EMERGI-LITE

EMEX Central Power Supply Systems Catalogue

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EMERGI-LITE

The Emergi-Lite portfolio from Thomas & Betts delivers a highly versatile choice of emergency lighting and fire detection products and systems for a wide range of applications. Our aim is to enable customers to achieve the maximum benefit in investment. This is gained through product design, for quick and simple installation with inherent energy efficiency and minimum maintenance, whilst keeping the protection and safety of human life paramount.

Since 1998, the Emergi-Lite brand has been included in the product portfolio of the Thomas & Betts Corporation.

In 1898 Thomas & Betts was founded in New York. The corporate headquarters now reside in Memphis, Tennessee with the company being listed on the New York stock exchange. Thomas & Betts has now over 100 years of experience of successfully supplying quality products to the market by using innovative design and manufacturing techniques. A truly global player having a presence in Europe, North & Central America, Australia and the Far & Middle East. Worldwide 13,000 employees are dedicated to ensuring that Thomas & Betts is fast, flexible and customer focussed.

Whilst one of our main businesses remains in the electrical products, principally Emergency Lighting and Fire Detection Systems, Thomas & Betts also has leading brands along with significant market share in Steel Structures, Communications, Electronic Systems Protection and Earthing & Lightning Protection.

In recent years, Thomas & Betts has developed a formidable European safety products division, the principal products of which are emergency lighting and fire detection systems. This division serves as a key knowledge platform. Emergi-Lite being one of the leading brands within this division, benefits from the economies of scale in product development and production, facilitating the efficient further development of emergency lighting and fire detection technology.

Contents

FM09470

Welcome to Emergi-Lite

When choosing a partner for emergency lighting, you need a supplier capable of delivering a solution whenever the need arises, whether you're planning a new build project, overseeing an installation, or considering renewal of a long-standing system.

By choosing Emergi-Lite as your emergency lighting partner, you'll be placing your projects, your systems, and essentially your people, in safe hands.

Emergi-Lite is a leading life safety solutions provider, delivering state-of-the-art systems and products into the emergency lighting marketplace.

Emergi-Lite focuses on supporting our customers at all points of the emergency lighting life-cycle, whether planning, installing, managing or renewing:

Planning
From project consultations at customer premises, to drafting certified technical drawings, Emergi-Lite is ready to support all your emergency lighting needs.

Installing
The right products, delivered at the right time, to ensure your installations run smoothly - on time and on budget.

Managing
The clear and precise after-sales support you would expect from a leading emergency lighting supplier, including servicing, maintenance and readily-available replacement parts.

Renewing
Keeping you up-to-date with the latest standards, industry developments and new product innovations, making renewing your emergency lighting a simple, straightforward process.

Emergi-Lite: with you every step of the emergency lighting process



What is a Central Power Supply System?

A Central Power Supply System (CPS) is essentially a large set of batteries at a single central location. In the event of a mains failure in the building, the batteries are used to provide power for emergency lighting purposes.

The CPS comprises the battery set, battery charger, control circuitry, alarms and instrumentation to ensure reliable provision of emergency power when required.

The CPS output will typically be 24V, 50V, 110V, or 220/230/240/380/400V, according to type.

Output is usually AC/DC for the lower voltages, and AC when mains voltage.

The CPS will be sized according to the load required. The battery will be rated to achieve a specified duration, typically 1, 2, or 3 hours.

A larger project may use one single large CPS, or a number of smaller CPS units.

How does it work?

The CPS effectively stores energy in the battery set whilst the mains supply is healthy, and draws upon this reserve when required in times of mains failure. If the failure is limited to part of the building (local), the CPS may provide power using its incoming supply without discharging the battery.

Mains failures are detected by sub-circuit monitoring relays to ensure the automatic, fail-safe operation of the emergency lighting. These are situated around the building where required, or may be located within the CPS itself.

Power from the CPS is distributed to dedicated emergency luminaires and exit signs, or converted slave 230V luminaires. Standard, unmodified slave 230V luminaires can be used on a mains-voltage CPS.

Distribution cables need to be fire protected, according to local regulations and/or risk assessment.

Who decides?

The voltage of the CPS is influenced by the size and nature of the project. The final decision may be taken by the consultant, end user, or contractor.

The duration or autonomy of the CPS is often dictated by national Standards (eg BS 5266), or local authority requirements.

What are its benefits?

A CPS system gives a higher light output per point when compared to a self-contained installation, and therefore will use fewer emergency lights per area.

A CPS solution offers great savings in ongoing testing, maintenance, and replacement battery costs when compared to a self-contained emergency lighting installation.

Why choose central power supply?

Principle types of emergency lighting system are 'self-contained' or 'centrally fed'

In a self-contained system, each emergency luminaire has an on-board battery and charger unit.

A Central Power Supply System operates on the principle that the luminaires are fed, via sub-distribution, from a single supply source.

