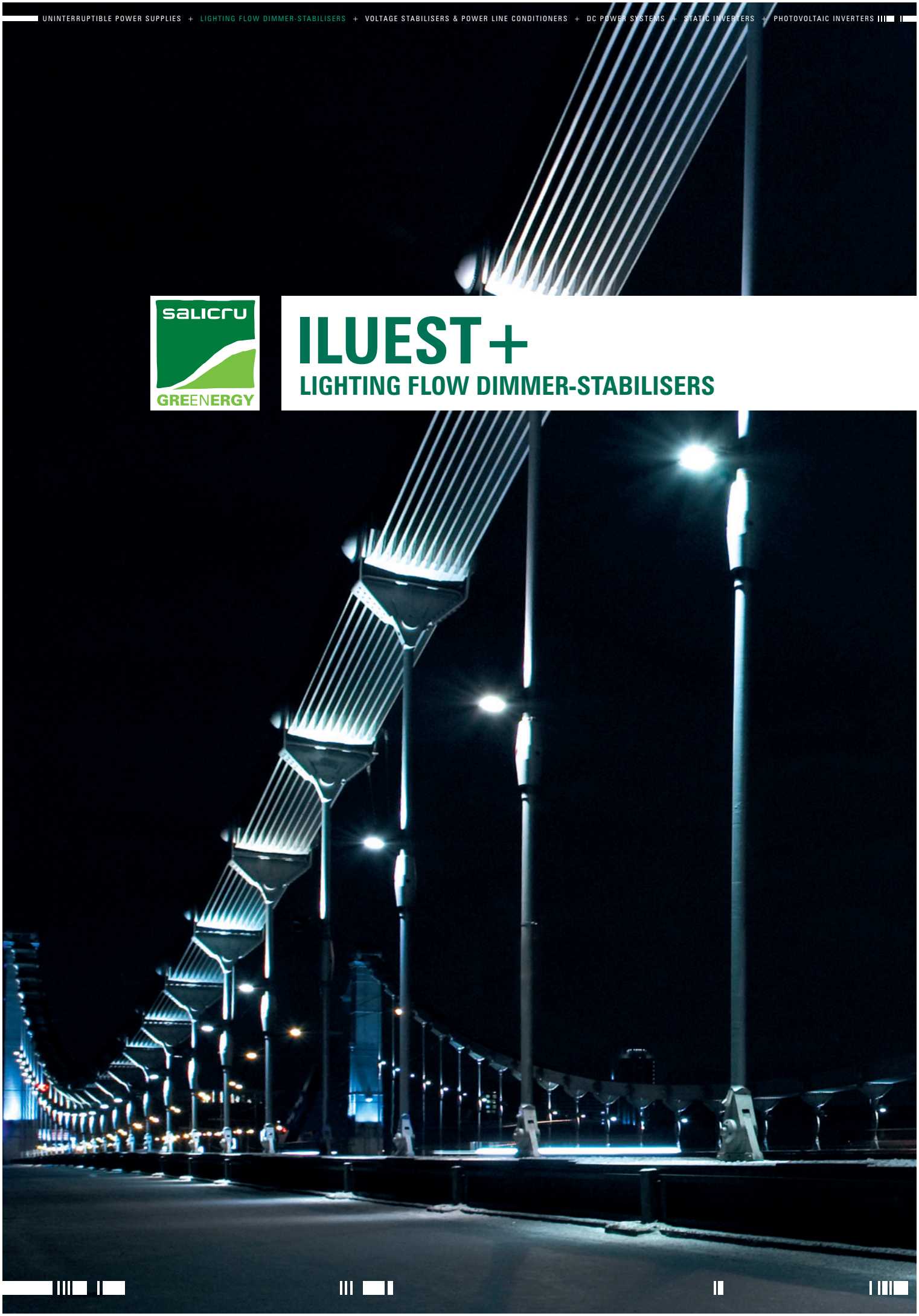


salicru GREENERGY

ILUEST+

LIGHTING FLOW DIMMER-STABILISERS

ILUEST+

▶ ENERGY-SAVING, COST-EFFECTIVE & ENVIRONMENTAL FRIENDLY LIGHTING SYSTEMS

SALICRU has traditionally focused on energy saving in lighting installations. Proof of this is **ILUEST** lighting flow dimmer-stabiliser which, designed over 20 years ago and widely used throughout the country and abroad, was a pioneer in achieving precise High-Intensity Discharge (HID) lamp regulation with considerable savings in energy plus maintenance.

