTHING FLOW DIMMER-STABILISERS
DC POWER SYSTEMS
STATIC INVERTERS
PHOTOVOLTAIC INVERTERS
VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

SPS SOHO+ Line-interactive UPS 400 VA - 2,000 VA

SPS.SOHO+: Full electric protection in office computer environments

Salicru's **SPS SOHO+** series is a Line-interactive UPS that incorporates an automatic voltage regulator (AVR), which attenuates all possible fluctuations in the input voltage and at the same time causes smaller use of the batteries, extending their life and assuring maximum autonomy if necessary.

For better integration in the office computer environment, the **SPS SOHO+** series equipment has a full, rear-lit LCD display that gives all information of the operating state of the units. It also has complete monitoring and management software through the USB communication port, which enables continuous control of the system status and allows controlled computer shutdown in the event of a long blackout when the system is left unattended.

Other outstanding functions include the Cold Start, which allows the system to be started in the absence of mains power; automatic self test performed on the unit every time it is started, and the incorporation of schuko type socket to allow any kind of load to be connected.

Performances

· Line-interactive UPS.
· Automatic voltage regulation AVR.
· LCD display with information on all parameters.
· UPS/PC communication via USB port.
· Monitoring software for Windows, Linux, Unix and Mac.
· Cold Start function to allow start-up without mains.
· Automatic restart when mains returns.
· Resettable input heat protection.
· Schuko type sockets.
· Data/modem line protection.
· Hot Swap function for changing batteries without shutting down.
· Automatic frequency detector 50/60 Hz.
· Self test on unit start-up.
· Protected against overloading, transient and short circuits.
· SLC Greenergy solution.

SPS SOHO+

Applications: Tranquillity and confidence in the power supply

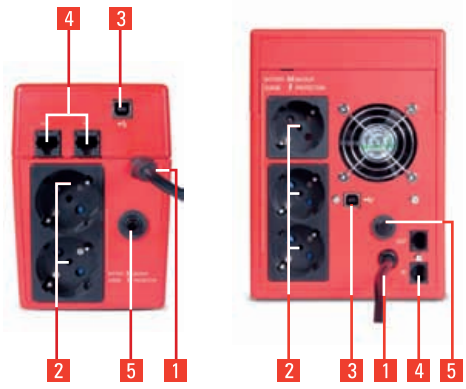
The range of powers available covers 400, 600, 800, 1,000, 1,400 and 2,000 VA, with protection from single post stations to small computer networks comprising a server plus several associated posts, the network electronics and the necessary peripherals.

The information stored in the computer systems is the most important value for any company's operation. If it is lost or damaged, it can cause serious harm so optimal protection is essential.

SPS SOHO+

Line-interactive UPS 400 VA - 2,000 VA

Description

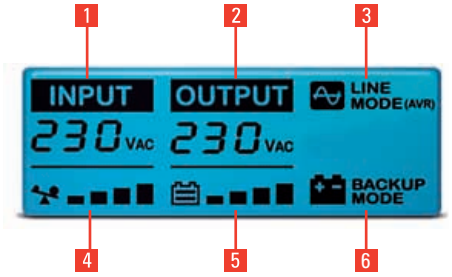


400 / 600 / 800 VA

1000 / 1400 / 2000 VA

1. AC input.
2. Output sockets.
3. USB communication port.
4. Data / ADSL line protection.
5. Thermal input protection.

Display



1. Input voltage.
2. Output voltage.
3. Line mode (AVR stabilisation).
4. Load level.
5. Battery capacity.
6. Autonomy mode.

Control Software

UPS monitoring and management software enabling a controlled computer shutdown in the event of prolonged blackout. Valid for Windows, Unix, Linux and Mac.

TECHNICAL SPECIFICATIONS

MODEL		SPS 400 / 600 / 800 SOHO+	SPS 1000 / 1400 / 2000 SOHO+
TECHNOLOGY		Line - interactive	
INPUT	Nominal voltage	220 V, 230 V, 240 V	
	Voltage range	Up to 162 V ÷ 290 V	
	Nominal frequency	50/60 Hz	
	Frequency auto-sensing	Yes	
	Stabilisation	Buck/Boost	
OUTPUT	Voltage	230 V	
	Voltage accuracy (1)	±10%	± 5% for load < 50% (2)
	Frequency (1)	50/60 Hz	
	Frequency accuracy (1)	±1 Hz	
	Wave form (1)	Simulated sinewave	
	Outlet type	Schuko	
	Outlet quantity	2	3
	Transfer time	2 / 6 ms.	
PROTECTION	Input	Rearm thermal	
	Overload	AC and battery modes	
	Short-circuit	Immediate shutdown	
	Data line (RJ-45)	Tel/fax, modem, ADSL internet + Ethernet network 10/100 Mb	
BATTERY	Type	Sealed lead acid, AGM and free maintenance	
	Recharge time	6 - 10 hours up to 90%	
	Autonomy (3)	Up to 20 minutes	Up to 40 minutes
	Replacement	By user	
	Protection	Against deep discharge against short-circuit through fuses	
FUNCTIONS	Cold Start	Yes	
	Automatic restart	Yes, after end of autonomy	
INDICATORS	LCD multifunction	Yes	
	Displayed values	Input voltage / output voltage	
	Levels	Connected load / overload / battery capacity	
	Operating modes	Normal / Battery / AVR (stabiliser)	
ALARMS	Battery mode output	Beep every 10 seconds	
	Low battery (end of autonomy)	Beep every second	
	Battery replacement	Beep every 2 seconds	
	Fault	Beep continuously	
	Overload	Beep every 0.5 seconds	
COMMUNICATION	Port	USB	
	Software	Monitoring and management for Windows, Unix, Linux and Mac	
GENERALS	Maximum altitude	2400 m.a.s.l.	
	Relative humidity	Up to 95%, non-condensing	
	Temperature	0º C ÷ +40º C	
	Acoustic noise at 1 metre	<40 dB	<45 dB
STANDARDS	Safety	EN-62040-1-1; EN-60950-1	
	Electromagnetic Compatibility (EMC)	EN-62040-2	
	Operating	EN-62040-3	
	Quality and Environmental management	ISO 9001 and ISO 14001	

(1) Battery mode
(2) ± 10% for SPS.1000.SOHO+
(3) PC + LCD 15"

Data may change without previous notice.

RANGE

MODEL	POWER (VA / W)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
SPS.400.SOHO+	400 / 240	330 x 100 x 140	5
SPS.600.SOHO+	600 / 360	330 x 100 x 140	6
SPS.800.SOHO+	800 / 480	330 x 100 x 140	6.5
SPS.1000.SOHO+	1,000 / 600	405 x 145 x 205	9
SPS.1400.SOHO+	1,400 / 840	405 x 145 x 205	9.5
SPS.2000.SOHO+	2,000 / 1,200	405 x 145 x 205	10

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SPS ADVANCE RT

Sine-wave Line-interactive UPS 750 VA – 3,000 VA

SPS ADVANCE RT: Advanced protection for networks and IT servers

With sine-wave output Line-interactive technology, Salicru's **SPS ADVANCE RT** series is a UPS which provides the best possible performance on the market and comes in formats including the convertible tower/rack format (2U) with directable LCD display to be integrated in any professional computer environment, with an output power factor of 0.9 which, along with sine-wave output form waveform, makes it compatible with all current active PFC IT servers.

Furthermore, the possibilities of communication via RS-232 + USB + SNMP along with the different multiplatform management and monitoring softwares enable the series to be adapted to any computer system. Also outstanding are the EPO (Emergency Power Off) systems for emergency shutdowns, configurable and prioritisable output sockets, the Green-mode function for power saving and the extended autonomy options for applications requiring longer back-up periods.

The powers available are: 750 VA, 1,000 VA, 1,500 VA, 2,000 VA and 3,000 VA.

Performances

· Line-interactive UPS with sine-wave output.
· Output power factor = 0.9.
· Permanent stabilisation.
· Directable graphic screen.
· Tower/rack convertible.
· Rack assembly height of 2U.
· Includes pedestal (tower) and ears (rack).
· Selectable and prioritisable load control.(1)
· Green-mode function.
· Series communication (RS-232) and USB interfaces.
· Monitoring software for Windows, Unix, Linux and Mac.
· Smart slot for SNMP/relays.(1)
· Data/modem line protection.
· Extended autonomy available.(1)
· Automatic frequency detector.
· EPO – Emergency Power Off.(1)
· Cold Start function for starting from batteries.
· Self test on every start-up and/or manual.
· Battery replacement warning system.
· SLC Greenergy solution.

(1) For models ≥1,500 VA

SPS ADVANCE RT

salicru SMART SOLUTIONS

Applications: Versatility and integration for computer environments

All of the described performances result in a UPS that is reliable, efficient, flexible and manageable, and is the best option for protecting all kinds of servers, including those with an active PFC power supply. Redundant power solutions are also possible by installing two **SPS ADVANCE RT** units along with a Salicru **SPS.16.STS** automatic transfer system.

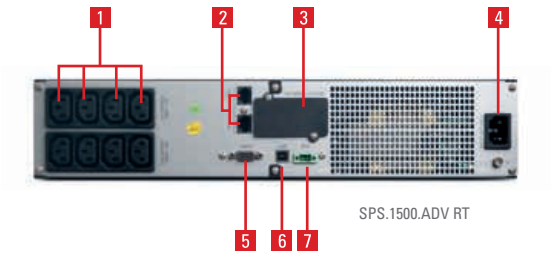
Increased security for all IT applications, such as servers, VoIP telephony, network electronics and associated peripherals.

2 YEARS WARRANTY ASK FOR LOCAL CONDITIONS

SPS ADVANCE RT

Sine-wave Line-interactive UPS 750 VA – 3,000 VA

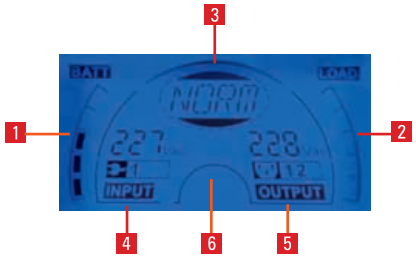
Connections



SPS.1500.ADV RT

1. IEC type AC outputs, configurable.
2. Modem/mains active protector.
3. SNMP/relays smart slot.
4. AC input.
5. RS-232 / opto coupler interface.
6. USB port.
7. Emergency Power Off (EPO).

Display



1. Available battery level.
2. Connected load level.
3. UPS status / user adjustments.
4. Voltage / frequency / input bases.
5. Voltage / frequency / output bases.
6. Warning / adjustment indicator.

Output FP = 0,9

Model	Apparent power (VA)	Active power (W)
SPS.750.ADV RT	750	675
SPS.1000.ADV RT	1,000	900
SPS.1500.ADV RT	1,500	1,350
SPS.2000.ADV RT	2,000	1,800
SPS.3000.ADV RT	3,000	2,700

+30% of active power over other UPS with PF=0.7.

Salicru warranty

· Online registry at support.salicru.com.
· 2 year warranty, including batteries.
· Possibility of extending the warranty period.

TECHNICAL SPECIFICATIONS

MODEL			750 VA	1000 VA	1500 VA	2000 VA	3000 VA
TECHNOLOGY			Line-interactive with pure sine-wave output				
INPUT	Voltage		220 / 230 / 240 V				
	Volatge range		±20% on Normal mode; -30% +20% on Generator mode (1)				
	Stabiliser		Buck-Boost				
	Frequency range		50 / 60 Hz ±5 Hz on Normal mode; 40÷70 Hz on Generator mode (1)				
	Transient absorption capacity		6,5 kA				
OUTPUT	Active power (W)		675	900	1350	1800	2700
	Power factor		0.9				
	Voltage		220 / 230 / 240 V				
	Voltage accurancy (Bat. mode)		±5% RMS				
	Total Harmonic Distortion (THDv)		<3%				
	Frequency		50 / 60 Hz				
	Frequency accurancy (Bat. mode)		±0.1 Hz				
	Wave form		Pure sine-wave				
	Overload	Line mode	110% shutdown after 3 minutes;150% shutdown after 200 ms				
		Battery mode	110% shutdown after 30 seconds;120% shutdown after 100 ms				
	Short-circuits		Yes				
	Output sockets	Type	IEC320 C13				IEC320 C13+ IEC320 C19
		Quantity	4		8		8+1
		Groups	Yes, two groups for priority and non-priority loads (2)				
TRANSFER TIME	Inverter-mains		2 ÷ 6 ms				
BATTERY	Type		Sealed lead acid, AGM and free maintenance				
	Typical back up time (3)		10 minutes				
	Recharge time at 90%		5 hours		4 hours		
FUNCTIONS	Starting from batteries (Cold Start)		Yes				
	Green-mode		Yes				
INDICATORS			Orientable LCD display				
AUDIBLE ALARMS	Autonomy mode		Beep every 4 seconds				
	Low battery		Beep every second				
	UPS fault		Continuous beep				
	Overload		Beep every second				
	Battery replacement		Continuous beep				
GENERALS	Operating altitude		1500 m.a.s.l.				
	Relative humidity		Up to 95%, non-condensing				
	Operating temperature		0º C ÷ +40º C				
	Acoustic noise @ 1 metre		<40 dB				<45 dB
INTERFACE	Monitoring software		For Windows, Unix, Linux and Mac				
	RS-232		Yes				
	Opto couplers		No		Yes		
	USB		Yes				
	SNMP		No		Yes		
	Emergency Power Off (E.P.O.)		No		Yes		
	Transient Protection modem/mains		Yes				
	Dry contacts		No		Optional		
STANDARDS	Safety		EN-62040-1-1; EN-60950-1				
	Electromagnetic Compatibility (EMC)		EN-62040-2				
	Operating		EN-62040-3				
	Quality and Environmental managament		ISO 9001 and ISO 14001				

(1) Power reduction of 15%
(2) For models ≥1,500 VA
(3) At 75% of load

Data may change without previous notice.

RANGE

MODEL	POWER (VA / W)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
SPS.750.ADV RT	750 / 675	436 x 438 x 89 (2U)	15
SPS.1000.ADV RT	1,000 / 900	436 x 438 x 89 (2U)	16
SPS.1500.ADV RT	1,500 / 1,350	436 x 438 x 89 (2U)	18.5
SPS.2000.ADV RT	2,000 / 1,800	608 x 438 x 89 (2U)	28
SPS.3000.ADV RT	3,000 / 2,700	608 x 438 x 89 (2U)	29

Dimensions and weights for standar back up

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UNINTERRUPTIBLE POWER SUPPLIES (UPS)
LIGTHING FLOW DIMMER-STABILISERS
DC POWER SYSTEMS
STATIC INVERTERS
PHOTOVOLTAIC INVERTERS
VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

SPS.16.STS Automatic transfer system

SPS.16.STS: Redundancy in power supply sources

The Salicru **SPS.16.STS** is basically an automatic, single phase switch with two input AC lines, which uses two sine-wave power supply sources to provide output voltage to load/s.

The **SPS.16.STS** is factory programmed with mains 1 as priority and mains 2 as reserve. Users can change this using the communication software. Each time the **SPS.16.STS** is started, the system will start up with the criteria established the last time it was programmed.

It is possible to switch from mains 1 to mains 2 or vice versa using the BP2 pushbutton, and this change is recorded in the internal memory. The power supply of the load/s is transfered from one mains to the other if the voltage and/or frequency of the priority source is off-margins.

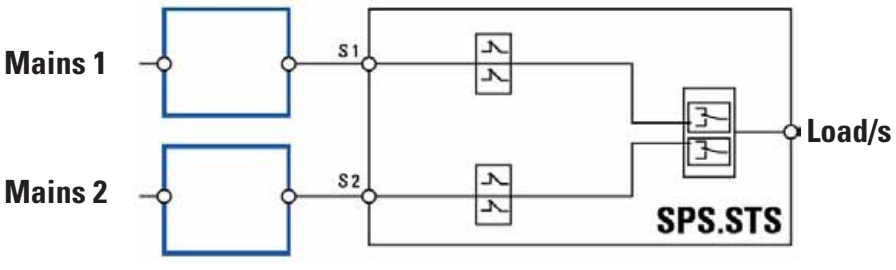
The LEDs on the control panel report the state of the equipment and operation at all times, and this panel is an easy-to-understand, practical interface for any operator.

Performance

· Break Before Make.
· Automatic backfeed protection, as per standard EN 62310-1.
· Overloading and short-circuit protection in both mains (using accessible fuses and 10A thermal relays).
· Redundant internal power supply (from mains 1 and 2).
· Alternating current detector (voltage and current detector).
· Output detector (current detector).
· Control panel with LED.
· Auxiliary contact for external RPO.
· IP30 protection index.
· The **SPS.16.STS** can transfer with P/N input wiring error.
· The two system inputs can be different phases of the same three-phase N/R and N/S mains.
· Audible alarm silencer.