Self-contained System

Batteries/charger contained in individual luminaires

Advantages

- Simple installation
- No special cabling

Disadvantages

- Limited light output
- Multi-point maintenance
- Battery replacement 3 – 5 years
- System design life 15 years maximum

In the first 3 years of life, few battery faults would be expected, provided a test and maintenance schedule (manual walk test at least) was in place.

A self-contained system is economic for smaller installations with a limited total number of luminaires. A typical self-contained emergency power pack has an operational design life of 10 – 15 years, and will require a replacement battery every 3 – 5 years. The installation is straightforward and, by definition, each luminaire is installed and maintained independently of all others on the site.

After this period the instance of battery failures may increase, resulting in the possibility of further unplanned maintenance visits to replace battery sets. After 5 years the incidence of such piecemeal activity may cause the client to consider a full battery replacement programme. However, the fact that some batteries may have been replaced already in recent times raises a dilemma. Either, you can replace all batteries 'en masse' ignoring the waste of potentially good batteries and previous labour efforts, or you could continue with the fragmented maintenance approach (causing irregular future disruption to the building occupier).

It can be considered that self-contained products will require 2 or more complete sets of replacement batteries during the first 10 years of operation. In less than 15 years the likelihood would be that a self-contained system would be 'life-expired' leading to the need for a completely new set of luminaires.

It should be noted here, that a more rigorous and beneficial planned maintenance schedule can be achieved, albeit at a higher initial product cost, utilising a suitable automatic or controlled test and monitoring system, to check the luminaires and their batteries ('Centrel' or IR2: available from Emergi-Lite).

Central Power Supply System

Batteries/charger at central location

Advantages

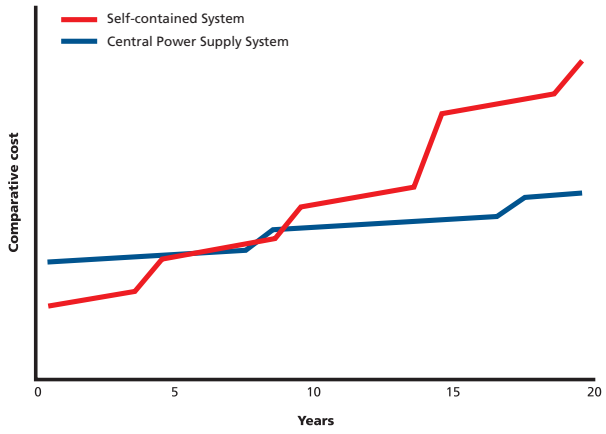
- Improved light output
- Centralised maintenance, minimum disruption
- Battery replacement 8 – 10 years
- System design life 20+ years

Disadvantages

- Fire protected cable may be required (subject to local regulations)

A Central Power Supply System has a design life of 20 years or more, and would typically require battery replacement in 8 – 10 years (depending on battery type). Maintenance requirements are centralised, minimising costs and disruption to the occupier. Furthermore, when battery replacement is required, it is only needed at the single central location and can be accomplished in a single visit with minimum disruption to the occupier.

Taking a typical large installation it can be seen that the lower initial purchase and installation cost of a self-contained system is soon countered by the cost of maintenance requirements and frequent battery replacement, when compared to a Central Power Supply System.



Comparative cost of purchasing and running Self-contained and Central Power Supply Systems

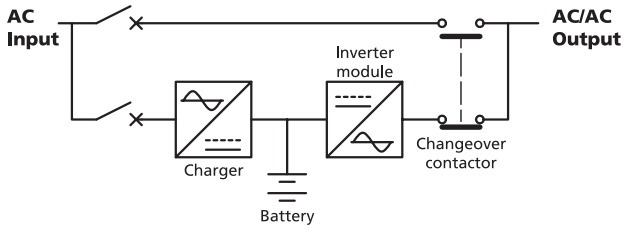


Central systems fall into two categories – AC/AC static inverter systems and AC/DC power supply systems. Both types of central system operate on the same principle; that the luminaire is fed, via emergency sub-distribution, from a single supply source (the central system). The term 'static inverter' is derived from the lack of moving parts within the equipment, as opposed to rotary motor/generator converter designs.

Central systems allow a wide range of batteries to be used, which offer different life expectancies against physical size and cost, localised battery/equipment maintenance, flexible lighting design and greater light output per luminaire.

Static Inverter Systems (AC/AC)

Static inverter systems operate in a similar manner to AC/DC Central Power Supply Systems, with the exception that the system constantly gives a 230V AC output. The advantages of this approach are numerous. Firstly, luminaires do not need to be converted, as any slave 230V luminaire can be used (there are some restrictions to this on the grounds of suitability for emergency lighting). Luminaires also operate at full light output, as they are being fed from a full mains voltage supply, meaning fewer luminaires are required for equivalent light outputs.



