LINERGY
EMERGENCY LIGHTING

CENTRALIZED POWER AND CONTROL SYSTEMS

GUIDE TO THE **EMERGENCY LUMINAIRES**

LINERGY
EMERGENCY LIGHTING

SUPPORT AND SERVICES

Shipping by express courier

The dispatch of standard equipment orders is executed within 5 working days and is entrusted to express couriers, guaranteeing nationwide delivery within 24 hours.

Sales network

Linergy provides an immediate technical and commercial service through a network of agencies that cover Italy nationwide.

Customer support

Post-sales services enable Linergy to always support the management and troubleshooting of any issues.

For the direct e-mail queries service, contact the following email addresses:

info@linergy.it - Requests of any kind
support@linergy.it - Technical Support Service

Send an e-mail to documentazione@linergy.it and you will receive the links for downloading up-to-date technical and commercial material.

NOTE: specify in the subject: "Documentation"

Telephone technical support

Linergy provides the customer a telephone technical support service managed in-house by the company.

NUMERI TELEFONICI:

Switchboard	**0735 5974**
Technical telephone support	**0735 597424**
Technical support for Spy Center	**0735 597454**
Technical support for Spy System	**0735 597425**
Lighting technical design	**0735 597427**
	0735 597428
	0735 597429

WHATSAPP TECHNICAL SUPPORT
3341133875

From Monday to Friday, **9.00 am** to **12.30 pm** and **2.00 pm** to **5.30 pm.**

www.linergy.it

Online website with constantly updated information on the Linergy world. On **www.linergy.it** you'll find all the latest news on products and on sales network and you can also download instructions manuals, certificates, price lists and data sheets.

EMERGENCY LUMINAIRES

What are these?
Emergency luminaires are used to obtain safety lighting when electricity and ordinary lights fail.

Why use them?
The law and various technical regulations require the presence of safety lighting in all workplaces, in order to avoid any discomfort and, specifically, to ensure people's safety in the event of a power cut, the presence of a fire or any other incident.

How should you choose them?
The correct choice of emergency lighting requires knowledge of the various types of luminaires and their main features.

TYPE OF OPERATION

Non-maintained models or N/M type
The luminaire only switches on when activated by a power cut.

Models with maintained functioning or M type
The luminaire remains constantly lit, with or without a power supply. This type of feature is suitable for lighting pictograms to indicate emergency exit routes.

Lighting models or L type
The luminaires are equipped with a power supply unit/driver and light source, but have no batteries. They are powered by a mains voltage or rescue response systems and they may use a different power voltage, depending on the model, e.g. 230V AC, 110V AC or 48V DC.

Protection Rating
The IPxx level of protection indicates the mechanical protection of the luminaire from external agents. The first digit indicates the level of protection against the penetration of solid particles, the second digit relates to liquids; e.g. IP65 dust-proof and water-jet proof luminaires.

Luminosity
A fundamental parameter of the luminaire is the luminous flux it emits in the event of an emergency. This is used, along with the radiation diagram, for the technical lighting design of the equipment. It represents the amount of light energy emitted by the source in the unit of time, and the unit of measurement is lm (lumen). This is completely unrelated to Watts, the number of LEDS or the size of the battery. The emergency flow of the luminaire is clearly indicated on the pages of the catalogue and for the Maintained (M) models there are two flows indicated.

Battery life
Regulations require autonomy, which according to the various environments must be 30 minutes, 1 hour, 1 hour 30 minutes, and 2 hours. There are also products with 3 or even more hours of autonomy. If, due to degradation, the nominal autonomy is no longer ensured, the batteries must be replaced.

Charging time
"Charging time" means the time needed to recharge the battery, in order to ensure nominal autonomy. As a rule, the product standard indicates a 24-hour recharge time. In a number of legal and regulatory environments, 12-hour charging times are indicated for devices.

PRODUCT CODE KEY

PRODUCT	POWER	BATTERY	DURATION	TYPE	COLOUR	VERSION	FUNCTIONS	FLUX
AL Atex Led	**100** - 1 led	**L** Litio	**10** 1h	**A** Maintained M	**B** White	**S** Standard	**T** Energy Test	**H** High Flux
AS Astra	**200** - 2 led		**13** 1h 30'					
BG Big One	**300** - 3 led		**20** 2h					
CE Cristal Evo	**04** Watt	**N** Nickel Cadmium Nickel Metal Hydrate	**30** 3h	**E** Non Maintained N/M	**G** Grey	**R** Rest Mode	**C** Centralized Supervision Spy System	**HH** Highest Flux
CM Cometa	**06** Watt							
CR/CS Cristal	**08** Watt					**I** Inhibition		
CW Cristal Wall	**11** Watt			**I** Lighting L			**SC** Centralized Supervision Spy Center	
DL Dual	**18** Watt	**P** Lead				**M** Movie		
DU Dual Led	**24** Watt			**M** Movie			**SC24** Centralized Supervision Spy Center 24V	
EF/EU Evolution Flu								
EI Euroinverter							**B** Energy Test Touch	
EL/ES Evolution Led		**F** Li-FePO4						
FT Fastinverter L / Alta Resa T8							**D** Dali	
FX Fox								
IC Ice							**W** Spy System Wireless	
IT Icetek								
KL K-Led								
LD/LS Ledy								
LI/LH Led Inverter								
LV Lyra Evo								
LX Lexit								
MB/ML Moon Led								
NL Nanoled								
OR Orion								
PR/PS Prodigy								
QU Qube								
SB Seven Glass								
SC Spy Center								
SC24 Spy Center24								
SCB Spy Center Basic								
SCL Spy Center LPS								
SF Seven Plus								
SG Seven Plus Led								
SS Spy System								
ST Step								
SW Swing								
VD Vip Led								
VE Vialed Evo								
VH Vialed High								
VN Vialed Net								
VT/VU Vialed Tube								
VW Vialed Wall								

Example of a code for a high flux Prodigy luminaire

PR	24	F	10	E	B	R	T	-	H

EMERGENCY LUMINAIRES

INHIBIT
Connection with inhibition

REST MODE
Connection with Rest Mode

It is possible to inhibit the operation of the emergency system by using the inhibit function, performed with a switch connected to luminaire connectors A and B (Fig. 1). This solution is obtained at a minimal cost, but has one drawback: in case of a fault on the inhibition line, or if a switch inadvertently left open, the system is permanently inhibited, resulting in the lights being switched on. To overcome this drawback, the law requires that "Sleep Mode" function is activated by connecting connectors A and B to a centralised control unit, instead of a switch (Fig. 2). This manages the inhibition of the luminaires and keeps them active and can be auto-reset in case of a black-out. This device also allows functional tests to be performed on emergency equipment when connected to ENERGY TEST luminaires.

ENERGY TEST
Local auto-diagnosis

The Linergy "Energy Test" luminaires series are equipped with microprocessors that constantly monitor and warn of malfunctions caused by a lack of battery power or light source.
FUNCTIONAL TEST: every 14 days, the luminaire turns on the light source for 20 seconds to check that it is working correctly.
AUTONOMY TEST: every 84 days a power cut is simulated, the battery is fully discharged and the nominal autonomy of the luminaire is checked.

SPY SYSTEM
Centralised auto-diagnosis
with monitoring control units

Linergy luminaires of the Spy System series are the auto-diagnosing luminaires described above, but they can also be connected to and managed by the Spy System control unit.

SPY SYSTEM WIRELESS
Centralized wireless self-diagnosis
with supervision units

The luminaires of the Spy System Wireless series are lamps with self-diagnosis, which can be managed and controlled by the Spy System units by means of wireless communication with mesh network technology.

DALI
Centralised auto-diagnosis
with third-party Dali systems

Dali, which is an acronym for Digital Addressable Lighting Interface, is an international standard communication protocol for managing ordinary and emergency lighting systems. For further information, see page 39.

CENTRAL BATTERY
Luminaires powered by certified rescue
response system

These certified luminaires are only equipped with the power supply unit/driver and light source, and can be connected to various types of rescue units. They are usually powered by 230V AC and can ensure good lighting performance.

SPY CENTER
Luminaires powered by
Spy Center with certified rescue
response system and single point control

Series of specific luminaires to be connected to Spy Center rescue units equipped with a module for control and monitoring using conveying wave technology and, naturally, a power supply unit and light source.

SPY CENTER 24
Luminaires powered by certified
Spy Center 24 rescue response system

LED only luminaires with driver, addressing module and communication that can be connected to 24V DC very low voltage rescue response units of the Spy Center 24 series. Each product is powered by the rescue unit and is handled and controlled individually, using conveyed wave technology

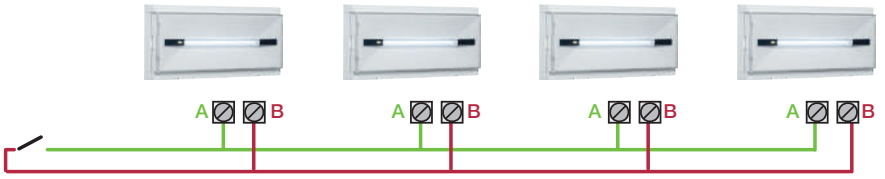


Fig. 1
INHIBIT chart
Connection with inhibition; For correct installation, the switch must be positioned in a place accessible only to personnel authorised to carry out maintenance.

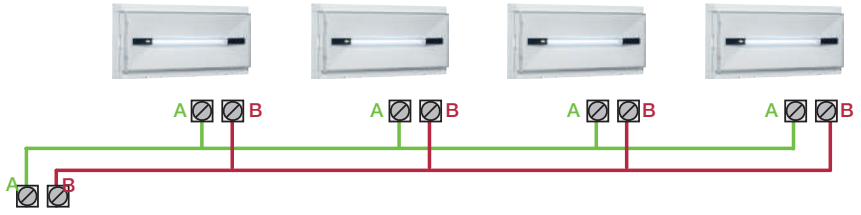


Fig. 2
REST MODE chart
Connection with Rest Mode (standard connection)

Commander

EXTRA

MOVIE

Movie version for public entertainment venues

"Movie" series luminaires are suitable for cinemas and theatres. Under normal conditions, lighting is installed so as not to detract from the show, but to ensure that emergency exits routes are clearly visible. In the event of an emergency, the luminaires provide the maximum brightness. These luminaires use LED technology.

ENERGY TEST TOUCH

By simply touching a sensitive area of the luminaire, The "Touch" version activates various special features, such as:

- Manual start-up of functional and autonomy;
- tests luminaire memory reset;
- Switching luminaires to rest mode.

All the above is in addition to the normal functions of an "Energy Test" luminaire.

SYNCHRONIZATION PROCEDURE FOR FUNCTIONAL AND AUTONOMY TESTS

- Wherever possible, disconnect the luminaire reflector -including electronic board, battery and Led card/fluorescent tube - from the wall base (traditional luminaires with comb connection terminal block). In all other cases (inverter and luminaires with extractable terminal block) open the jumper of terminals A - B.
- Wait 5 seconds.
- Replace the reflector on the wall base or close the jumper on terminals A - B.

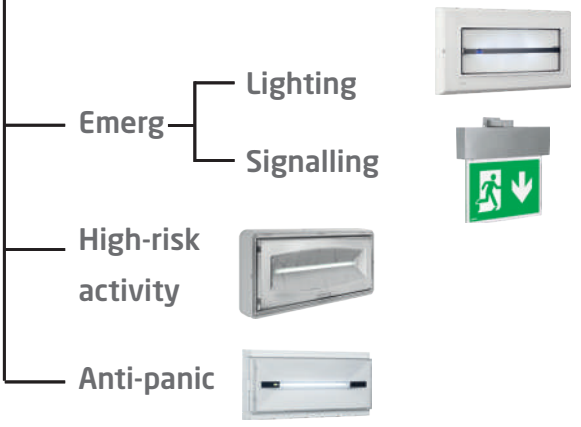
Note: This operation must be performed annually on each luminaire.
Example: If you want the luminaire to perform tests in the morning, the operation must be performed in the daytime (e.g. 9 a.m.).

EMERGENCY LUMINAIRES

TECHNICAL GUIDE FOR EMERGENCY ENVIRONMENT

RESERVE LIGHTING

SAFETY LIGHTING



RESERVE LIGHTING

In the absence of ordinary lighting, allows activities to continue.

SAFETY LIGHTING

Emergency exit route

Illuminates and indicates the emergency exit route from rooms to the safe place.
Features:

- pictogram on a green background that must cover at least 50% of the surface
- rectangular or square shape
- the correct dimensions must be ensured for clear visibility
- the message must be clear and immediate and must comply with UNI EN 1838 and UNI EN ISO 7010 standards.

Back lighting (unlike the external lighting) ensures increased visibility of the pictogram under normal conditions and in the absence of ordinary lighting.
Luminaires can be of the Maintained (M) and Not Maintained (NM) type. The latter may be sufficient in normally lit rooms.
The visibility distance, according to UNI EN 1838, is calculated using the formula **l = z x h.**
Z has a constant value of 100 for externally lit signs, and 200 for signs lit from behind.

Example:
A signs lit from behind with a height of 16 cm will be visible at a distance of 200 times h, that is, 32 metres.
The same externally lit sign will have a visibility of 100 times h, that is, 16 metres.
Visibility is only defined by the height of the pictogram, not its length.

High-risk activity

Enables workers to complete dangerous processes using the correct method.
Lighting for high-risk activities must have a lux value of 10% of ordinary lighting, or in any case a minimum value of 15 lux. Uniform illumination is also required with a ratio between the maximum and minimum of not more than 10.

Anti-panic

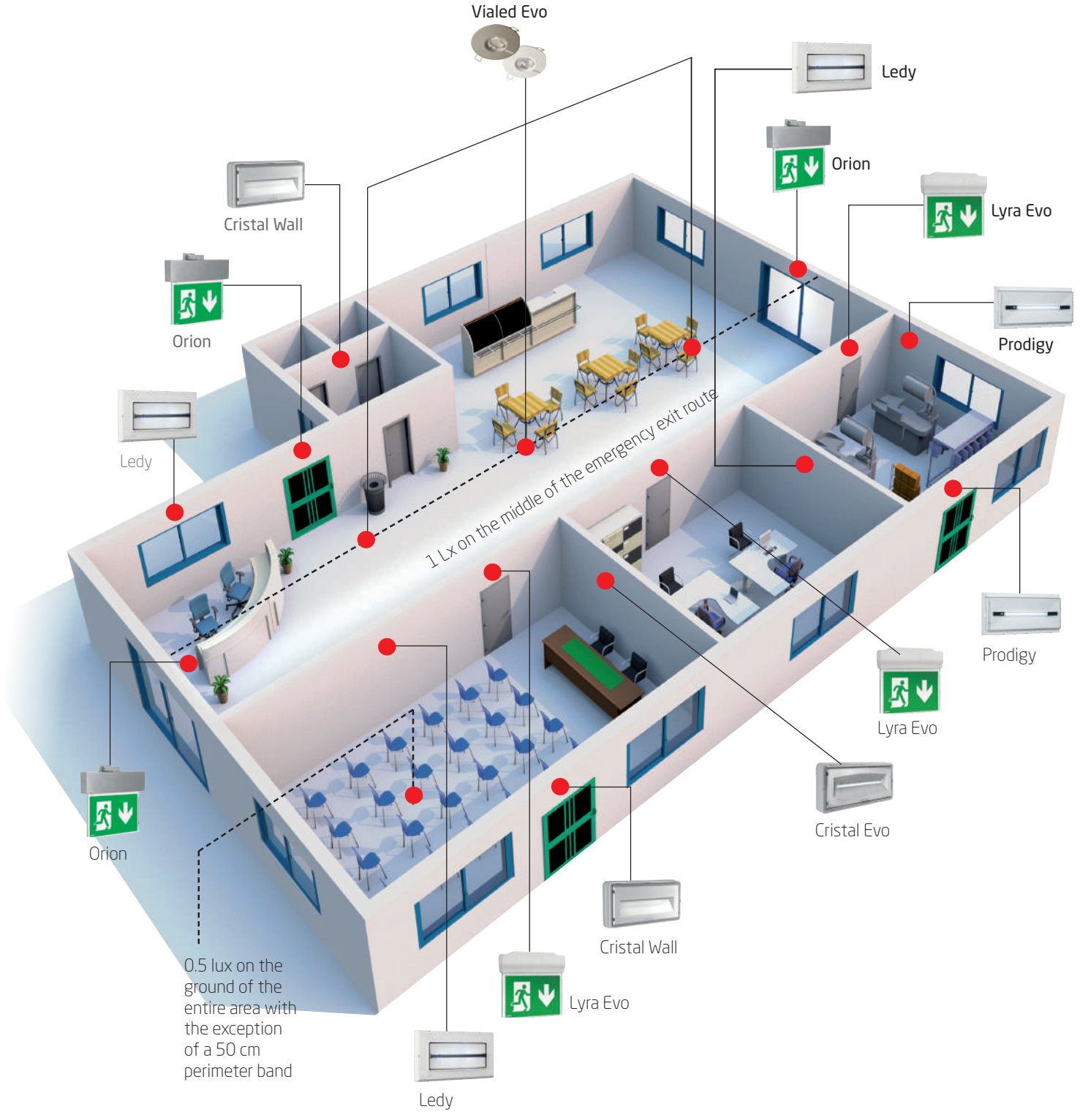
Limits the risk of panic caused by sudden darkness. The minimum illumination required, without taking into consideration wall reflections, is 0.5 lux to the ground for the entire area, excluding a perimeter band of 50 cm.
For uniformity, the ratio between maximum and minimum illumination must not exceed 40.
This information is updated according to UNI EN 1838:2013.

EMERGENCY LUMINAIRE

Positioning lighting devices:

- Close to every emergency door
- Close to stairs, so the ramp receives direct light
- Close to each level variation
- On the safety signs for externally illuminated emergency exit routes
- For each change in direction
- At every corridor intersection
- Close to each exit and outside the building to the safe location
- Close to each emergency point, 5 lux
- Close to every fire protection device and call point, 5 lux
- Close to all evacuation equipment for the disabled
- Close to shelters and gathering points for the disabled
- In toilet facilities for the disabled

(close is understood as within 2 metres)



CENTRALIZED SUPERVISION SYSTEMS

What are they?
These are systems that use a computerised control unit to control all the luminaires in an emergency system. The control unit has the ability to manage and store information from the luminaires and ensures perfect and timely maintenance of the system. The latest generation of systems, such as those made by LINERGY, along with complete programmability of all system variables, allows advanced information management and communication with other intelligent management systems with which they integrate perfectly.

Why use them?
The regulations prescribe that emergency equipment must always be kept in perfect condition and operate efficiently, for the safety of the building. In particular, all luminaires must be working and the internal battery must be able to provide nominal autonomy. Regular maintenance of the emergency system is essential to ensure its correct functioning.

Where can they be used?
These systems can, as a rule, be used for the maintenance of systems with a significant number of luminaires. However, the availability of highly developed, costly systems now makes them useful even with systems that use less than 50 luminaires. Using these systems, everything becomes easier and more professional.

How to make your choice
SPY SYSTEM or SPY CENTER?
If the project requires a single battery group for the entire system's emergency equipment, SPY CENTER fulfils such criteria. It is an intelligent control system for centralised facilities that use standard or already existing luminaires.
If your project requires a dynamic control unit to control the status of autonomous emergency devices, SPY SYSTEM is the right choice.

Number of luminaires connected to the control unit
It is essential to know how many luminaires the control unit can manage, according to the system to be implemented. In any case, when choosing the control unit, it is advisable to allow a margin for future expansion.

System expandability - SPY SYSTEM
For systems that may grow in the future, it is necessary to evaluate the possibility of expansion of the control unit and the simplicity with which expansion can be executed. The SPY SYSTEM can manage up to 1,280 luminaires by simply inserting repeater modules for the data bus for every 128 luminaires. In the case of systems with more than 1,280 lighting points, multiple control units can communicate among themselves. In this way, expansion is virtually unlimited.

System expandability - SPY CENTER
Up to 2,560 products can be controlled using an MDL addressing module and it is possible to connect up to 128 650W lines protected by a short circuit. It has a high power range from 500W to over 80KW, with boards and accessories resistant to fire propagation in the event of a fire. Combined operation is provided for emergency exit signalling in Maintained Mode and emergency lighting in Not Maintained Mode in one final circuit.

Easy installation - SPY SYSTEM
The system should uniquely identify each luminaire that is part of the system. It is therefore important to know how this works.
Most systems on the market are designed so that each individual luminaire can be assigned a binary address by setting a dip-switch on the luminaire. The system is designed with an automatic installation procedure, which automatically recognises the connected luminaire by means of a unique code. In other words, the installer only needs to take note of the code to locate the luminaire.

Ease of installation - SPY CENTER
The final circuits can be connected directly into the system's cabinet, as its size can be determined according to the project's requirements.
A 19" rack for easy slide-in assembly and disassembly, an independent monitoring and control system and coordinated by RS485 bus. Complete distributions available in E30 (the line is resistant to fire for 30 minutes).

Presentation of data
The clarity with which data is presented is very important.
More advanced systems such as Linergy are equipped with an LCD screen, on which test results and other data can be easily read. Almost all systems are equipped with a thermal printer for data presentation.

Possibility of remote PC management
It is possible to connect remotely to a PC to check data and schedule any maintenance work, without being on site.

Possibility of integration
In any building, the emergency management system must be "open" to communicate with any other systems within the building.
SPY SYSTEM and SPY CENTER are equipped with a TCP/IP protocol Ethernet port, which is the standard for local networks, for seamless integration with the Intranet or Internet.

SPY **SYSTEM**

CENTRALIZED CONTROL SYSTEMS

For the management and maintenance of emergency installations with self-contained luminaires

LINERGY
EMERGENCY LIGHTING

1.0 SPY SYSTEM

SPY SYSTEM is the most advanced system for the complete management, supervision and maintenance of an emergency system with self-contained luminaires.

- NEW AND MORE INTUITIVE GRAPHICS
- VIRTUAL KEYPAD ON TOUCH SCREEN LCD
- POSSIBILITY TO UPDATE STATION SOFTWARE
- POSSIBILITY TO MODIFY THE APPLIANCE'S SERIAL NUMBERS
- POSSIBILITY TO SWITCH ON/OFF MAINTAINED APPLIANCES*
- POSSIBILITY TO CHANGE THE LIGHT INTENSITY*

*Only on appliances set-up

The management of tests allows you to choose the date and time of execution for each of the 32 groups into which the system can be divided. The system has been designed to be easily integrated with modern building automation systems. It has an Ethernet port with TCP/IP protocol management, which is the standard for modern technology systems. The control unit also has a web server for access to the Internet, with a common browser, for all its functions.

Periodic testing of the system

Spy System controls the efficiency of the emergency system in compliance with EN 50172 e UNI 11222. It reports and records any malfunctions occurring on the system, managing two types of periodic tests on connected emergency luminaires:

1. **Operating test**
   The general operation of the luminaire and in particular of the light source is tested. A fail indicates that the pipe must be replaced.
2. **Autonomy test**
   The absence of electricity is simulated and the luminaire is switched on via the internal battery until no charge remains. In this way, the real autonomy of the emergency luminaire can be measured and compared to the nominal autonomy. A fail in this test means that the battery must be replaced.

The control unit is designed to perform the operating test every **15 days** and the autonomy test every **90 days**. These frequencies can be varied as required, acting both on the entire system as well as on the luminaire groups. The test performance parameters can also be changed. For example, for a luminaire with a 3-hour nominal autonomy, the test for a 2-hour autonomy can be set, if such an autonomy is required for a specific application. In this way, it is possible to have a system that lasts longer over time.

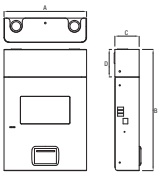
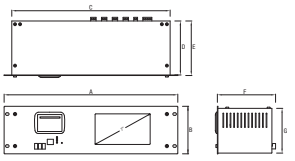
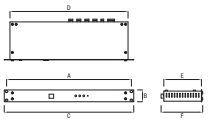
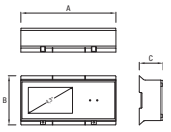
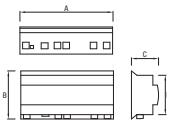
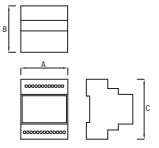
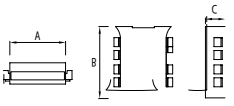
Event log

The control unit manages non-volatile storage with a complete event log. In addition to the test results, all events are stored that occur on the system, such as an emergency interventions or possible inhibitions.
The event log can be viewed on the display and printed on the incorporated printer. By connecting to a PC, locally or remotely, via the Intranet/Internet network, you can access the events log and copy it to your PC for subsequent processing.

Web Server

To connect to the SPY SYSTEM control unit, with a PC connected to the control unit, via a local network or via the Internet, no specific program is required. The control unit is equipped with a web server that allows access to all features. It is enabled, using a common Internet browser (e.g. Firefox or Explorer), with all operating systems, whether Windows, Mac or Linux.
Maximum flexibility and minimal cost.arranged for a 3-hour duration lamp if such duration is required for the specific application. In this way it is possible to have a system that lasts longer over time.

2.0 COMPARISON AMONG THE VARIOUS SPY SYSTEM MODELS

Version	Order code	Short code	Display	Printer	Max Luminaires	Installation	Protection rating	Dimensions
	SSCENT-00 SSCENT-PR	SS 1101 SS 1102	YES YES	NO YES	1280 1280	Wall Wall	IP20	 A=255 mm B=375 mm C=75 mm D=85 mm
	SSPRO-00 SSPRO-PR	SS 1201 SS 1203	YES YES	NO YES	1280 1280	Rack 19" (4 Units) Rack 19" (4 Units)	IP20	 A=482 mm B=132 mm C=440 mm D=151,5 mm E=155,5 mm F=160 mm G=124 mm
	SSPRO-II	SS 1202	NO	NO	1280	Rack 19" (1 Unit)	IP20	 A=465 mm B=44 mm C=482,6 mm D=440 mm E=140 mm F=150 mm
	SSMINIPLUS SSMINIPLUS-00 SSMINIPLUS-170	SS 1301 SS 1302 SS 1303	YES YES YES	optional optional optional	98 128 170	DIN rail DIN rail DIN rail	IP20	 A=213 mm B=110 mm C=53,5 mm
	SSMINI SSMINI-00 SSMINI-170	SS 1401 SS 1402 SS 1403	NO NO NO	optional optional optional	98 128 170	DIN rail DIN rail DIN rail	IP20	 A=215 mm B=108 mm C=62 mm D=90 mm
	SSMICRO *Can be managed with Android and iOS devices via an app that can be downloaded from*	SS 1501	NO	NO	30	DIN rail	IP20	 A=71 mm B=70,5 mm C=91 mm
NEW 	SSW-REP2 SSW-REP4 *Wireless bridge for Spy System units*	A 268 A 269	NO	NO	512	DIN rail	IP20	 A=101 mm B=119 mm C=35,5 mm

3.0 ACCESSORIES

SS PRINTER
Modulo stampante per SS MINI, SS MINI-00, SS MINI-170, SS MINIPLUS, SS MINIPLUS-00, SS MINIPLUS-170.

SS REP
Repeater
Disponibile nelle versioni 2 e 4 vie, permette l'ampliamento delle plafoniere collegate alla centrale. Possibilità di installazione su barra DIN.

SPY VIEW
Software di supervisione grafica
Questo software permette di visualizzare in maniera precisa la posizione di ogni singolo apparecchio, evidenziandone lo stato.
Fornito su chiave USB.