Nowadays, when energy has become a valuable and expensive service and street lighting is increasing constantly in quantity plus quality, SALICRU stands fast for its first stake launching latest version of **ILUEST+** lighting flow dimmer-stabiliser on the market:

ILUEST+CR, faithful to its original philosophy, uses the latest technology available to achieve better adjustment, management control and saving in outdoor urban lighting installations.

ILUEST+MT, the natural evolution of the original equipment with a multitaps transformer, which has been provided with higher-level communications, cutting-edge bypass, standard LCD display with astronomic clock and head contactor control.

▶ ILUEST+CR

▶ More than 15,000 units installed and 400 MW back us

Such functional installation figure demonstrates manufactured product quality and innovation, becoming a perfect lighting installations plus.

▶ Energy efficiency in lighting

Energy consumption in lighting accounts for a large percentage of the energy expenditure in any municipality, and often amounts to more than 60% of the total electricity bill.

The lighting lines suffer considerable voltage fluctuations (overvoltages) throughout the night, causing considerable surplus consumption and a dramatic fall in the lifespan of the associated discharge lamps, which has a large effect on maintenance costs.

Street lighting systems generally maintain constant lighting levels, regardless of specific needs. However, most of the night, the streets and roads are empty with little traffic, so the lighting level could be reduced without causing problems and without consuming more than necessary.

In some cases, lighting is partially turned off, though this brings on a lack of uniformity incident risk-prone, increasing as well lighting lines complexity. In other cases, each lighting point is regulated, but this supposes extra purchasing cost plus expensive installation & maintenance. In both cases, voltage is not stabilised, implying a severe drop in discharge lamps lifespan.

Therefore, if town halls and other official bodies, amongst others, wish to avoid excessive lighting or needless long lighting time, without disregarding quality parameters, they do need to set street lighting systems light flow.

Lighting flow dimmer-stabilisers installed in lighting line head panel, meaning minimum modifications made to current installations, so effective voltage stabilisation achieved, as well as up to 40% energy saving. Moreover, as voltage reaching lamps is stabilised, they bestow full lifelong potential, thus significantly reducing linked maintenance costs.

Finally, it is important to mention that these energy saving also means that huge CO_2 amounts are no longer being released the atmosphere.

Lighting suited to every need

The **ILUEST+** series allows lighting level to adapt to overall needs, via parameter intelligent setting; such as intensity, turning on and off.

BENEFITS:

· **Energy savings,** reduction of energy consumption.

· **Economic savings,** reduction of the electricity bill in terms of consumption, maintenance and replacement.

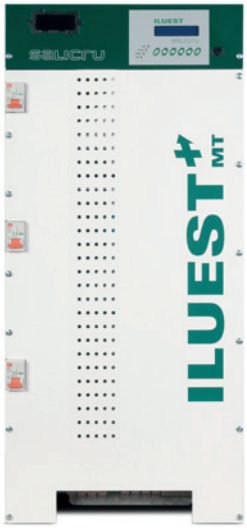
· **Simple installation,** both in current and new lighting systems.

· **Optimised telemanagement,** via remote control equipment connected to a control centre.

· **Speedy amortisation, in**-between 6 and 24 months.[1]

· **Smaller CO_2 emissions,** environment protection maximising nightly hours natural conditions.

(1) Estimated 0.09 €/kWh rate.



▸ ILUEST+ MT

ENERGY SAVINGS

In cities before 1973 world energy crisis and due to low energy price, lighting was set up without constraint. However, after this crisis, all of this changed, energy became more expensive and town halls began to look for a way to save street lighting consumption.