Advantages

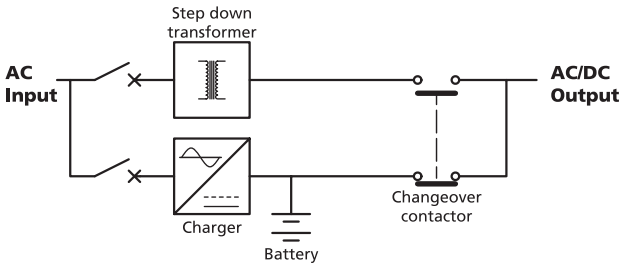
- Suitable for medium to large installations
- Almost any luminaire may be used
- Easy to maintain
- 10 to 25 year design life batteries
- Distribution is standard 230V AC (standard DBs)
- Reduced volt-drop problems on output cabling
- Luminaires operate at full light output which makes inverter systems suitable for high risk task area lighting and installations where ceiling heights make low output luminaires unusable

Disadvantages

- Not cost effective for small installations
- Larger systems are physically large and may require special battery room

Central Power Supply Systems (AC/DC)

Central Power Supply Systems provide low voltage AC power (nominally 24V, 50V or 110V AC) whilst mains to the system is healthy, and low voltage DC (of the same voltage) when mains fails. The battery voltage selected will depend upon the number of luminaires, the rating, their type and their distance from the central system. Central Power Supply Systems require each emergency luminaire to be converted for use on the low voltage supply. The cost of this conversion may be prohibitive on larger installations. Another important factor is that converted luminaires only provide a small percentage of their normal light output when running in emergency mode.



Advantages

- Reduced cost for smaller installations
- Small physical size
- Easy to maintain
- 5 to 25 year design life batteries

Disadvantages

- Not cost effective for large numbers of luminaires
- Cable restrictions to avoid volt-drop
- Luminaires must be converted for use on AC/DC
- Reduced light output in emergency mode

Choosing the right system

There are a variety of ways in which back-up power can be provided. However, even though certain methods are suitable for critical applications, they may not necessarily be suitable for Emergency Lighting.

This is because an Emergency Lighting system has unique load characteristics. And since Emergency Lighting is a critical life-safety installation it is vital that a Central Power Supply System provided to power it is designed with these load characteristics in mind.

EMEX Power central inverter systems are specifically designed to provide emergency power for lighting systems in a mains fail or evacuation situation.

In choosing the right AC system to support emergency lighting it is important to consider the following questions:

Overload performance

BS EN 50171 requires that an inverter must be able to start the full load without the mains supply present. How does the system perform in a total power failure (ie is the system able to start the load without the bypass supply being available)?

Repeat duty

BS EN 50171 requires a Central Power Supply System to fully recharge within 24 hours. Is the charger able to recharge the batteries sufficiently quickly (80% in 12 hours or 100% after 24 hours)?

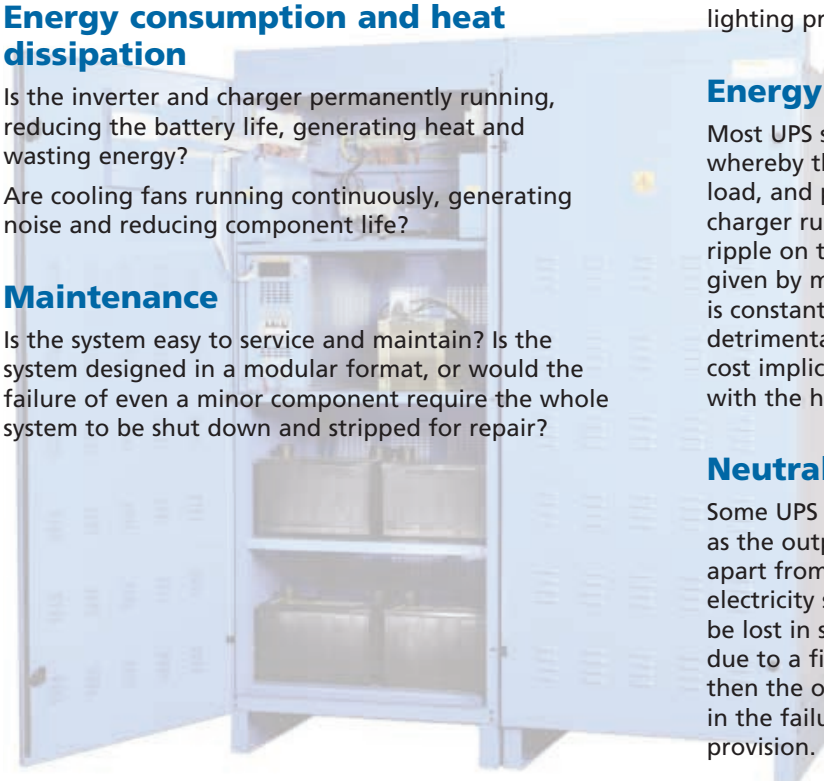
Energy consumption and heat dissipation

Is the inverter and charger permanently running, reducing the battery life, generating heat and wasting energy?