4.0 ACCESSORIES ORDER CODES

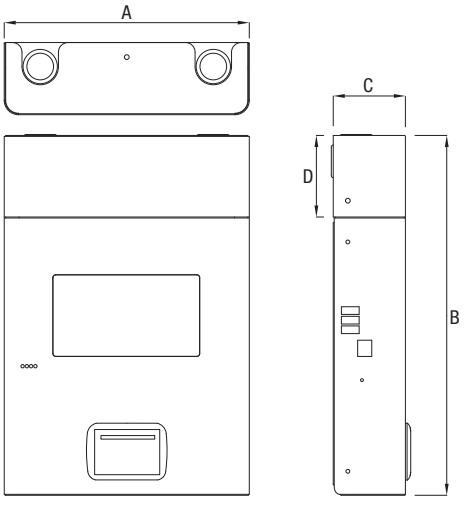
Order Code	Short Code	Description
SS-KNX-CENT	A116	HW and sw interface konnex sscent
SS-KNX-MINI	A117	HW and sw interface konnex ssmini
SS-MODBUS	A118	SW interface for tcp/modbus
SSPRINTER	A121	Printer module for Spy Mini
SS-REP-2	A122	Bus repeater 2x128 256 luminaires
SS-REP-4	A123	Bus repeater 4x128 512 luminaires
SSW-REP2	A268	Bus repeater 1x128 wireless + 1x128 bus
SSW-REP4	A269	Bus repeater 1x128 wireless + 3x128 bus
SSW-EXTENDER	A270	Spy System wireless range extender
SS-SERVIZIO	A119	Start-up function for single Spy System
SS-VIEW	A120	Graphic supervision software Spy System
SWITCHBOX	A124	Comand for light level

5.0 TECHNICAL DATA

Power supply	230V 50 Hz
Absorption	20 VA
User Interface	7" colour touch-screen graphic display
Printer	Thermal with 16 columns
Autonomy in the absence of a network	4 hours (with saving of all data)
Maximum number of managed luminaires	1280 with one control unit
Connectable luminaires	256 on the control unit + 128 luminaires per repeater module
Connectable repeaters	Maximum of 8
Luminaire data bus	2 polarised cables (twisted and shielded cable)
External Interfaces	3 USB ports
Ethernet protocol	TCP/IP with web server

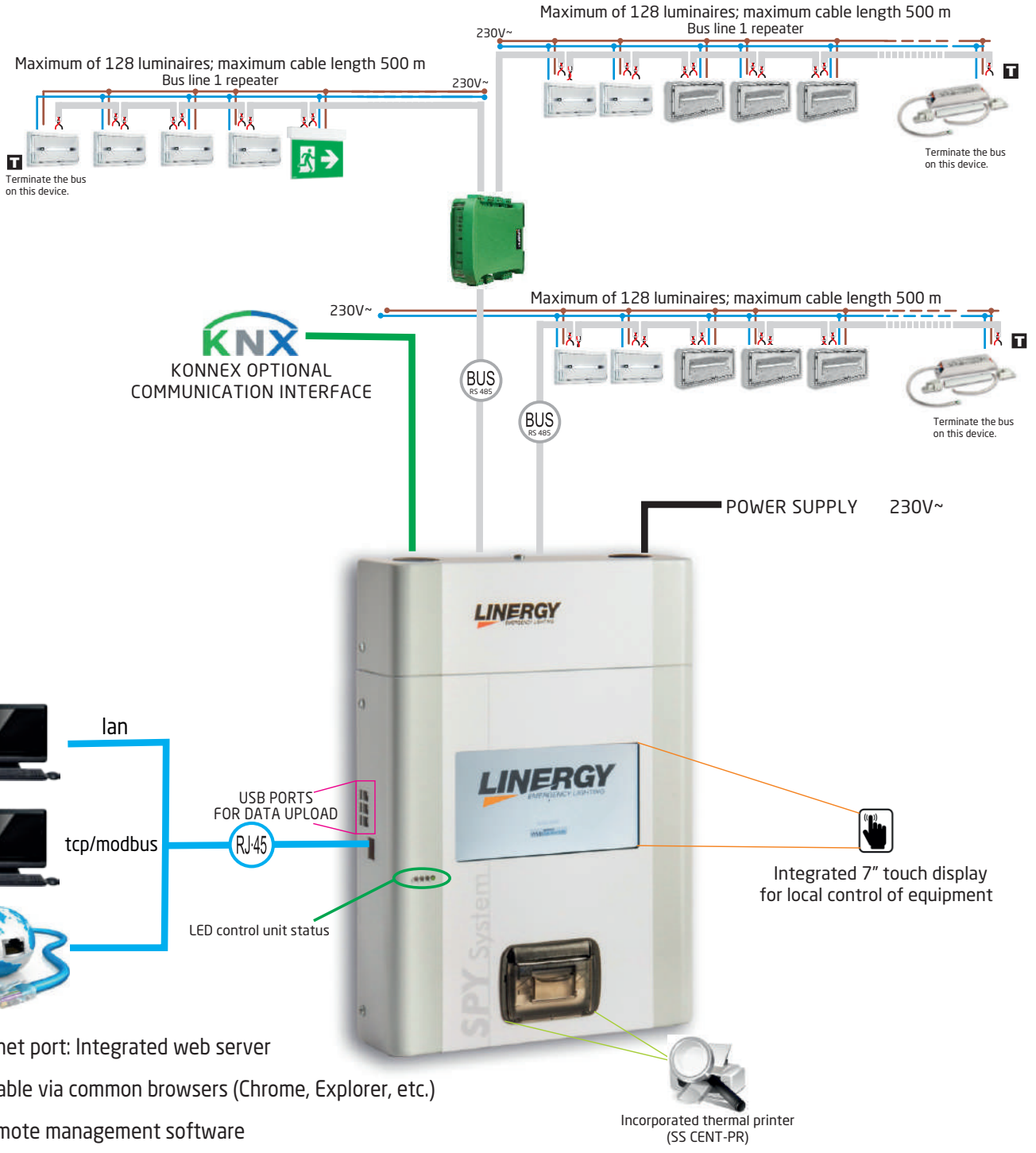
6.0 MAIN FEATURES

- Centralized control system for emergency installation with self-contained luminaires
- Wireless option
- 7" colour touch-screen display with graphic user interface
- Incorporated thermal alphanumeric printer
- Li FePO4 battery
- Non-volatile historical memory of events and tests performed on the system
- Data exchange with luminaire on two-wire data bus with safety protocol
- Maximum of 1,280 manageable luminaires with one control unit
- 2- and 4-way repeater modules
- Complete programming of control unit operating modes
- Complete programming of times and test performance dates
- Management of 32 luminaire logic groups
- Auto-capture of luminaires
- Possibility of remote connection via modem
- Ethernet port with TCP/IP protocol for Intranet/Internet connection
- Incorporated web server for management of remote system via the Internet
- MODBUS
- Wireless system interface
- KONNEX
- Supply voltage: 230 Vac 50-60 Hz
- Maximum battery operating temperature EN 60598-2-22
- Versions available in 19" rack container and for DIN-rail



A=255 mm B=375 mm C=75 mm D=85 mm

7.0 CONNECTIONS

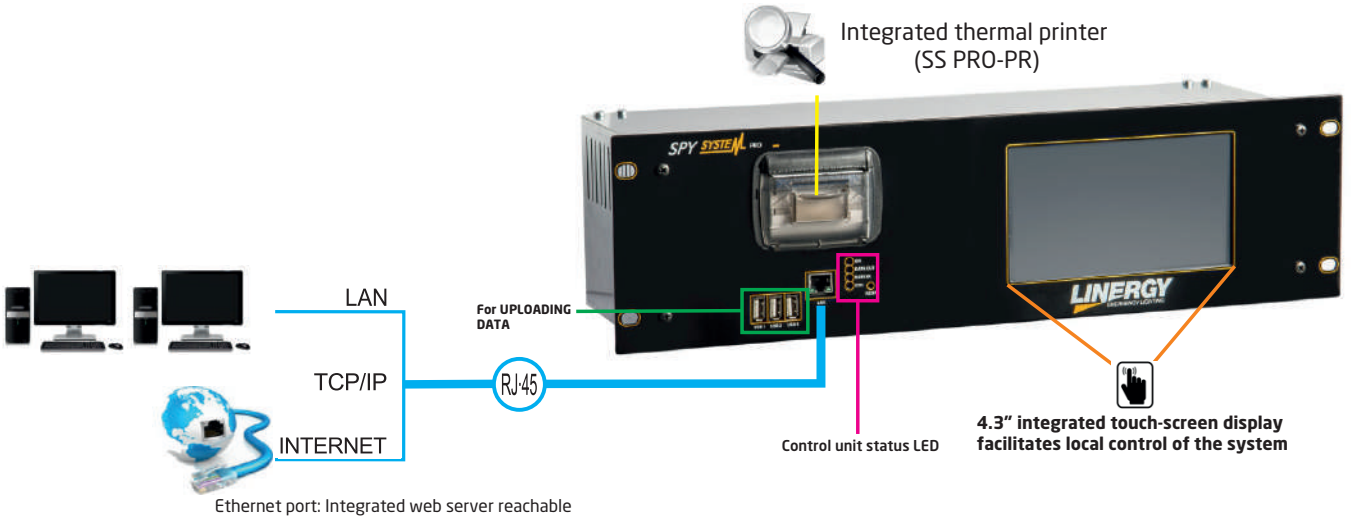


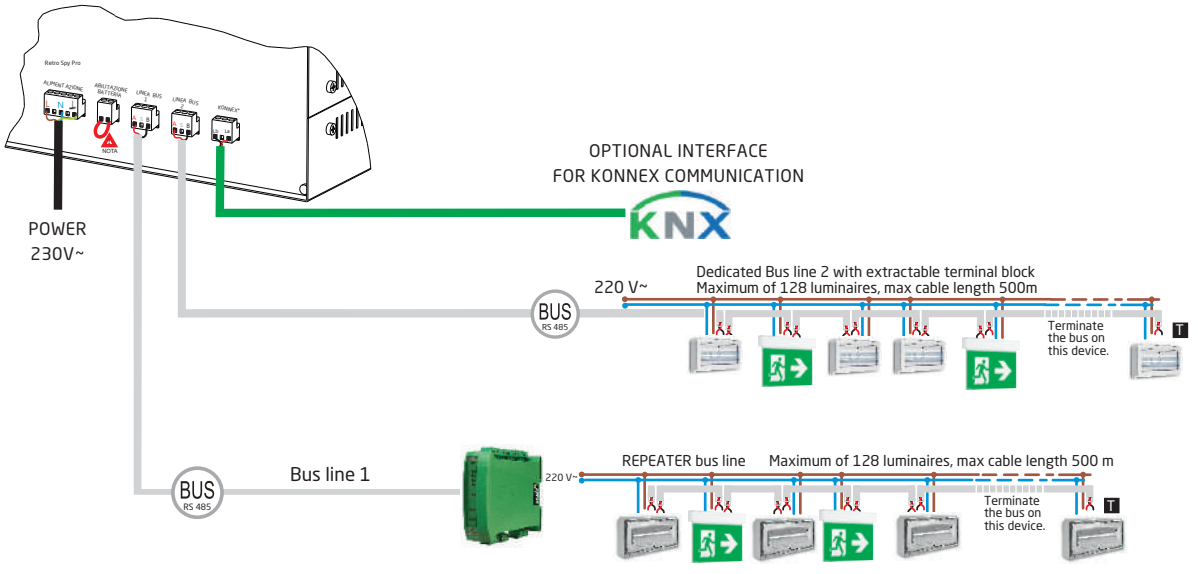
Ethernet port: Integrated web server

reachable via common browsers (Chrome, Explorer, etc.)

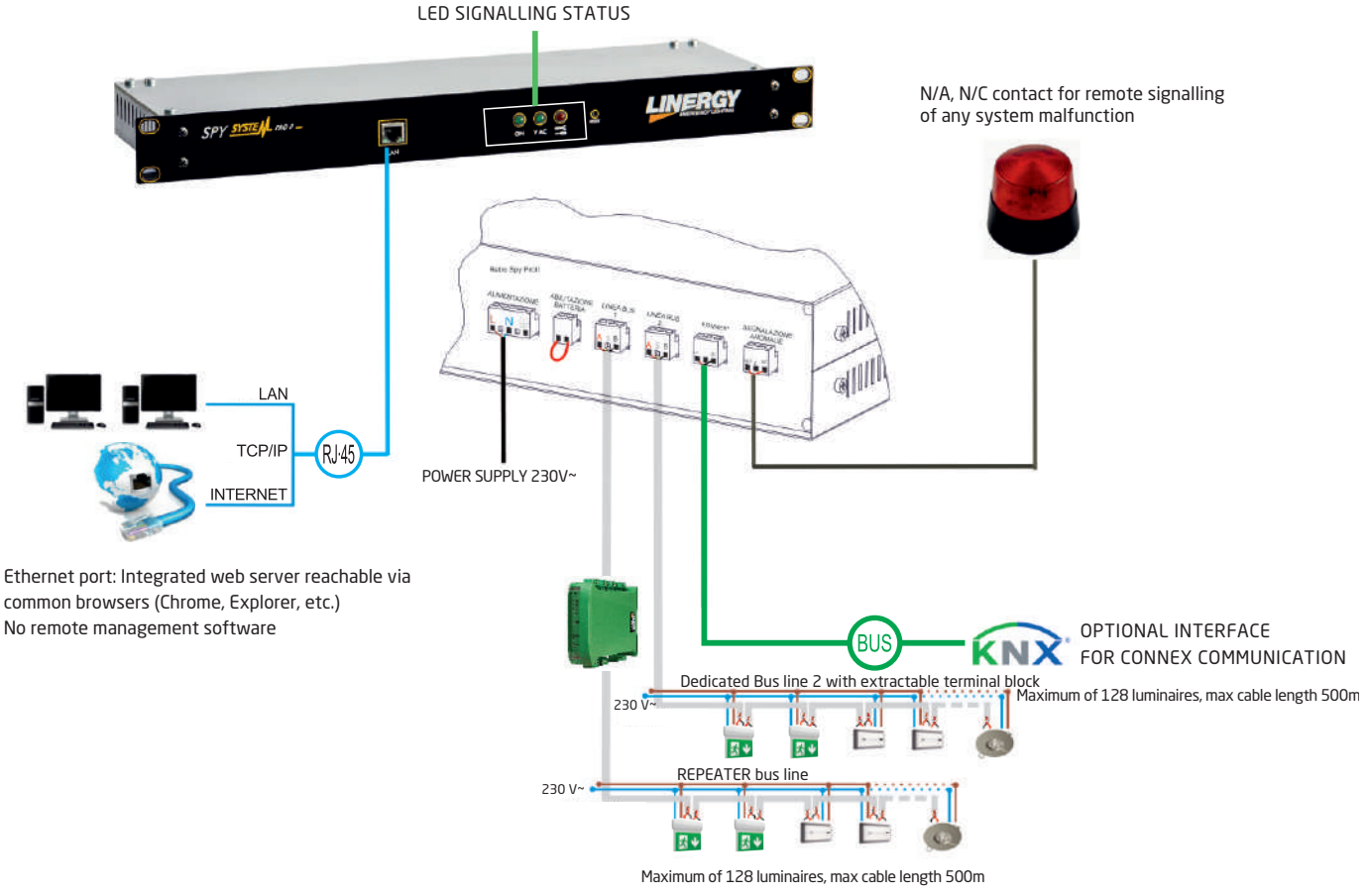
No remote management software

8.0 SPY PRO-PR


Integrated thermal printer
(SS PRO-PR)
LAN
TCP/IP
INTERNET
RJ45
For UPLOADING DATA
Control unit status LED
4.3" integrated touch-screen display facilitates local control of the system
Ethernet port: Integrated web server reachable via common browsers (Chrome, Explorer, etc.), with no remote management software


POWER
230V~
OPTIONAL INTERFACE
FOR KONNEX COMMUNICATION
KNX
220 V~
Dedicated Bus line 2 with extractable terminal block
Maximum of 128 luminaires, max cable length 500m
BUS
RS 485
Terminate the bus on this device.
Bus line 1
REPEATER bus line
Maximum of 128 luminaires, max cable length 500 m

9.0 SPY PRO-II

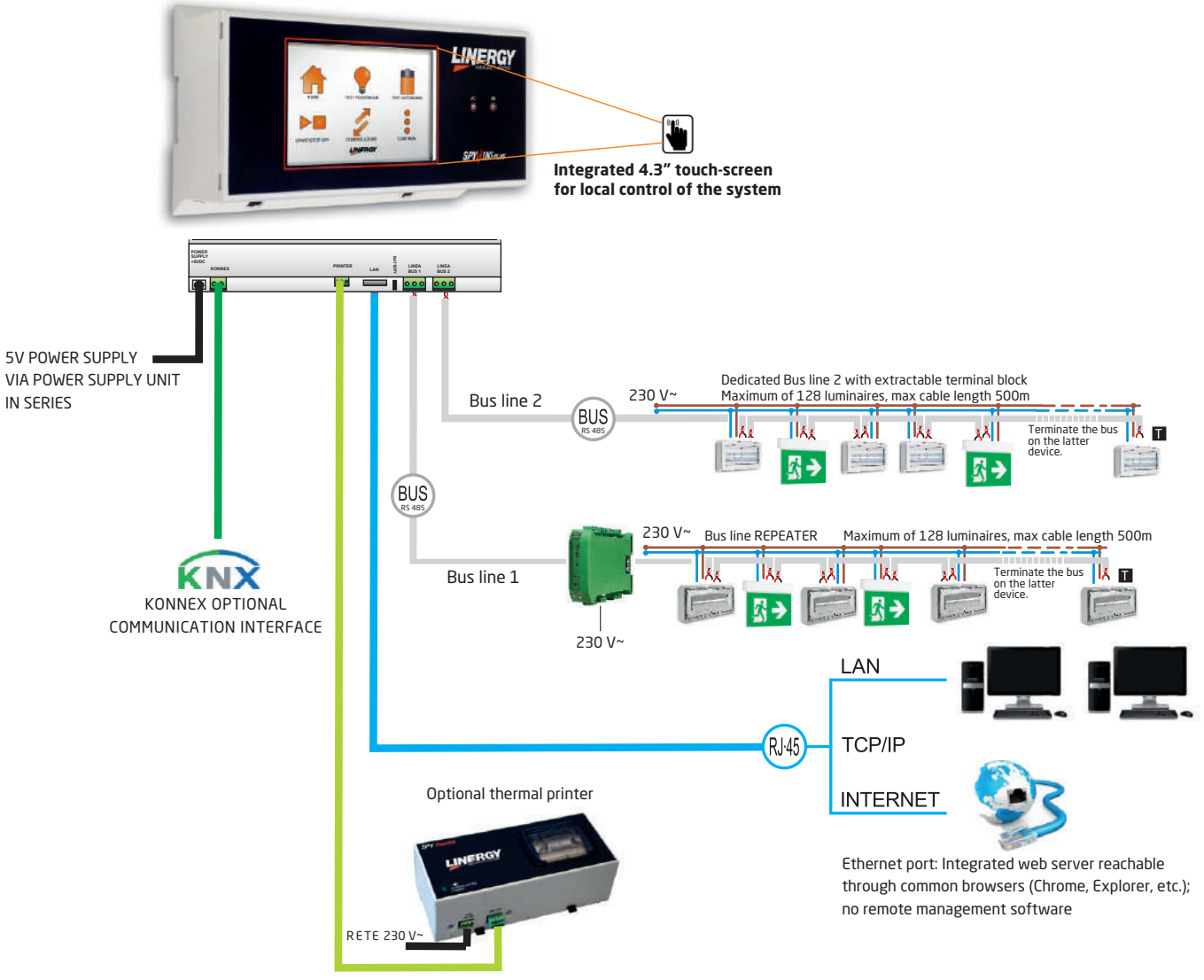


Ethernet port: Integrated web server reachable via common browsers (Chrome, Explorer, etc.)
No remote management software

10.0 SPY MINI PLUS

Available in three versions depending on the number of devices to be controlled:

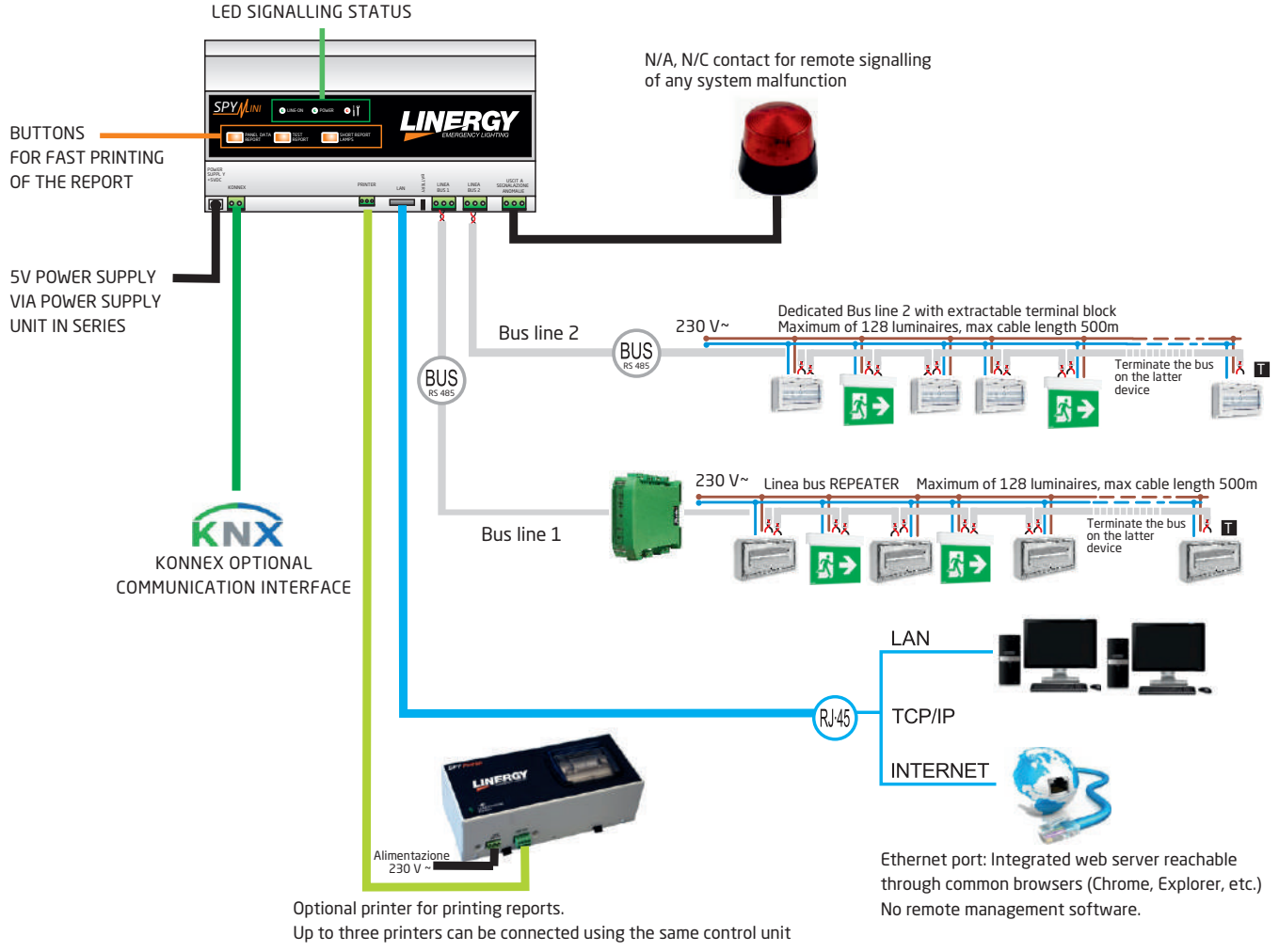
- 98 SSMINI PLUS luminaires
- 128 SSMINIPLUS-00 luminaires
- 170 SSMINIPLUS-170 luminaires



11.0 SPY MINI

Available in three versions depending on the number of devices to be controlled:

- 98 SSMINI luminaires
- 128 SSMINI-00 luminaires
- 170 SSMINI-170 luminaires



12.0 SPY MICRO

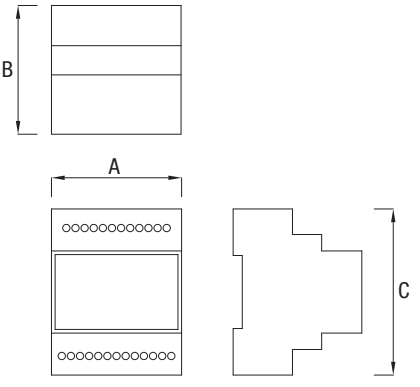
SPY MICRO is the most economical system for the management of the main supervision and maintenance functions of a small emergency system.

12.1 TECHNICAL DATA

Power supply	230Vac 50 Hz
Absorption	2 VA
User Interface	App on smartphone/Android tablet/iOS
Printer	No
Autonomy in the absence of network	5 hours
Maximum number of managed luminaires	30 with one control unit
Battery	Li-FePO4
Luminaire data bus 2 polarised wires (twisted and shielded cable)	2 polarised cables (twisted and shielded cable)
External interfaces	Wi-Fi

12.2 MAIN FEATURES

- App available for iOS and Android on both smartphones and tablets.
- Can be installed in electric control boards on standard DIN-rail.
- Automatic shutdown of device at end-of-service.
- Possibility of switching on/off of Maintained (M) luminaires (only in the case of pre-installed LED luminaires
- Sending of system reports with sharing via SMS or email.
- Centralised monitoring system for the emergency equipment.
- Li - FePO4 battery for 5 hours of autonomy in case of no network
- Auto-capture of luminaires
- Historical memory of all the events and tests performed on resident equipment, on smartphone
- Maximum of 30 luminaires that can be managed with one device
- IEEE 802.11B/G Wi-Fi interface
- Supply voltage: 230 V AC 50-60 Hz
- Maximum battery operating temperature EN 60598-2-22



A=71 mm B=70,5 mm C=91 mm

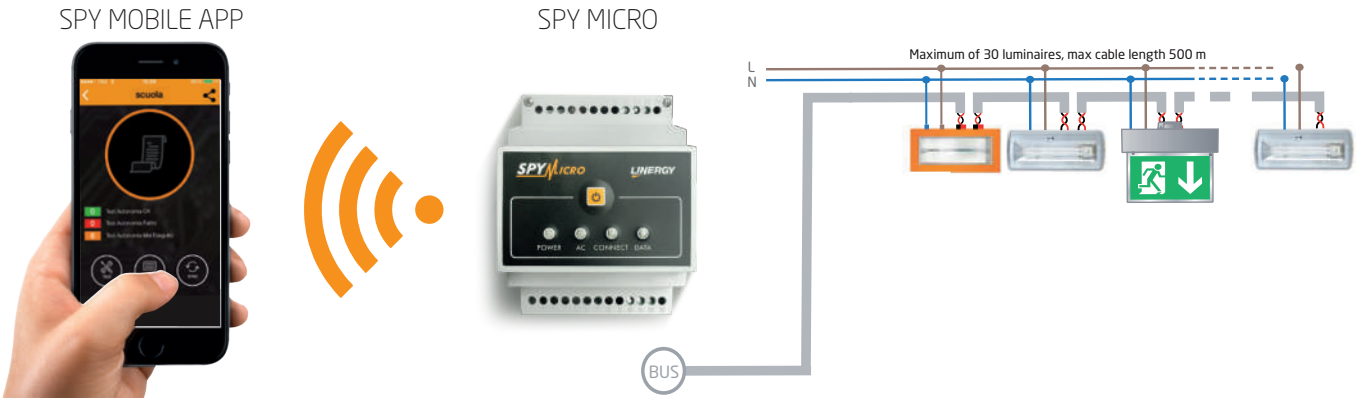
SPY **SYSTEM**

MANUAL TESTING OF THE SYSTEM

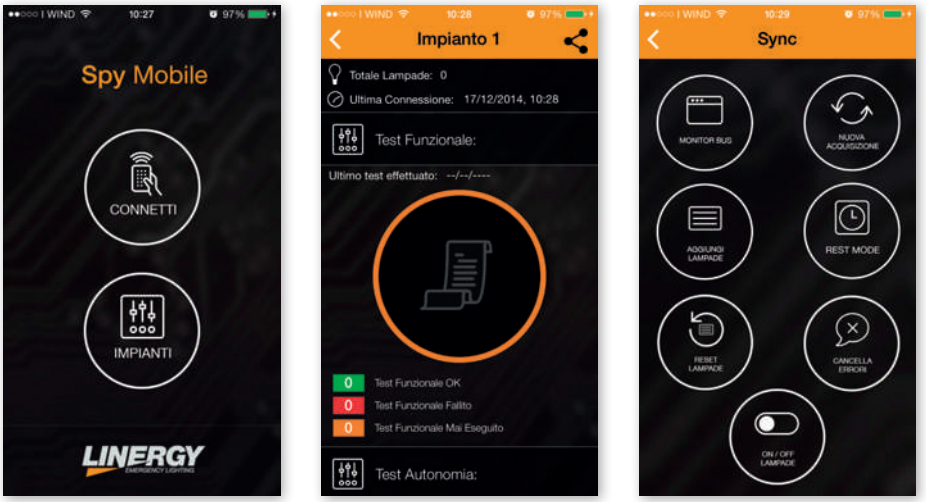
Spy Micro controls the efficiency of the emergency system in accordance with standards EN 50172 and UNI 11222. It reports via the APP any malfunctions that occur to the system.