METHODS:

Double circuit

Partial turning off. Main drawbacks of this solution are citizens' insecurity in dark areas and disturbing 'zebra' effect upsetting drivers.

Double level reactances

These are used to achieve regular lighting, being expensive to buy & install due to extra reactance and usually in control line to each lighting point. Furthermore, as there is no stabilisation, lamps are still affected by overvoltages.

ILUEST+, dimmer-stabiliser

These provide previous systems advantages without their drawbacks, inasmuch voltage is stabilised and light flow gently reduced, being cheaper to install & maintain providing regular lighting plus considerable energy saving.

ECONOMIC SAVINGS

With **ILUEST+** we are able to achieve up to 40% economy saving.

In any city of the world, lighting is on around 4,000 hours as yearly average, nightly overvoltages amount to 10%, so electricity bill is increased to 21% and drop in lamp average lifespan easily attains -50%, sharply increasing maintenance cost.

Also in any city of the world, full power lighting needs after-midnight slowdown, matching traffic and pedestrian abatement in the streets.

25,000 inhabitants town for example's sake; if no action taken regarding energy saving, we will spend yearly an extra 450 MWh due to overvoltage, resulting in 21% increase in electricity bill and 67% higher maintenance costs due to lamp replacement. Moreover, as if this were not enough, we will also weight on Greenhouse Effect by consuming 1,426 Tonnes CO_2 yearly equivalent.

On the other hand, if we install **ILUEST+** in each control centre, in addition to overvoltage avoidance via voltage stabilisation, we will diminish maintenance costs and rationalise consumption to 1,723 MWh, achieving 848 MWh energy saving, over 93,000 € equivalent[2], plus no less meaningful drop in Greenhouse Effect gas emission, estimated around 466 CO_2 Tonnes.

Following tables show possible energy saving, economy saving plus CO_2 reduction which are easily achieved, depending on municipality's inhabitant number and other factors.

		WITHOUT ILUEST+			WITH ILUEST+			
Nr. inhab. (in thou.)	Nr. control centres [1]	Annual consumption (MWh) – 4000h /10% overvoltage	Annual bill (€) [2] (consumption + maint.)	CO_2 sent to atmosphere (T)	Annual saving (MWh) 4000h.	Annual saving (€)[2] (consumption + maint.)	Annual saving in CO_2 (T)	Average amortisation time (months)
10	11	1,065	110,122	586	345	37,876	190	10
25	27	2,614	270,949	1,437	848	93,277	466	10
50	54	5,227	541,898	2,875	1,696	186,554	933	10
75	80	7,744	804,135	4,259	2,512	277,005	1,382	10
100	107	10,358	1,075,084	5,697	3,360	370,282	1,848	10
200	214	20,715	2,150,168	11,393	6,720	740,564	3,696	10
500	536	51,885	5,384,132	28,537	16,830	1,854,236	9,257	10
1,000	1,071	103,673	10,759,552	57,020	33,629	3,705,646	18,496	10
2,000	2,143	207,442	21,527,816	114,093	67,290	7,414,118	37,010	10

(1) Calculation based on 20 kW average power per control centre, for n HPSV lamps of 150 W, where n corresponds to 7 inhabitants per lighting point. (2) Estimated 0.09 €/kWh rate.

▶ INSTALLATION

The **ILUEST+** equipment are easily installed at head line and not at each lighting point, therefore adapting to all kinds of new or current installations and types of lamps on the market.

There is also the possibility of installing them inside the feeder pillar itself, or next to it on the outside.

▶ TELEMANAGEMENT

The **ILUEST+** equipment can also be managed easily by town hall personnel.

With the optional **SICRES** module, direct, effective and easy communication is possible with the city's street lighting, enabling consumption and data to be registered, complete remote control of the installation by means of GPRS modem and comprehensive alarm management in real-time using SMS and e-mails.

▶ AMORTISATION

The total investment made in **ILUEST+** equipment is repaid in-between 6 and 24 months, thus regaining full investment.