Are cooling fans running continuously, generating noise and reducing component life?

Maintenance

Is the system easy to service and maintain? Is the system designed in a modular format, or would the failure of even a minor component require the whole system to be shut down and stripped for repair?



General information on Uninterruptible Power Supply (UPS) systems, for guidance:

Recharge period

UPS systems which are designed primarily for computer back-up generally offer short back-up times, and consequentially employ small chargers. To provide the longer durations specified for emergency lighting, a much larger capacity battery is fitted. However, if the charger is not uprated then the system will not be capable of recharging sufficiently quickly. Hence the battery rating is sometimes increased even further so that it is not fully discharged at the end of the rated duration period (and is thus capable of "repeat duty" with limited further recharge). This results in a much larger system that is actually required for the load, increasing both the physical space required and future battery replacement costs.

Overload and short circuit performance

An emergency lighting load imposes large 'in-rush' currents when starting lamps from cold. However, UPS systems are often designed to shut down at only 125% overload and revert to the incoming supply. During a total power failure situation, this could result in total failure of the emergency lighting system. Furthermore, a UPS may fail to clear a protective device on a lighting circuit, meaning that a single short circuit fault could result in loss of the entire emergency lighting provision.

Energy consumption and battery life

Most UPS systems operate in the 'on-line' mode, whereby the inverter runs constantly to supply the load, and power is taken from the battery with the charger running constantly. This places an excessive ripple on the battery (in contravention of the advice given by most battery manufacturers). Also, the system is constantly generating heat which has a further detrimental effect on battery life. There are energy cost implications to run an on-line system, and deal with the heat generated.

Neutral isolation

Some UPS systems use the incoming neutral conductor as the output neutral, with no isolation. Quite apart from that fact that this does not comply with electricity supply regulations, should the input neutral be lost in some way (for example if it were broken due to a fire or other physical damage to the building) then the output neutral would also be lost, resulting in the failure of the entire emergency lighting provision.

EMEX Mini

Central Power Supply System

Space saving and high performance

Features and benefits

- True AC/AC 50Hz output
- 1.5kVA rating with 525W for 3 hours, 700W for 2 hours and 1200W for 1 hour
- Ability to use standard proprietary AC distribution and protection devices on outgoing circuits
- Compatibility with addressable test package using EMEX technology
- Excellent overload capability in full emergency mode
- Excellent recharge capability: 80% after 12-14 hours following rated discharge
- MCB protection throughout – no fuses
- Individual MCB protection – AC and DC circuits
- Cooling with on-demand operation (not continuously running)
- Integral maintenance bypass facility (ability to support output load in bypass mode whilst maintenance is performed)
- Maintained output as standard (switchable to non-maintained)
- IP21 rate cabinet as standard
- Easy front panel access
- Simple installation

EMEX Mini specification

Part No	ELD8000.015
Description	Static Inverter EMEX Mini 1.5kVA 1-3H SPN

Mains supply

Voltage	230V to UK standards
Frequency	50/60Hz
Phase	1 phase
Current	10A Max

Output (Mains Healthy)

Voltage	230V (as supply)
Power	1500VA
Phase	1

Inverter output

Voltage	230V
Frequency	50/60Hz
Duration	1, 2 or 3 hour(s)
THD	< 5%
Waveform	Sinusoidal
Power factor range	0.9 lead to 0.7 lag
Phase	1

Inverter nominal rating

VA	1,500 VA
Wattage	1200W 1 hour
Wattage	700W 2 hours
Wattage	525W 3 hours

Battery

Ampere hour	24 Ah
Type	Valve regulated lead acid (VRLA)

Physical dimensions

Input terminals	2.5mm
Output terminals	2.5mm
Auxiliary terminals	2.5mm
Cabinet	610mm wide x 240mm deep x 1210mm tall
Weight (Including battery)	166kg Top entry gland plate

LED indications

Mains healthy
Supply from battery (mains failure or fault)

Meters

Non-optional extra

EMEX Power

Modular AC/AC Central Power Supply System

KM542294

Modular AC/AC Central Power Supply System

KM542294

System design

The EMEX Power inverter and charger modules utilise solid state electronics of the highest reliability to provide a rugged, easy to maintain system with exceptional performance for emergency lighting use. The system has been designed solely for emergency lighting, and not modified from other less essential power supply requirements. As such, the system has exceptional overload performance without the need to over-specify the rating of the inverter to ensure faults can be cleared.

Each module has input and output protection and each module measures and limits its own current, making it a self-contained unit.

Alarms and status indicators are provided on the front panel display, which provides clear and concise information, rather than a long list of parameters, which may be confusing.