EVENTS LOG

The control unit manages a complete log of events via the APP. In addition to the test results, the app shows the main events that occur on the system, such as an emergency intervention or possible inhibitions.



APP **SPY MOBILE**



for iPhone
iPad
smartphone Android
tablet Android

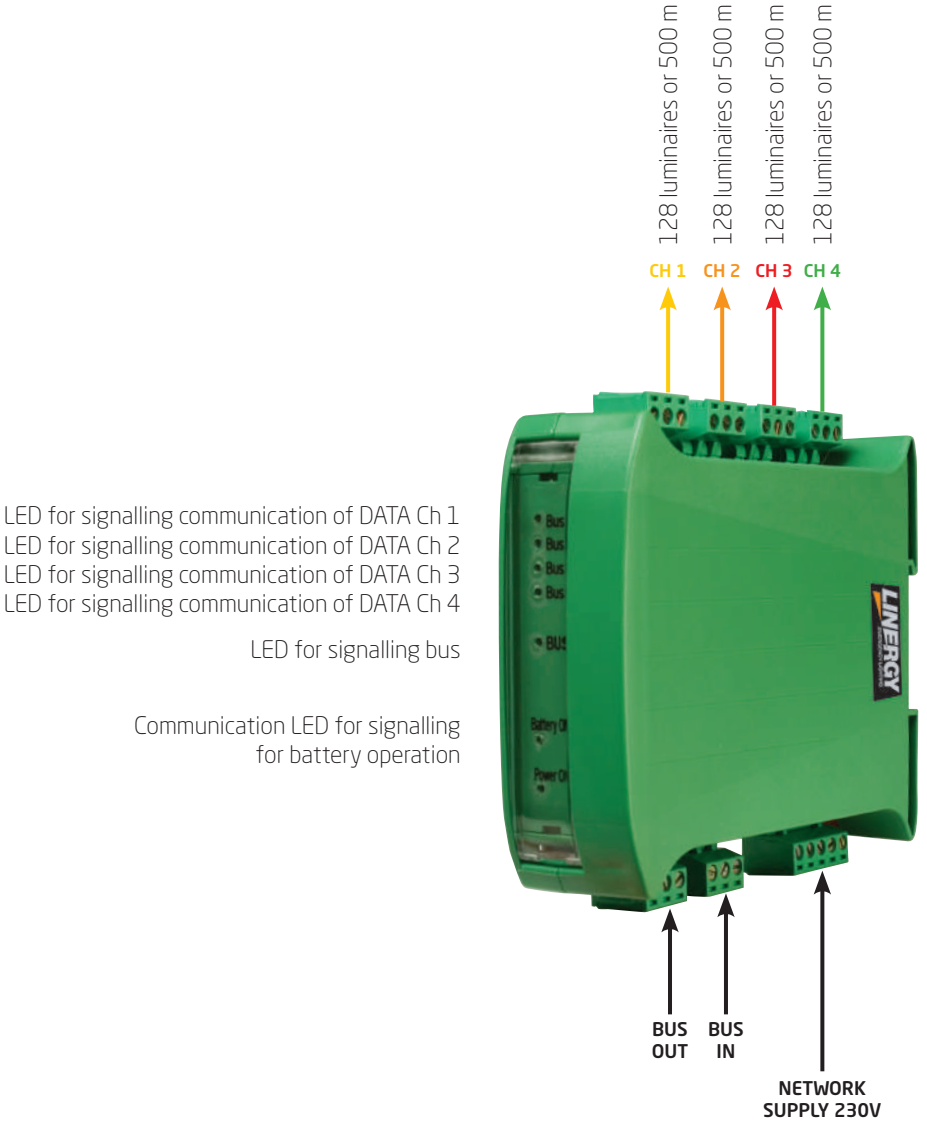
Scarica su App Store

ANDROID APP ON Google play

13.0 SS-REP-2 / SS-REP-4 SIGNAL REPLICATOR

Useful and indispensable for certain situations:

- Available in 2 versions with 2 to 4 channels, allowing the system to be expanded to increase the number of connected luminaires or the extension of the cable used.
- Can be installed on DIN-rail.
- Each channel is galvanically separated from the other, therefore facilitating the disconnection of the system and ensuring maximum immunity against interference.
- Supplied with extractable terminal blocks for bus connection and 230V power supply, facilitating connections.
- Equipped with a Ni-Cd buffer battery, allowing operation in the absence of a network for 4 hours.
- LED for signalling communication status of channels and luminaire.

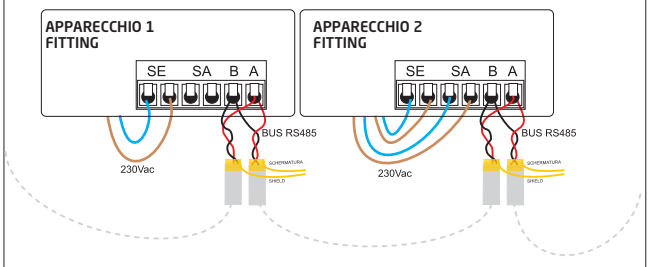


14.0 COMMON TECHNICAL FEATURES OF ALL CENTRALISED SPY SYSTEM EQUIPMENT

BUS CABLE

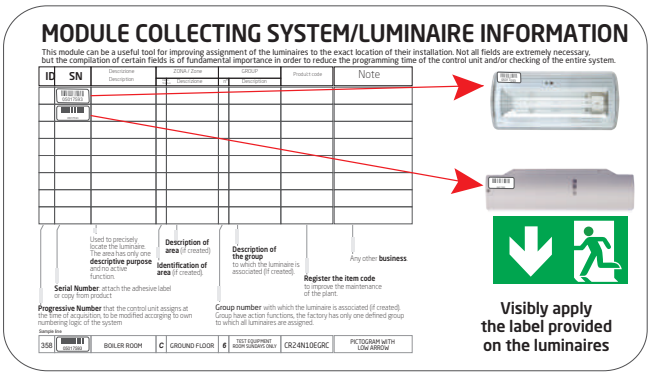
Use a **2-pole twisted and shielded** cable in order to protect the communication from external EMI disturbances (cables of the industrial type used for control, signal, measure, and command).

OBSERVE THE BUS POLARITY



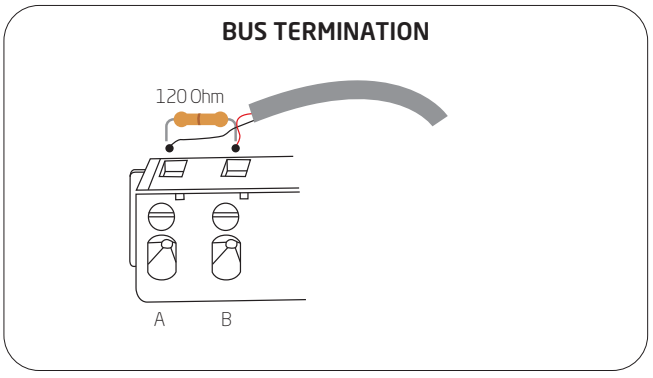
The connection type must be **"ENTER-EXIT"** to enter and exit each unit as shown in the diagram at the side. The connection must be made respecting the polarities "A" and "B" on the luminaires and on the control unit.

MODULE COLLECTING SYSTEM/LUMINAIRE INFORMATION



The **Information Collection Module** is provided with centralised devices and is essential for their traceability during installation. This data can be copied to the space provided in the control unit software.

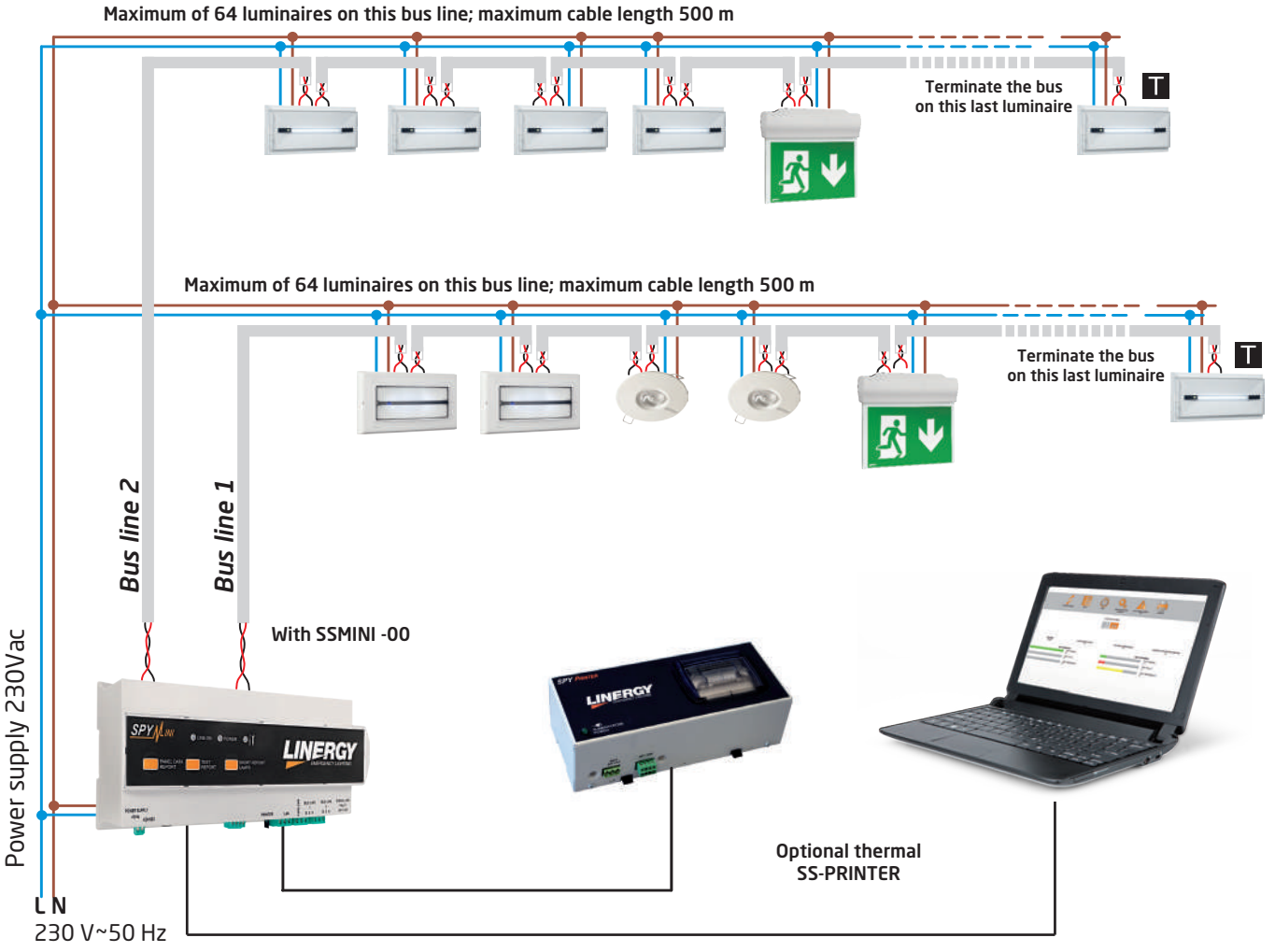
BUS TERMINATION



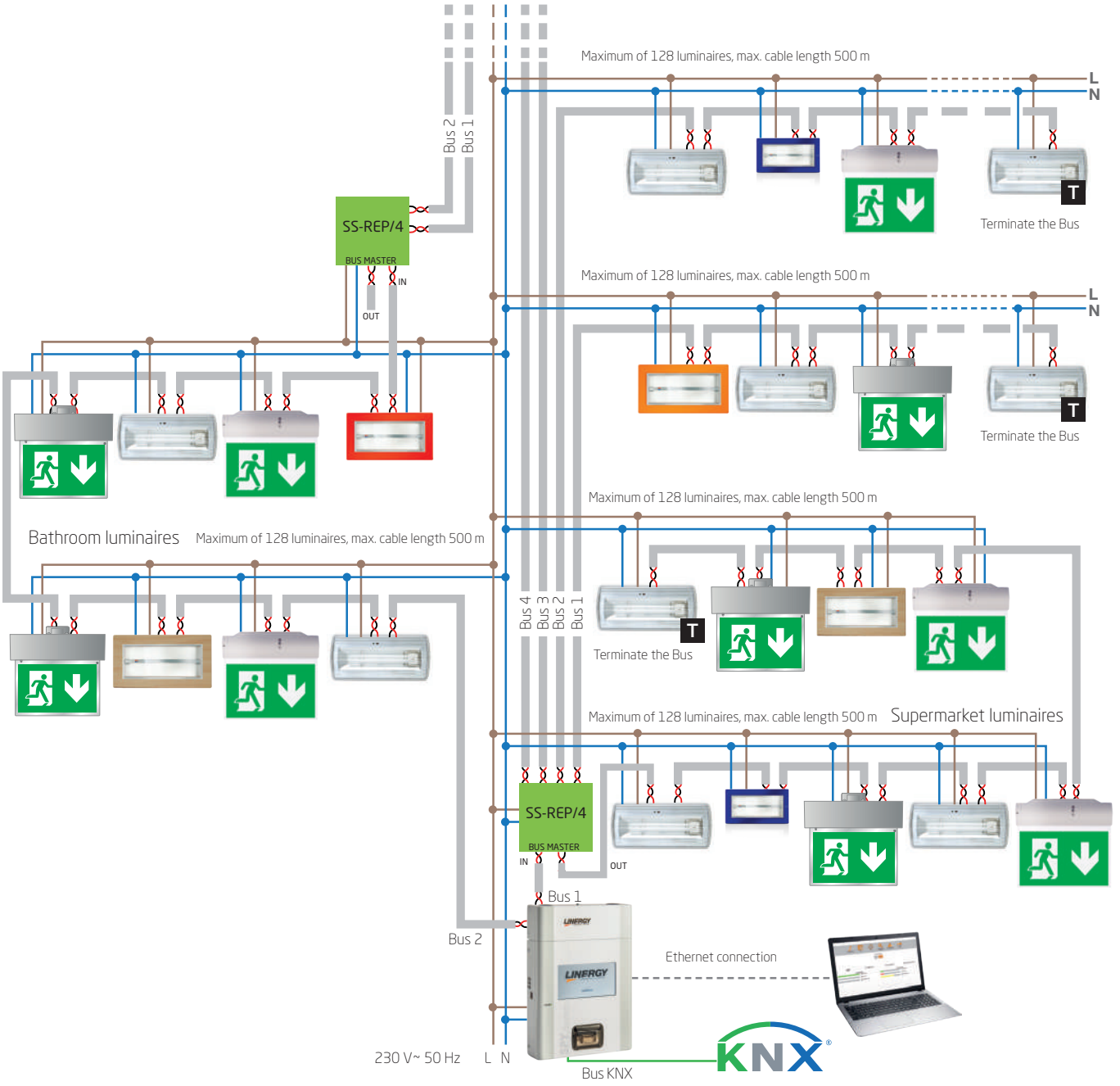
For the correct operation of the entire system, the bus must be terminated by inserting 120-Ohm resistance parallel to the bus for the luminaires found at the end of the lines of each series.
Resistance is provided with the control unit or repeater.
If the last device is a repeater, it should be terminated as if it was a luminaire.

15.0 EXAMPLES OF SPY SYSTEM EQUIPMENT CONNECTION

15.1 DIAGRAM OF EXAMPLE WITH 128 MINI-00 LUMINAIRES



15.2 ILLUSTRATIVE BLOCK DIAGRAM WITH MORE THAN 256 APPLICABLE DEVICES



16.0 MODBUS

Modbus is a serial communication protocol that was created by Modicon in 1979 to communicate its programmable logic controllers (PLCs).
It has become a de facto standard in industrial communications and is now the most widely used connection protocol among industrial electronic devices.
It is widespread because it is an **open, royalty-free, and easy-to-implement standard**.

Modbus facilitates communication between different devices connected to the same network.
There are two versions of the protocol:
One is on a serial port (RS232 by default, but also RS485), the other on Ethernet.
Gateways are available on the market that allow conversion between the various versions.

The main variants of the protocol are **ASCII** and **RTU**.
The RTU format is a representation of hexadecimal compact data and follows a cyclic redundancy check (CRC) checksum field for commands/data.
The **ASCII**, format, used by the Spy System, uses text commands, and uses a longitudinal redundancy check (LRU) checksum.

Modbus/TCP is very similar to the RTU Modbus, but transmits protocol packets into TCP/IP data packets.
The Spy System can communicate with the Modbus bus physically via the Ethernet cable.

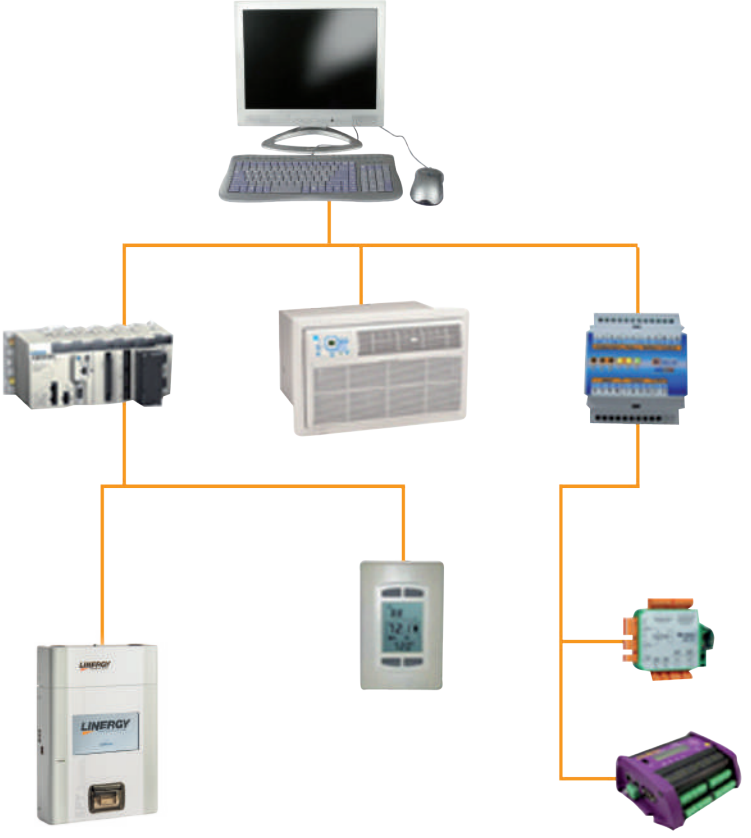
Using this interface, messages can be sent and received on the bus.

The control panel accepts **Modbus/TCP to the door 502** and when enabled it can be interrogated to read or write the register values.

By reading messages, all the statuses of the control unit and luminaires can be obtained:

Number of luminaires present

- **Test results**
- **Bus status, etc.**
- **Network presence**



17.0 KONNEX

This is the first standard of open home automation, covered by royalty and platform-independent. The standard was developed by KNX Association, based on the experience of its predecessors BatiBUS, EIB and EHS.

It is approved as:

- **European Standard (CENELEC EN 50090, CEN EN 13321-1 and CEN EN 1332-2 "KNXnet/IP")**
- **International Standard (ISO/IEC 14543-3)**
- **Chinese Standard (GB/Z 20965)**
- **US Standard (ANSI/ASHRAE 135)**

In this type of bus, each luminaire may have sensor, actuator, or both functions.
A sensor will have the ability to send the relative data to the bus.
For example:
A KNX thermometer can read the temperature of a room and communicate it on the bus.
An actuator will read the values on the bus that are addressed to it and as a result will execute certain actions.
For example:
A boiler may read the thermometer value and turn on when it is below a limit.

Transmission medium
The KNX standard provides several transmission media.
Each of them can be used combined with one or more mode of configuration.
The transmitting medium of the SPY SYSTEM control unit is the Twister Pair:

TP (Twisted Pair)
TP-1: indicates a twisted bus cable with a speed of 9,600 bit/s.
The cables are red for positive and black for negative.
System-Mode configuration
A PC and programming software (ETS) must be used.

S-Mode (System Mode)
This configuration is targeted at installers with advanced KNX training with a view to achieving sophisticated building control functions.

An S-Mode component system can be designed with a common software tool (ETS® 3Professional) starting with an S-Mode database provided by manufacturers. ETS is also used to connect and configure products.
"S-Mode" offers the highest level of flexibility for implementation of building control functions.

The Spy System control unit is able to send messages to the bus.

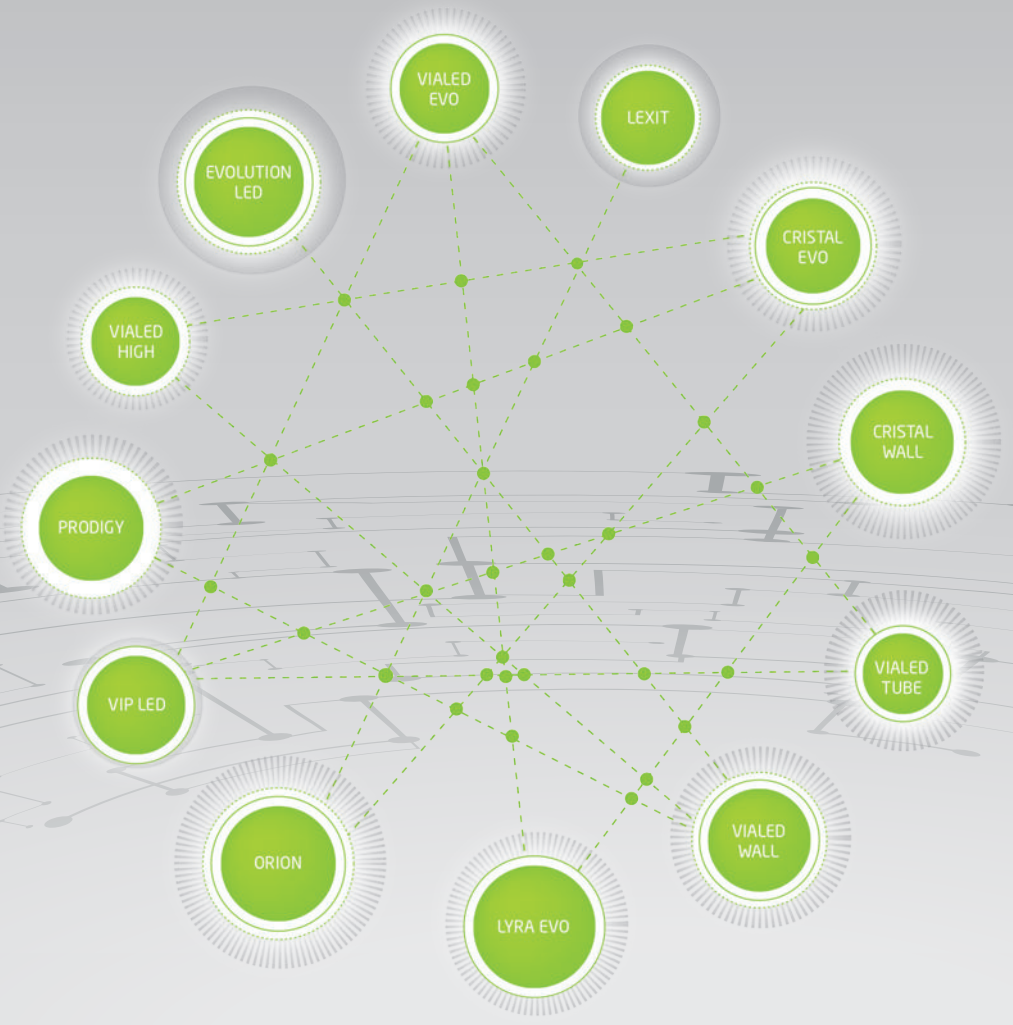
ETS software must be used to configure the control unit.

This software can be used to programme the sending of various objects:

- **Control unit status (start - stop)**
- **Bus status** (if there are luminaires that do not respond)
- **Luminaire status** (if there are emergency luminaires)
- **Test result** (functional and autonomy)
- **Alarms for each group for operation and autonomy tests** (in case there is a luminaire in the group that has failed the test)

The objects can be inserted or not inserted in the project.
If an object is not inserted, when varying the value it represents, it will not send a message on the Konnex bus. Sent messages can be intercepted by interconnected Konnex objects (such as a spy or software), and then triggered for an action. For example, a warning light may turn on to indicate that a luminaire has failed one of the control tests.

DALI



EMERGENCY LUMINAIRES DALI-COMPLIANT

For emergency installations controlled via DALI (Digital Addressable Lighting Interface) protocol

LINERGY
EMERGENCY LIGHTING

1.0 DALI

A new series of emergency devices with DALI standard protocol, in compliance with EN 62386, compatible with all* DALI control units.

**The DALI master unit (or gateway) must support the protocol defined in EN 62386-202 - self-contained emergency lighting (device type 1).*

Since the introduction of home automation in modern installations, lighting control has been playing an important role in ensuring energy efficiency, comfort and safety.
There are currently several standards that facilitate the automatic adjustment of the system. Among them is the Digital Addressable Lighting Interface (DALI), an international standard protocol, in compliance with EN 62386, which guarantees the interchangeability of various manufacturers' electricity power supply units, ease of installation and programming flexibility.

DALI is a standard system shared by the entire lighting industry. The protocol, included in EN 60929 on electricity power supply units, is defined specifically in EN 62386.

The DALI protocol facilitates the operation of lighting controls, sensors, control DEVICES, electricity power supply units and luminaires, including emergency luminaires, using the same interface (DALI Master unit).

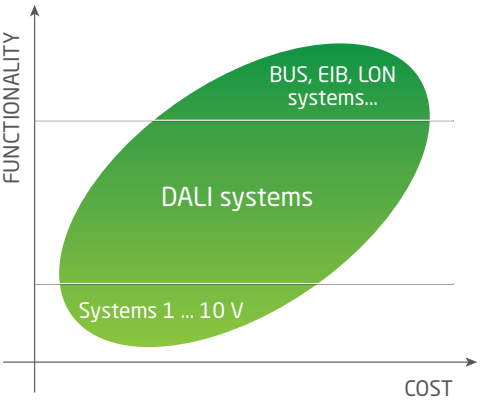
Advantages

DALI systems can be installed using the same material as the electrical system, with no polarised or shielded cable. Dali is addressable and each component has a unique identifier number, so it can be programmed and configured for a specific function or, if requirements change, can be reconfigured as desired as needed.
Management of switching on, regulation, lighting scenarios and functional measurements can be performed for each individual product, groups or entire systems.

