



SLC X-TRA

UNINTERRUPTIBLE POWER SUPPLIES





SLC X-TRA

► ABOUT SALICRU

Since 1965, **SALICRU** has designed, manufactured and commercialised power electronic solutions for the key sectors of business activity.

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 has 8 international subsidiaries, with sales to over 40 countries worldwide, with well over 600,000 product units operating and running.

The main product lines are:

- **UPS (Uninterruptible Power Supply systems):** Electronic protection with autonomy for all kinds of critical environments, ranging from 400 VA to several MVA.
- **Lighting flow dimmer-stabilisers:** Energy and CO₂ emission saving for lighting installations.
- **Photovoltaic solar inverters:** Generation of AC grid tied voltage using solar energy.
- **Voltage stabilisers:** Regulating of the electrical supply.
- **DC systems and inverters:** Solutions for AC/DC and DC/AC power supplies.

► ...AND THE ENVIRONMENT

SALICRU holds ISO-9001 and ISO-14001 certifications and its products are designed and produced in full respect of the environment. Similarly, we comply with all of the rules for the Recycling of Hazardous Substances (RoHS).

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.

SALICRU is associated with the European GreenLight Programme, a voluntary initiative for the fight against pollution, in particular, the reduction in energy consumption in indoor lighting and street lighting throughout Europe.





▶ SLC X-TRA 250 kVA



▶ SLC X-TRA 600 kVA

▶ SLC X-TRA: UPS FROM 100 kVA TO 800 kVA

The **SLC X-TRA** series is one of the most reliable, high-performance three-phase Uninterruptible Power Supply systems (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. And to make the most of the equipments potential, the system's reliability can be increased by installing several units in parallel.

We offer qualified technical support with over 45 years' experience and an established base of units installed, offering a wide range of preventive/corrective services, 24/7 coverage and telemaintenance.

▶ 10 REASONS FOR CHOOSING SLC X-TRA

- ▶ 1 - **Double conversion DSP+IGBT technology:** Giving the system the most advanced technology, protecting the loads against any electrical disturbance.
- ▶ 2 - **Double input connection:** This allows connection to 2 different mains supplies to increase availability.
- ▶ 3 - **Unit input power factor:** Smaller consumption of reactive power which translates into lower operating costs.
- ▶ 4 - **Very low input current distortion (<3%):** This avoids pollution upstream, enables smaller generators and contributes to improving the quality of the electrical system.
- ▶ 5 - **High efficiency in On-line mode, between 95% and 96%:** This implies a considerable energy saving and reduces the need for additional air-conditioning.
- ▶ 6 - **Ready for loads with PF = 0.9:** Optimal solution for active PFC power supply servers.
- ▶ 7 - **Efficiency >98% in Smart Eco-mode:** Energy savings increased with permanent On-line availability.
- ▶ 8 - **Wide range of options available:** System adaptation to the specific requirements of each installation.
- ▶ 9 - **Permanent technical cover:** This improves productivity and assures maximum working for the protected environments.
- ▶ 10 - **SLC Greenergy solution:** Conceived for increased efficiency and energy-saving.

► DIGITAL SIGNAL PROCESSOR (DSP)

The combination in the use of a DSP and a management microcontroller coordinates the Power Factor Corrector module of the rectifier and the output inverter, and provides significant advantages in managing the system:

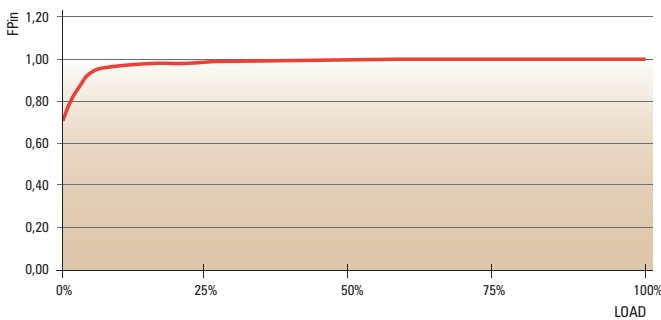
- Greater precision through a distributed control.
- Faster response.
- Redundant and high speed communication.
- Greater stability and reliability thanks to the total digital control.
- Intuitive display with easier-to-read menus and simple navigation, with the possibility of adjusting all of the control parameters.