SPS.16.STS

Applications: A reliable, cheap and simple solution



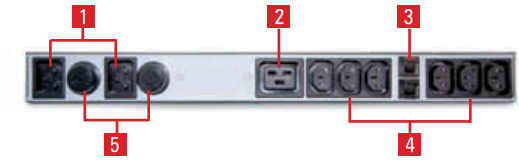
SPS.16.STS

Automatic transfer system

Previous view

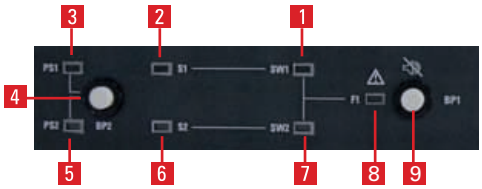
1. LED display.
2. RPO.
3. RS-232.
4. Dry contact interface.

Rear view



1. IEC320-C20 type inputs.
2. IEC320-C19 type outputs.
3. 10A output thermal protection.
4. IEC320-C13 type outputs.
5. Input protection fuses.

Display



1. Load supplied from PS1 priority mains.
2. State of the PS1 mains.
3. PS1 mains selected.
4. PS1 or PS2 mains selector.
5. PS2 mains selected.
6. State of the PS2 mains.
7. Load supplied from PS2 secondary mains.
8. Alarm indication.
9. Alarm silencer.

Servicies

· Pre-sale and after sale advisory service.
· Telephone technical support.
· Maintenance contracts.
· Training courses.

TECHNICAL SPECIFICATIONS

MODEL		SPS.16.STS
INPUT	Nominal voltage	230 V (220/230/240 V selectable)
	Voltage range	160 ÷ 290 Vac
	Acceptable voltage range	±12% ÷ ±20% (±12% as standard)
	Nominal current	16 A
	Nominal frequency	50/60 Hz (auto selectable)
	Frequency range	±5% ÷ ±15% (±15% as standard)
OUTPUT	Voltage	230 V (220/230/240 V selectable)
	Frequency	50/60 Hz (auto selectable)
	Current	16 A
	Transfer time	<15 ms
	Overload capacity 101% ÷ 125% (20A)	12 s (input relay disconnection)
	Overload capacity 126% ÷ 150% (24A)	8 s (input relay disconnection)
	Overload capacity 151% ÷ 210% (33.6A)	4 s (input relay disconnection)
	Overload capacity 211% ÷ 300% (48A)	2 s (input relay disconnection)
	Short-circuit	Fuse protection
GENERALS	Operating temperature	0º C ÷ +40º C
	Working relative humidity	20% ÷85%, non-condensing
	Storage temperature	-20ºC ÷ 70ºC permanent
	Storage relative humidity	10% ÷90%, non.condensing
	Operating altitude	≤1,000 m.s.n.m.
	Acoustic noise @ 1 metre	<25 dB
	Cooling	Natural
	IP protection	IP 30
STANDARDS	Safety	EN-62310-1
	Electromagnetic Compatibility (EMC)	IEC-62310-2
	Quality and Environmental managament	ISO 9001 and ISO 14001

Data may change without previous notice.

RANGE

MODEL	CURRENT (A)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
SPS.16.STS	16	315 x 430 x 44 (1U)	8

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VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

SLC TWIN PRO

Double conversion On-line UPS 700 VA - 20 kVA

SLC TWIN PRO: The solution for maximum On-line protection

Covering a wide range of powers from 700 VA to 20 kVA, Salicru's **SLC TWIN PRO** series gives maximum reliability in electrical protection for businesses and industry. With its double conversion On-line technology, the most reliable technology on the market, the **SLC TWIN PRO** series is a single phase output UPS (with single phase input from 700 VA to 10 kVA and three-phase input from 8 kVA to 20 kVA), with an output power factor of 0.9 (1), broad communication options via interface + monitoring/automatic file closing shutdown software, batteries for standard autonomy integrated in the cabinet itself, option of extending back-up for processes requiring greater available autonomy and options of parallel/redundant operation up to 4 units (1) for installations growing in qualitative and quantitative demands.

Added performances include the standard static and maintenance bypasses (1), the low input current distortion (THDi) under 5%, small footprint in both standard and extended autonomies, full information obtained from the LCD/graphic display or the possibility of working in frequency converter mode.

Performances

· Double conversion On-line UPS.
· Output power factor = 0.9 (up to 3 kVA = 0.8).
· Input current Total Harmonic Distortion (THDi) <5%.
· Control panel with LCD display or graphic display and keyboard.
· Tower format.
· Option of parallel up to 4 units. (1)
· Eco-mode operation.
· Series communications (RS-232) (1) and USB interfaces.
· Monitoring software for Windows, Unix, Linux and Mac.
· Smart slot for SNMP/relays.
· Extended autonomy available.
· Automatic frequency detector.
· Frequency converter function.
· EPO – Emergency Power Off.
· Maintenance bypass. (1)
· Cold Start function for starting from batteries.
· SLC Greenergy solution.

(1) From 4 kVA

SLC TWIN PRO

Applications: Security and flexibility for single phase systems

The largest information losses from computer and telecommunications systems in more than 45% of cases are caused by disturbances (blackouts, micro cuts, voltage variations, frequency variations,...) in the mains supply. To the information losses we must add the losses caused by the user's inactivity during the recovery time and the expense of restoring damaged equipment and systems.

Salicru's **SLC TWIN PRO** series UPS give the best protection for ERP systems, CRM platforms, Business Intelligence (BI), intranets/extranets,...

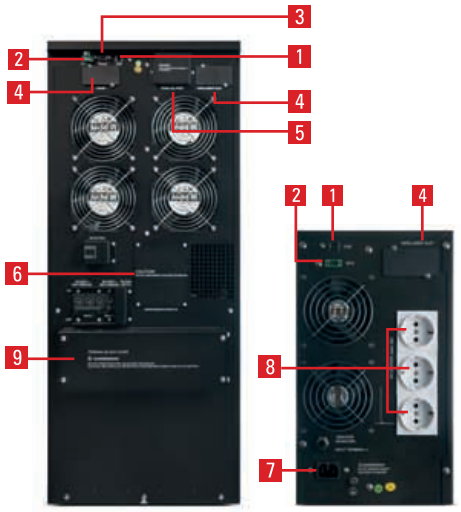
2 YEARS WARRANTY(*) ASK FOR LOCAL CONDITIONS

(*) Units ≥ 4 kVA: 1 year warranty

SLC TWIN PRO

Double conversion On-line UPS 700 VA - 20 kVA

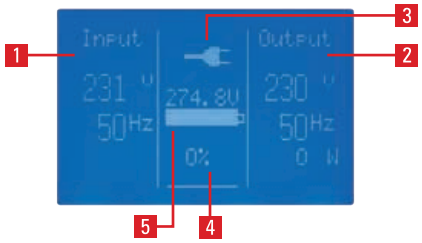
Description



SLC-15000-TWIN/3 PRO SLC-3000-TWIN PRO

1. USB port.
2. Emergency Power Off (EPO).
3. RS-232 interface.
4. SNMP/AS-400 smart slot.
5. Parallel port.
6. Manual maintenance bypass.
7. AC input.
8. Schuko type AC outputs.
9. AC input/output connection terminals.

Display



1. Input voltage x phase and frequency.
2. Output voltage and frequency.
3. UPS status/user adjustments.
4. Connected load level.
5. Battery status.

Adaptability

- Extended autonomies.
- Single phase/3-phase input.
- Parallel-redundant system >3 kVA.
- Frequency converter.
- Eco-mode operation.

Services

- Pre-sale and after sale advisory service.
- Technical support by phone.
- Preventive/corrective interventions.
- Maintenance contracts.
- Multiple formulae for maintenance and telemaintenance (SICRES).

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TECHNICAL SPECIFICATIONS

MODEL			TWIN PRO 0,7 ÷ 3 kVA	TWIN PRO 4 ÷ 10 kVA	TWIN/3 PRO 8 ÷ 20 kVA
FORMAT			Tower		
TECHNOLOGY			On-line, double conversion, PFC with double DC bus		
INPUT	Nominal voltage		200 / 208 / 220 / 230 / 240 V (1)		3 x 380 / 400 / 415 V
	Voltage range		110 ÷ 276 V (2)		3 x 190÷478+N (2)
	Frequency		50 / 60 Hz		
	Frequency range		±10%		
	Power factor		≥0.99		
	Total Harmonic Distortion (THDi)		<5%		
OUTPUT	Power factor		0.8	0.9	
	Nominal voltage		200 / 208 / 220 / 230 / 240 V (1)		
	Voltage accuracy		±2%	±1%	
	Maximum slew rate		1 Hz/s		
	Frequency syn-chronisation	mains present	±10%		
		free running	±0.2 Hz	±0.1 Hz	±0.05 Hz
	Efficiency		>88%	92%	>93%
	Total Harmonic Distortion (THDv) (2)		≤3% linear load; ≤5% non-linear load (according to EN 62040-3)	≤2% linear load; ≤5% non-linear load (according to EN 62040-3)	
	Admissible overload (normal mode)		Up to 110% during 1 min; 125% during 30 s	Up to 125% during 2 min; 150% during 30 s	Up to 110% during 5 min; 130% during 1 min
	Crest factor		3 to 1		
	Parallel		No	Yes, up to 4 units	
BYPASS	Nominal voltage		200 / 208 / 220 / 230 / 240 V (1)		
	Frequency range		50 / 60 Hz ±10 Hz		
MANUAL BYPASS			No	Yes ('make before break' type)	
BATTERY	Type		Sealed lead acid, AGM and free maintenance		
	Protection		Against overvoltages, under voltages and alternating current component		
CHARGER	Charge type		I/U (Constant current/Constant voltage)		
	Recharging time		5 ÷ 8 hours at 90%		
	Temperature compensation		Yes		
COMMUNICATION	Ports		USB	RS-232 and USB	
	Monitoring software		For Windows, Unix, Linux and Mac.		
FUNCTION MODES	Eco-mode		Yes, until 98% efficiency		
	Green-mode		Yes	No	
	Frequency converter		Yes (3)		
	Starting from batteries (Cold Start)		Yes		
GENERALS	Operating temperature		0° C ÷ +45° C		
	Relative humidity		Up to 95%, non-condensing		
	Operating altitude		1000 m.a.s.l. (with de-rating up to 5000 m.a.s.l.)		
	Acoustic noise @ 1 metre		<50 dB (4)		<55 dB
STANDARDS	Safety		EN-62040-1; EN-60950-1; EN-60529		
	Electromagnetic compatibility (EMC)		EN-62040-2		
	Operating		VFI according to EN-62040-3		
	Quality and environmental		ISO 9001 and ISO 14001		

(1) Power reduction for 200 V and 208 V versions in single-single units and only for 200 V in three-single
(2) With load at 50% (3) Power reduction of 40% in single-single models (4) 8kVA & 10kVA < 55dB

Data may change without previous notice.

RANGE

MODEL	POWER (VA / W)	DIMENSIONS (D x W x H mm,)	WEIGHT (Kg)	INPUT/ OUTPUT
SLC-700-TWIN PRO	700 / 560	400 x 145 x 220	13	II / II
SLC-1000-TWIN PRO	1,000 / 800	400 x 145 x 220	14	II / II
SLC-1500-TWIN PRO	1,500 / 1,200	460 x 192 x 347	30	II / II
SLC-2000-TWIN PRO	2,000 / 1,600	460 x 192 x 347	31	II / II
SLC-3000-TWIN PRO	3,000 / 2,400	460 x 192 x 347	32	II / II
SLC-4000-TWIN PRO	4,000 / 3,600	560 x 260 x 708	84	II / II
SLC-5000-TWIN PRO	5,000 / 4,500	560 x 260 x 708	85	II / II
SLC-6000-TWIN PRO	6,000 / 5,400	560 x 260 x 708	86	II / II
SLC-8000-TWIN PRO	8,000 / 7,200	560 x 260 x 708	92	II / II
SLC-8000-TWIN/3 PRO	8,000 / 7,200	560 x 260 x 708	92	III / II
SLC-10000-TWIN PRO	10,000 / 9,000	560 x 260 x 708	93	II / II
SLC-10000-TWIN/3 PRO	10,000 / 9,000	560 x 260 x 708	93	III / II
SLC-12000-TWIN/3 PRO	12,000 / 10,800	650 x 350 x 890	181	III / II
SLC-15000-TWIN/3 PRO	15,000 / 12,000	650 x 350 x 890	182	III / II
SLC-20000-TWIN/3 PRO	20,000 / 18,000	650 x 350 x 890	183	III / II

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SLC TWIN RT

Rack/tower On-line UPS 700 VA a 10,000 VA

SLC TWIN RT: Continuous protection for critical systems

Salicru's **SLC TWIN RT** series is a double conversion On-line UPS with an output power factor of 0.9, which can be turned into tower or rack format and can be set up in parallel [1]. The powers range is from 700 VA to 10 kVA. The rack format is highly compact (with batteries included) and comprises 2U of up to 3 kVA, 3U of 4 to 6 kVA and just 5U for powers of 8 and 10 kVA.

It comes with extensive communications options by graphic display, which can be positioned for the tower or rack formats, and incorporates USB and RS-232 ports, as well as smart slot for SNMP/relays communication. For applications with broader back-up requirements, there is the option of additional battery modules.

Above 4 kVA they include a rear plug-in module for electrical connections and a maintenance bypass to enable work to be done without having to disconnect the loads.

Performances

· Double conversion On-line UPS.
· Output power factor = 0.9.
· Input current Total Harmonic Distortion (THDi) <5%.
· Directable LCD display.
· Convertible between tower and rack.
· Up to 2 units in parallel. [1]
· Includes pedestal (tower) [2] and ears (rack).
· Selectable and priority loads control. [2]
· Eco-mode operation.
· Serial communication interfaces (RS-232) and USB.
· Monitoring software for Windows, Unix, Linux and Mac.
· Smart slot for SNMP/relays.
· Data/modem line protection. [3]
· Extended back-up available.
· Automatic frequency detector.
· Frequency converter function.
· EPO – Emergency Power Off.
· Cold Start function for starting from batteries.
· Self test on every start up and/or manual.
· SLC Greenergy solution.

(1) From 4 kVA
(2) Except 10 kVA
(3) Up to 3 kVA (included)

SLC TWIN RT

Applications: Security and flexibility for single phase applications

The optimal solution for applications requiring the highest possible protection against all kinds of electrical disturbances (blackouts, micro cuts, voltage and/or frequency variations, electric noise,...) in a compact unit with all necessary performances.

Secure power supply for all kinds of IT applications, such as voice and data networks, CAD/CAM, documentary management, unified communications (UC) or video streaming.

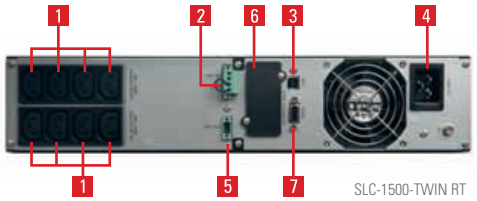
2 YEARS WARRANTY(*) ASK FOR LOCAL CONDITIONS

(*) Units ≥ 4 kVA: 1 year warranty

SLC TWIN RT

Rack/tower On-line UPS 700 VA - 10,000 VA

Connections



SLC-1500-TWIN RT

SLC-6000-TWIN RT

1. IEC type AC outputs.
2. Emergency Power Off (EPO).
3. USB port.
4. AC input.
5. Opto couplers.
6. SNMP/relays smart slot.
7. RS-232 interface.
8. Parallel port.
9. Maintenance bypass.

Higher output power

Model	Apparent power (VA)	Active power (W)
SLC-700-TWIN RT	700	630
SLC-1000-TWIN RT	1,000	900
SLC-1500-TWIN RT	1,500	1,350
SLC-2000-TWIN RT	2,000	1,800
SLC-3000-TWIN RT	3,000	2,700
SLC-4000-TWIN RT	4,000	3,600
SLC-5000-TWIN RT	5,000	4,500
SLC-6000-TWIN RT	6,000	5,400
SLC-8000-TWIN RT	8,000	7,200
SLC-10000-TWIN RT	10,000	9,000

Power Factor (PF) = 0.9.
+30% of active power over other UPS with FP = 0.7.
+efficiency (98%) with Eco-mode function.