Dali and emergencies

The main advantage provided by DALI in the context of emergencies is having a single field bus to connect ordinary lighting and emergency lighting.
This significantly simplifies the wiring of the system (bus) and the programming of the entire lighting system.
By connecting Linergy emergency luminaires to the DALI bus, they are automatically addressed. EN 62386-202 allows:

- Control of the status of the light source (luminaire or LED module)
- Battery control
- Perform or schedule operation and autonomy testing on individual devices, groups or entire systems.
- Control the brightness of the Light Only (L) and Maintained (M) luminaires.
- Light source dimmer based on a logarithmic curve to ensure maximum user comfort.



1.1 PRODUCT COMPLIANCE WITH STANDARDS

- EN 62386-101
- EN 62386-102
- EN 62386-207
- EN 62386-202
- EN 60598-1
- EN 60598-2-22

1.2 DIAGRAM

KEY

Signalling device

Emergency lighting device

Emergency lighting device

Ordinary lighting device

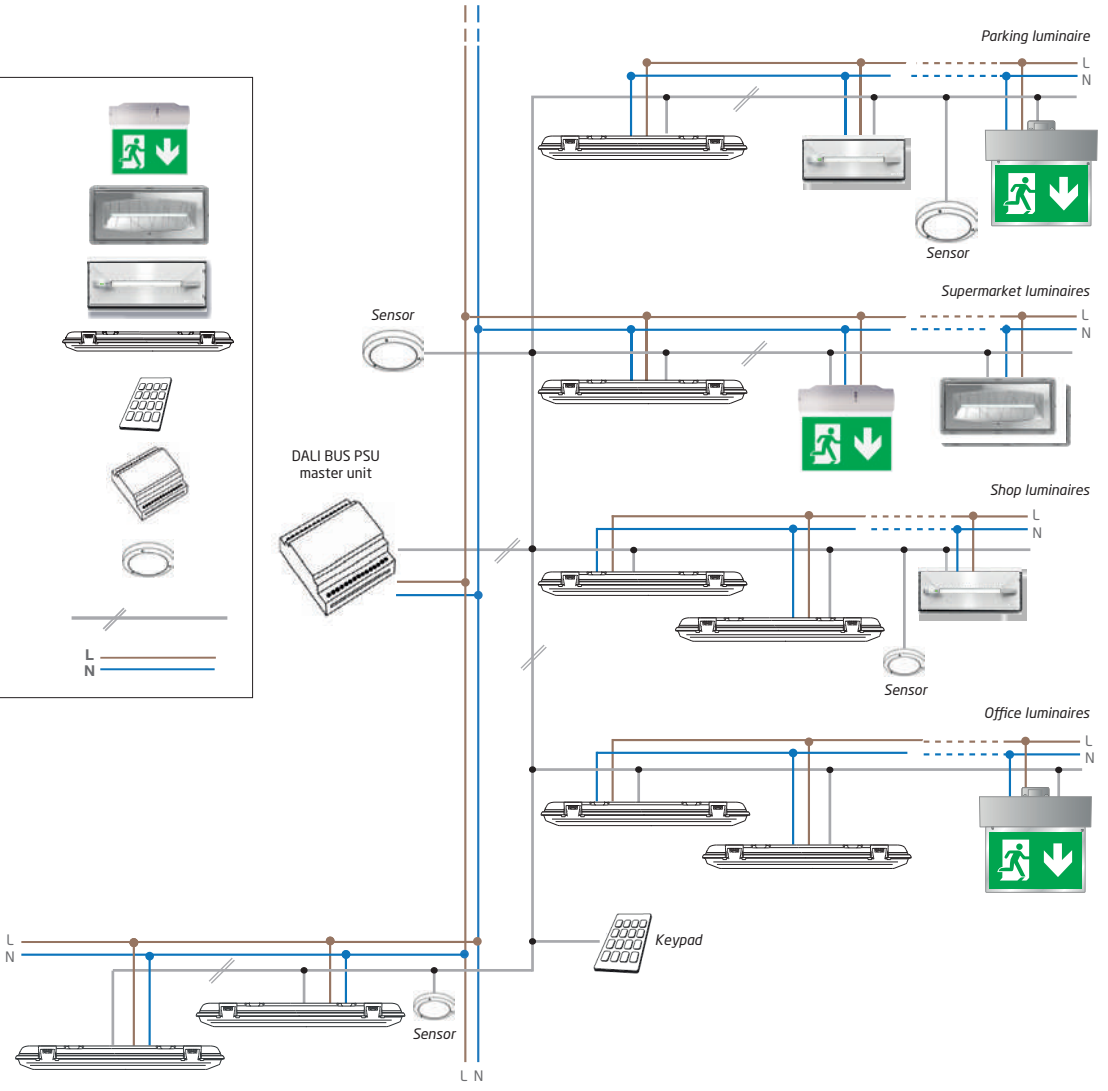
Keypad

DALI BUS PSU master

Sensor

DALI BUS

Power supply 230V AC L N



SPY **CENTER**

CENTRAL POWER SYSTEMS WITH CONTROL

For emergency installations with central battery luminaires

LINERGY
EMERGENCY LIGHTING

1.0 SPY CENTER

Spy Center's advanced technology is the result of collaboration with a European company which has been active in the emergency lighting sector for more than 20 years, with over 2,000 systems already installed.

1.1 STRENGTHS POINTS

- No inverters for converting DC to AC electricity.
- Buses travel on the same wires (DEDICATED).
- Maximum flexibility in sizing of power required.
- Dedicated rescue response system for emergency lighting.
- Extensive modularity of the system, type of equipment and power
- Compliant with EN 50171, EN 50272-2, EN 50172, UNI 11222
- 10-year battery life expectancy (as required by the standard)
- Possibility of customising control cabinets to specific measurements
- Control unit with matrix display and programming keys
- Complete programming flexibility depending on the type of operation: M, N/M and AI configuration software
- Remote management via web

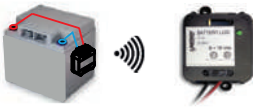
Centralised monitoring and control unit
Can manage up to 2,560 products

Monitoring unit for individual emergency devices
Up to 20 luminaires on each line

External module for monitoring lines
Up to 128 lines protected against short circuits

Integrated line control board
Wide range of power from 500W to over 80KW

External module for monitoring of phases

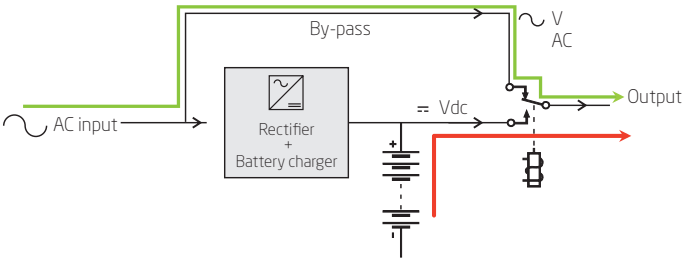


Battery Log NEW
Battery monitoring system

2.0 SYSTEM OPERATION BASICS

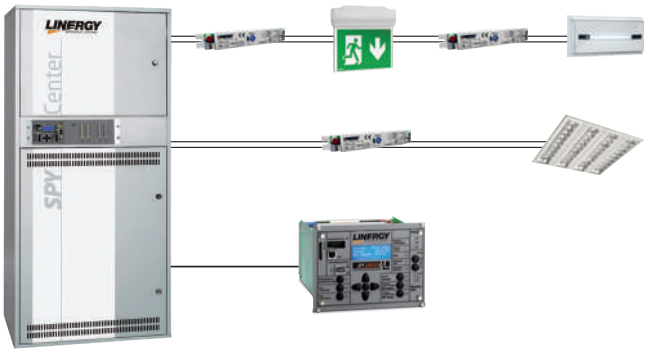
- In normal operating mode, the output is powered by by-pass from the normal electricity power supply (230 V AC)
- In an emergency situation, the output is powered by the direct voltage of the nominal 216 V DC battery group
- No inverters are installed between the batteries and the output

Block diagram of the system



SIMPLICITY OF SYSTEM CONNECTION

- Simple, secure, robust and reliable communication with power conductors



MIXED MODE TECHNOLOGY

- Possibility of installing the following types of luminaires on the same line: Not Maintained N/M, Maintained M and On with Switch AI (Control units only)
- The system communicates the status of the tests and the programming of the system with the same wires with which it supplies electricity
- Reduction of material and installation costs

3.0 PRODUCTS CODES

Order Code	Short Code	Description
SC100P10B	SC1101	SPY CENTER Base System, 1000 W, 2 outputs (1 N/M + 1 M), Pb batteries lifetime 10 years, 1h duration
SC100P10C	SC1102	SPY CENTER Control System, 1000 W, 1 CTRL (4 circuits), Pb batteries lifetime 10 years, 1h duration
SC100P30B	SC1103	SPY CENTER Base System, 1000 W, 2 outputs (1 N/M + 1 M), Pb batteries lifetime 10 years, 3h duration
SC100P30C	SC1104	SPY CENTER Control System, 1000 W, 1 CTRL (4 circuits), Pb batteries lifetime 10 years, 3h duration
SC200P10B	SC1105	SPY CENTER Base System, 2000 W, 4 outputs (2 N/M + 2 M), Pb batteries lifetime 10 years, 1h duration
SC200P10C	SC1106	SPY CENTER Control System, 2000 W, 1 CTRL (4 circuits), Pb batteries lifetime 10 years, 1h duration
SC200P30B	SC1107	SPY CENTER Base System, 2000 W, 4 outputs (2 N/M + 2 M), Pb batteries lifetime 10 years, 3h duration
SC200P30C	SC1108	SPY CENTER Control System, 2000 W, 1 CTRL (4 circuits), Pb batteries lifetime 10 years, 3h duration
SC400P10B	SC1109	SPY CENTER Base System, 4000 W, 6 outputs (4 N/M + 2 M), Pb batteries lifetime 10 years, 1h duration
SC400P10C	SC1110	SPY CENTER Control System, 4000 W, 2 CTRL (8 circuits), Pb batteries lifetime 10 years, 1h duration
SC400P30B	SC1111	SPY CENTER Base System, 4000 W, 6 outputs (4 N/M + 2 M), Pb batteries lifetime 10 years, 3h duration
SC400P30C	SC1112	SPY CENTER Control System, 4000 W, 2 CTRL (8 circuits), Pb batteries lifetime 10 years, 3h duration
SC600P10B	SC1113	SPY CENTER Base System, 6000 W, 8 outputs (6 N/M + 2 M), Pb batteries lifetime 10 years, 1h duration
SC600P10C	SC1114	SPY CENTER Control System, 6000 W, 3 CTRL (12 circuits), Pb batteries lifetime 10 years, 1h duration
SC600P30B	SC1115	SPY CENTER Base System, 6000 W, 8 outputs (6 N/M + 2 M), Pb batteries lifetime 10 years, 3h duration
SC600P30C	SC1116	SPY CENTER Control System, 6000 W, 3 CTRL (12 circuits), Pb batteries lifetime 10 years, 3h duration

4.0 ACCESSORIES CODES

Order Code	Short Code	Description
SCCTRL	A100	Integrated circuit board
SCFRDB	A101	Fireproof branch box e30
SCLAN	A102	Integrated circuit board lan connection
SCMDL-L	A104	Module for monitoring individual emergency lamp l
SCMF	A105	Ext. module for 7-phase monitoring
SCML	A106	External module for line monitoring
SCNDB1	A107	E30 for external module 125x125x60
SCNDB2	A108	E30 for external module 170x145x70
SCNDB3	A109	E30 for external module 243x168x83
SCPRINTER	A110	Thermal printer for spy center
SCSERVIZIO	A111	System activation service spy center
SCTRASFERTA	A112	International travel for system start-up
SCTRASFERTA1	A113	International travel with 1 night for system start-up
SCMF2-S	A097	Ext. module for monitoring of the 1 change over cont.phase
SCPSR	A096	Synoptic remote panel 166x161x71
SCBAT-RX-SC	A258	Battery monitoring system spy center receiver
SCBAT-TX	A260	Battery monitoring system transmitter

Possibility of having a system with customized configuration

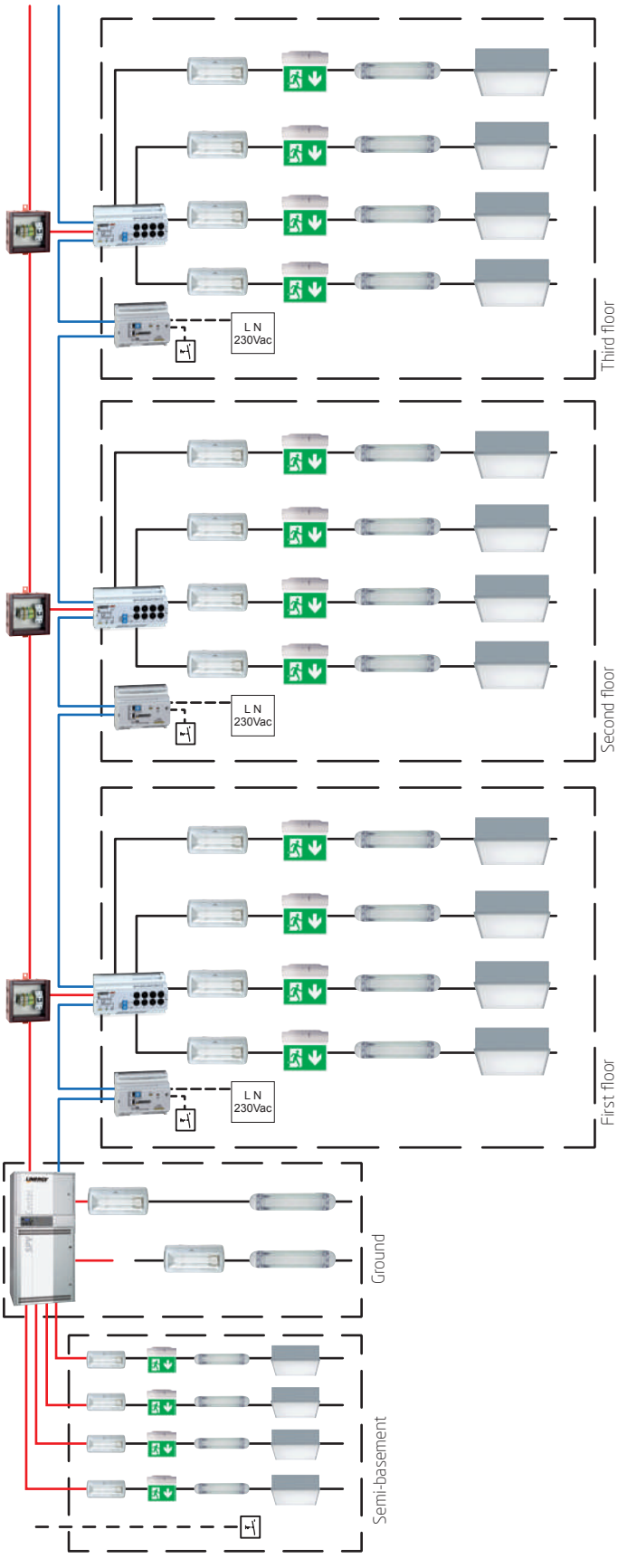
SPY **CENTER**

Considerable potential of the Spy Center system

- Up to 2,560 products controllable via SCMDL-L
- Up to 128 650W lines protected against a short circuit
- Extensive power range from 500W to over 80KW
- Boards and accessories for fire resistance
- Possibility of direct remote control of power lines on the floor and/or fire protection compartment via the SCML module (4 lines for 20 products each line)
- Unique module for managing programmable products (such as N/M or M or AI) directly from software
- After installation of connection
- Logbook, periodic check log for a quick view of the event log
- Test for insulation monitoring between battery and ground potential
- Operating test and freely programmable autonomy

KEY

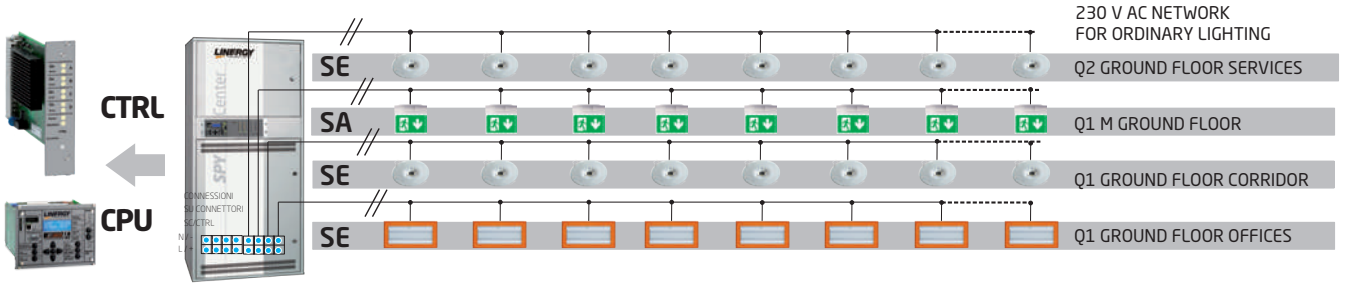
- E30 fire-resistant line
- RS 485 Bus Line
- Fireproof compartment
- Floor electric control board switch
- Floor electric control board (L N 230Vac)
- SCMDL-L - Fixture addressing module
- SCML - Line monitor
- SCMF - Phase monitor
- SCFRDB - Fire-resistant rack control board
- STEP N/M - Non-maintained
- LYRA EVO M - Maintained
- Ordinary lighting fixture 2X18W
- Ordinary lighting fixture 4X18W



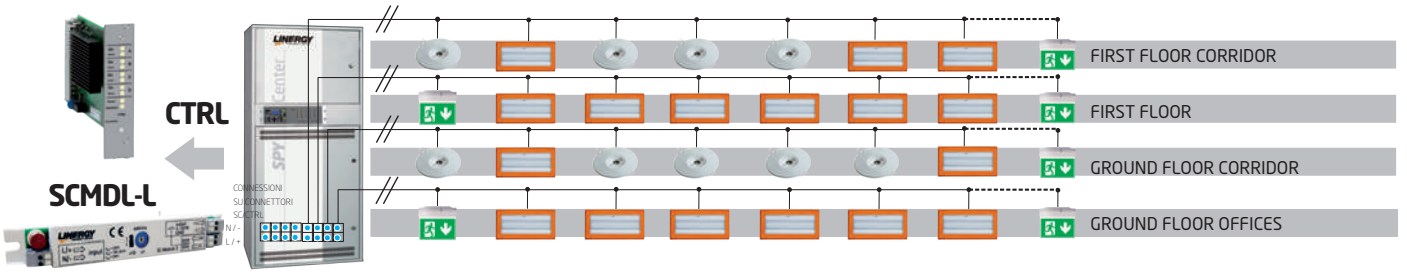
3.0 SPY CENTER

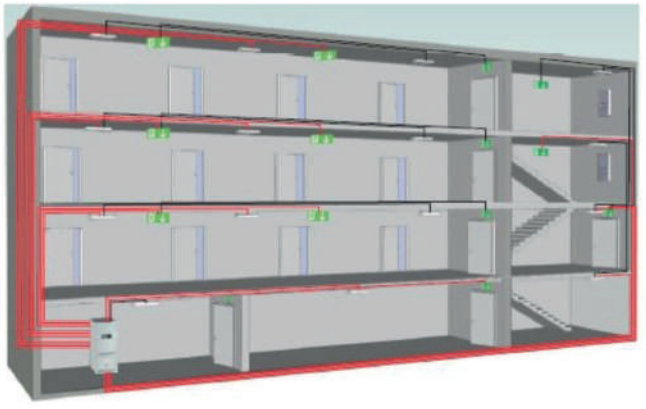
3.1 OPERATING TYPE - MONITORING VIA SCCTRL BOARD

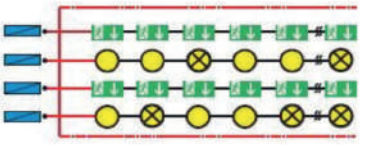
- **SPY CENTER SYSTEM WITH CENTRALISED MONITORING OF FINAL CIRCUIT**



- **SPY CENTER WITH MONITORING ON SINGLE DEVICES WITH INTERNAL FINAL CIRCUIT**





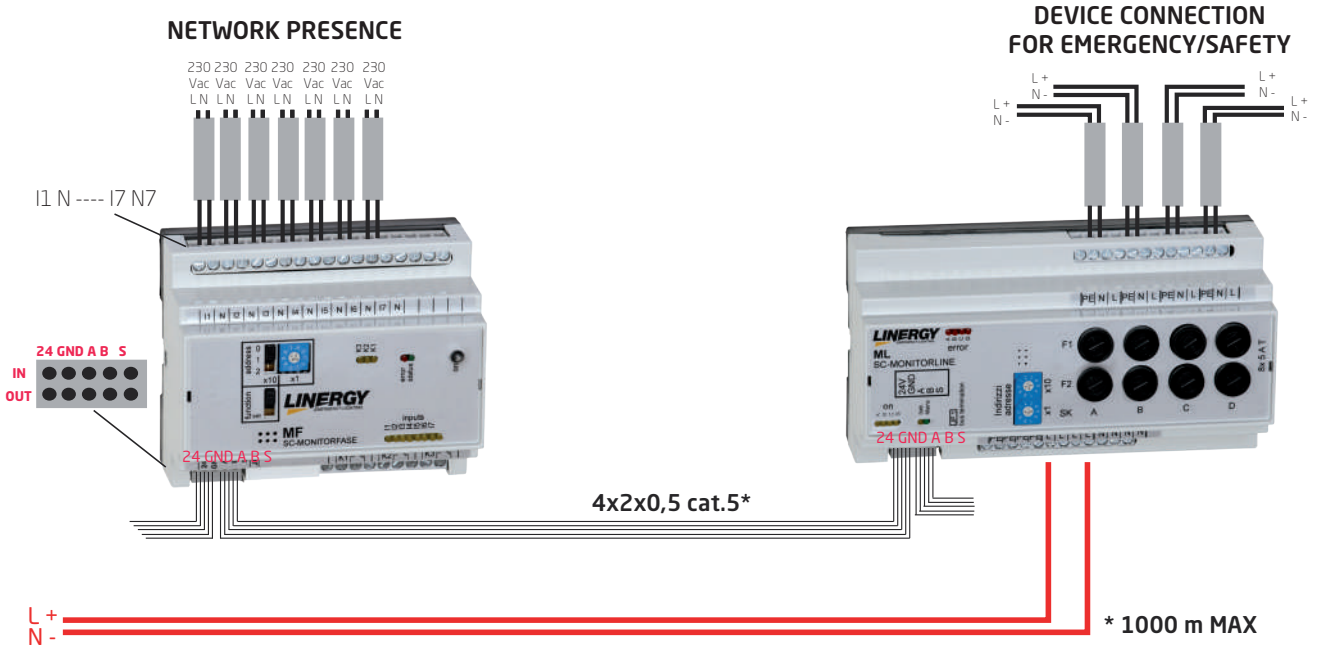


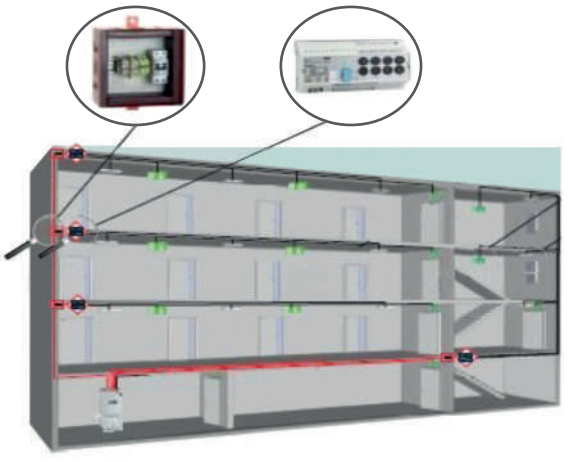
Monitoring of 4 emergency circuits with direct circuits via SCCTRL board

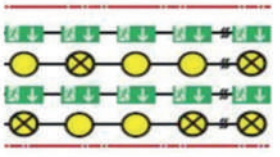
- Power and monitoring with up to 650W of load
- Protection of line against short-circuit with 5A fuse
- Monitoring line with programmable M function
- Monitoring line with programmable N/M function
- Monitoring line with "switched on via switch" function, programmable via SCMF
- Sector inlet of the emergency line via SCMF

NOTE *The purpose of the proposed charts is only to illustrate the operation of the system and is not intended to replace the projects. For further information, please contact Linergy Technical Support on 0735 597454*

3.2 OPERATION TYPE - CIRCUIT MONITORING WITH SCML EXTERNAL MODULE







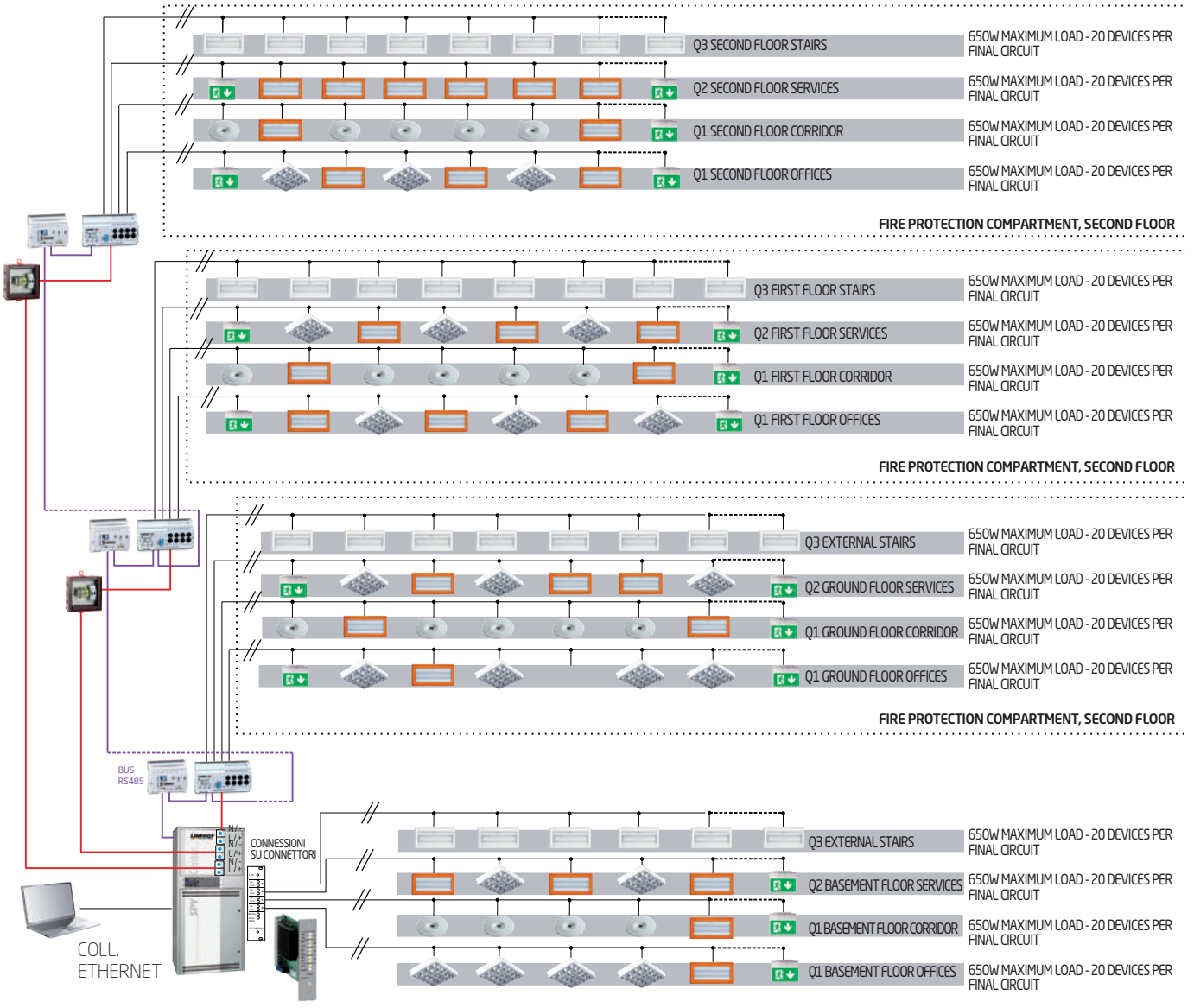
N. 4 emergency circuits with SCML remote external module