► HIGH PERFORMANCE RECTIFIER

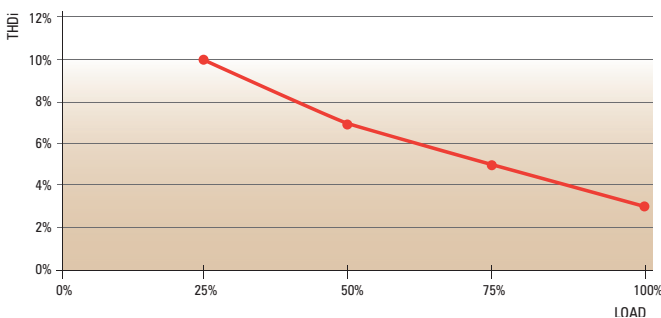
The broad admissible margins on the input in voltage and frequency variations give simultaneous benefits such as the lack of necessity to frequently use the batteries with unstable mains or optimal synchronisation and operation with generators.

The IGBT rectifier employed guarantees a Total Harmonic Distortion on the input current (THDi) under 3% with a Power Factor of 0.99, thus absorbing pure sinusoidal current and considerably optimising the electrical infrastructure on the input:

- Without any need for excessively large generators.
- Reducing the size of installation components: wiring, protections, supply transformer...
- Improving the installation in terms of quality and capacity.
- Savings by avoiding the need to install harmonic suppressor filters.



► Input Power Factor (PF)

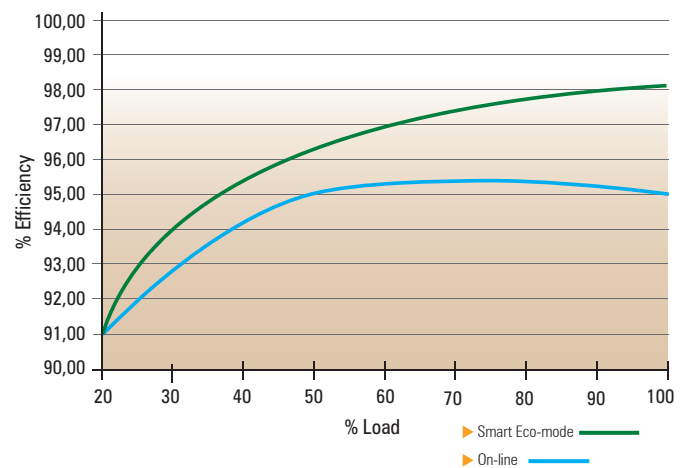


► Total Harmonic Distortion of input current (THDi)

► THE HIGH EFFICIENCY REDUCES THE OPERATING COSTS

The **SLC X-TRA** UPS have a high efficiency between 95% and 96%, thus reducing operating costs and the cost of implementation (without any need for an excessively large electrical installation), air-conditioning (without considerably increasing the needs for cooling), and operation (it enables economic savings throughout the useful life cycle), at the same time increasing the system's reliability. Similarly, the technology used enables galvanic isolation of input/output, achieves low input harmonics and prevents all additional losses. The high yield is achieved for the full range of loads.

They are also able to work in the Smart Eco-mode, in which the loads are supplied directly from the mains through the bypass line circuit to achieve efficiency values of up to 98%. In this situation, the mains is continually monitored in order to supply the load with the utmost reliability. If the mains is out of range, the load is transferred to the inverter in under 4 ms. When the mains' conditions enable the UPS to work correctly once more within the range, it returns to the Smart Eco-mode function. In this energy-saving mode, the rectifier keeps the battery charged in order to provide an auxiliary supply (from the batteries) if the main supply should fail.



► Efficiencies in On-line mode and Smart Eco-mode.