Communications

- RS-232 interface.
- USB interface.
- SNMP/relays smart slot.
- Monitoring and management software for Windows, Linux, Unix and Mac.
- SNMP/web adapter. (1)
- AS-400 card. (1)
- MODBUS protocol. (1)
- Temperature-humidity sensor. (1)

(1) Optional

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TECHNICAL SPECIFICATIONS

MODEL			SLC TWIN RT 0,7 - 3 kVA	SLC TWIN RT 4 - 10 kVA
FORMAT			Tower / Rack	
TECHNOLOGY			On-line, double conversion, PFC, double DC bus	
INPUT	Nominal voltage		208 / 220 / 230 / 240 V (1)	
	Voltage range		120 ÷ 276 V (2)	
	Frequency		50 / 60 Hz	
	Frequency range		±10%	
	Power factor		≥0.99	
	Total Harmonic Distortion (THDi)		<5%	
OUTPUT	Power factor		0.9	
	Nominal voltage		208 / 220 / 230 / 240 V (1)	
	Voltage accuracy		±1%	
	Maximum slew rate		1 Hz/s	
	Frequency synchronization	mains present	±10%	
		free running	±0.2 Hz	±0.1 Hz
	Efficiency		>89% (3)	>93%
	Total Harmonic Distortion (THDv)		≤2% linear load; ≤5% non-linear load (according to EN 62040-3)	
	Admissible overload (normal mode)		Up to 130% during 12 s; 150% during 1.5 s	Up to 125% during 2 min; 150% during 30 s
	Crest factor		3 to 1	
	Parallel		No	Yes, up to 2 units
BYPASS	Nominal voltage		208 / 220 / 230 / 240 V (1)	
	Admissible frequency range		50 / 60 Hz ±10 Hz	
	Independent bypass line		No	Yes
MANUAL BYPASS			No	Yes ('make before break' type)
BATTERY	Type		Sealed lead acid, AGM and free maintenance	
	Protection		Against overvoltages, under voltages and alternating current component	
CHARGER	Charge type		I/U (Constant power/Constant voltage)	
	Recharging time		3 hours at 90%	
	Compensation voltage for temperature		Yes	
COMMUNICATION	Ports		RS-232 and USB	
	Monitoring software		For Windows, Unix, Linux and Mac.	
	Emergency Power Off (E.P.O.)		Yes	
FUNCTION MODES	Eco-mode		Yes, up to 98% efficiency	
	Starting free running (Cold Start)		Yes	
	Frequency converter		Yes (4)	
INDICATORS			Directable LCD display	
GENERALS	Operating temperature		0º C ÷ +40º C	0º C ÷ +45º C
	Relative humidity		Up to 95%, non-condensing	
	Operating altitude		1000 m.a.s.l. (degradation power up to 5000 m.a.s.l.)	
	Acoustic noise @ 1 metre		<45 dB (5)	<55 dB
STANDARDS	Safety		EN-62040-1; EN-60950-1; EN-60529	
	Electromagnetic compatibility (EMC)		EN-62040-2	
	Operating		VFI according to EN-62040-3	
	Quality and environmental		ISO 9001 and ISO 14001	

(1) Power reduction at 208 V for units ≥ 4 kVA
(2) With 50% of load
(3) For units of 700 and 1000 VA >87%
(4) Power reduction of 30%
(5) Models > 1500 VA is < 50 dB

Data may change without previous notice.

RANGE

MODEL	POWER (VA / W)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
SLC-700-TWIN RT	700 / 630	435 x 438 x 89 (2U)	14
SLC-1000-TWIN RT	1,000 / 900	435 x 438 x 89 (2U)	15
SLC-1500-TWIN RT	1,500 / 1,350	435 x 438 x 89 (2U)	19
SLC-2000-TWIN RT	2,000 / 1,800	435 x 438 x 89 (2U)	20
SLC-3000-TWIN RT	3,000 / 2,700	608 x 438 x 89 (2U)	29
SLC-4000-TWIN RT	4,000 / 3,600	630 x 438 x 133 (3U)	45
SLC-5000-TWIN RT	5,000 / 4,500	630 x 438 x 133 (3U)	46
SLC-6000-TWIN RT	6,000 / 5,400	630 x 438 x 133 (3U)	47
SLC-8000-TWIN RT	8,000 / 7,200	640 x 438 x 223 (5U)	82
SLC-10000-TWIN RT	10,000 / 9,000	640 x 438 x 223 (5U)	83

Dimensions and weight for standard back-up models

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UNINTERRUPTIBLE POWER SUPPLIES (UPS)
LIGTHING FLOW DIMMER-STABILISERS
DC POWER SYSTEMS
STATIC INVERTERS
PHOTOVOLTAIC INVERTERS
VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

SLC ADAPT Modular UPS from 10 to 100 kVA

SLC ADAPT: Adaptable, scalable and modular protection

Modularity is something needed by applications (telecommunications, DPC, railway sector, calculation centres) that require availability, growth and redundancy in addition to easy maintenance and lower ownership costs.

Salicru's **SLC ADAPT** series starts with independent 10 kVA UPS modules to enable power extensions and n+n redundant configurations thanks to the system's full modularity, without disconnecting the system (hot-swappable) and no need for tools, in configurations up to 100 kVA. A centralised control module is in charge of the communications, the configuration and monitoring the system. The system is completed with a centralised bypass that charges the loads with the best power supply available.

The flexibility of the **SLC ADAPT** series allows its multiple formats to adapt to the environment thanks to its presentations in subracks of 5 or 10 modules for integration in existing racks or in finished rack cabinets that include input/output switches, maintenance bypass and back-up (the batteries can be housed in the same cabinet or in additional cabinets depending on the required power and autonomy configurations).

Performances

· Double-conversion, On-line technology.
· Completely independent UPS module.
· Subracks of 50 kVA and 100 kVA with 10 kVA modules.
· Compact and light inverter/ondulator UPS format (9 kg x module).
· Power upgrading and redundant set up by adding modules.
· All options configured with just 3 references.
· Possible three phase/single-phase configurations up to 40 kVA.
· System efficiency up to 96% (3-level inverter).
· Unit input power factor (FP=1).
· Low input current distortion (THDi=3%).
· Modules extended and changed by the users themselves.
· Large variety of options available.
· Parallel/redundant capability by adding systems.
· Mean time to repair (MTTR) under 5 minutes.
· Inversion depending on growth or redundancy needs (pay as you grow).
· SLC Greenergy solution.

SLC ADAPT 5

SLC ADAPT 10

SLC ADAPT control module

salicru SMART SOLUTIONS

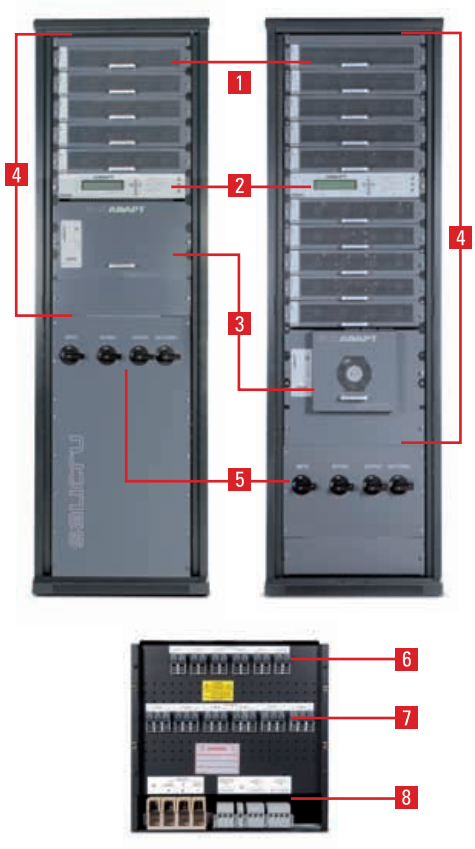
Applications: Redundant protection for critical applications

The modularity of these systems is used for different purposes:
- To increase the power simply, by adding modules as the installation grows. In this configuration, all of the installed modules are used to give power.
- To achieve redundant systems, where there is always a number of modules prepared to take over in the event of any other failing unexpectedly. A redundant n+1 system therefore has 1 module ready for this; in other words, when the system gives maximum power, this is not taken into account. For example, a 3+2 system uses 3 modules to give power and 2 to make up for any problem there might be in these 3.

SLC ADAPT

Modular UPS from 10 to 100 kVA

Modularity



1. UPS module.
2. Control module.
3. Bypass module.
4. Subrack.
5. Input, output, bypass and battery switches.
6. Battery protections.
7. Module's input protections.
8. Input, output, bypass and battery terminals.

Options

- Extended autonomies.
- Isolation transformer.
- External manual bypass.
- Web/SNMP or GPRS adapter.
- Monitoring, management and shutdown softwares.
- 1 x additional RS-232/485 port.
- BACS II, monitoring, adjustment and battery alarm.

Technical support and service

- Pre-sales and after-sales advice.
- Start-up.
- Technical support by telephone.
- Preventive/corrective services.
- Maintenance contracts.
- Telemaintenance contracts SICRES.
- Training courses.

TECHNICAL SPECIFICATIONS

MODEL			SLC ADAPT
TECHNOLOGY			On-line, double conversion, HF
INPUT	Nominal voltage		Single phase 220 / 230 / 240 V Three-phase 3 x 380 / 3 x 400 / 3 x 415 V (3Ph+ N)
	Voltage range		+20% / -27 % (@ 3x400V / 230V Ph-N)
	Frequency		50 / 60 Hz
	Total Harmonic Distortion (THDi)		3%
	Power factor		1
OUTPUT	Nominal voltage		Single phase 220 / 230 / 240 V Three-phase 3 x 380 / 3 x 400 / 3 x 415 V (3Ph+N)
	Precision	Steady state	±1%
		Dynamic state	±2% (load variations 100% - 0% - 100%)
	Frequency	Synchronised	50 / 60 Hz ±0.5 ±1 ±2 ±3 ±4 Hz (selectable)
		Free running	50 / 60 Hz ±0.1%
	Max. synchronisation speed		1 Hz/s
	Total Harmonic Distortion (THDv)		<2%
	Admissible overload		110% during 10 min / 125% during 60 s
	Admissible crest factor		3:1
	Total efficiency		96.0%
STATIC BYPASS	Type and activation criteria		Hibrid control by microprocessor
	Voltage		Single phase 220 / 230 / 240 V Three-phase 3 x 380 / 3 x 400 / 3 x 415 V (3Ph+N)
	Frequency		50 / 60 Hz
	Transfer time		Nil
MANUAL BYPASS	Type		Without interruption
	Voltage		Single phase 220 / 230 / 240 V Three-phase 3 x 380 / 3 x 400 / 3 x 415 V (3Ph+N)
	Frequency		50 / 60 Hz
RECTIFIER	Structure		Three-phase IGBT complete wave, soft start and PFC
	Protection		Against transitory over-voltages
BATTERIES	Type		Lead acid, sealed, maintenance free
	Recharging time		4-6 hours, to 80% of capacity
	Protection		Against over-voltages and under-voltages
	Charge voltage regulation		Batt-Watch
COMUNICATION	Ports		RS-232
	Interface to relays		6 programmable
GENERALS	Operating temperature		0º C ÷ +40º C
	Relative humidity		Up to 95%, non-condensing
	Operating altitude		2400 m.a.s.l.
	Acoustic noise @ 1 metre		<52 dB (1)
STANDARDS	Safety		EN-62040-1-2; EN-60950-1
	Electromagnetic Compatibility (EMC)		EN-62040-2
	Operating		VFI-SS-111 according to EN-62040-3
	Quality and Environmental Management		ISO 9001 and ISO 14001

(1) For a full loaded module.

Data may change without previous notice.

RANGE

MODEL	POWER (kVA)	SUBRACK VERSION		42U RACK CABINET VERSION	
		DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
1SLC-10-ADAPT/5	10	673 x 19" x 972	43	1000 x 600 x 2020	231
2SLC-10-ADAPT/5	20	673 x 19" x 972	52	1000 x 600 x 2020	240
3SLC-10-ADAPT/5	30	673 x 19" x 972	61	1000 x 600 x 2020	249
4SLC-10-ADAPT/5	40	673 x 19" x 972	70	1000 x 600 x 2020	258
5SLC-10-ADAPT/5	50	673 x 19" x 972	79	1000 x 600 x 2020	267
6SLC-10-ADAPT/10	60	652 x 19" x 1416	64	1000 x 600 x 2020	299
7SLC-10-ADAPT/10	70	652 x 19" x 1416	73	1000 x 600 x 2020	308
8SLC-10-ADAPT/10	80	652 x 19" x 1416	82	1000 x 600 x 2020	317
9SLC-10-ADAPT/10	90	652 x 19" x 1416	91	1000 x 600 x 2020	326
10SLC-10-ADAPT/10	100	652 x 19" x 1416	100	1000 x 600 x 2020	335

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

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UNINTERRUPTIBLE POWER SUPPLIES (UPS)
LIGTHING FLOW DIMMER-STABILISERS
DC POWER SYSTEMS
STATIC INVERTERS
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VOLTAGE STABILISERS
TECHNICAL SUPPORT & SERVICE

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%), which help to reduce installation and operating costs, and contribute to improving the quality of the electrical network.

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% 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.

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.
· 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%.
· Very compact design with minimal footprint.
· Can be integrated into the most advanced IT environments.
· Parallel redundant configuration (N+1) for critical installations. (3)
· Built with 80% recyclable materials.
· Bluetooth application display for Android (up to 10 m).
· SLC Greenergy solution.

(1) Single/single, single/three and three/single configurations up to 60 kVA
(2) Up to 120 kVA
(3) Up to 4 units

SLC CUBE3 +

salicru SMART SOLUTIONS

Applications: Designed to protect any type of environment

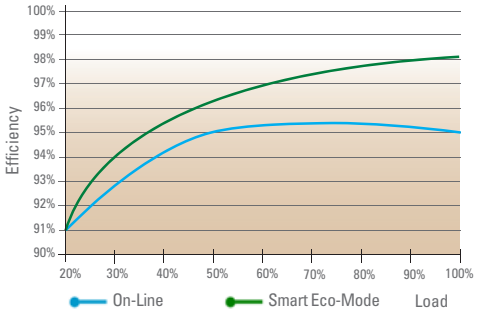
High-end design features plus great flexibility capacity (options, power upgrading, communications,…) make **SLC CUBE3+** series the best option to protect and secure a wide range of environments: data-centres, hosting, housing, IT-networks, server farms, voice and data networks,…

SLC CUBE3+

Uninterruptible power supply system from 7.5 to 200 kVA

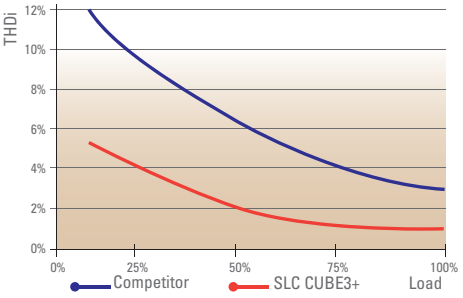
High efficiency

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



Low harmonic distortion

The lowest harmonic distortion in the market.



Options

- Ethernet/SNMP adapter or GPRS modem.
- SICRES adapter for remote management.
- Android wireless link.
- 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.
- Single/single, single/three and three/single configurations.(1)
- External manual bypass.
- Temperature and humidity sensors.
- External display.
- Frequency converter function.