- Power and monitoring of circuit with up to 650W of load
- Protection of line against short-circuit with 5A fuse
- Monitoring line with programmable M function
- Monitoring line with programmable N/M function
- Monitoring line with "switched on via switch" function, programmable via SCMF
- Sector inlet of the emergency line via SCMF

NOTE: *The purpose of the proposed charts is only to illustrate the operation of the system and is not intended to replace projects. For further information, please contact Linergy Technical Support on 0735 597454*

3.3 OPERATION TYPE - MIXED, CIRCUIT OR INDIVIDUAL DEVICE MODE

- **SPY CENTER SYSTEM WITH MONITORING OF INDIVIDUAL DEVICE WITH INTERNAL SC/ML AND INTERNAL SC/CTRL FINAL CIRCUITS**



NOTE: *The purpose of the proposed charts is only to illustrate the operation of the system and is not intended to replace projects.*
For further information, please contact Linergy Technical Support on 0735 597454

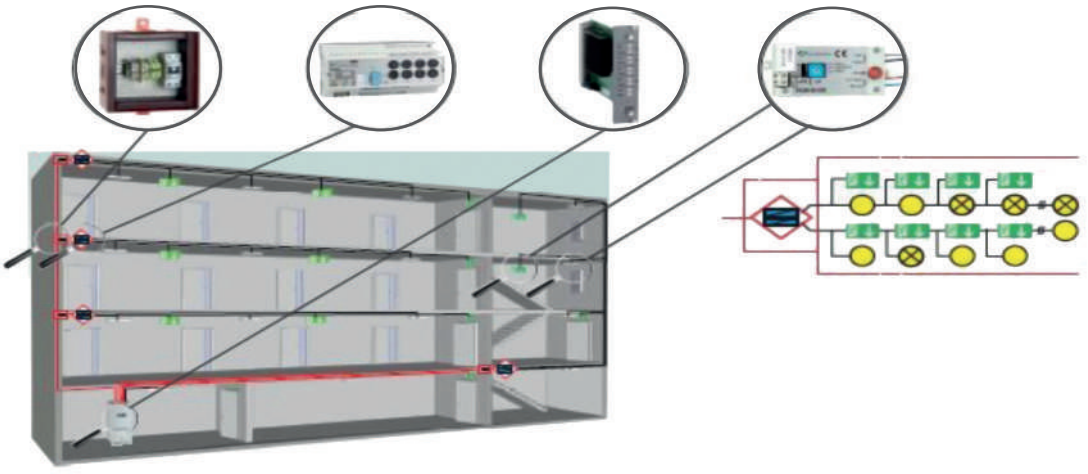
SPY **CENTER**

KEY:

- **E30 fire-resistant line**
- **RS 485 bus line**
- **Fire protection compartment**
- **SC ML**
- **SC MF**
- **SC FRDB**
- **SC MDL**
- **SC CTRL**
- **Evolution SE IP65**
- **Evolution SE IP40**
- **Lyra EVO**
- **Ordinary lighting 4 x 18W LED**
- **VIALED spot light**

CONFIGURATIONS:

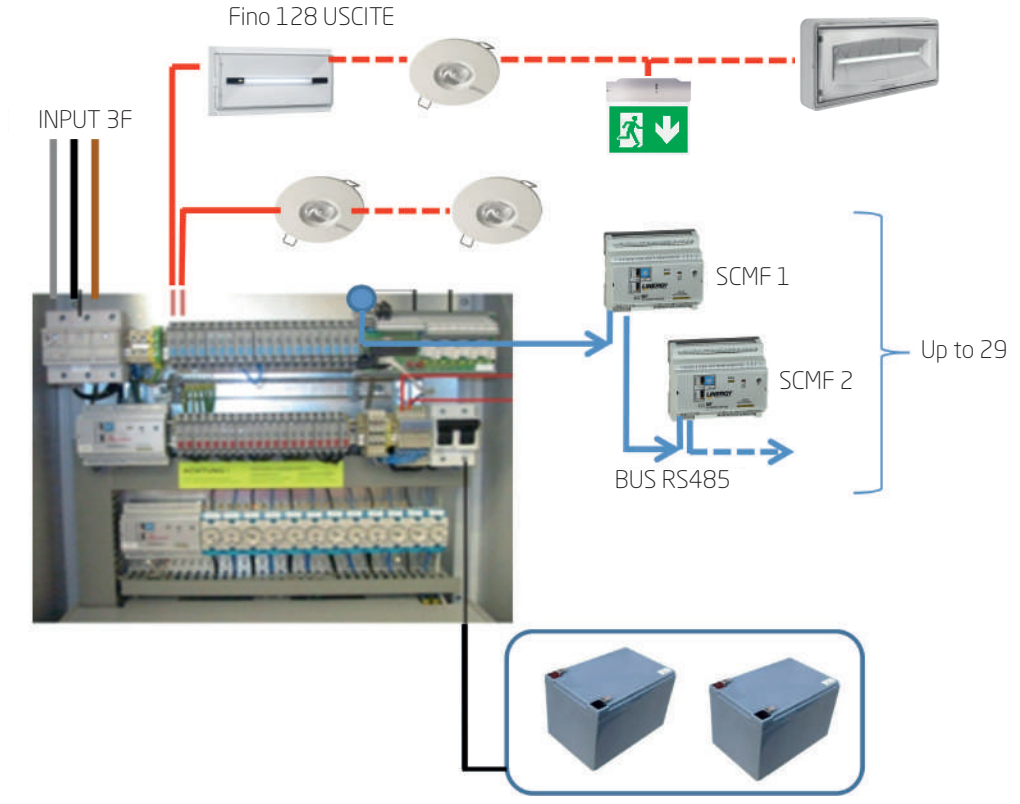
- Up to 2,560 products controllable via MDL
- Up to 128 650w lines protected against short circuits
- Wide range of power from 500W to over 80KW
- Boards and accessories for fire resistance
- Possibility of direct remote control of power lines on the floor and/or fire protection compartment using the SC/ML module (4 lines with 20 products each line)
- Unique module for managing programmable products (such as
- N/M or M or AI) directly from software after system connection
- Logbook, periodic checks logs for a quick view of the event log
- Test for insulation monitoring between battery and ground potential
- Functional test and freely programmable autonomy

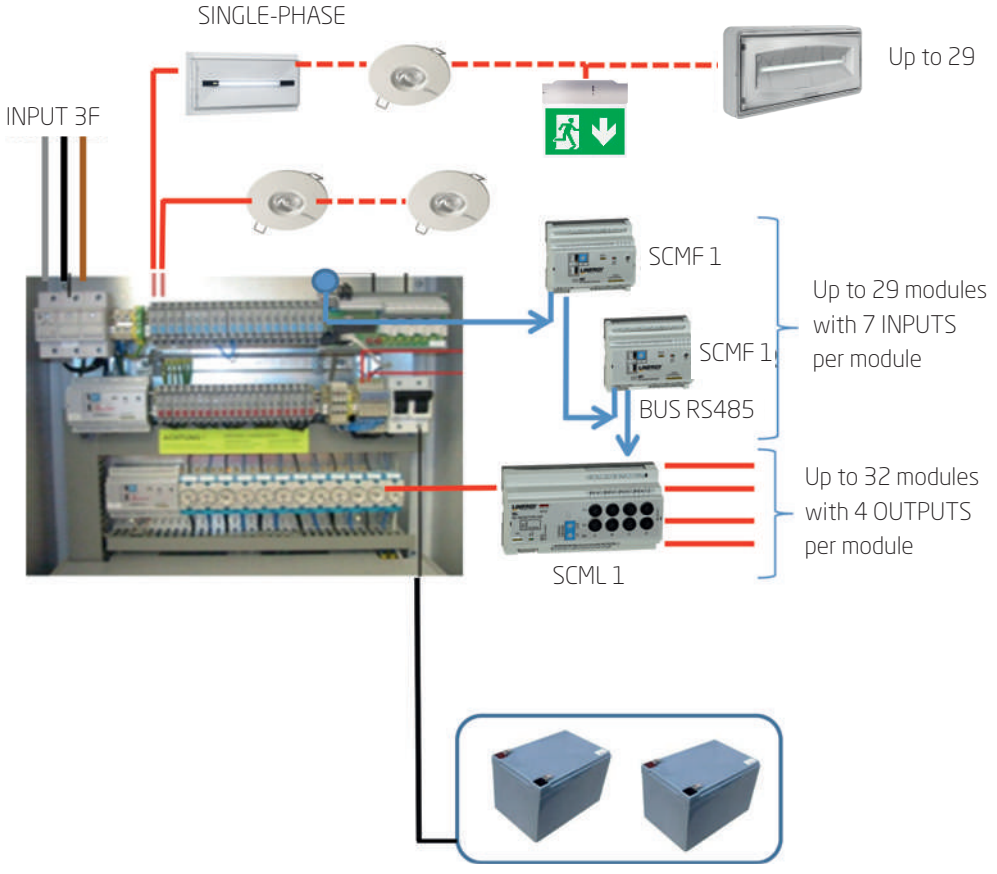


Emergency circuits with SCML remote external module and/or direct circuits with SCCTRL board

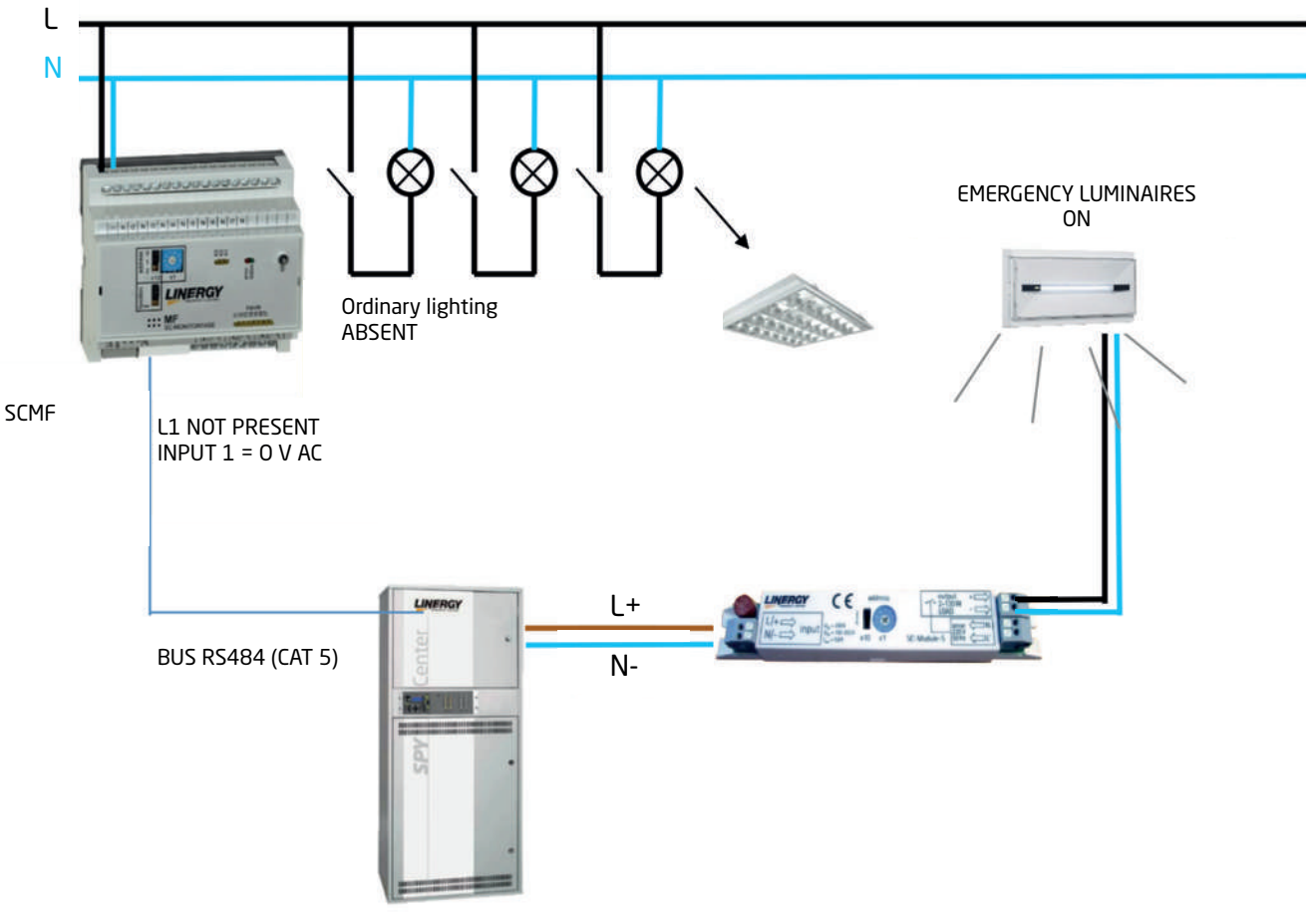
- Power supply and circuit monitoring with up to 650W of load
- Supply and monitoring of the individual device via SCMDL-L module installed within the luminaire up to 650W or 20 devices per individual output
- Protection of line against short-circuit with 5A fuse
- Protection of individual luminaires with 1A fuse
- M signalling and N/M panic alarms devices can be installed on the same circuit
- M and N/M function programmable with dedicated software
- Sector inlet of emergency line via SCMF

4.0 SPY CENTER - CONNECTION DETAILS





5.0 SPY CENTER - MONITORING OF PHASE WITH SCMF



6.0 STANDARDS AND PROVISIONS FOR CENTRALISED POWER SUPPLY SAFETY LIGHTING

The installation, maintenance and quality of a safety lighting system is governed by a wide range of standards and regulations for regulating electrical and lighting technology requirements.
Many of the standards and provisions are European and are in the process of being drafted.
The most important provisions are **EN 50172 (VDE 0108-100)**, the draft **DIN VDE 0108-100** and **DIN VDE 0100-718** which are supplemented by a specification of lighting parameters described in **EN 1838** and **DIN 4844** (in particular **ISO 3864**).
The regulations of **EN 60598** part 1 and **EN 60598** part 2-22 contain the general requirements for emergency devices and the provisions for luminaires installed in emergency lighting systems.
The standard **DIN VDE 0108-1** was replaced in 2007 by the published European standard **EN 50172 (VDE 0108-100), E DIN VDE 0108-100 (08/2007).**
The safety lighting described together with **VDE 0100-718 (10/2005)**on Installation of low voltage systems - Part 718: Building systems for meeting places, **EN 50171 (11/2001)** Centralised power systems
EN 50272-2 (12/2001)
Safety requirements for accumulator batteries and their installations (sealed batteries).
The technical requirements will have to be taken into account during planning, sizing and implementation of a centralised power supply system.
CEI UNI 11222 and **CEI EN 50172** regulate a series of services, tests and frequency for maintaining the system's efficiency.

- **EMERGENCY LIGHTING SYSTEM WITH CENTRALISED POWER SUPPLY SYSTEM (CPS)**
  Centralised system which, without a power limit, supplies the power required for emergency equipment (**EN 50171**).
  - battery life ≥10 years
  - room temperature of 20°C

- **EMERGENCY LIGHTING LOW CENTRALISED POWER SUPPLY SYSTEM (LCPS)**
  Centralised emergency lighting system with power limitation of PF 500 W for 3 hours or 1,500 W for 1 hour (**EN 50171**)
  - battery life ≥5 years
  - room temperature of 20°C

- **BATTERY**
  The batteries used in a safety lighting system must comply with the requirements of **EN 50272-2**.

- **BATTERY CAPACITY**
  The necessary battery capacity must be calculated according to the number of emergency devices, power and nominal autonomy (see table 3). The manufacturer differentiates its batteries according to the nominal function types **C1, C3, C8** and **C10**. For compatibility reasons, **EUROBAT** always recommends the C10 type, plus a 25% reserve to take into consideration battery ageing.

- **CHARGING**
  Recharging must comply with **EN 60146-1** and **EN 50272-2**.
  - 12 hour recharging - battery capacity 80%
  - IU = recharging line
  - ambient temperature range (20°C ± 5°C)

7.0 EXAMPLE FOR CALCULATING CAPACITY OF THE BATTERY GROUP

			DEVICES	
	10-story office block	**Final circuits M + N/M (1)**	**M**	**N/M**
Corridors	1 per floor for escape route use	10 x 4 = 40	10 x 4 da 6W	10 X 6 da 58W
Exterior stairwells	2 required stairwells	2 x 4 = 8	2 x 11 da 6W	2 x 22 da 58W
Ground floor	1 corridor as escape route	1 x 4 = 4	1 x 4 da 6W	1 x 5 da 58W
Technical compartment	Main distribution, technical compartment	1 x 3 = 3	1 x 1 da 6W	1 x 2 da 8W
		∑= 55	∑= 402W	∑= 6088W

Table 2:

1) In this example, a system can be chosen with autonomous (M) and non-autonomous (N/M) separate final circuits, that is, at least 4 final circuits for an area subject to fire risk.
2) The appropriate type of C10 battery must be chosen depending on the battery manufacturer.
3) This reserve is calculated as an option in order to subsequently connect more auxiliary luminaires.
4) The reserve must be suitably sized to avoid premature ageing of the battery

7.1 CALCULATING POWER OF THE BATTERY GROUP

	CALCULATION	**RESULT**
Battery group power	402W + 6088W = 6490W + 10% reserve [3]	~7150W
Battery charging current for 1 hour of autonomy	7150W/216V	~33,1A
Battery charging current for 3 hours of autonomy		~99,3Ah
+ 25% of reserve[4]	99,3 Ah x 1,25Ah	~124,13Ah[2]

Table 2.1

8.0 NOTES ON CABLES FOR SPY CENTER SYSTEM

Redundancy and combined operation

For safety in a fire protection area, it is essential to place cables for the centralised emergency lighting system in various compartments.
Power cables must be installed from the first luminaire or from the first distribution in the fire protection compartment with **"guarantee of performance"** and must be electrically insulated.
It is assumed that a fire will involve a limited part of the building, leaving the safety lighting working in the rest of the building.

Failure of the safety lighting in the part of the building involved in the fire is delayed by **redundancy**.
In accordance with **VDE 0108-100**, if there are more than two safety luminaires in a room or at an escape route, they must be connected alternately to two independent safety devices.This redundancy requires at least 4 lines in order to ensure operation from the battery compartment to each area at risk of fire.
The signalling of escape routes (in Maintained (M) mode, or Not Maintained (NM) mode) is connected to different circuits, **(see figure 1)** and it is necessary to connect each of the two luminaires alternately to the other final circuit.

It is possible to achieve the same safety level with the so-called "combined operation" **(see figure 2)**.
In this case, each Maintained and Not Maintained light point can be connected alternately to the same final circuit and the luminaires must be alternately activated.
In the event of a final circuit failure, safety signalling and escape route signalling remain alternately active.

With the use of circuits for switching from network operation to emergency (battery) operation in the respective compartments at risk of fire, the lines can be further reduced while maintaining the guarantee of operation **(see figure 3)**. Depending on the project, all compartments at risk of fire can be reached by one E30 line.
The advantage of external final circuits (ML) is to reduce the number of lines and the amount of cable.

9.0 MONITORING

With the **Maintained** mode of operation, it is necessary to monitor the general power supply in the main distribution of the safety lighting.
With the **Not Maintained** mode of operation, the general power supply must be monitored in every environment.
In the event of a general lighting fault, it is necessary to monitor the individual room or escape route.
In the event of a fault, the safety lighting must be activated in **Not Maintained** mode.
Not maintained and combined mode safety devices must function in the event of the voltage drop (including a partial drop) of the general lighting, since minimum illumination must always be ensured in the affected areas.

9.1 FINAL CIRCUITS - NUMBER OF CONNECTED DEVICES

A maximum of up to 20 devices may be managed per final circuit. The final circuit surge protection device can tolerate up to 60% of the nominal voltage. **(DIN V VDE V 0108-100)**.

9.2 PRECAUTIONS ON BATTERY STORAGE

According to **EltBauVo**, centralised power supply systems must have electrical areas and corresponding dedicated battery compartments. Therefore, it is necessary to take measures against the onset of fires and other destructive incidents (see examples in Figure 4). The "battery compartments" must be sufficiently ventilated, depending on the capacity and type of battery. Sizing according to **EN 50272-2**.

Natural ventilation should be the preference over mechanical ventilation.

FORMULA OF REFERENCE:
Q = 0,05 × n × Igas × Cn × 10-3
where

- Q: Calculation of air volume flow m3/hour
- m: number of cells
- CN: nominal capacity in Ah
- Igas: current that caused the development of gas in mA to Ah
- Igas = 8 mA/Ah for lead acid battery (OGIV)
- Igas = 2 0 mA/Ah for closed lead acid battery (OGIV)
- Igas = 50 mA/Ah for closed NiCd battery

Note: compared with OGIV batteries, OPZS battery volume flow is 2.5 higher, while for NiCd batteries it is 6.25 higher.

Section ratio for opening A
For inlet and outlet ventilation
A = 28 × Q
where

- A is the section of the opening in cm^2

Calculation of air volume flow Q
Example of calculation:
OGIV C10 sealed lead batteries,
with a capacity of 85 Ah
Power supply
Q = 0,05 m^3/h × 108 × 8 mA/Ah × 85 Ah × 0,001 = 3,67 m^3/h
A = 28 × 3,67 = 103 cm^2
Ah × 0,001 = 3,67 m^3/h
A = 28 × 3,67 = 103 cm^2

COGIV/C10 NOMINAL CAPACITY	NUMBER OF 12 VE BLOCKS AND AH	AIR VOLUME FLOW	DIAMETER OF OPENING FOR VENTILATION AND EXHAUST
CN in Ah		Q in m^3/h	A in cm^2
15	18 OGIV 12-17	0,65	18,2
20	18 OGIV 12-24	0,86	24,2
25	18 OGIV 12-28	1,08	30,2
30	18 OGIV 12-33	1,29	36,1
40	18 OGIV 12-45	1,73	48,4
50	18 OGIV 12-55	2,16	60,5
55	18 OGIV 12-60	2,37	66,4
70	18 OGIV 12-75	3,02	84,6
75	18 OGIV 12-80	3,24	90,7
85	18 OGIV 12-90	3,67	102,8
95	18 OGIV 12-100	4,10	114,8
115	18 OGIV 12-120	4,97	139,2
130	18 OGIV 12-134	5,62	157,4
145	18 OGIV 12-150	6,26	175,3
195	18 OGIV 12-200	8,42	235,8

Table 3
Representation of nominal capacity of a typical OGIV type C10 battery and opening for ventilation and exhaust

10.0 ELECTRICAL SYSTEM PLAN

Fig. 4

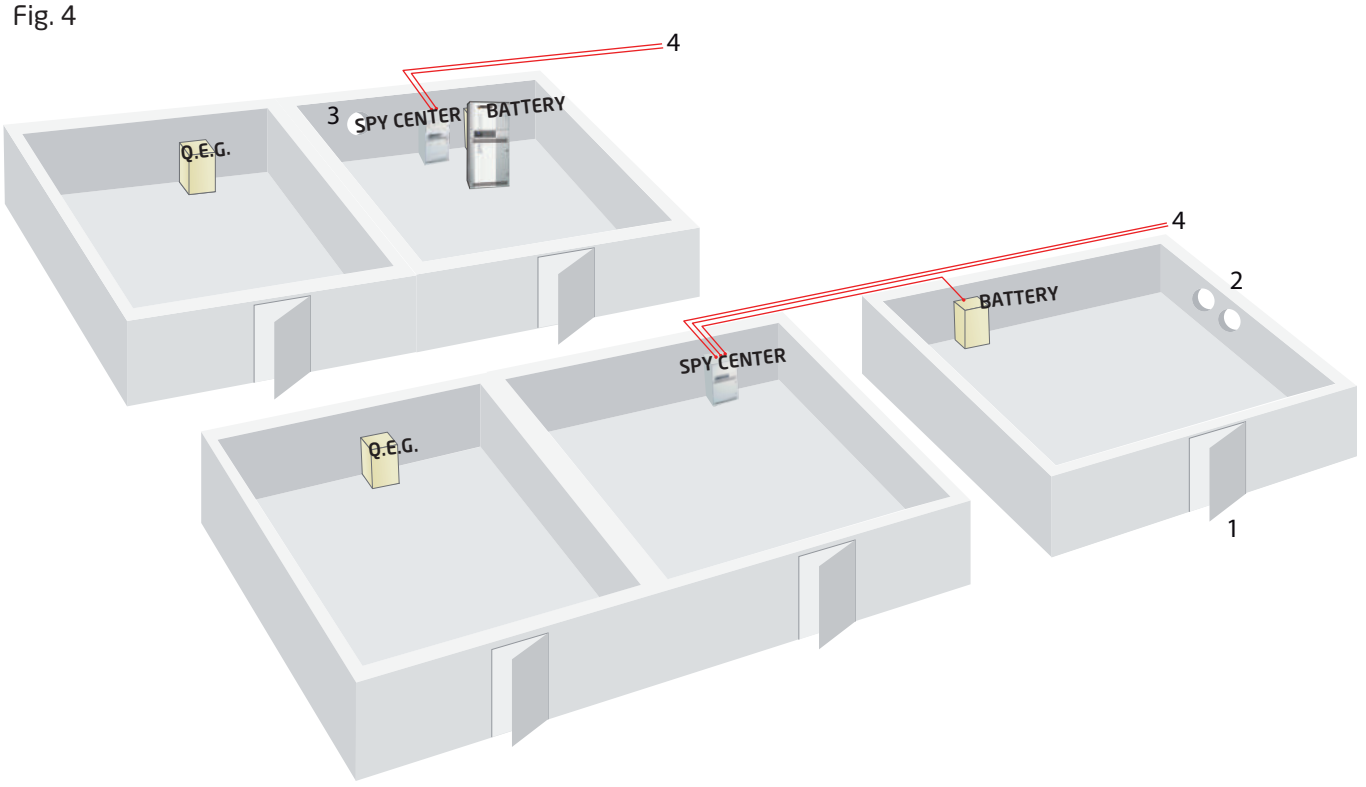


FIGURE 4:

1) Port in T30

2) Ventilation system on the opposite walls for better ventilation - if not possible, a distance of at least 2 m

3) Non-adjustable escape route width > 0.6 m

4) Lines from and via fire-protection compartments with E30 line
The main emergency station and battery cabinets may be placed in an electric control panel combined cabinet.

Spy Center lighting systems can provide solutions that guarantee safe operation, simple installation and a reduced risk of fire as a priority. Spy Center emergency lighting systems are equipped with a combined operating line and have internal and external devices that meet these requirements.

Rescue response units can be installed flexibly, depending on your needs. These distribution boards with their respective external circuits detect a fault without affecting other circuits.
In order to comply with technical requirements, each distribution is electrically protected and, if required, available with 30-minute fire-resistant line (E30) to save on costs and increase safety.