► TRANSFORMER IN ZIG-ZAG

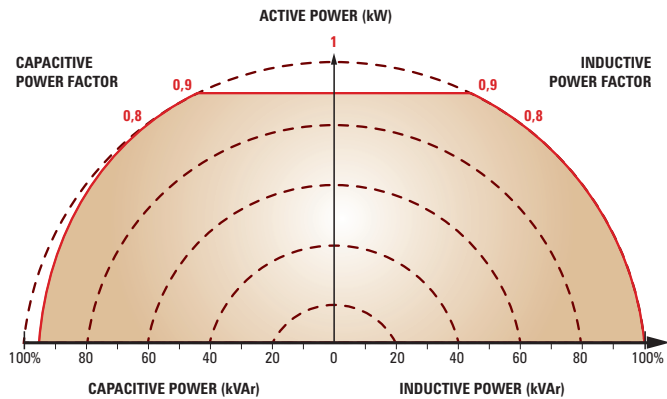
To be able to work with highly unbalanced loads, the secondary winding of the output transformer has been set up in the form of a zig-zag with neutral. We are therefore able to achieve maximum nominal output capacity in kVA with non-linear loads and we cancel out the third order harmonics (and multiples) from the load.



► Transformer in zig-zag

► INCREASED EFFICIENCY

The very low Total Harmonic Distortion in the output voltage (THDv) results in an almost perfect supply voltage wave-form at critical loads, with the resulting improvement of their operation and longer life to give the unit the possibility of handling non-linear and non-balanced loads, with power factors below 0.9.



► Power capacity

► BATTERY MANAGEMENT

As the batteries are electrochemical elements and their performance falls in time, the **SLC X-TRA** series monitors the state of the batteries (Batt-Watch) in accordance with the manufacturer's requirements.

On the basis of the characteristic I/V curve, the battery charge starts with a constant current suited to the type used in order to avoid giving excessive charge. In addition to a floating voltage charge, a deep charge may be given to shorten the recharging time in the event of successive mains failures in a short period of time, and even to enable Ni-Cd batteries to be recharged.

Batt-Watch also reduces the ripple current which is one of the causes of premature battery death, and protects them from damage due to deep discharge and automatically compensates the charging voltage of the batteries in line with the temperature in order to extend their lifetime.

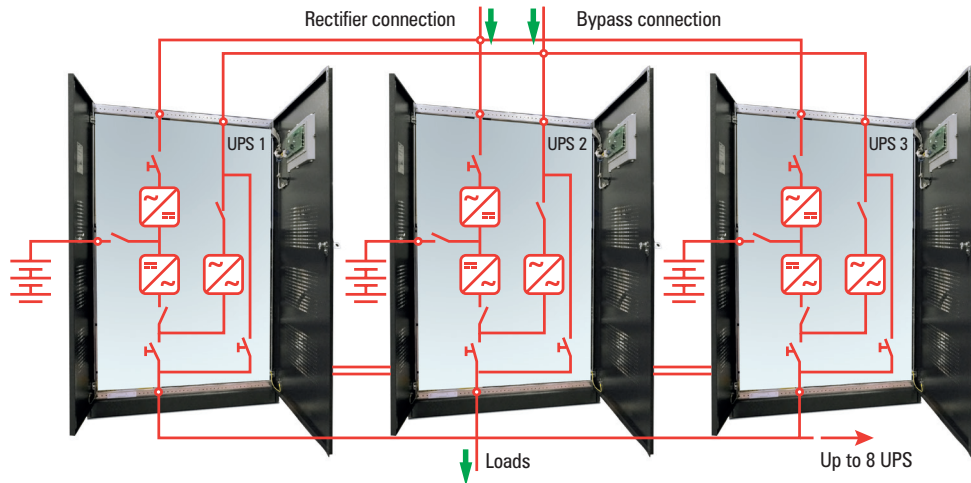
Using the Dynamic Charge Mode function, it is possible to charge batteries with very long autonomy without increasing the recharging time. This is achieved by increasing the maximum recharging current of the batteries when the load is not absorbing the total power of the inverter.

Similarly, the equipment includes the possibility of automatic or manual battery tests as standard in order to forecast their capacity and durability.