Once repaid, the total achieved saving may be completely reinvested in improving and managing the lighting system. Furthermore, if we add multiple fundings promoted by the different governments to this, aforesaid amortisation period will be even shorter.

▶ CO_2 EMISSION

0.55 Tonnes of CO_2 are being released the atmosphere for every MWh of power consumed.

With **ILUEST+**, as electrical consumption is reduced, CO_2 emissions also decrease, avoiding well-known Greenhouse Effect which is affecting our planet. Moreover, by broadening lamp's useful life, we will weight reducing their recycling cost.

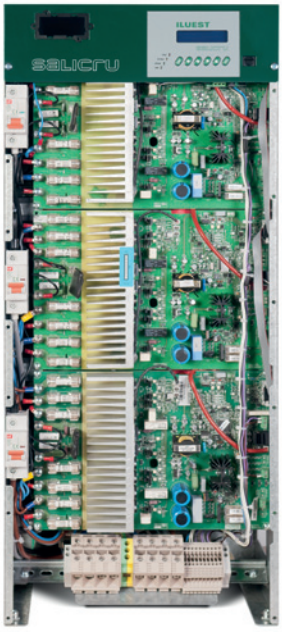
If such action would be unfolded to the rest of towns in a country of 40 million inhabitants, its environment contribution would prove crucial, as it would avoid releasing 1 million CO_2 tonnes equivalent to the atmosphere yearly. In other words, it would save the need to plant more than 650 million trees.

▶ APPLICATIONS

Thanks to their operative flexibility, the **ILUEST+** may be installed in a multitude of different applications of both outdoor and indoor lighting:

Outdoor lighting:
- Residential areas: streets, avenues, roads, loop roads, roundabouts, bridges, etc.
- Industrial areas: industrial estates.
- Car parks: in hospitals, ports, airports, shopping centres, etc.
- Platforms: railway stations, quays, etc.
- Airports: aircraft parking areas.

Indoor lighting:
- Check-in areas in ports, railway stations and airports.
- Tunnels.
- Shopping centres: product storage and sales area at times of cleaning and product replacement.
- Manufacturing industries, industrial warehouses and silos.



▶ ILUEST+MT without the front cover.

▶ REFERENCES

National references:

City Halls: Madrid, Barcelona, Valencia, Seville, Zaragoza, Vitoria, Malaga, Pamplona, Vigo, Palma de Majorca, ...

Airports: Tenerife, Alicante, Barcelona, Lanzarote, Madrid, Santiago de Compostela, ...

Motorways: Bidegi, Acesa, Aumar, Avasa, Aucat, Autoestradas, ...

Port authorities: Barcelona, Tarragona, Valencia, El Ferrol, ...

Others: Acería Compacta de Vizcaya, Canal de Isabel II, Túneles de la DGT, Fasa-Renault, Maersk España, Port Aventura, EADS-Casa, ...

International references:

France: Lyons, Rennes, Reims, Le Havre, St Etienne, Lorient, Charlesville Meziers, Evry, ...

Tunisia: Tunis, Carthage, Sidi Bou Said, Sfax, Megrine, Bardo, Hammamet, Mornaguia, ...