(1) Up to 60 kVA

Technical support and service

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

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TECHNICAL SPECIFICATIONS

MODEL			SLC CUBE3+
TECHNOLOGY			On-line, double conversion, HF, DSP control
INPUT	Nominal voltage (1)		Single-phase 120 / 127 / 220 / 230 / 240 V Three-phase 3 x 208 / 3 x 220 / 3 x 380 / 3 x 400 / 3 x 415 V (3P + N)
	Voltage margin		+15% / -20% (configurable)
	Frequency		50 / 60 Hz
	Total Harmonic Distortion (THDi)	7.5 ÷ 20 kVA	100% load: <1.5% / 50% load: <2.5% / 10% load: <6.0%
		30 ÷ 80 kVA	100% load: <1.0% / 50% load: <2.0% / 10% load: <5.0%
		100 ÷ 200 kVA	100% load: <1.5% / 50% load: <2.0% / 10% load: <6.0%
	Power factor		>1 from 10% load
	Rectifier topology		Three-phase IGBT full wave, soft start, PFC, transformerless
OUTPUT	Nominal voltage (1)		Single-phase 120 / 127 / 220 / 230 / 240 V Three-phase 3 x 208 / 3 x 220 / 3 x 380 / 3 x 400 / 3 x 415 V (3P + N)
	Accuracy	State	± 1% steady / ± 2% dynamic
		Response time	20 ms for load steps 0% ÷ 100% and voltage drop up to -5%
	Frequency	Synchronised	50/60 Hz ±5 Hz (selectable)
		Free running	50/60 Hz ±0.05%
	Maximum synchronisation speed		From 1 Hz/s to 10 Hz/s (programmable)
	Total Harmonic Distortion (THDv)	Linear load	<0.5%
		Nonlinear load	7.5 ÷ 80 kVA: <1.5% / 100 ÷ 200 kVA: <2% (EN-62040-3)
	Output Power Factor (2)		0.9
	Admissible overload		125% for 10 min / 150% for 60 s
	Admissible crest factor		>3:1
	Total efficiency in On-line mode		7.5÷60 kVA: 92.0%÷93.0% / 80÷200 kVA: 94.0%÷95.0%
	Efficiency in Smart Eco-mode		Up to 98,4%
STATIC BYPASS	Type and activation criteria		Solid state, controlled by microprocessor
	Transfer time	On-line mode	Nil
		Smart Eco-mode	4 ms (typical)
	Transfer to bypass		Immediate, for overloads exceeding 150%
	Retransfer		Automatic, after alarm deactivation
MANUAL BYPASS	Type		Without interruption
BATTERIES	Type (standard)		Lead acid, sealed, maintenance free
	Charge voltage regulation		Batt-Watch
COMMUNICATION	Ports		1 x RS-232/485, with MODBUS protocol
	Interface to relays		4 x AC failure, bypass, low battery and general
	Free slots		1, for SNMP/SICRES
	Parallel connection		2 x connectors
GENERAL	Operating temperature		0° C ÷ +40° C
	Relative humidity		Up to 95%, non-condensing
	Operating altitude		1,000 masl
	Acoustic noise at 1 metre		<52 dB(A) (3)
STANDARDS	Safety		EN-62040-1-2; EN-60950-1
	Electromagnetic Compatibility (EMC)		EN-62040-2
	Operating		VFI-SS-111 according to EN 62040-3
	Quality and Environmental Management		ISO 9001 and ISO 14001

Data may change without previous notice.

(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) Up to 120 kVA inclusive at three/three-phase configurations. (3) <65 dB(A) for 80 to 120 kVA models / <70 dB(A) for 160 and 200 kVA models.

RANGE

MODEL	POWER (kVA / kW)	Nº CABINETS (UPS + BAT)	UPS DIMENSIONS (D x W x H mm)	WEIGHT (kg)	BAT DIMENSIONS (D x W x H mm)	WEIGHT (kg)
SLC-7.5-CUBE3+	7.5 / 6.75	1 + 0	775 x 450 x 1100	207	-	-
SLC-10-CUBE3+	10 / 9	1 + 0	775 x 450 x 1100	207	-	-
SLC-15-CUBE3+	15 / 13.5	1 + 0	775 x 450 x 1100	209	-	-
SLC-20-CUBE3+	20 / 18	1 + 0	775 x 450 x 1100	235	-	-
SLC-30-CUBE3+	30 / 27	1+ 0	775 x 450 x 1100	319	-	-
SLC-40-CUBE3+	40 / 36	1 + 0	775 x 450 x 1100	417	-	-
SLC-50-CUBE3+	50 / 45	1 + 1	775 x 450 x 1100	185	775 x 450 x 1100	321
SLC-60-CUBE3+	60 / 54	1 + 1	775 x 450 x 1100	185	775 x 450 x 1100	551
SLC-80-CUBE3+	80 / 72	1 + 1	880 x 590 x 1325	265	1050 x 650 x 1325	1020
SLC-100-CUBE3+	100 / 90	1 + 1	880 x 590 x 1325	290	1050 x 650 x 1325	1020
SLC-120-CUBE3+	120 / 108	1 + 1	880 x 590 x 1325	290	1050 x 650 x 1325	1020
SLC-160-CUBE3+	160 / 128	1 + 1	850 x 900 x 1905	540	850 x 1305 x 1905	1655
SLC-200-CUBE3+	200 / 160	1 + 1	850 x 900 x 1905	550	850 x 1305 x 1905	1690

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

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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.

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%.
· High energy efficiency between 95% and 96%.
· Zig-zag transformer on the output inverter.
· Parallel for redundancy or increase the power capacity.
· Compatible with generating sets.
· Selectable operation inverter/Smart Eco-mode.
· Efficiency in Smart Eco-mode >98%.
· Prepared to bear 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.

SLC X-TRA 100 kVA

SLC X-TRA 600 kVA

salicru SMART SOLUTIONS

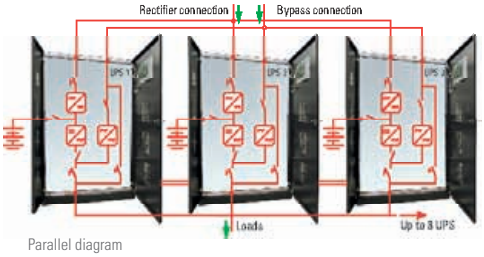
Applications: Guaranteed energy for all environments

Data centres: Ensures the functionality of environments and prevents losses caused by mains 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.

SLC X-TRA

Uninterruptible Power Supplies from 100 to 800 kVA

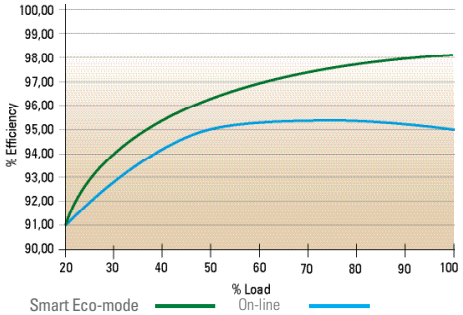
Parallel growth



Parallel diagram

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 conditions.

High energy 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).

Adaptability

- Parallel/redundant kit.
- Extended autonomies.
- BACS II.
- MODBUS protocol + RS-485 interface.
- SICRES platform for remote telemanagement.
- Ethernet / SNMP adapter or GPRS modem.
- Monitoring, management and shutdown software.
- Common input connection.
- Top cable input.
- External manual bypass.
- Auto-transformers to adapt the voltage.

Total availability

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

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TECHNICAL SPECIFICATIONS

MODEL			SLC X-TRA
TECHNOLOGY			On-line, double conversion, DSP control
INPUT	Nominal voltage		Three-phase 3 x 380 V / 3 x 400 V / 3 x 415 V
	Voltage margin		+15% / -20% (@ 3 x 400 V)
	Frequency		50/60 Hz (45-65 Hz)
	Total Harmonic Distortion (THDi)		<3%
	Power factor		>0.99
OUTPUT	Nominal voltage		Three-phase 3 x 380 V / 3 x 400 V / 3 x 415 V (3Ph+N)
	Precision		±1% Steady state; ±5% Dynamic state (100% unbalanced) <20 ms recovery time
	Frequency		50/60 Hz
	Total Harmonic Distortion (THDv)	Linerar load	<1%
		Non-linear load	<5%
	Efficiency	On-line	95% ÷ 96%
		Smart Eco-mode	>98%
	Admisible overload		125% for 10 min. / 150% for 1 min.
STATIC BYPASS	Type and activation criteria		Solid state, control by microprocessor
	Input		Independent
	Voltage		Three-phase 3 x 380 / 3 x 400 / 3 x 415 V (3Ph + N)
	Frequency		50/60 Hz
	Transfer time		Nil
	Transfer to bypass		Immediate for overloads of over 150%
	Retransfer		Automatic after alarm disappearance
	Admisible overload		1000% for 1 cycle
MANUAL BYPASS	Type		Without interruption
	100 – 300 kVA		As standard
RECTIFIER	Structure		Three-phase IGBT complete wave, soft start and PFC
	Protection		Against transitory overvoltages
BATTERIES	Type (1)		Lead acid, sealed, maintenance free
	Protection		Against overvoltages and undervoltages
	Charging time		4 hours, @ 80% of capacity
	Charge voltage regulation		Batt-Watch
	Test		Manual + Automatic
COMMUNICATION	Ports		RS-232, USB, Emergency Power Off (EPO), Port for monitoring battery switch
	Display		LCD + LED block diagram
GENERALS	Operating temperature		0º C ÷ +40º C
	Relative humidity		Up to 95%, non-condensing
	Operating altitude		<1,000 m.a.s.l.
	Acoustic noise @ 1 metre		<60 dB
STANDARDS	Safety		EN-62040-1-2; EN-60950-1
	Electromagnetic Compatibility (EMC)		EN-62040-2
	Operating		VFI-SS-111 according to EN-62040-3
	Quality and Environmental Management		ISO 9001 and ISO 14001

(1) Ni-Cd under request.

Data may change without previous notice.

RANGE

MODEL	POWER (kVA / kW)	Nº CABINETS (UPS + BAT)	UPS DIMENSIONS (D x W x H mm)	WEIGHT (kg)	BAT. DIMENSIONS (D x W x H mm)	WEIGHT (kg)
SLC-100-XTRA	100 / 90	1 + 1	865 x 815 x 1705	630	850 x 1300 x 1900	875
SLC-125-XTRA	125 / 112.5	1 + 1	865 x 815 x 1705	662	850 x 1300 x 1900	1370
SLC-160-XTRA	160 / 144	1 + 1	865 x 815 x 1705	720	850 x 1300 x 1900	1370
SLC-200-XTRA	200 / 180	1 + 1	895 x 1220 x 1905	870	850 x 1300 x 1900	1550
SLC-250-XTRA	250 / 225	1 + 1	895 x 1220 x 1905	1020	850 x 1300 x 1900	1800
SLC-300-XTRA	300 / 270	1 + 2	895 x 1220 x 1905	1200	850 x 1300 x 1900	1370
SLC-400-XTRA	400 / 360	1 + 2	990 x 1990 x 1920	1820	850 x 1300 x 1900	1800
SLC-500-XTRA	500 / 450	1 + 2	990 x 2440 x 2020	2220	850 x 1300 x 1900	1800
SLC-600-XTRA	600 / 540	1 + 2	990 x 2440 x 2020	2400	850 x 1300 x 1900	2125
SLC-800-XTRA	800 / 720	1 + 3	990 x 3640 x 1920	3600	850 x 1300 x 1900	1925

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

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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 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 30, 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, a NiCd electrolyte level detection input and six additional relays.

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/in^3.
- High efficiency, up to 95% even with low load.
- Option of single or three-phase power supply.
- DC systems with output voltages of 48, 110 or 125 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 (4x40 characters).
- Communication unit for remote monitoring.
- Monitoring software via Ethernet/SNMP.
- Smart-mode to maximise MTBF (Mean Time Between Failures).

DC power-S

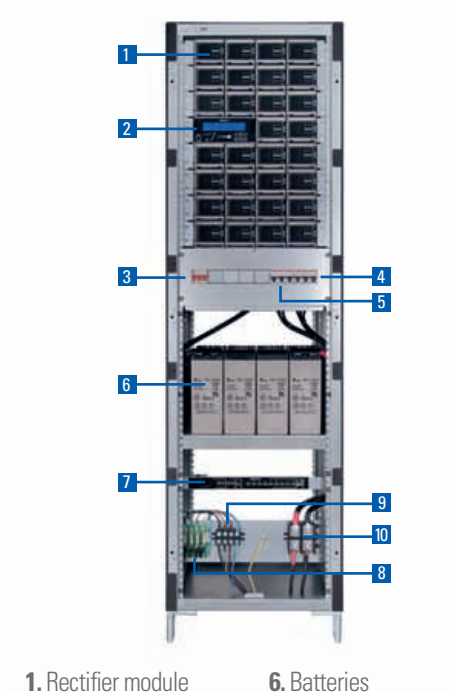
salicru SMART SOLUTIONS

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.

DC POWER-S
DC power systems

System description



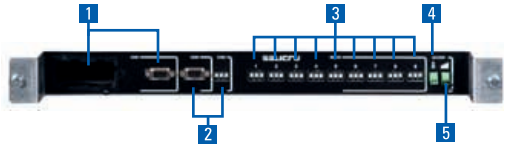
1. Rectifier module
2. Centralised control
3. Input protection
4. Output distribution
5. Batteries protection
6. Batteries
7. Extended communication
8. Surge protector
9. Input terminals
10. Output terminals

SMART mode

Load sharing in normal operation.

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

Extended communications



1. Slot for SICRES remote management or RS-232 interface.
2. RS-232 or RS-485 serial ports. MODBUS communications protocol.
3. General alarm & programmable (x8) dry contact interface.
4. Battery temperature measurement input.
5. NiCd electrolyte level detection input.(1)

(1) Only for extended version.

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.

TECHNICAL SPECIFICATIONS

MODEL		DC POWER- S
INPUT	AC voltage	220 / 230 /240 V 3x380 / 400 / 415 V (3Ph+N)
	Range (phase-neutral)	90 ÷ 290 Vac(1)
	Frequency	50/60 Hz
	Power factor	>0.99 (PFC)
	THDi	<5%
	Efficiency	Up to 95.5%
OUTPUT	DC voltage	48, 110, 125 V
	Voltage adjustment range	0.1
	Accuracy	±1%
	Psophometric noise	<2 mV
	Load sharing between modules	Active parallel
	Rectifier module power	1000 / 2000 / 2700 W
	Maximum number of parallel modules	30
	Maximum system power (depending on module)	30 / 60 / 81 kW
BATTERIES	Type	PbCa or NiCd
	Charge type	Constant I/U in accordance with DIN 41773
	Charging current	0.1C to 0.3C adjustable
	Recharge time	Up to 80% in 4 hours (0.2C)
	Protection	Against overvoltage, undervoltage and overload
	Voltage/temperature compensation	Yes, customisable (mV/°C)
	Electrolyte level detection (NiCd battery)	Optional
PROTECTION	Input and output	Circuit breakers
	Battery	Fuses
GENERAL	Dielectric strength	4000 V @1 minute
	Degree of protection	IP20
	Ventilation	Forced
	Acoustic noise at 1 metre	<55 dB(A)
	Operating temperature	-20°C ÷ +55°C (2)
	Storage temperature	-40°C ÷ +70°C (3)
	Relative humidity	Up to 95%, non-condensing
	Maximum operating altitude	3,000 masl
	Mean time between failures (MTBF)	250,000 hours
	Mean time to repair (MTTR)	15 minutes
SYNOPTIC	LCD display	Yes (4x40 characters)
	Indicators (LED)	5
COMMUNICATION	Ports	RS-232/485
	Dry contacts	3 relays (expandable to 9)
	SNMP	Optional
	Slot	Yes, one
STANDARDS	Safety	IEC/EN 61204-7, IEC/EN 60950-1
	Electromagnetic compatibility (EMC)	IEC/EN 61204-3
	Quality and environmental management	ISO 9001 and ISO 14001

(1) Power degradation for voltages lower than 190 Vac.
(2) Power degradation for temperatures higher than 45°C.
(3) Without batteries

Data may change without previous notice.

RANGE

OUTPUT VOLTAGE (Vdc)	MODULE			CURRENT PER SYSTEM (A)	POWER PER SYSTEM (kW)
	MODEL	POWER (W)	CURRENT (A)		
48	DC-18-S	1000	18	Between 18 and 540	Between 1and 30
	DC-36-S	2000	36	Between 36 and 1080	Between 2 and 60
	DC-50-S	2700	50	Between 50 and 1500	Between 2.7 and 81
110	DC-8-S	1000	8	Between 8 and 240	Between 1 and 30
	DC-16-S	2000	16	Between 16 and 480	Between 2 and 60
	DC-22-S	2700	22	Between 22 and 660	Between 2.7 and 81
125	DC-7-S	1000	7	Between 7 and 210	Between 1 and 30
	DC-16-S	2000	15	Between 15 and 450	Between 2 and 60
	DC-20-S	2700	20	Between 20 and 600	Between 2.7 and 81

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OPTIMUS Compact DC power systems

OPTIMUS: Compact DC Power Systems for Telecommunications

The DC Power Systems Salicru **OPTIMUS** series are rectifiers especially designed for supplying small and medium power telecommunications equipment. Produced in versions of 300 and 700 W per module, they can be configured both in the number of rectifiers and battery breakers or distribution in order to adapt to the most varied power supply requirements.

They are conceived to be included in 19" racks or ETSI, and 2 sub-racks can be connected in parallel in applications with larger power demands. The main sub-rack, in its maximum configuration, has 3 plug-in type rectifiers, monitoring and control unit MS-100, current distribution unit with capacity for up to 8 breakers of different calibres, alarm card and 2 breakers for connecting 2 sets of batteries.