EMEX Power cabinets require no side ventilation therefore are easy to install in virtually any plant room

System performance

EMEX Power has been designed to operate solely as an emergency lighting power supply, and as such is equipped with the following features:

- An overload performance of 120% continuous, 150% for 1 minute and 200% for 10 seconds without reduction in output voltage
- Short-circuit currents of 350% for 5 seconds
- The ability to strike the full load on mains failure without using a bypass supply
- Four pole contactor complying with BS 5424
- Available in single phase input/output, true three phase input – three phase output (4 wire)

Quality assurance

Designed and manufactured in the UK, EMEX Power marries cutting edge design to quality components and assured build quality. This results in products providing both high performance and reliability. Constant product development by dedicated in-house engineers ensures Emergi-Lite Central Power Supply Systems will always meet even the most stringent demands.

"The Emergi-Lite EMEX Power central inverter systems are designed to provide safe, reliable operation and certified to meet the requirements ofICEL 1009 and BS EN50171"



The cabinet

The cabinet has been engineered to allow the housing of the inverter and charger modules, battery or a combination of both.

All connections are in the top control section of the cabinet. A top entry gland plate is provided for ease of installation, as is inter-cabinet steel trunking to allow safe connection of battery cables between control and battery cabinets.

All cabinets have an integral lifting frame and are supplied with lifting eye bolts fitted to allow crane lifting. Cabinets also have an integrated plinth for fork-lift or pallet truck.

Entry to equipment is via the front door only, allowing the cabinet to be located directly against wall at sides and rear ie can be located in corner of room. Cubicle spacers are provided to prevent equipment located direct to wall with no ventilation space (75mm required at rear).

System modules

EMEX Power utilises standard modules to give reliable operation, reduces the need to carry extensive and costly spares and gives a ‘low mean’ time to repair.

Both the inverter AND the charger utilise this modular approach, allowing a much higher power density than similar non-modular systems. The number of modules fitted, together with the appropriate sized battery, determines the rating of the system.

All modules connect to a common control bus via IDC connectors. Main connections to modules are via five front panel terminals giving quick and easy access to terminations, allowing a module to be changed in a matter of minutes.

Each module has two recessed handles to aid lifting. No side or rear access is required.

EMEX power

“Modular design aspect allows flexible configuration of single phase input/output and true three phase input/output (4 wire)”

System benefits

Benefits for the installer

- EMEX Power installation is easy and trouble free. All tools required to install and maintain the system are included (insulated battery spanner, Allen key, etc)
- All cables are provided
- Inter-cabinet trunking connects adjacent cabinets allowing battery cables to safely pass between battery and control cabinets without the need for an external cable tray. All cabinets are pre-drilled and rubber grommets are fitted for battery cables
- The battery voltage does not exceed 120V DC. Larger systems utilise banks of batteries in parallel, each with its own circuit breaker in the control cabinet. There is no high DC voltage (some inverter systems utilise battery voltages up to 600V DC)
- A large top entry gland plate provides enough room for all connection needs
- Cabinet levelling feet available to cope with uneven floors
- A comprehensive 12 page instruction manual is included showing all battery connections, full electrical schematic and commissioning instructions
- All cabinets are supplied with lifting eyes and have been certified for crane lifting, even when full. Alternatively, a 110mm plinth is fitted to all cabinets to allow fork-lift access
- No side ventilation is required. Cabinets can be positioned directly adjacent to walls and other cabinets. This reduces floor space requirements in the plant room
- Equipment is supplied 'Ready to install'. Simply connect the mains supply, battery and output circuits

Benefits for the end-user

- Emergi-Lite is the manufacturer of the system, providing a single source of technical support, spares, service and repair
- All equipment is designed and manufactured at our Leeds facility in the UK
- EMEX Power operates in a low power mode; the load is supplied via the incoming mains supply, with the inverter on standby for immediate start. This can provide substantial cost savings for the customer, as the inverter is not running continuously, generating waste heat that has an effect on battery life. Cooling fans only operate when on load and are high reliability types
- Minimal servicing is required on the inverter system, reducing maintenance costs. Greater savings on maintenance can be made if the inverter system is integrated with an automatic testing system
- EMEX Power is built around five major components; master inverter module, slave inverter module, charger module, changeover contactor and display unit. Regardless of the number of systems on a site, spares holding will be similar for all systems. This greatly reduces spares cost
- Owing to the modular nature of the entire system, any component can be replaced in approximately 15 minutes, reducing down time should a fault occur
- 'Distributed System' modular concept – It could be possible that all the emergency lighting is lost owing to a single Central Power Supply System failure. The EMEX Power modular format, however, allows the user to design different sizes of system into the scheme, thus overcoming the potential risk. This 'distributed' concept, where several smaller units (5KVA for example) replace a larger single 20KVA unit, is a worthy and practicable consideration where circumstances suit
- No fuses are used in the system. All fault devices are miniature circuit breakers. This gives easy correction of overload tripping without the need to search for replacement fuses. An alarm is raised if ANY circuit breaker trips. This scheme can be extended to remote distribution boards if required
- Equipment is designed solely for emergency lighting, and is not modified as a secondary consideration. This gives the customer peace of mind that the equipment is suitable for this important task
- On request special systems can be supplied part populated for expansion later, reducing initial capital cost



Standard features: EMEX Power system overview

EMEX Power offers a host of standard features and benefits, as listed below. Note that some items will be optional, extra cost items on other systems, or may not be available at all if the system is not designed specifically and solely for emergency lighting use.