► GROWTH IN PARALLEL BY REDUNDANCY OR BY CAPACITY

The parallel control is distributed (it is not centralised) and communication between units is achieved with a CANBUS communication protocol to make the system highly reliable and avoid 'single points of failure'. It is extremely simple to start up systems in parallel to facilitate their installation in the field itself and/or to add new units according to customer needs.



► Parallel set-up

► EASE OF INSTALLATION, OPERATION AND MAINTENANCE

The **SLC X-TRA** series equipment can be installed against a rear wall with other walls or cabinets to the sides thanks to the well studied ventilation circuit which, by first cooling the most critical systems/components, efficiently sends the air around the inside of the unit and finally sends it out of the top. None of the modules in a higher power system is larger than 1,200 mm width, to make it easier to handle in the installation.

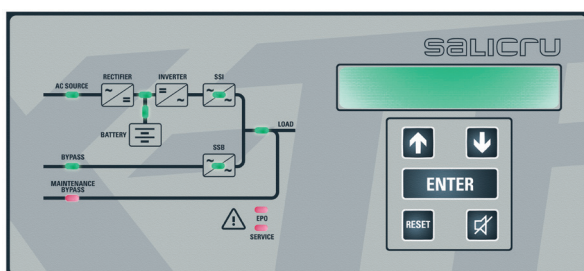
Their compact design provides considerable savings in space which is still more important in locations where the available space is scarce, and costly at the same time.

The built-in display provides maximum information and enables the equipment to be handled simply and intuitively. The information available includes the state of the UPS, alarms, measurements and event log. It also includes a block diagram to make it easy to interpret the supply to loads and an operation keyboard to work in the different multilingual menus.

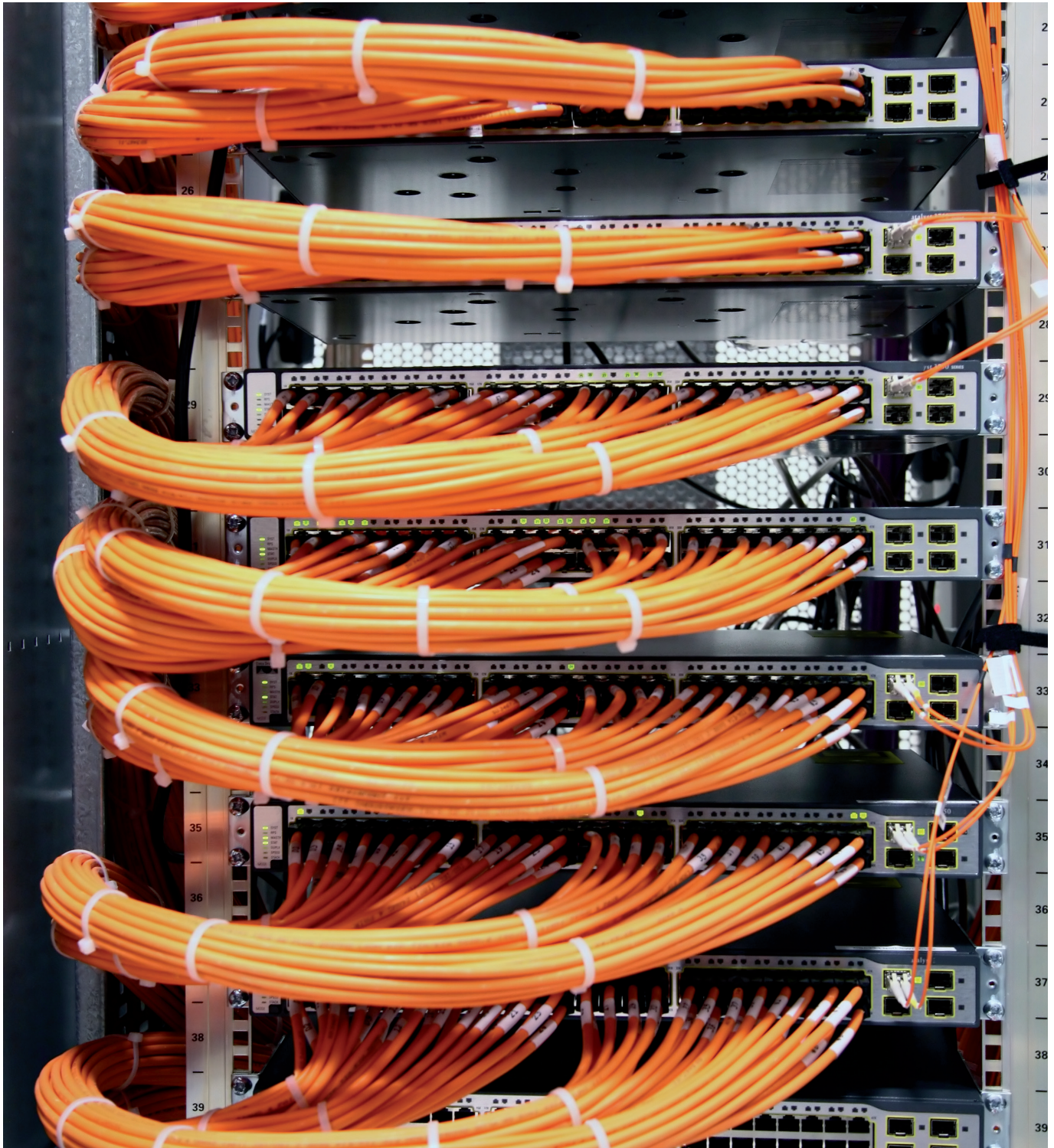
The design has also included front access to most of the components, even the most critical. This front access makes it easier to service and maintain, therefore reducing the MTTR. Equipment of over 400 kVA is provided with a protection system in case the energy returns back, with integrated Back-Feed protection and eliminating the need for any external element.