All of the system values and parameters, and the alarm category, may be modified by an LCD display or software for PC (optional).

OPTIMUS 300 W

OPTIMUS 700 W

Performances

· Suitable for single phase or three-phase supplies.
· Great power density.
· Easy installation and maintenance.
· High MTBF.
· High efficiency.
· Low cost operation and maintenance.
· Battery charging current limitation.
· Plug-in type output distribution unit (8 breakers).
· Plug-in type battery unit (2 breakers).
· Suitable for connecting any type of battery.
· Front input/output and connectors.
· Alarm card.
· Breaker calibre up to 30 A (Optimus 300) or 60 A (Optimus 700).
· Modularity: up to 3 plug-in type rectifiers per sub-rack.
· Power factor close to the unit.

MS-100 control

Supply and alarm unit

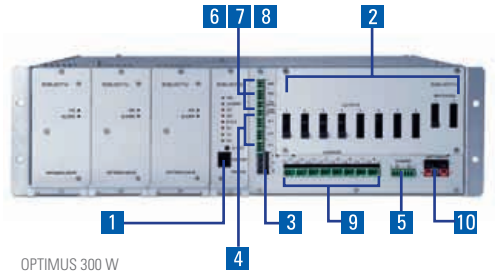
Applications: Telecommunications systems always operative

The Salicru **OPTIMUS** DC Power Systems provide high level supply to the always critical telecommunications systems, guaranteeing their perfect operation without unexpected cuts. Due to their modular nature, they can also be expanded according to needs, thus optimising the investment.

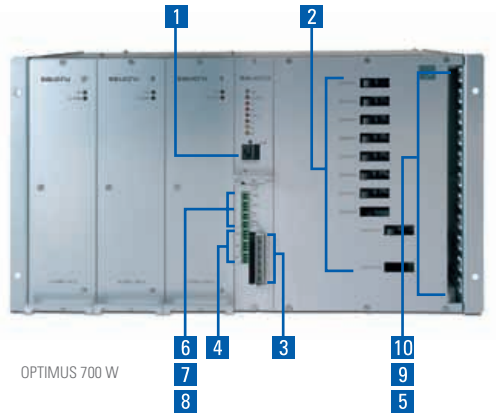
OPTIMUS

Compact DC power systems

Unit connectivity



OPTIMUS 300 W



OPTIMUS 700 W

1. RJ-45 connector for optional LCD display or PC.
2. 10 plug and play type connections (8 for output distribution and 2 for batteries).
3. AC power supply connectors.
4. Urgent alarm outputs, not urgent and informative.
5. Alarm outputs trigger distribution magnetic thermal and trigger battery magnetic thermal.
6. Temperature probe.
7. Reading of maximum/minimum input voltage.
8. RS-232 and RS-485 ports.
9. Outputs 1 to 8.
10. Battery connectors.

Options

· LCD display.
· Monitoring software for Windows.
· RS-485 to TCP-IP converter.

Communications & services

· MS-100 Monitoring and Control Unit.
· RS-232 and RS-485 serial ports.
· Pre-sale and after-sale advisory service.
· Multiple formulae for maintenance and telemaintenance (SICRES).

TECHNICAL SPECIFICATIONS

MODEL		OPTIMUS 300	OPTIMUS 700
INPUT	AC voltage	230 V	
	Voltage range	± 15%	
	Power factor	> 0.86	> 0.95
	Nominal current	1.43 A	3.55 A
	Maximum current	2.09 A	6.41 A
	Efficiency	> 85% (50% to 100% of the load)	> 90% (10% to 100% of the load)
	Frequency	50 / 60 Hz	
	Protection	Input fuse 10 A and overtemperature	
OUTPUT	DC voltage	- 48 V	
	Volatge adjustment	- 48 V ÷ - 60 V	
	Accurancy	± 0.1% (with battery full charged)	
	Nominal power	300 W	700 W
	Maximum subrack power	900 W	2100 W
	Nominal current (per module)	5.5 A	13 A
	Response time	± 0.1% (10% a 100% load steps)	
	Protection	Output fuse 25 A	
	Maximum ripple	50 mVpp	
STRUCTURE	Single or three phase	Active Power Factor Correction (PFC)	
	Protection	Against 5 kV transients (8 / 20 impulses µs)	
GENERALS	Dielectric strenght	1500 Vac, 1 minute, input 800 Vac, 1 minute, output	
	Protection degree in a/ with standards	IP20	
	Isolation	> 10 MΩ	
	Pshophometric noise	< 2 mV	
	Acoustic noise @ 1 metre	< 40 dB	
	Cooling	Natural	
	Operating temperature	- 10º C a + 45º C	
	Storage temperature	- 20º C a + 70º C	
	Relative humidity	Up to 95%, non-condensing	
	Maximum operating altitude	2400 m.a.s.l.	
	Mean Time Between Failures (MTBF)	250,000 hours	
	Mean Time To repair (MTTR)	15 minutes	
INDICATORS & COMMUNICATION	Optical module indicators	On / Rectifier fault	
	Optical control MS-100 indicators	On, Alarm, Alarm A1, Alarm A2, End of autonomy, Alarm 01, TX, RX	
	Communication ports	RS-485 or RS-232 through RJ45 connector	
	Protocol	MODBUS, as standard	
STANDARDS	Safety	EN 60950-1	
	Electromagnetic Compatibility (EMC)	ETS 300386-2	
	Quality and Environmental management	ISO 9001 and ISO 14001	

Data may change without previous notice.

RANGE

MODEL	POWER / MODULE (W)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)(1)
OPTIMUS 300	300	260 x 483 x 133	13
OPTIMUS 700	700	260 x 483 x 267	17

(1) Complete subrack

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FAC P DC power systems

FAC P: DC Power Systems for medium and high powers

The Salicru **FAC P** series DC Power Systems are rectifiers especially designed to supply the most varied medium and high power equipment in DC. Made in powers of 1000, 2000, 2700 and 5000 W, they can be connected in parallel and form part of 19" cabinets, where each cabinet can also include the monitoring and control unit (MS-102), batteries and DC output distribution, and a load priority system. Each rectifier module is also prepared for hot swapping, with all of the advantages that this involves for the system operation.

On the other hand, the large amount of rectifier modules that can be connected in a single system will allow a power concentration of over 170 kW.

The Monitoring and Control Unit (MS-102) controls the whole system, stores and manages input, output and battery data and all of the parameters are programmed here. Through the RS-485 port, there is communication with the rectifier modules, controlling at all times the output voltage, the current spreads between modules, the battery loading current, the control of the priority and non-priority load contactors, the ends of autonomy, etc. Exterior communication may be in local or remote mode (GSM / TCP-IP).

Performances

· Suitable for single phase or three-phase supplies.
· Great power density.
· Easy installation and maintenance.
· Low cost operation and maintenance.
· High MTBF.
· High efficiency.
· Battery charging current limitation.
· Unit power factor.
· Hot swapping modules.
· Monitoring and Control Unit (MS-102).

FAC 1000 P

FAC 2000 P

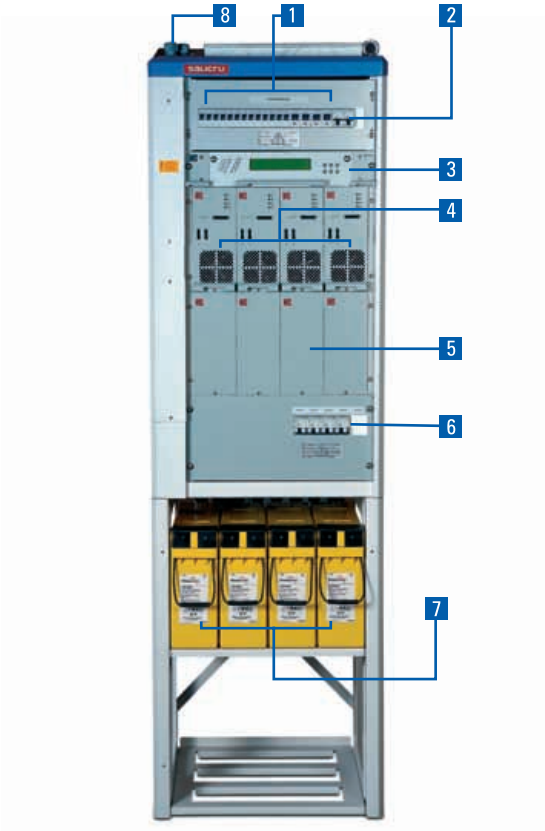
FAC 2700 P

MS-102

Applications: DC power systems always available

The Salicru **FAC P** series DC Power Systems provide high level supply to the always critical telecommunications systems, guaranteeing their perfect operation without unexpected cuts. Due to their modular nature, they can also be expanded according to needs, thus optimising the investment.

Unit connectivity



1. Output distribution.
2. Input protection.
3. MS-102.
4. FAC P modules.
5. Slots for increasing power.
6. Battery protection.
7. Batteries.
8. Cable input.

Optional

- MS-102 Monitoring and Control Unit.
- Output distribution.
- Positive, negative or floating output voltages.
- Ground failure detector.
- Any type of battery: Sealed, Ni-Cd, open, etc.
- Atmospheric discharger.
- Output voltage reducer.
- Other IP.

Communications & services

- RS-232 and RS-485 serial ports.
- Relay interface.
- MODBUS communications protocol.
- Pre-sale and after-sale advisory service.
- Multiple formulae for maintenance and telemaintenance.

FAC P

DC power systems

THECHNICAL SPECIFICATIONS

MODEL		FAC 1000P	FAC 2000P	FAC 2700P	FAC 5000P
INPUT	Ac voltage	230 V			230 V or 3 x 400 V
	Volatge range	± 15%			
	Power factor	> 0.99 (1)			
	Nominal current	5.0 A	10.7 A	13.5 A	24.8 A
	Maximum current	5.9 A	12.6 A	15.8 A	29.2 A
	Efficiency	> 87%	> 82%	> 90%	
	Frequency	50 / 60 Hz			
	Protection	Electronic			
OUTPUT	DC nominal volatge	12, 24, 36, 48, 60, 110, 125, 216, 220 V		48, 110, 125 V	12, 24, 36, 48, 60, 110, 125, 216, 220 V
	Voltage adjustment range	- 15% + 25%			
	Accurancy	± 0.1% (with charged batteries)			
	Nominal power	1000 W (2)	2000 W (3)	2700 W	5000 W (3)
	Nominal current	25, 25, 24, 18, 14, 8, 7, 4, 4 A	75, 75, 48, 36, 29, 16, 14, 8, 8 A	49, 22, 20 A	181, 181, 121, 91, 72, 40, 36, 20, 20 A
	Psophometric noise	< 3 mV		< 1 mV	< 3 mV
	Load sharing	Active parallel			
STRUCTURE	Power factor corrector (PFC)	Yes (1)			
	Protection	Against 5 kV peaks (8 / 20 µs)			
BATTERIES	Type	Pb-Ca or Ni-Cd			
	Charging curve	I / U constant			
	Charging current	0.1 a 0.3 C adjustable			
	Recharging time	Up to 80% in 4 hours (0.2 C)			
	Protections	Against over-voltages and under-voltages			
GENERALS	Dielectric strenght	2000 V @ 1 minute			
	Protection degree ac. to standards	IP20			
	Insulation	> 20 MΩ			
	Acoustic noise @ 1 metre	< 50 dB			
	Cooling	Forced		Controlled and forced	Forced
	Operating temperature	0º C ÷ + 40º C			
	Storage temperature (4)	- 20º C ÷ + 70º C			
	Relative humidity	Up to 95%, non-condensing			
	Maximum operating altitude	2400 m.a.s.l.			
	Mean Time Between Failures (MTBF)	100,000 hours		150,000 hours	100,000 hours
	Mean Time To Repair (MTTR)	15 minutes			
INDICATORS	Display LCD	Yes		NA	Yes
	General alarm	Yes			
	Equipment On	Yes			
	Batteries on discharge / float	Yes		NA	Yes
COMMUNICATIONS	Ports	RS-232 / RS-485 / relays			
STANDARDS	Safety	EN 60950-1			
	Electromagnetic Compatibility (EMC)	EN 61204-3; ETS 300 386-2			
	Quality and Environmental management	ISO 9001 and ISO 14001			

(1) Single phase input only.
(2) Except 12 V and 24 V output voltages.
(3) Except 12 V output voltage.
(4) No batteries.

Data may change without previous notice.

RANGE

RECTIFIER MODULE	DIMENSIONS (D x H x W mm.)	WEIGHT (Kg)
FAC 1000P	425 x 483 x 2U	12
FAC 2000P	525 x 483 x 3U (5)	15
FAC 2700P	450 x 73 x 6U	6
FAC 5000P	525 x 483 x 4U	28

(5) 2U for 48V models.

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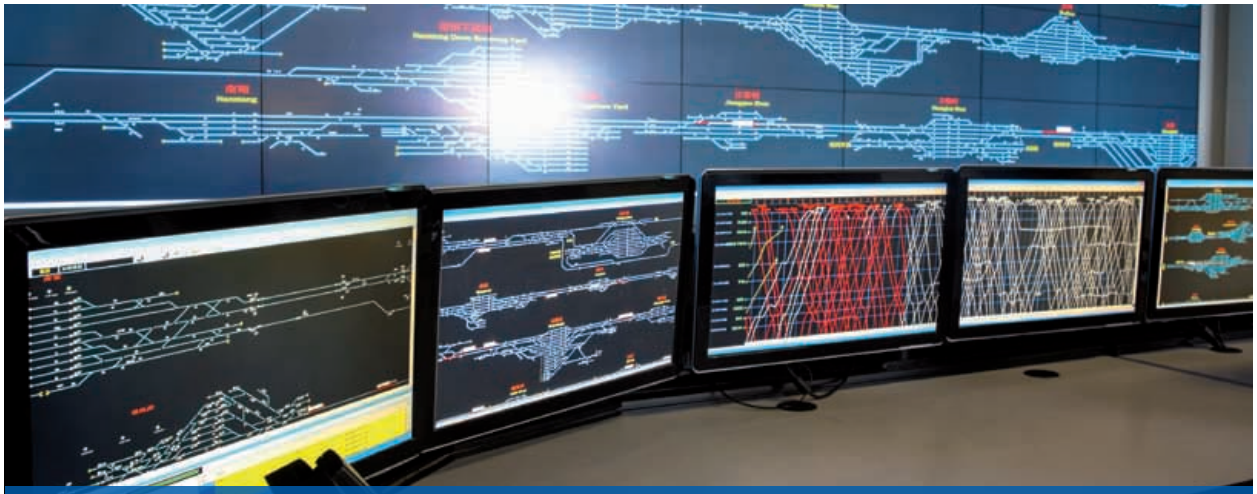


DC POWER-L Thyristor rectifiers 25 A - 200 A

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 25 A and 200 A with outputs from 110 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.

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.

DC power-L

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.

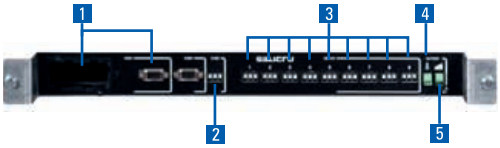
DC POWER-L

Thyristor rectifiers 25 A - 200 A

User interface

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.

Extended communication



1. Slot for the SICRES telemagement or RS-232 interface.
2. RS-485 serial ports. MODBUS communication protocol.
3. Programmable relay (x9) interface.
4. Battery temperature measurement input.
5. NiCd electrolyte level detection input. (1)

(1) Only extended version

Optional

- 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.