For further detail, please refer to the 'EMEX Power detailed specification' on page 84.

Performance

- True AC/AC 50/60Hz output
- Ability to use remote standard proprietary AC distribution and protection devices on outgoing circuits
- Rated for any load power factor, zero to unity, at any output power up to the maximum rated KVA
- Compatibility with addressable test package using EMEX technology
- Excellent Overload Capability in full emergency mode: 200% for 10 seconds without reduction in output voltage
- Excellent recharge capability: 80% after 12 hours following rated discharge
- MCB protection throughout – no fuses
- EMEX Power true modular construction with common spares (inverter, charger, control PCB, and system interface common across the full system range)
- Individual MCB protection for each module - AC and DC circuits
- Individual cooling fans for each module with on-demand operation (not continuously running)
- Split parallel charger above 10 amps – enhanced integrity with the ability to operate with one or more charger modules isolated (subject to increased recharge time)
- Integral maintenance bypass facility (ability to support output load in bypass mode whilst maintenance is performed)
- Temperature compensated charger
- Maintained output as standard (switchable to non-maintained)

Alarms and instrumentation

- Comprehensive display
- Charger and inverter alarm pack
- Momentary "push to test" button
- Fire alarm interface
- Final exit interlock
- Internal and external MCB monitoring
- Local/remote maintained circuit control
- Sub-circuit monitor connection
- Two sets of volt-free alarm relay contacts
- Inverter-inhibit engineers' switch
- Remote Alarm Unit option

Mechanical

- IP21 rated cabinet as standard
- Easy front panel access
- Inter-cabinet trunking for battery cables
- Fork-lift plinth
- Lifting eyes for crane lift as standard
- Installation pack with all tools required
- Detailed instruction manual

Batteries

Standard systems are supplied with Valve Regulated Lead Acid (VRLA) batteries, also known as 'Sealed Lead Acid'. These batteries are sealed for their design life of 10 years.

Lead Acid Planté and Nickel Cadmium batteries are available upon request, however, these batteries require a much larger physical area, and emit potentially explosive gases, meaning the battery room must be adequately ventilated.

These reasons, along with the additional capital cost, generally outweigh the additional life obtained, as demonstrated below.

Battery	Initial cost	Design life	Maintenance
VRLA	ff	YY	ff
Ni-CAD	fffff	YYYYY	fffff
Planté	ffff	YYYY	ffff

Choosing the right system

Design of centrally-powered emergency lighting systems is a complex process. For each system, it is imperative that sufficient battery power is made available to operate all emergency luminaires in the event of a mains failure. Selecting a sufficiently powerful system at the outset is key to avoiding increased costs or revised installation requirements at a later point in the project.

Emergi-Lite's Central Power Supply Department has substantial experience of designing Central Power Supply Systems and of providing technical advice on all aspects of centrally-powered emergency lighting schemes. Our team of engineers provides comprehensive support to parties involved in scheme design and is available to assess your specific requirements and prepare a relevant quotation as required.

To discuss your requirements in detail please contact our Central Power Supply Department on +44 (0)113 281 0600. To assist our engineers, consideration should be given to the following to help specify the level of CPS required.

Luminaire specification

To determine the size of CPS required, our engineers will need the following information about the luminaires intended for the emergency lighting scheme:

- Luminaire type & manufacturer (including luminaire part numbers if available)
- Quantity of luminaires in the scheme (per type)
- Luminaire wattage for each luminaire type – note: particular attention should be given to low wattage luminaires not operating to unity power factor

Central power unit specification

Emergi-Lite EMEX Central Power Supply Systems are dual rated to allow selection of an appropriate system to either commercial or ICEL ratings. First consideration in system selection should therefore be to decide the preferred rating for the CPS – ICEL or commercial.

ICEL rated systems are de-rated by 20% from their commercial equivalent system. In effect, these systems include 20% spare capacity to provide the system designer/installer opportunity to incorporate additional luminaires into the emergency lighting scheme at a later date, without compromising the power supply.

Second consideration is to determine the size of central power unit required. From the luminaire data supplied, Emergi-Lite's CPS department can advise the most appropriate size of CPS unit from our standard range of static inverters displayed on page 14. Note, higher rated systems require multiple cabinets to be installed and therefore consideration should be given to the space these cabinets will require. Calculation of space requirements is straightforward as Emergi-Lite only supply one standard size of cabinet – as shown below.