► Cooling flow



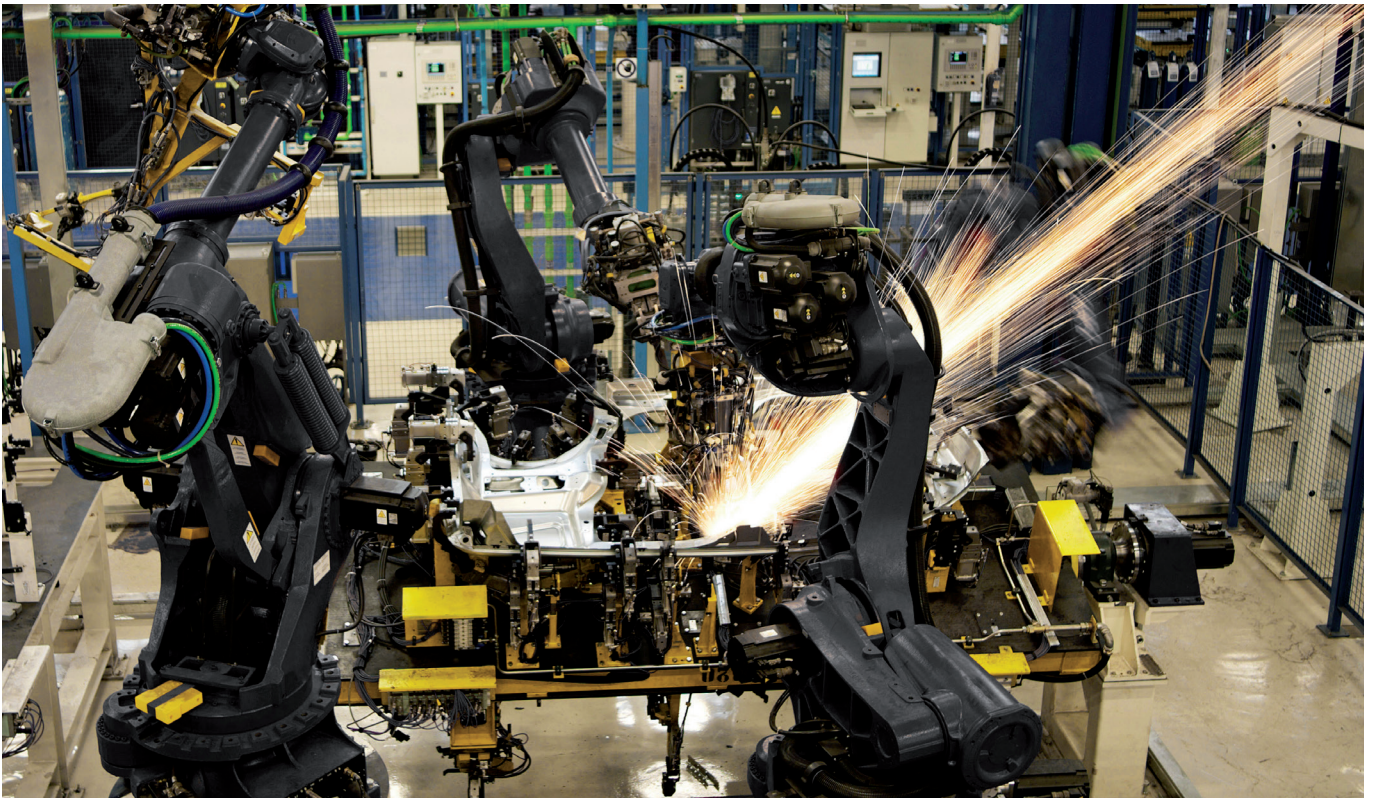
► SLC X-TRA Display



► FLEXIBILITY

The **SLC X-TRA** series is suitable for any kind of application: from IT to the most demanding industrial environments. Thanks to its wide range of accessories and options, it is possible to prepare configurations and projects with complex architectures in order to guarantee maximum power availability for the most critical loads.

Total protection is not guaranteed until the user has permanent communication with the UPS and is always informed of its state. The equipment therefore has the RS-232 and USB interfaces that allow it to connect to the outside world by means of the different communication options (software for monitoring and closing operating systems, integration in SNMP platforms, telemaintenance,...).



▶ AVAILABLE OPTIONS

▶ PARALLEL/REDUNDANT KIT

A kit for installations needing to grow in power or redundancy in the system, enabling the different units to be interconnected.

▶ EXTENDED AUTONOMIES

Configurations of batteries adapted for cases requiring a long back-up time.

▶ BACS II

A system for monitoring, regulation and alarm for lead batteries. It guarantees full operation of the battery system by avoiding unexpected or unforeseen faults caused by faulty batteries.