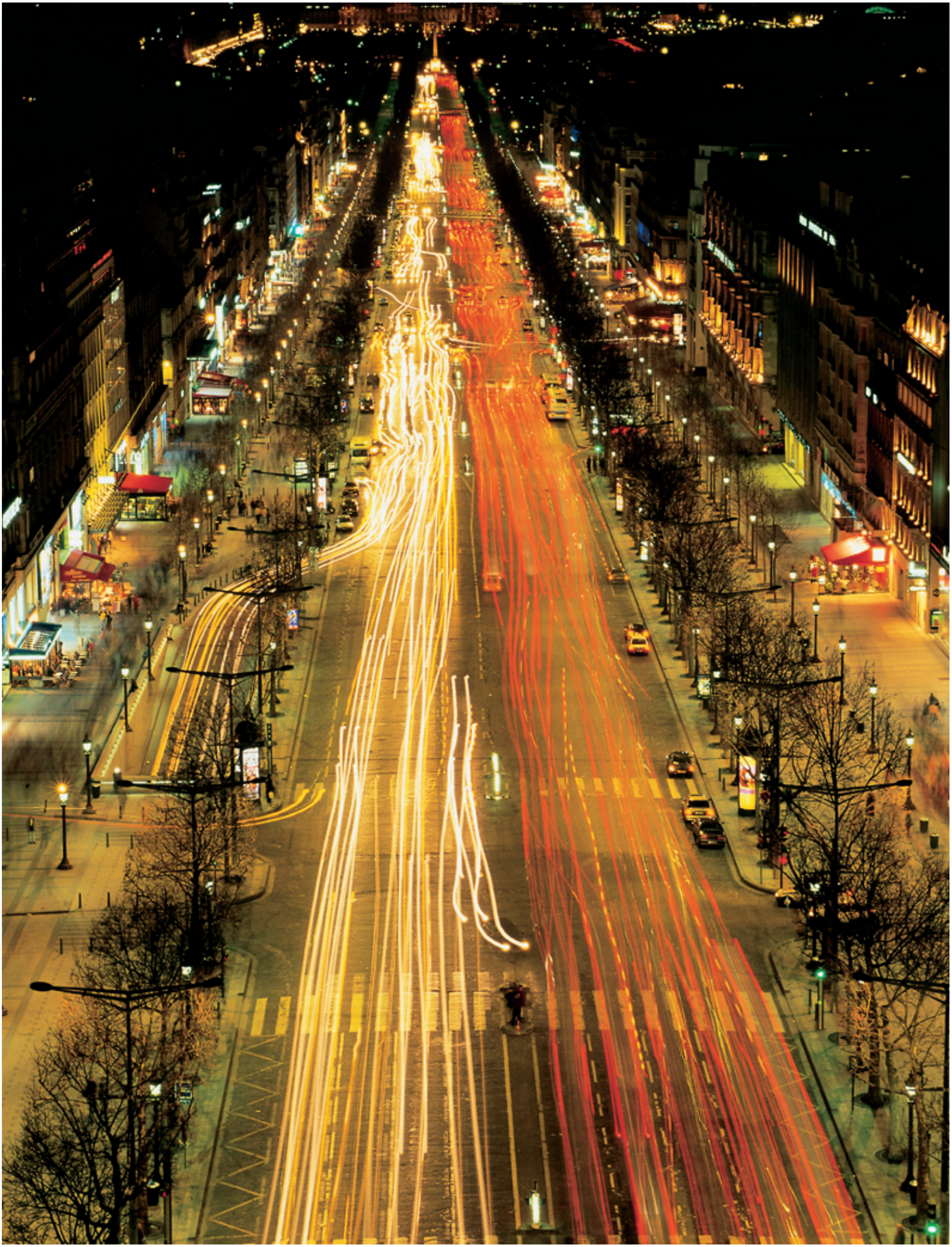
Morocco: Rabat, Casablanca, Fes, Tangiers, Meknes, Berrechid, Temara, Skhirate, ...

China: Beijing, Guangzhou, Shanghai, Shandong, Jiangsu, Hunan, Xingjian, Si Chuan, ...

Poland: Gdansk, Bydgoszcz, Gdynia, Czestochowa, Torun, Walbrzych, Swidnica, Swiecie, ...

Portugal: Lisbon Port authority, Azores airport, Lisbon City Hall, Porto City Hall, ...

(1) Estimated 0.09 €/kWh rate.



ILUEST+CR

THE MOST ADVANCED SOLUTION

ILUEST+CR series made with apparel range in-between 3.5 and 45 kVA, both in single phase plus three-phase, making up most highly evolved SALICRU's stabiliser range, being a great step forward in such kind of equipment.