Finally, consider the additional components required. Emergi-Lite offers two types of standard unit, EMEX Power or EMEX TS, as shown on page 13, plus a range of EMEX Test components on pages 21 & 22 for enhanced management and monitoring of the CPS.

Cabinet size

Standard cabinet size is 750mm wide x 650mm deep x 1800mm tall. For larger installations, cabinets are mounted side by **side** to provide sufficient accommodation for the batteries.

Overall depth of 725mm is required to allow a ventilation gap of 75mm (rubber back-stop provided ensures this distance is maintained). Cabinets may be mounted side-by-side since no side ventilation is required.



EMEX Power range of static inverter systems

EMEX Power has been the standard-bearer for centrally-powered emergency lighting systems for many years and continues to offer significant benefits to those considering a Central Power Supply System.

EMEX Power offers true modular construction for easy maintenance and hassle-free replacement of parts, enhanced protection with MCB's throughout (no fuses) and excellent overload and recharge capabilities following a mains failure.

Fully compatible with EMEX Test software and components, EMEX Power offers a comprehensive solution to providing emergency power to large and complex installations.

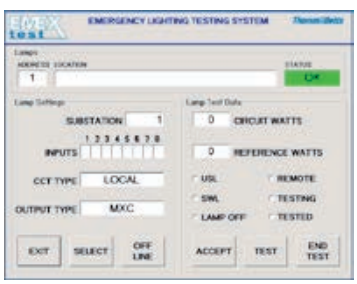
Full details of our standard range of EMEX Power units is provided in the tables on page 14.

EMEX TS range of static inverter systems

EMEX TS offers all the benefits of the EMEX Power range of static inverters with the added benefit of an on-board EMEX Test monitoring capability.

EMEX TS is supplied complete with MXKP addressable interfaces, panel mount touch screen monitor (pre-loaded with EMEX Test software) and LON interface for integration and fault reporting to BMS monitoring equipment.

To select an EMEX TS product, simply add suffix /TS to the standard product order codes (part numbers) on page 14.



EMEX TS power units include integral touch screen monitor

Order codes

EMEX Mini - Single Phase 220-240 V 50/60 Hz

Commercial Rating	ICEL Rating	1 Hour Duration	2 Hour Duration	3 Hour Duration	Emex Mini Part No.
1500VA	1250VA	1200W	725W	525W	ELD8000.015

Note: Emex Mini is a standard rated system for all autonamys shown above, the higher the load the shorter the Autonamy.

0.85 PF Designed Systems

EMEX Power - Single Phase 220-240 V 50/60 Hz

Commercial Rating		ICEL Rating		1 Hour Duration	1.5 Hour Duration	2 Hour Duration	3 Hour Duration
VA	Watts	VA	Watts	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.
1500	1275	1250	1063	ELD9110.015	ELD9151.015	ELD9210.015	ELD9310.015
3000	2550	2500	2125	ELD9110.030	ELD9151.030	ELD9210.030	ELD9310.030
4500	3825	3750	3188	ELD9110.045	ELD9151.045	ELD9210.045	ELD9310.045
6000	5100	5000	4250	ELD9110.060	ELD9151.060	ELD9210.060	ELD9310.060
7500	6375	6250	5313	ELD9110.075	ELD9151.075	ELD9210.075	ELD9310.075
9000	7650	7500	6375	ELD9110.090	ELD9151.090	ELD9210.090	ELD9310.090
10500	8925	8750	7438	ELD9110.105	ELD9151.105	ELD9210.105	ELD9310.105
12000	10200	10000	8500	ELD9110.120	ELD9151.120	ELD9210.120	ELD9310.120
13500	11475	11250	9563	ELD9110.135	ELD9151.135	ELD9210.135	ELD9310.135
15000	12750	12500	10625	ELD9110.150	ELD9151.150	ELD9210.150	ELD9310.150
16500	14025	13750	11688	ELD9110.165	ELD9151.165	ELD9210.165	ELD9310.165
18000	15300	15000	12750	ELD9110.180	ELD9151.180	ELD9210.180	ELD9310.180
19500	16575	16250	13813	ELD9110.195	ELD9151.195	ELD9210.195	ELD9310.195
21000	17850	17500	14875	ELD9110.210	ELD9151.210	ELD9210.210	ELD9310.210
22500	19125	18750	15938	ELD9110.225	ELD9151.225	ELD9210.225	ELD9310.225
24000	20400	20000	17000	ELD9110.240	ELD9151.240	ELD9210.240	ELD9310.240

EMEX Power - Three Phase 220-240 V, 380-415 V 50/60 Hz (adjustable)