Services

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

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THECHNICAL SPECIFICATIONS

MODEL			DC POWER-L			
INPUT	AC voltage	Single Phase	120 / 230 V (P+ N)			
		Three Phase	3 x 208 / 3 x 220 / 3 x 400 V (3 Ph + N)			
	Range		±15%			
	Frequency		50/60 Hz			
	Frequency range		±5%			
	Power factor		0.85			
	Efficiency		>85%			
OUTPUT	Rated DC voltage		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 (with batteries)		±1%			
	Ripple (with batteries)		<1% (1)			
	Current (2)	Single Phase	10 / 20 / 30 / 50 A			
		Three Phase	25 / 50 / 75 / 100 / 150 / 200 A			
BATTERIES	Type		PbCa (sealed or open) or NiCd			
	No. of cells Pb		55	60	62	110
	No. of elements NiCd		81 ÷ 86	88 ÷ 94	92 ÷ 96	161 ÷ 173
	Type of charge		IU constant as per DIN 41773			
	Charging current		0.1 to 0.3 C adjustable			
	Recharging time		Up to 80% in 4 hours (0.2 C)			
	Protection		Against overvoltage and undervoltage			
	Voltage/temperature compensation		Yes, customisable as per battery specifications (mV / °C)			
PROTECTION	Input protection / battery		Circuit breaker / fuses			
	Soft start		Yes			
GENERAL	Dielectric strength		2500 V @ 1 minute			
	Degree of protection		IP20			
	Cooling		Natural convection			
	Operating temperature		-10° C to +55° C (3)			
	Storage temperature		-20° C ÷ +70° C (4)			
	Relative humidity		Up to 95% non-condensing			
	Maximum operating altitude		Up to 3000 m.a.s.l. (5)			
SYNOPTIC	LCD display		Yes			
	Indicators (LED)		4 (mains power failure, urgent alarm, non-urgent alarm, output OK)			
COMMUNICATION	Ports		RS-232/485			
	Dry contacts		3 Dry contacs (expandable to 9)			
	SNMP		Optional			
	Slots		Yes, one			
ALARMS	Categories		Urgent			
			Non-urgent			
			AC fault			
STANDARDS	Safety standard		IEC/EN 61204-7, IEC/EN 60950-1			
	Electromagnetic compatibility (EMC)		IEC/EN 61204-3 Class A			
	Environmental Quality Management		ISO 9001 and ISO 14001			

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

Data may change without previous notice

RANGE

MODEL	INPUT VOLTAGE (Vac)	OUTPUT VOLTAGE (Vdc)	CURRENT (1) (A)
DC-10-L	120 / 230	110 / 120 / 125 / 220	10
DC-20-L	120 / 230	110 / 120 / 125 / 220	20
DC-30-L	120 / 230	110 / 120 / 125 / 220	30
DC-50-L	120 / 230	110 / 120 / 125 / 220	50
DC-25-L	3 x 208 / 3 x 220 / 3 x 400	110 / 120 / 125 / 220	25
DC-50-L	3 x 208 / 3 x 220 / 3 x 400	110 / 120 / 125 / 220	50
DC-75-L	3 x 208 / 3 x 220 / 3 x 400	110 / 120 / 125 / 220	75
DC-100-L	3 x 208 / 3 x 220 / 3 x 400	110 / 120 / 125 / 220	100
DC-150-L	3 x 208 / 3 x 220 / 3 x 400	110 / 120 / 125 / 220	150
DC-200-L	3 x 208 / 3 x 220 / 3 x 400	110 / 120 / 125 / 220	200

(1) Check for other output currents.

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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 6000 VA, with admissible continuous incoming voltage from 48 Vdc to 220 Vdc nominal input.

CS 4000-IS

Performances

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

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.

Optional

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

Services

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

TECHNICAL SPECIFICATIONS

MODEL			CS IS
INPUT	DC nominal 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%
	Frequency		50 / 60 Hz
	Frequency range	Synchronized	0.1 Hz ÷ 9.9 Hz in increments of 0.1 Hz
		Unsynchronized	± 0.05%
	Synchronization speed		1 Hz/s
	Admissible overload		150% for 30 seconds / 125% for 45 seconds
	Efficiency		Up to 92%
GENERALS	Operating temperature		- 10º C ÷ + 40º C
	Cooling		Forced
	Relative humidity		Up to 95%, non-condensing
	Maximum operating altitude		2400 m.a.s.l.
STANDARDS	Safety		EN 60950-1
	Electromagnetic Compatibility (EMC)		EN 61000-6-3; EN 61000-6-1
	Quality and Environmental management		ISO 9001 and ISO 14001

Data may change without previous notice

RANGE

MODEL	POWER (VA)	INPUT VOLTAGE (Vdc)					DIMENSIONS (D x W x H mm)		WEIGHT (Kg)
		48	110	120	125	220	BOX	RACK	
CS 1000-IS	1000	•	•	•	•	•	385 x 440 x 180 (1)	385 x 483 x 4U (1)	36
CS 2000-IS	2000	•	•	•	•	•	385 x 440 x 180 (1)	385 x 483 x 4U (1)	49
CS 3000-IS	3000	•	•	•	•	•	385 x 440 x 180 (1)	385 x 483 x 4U (1)	57
CS 4000-IS	4000		•	•	•	•	600 x 440 x 270	600 x 483 x 6U	63
CS 5000-IS	5000		•	•	•	•	600 x 440 x 270	600 x 483 x 6U	68
CS 6000-IS	6000		•	•	•	•	725 x 440 x 270	-	84

Dimensions and weights for models without bypass nor filters. Ask for another power needs and/or configurations.
(1) For voltages ≥110 Vdc.

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REF. JM673D01 **CODE** 401AB000466 **ED.** MARCH 2014 **STATIC INVERTERS**

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CS WAVE MDL 48 VDC power converters

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.

CS WAVE MDL

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.

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,...).

Optional

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

Services

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

TECHNICAL SPECIFICATIONS

MODEL		CS WAVE MDL
INVERTER	Technology	DSP; All Master
	Modular power	1000 VA / 800 W and 1500 VA / 1200 W
	Maximum no. models x system	15 x 1500 VA or 24 x 1000 VA
	Input voltage	40.5 Vdc ÷ 58 Vdc
	Output voltage	230 Vac
	Output frequency	50 / 60 Hz
	Psofometric noise	# 1 mV
	Efficiency	> 89%
	Admissible overload	150% for 20 seconds
STATIC BYPASS (STS)	Power	12 kVA
	Transfer time	< 5 ms
	Synchronism	± 2.5%
LCD DISPLAY	Settings	Input / Output / Alarms / General
INTERFACE	Ports	RS-232, RS-485, USB and free contacts
	Protocol	CANBUS
MANUAL BYPASS	Distribution	2 x 20 A + 1 x 32 A + 1 x 50 A
	5 position selector	Combined Inverter - STS - Manual bypass
STAND-ARDS	Safety	EN 60950-1
	Electromagnetic Compatibility (EMC)	EN 61000-6-3; EN 61000-6-1
	Quality and Environmental management	ISO 9001 and ISO 14001

Data may change without previous notice

RANGE

MODEL	DESCRIPTION	DIMENSIONS (D x W x H mm)	WEIGHT (Kg)
CS 1000-WAVE MDL 48/230	Inverter 1000 VA	270 x 215 x 1U	2.5
CS 1500-WAVE MDL 48/230	Inverter 1500 VA	270 x 215 x 1U	3
STS-WAVE MDL	Static bypass (STS)	270 x 215 x 1U	3
LCD-WAVE MDL	Display LCD	270 x 90 x 1U	1
COM-WAVE MDL	Communications	270 x 180 x 1U	0.5
BM+DIS-WAVE MDL	Manual bypass + distribution	270 x 483 x 2U	4

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RE3

Electronic voltage stabilisers from 300 VA to 250 kVA

RE: 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.

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)
- SICRES 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).
- More than 80% recyclable materials.

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

RE3

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.

RE3

Electronic voltage stabilisers from 300 VA to 250 kVA

Presentation

RE3 models

RE models

RE3 models display

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

Options

- Relay interface.
- Manual maintenance bypass.
- 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 SICRES card. (1)
- Extended communications module. (1)

(1) Models with display

Services

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

TECHNICAL SPECIFICATIONS

MODEL		RE3
INPUT	Single phase voltage	120 V, 220 V, 230 V, 240 V
	Three-phase voltage	3 x 208 V, 3 x 220 V, 3 x 380 V, 3 x 400 V, 3 x 415 V
	Regulation range	± 15% (1)
	Frequency	48 ÷ 63 Hz
OUTPUT	Single phase voltage	120 V, 220 V, 230 V, 240 V
	Three-phase voltage	3 x 208 V, 3 x 220 V, 3 x 380 V, 3 x 400 V, 3 x 415 V
	Accuracy	Better than ± 2%
	Frequency	48 ÷ 63 Hz
	Harmonic distortion	Nil
	Response time	100 ms
	Efficiency	> 97%
	Permissible overload	200% for 1 minute
BYPASS	Type	Static
GENERALS	Ambient operating temperature	-10º C ÷ +45º C
	Relative humidity	Up to 95%, non-condensing
	Maximum operating altitude	2400 m.a.s.l.
	Mean Time Between Failures (MTBF)	60,000 hours
	Mean Time To Repair (MTTR)	30 minutes
	Acoustic noise level at 1 metre	< 45 dB (A) (2)
	Cooling	Natural or forced depending on power rate
	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 and ISO 14001

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

Data may change without previous notice

RANGE (3)

MODEL	POWER (kVA / kW)	DIMENSION (D x W x H mm)	WEIGHT (Kg)
RE-309-2	0.3	280 x 210 x 185	6
RE-609-2	0.6	280 x 210 x 185	6
RE-1009-2	1	280 x 210 x 185	9
RE-2009-2	2	390 x 250 x 195	19
RE-3009-2	3	390 x 250 x 195	22
RE-4509-2	4.5	460 x 300 x 220	35
RE3 M 6-2	6	540 x 330 x 500	44
RE3 M 9-2	9	540 x 330 x 500	58
RE3 M 12-2	12	540 x 330 x 500	67
RE3 M 15-2	15	540 x 330 x 500	69
RE3 M 20-2	20	840 x 450 x 620	103
RE3 M 25-2	25	840 x 450 x 620	127
RE3 M 30-2	30	840 x 450 x 620	154
RE3 M 40-2	40	840 x 450 x 620	170
RE3 M 50-2	50	840 x 450 x 620	186

Nomenclature, dimensions and weight for models: 230 V 50 Hz input / 230 V 50 Hz output and ± 15% input range

MODEL	POWER (kVA / kW)	DIMENSION (D x W x H mm)	WEIGHT (Kg)
RET 3-4	3	680 x 340 x 240	32
RET 6-4	6	680 x 340 x 240	61
RET 9-4	9	630 x 390 x 520	68
RE3 T 15-4	15	840 x 450 x 620	80
RE3 T 20-4	20	840 x 450 x 620	117
RE3 T 30-4	30	840 x 450 x 620	164
RE3 T 45-4	45	840 x 450 x 620	225
RE3 T 60-4	60	840 x 450 x 620	260
RE3 T 75-4	75	838 x 616 x 1318	317
RE3 T 100-4	100	838 x 616 x 1318	343
RE3 T 125-4	125	838 x 616 x 1318	438
RE3 T 150-4	150	838 x 616 x 1318	650
RE3 T 200-4	200	816 x 816 x 2118	850
RE3 T 250-4	250	816 x 816 x 2118	925

Nomenclature, dimensions and weight for models: 3 x 400 V 50 Hz input / 3 x 400 V 50 Hz output and ± 15% input range
(3) For models with isolation transformer and other configurations, consult

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EMi3 Servomotor voltage stabiliser 5 kVA - 330 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.

Salicru's **EMi3** servomotor voltage stabilisers are the culmination of 45 years of experience and development, in which the company has manufactured and installed over 100,000 units worldwide.

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.

Features

· Power range, single and three-phase, up to 330 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%.
· 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.
· More than 80% recyclable materials.

EMi3

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.

Description

EMi3

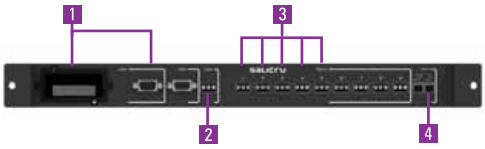
Servomotor voltage stabiliser 5 kVA - 330 kVA

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

Options

- Output current, power and overload measurement.
- Maximum and minimum output voltage protection.
- Manual bypass.
- Overload contactor.
- Communications and relay module.
- Other regulation ranges.
- Galvanic isolation transformer.

Extended communications



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

Services

- Numerous maintenance and remote maintenance options (SICRES).

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TECHNICAL SPECIFICATIONS

MODEL		EMi3
INPUT	Voltage	Single-phase 220 / 230 / 240 V Three-phase 3x380 / 3x400 / 3x415 V (3Ph + N)
	Range	±15 (1)
	Frequency	48 ÷ 63 Hz
OUTPUT	Voltage	Single-phase 220 / 230 / 240 V Three-phase 3x380 / 3x400 / 3x415 V (3Ph + N)
	Accuracy	± 1% (adjustable between 1% ÷ 5%)
	Output voltage setting	± 5%
	Frequency	48 ÷ 63 Hz
	Regulation speed	Up to 70 V/s
	Performance	Between 96.5% and 97.5%
	Injection of voltage harmonic distortion	<0.2%
	Voltage disconnection value (2)	Adjustable
	Admissible overload	Up to 200% for 20 s
	Possible load variation	0 ÷ 100%
	Power factor influence	Independent
INDICATORS	Front panel	LCD display (2x16 characters) + 4 status LEDs
COMMUNICATION	RS-232 (3)	Standard
	2 Dry contacts	Standard
	Free slot (3)	One
GENERAL	Operating temperature	-10° C ÷ +55° C
	Storage temperature	-20° C ÷ +85° C
	Ventilation	Natural convection (4)
	Level of acoustic noise at 1 metre	<45 dB(A) (5)
	Relative humidity	Up to 95%, non-condensing
	Maximum operating altitude	2,400 m.a.s.l.
	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 and ISO 14001

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

Data may change without previous notice

RANGE

MODEL	POWER (kVA / kW)	DIMENSION (D x W x H mm)	WEIGHT (Kg)
EMi3 M 5-2	5	580 x 330 x 578	45
EMi3 M 7.5-2	7.5	580 x 330 x 578	59
EMi3 M 10-2	10	580 x 330 x 578	60
EMi3 M 15-2	15	895 x 450 x 701	115
EMi3 M 20-2	20	895 x 450 x 701	119
EMI3 M 25-2	25	895 x 450 x 701	196
EMi3 M 30-2	30	895 x 450 x 701	209

Nomenclature, dimensions and weights for models: Input 230 V 50 Hz / Output 230 V 50 Hz and input range +/-15%.

MODEL	POWER (kVA / kW)	DIMENSION (D x W x H mm)	WEIGHT (Kg)
EMi3 T 15-4	15	895 x 450 x 701	126
EMi3 T 20-4	20	895 x 450 x 701	169
EMi3 T 35-4	35	895 x 450 x 701	224
EMi3 T 55-4	55	640 x 605 x 2110	374
EMi3 T 70-4	70	640 x 605 x 2110	495
EMi3 T 90-4	90	840 x 605 x 2110	533
EMi3 T 110-4	110	840 x 605 x 2110	577
EMi3 T 140-4F	140	840 x 1605 x 2110	857
EMi3 T 175-4F	175	840 x 1605 x 2110	1159
EMi3 T 220-4F	220	840 x 1605 x 2110	1227
EMi3 T 275-4F	275	840 x 1605 x 2110	1298
EMi3 T 330-4F	330	840 x 1605 x 2110	1450

Nomenclature, dimensions and weights for models:
- From 15 kVA to 110 kVA: Input 3x400 V 50 Hz / Output 3x400 V 50 Hz, input range +/-15% and common regulation. (Independent regulation per phase available on request).
- From 140 kVA to 330 kVA: Input 3x400 V 50 Hz / Output 3x400 V 50 Hz, input range +/-15% and independent regulation per phase.

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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 SICRES technology, the **ILUEST+CR** is now the state-of-the-art reference in lighting regulation and control.

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.
· SICRES 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.

ILUEST+CR module

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 13 units of the **ILUEST+CR** rated 30 kVA each, potential annual savings of 490 MW can be realized, translated to 270 Tm less CO_2 to the atmosphere.

(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.

salicru SMART SOLUTIONS

Monitoring

LCD Display, LED synoptic panel and PC connection

View of the SICRES card slot

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.

Implementations

Indoor version

Outdoor version

KIT OEM

Available options

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

Services

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

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ILUEST+CR

Lighting flow dimmer-stabiliser

salicru GREENERGY

TECHNICAL SPECIFICATIONS

MODEL		ILUEST+CR
TECHNOLOGY		Bidirectional 'Buck' converter with IGBTs, electronic, static and transformerless
INPUT	Voltage	Single phase: 230 V / Three-phase: 3 x 400 V + N
	Voltage range	+ 25% / - 7% nominal voltage + 25% / - 17% saving voltage HPSV + 25% / - 10% saving voltage MV/MH
	Frequency	48 ÷ 65 Hz
	Module protection	Input/output fuses / electronic for temperature, overload
	Equipment protection per phase	Fuse
OUTPUT	Voltage	Adjustable 215 V to 230 V (220 V as standard)
	Accuracy inside voltage range	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
	Efficiency	96% ÷ 98%
	Phase unbalancing	100% permissible
	Selectable saving voltage	Through LCD panel or via SICRES communication
	Permissible overload	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	SICRES system (2)
GENERALS	Operating temperature	– 20° C ÷ + 55° C (3)
	Relative humidity	Up to 95%, non-condensing
	Maximum altitude	2,400 m.a.s.l.
	Mean Time Between Failures (MTBF)	60,000 hours
	Mean Time To Repair (MTTR)	30 minutes
	Acoustic noise @ 1 metre	<48 dBA (with typical load)
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	EN-60950-1
	Electromagnetic compatibility (EMC)	IEC 62041
	Quality and Environmental management	ISO 9001 and ISO 14001

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

Data may change without previous notice.