There are several features in which **ILUEST+CR** evolution is obvious, clearly standing out over current solutions in operation:

- Innovation: Most products within lighting flow control market applications offer discontinuous voltage setting. However, **ILUEST+CR** series provides continuous adjustment thanks to PWM technology used.
- Technology: Due to its 100% static, electronic and transistorised (IGBT) nature plus its 2-way topology, load reactive currents are returned to main, adjustment being improved in its output accuracy (±1%), correction speed increased, linear ramps, etc.
- Telemanagement: Total digital control, with greater measuring capacity, data monitoring and parameter programming. By including a rear-lit LCD display and new SICRES card, it is possible to build a powerful interface for Ethernet networks with TCP-IP & SNMP protocols, and GSM/GPRS modems. MODBUS protocol.
- Modularity: Operation and maintenance strongly improved by modular power configuration which, due to smaller weight achieved via transformer elimination, reduce considerably both size & weight.
- Power density: Transformer elimination allows a power package up to 3 times that of competitors', facilitating adaptation to current or new control centres, thereby turning this series into most compact in market.
- Protections: Automatic & manual bypass active by default with switching not passing through zero. Input for manual override. Protection provided with automatic reset against overloading, high temperatures and malfunction.
- Ecology: Due to new conception and electronic topology used, **ILUEST+CR** series capable of being more ecological than its predecessor, if this is possible at all, avoiding sending huge CO_2 amounts to the atmosphere.[1]

FORMATS AND COMMUNICATIONS

OEM FORMAT KIT:

A format which gets the most out of this series' modularity by configuring the modules to be integrated with the utmost flexibility in a specific installation and in lighting cabinets of any size and proportion.

OEM format kit

Supplied in single phase or three-phase configuration, this comprises modules, fixing supports, wiring and power supply.

INDOOR VERSION:

Also conceived to adapt to lighting cabinets with little available space, but this integrates the three phases in a highly compact vertical format.

Indoor version

(1) 190 Tonnes of CO_2 on average for a typical town of 10,000 inhabitants.

▶ OUTDOOR VERSION:

Apart from these 2 indoor formats with IP-20 protection index, there is also a weatherproof application in which the equipment is fitted in a polyester cabinet for locations in the open air.

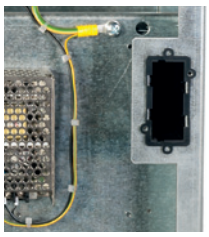
▸ Outdoor version

▶ COMMUNICATIONS:

All of the units of any format have a standard synoptic comprising:

- **LCD display:** Provides information on input & output voltages, frequency, load percent and saving, output current, active power, apparent power, power factor, load type and temperatures. It includes a timing programmer, astronomic clock and alarm log.
- **Communications ports:** RS-232 by RJ-45 connector for local monitoring via PC.
- **MODBUS protocol.**

▸ LCD Display, LED synoptic and connection for PC



▸ Slot detail of SICRES card

▶ OPTIONS

- **Internal or external manual Bypass:** Which will enable units to be electrically isolated to facilitate maintenance, repair work, etc.
- **GSM/GPRS modem.**
- **SICRES card:** This provides the equipment with remote communications by GPRS modem and Web environment.
- **Digital I/O:** Digital inputs and outputs.
- **Atmospheric gas discharger.**

▶ TECHNICAL SPECIFICATION

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	Preselectionable(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 y RS-485(2)
	Monitoring	SICRES system(2)
GENERALS	Operating temperature	– 20º 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	< 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
	Marking	CE
	Quality and environmental management	ISO 9001 and ISO 14001 TÜV

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

▶ 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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ILUEST+MT

▶ TECHNOLOGICAL EVOLUTION

Thanks to its design, **ILUEST+MT** series guarantees that voltage reaching lamps always stays within ±2% nominal value margins, to allow them to operate under planned conditions and also, in addition to planned real flow plus lighting levels, achieving a considerable increase in discharge lamp lifespan.

Equally, it enables controlled, soft reduction of power supply voltage, giving regular flows and significant energy saving.

Finally, the new communications using the SICRES card, a state-of-the-art interface, enable real-time remote control in Web environment of the principal parameters of the installation.