▶ ETHERNET/SNMP ADAPTER OR GPRS MODEM

This enables the UPS to be controlled without having an associated local computer. Available in box and card versions for the UPS intelligent slot.

▶ INTERFACE TO RELAYS

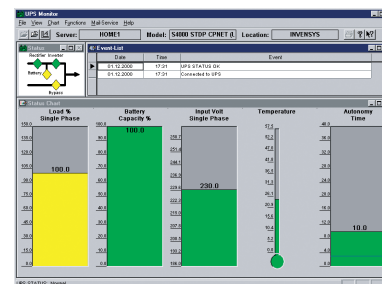
Power-free contacts for remote alarm and state monitoring.

▶ MODBUS PROTOCOL + RS-485 INTERFACE

For communication with compatible systems.

▶ MONITORING OR MANAGEMENT SOFTWARE

For a single UPS by means of a PC/server through RS-232 communication. It sends electronic mails, SMS, UPS programmed shutdowns, etc.



▶ SHUTDOWN SOFTWARE

For computers in mixed networks in which different operating systems work together.



▶ Ethernet/SNMP adapter

► SICRES PLATFORM FOR REMOTE TELEMAGEMENT

Just as important as the equipment operation is the possibility of controlling it from a distance, which provides large savings in time and money and assures constant information on the state of the units. **SICRES** is an Internet telemanagement platform whose functions include the supervision of all of the system parameters, information on the state of the UPS and detection of any possible faults to automatically advise the maintenance services.