RANGE

MODEL	POWER (kVA)	KIT OEM		
		MODULES NO.	DIMENSIONS PER MODULE (D x W x H mm.)	WEIGHT (Kg)
KIT NET+7.5-4-LCD	7.5	3	200 x 172 x 310	11
KIT NET+10-4-LCD	10	3	200 x 172 x 310	11
KIT NET+15-4-LCD	15	3	200 x 172 x 310	12
KIT NET+20-4-LCD	20	3	200 x 172 x 310	12
KIT NET+25-4-LCD	25	3	200 x 172 x 470	19
KIT NET+30-4-LCD	30	3	200 x 172 x 470	20
KIT NET+45-4-LCD	45	3	200 x 172 x 470	20

MODEL	POWER (kVA)	INDOOR IMPLEMENTATION		OUTDOOR IMPLEMENTATION	
		DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
NET+ 7.5-4	7.5	240 x 520 x 610	29	320 x 750 x 1105	64
NET+ 10-4	10	240 x 520 x 610	30	320 x 750 x 1105	65
NET+ 15-4	15	240 x 520 x 610	31	320 x 750 x 1105	66
NET+ 20-4	20	240 x 520 x 610	33	320 x 750 x 1105	68
NET+ 25-4	25	240 x 520 x 770	55	320 x 750 x 1105	89
NET+ 30-4	30	240 x 520 x 770	56	320 x 750 x 1105	90
NET+ 45-4	45	240 x 520 x 770	57	320 x 750 x 1105	91

Nomenclature, dimensions and weight for models: 3x400 V / 50 Hz input/output.

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salicru

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.

The 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 SICRES card and a GSM/GRPS model, all governed by the SICRES control software.

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.
· SICRES (1) card for total control of a block of units using GSM / GPRS (1) modems and Web interface.
· Efficiency > 97%.
· No harmonic injection to mains or alter the power factor of the installation.
· Instantaneous stabilisation in all operating states.
· Duty cycle adapted to the warm up curve of the lamps.
· Suitable for all kinds of discharge lamps (including metal halide).
· Soft transitions between the nominal and reduced flow states.
· Fine adjustments of all voltage levels and output precision improved by ± 2%.
· Selectable start-up voltage.
· Two levels of saving adjustable via LCD display.
· Easy installation alongside the feeder pillar or inside it.
· Savings of over 40%.

(1) Option (2) Estimated 0.09 €/kWh rate

ILUEST+MT

· Additional energy savings through the complete elimination of the night-time overvoltage.
· Significant increase in the life span of the lamps.
· Average payback of the investment between 6 and 24 months.(2)
· Optimised maintenance of the unit.
· SLC Greenergy solution.

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.

salicru SMART SOLUTIONS

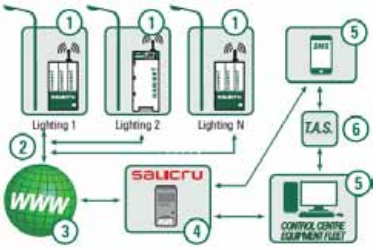
SICRES: lighting control

Cartographic map of a park of equipments with SICRES system.

SICRES is an electronic card of communication that makes possible the telemaintenance service trough Internet connection.

The functions of the system include:

- Interface for Ethernet networks with TCP-IP and SNMP protocols and GSM/GPRS and RTC modems.
- 10 digital and 17 analogue measurements for the **ILUEST+** family.
- Multiple measurements are available: Active and apparent power, power factor, load level, etc.
- Multiple programming and setting parameters: Time, current day and month, voltage level types of lamp, start voltage, nominal and saving.
- Calibrations.
- Programming and automatic SMS and e-mail sending.
- 7 week days + 10 special days time scheduler.
- Astronomical clock selection and programming is included.



1. Lighting Control Centre: **ILUEST+** with a SICRES card and GSM/GPRS modem.
2. Bidirectional transmission.
3. Control Centre (email)/mobile (SMS).
4. Internet. (1)
5. Internet Server. (2)
6. Technical Assistence Service.

(1) Other communication options: PLC, Ethernet, optical fiber, etc.
(2) Salicru web server or another owned by the customer.

Available options

- SICRES 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.

Services

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

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ILUEST+MT

Lighting flow dimmer-stabilisers

TECHNICAL SPECIFICATIONS

MODEL			ILUEST+MT
TECHNOLOGY			Static and electronic regulation by microprocessor control
INPUT	Voltage	Single phase	120 V, 220 V, 230 V, 240 V
		Three-phase	3 x 208 V, 3 x 220 V, 3 x 380 V, 3 x 400 V, 3 x 415 V (+N)
	Voltage range		+ 33% / - 8% nominal voltage + 4% / - 29% saving voltage HPSV + 10% / - 24% saving voltage MV/MH
	Frequency		48 ÷ 63 Hz
	Equipment protection per phase		Single pole MCB
OUTPUT	Voltage	Single phase	120 V, 220 V, 230 V, 240 V
		Three-phase	3 x 208 V, 3 x 220 V, 3 x 380 V, 3 x 400 V, 3 x 415 V
	Accuracy inside voltage range		Better than ± 2%
	Soft start voltage		Preselectable (1) and adjustable
	Saving voltage		180 V (phase to neutral) adjustable MV, HPSV, MH and fluorescence
	Speed ramp setting		From 1 V/minute to 6 V/minute
	Response time		< 100 ms.
	Regulation		Independent per phase
	Phase unbalancing		100% permissible
	Efficiency		> 97%
	Selectable saving voltage		Through LCD panel or via SICRES communication
	Permissible overload		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		SICRES system (2)
GENERALS	Operating temperature		– 40º C ÷ + 55º C (3)
	Relative humidity		Up to 95%, non-condensing
	Maximum altitude		2,400 m.a.s.l.
	Mean Time Between Failures (MTBF)		60,000 hours
	Mean Time To Repair (MTTR)		30 minutes
	Acoustic noise @ 1 metre		< 35 dBA
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
	Quality and Environmental management		ISO 9001 and ISO 14001

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

Data may change without previous notice.

RANGE

MODEL	POWER (kVA)	INDOOR IMPLEMENTATION		OUTDOOR IMPLEMENTATION	
		DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
NA+ 3.5-2	3.5	245 x 350 x 380	42	320 x 520 x 1348	72
NA+ 5-2	5	245 x 350 x 380	43	320 x 520 x 1348	73
NA+ 7,5-2	7.5	245 x 350 x 380	45	320 x 520 x 1348	75
NA+ 10-2	10	245 x 350 x 380	46	320 x 520 x 1348	76
NA+ 15-2	15	245 x 350 x 380	50	320 x 520 x 1348	80
NA+ 20-2	20	245 x 350 x 380	67	320 x 520 x 1348	105

Nomenclature, dimensions and weight for models: 230 V / 50 Hz input/output.

MODEL	POWER (kVA)	INDOOR IMPLEMENTATION		OUTDOOR IMPLEMENTATION	
		DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)	DIMENSIONS (D x W x H mm.)	WEIGHT (Kg)
NAT+ 7.5-4	7.5	245 x 350 x 800	60	320 x 520 x 1348	94
NAT+ 10-4	10	245 x 350 x 800	80	320 x 520 x 1348	116
NAT+ 15-4	15	245 x 350 x 800	81	320 x 520 x 1348	117
NAT+ 20-4	20	245 x 350 x 800	82	320 x 520 x 1348	118
NAT+ 25-4	25	245 x 350 x 800	90	320 x 520 x 1348	125
NAT+ 30-4	30	245 x 350 x 800	95	320 x 520 x 1348	130
NAT+ 45-4	45	245 x 350 x 800	139	320 x 520 x 1348	173
NAT+ 60-4	60	355 x 350 x 1100	181	420 x 520 x 1348	221
NAT+ 80-4	80	355 x 350 x 1100	204	420 x 520 x 1348	244
NAT+ 100-4	100	350 x 800 x 1070	214	420 x 1020 x 1348	254
NAT+ 120-4	120	350 x 800 x 1070	225	420 x 1020 x 1348	265

Nomenclature, dimensions and weight for models: 3x400V / 50 Hz output.

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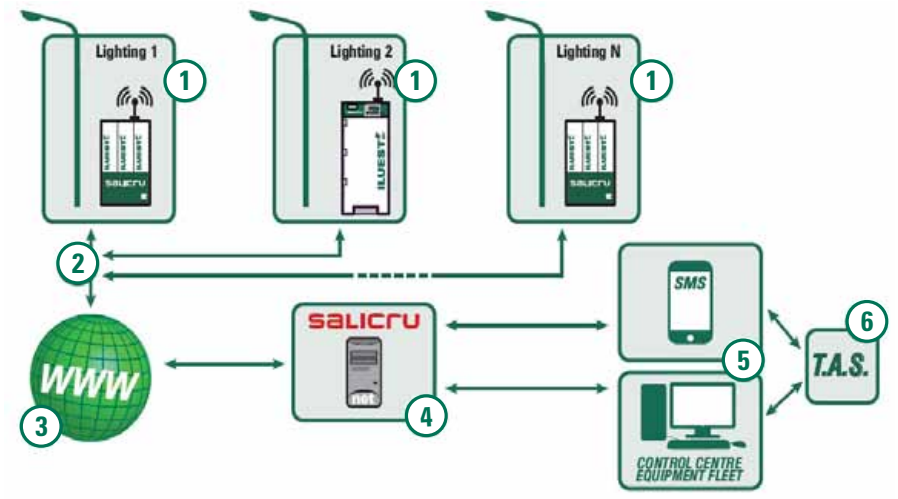
SICRES Telemanagement to ILUEST+

SICRES: Complete lighting telemanagement

In any municipality, the lighting control centres are located in the street and away from the technical services, something which makes maintenance enormously more difficult. The cost of lighting maintenance therefore increases significantly and obliges municipalities to have brigades or subcontractors who, even without carrying out any corrective action, make periodic rounds of the streets in order to detect problems. In the best of cases, the installations will be in an operative state and it will not be possible to obtain statistics of faults, graphs on consumption, line quality, etc.

By incorporating the **SICRES** network card, Salicru offers a telemaintenance service through an Internet connection, which enables the state of the complete fleet of equipment (including cartography) to be known at all times and failures in the equipment and/or the control centres to the anticipated. Amongst the many services offered by the system, we might mention: sending of unattended alarms by SMS and/or e-mail, full monitoring of the equipment, control and programming of the different parameters such as the adjustments of the astronomic clock, transitions between states (nominal and economy), the different voltage levels, the types of lamp and a long etc, giving an overall view of the installation at all times and providing all kinds of graphs and statistics.



Flow of data through remote connection SICRES

1. Lighting Control Centre: **ILUEST+** with **SICRES** card and GSM/GPRS modem.
2. Two-way transmission.
3. Internet.(1)
4. Internet Server.(2)
5. Control Centre (e-mail) / mobile (SMS).
6. Technical Assistance Service.

(1) Other communication options: PLC, Ethernet, optical fiber, etc.
(2) **Salicru** Web server or one owned by the customer.

salicru SMART SOLUTIONS

Advantages & performances

The **SICRES** telemaintenance system provides monitoring, analysis and technical support in real-time 24/7, thus reducing the MTTR in the event of any unexpected incident. While the monitoring is under way, an incident and alarm log is created to enable exhaustive analysis of the equipment, which provides valuable information on the operating tendency and identifies potential future problems. For more important incidents and/or alarms, **SICRES** sends e-mails and SMS to instantly report the incident and to enable suitable corrective action to be taken. **SICRES** facilitates overall lighting maintenance by including cartographic maps with the exact location of the units. By clicking on any of them, we can find out their main parameters and enable their monitoring, control and programming.

Monitoring & control

Location map of the park equipment

Data table

Chart of the different parameters

Personalised screens for perfect equipment location, monitoring, control and programming.

Versions

SICRES Card SICRES Box

In order to perfectly integrate the **SICRES** system throughout the **ILUEST+** range, both in present and previous equipment, we have two versions of the card:

- **SICRES CARD**: For equipment with a slot to insert the **SICRES** card. This avoids having small devices around the unit.
- **SICRES BOX**: When the equipment has no slot, as in the case of the OEM Kits, the **SICRES** can be installed externally.

SICRES

Telemanagement to ILUEST+

TECHNICAL SPECIFICATIONS

MODEL		SICRES MODULE & CONTROL CENTRE
HARDWARE PLATFORM FEATURES		"Low Power ARM9" microprocessors
		128 Mb RAM
		RS232 / RS485 communications and Ethernet
		Storage supports: E2PROM, SPI and SD/MMC
		S.O. in real-time WCE 5.0
		MODBUS/TCP
SICRES MODULE	Functions	Data compilation and incorporation of advanced alarm management functions and logs
		Remote control and communications via RTC/GSM/GPRS/RS485, LAN/ETHERNET, WIFI/WIMAX and protocols
		Equipment telemaintenance / E-mail automatic sending / Configurable SMS depending on the incident
		Inclusion of native SNMP control
		Consultation and remote control of the unit values by a Web interface: sending of commands, consultations, alarm management, remote updates, etc.
	Performances	Web explorer monitoring
		Telnet/Web/FTP configuration
		Accessed via Ethernet or serial connection
		Optional access by GPRS, Wifi, Wimax
		Possibility of third party system connection
		SNMP protocol support for integration with network administration tools
CONTROL CENTRE	Functions	Monitoring of different **ILUEST+** equipment: information centralisation and resending of commands from/to the different **SICRES** control cards
		General map of the CC with display of the state of the equipment
		General screen of a unit
		Graphs of voltage, output intensity, power and % charge
	Performances	Web user interface
		Consultation of **ILUEST+**units location geographic maps
		Consultation/programming of specific information concerning the different **SICRES** control cards
		Sending of alarm notification by SMS and e-mail
		Consultation of real-time data
		Display of the state of the equipment in real-time: alarms, MODBUS table, ...
		Generation of statistics and consultation of data log

MEASUREMENT	ALARMS	
Input voltage by phase	INPUT	Overloading alarm by phase
Output voltage by phase		Voltage down alarm by phase
Charge level by phase		Protections alarm
Output current by phase	OUTPUT	Overloading alarm by phase
Apparent power by phase		Off-margin alarm by phase
Active power by phase		Output protections alarm
Total active power	BYPASS	Manual bypass alarm
Total apparent power		Bypass alarm by phase
Cos φ by phase	GENERAL	Overheating alarm sensors 1 and 2
Temperature 1 and 2 of the dissipater by phase		Intrusion alarm
Inducer temperature by phase		ILUEST+ communication failure alarm
Frequency	N MODULES	Overloading alarm
Percentage saving		Bypass alarm
		High and low input voltages alarm
		High and low output voltages alarm
		High temperatures 1 and 2 (dissipater) alarm
		High current in serial and parallel IGBT alarm
		Bypass failure alarm
		Fan failure alarm
		Equipment blocked alarm
		Manual bypass alarm
		General alarm

Data may change without previous notice.