▶ ADAPTABILITY

ILUEST+MT dimmer-stabilisers fully static to start with, so as to have no moving elements, having a longer lifetime and replying faster to sudden changes in power supply voltage, protecting the always delicate discharge lamps more effectively. Furthermore, as regulation completely independent by phase (3 single phase units connected in star), allowing complete independence between them so they will not affect each other. Therefore, static Bypass on each phase will respond by connecting lighting from affected phase directly to mains when any fault befalls, albeit in unit itself or outside it, such as overloading, short-circuits, etc.

There are 2 types of finish respecting casing used: indoor version (conceived for use in customer's panel) and outdoor version (designed for exterior installation).

ILUEST+MT dimmer-stabilisers are conceived and designed for installation at line head, thus avoiding ackward supplementary wiring of other systems; being cheaper at the same time.

Also on each phase, these units have an RS-232 communications channel which allows local communication (by laptop computer or LCD on the unit itself) or remote communication (using the SICRES card telecontrol options and GSM/GPRS modem) of all of the electrical parameters involved in the adjustment. It is therefore possible to control, monitor and programme the equipment from a distance using a specially developed Web environment management application.

▶ ENHANCED PERFORMANCE

The **ILUEST+MT** lighting flow dimmer-stabilisers bring in a series of advantages which, with time, have become reference performances in the majority of lighting projects:

- **Absence of moving elements:** For safety and greater reliability, lighting flow dimmer-stabilisers are static, high efficiency and interactive. Therefore, switching between different autotransformer secondary taps is carried out by solid-state switches (triacs).
- **High-speed correction:** According to the correction speed, voltage stabilisation is almost immediate, under 100 ms, which benefits lamps as at no time will they be exposed to sporadic overloading (causing their premature aging) and it will avoid unexpectedly turning off due to a momentary drop in power supply.

▶ Indoor ILUEST+MT

- **Operational flexibility:** Each of the three electronic control units has fine adjustment of the output voltage (either the nominal or reduced value) to adapt the unit to the discharge lamps and/or overcome the habitual falls in voltage at the end of the line.

- **Conformity to regulations:** Conforming to essential requirements of EC Directives 2006/95/EC on LV Safety & 2004/108/EC on Electromagnetic Compatibility (CEM).

▶ ILUEST+MT in outdoor version

- **Improved remote communication:** This series has an interface for local and/or remote communication by means of the LCD display and/or GSM/GPRS modem + **SICRES** card, respectively, which enable the principal parameters of the installation to be watched over and programmed, thus making it possible to exhaustively monitor the whole of the facility and the achieved savings.

▶ View of the LCD display and slot for SICRES card

▶ OPTIONS

- SICRES card.
- GSM/GPRS modem.
- **Manual bypass,** to electrically isolate the unit during maintenance work.(1)
- **Automatic bypass** to contactors, by phase or common.(1)
- **Atmospheric gas discharger.**(1)
- **Digital I/O card.**(1)

(1) In additional module.

▶ 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		Preselectionable(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 wall
	Outdoor		Indoor built in a poylester cabinet
STANDARDS	Safety		EN-60950-1
	Electromagnetic compatibility (EMC)		EN 61000-6-2; EN 61000-6-3
	Marking		CE
	Quality and environmental management		ISO 9001 and ISO 14001 TÜV

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

▶ 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 653 x 1070	214	420 x 770 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: 3x400 V / 50 Hz input/output.