► TEMPERATURE AND HUMIDITY SENSORS

Obtention of environmental data of the room where the UPS is located.

► REMOTE DISPLAY

A replica of the display included in the unit for controlling it from a distance.

► COMMON INPUT CONNECTION

Single input for bypass and rectifier lines.

► TOP CABLE INPUT

Enabling connection in installations without raised floor.

► EXTERNAL MANUAL BYPASS

Assembled in a cabinet for fixing to the wall, this assures full UPS electrical isolation for maintenance purposes.

► ISOLATION TRANSFORMER FOR BYPASS LINE

In cases where perfect galvanic isolation is necessary between the equipment input and output, there is the possibility of installing a transformer to separate the system, which can be connected on either the input or the output depending on the specific topology of the installation.

► AUTOTRANSFORMERS TO ADAPT THE VOLTAGE

Located on the UPS input or output to adapt the voltage as required.

► 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)	Linear load	<1%	
		Non-linear load	<5%	
	Efficiency	On-line	95% ÷ 96%	
		Smart Eco-mode	>98%	
Admissible overload	125% for 10 min. / 150% for 1 min.			
STATIC BYPASS	Type and activation criteria	Solid state, microprocessor controlled		
	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 by-pass	Immediate for overloads of over 150%		
	Retransfer	Automatic after alarm disappearance		
	Admissible 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 over-voltages		
BATTERIES	Type ⁽¹⁾	Lead acid, sealed, maintenance free		
	Protection	Against over-voltages and under-voltages		
	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 of monitoring battery switch		
	Display	LCD + LED block diagram		
GENERALS	Operating temperature	0° C ÷ +40° 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 (CEM)	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

► RANGE

MODEL	POWER (kVA / kW)	CABINET NO. UPS + BAT	UPS DIMENSIONS (D x W x H mm.)	WEIGHT (kg)	BAT. CABINET DIM. (D x W x H mm.)	WEIGHT (kg)
SLC-100-XTRA	100 / 90	1 + 1	825 x 815 x 1670	625	855 x 1305 x 1905	875
SLC-125-XTRA	125 / 112.5	1 + 1	825 x 815 x 1670	660	855 x 1305 x 1905	1370
SLC-160-XTRA	160 / 144	1 + 1	825 x 815 x 1670	715	855 x 1305 x 1905	1370
SLC-200-XTRA	200 / 180	1 + 1	855 x 1220 x 1905	970	855 x 1305 x 1905	1550
SLC-250-XTRA	250 / 225	1 + 1	855 x 1220 x 1905	1090	855 x 1305 x 1905	1800
SLC-300-XTRA	300 / 270	1 + 2	855 x 1220 x 1905	1170	855 x 1305 x 1905	1370
SLC-400-XTRA	400 / 360	1 + 2	950 x 1990 x 1920	1955	855 x 1305 x 1905	1800
SLC-500-XTRA	500 / 450	1 + 2	950 x 2440 x 2020	2482	855 x 1305 x 1905	1800
SLC-600-XTRA	600 / 540	1 + 2	950 x 2440 x 2020	2535	855 x 1305 x 1905	2125
SLC-800-XTRA	800 / 720	1 + 3	950 x 3640 x 1920	3600	855 x 1305 x 1905	1925



► APPLICATIONS

► IT-NETWORKS

Information is one of the most important capitals for any type of company. Any breakdown in the availability of information, or absolute loss in the worst case, can cause high costs in terms of money and downtime or system recovery. This damage, which is difficult to assume, can be avoided with the right protection. It must also be stressed that the damage caused by faults in the electrical power supply is much higher and more numerous than that caused by computer viruses.

► FINANCIAL SERVICES

The on-line, globalised operativity of world financial transactions must have continuous back-up to assure uninterrupted operation in all areas (bank offices, automatic cash dispensers, card payment authorisation systems, transactions, continuous quotation, . . .) turning the reliability of the electrical supply as one of the key factors into achieving secure, continuous and reliable transactions. **SALICRU** solutions meet these requirements effectively.