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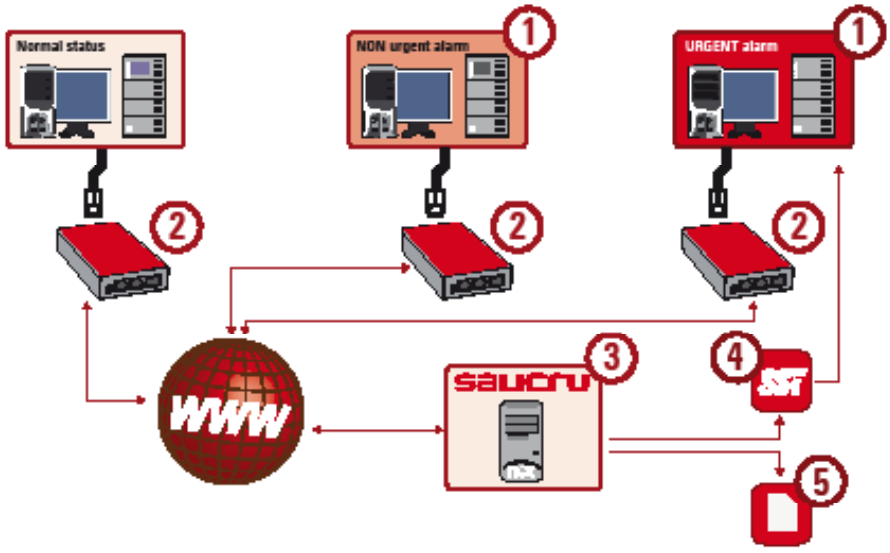
SICRES Telemaintenance service

SICRES: Complete surveillance of your equipment

The units for protecting and controlling critical loads are normally installed in locations away from the passing or working areas, which prevents information from being obtained on the state and alarms without sending a technician to the place of the installation. Sometimes this lack of information means not having the protection equipment in the best state, causing considerable losses of data, production line downtimes, etc.

To be informed at all times of the state and even anticipate possible faults in the equipment, Salicru offers the **SICRES** solution; the internet telemaintenance service with different forms: BASIC, MEDIUM, PREMIUM and PREMIUM PLUS, which will allow the customer to be advised in the event of a fault, the equipment to be monitored via web and to be accessed for control, amongst other things, thus avoiding the unnecessary movement of maintenance personnel and reporting and solving problems before the user notices them.



SICRES operating flow

1. Alarm location.
2. Sending/reception of information.
3. Analysis/diagnosis of information.
4. In-situ intervention of our STS (Service & Technical Support).
5. Report sending.

Advantages & services

With the **SICRES** system, you can concentrate entirely on your business and forget about the surveillance and management of your Salicru protection systems. Leave this responsibility in our hands, and work peacefully.

The **SICRES** telemaintenance allows monitoring, analysis and technical support in real time, 24/7 by Salicru professionals, thus reducing the MTTR (mean time to repair) in any unexpected event.

During the monitoring, an events and alarms log is created that allows exhaustive analysis of the equipment, providing valuable information on the operating tendency and thus identifying potential future problems. Likewise, every month a detailed report is sent on the state of the customer's equipment.

For events and/or alarms that the customer considers more important **SICRES** will send electronic mails and SMS messages to instantly report the incident and start the suitable corrective action at the same time.

SICRES
Telemaintenance service

Monitoring & control

Equipment location

Personalised screens for perfect unit localisation.

Equipment data

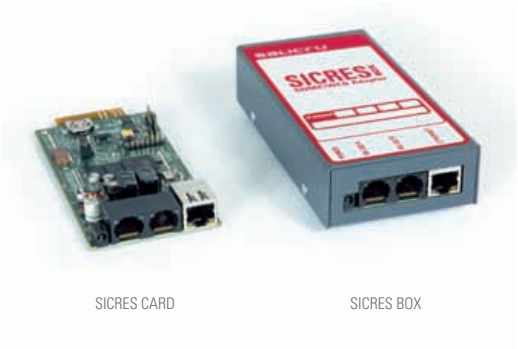
Unit alarms and measurements in real time.

Versions

To perfectly integrate **SICRES** in all products of the Salicru range, both current equipment and the previous series, there are two versions:

- **SICRES CARD**: For product ranges with a slot for the **SICRES** card. This avoids having small units around the equipment.

- **SICRES BOX**: When the unit does not have a slot, the **SICRES** adapter can be installed externally.



SICRES CARD SICRES BOX

FORMS

MODEL	BASIC	MEDIUM	PREMIUM	PREMIUM+
Monitoring from SALICRU	●	●	●	-
Web Monitoring	-	●	●	●
Telephone support	●	●	●	●
Monthly reports	●	●	●	●
Remote access to the unit	-	-	●	●
Customer-owned system	-	-	-	●
SMS sending	●	●	●	●
Electronic mail	●	●	●	●
Technical support on location	●	●	●	●
Maintenance contract	●(1)	●(1)	●(1)	-
Unit parameter adjustment	-	-	●	●

(●) Included (-) Not Included
(1) Consulting procedures for maintenance contracts.

Data may change without previous notice

REQUIREMENTS

Have a maintenance contract.
SICRES SNMP/WEB ADAPTER compatible with the unit.
Internet connection.

COMPATIBILITY

SERIES	SICRES CARD	SICRES BOX	SICRES+SNMP TH GX
SPS.ADVANCE	●(2)	●	-
SPS.ADVANCE RT	●(2)	●	-
SLC LINK	●	●	-
SLC TWIN	●	●	-
SLC TWIN PRO	●	●	-
SLC TWIN RT	●	●	-
UPS DL	-	●	-
SLC CUBE	-	●	-
SLC CUBE STR	-	-	●
SLC CUBE 3	●	●	-
SLC CUBE 3 +	●	-	●
SLC ELITE	-	-	●
SLC ELITE MAX	-	-	●
SLC X-TRA	●	-	●
CS IS	-	●	-
OPTIMUS	-	●	-
DC power-L	●	-	-
DC power-S	●	-	-
EMi3	●	-	-
RE3	●	-	-

(●) Compatible (-) Not compatible
(2) Equipment ≥ 1500 VA

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SOFTWARE - ADAPTERS Management & monitoring

SOFTWARE - ADAPTERS: The best complements for a full protected installation

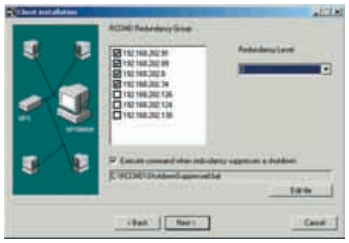
An Uninterruptible Power Supply (UPS) is needed to protect electrical installations from disturbance and avoid damage to the loads or losse of data. However, this protection will not be complete until the user has a completely autonomous system that informs them of the status of the UPS and proceeds to perform preconfigured actions.
This system consists of the management and monitoring of the UPS in real time, to allow full remote control of it all times by means of software installed in a PC/Server and/or **Ethernet/SNMP Web adapter**. Salicru offers this complete solution with the: **UNMS II, RCCMD, WINPOWER** and **VIEWPOWER** softwares and the different **Ethernet/SNMP Web adapter** available for each of the UPS series.

Ethernet/SNMP: IP network integration

For the perfect integration of the UPS in the computer network, the best thing is not to depend exclusively on a computer, which is why the **Ethernet/SNMP Web adapter** (Single Network Management Protocol) enables the UPS to be completely independent without any need to have a PC or server associated.
BOX and CARD versions: Allowing the UPS to be integrated in the computer network. Available in box and insertable card version for the intelligent slots of the Salicru equipment. There is also the possibility of connecting temperature and humidity sensors and TCP, RS-232 and RS-485 communication with MODBUS protocol.

RCCMD: Remote shutdown application

It becomes virtually impossible to manage and monitor a UPS in heterogeneous computer networks where different system converge, for the less common operating system on the market do not have this software. The **RCCMD** is an application that allows the simultaneous and secure shutdown of the different servers or Workstations of 95% of the existing platforms.
Like the most complete monitoring softwares, the **RCCMD** is capable of launching messages or commands to the diferent clients of the network.



Different actions are executed by customized scripts, when the order from the **SNMP Web adapter** is received. Compatible with all operating systems, even with virtual systems (vmware, citrix and hyperv).

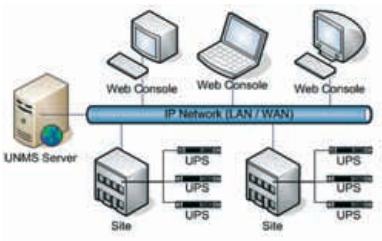
vmware CITRIX Microsoft Hyper-V

Highlighted functionalities

- Web monitoring of main parameters and status of each equipment (mains failure, mains restored , inverter fault, bypass transference,...).
- Warning electronic mail or SMS sending (depending on the availability of the IT environment).
- Capacity to be integrated in SNMP platforms (Nagios).
- Closing files and servers arranging by means of RCCMD software.
- MODBUS protocol included to be integrated in industrial applications; available by means of TCP, RS-232 or RS-485.

UNMS II: Unlimited UPS management

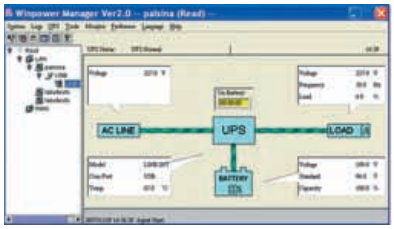
For networks with more than one UPS to feed the and which require monitoring concentration from a single control post, the **UNMS II** (UPS Network Managament System) software is the ideal solution. The **UNMS II** allows the management of multiple installations of all devices that have an **Ethernet/SNMP Web adapter** and/or sensors.
The **UNMS II** has different levels or licences, which depend on the number of UPS to be managed. Except for the basic level, when the UNMS II licence is acquired, a screen can be personalised to make the management of all the UPS much easier and intuitive.



SOFTWARE - ADAPTERS

Management & monitoring

WINPOWER & VIEWPOWER: The best UPS control



WINPOWER

VIEWPOWER

When you have a single work station of a small computer network, the UPS used for their protection are single phase low or medium power, which means they have to be implemented in the system management.

The **WINPOWER** and **VIEWPOWER** softwares allow shutdowns to be monitored and controlled in the PCs where they are installed, and electronic mails, SMS messages or broadcasts to be sent, amongst other functions.

Options

· SENSORS: For cases where it is essential to have all the environmental data of the room where the UPS is located, there is a temperature and humidity sensor that allows these data to be included from the monitoring software without resorting to a totally external system. The sensor includes communication cable with the **Ethernet/SNMP Web adapter**.

· DISPLAY: The perfect view of the parameters of the UPS from a distance by means of a display that shows any parameter from the **Ethernet/ SNMP Web adapter** or **RCCMD** software.

Display size 400 mm x 110 mm.

Display size 1300 mm x 110 mm.

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TECHNICAL SPECIFICATIONS

	SOFTWARE			ETHERNET/SNMP ADAPTERS			
				SNMP/WEB ADAPTER			
	RCCMD	WINPOWER	VIEWPOWER	TH BOX GX5	TH CARD GX5	BOX GX5	CARD GX5
Monitoring (software installed in PC)	-	●	●	-	-	-	-
Web Browser viewing	-	-	●	●	●	●	●
RS-232 Communication port	-	●	●	-	-	-	-
USB Communication port	-	●	●	-	-	-	-
Ethernet TCP/IP Port	-	-	-	●	●	●	●
Ordened shutdown of the PC /server	●	●	●	●	●	●	●
Sending electronic mails	-	●	●	●	●	●	●
MODBUS Protocol (RS-232 port)	-	-	-	●	●	-	-
MODBUS Protocol (TCP)	-	-	-	●	●	●	●
Software UPS shutdown	-	●	●	-	-	-	-
Location in UPS slot	-	-	-	-	●	-	●
Monitoring of the main parameters of the UPS	-	●	●	●	●	●	●
Broadcast (window) of warning in the event of alarm	●	●	●	-	-	-	-
Different user/administrator levels	-	●	-	●	●	●	●
Time synchronisation	-	-	-	●	●	●	●
Event log	-	●	●	●	●	●	●
Value log	-	●	●	●	●	●	●
Temperature and humidity sensor connection	-	-	-	●	●	-	-

Data may change without previous notice.

COMPATIBILITY

	SOFTWARE				ETHERNET/SNMP ADAPTERS			
					SNMP/WEB ADAPTER			
	RCCMD	WINPOWER	VIEWPOWER	UPSMON	TH BOX GX5	TH CARD GX5	BOX GX5	CARD GX5
SPS.HOME	●	-	-	●	-	-	-	-
SPS.HOME 2011	●	●	-	-	-	-	-	-
SPS.ONE	●	-	●	-	-	-	-	-
SPS.SOHO	●	●	-	-	-	-	-	-
SPS.SOHO+	●	●	-	-	-	-	-	-
SPS.ADVANCE	●	●	-	-	●	●(1)	●	●(1)
SPS.ADVANCE RT	●	●	-	-	●	●(1)	●	●(1)
SLC LINK	●	-	-	●	●	●	●	●
SLC TWIN	●	●	-	-	●	●	●	●
SLC TWIN PRO	●	●	-	-	●	●	●	●
SLC TWIN RT	●	●	-	-	●	●	●	●
UPS DL	●	-	-	-	●	-	●	-
SLC CUBE	●	-	-	-	●	-	●	-
SLC CUBE STR	●	-	-	-	●	●	●	●
SLC CUBE3	●	-	-	-	●	●	●	●
SLC CUBE3+	●	-	-	-	●	●	●	●
SLC ELITE	●	-	-	-	●	●	●	●
SLC ELITE MAX	●	-	-	-	●	●	●	●
SLC X-TRA	●	-	-	-	●	●	●	●

(1) Equipments ≥ 1500VA

(*) Spain only (**) Rest of the world

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REF. JM639I01 **CODE** 401AB000418 **ED.** SEPTEMBER 2014 **PRODUCT RANGE CATALOGUE**

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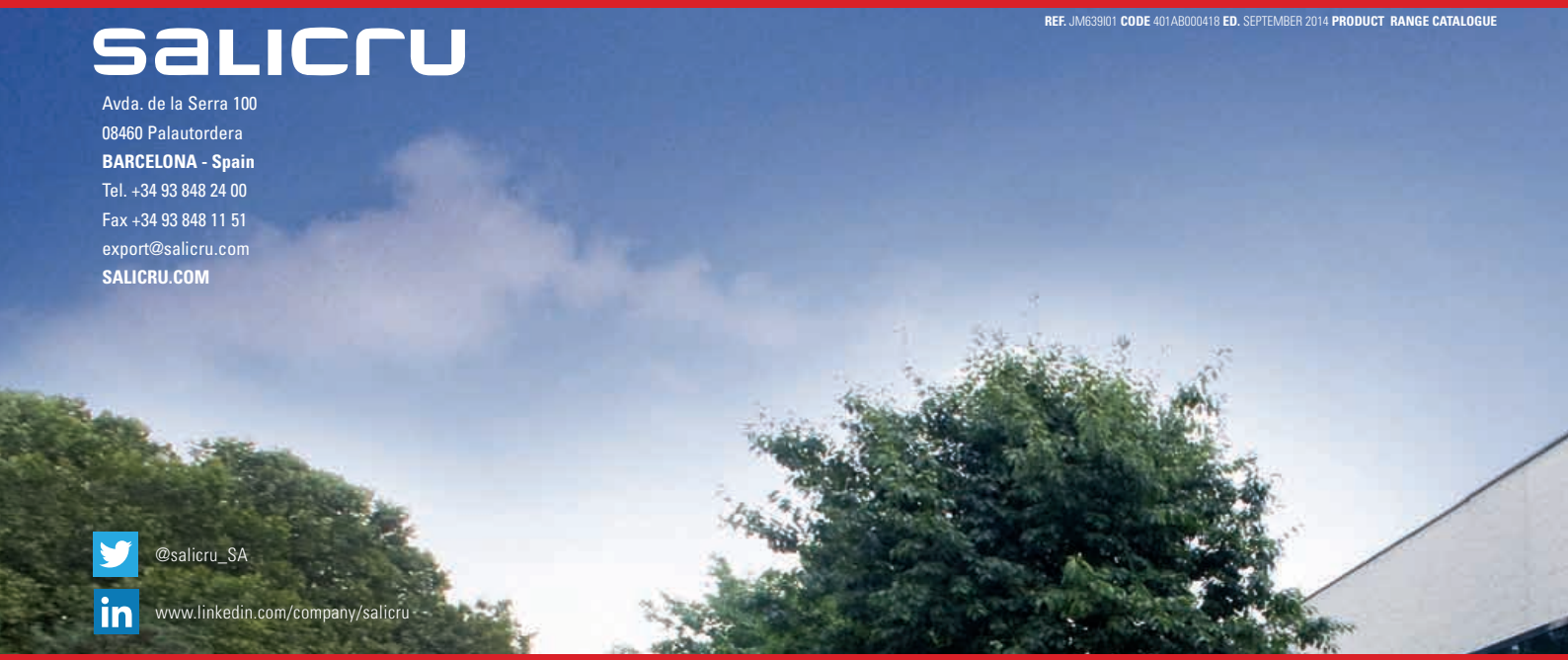

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Product Range

Uninterruptible Power Supplies (UPS)
Lighting Flow Dimmer-Stabilisers
DC Power Systems
Static Inverters
Photovoltaic Inverters
Voltage stabilisers

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