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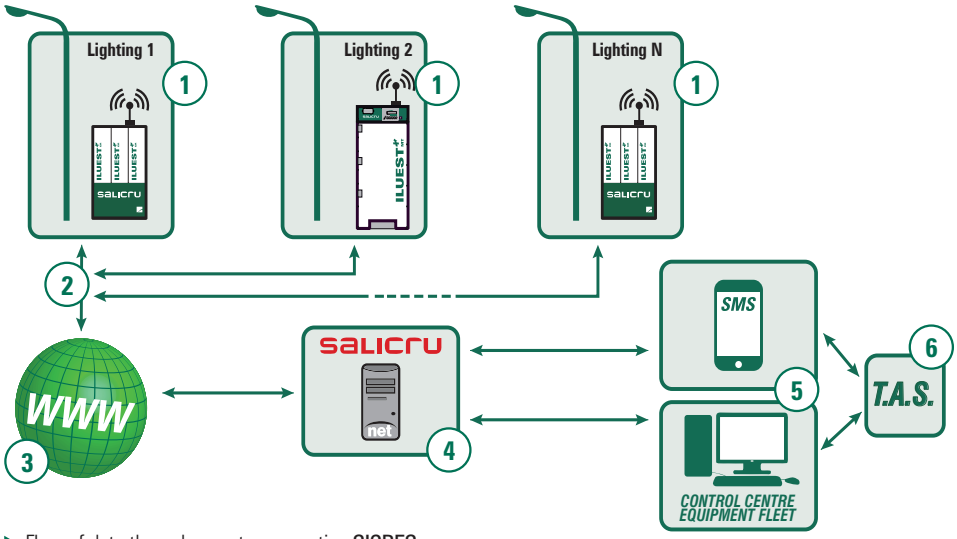
SICRES Telemanagement

▶ 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, mains 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.



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]

(1) Other communication options: PLC, Ethernet, optical fiber, etc.

(2) SALICRU Web server or one owned by the customer.

▶ Flow of data through remote connection **SICRES**

▶ 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.

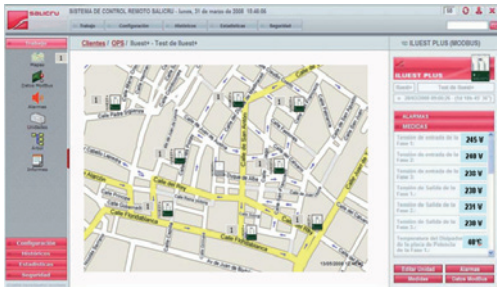
While the monitoring is under way, an incident and alarm log is created to enable exhaustive analysis of the equipment, which provides valuable information on the operating tendency and identifies potential future problems.

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.

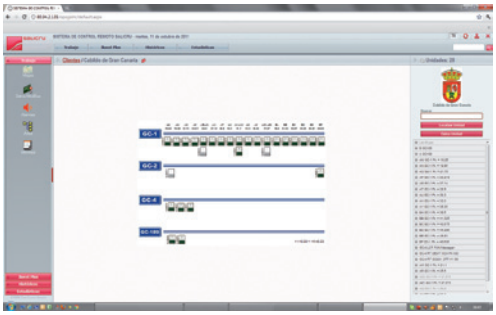
SICRES facilitates overall lighting maintenance by including cartographic maps with the exact location of the units. By clicking on any of them, we can find out their main parameters and enable their monitoring, control and programming.

▶ MONITORING & CONTROL

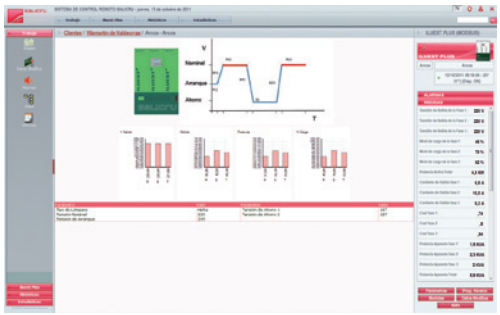
- Personalised screens for perfect equipment location, monitoring, control and programming.



- Cartographic map of the equipment fleet



- Location and data of the equipment fleet



- Graphs of the different parameters: measurements, alarms, etc.

▶ VERSIONS

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 Card
- SICRES Box

▶ 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	SMS configurable 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

salicru

Avda. de la Serra 100
08460 Palautordera
BARCELONA. Spain
Tel. +34 93 848 24 00
Fax +34 93 848 11 51
export@salicru.com
SALICRU.COM

DELEGATIONS and SERVICE & TECHNICAL SUPPORT (STS)

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RUSSIA
SAUDI ARABIA
SWEDEN
SWITZERLAND
THAILAND
TUNISIA
UAE
URUGUAY
VENEZUELA
VIETNAM

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