► INDUSTRIAL PROCESSES

Electrically complex environments such as sub-stations or difficult loads (highly reactive) in many productive processes are just some of the applications that require electrical backup equipment to provide important protection, with the necessary flexibility to adapt to different circumstances.

► DATA CENTRES

The critical elements' costs in the data's availability (hosting, housing, packaging sending, airline bookings, etc.), the cost per hour in the event of mains failure are extremely high.

► TELECOMMUNICATIONS

The phenomenal growth in the telecommunications sector has increased demands from providers and subscribers alike on the need for the uninterrupted availability of communication service. It is therefore not unusual to enhance the supply by introducing long autonomies capable of giving coverage during systematic cuts for grid upgrades and/or maintenance.

► INFRASTRUCTURES

- **Hospitals:** With needs ranging from the protection of all vital equipment in ICU, IVU, operating theatres and analysis and laboratory equipment, to assuring temperature control and emergency lighting.
- **Airports:** Where the entire management of flight processes, control towers or check-in must guarantee operation free of errors and unexpected incidents.
- **Tunnels:** Mostly lit day and night, duly signposted and ventilated, they must be backed up by a leading system capable of dealing with any problem.

► STS – SERVICE & TECHNICAL SUPPORT

Your work on a business day should not be interrupted by a problem in a UPS. **SALICRU** therefore provides its Service & Technical Support (STS) department with its team of qualified engineers who will give you support in any eventuality or with any incident in your equipment, in any place, on any day and at any time.

► PRE-SALES SUPPORT

Advice in choosing the model and the best options depending on the application and requirements.

► STARTING UP

The engineers from authorised **SALICRU** services go to the installation site to check the cabling, to start up the equipment and to give basic training to the users.

► TELEPHONE TECHNICAL SUPPORT

Just a call to our hot-line for an engineer to guide you on the possible causes of the fault and, if necessary, to book a day and time for a site visit.

► PREVENTIVE / CORRECTIVE INTERVENTIONS

► **Preventive:** These are the necessary procedures on site in order to avoid possible future faults

► **Corrective:** Necessary procedures for repairing a fault.

► MAINTENANCE CONTRACTS

In a wide range of forms and times, these guarantee maximum efficiency and optimise the useful life span of your UPS.

► TELEMANTENANCE CONTRACTS (SICRES)

A remote monitoring service called **SICRES**, capable of giving customers personalised treatment. With this permanent 24/7 telemaintenance system, when it detects an incident the **SALICRU** Technical Service is capable of reacting immediately, informing the customer and acting in consequence.

► TRAINING COURSES

The training given by **SALICRU** will help you to operate your power system safely: harmonics, neutral system, communication softwares, electrical supervision, etc.



SALICRU

Avda. de la Serra 100
 08460 Palautordera
 BARCELONA, Spain
 Tel. +34 93 848 24 00
 export@salicru.com
 SALICRU.COM

DELEGATIONS and SERVICE & TECHNICAL SUPPORT (STS)

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

SUBSIDIARIES

CHINA	MEXICO
FRANCE	PORTUGAL
HUNGARY	SINGAPORE
MOROCCO	

REST OF THE WORLD

ALGERIA	MALAYSIA
AUSTRIA	NETHERLANDS
BELGIUM	NIGERIA
BRAZIL	PERU
BULGARIA	PHILIPPINES
CHILE	POLAND
CUBA	ROMANIA
CZECH REPUBLIC	RUSSIA
DENMARK	SAUDI ARABIA
ECUADOR	SLOVAKIA
EGYPT	SWEDEN
ESTONIA	SWITZERLAND
FINLAND	THAILAND
GERMANY	TUNISIA
GREECE	UAE
INDONESIA	UKRAINE
IRAN	UNITED KINGDOM
IRELAND	UNITED STATES OF AMERICA
ITALY	URUGUAY
JORDAN	VENEZUELA
KUWAIT	VIETNAM
LATVIA	
LITHUANIA	

Product Range

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



Note: Salicru can offer other power electronics solutions according to requirements of the application or technical specifications.