11.0 MAIN FEATURES OF THE SPY CENTER EMERGENCY LIGHTING SYSTEM WITH CENTRALISED POWER SUPPLY

Specific lighting systems can be built (see table 1). This means:

- Easy configuration of system and supply lines for fire protection area
- Combination of "internal" and "external" final circuits with separate circuit modules and/or external distributors
- Combined operation for emergency exit signalling in Maintained
- Mode and emergency lighting in Not Maintained Mode in one final circuit
- Status of luminaire of the freely configurable system
- The final circuits can be directly connected to the SPY CENTER control cabinet
- Display and evaluation of all messages in a central point, directly on the LCD or LAN Port, with their own IP address
- CPU with combined easy-to-read keyboard display with fourline text
- 19" frame for easy, coupled assembly and disassembly
- Independent monitoring and control systems, coordinated by RS485 bus
- SPY CENTER components are low consumers of energy in an emergency
- Full range of distribution boards available in E30.

11.1 MONITORING FUNCTIONS

The Spy Center centralised system generates considerable cost savings with the automatic monitoring of lines, batteries and lighting devices.
EVG systems with monitoring electronics or separate monitoring modules in the luminaires are used for monitoring of individual devices.
Up to 128 final circuits and 2,560 luminaires can be monitored and managed with no need to connect additional data lines to the devices. Devices are monitored via the power supply lines in the fire-fighting compartments.

ML and **MF** modules are connected to one other via the 485 bus and using a **CAT5 4x2x0,5** cable with a maximum length of **1000 m**. Operations are logged in the logbook and can be accessed by user for a number of years.
The status of the centralised battery is automatically saved and logged in the **logbook**, while 65,000 records can be accessed by users for a number of years.

11.2 STRUCTURE AND OPTIONAL CONFIGURATION

The following components are an integral part of the system:

- USB interface
- Network monitoring and isolation monitoring (ISO monitoring device)
- Power supply unit for supplying power to the internal and external monitoring device
- Main switch for switching off the distribution circuits
- Switch for network fault simulation
- IU charging device complying with DIN EN 50272-2, for maintenance-free closed-battery systems, as well as Pb and NiCd open-battery systems. Automatic switching between power charge and trickle charge modes
- Electronic control contact for battery compartment fan and adjustment ring for phase monitoring
- IO interface with 8 digital inputs for potential-free contacts and 8 switch-contact relays, of which 3 relays are DIN-signal relays. Inputs can be provided with the network monitoring function
- Device can be connected for remote signalling of the system status in compliance with VDE 0108.
- Card Slot SD
- The Spy Center centralised emergency lighting system is manufactured using modular technology
- It housing is made of powder-coated steel plate and coloured in RAL 7035.
- IP21 protection rating
- Wall or floor cabinet with suitable battery compartment
- Natural ventilation

12.0 CONTROL UNIT

CPU

The control unit contains all the command and display components. The device configuration can easily be changed, with the help of the display and navigation keys on the menu.
The display provides information on the system's technical parameters, error messages, results and statistics.

- **Data transfer**
  Two standard interfaces are available. Commercially available printers can be connected externally to the parallel port. Printing of the results is immediate if the internal SC-PRINTER printer is used. A computer can be connected to the USB port to configure the system or to read data.
  This can also be performed using the SD card slot.

- **RS485 bus**
  Connection of individual components to the RS485 bus
  - RS485 bus length up to 1,000 m
  - LIYCY (TP) 4 × 2 × 0.8 CAT 5 line

- **Three-phase network monitoring (HV)**
  The system is designed for a single-phase and three-phase power supply. If a mains voltage drop or failure occurs, the Spy Center will supply power to emergency devices connected to the battery group.

- **ISO monitor**
  The isolation monitor reports dangerous situations between battery and ground potential. (PE).
  Monitoring of battery circuit isolation can be checked with the ISO-test keys (+) and (-).

13.0 INTEGRATED LINE CONTROL BOARD

SC - CTRL

Spy Center can manage up to 128 lines, or 32 cards for CTRL final circuits. It is also possible to have a combination of Maintained (M), Not Maintained (NM) and Lit with Switch (AI) SC-ML external circuit modules. Each module (CTRL) or (ML) consists of four end lines protected by a 5A fuse, freely programmable for mixed mode in a final circuit.
Each electrical circuit can be wired with digital inputs. Emergency devices connected to a final circuit are individually monitored by installing an SC-MDL module. If monitoring of circuits is carried out, the MDL module can be omitted. Each circuit can separately utilise the M or N/M mode.

14.0 INCORPORATED PRINTER

SC - PRINTER

The built-in printer can be installed in the 19" frame or externally connected.
The printer provides the test results, messages and status of the system, ordered according to the date and assigned code.

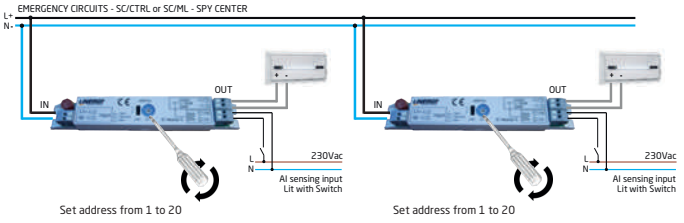
15.0 EXTERNAL MODULE FOR ELECTRIC CIRCUITS

SC - ML

SPY CENTER can manage up to 128 Maintained (M), Not Maintained (NM) and Lit with Switch (AI) mixed-mode final circuits in a final circuit. This means that up to 32 ML modules each with 4 final circuits can be installed in individual fire protection areas.
Depending on line requirements, they must be located on "simple" power distribution boards (type SC-NDC) or on fire protection distribution boards (type SC-FRDC). A combination of internal CTRL and external ML modules may be used.
Emergency devices connected to a final circuit can be individually monitored by installing an MDL monitoring module. The latter module requires an RS485 bus to communicate with the CPU control unit.

16.0 MONITORING UNIT FOR INDIVIDUAL EMERGENCY DEVICES

SC-MDL-L



The MDL monitoring module manages:

a. The assigning of addresses to luminaires - an address can be assigned from 1 to 20 for each circuit

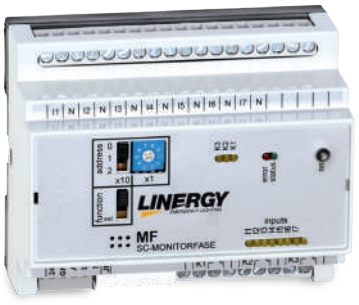
b. Testing of the device's operation by measuring absorption of the current

c. M-N/M mode can be programmed using software

d. The AI function "Lit with Switch" can be activated locally by connecting the control directly on the input
Addresses: 1 to 20
Nominal voltage: 230 V AC / 183 V-253 V DC
Maximum current intensity: 0.6 A (max. 130 W)
Dimensions (W x H x D) in mm: 150x22x16
Connections: 4×0,75 mm², approx. 30 cm - length of connection

17.0 EXTERNAL MODULE FOR MONITORING PHASES

SC - MF



The module has 7 inputs for 230V voltage with network monitoring function and 3 freely programmable relays with exchange contact.

It can be used internally or in sub-distributions to indicate the switching status, for example, of a light switch, fixed light function, or to indicate the status of the electricity distribution.
The module can be installed on a DIN-rail and on all electrical boards.

18.0 MONITOR CLEAN CONTACT PHASE

SC - MF2-S

Phase monitoring module with contacts normally closed and open. Snap-on rail connection, can be installed on DIN-rail and on all distribution boards.

SC-MF2-S single-phase monitoring with an exchange contact (width 17.5 mm).

19.0 REMOTE SYNOPTIC PANEL

SC - PSR

External signalling device displaying the system's operating status and the maintained luminaires' switched on-or-off status.

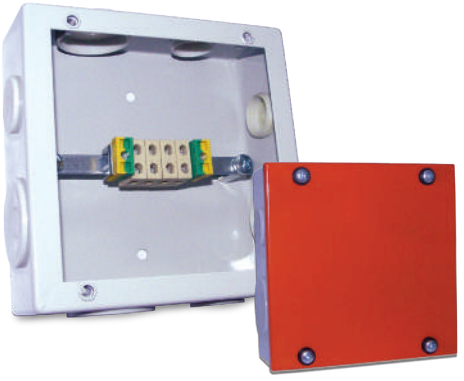
Indications:

- General fault signalling
- Maintained luminaires (M) ON/OFF
- Ready to operate
- Battery operation
- Network operation
- Push-button

Dimensions (H x W x D) in mm: 166 × 161 × 71

20.0 FIRE PROTECTION BOX WITH 30-MINUTE FIRE RESISTANCE

SC - NDB

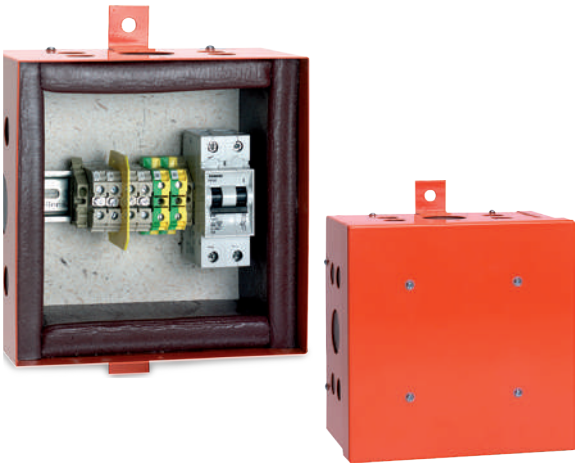


Wall mounted distribution for connecting the E30 line the central battery with ML modules.
Equipped with cable inputs on each side.

Dimensions (W x D x H) in mm:
NDB 0.1 Ø 6 mm2: 125 × 125 × 60
NDB 0.2 Ø 10 mm2: 170 × 145 × 70
NDB 0.3 Ø 16 mm2: 243 × 168 × 83
Colour: RAL 2003
Level of protection: IP65
Functional integrity: 30 min.

20.1 DERIVATION BOX WITH 30-MINUTE FIRE RESISTANCE AND FUSES

SC - FRDB



Dimensions (W x D x H) in mm: 200 × 200 × 130
Colour: RAL 3000
Level of protection: IP 54
Guarantee of operation: 30 min.
With line protection fuses

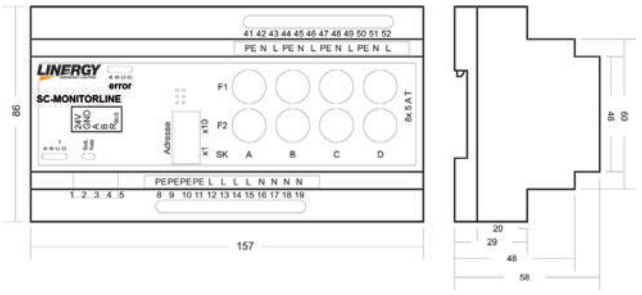
21.0 ETHERNET PORT

SC - LAN

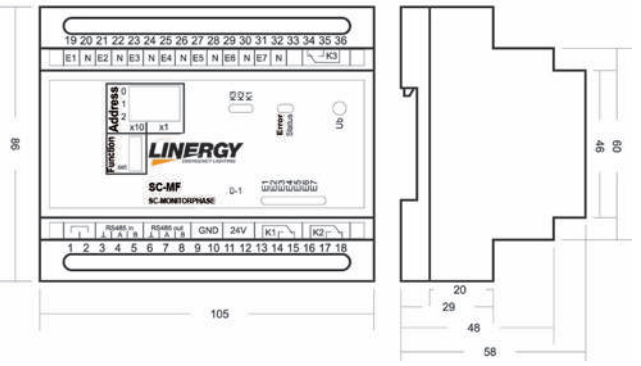
Spy Center connected with IP Address to the LAN network. This module can be used to view the system's status, activate individual tests and manage the various reports.

22.0 CHARTS AND DIMENSIONS

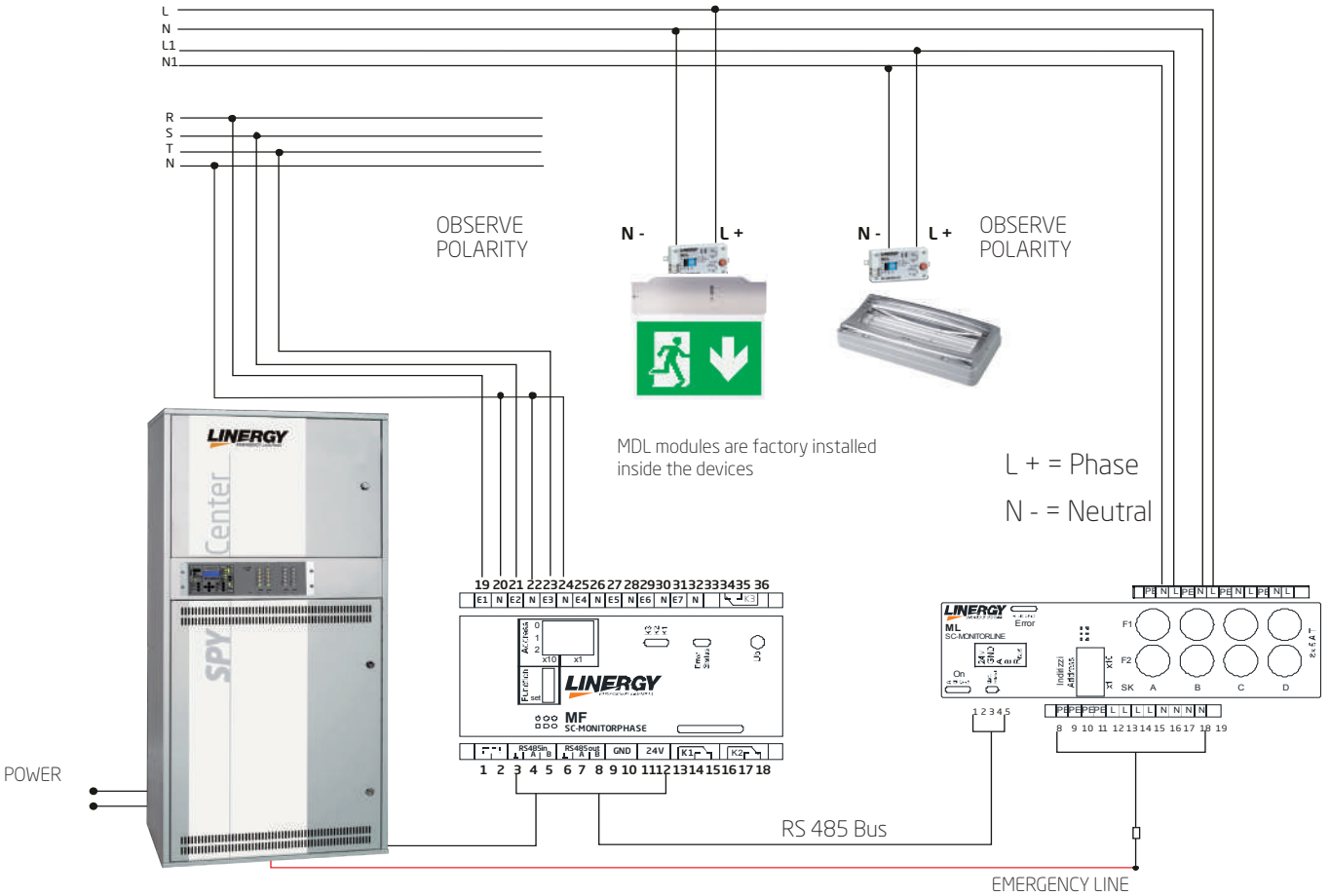
LINE MONITOR



PHASE MONITOR



EXAMPLE WITH PHASE MONITOR AND LINE MONITOR



23.0 DISTRIBUTION BOX WITH 30-MINUTE FIRE RESISTANCE

FRDC

Structured for the installation of ML electric circuit modules and final circuits with fuses.
Fire-resistant plates complying with DIN 4102 Part 1 and cable grommet complying with DIN 4102 Part 9, with integrated ventilation system, wall-mounting kit, swing door with right-hand opening, steel hinges and handle for opening.
Colour: RAL 7035
Protection type: IP 54
insulation class: II

The control cabinet is available in the following versions

Order code	Dimensions in mm	Optional supply	max. no. of lines
SCFRDC-LW3.1-30S	600 × 400 × 241 3 rows at 12 UP*	For max. of 2 modules ML + 1 MF	8
SCFRDC-LW4.1-30S	750 × 400 × 241 4 rows at 12 UP*	For max. of 3 modules ML + 1 MF	12
SCFRDC-LW5.1-30S	900 × 400 × 241 5 rows at 12 UP*	For max. of 4 modules ML + 1 MF	16
SCFRDC-LW6.1-30S	1050 × 400 × 241 6 rows at 12 UP*	For max. of 5 modules ML + 1 MF	20
SCFRDC-LW4.2-30S	750 × 650 × 241 4 rows at 24 UP*	For max. of 6 modules ML + 1 MF	24
SCFRDC-LW5.2-30S	900 × 650 × 241 5 rows at 24 UP*	For max. of 8 modules ML + 1 MF	32
SCFRDC-LW6.2-30S	1050 × 650 × 241 6 rows at 24 UP*	For max. of 10 modules ML + 1 MF	40

Note: *in case of mains power supply and on-site switching, it is necessary in each case to select the largest control cabinet.*
** UP: partial units*

Note: *For resizing of control cabinet please contact Linergy Technical Support.*

24.0 CONTROL CABINET FOR NORMAL DISTRIBUTION

NDC*

** Photos without door and components.*

Designed for installation in the respective fire prevention areas.
Model available with recessed or wall and door fire protection box.
Colour: RAL 7035
Protection type: IP 54
insulation class: II

The NDC station is available in the following versions

Order code	Dimensions in mm	Optional supply	max. no. of lines
SCNDC-24-AP	370 × 305 × 96,5 2 rows at 12 UP*	For max. of 1 module ML + MF	4
SCNDC -36-AP	515 × 305 × 96,5 3 rows at 12 UP*	For max. of 2 modules ML + MF	8
SCNDC -48-AP	640 × 305 × 96,5 4 frows at 12 UP*	For max. of 3 modules ML + MF	12
SCNDC -24-UP	442 × 330 × 90 2 rows at 12 UP*	For max. of 1 module ML + MF	4
SCNDC -36-UP	567× 330 × 90 3 rows at 24 UP*	For max. of 2 modules ML + MF	8
SCNDC -48-UP	692 × 330 × 90 4 rows at 12 UP*	For max. of 3 modules ML + MF	12

Note: *in case of mains power supply and on-site switching, it is necessary in each case to select the largest control cabinet.*
** UP: partial units*
The power supply is connected via line E 30 with NDB box.

- *Steel control cabinet*
- *Areas sectioned off from one other for outgoing protection devices, charge switch, and battery compartment*
- *Standard RAL 7035 colour; optional special paint*
- *Door with right or left opening, depending on needs*
- *Cable entry slot from above*
- *Standard cable ducts available*
- *Optional socket (80 mm)*

Recommendations in relation to the number of control cabinet circuits: if more circuits are installed, a further NDB box is required.

25.0 SYSTEM CONTROL CABINETS

COMPONENT CONTROL CABINET	SPY CENTER BASE (1)	SPY CENTER CONTROL (2)
SC-SG 12/6-45	40 circuits	24 circuits
SC-SG 18/6-45	40 circuits	24 circuits
SC-SG 12/8-55	60 circuits	52 circuits
SC-SG 18/55	60 circuits	52 circuits

1) *Two-pole circuits fixed with ceramic piping (up to 10A)*
2) *SC-CTRL board*

COMPONENT CONTROL CABINET	HEIGHT (MM)	WIDTH (MM)	DEPTH (MM)
SC-SG 12/6 – 45	1200	600	465
SC-SG 18/6 – 45	1800	600	465
SC-SG 12/8 – 55	1200	825	645
SC-SG 18/6 – 55	1800	825	565

All control cabinets and battery compartments are also available with an 80 mm base.
Steel sheet control cabinet with compartments for safety devices, and housing for charge-switching components.

- Steel control cabinet with separate compartments for outgoing protection devices, charge switch, and battery compartment.
- Standard RAL 7035 colour; optional special paint
- Door with right or left opening, depending on needs
- Cable entry slot from above
- Standard cable ducts available
- Optional socket (80 mm)

Note: *Possibility of making the control cabinet based on measurements provided by the designer*

25.1 SYSTEM CONTROL CABINETS

Spy Center can use two types of batteries:

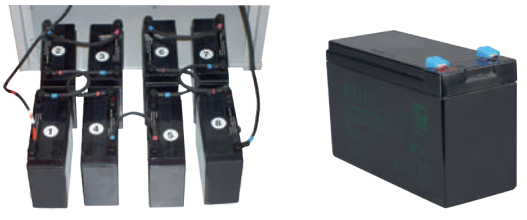
- **Nickel-cadmium batteries** with hermetic seal, preferably cylindrical.
- **Lead batteries** sealed by prismatic composition.

NiCd batteries for centralised systems have a longer lifespan but have a higher purchase price and disposal costs.
For this reason, the Spy Center mostly uses sealed lead batteries.
The expected useful life of ten years is optimised by compensating for temperature during charging.

Lead batteries have a nominal voltage of 2 V per cell. In accordance with **VDE 0108**, it is necessary to use sealed type accumulators.
The use of batteries for the ignition of vehicles is not permitted.
Exceptions are only allowed in specific cases in compliance with **VDE 0108**.

Sealed Batteries (OGIV)
In accordance with **VDE 0108**, these batteries are designed to exclude a new refilling of liquids and are suitable for offset charge without the risk of electrolyte leakage during correct operation, irrespective of where they are used.
They are guaranteed by the manufacturer without maintenance.

Recommendation:
The temperatures must be considered at the installation site. If batteries are used that produce gas during correct operation, a safety valve must be installed.



Sealed batteries inside the Spy Center rescue response system

26.0 BATTERY LOG - BATTERY MONITORING SYSTEMS

The battery LOG is a system for monitoring sealed lead batteries inside the SPY CENTER and SPY CENTER BASIC rescue response units.
The system consists of TRANSMITTER modules connected to each battery, a module mounted on the BATTERY BOX, in the case of Spy Center Basic, and on the synoptic panel in the case of Spy Center.
The TRANSMITTER module and the RECEIVER module have two LEDs for signalling the operating status of each individual mono-block.

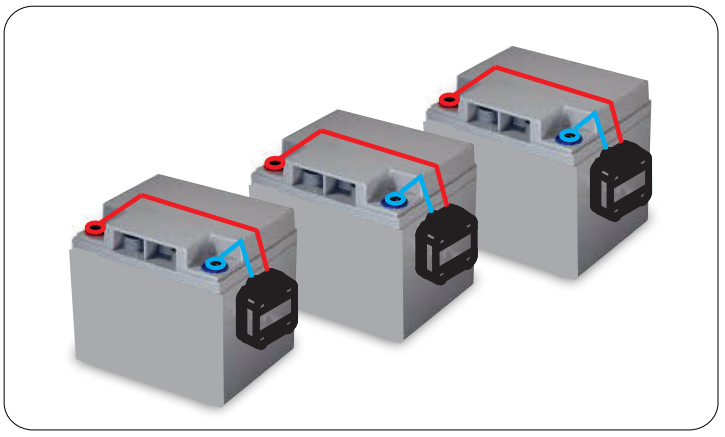


Fig. 1 TRANSMITTER MODULE
Mounted on BATTERIES

Fig. 2 RECEIVER MODULES
Mounted on MIMIC PANEL

26.1 INDICATION OF POSSIBLE STATUSES

CONSTANT GREEN LED
The battery is in perfect working order and its operating voltage is correct.

CONSTANT GREEN LED + SLOW FLASHING RED LED
The battery voltage is below the normal operating threshold and may destabilise the entire battery pack.

CONSTANT GREEN LED + FAST FLASHING RED LED
The battery voltage is above the normal operating threshold and may destabilise the entire battery pack, causing the accumulator to overheat and resulting in a damaged battery.

GREEN AND RED FLASHING LED
The temperature inside the box is above the operating threshold (over 38°C).

27.0 BATTERY LOG - BATTERY MOUNTING SYSTEM

LED SIGNALLING STATUS

- **Red**
  Battery anomaly
- **Green**
  Battery ok

SPY CENTER

BATTERY BOX

SPY **CENTER LPS**

CENTRAL LOW POWER SYSTEMS WITH CONTROL

For low power emergency installations with central battery luminaires

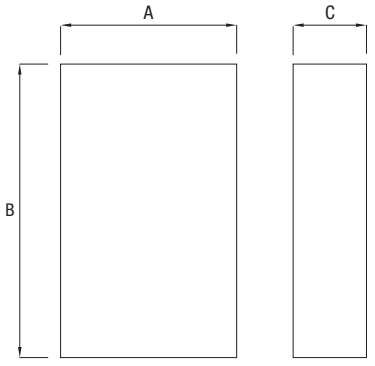
LINERGY
EMERGENCY LIGHTING

SPY **CENTER LPS**

Spy Center LPS is the Linergy power and centralised control system for low power.

1.0 TECHNICAL DATA

- Installazione a muro
- Corpo: acciaio RAL 7035
- Dimensioni: 600 x 1000 x 250 mm
- Peso: 60,5 kg senza batterie
- Grado di protezione IP54
- Classe di protezione: I
- Alimentazione: 230Vac 50Hz o 3x400Vac 50Hz apparati per monitoraggio incluso
- Batteria: 216V (18x12V / 7Ah 45 kg oppure 18x12V / 12Ah 70 kg)



A=600 mm B=1000 mm C=250 mm

2.0 STRENGTHS POINTS

- Expandable, flexible and modular system with 4/8 circuits each 700 W and 1,500 W and a maximum of 20 installed units per circuit.
- Low installation costs with installed final circuits that do not require E30 fire resistant cables if installed in the fire compartment.
- Advanced and simple system to be used for monitoring an individual device and/or the circuit without additional wiring, with freely
- programmable lighting circuits and devices, remote maintenance and viewing, luminaire operation check and monitoring via the SC
- LAN card included.
- Decentralised power supply system in compliance with EN 50171.
- Compliance with EN 50172 for the safety of lighting systems.
- Automatic monitoring system in compliance with EN 62034 for checking the operation of all devices connected at regular intervals.
- Independent system with mixed Not Maintained (NM) and Maintained (M) mode of operation.
- The tests are stored for a period of 5 years through an integrated electronic event log.
- Foreign language compatible.
- A maximum of 20 devices can be managed per final circuit.
- 4/8 final circuits with mixed mode of operation and/or Maintained (M) or Not Maintained (NM).
- Luminaire can be selected based on battery type.
- Status information via the display system.
- Inputs freely assigned to each circuit or each device
- Connectivity via RS485 interface for external phase monitors and bus interface for Ethernet port
- Inputs with TCP/IP protocol for Intranet/Internet connection.
- Incorporated web server for remote system management via the Internet.

Order code	Short code	Output lines	Output voltage	Batteries	Active power	Duration	Cabinet with batteries	Installation
SCL090P04	SC 1201	4	230 Vdc (230 Vac with mains)	18 x Pb 12V 7Ah	900 W	1 h - 900 W	1	Wall
SCL090P08	SC 1202	8				3 h - 350 W		
SCL150P08	SC 1203	8		18 x Pb 12V 12Ah	1500 W	1 h - 1500 W		
						3 h - 670 W		

3.0 INTERNAL I/O SERIES MODULE

- 8 potential free inputs
- NC/NO can be selected
- 8 relay outputs 230Vdc/6A
- Potential-free exchange contacts

4.0 REMOTE SIGNALLING ON SC PSR SYNOPTIC PANEL

- System on
- Running System error
- Battery
- Network features
- Error sound warning

5.0 SCMDL-L SINGLE DEVICE MONITORING MODULE

- Module can be addressed from 1 and 20 and additional input for switching on function via 230Vac switch

6.0 CURRENT AND BATTERY CAPACITY

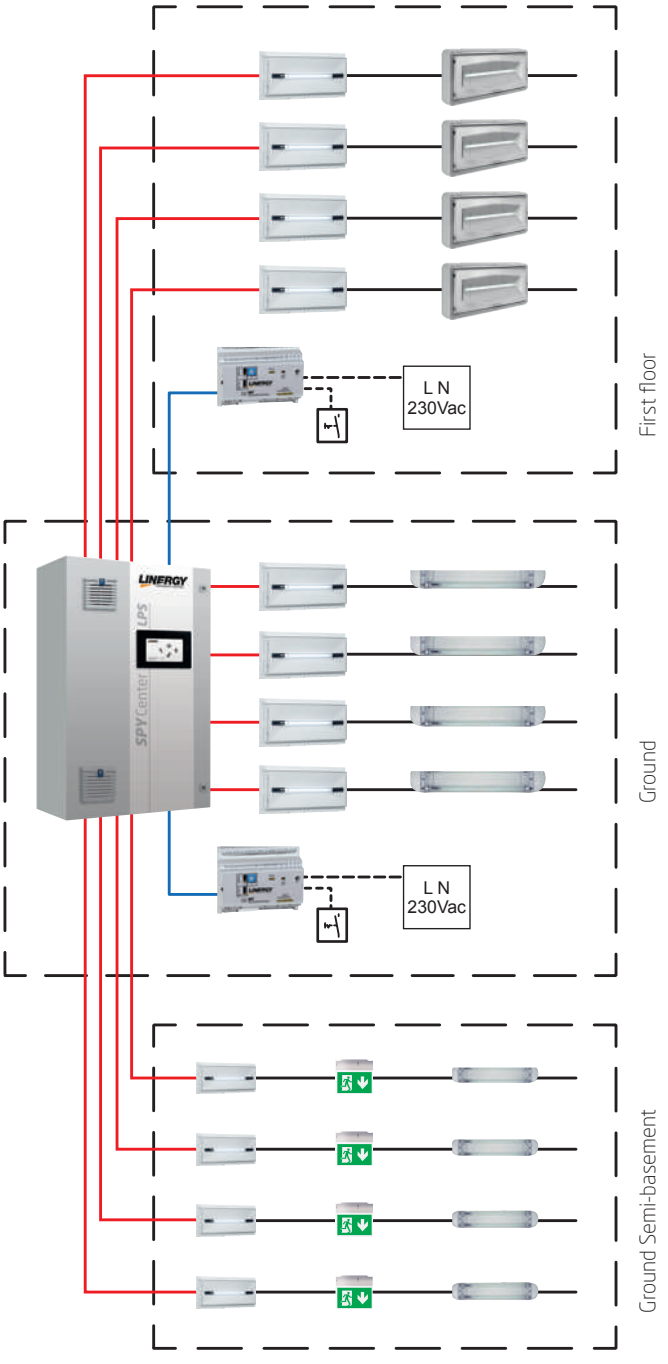
	12V / 7Ah battery	12V / 12Ah battery
1h	4,0 A ~ 900 W	7,0 A ~ 1500 W
3h	1,6 A ~ 350 W	3,1 A ~ 670 W
8h	0,8 A ~ 180 W	1,4 A ~ 300 W

KEY:

- E30 fire-resistant line RS 485
- Bus line RS 485
- Fire protection compartment
- Electric board switch for floor
- Electric board for floor
- SCMDL-L - Device addressing module
- SCMF - Phase monitor
- SCFRDB - Fire-resistant board rack
- PRODIGY NM - Not Maintained
- LYRA EVO M - Maintained
- Ordinary lighting device 2 x 18W

7.0 ACCESSORIES CODES

Order code	Short code	Description
SCMDL-L	A104	Module for monitoring individual emergency lamp L
SCMDNIO	A265	External input/output module
SCMLE	A266	External module for line monitoring
SCMLI	A267	Internal module for line monitoring
SCMF8	A271	Ext. module for 8-phase monitoring



SPY **CENTER 24**

New

LOW VOLTAGE (SELV) CENTRAL POWER SYSTEMS WITH CONTROL

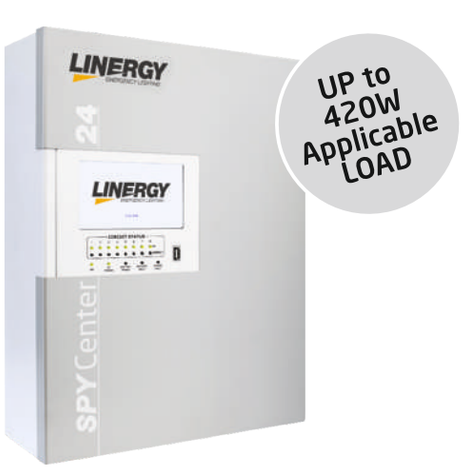
For emergency installations
with central battery LED luminaires at 24 V

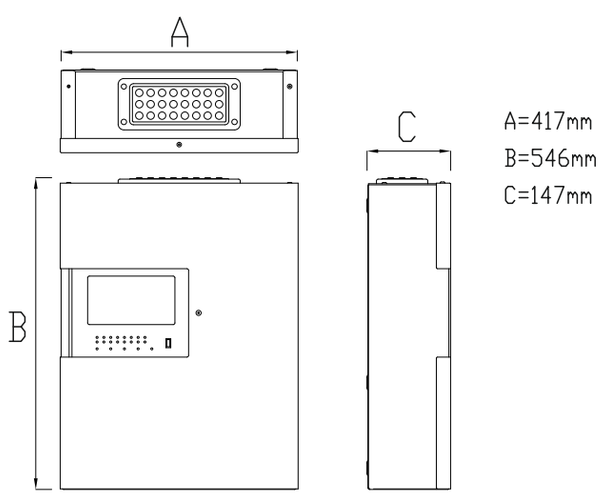
LINERGY
EMERGENCY LIGHTING

SPY **CENTER 24**

1.0 TECHNICAL DATA

Power supply	230VAC ± 10%, 50/60Hz
Insulation class - System	I
Insulation class - Luminaires	III (SELV)
Ptotection	IP20
Housing material	Painted iron
Paint	RAL 7035
Overall dimensions (L x H x P in mm)	417 x 546 x 147
Weight	about 40kg batteries included
Mounting	Wall
Cable entry	Plastic flange on the top side
Noise	<40dB (A) a t 1m of distance
Working temperature	from +20 °C up to +25 °C
Range temperature	from -10 °C up to +40 °C
Battery voltage	24VDC
Battery type	12V seal acid - ogiv - Design life 10years
Discharge voltage	1,8 V/cella (21,6 V)
Limit charging current	3.8A (version 24Ah 33Ah) and 1.54A (version 12Ah)
4x phase monitoring - 230Vac	freely programmed input for phase monitoring
8x digital inputs	freely programmed inputs with contacts NC (NORMALLY CLOSED)
Outputs contacts	Relays K1-K8 for status signalling k1 = SYSTEM ON k2 = MAINAC ON k3 = BATTERY FUNCTION k4 = FUSES OPEN k5 = BATTERY ERROR k6 = SYSTEM ERROR k7 = AUTONOMY TEST FAIL k8 = FUNCTIONAL TESTFAIL
Ethernet port	Included
max 8x circuits	Final circuits for managing of emergency luminaires and signalling
Section cable -	2,5 mm ²
Fuse protection - Circuits	5A - max. 3A di carico
Fuse protection batteries	40A
Max load on each final circuit	60W - 20 lamps (On the version with 8 circuits = 55W)
Absorption	340VA max absorption of the standard system. Please note .This value can be changend according to the plant configuration.



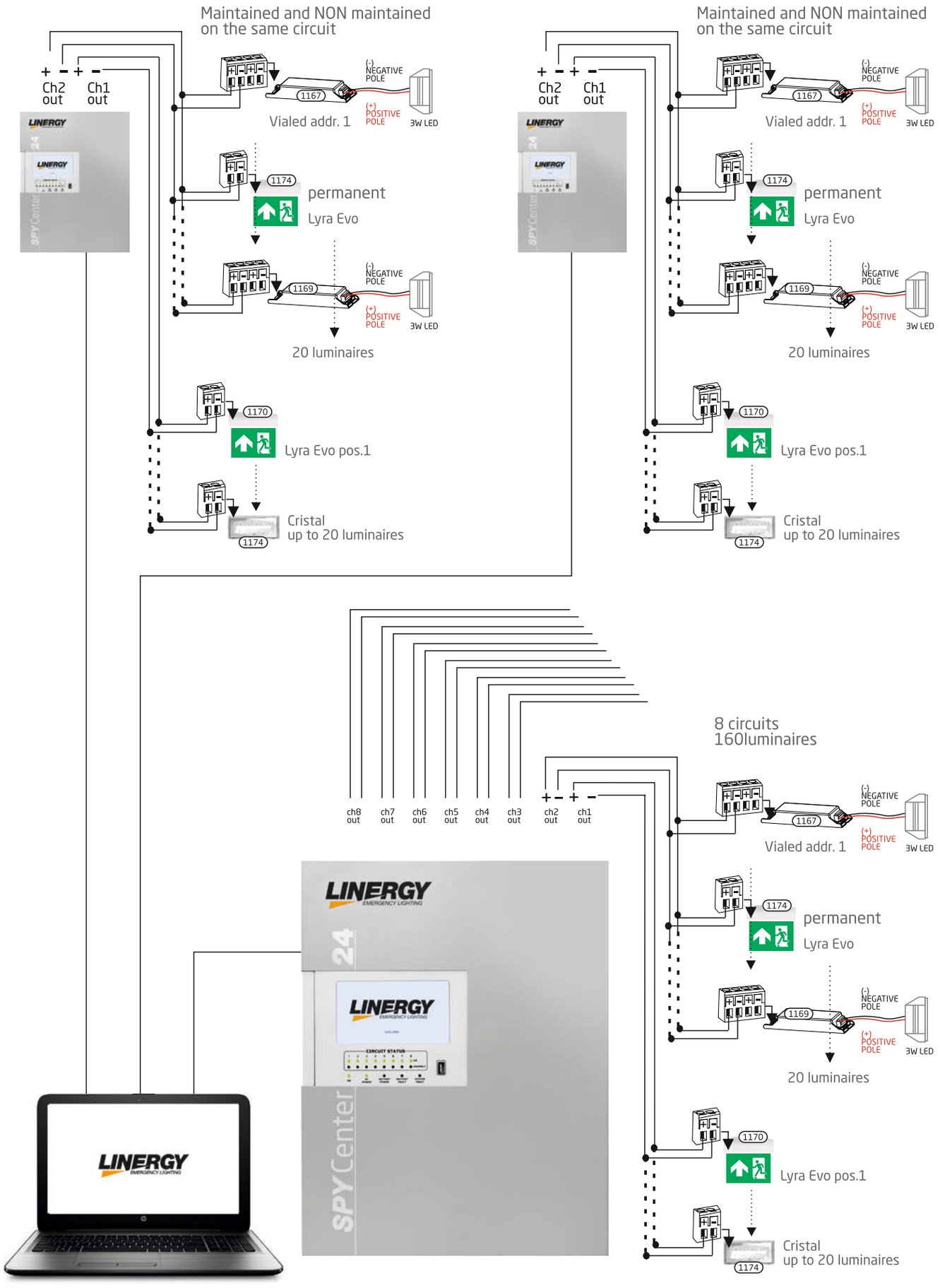


2.0 MAIN FEATURES

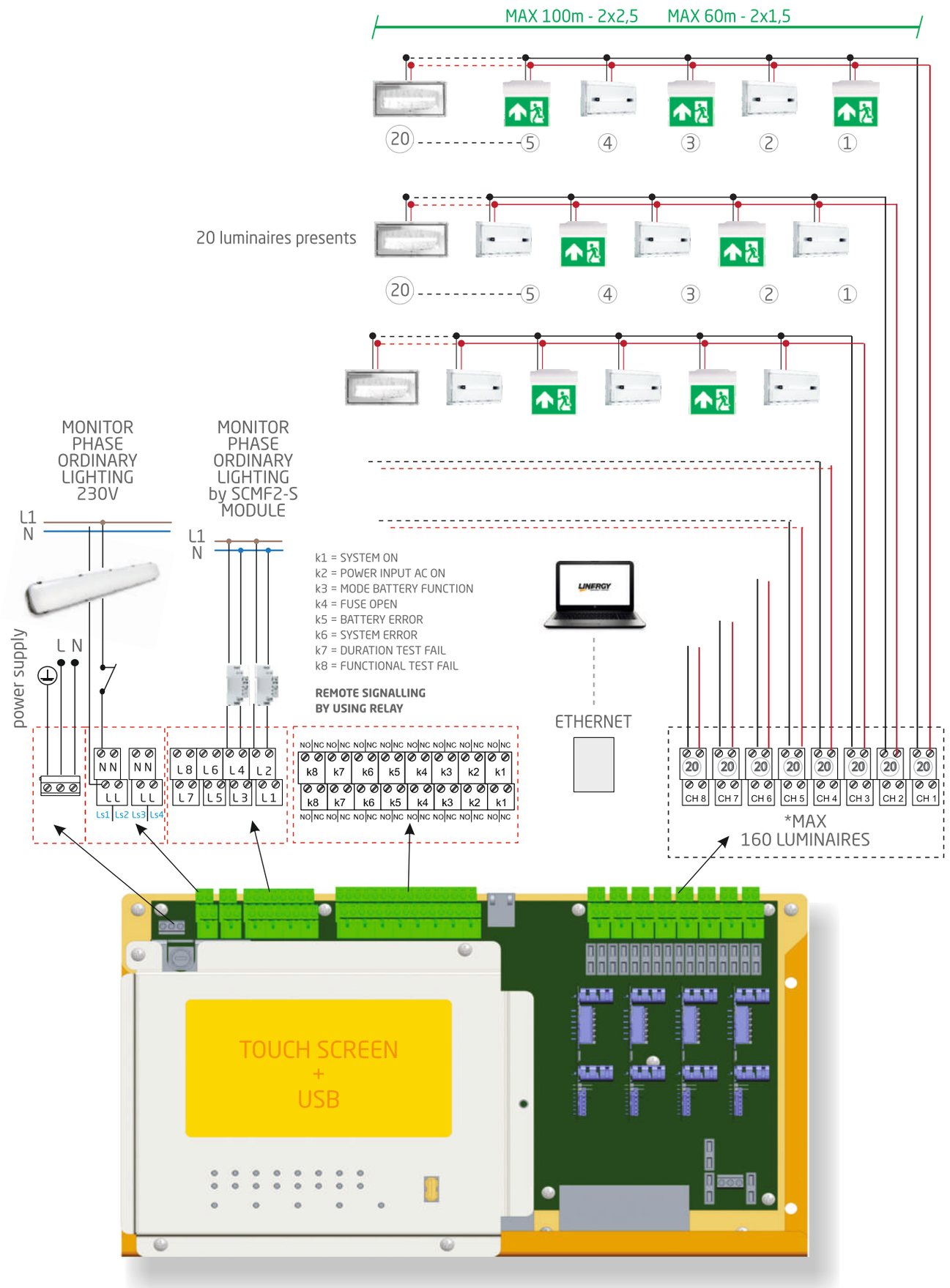
SPY CENTER 24 is a centralized power supply and control system for 24 Vdc low voltage LED emergency luminaires.

- UP TO 8 CIRCUITS WITH MIXED OPERATION MODE
- N/M AND M OPERATION ON SAME CIRCUIT
- DIMMABLE MAINTAINED FUNCTION
- LOCAL EMERGENCY FUNCTION (NO INPUT MODULE REQUIRED)
- POSSIBILITY OF MONITORING AND CONTROL OF EACH INDIVIDUAL LED LUMINAIRE
- AUTOMATIC LUMINAIRE ENROLMENT WITH SERIAL NUMBER
- HIGH ENERGY SAVING WITH 24V LOW VOLTAGE SYSTEM MANAGEMENT
- LOW INSTALLATION COSTS WITH CIRCUITS WHICH DO NOT REQUIRE FIRE-RESISTANT CABLES IN FIRE COMPARTMENT
- INFORMATION ON THE STATUS OF THE SYSTEM WITH TEXT DISPLAY ON LCD TOUCH SCREEN AND LED SIGNALLING.
- FOREIGN LANGUAGE INSERTION OPTION
- REMOTE PROGRAMMING AND MANAGEMENT OF SUPERVISION WITH ETHERNET CARD INCLUDED
- 10-YEAR BATTERY LIFE EXPECTANCY

SPY **CENTER 24**



3.0 CONNECTIONS AND CABLES



SPY **CENTER 24**

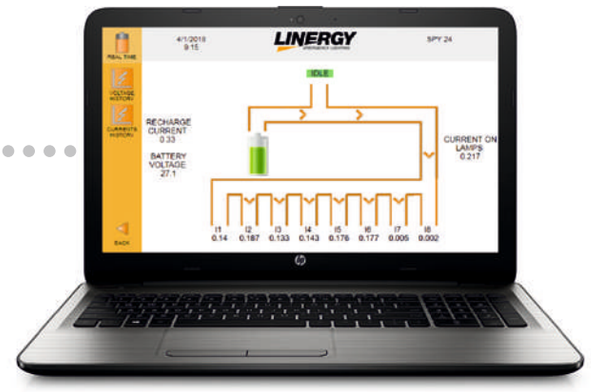
Order code	Short code	Output lines	Batteries	Active power	Duration	Charge time	Output voltage	Cabinet with batteries	Installation
SPY CENTER24									
SC24V12A2	SC 1401	2	2 x Pb 12V 12Ah	120 W	1 h - 120 W 2 h - 80 W 3 h - 60 W	80% in 12 h	24 Vdc	1	Wall
SC24V24A4	SC 1402	4	2 x Pb 12V 24Ah	240 W	1 h - 240 W 2 h - 160 W 3 h - 120 W				
SC24V33A6	SC 1403	6	2 x Pb 12V 33Ah	360 W	1 h - 360 W 2 h - 220 W 3 h - 160 W				
SC24V33A8	SC 1404	8	2 x Pb 12V 33Ah	420 W	1 h - 420 W 2 h - 240 W 3 h - 180 W				

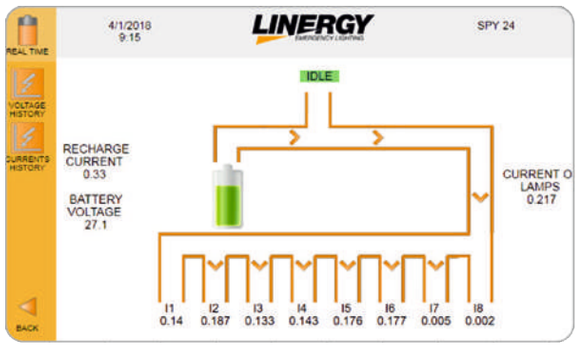
THE MAXIMUM VOLTAGE DROP AT FULL LOAD MUST NOT EXCEED 4V

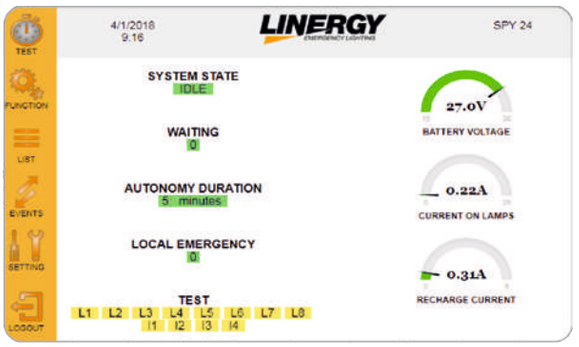
Power capacity	Cable section 1,5 mm²	Cable section 2,5 mm²
60 W	60 m	100 m
50 W	73 m	121 m
40 W	91 m	152 m
30 W	121 m	202 m
20 W	182 m	304 m
10 W	365 m	562 m

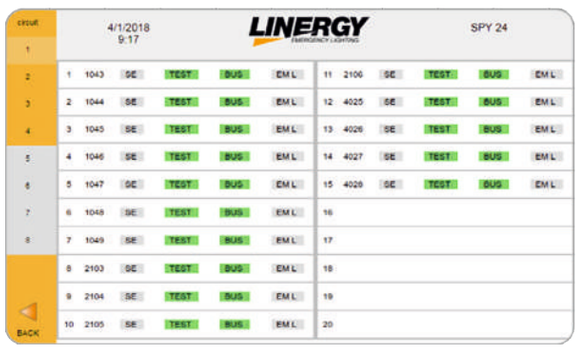
4.0 WEB APP FOR MANAGEMENT OF EQUIPMENT INCLUDED IN THE SYSTEM

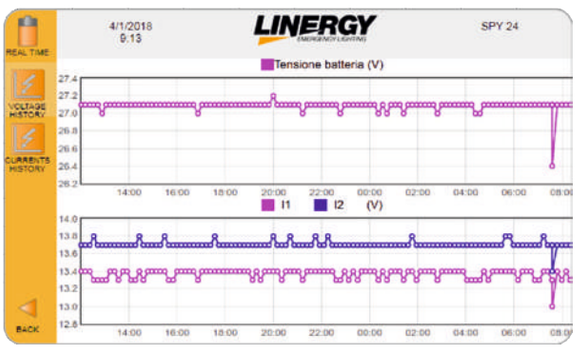
SPY CENTER 24 is supplied as standard with a web app that can be accessed via any browser for system configuration and management.



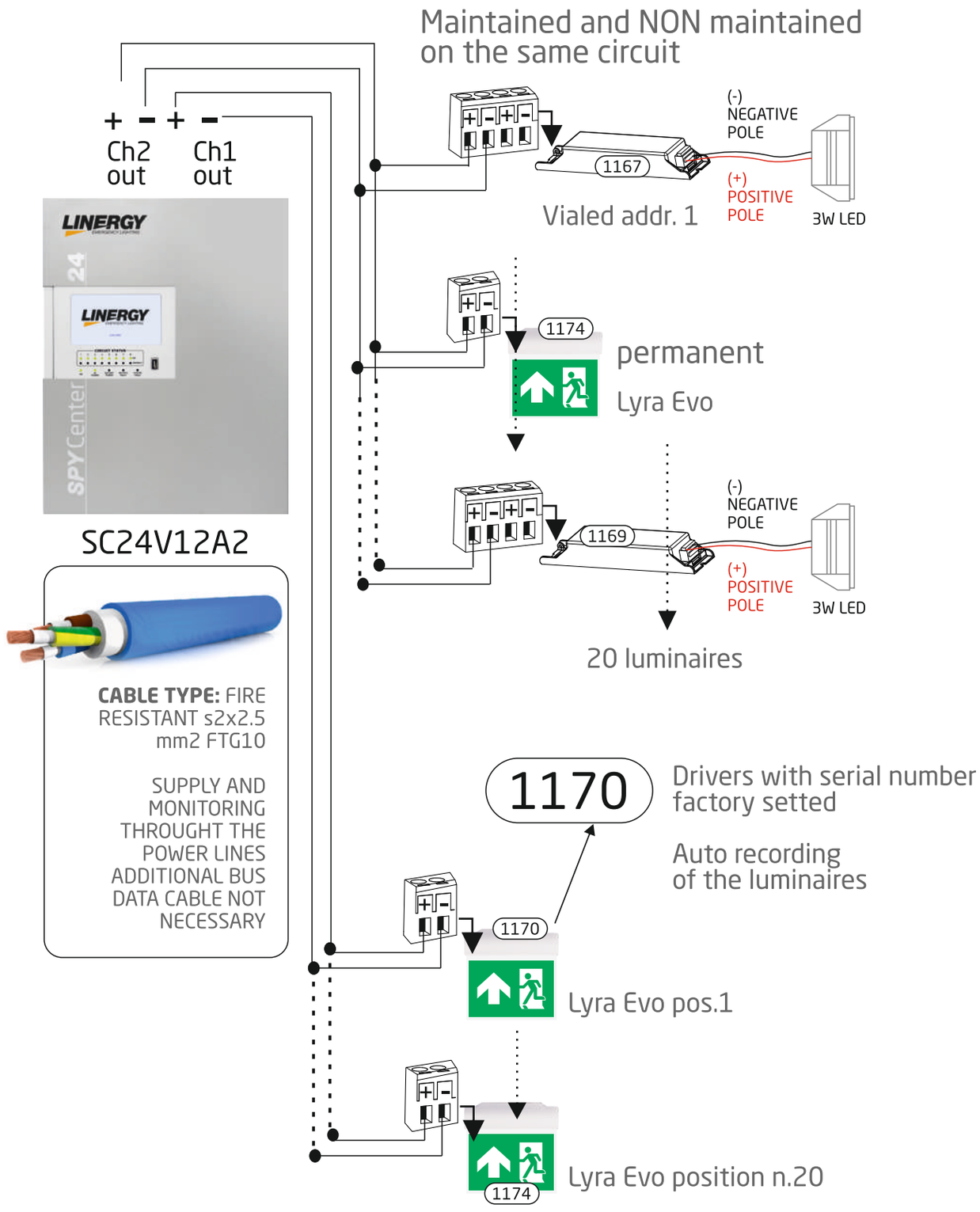








5.0 SPY CENTER 24 - MONITORING MODULE



Max 20 luminaires and/or 60W per circuit
Polarization of the cables not necessary

SPY **CENTER BASIC**

CENTRAL POWER SYSTEMS

For emergency installations with central battery luminaires

LINERGY
EMERGENCY LIGHTING

The SPY CENTER family grows with the new BASIC model; available in a wide range of versions according to installation requirements.

1.0 MAIN FEATURES

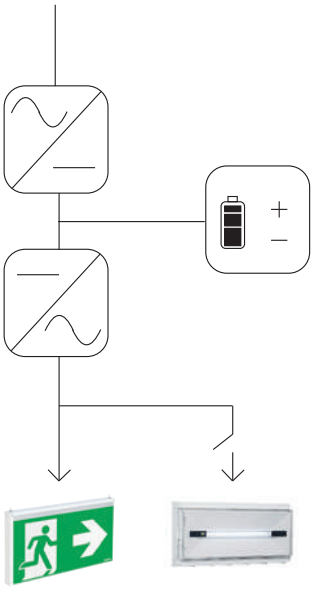
- Can be used in all emergency systems as required by EN 50171
- Versatility of operation with online technology.
- Easy installation and maintenance.
- High starting currents for handling any permanent and non-permanent load
- Expandable battery pack for 1h - 2h - 3h of autonomy
- Advanced battery management and protection
- Board for signalling status in all versions for compliance with EN 50171
- SNMP Ethernet board available on all versions
- Compatible with all Linergy central battery devices
- Batteries with 10-year life expectancy

2.0 TECHNICAL FEATURES

- Spy Center Basic rescue response units suitable for use in emergency installations in compliance with EN 50171
- Possibility of installation in any equipment room in total safety in compliance with EN 50272-2
- Maintenance-free sealed lead batteries
- Online double conversion
- Intervention time = 0
- Differentiated outputs for Maintained (M) and Not Maintained (NM) load
- Automatic bypass in case of rescue response unit malfunction
- High overload capacity in compliance with EN 50171
- Input and output for series breakers on all versions
- Tower installation with moving operation
- Emergency Power Off (EPO) release button on all versions
- Liquid crystal display, with key information on rescue response unit status

DOUBLE OUTPUT

Part of the load is powered permanently by the Maintained (M) line, while the remaining part of the load will be powered only in case of blackout by the Not Maintained (N/M) line.
The double output is present in all Spy Center Basic versions.



3.0 PRODUCTS CODES

Oder code	Short code	Nominal power (VA)	Active power (W) *	Duration	Input / Output 230 Vac / 230 Vac	Battery sealed type	Installation
SCB 010 P 10	SC 1501	1000	600	1 h	Single-phase/Single-phase	Pb	Tower
SCB 010 P 20	SC 1502	1000	600	2 h	Single-phase/Single-phase	Pb	Tower
SCB 010 P 30	SC 1503	1000	600	3 h	Single-phase/Single-phase	Pb	Tower
SCB 020 P 10	SC 1504	2000	1200	1 h	Single-phase/Single-phase	Pb	Tower
SCB 020 P 20	SC 1505	2000	1200	2 h	Single-phase/Single-phase	Pb	Tower
SCB 020 P 30	SC 1506	2000	1200	3 h	Single-phase/Single-phase	Pb	Tower
SCB 030 P 10	SC 1507	3000	1800	1 h	Single-phase/Single-phase	Pb	Tower
SCB 030 P 20	SC 1508	3000	1800	2 h	Single-phase/Single-phase	Pb	Tower
SCB 030 P 30	SC 1509	3000	1800	3 h	Single-phase/Single-phase	Pb	Tower
SCB 050 P 10	SC 1510	5000	2800	1 h	Single-phase/Single-phase	Pb	Tower
SCB 050 P 20	SC 1511	5000	2800	2 h	Single-phase/Single-phase	Pb	Tower
SCB 050 P 30	SC 1512	5000	2800	3 h	Single-phase/Single-phase	Pb	Tower
SCB 060 P 10	SC 1513	6000	4200	1 h	Single-phase/Single-phase	Pb	Tower
SCB 060 P 20	SC 1514	6000	4200	2 h	Single-phase/Single-phase	Pb	Tower
SCB 060 P 30	SC 1515	6000	4200	3 h	Single-phase/Single-phase	Pb	Tower
SCB 080 P 10	SC 1516	8000	5600	1 h	Single-phase/Single-phase	Pb	Tower
SCB 080 P 20	SC 1517	8000	5600	2 h	Single-phase/Single-phase	Pb	Tower
SCB 080 P 30	SC 1518	8000	5600	3 h	Single-phase/Single-phase	Pb	Tower
SCB 100 P 10	SC 1519	10000	7000	1 h	Single-phase/Single-phase	Pb	Tower
SCB 100 P 20	SC 1520	10000	7000	2 h	Single-phase/Single-phase	Pb	Tower
SCB 100 P 30	SC 1521	10000	7000	3 h	Single-phase/Single-phase	Pb	Tower

* Rescue response units from the SPY CENTER BASIC range have been specifically sized for centralised emergency lighting power. For this reason, in compliance with EN 50171, it is necessary to size the equipment while maintaining a power margin of 20% in respect of it.
Sizing is performed on request for rescue response units with TRI-PHASE INPUT/ OUTPUT.

4.0 ACCESSORIES CODES

Order code	Short code	Description
SCBLAN	A125	Board ups online
SCBMOD	A126	Signalling module board for spy center basic
SCBAT-RX-SCB	A259	Battery monitoring system spy center basic receiver
SCBAT-TX	A260	Battery monitoring system transmitter
SCBCONT*	A263	Relay contact
SCBMLE	A264	External module for line monitoring

* Note: in combination with Spy Center Basic > 5000 VA only

5.0 CPSS SPY CENTER BASIC

Compact emergency rescue response unit

CPSS SPY CENTER BASIC is a system developed to provide a power supply with a centralised power source, in compliance with CEI EN 50171.

It can be used to power emergency lighting in case of blackouts, but is also used for:

- Fire prevention systems
- Detection and alarm units
- Smoke extraction devices
- Carbon monoxide detection devices

Technical features

SAFETY AND RELIABILITY
- System designed in compliance with EN 50171
- Overload of up to 120% without autonomy limitation
- 80% battery charge in 12 hours
- Protection against reverse polarity
- VRLA AGM battery - 10-year life expectancy
- Sized in formats from 1 hour, 90 minutes and 2 hours, to 3 hours, with power from 1kVA to 10kVA
- Emergency Power Off (EPO)

SAVINGS AND EFFICIENCY
- Double conversion online typology
- Double output for M and NM load
- Pure sine wave output for powering any load

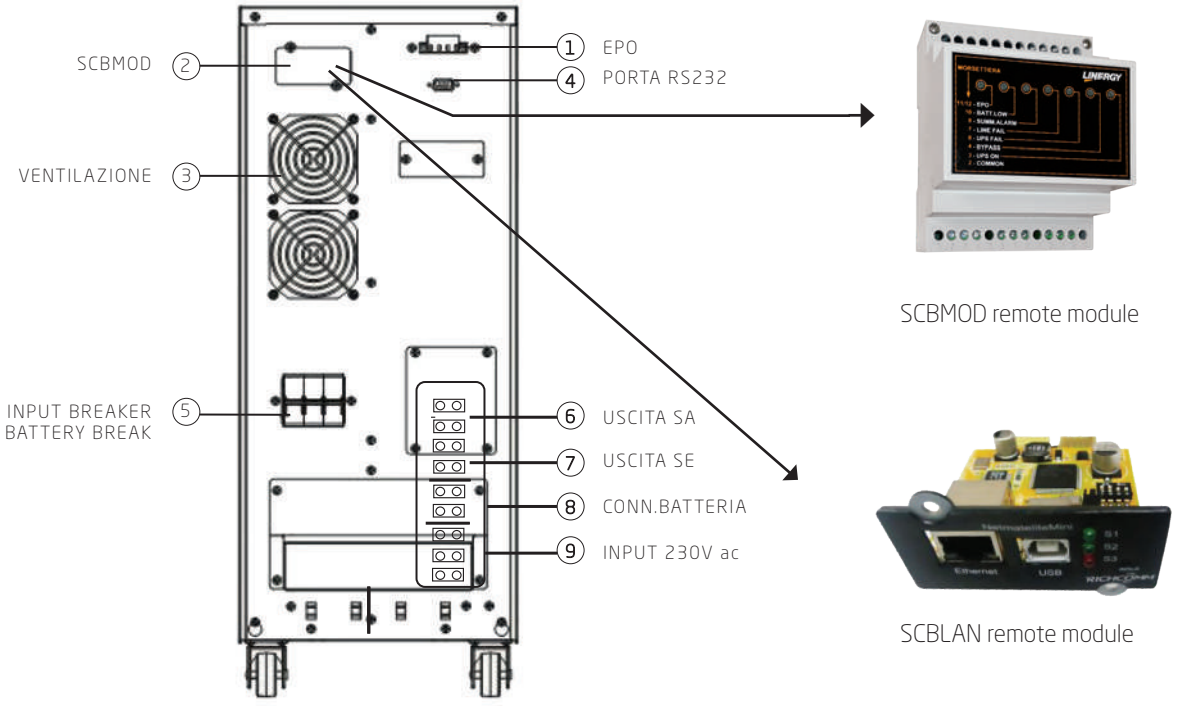
EASY MAINTENANCE
- Replacement of hot batteries, avoiding the system being shut down during maintenance

EVERYTHING UNDER CONTROL
- MODSCBLED external module for signalling and display of the operating status and for signalling status of the Emergency Power Off (EPO)

NEW COLOUR
- RAL 7035 grey

NEW COMPACT DESIGN
- In Tower version

6.0 CPSS SPY CENTER BASIC SCB010 / SCB020 / SCB030 - CONNECTION DETAILS

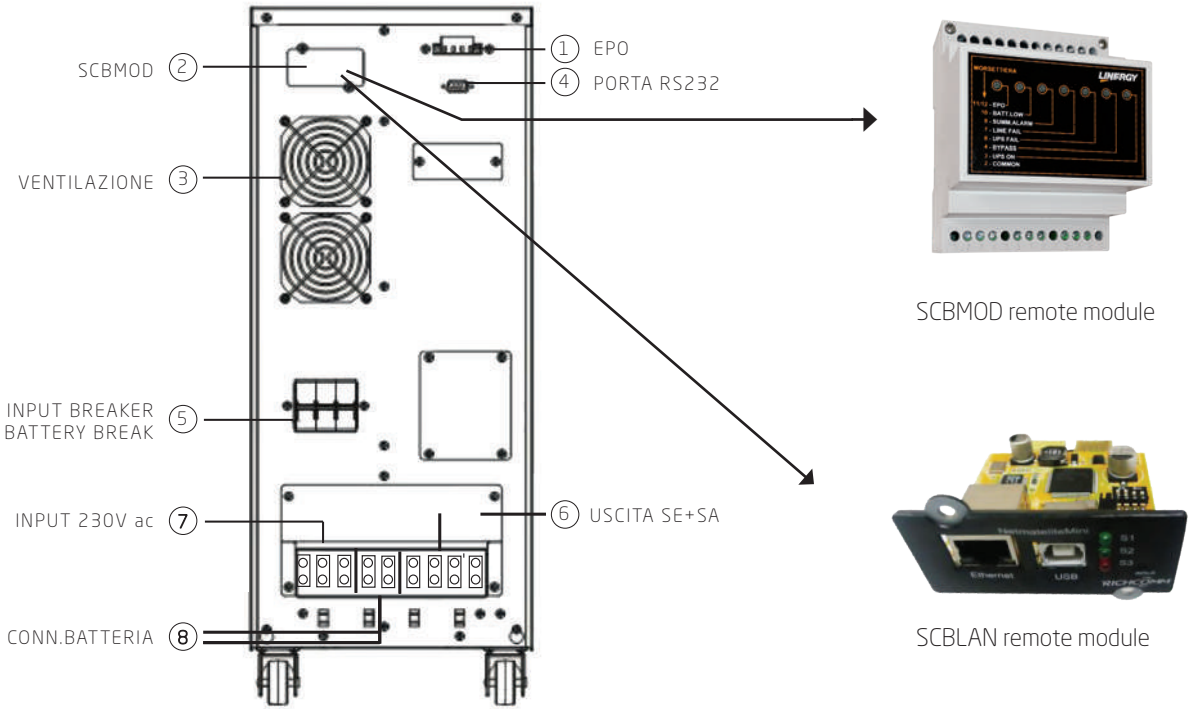


SCBMOD remote module

SCBLAN remote module

Note: SCBLAN module and SCBMOD module can not be ordered for the same product

7.0 CPSS SPY CENTER BASIC SCB050 / SCB060 / SCB080 / SCB100 - CONNECTION DETAILS



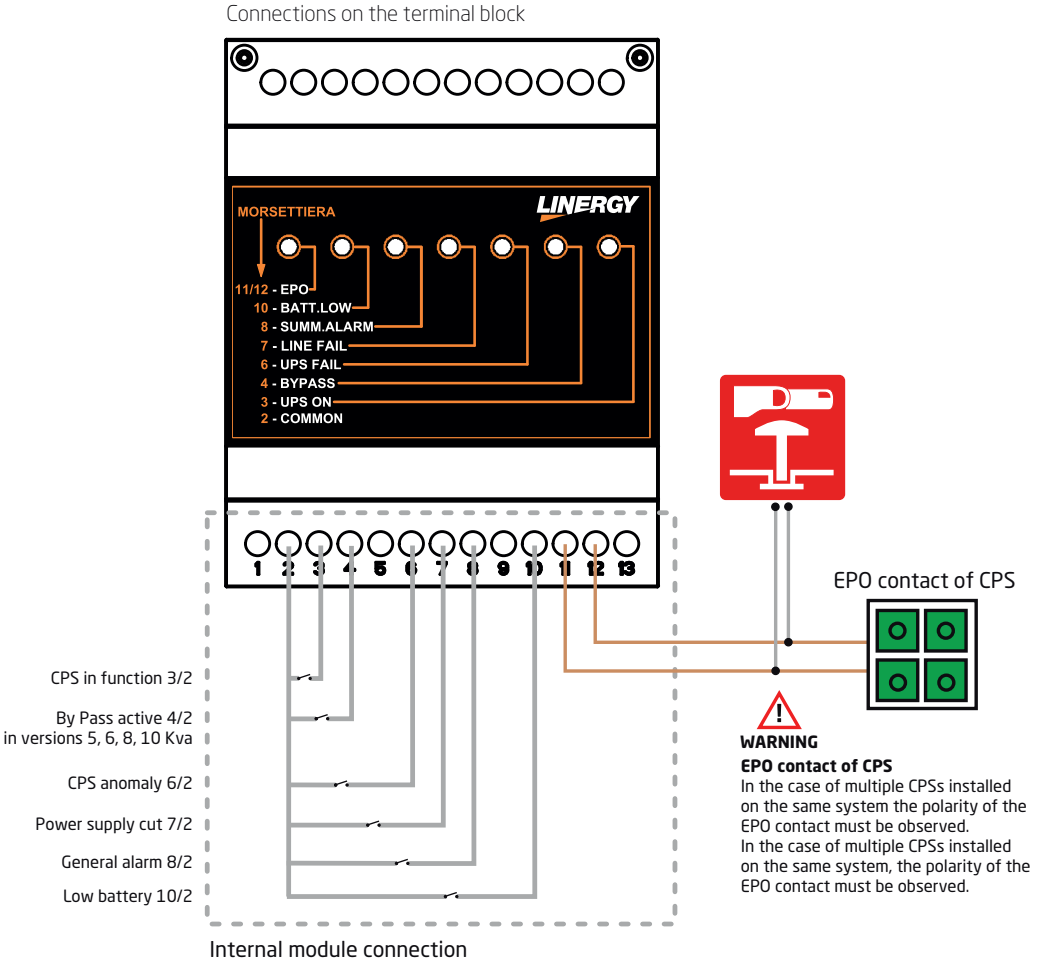
SCBMOD remote module

SCBLAN remote module

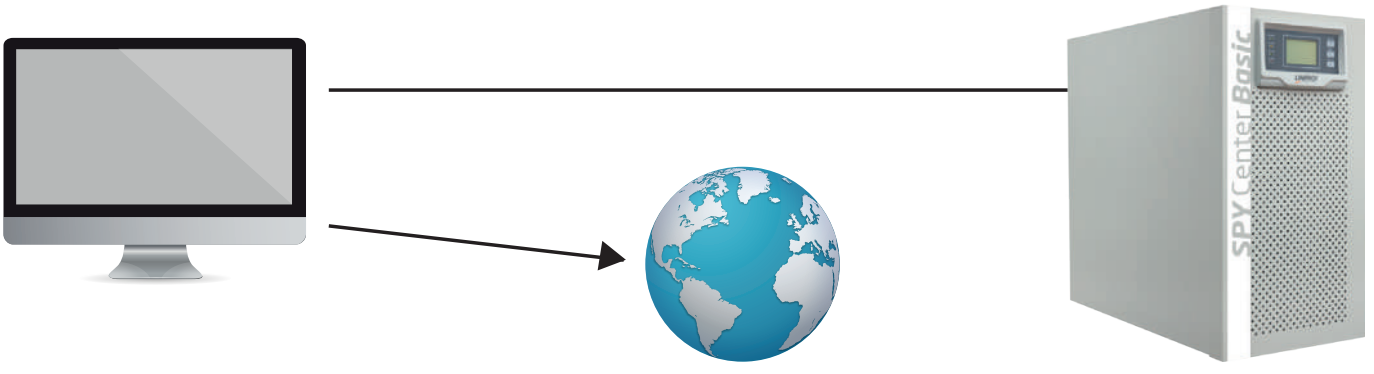
Note: SCBLAN module and SCBMOD module can not be ordered for the same product

8.0 SCBMOD - MODULE FOR REMOTE MANAGEMENT VIA RS232

SCBMOD module enables remote control of status signals via relays.
SPY CENTER BASIC operating status signalling with 7 LEDs/CONTACTS.



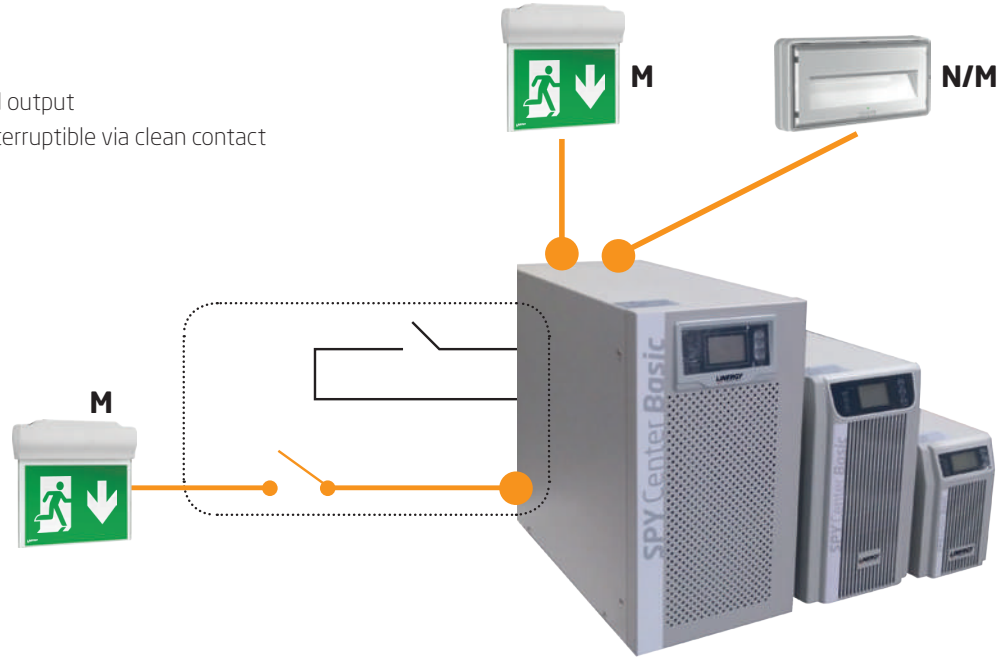
8.1 SCBLAN - MODULE FOR REMOTE MANAGEMENT VIA ETHERNET



9.0 SCBCONT - INTERRUPTIBLE PERMANENT LINE VIA CLEAN CONTACT (NORMALLY OPEN)

CPS inverter unit

Type online double convertion
LCD display visualizes status
Maintainded and not maintained output
Additional permanent output interruptible via clean contact (normally open)



Battery box line

Customizable according to the requested duration
Wheels allows to move the battery box

10.0 BATTERY LOG - BATTERY MONITORING SYSTEMS

The battery LOG is a system for monitoring sealed lead batteries inside the SPY CENTER and SPY CENTER BASIC rescue response units.
The system consists of TRANSMITTER modules connected to each battery, a module mounted on the BATTERY BOX, in the case of Spy Center Basic, and on the synoptic panel in the case of Spy Center.
The TRANSMITTER module and the RECEIVER module have two LEDs for signalling the operating status of each individual mono-block.

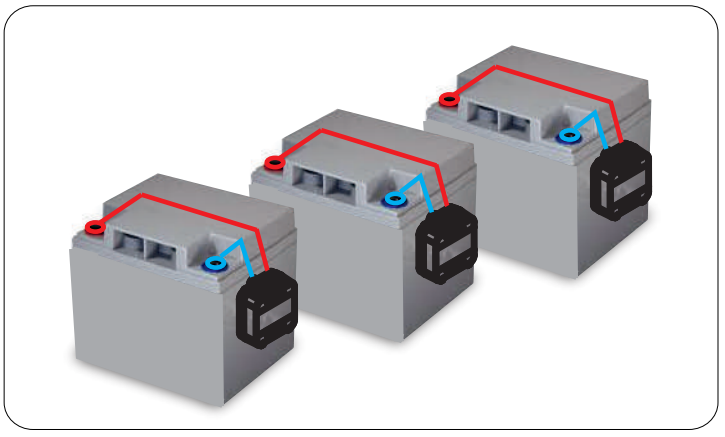


Fig. 1 TRANSMITTER MODULE
Mounted on BATTERIES

Fig. 2 RECEIVER MODULES
Mounted on BATTERY BOX

10.1 INDICATION OF POSSIBLE STATUSES

CONSTANT GREEN LED
The battery is in perfect working order and its operating voltage is correct.

CONSTANT GREEN LED + SLOW FLASHING RED LED
The battery voltage is below the normal operating threshold and may destabilise the entire battery pack.

CONSTANT GREEN LED + FAST FLASHING RED LED
The battery voltage is above the normal operating threshold and may destabilise the entire battery pack, causing the accumulator to overheat and resulting in a damaged battery.

GREEN AND RED FLASHING LED
The temperature inside the box is above the operating threshold (over 38°C).

LED SIGNALLING STATUS

- **Red**
  Battery anomaly
- **Green**
  Battery ok

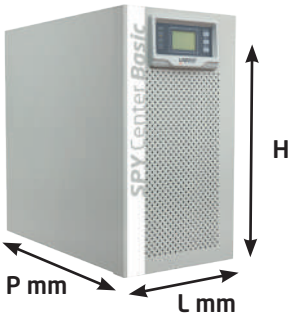
BATTERY BOX

SPY CENTER BASIC

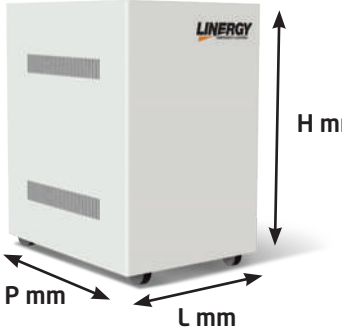
11.0 SPY CENTER BASIC

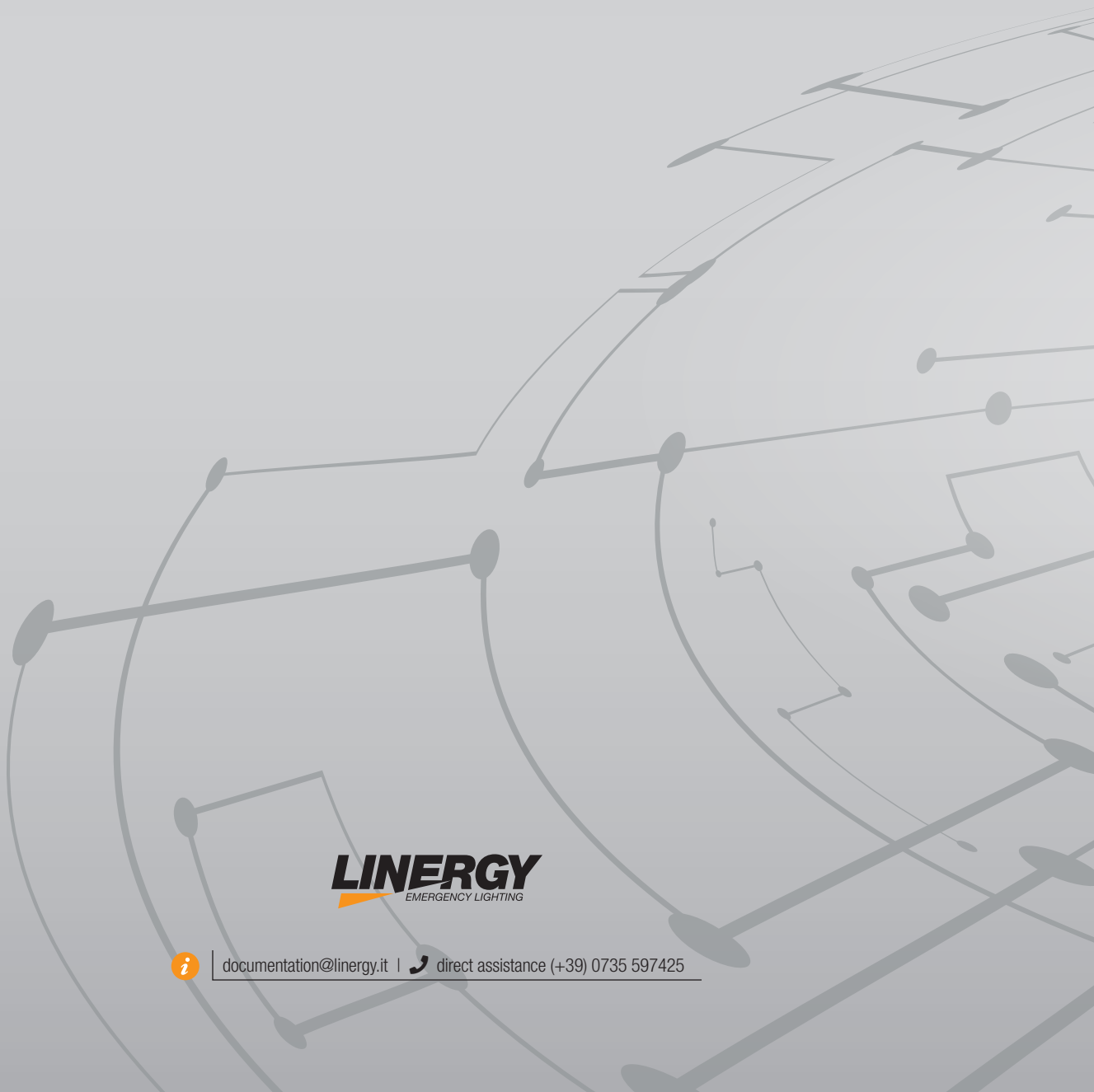
MODELS	SCB010P10 SCB010P20 SCB010P30	SCB020P10 SCB020P20 SCB020P30	SCB030P10 SCB030P20 SCB030P30	SCB050P10 SCB050P20 SCB050P30	SCB060P10 SCB060P20 SCB060P30	SCB080P10 SCB080P20 SCB080P30	SCB100P10 SCB100P20 SCB100P30
ONLINE typology	✓	✓	✓	✓	✓	✓	✓
Single-phase INPUT/OUTPUT Single-phase	✓	✓	✓	✓	✓	✓	✓
Complying with EN 50171 - 50272-2	✓	✓	✓	✓	✓	✓	✓
Double Output N/M+M	✓	✓	✓	✓	✓	✓	✓
Nominal power	1KVA	2KVA	3KVA	5KVA	6KVA	8KVA	10KVA
Active power	600W	1200W	1800W	2800W	4200W	5600W	7000W
Autonomy 1 hour, 30 min	✓	✓	✓	✓	✓	✓	✓
Emergency off using EPO button	✓	✓	✓	✓	✓	✓	✓
Type: SINGLE-PHASE + ground	✓	✓	✓	✓	✓	✓	✓
Intervention time = 0	✓	✓	✓	✓	✓	✓	✓
Overload: 120% unlimited	✓	✓	✓	✓	✓	✓	✓
VRLA AGM lead sealed batteries with 10-year life expectancy	✓	✓	✓	✓	✓	✓	✓
SPY CENTER BASIC MODELS	**SCB010**	**SCB020**	**SCB030**	**SCB050**	**SCB060**	**SCB080**	**SCB100**
Dimensions (mm)	150 L 210 H 390 P	190 L 350 H 450 P	190 L 350 H 450 P	570 L 717 H 260 P	570 L 717 H 260 P	570 L 717 H 260 P	570 L 717 H 260 P
SPY CENTER BASIC MODELS	**SCB010P10**	**SCB020P10**	**SCB030P10**	**SCB050P10**	**SCB060P10**	**SCB080P10**	**SCB100P10**
Battery box dimensions (mm)	600 L 400 H 450 P	600 L 750 H 450 P	600 L 750 H 450 P	780 L 750 H 450 P	780 L 750 H 450 P	780 L 1350 H 450 P	780 L 1350 H 450 P
SPY CENTER BASIC MODELS	**SCB010P20**	**SCB020P20**	**SCB030P20**	**SCB050P20**	**SCB060P20**	**SCB080P20**	**SCB100P20**
Battery box dimensions (mm)	600 L 400 H 450 P	600 L 750 H 450 P	780 L 750 H 450 P	780 L 1350 H 450 P	780 L 1350 H 450 P	780 L 1350 H 450 P	780 L 1350 H 450 P
SPY CENTER BASIC MODELS	**SCB010P30**	**SCB020P30**	**SCB030P30**	**SCB050P30**	**SCB060P30**	**SCB080P30**	**SCB100P30**
Battery box dimensions (mm)	600 L 750 H 450 P	780 L 750 H 450 P	780 L 750 H 450 P	780 L 1350 H 450 P	780 L 1350 H 450 P	(780 L 1350 H 450 P) 2x	(780 L 1350 H 450 P) 2x

SPY SYSTEM BASIC



BATTERY BOX





LINERGY
EMERGENCY LIGHTING

documentation@linergy.it | direct assistance (+39) 0735 597425