Commercial Rating		ICEL Rating		1 Hour Duration	1.5 Hour Duration	2 Hour Duration	3 Hour Duration
VA	Watts	VA	Watts	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.
4500	3825	3750	3188	ELD9130.045	ELD9153.045	ELD9230.045	ELD9330.045
9000	7650	7500	6375	ELD9130.090	ELD9153.090	ELD9230.090	ELD9330.090
13500	11475	11250	9563	ELD9130.135	ELD9153.135	ELD9230.135	ELD9330.135
18000	15300	15000	12750	ELD9130.180	ELD9153.180	ELD9230.180	ELD9330.180
22500	19125	18750	15938	ELD9130.225	ELD9153.225	ELD9230.225	ELD9330.225
27000	22950	22500	19125	ELD9130.270	ELD9153.270	ELD9230.270	ELD9330.270
31500	26775	26250	22313	ELD9130.315	ELD9153.315	ELD9230.315	ELD9330.315
36000	30600	30000	25500	ELD9130.360	ELD9153.360	ELD9230.360	ELD9330.360
40500	34425	33750	28688	ELD9130.405	ELD9153.405	ELD9230.405	ELD9330.405
45000	38250	37500	31875	ELD9130.450	ELD9153.450	ELD9230.450	ELD9330.450
49500	42075	41250	35063	ELD9130.495	ELD9153.495	ELD9230.495	ELD9330.495
54000	45900	45000	38250	ELD9130.540	ELD9153.540	ELD9230.540	ELD9330.540
58500	49725	48750	41438	ELD9130.585	ELD9153.585	ELD9230.585	ELD9330.585
63000	53550	52500	44625	ELD9130.630	ELD9153.630	ELD9230.630	ELD9330.630
67500	57375	56250	47813	ELD9130.675	ELD9153.675	ELD9230.675	ELD9330.675
72000	61200	60000	51000	ELD9130.720	ELD9153.720	ELD9230.720	ELD9330.720
76500	65025	63750	54188	ELD9130.765	ELD9153.765	ELD9230.765	ELD9330.765
81000	68850	67500	57375	ELD9130.810	ELD9153.810	ELD9230.810	ELD9330.810

Unity PF Designed Systems

EMEX Power - Single Phase 220-240 V 50/60 Hz

Commercial Rating		ICEL Rating		1 Hour Duration	1.5 Hour Duration	2 Hour Duration	3 Hour Duration
VA	Watts	VA	Watts	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.
1500	1500	1250	1250	ELD8110.015	ELD8151.015	ELD8210.015	ELD8310.015
3000	3000	2500	2500	ELD8110.030	ELD8151.030	ELD8210.030	ELD8310.030
4500	4500	3750	3750	ELD8110.045	ELD8151.045	ELD8210.045	ELD8310.045
6000	6000	5000	5000	ELD8110.060	ELD8151.060	ELD8210.060	ELD8310.060
7500	7500	6250	6250	ELD8110.075	ELD8151.075	ELD8210.075	ELD8310.075
9000	9000	7500	7500	ELD8110.090	ELD8151.090	ELD8210.090	ELD8310.090
10500	10500	8750	8750	ELD8110.105	ELD8151.105	ELD8210.105	ELD8310.105
12000	12000	10000	10000	ELD8110.120	ELD8151.120	ELD8210.120	ELD8310.120
13500	13500	11250	11250	ELD8110.135	ELD8151.135	ELD8210.135	ELD8310.135
15000	15000	12500	12500	ELD8110.150	ELD8151.150	ELD8210.150	ELD8310.150
16500	16500	13750	13750	ELD8110.165	ELD8151.165	ELD8210.165	ELD8310.165
18000	18000	15000	15000	ELD8110.180	ELD8151.180	ELD8210.180	ELD8310.180
19500	19500	16250	16250	ELD8110.195	ELD8151.195	ELD8210.195	ELD8310.195
21000	21000	17500	17500	ELD8110.210	ELD8151.210	ELD8210.210	ELD8310.210
22500	22500	18750	18750	ELD8110.225	ELD8151.225	ELD8210.225	ELD8310.225
24000	24000	20000	20000	ELD8110.240	ELD8151.240	ELD8210.240	ELD8310.240

EMEX Power - Three Phase 220-240 V, 380-415 V 50/60 Hz (adjustable)

Commercial Rating		ICEL Rating		1 Hour Duration	1.5 Hour Duration	2 Hour Duration	3 Hour Duration
VA	Watts	VA	Watts	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.	Emex Power Part No.
4500	4500	3750	3750	ELD8130.045	ELD8153.045	ELD8230.045	ELD8330.045
9000	9000	7500	7500	ELD8130.090	ELD8153.090	ELD8230.090	ELD8330.090
13500	13500	11250	11250	ELD8130.135	ELD8153.135	ELD8230.135	ELD8330.135
18000	18000	15000	15000	ELD8130.180	ELD8153.180	ELD8230.180	ELD8330.180
22500	22500	18750	18750	ELD8130.225	ELD8153.225	ELD8230.225	ELD8330.225
27000	27000	22500	22500	ELD8130.270	ELD8153.270	ELD8230.270	ELD8330.270
31500	31500	26250	26250	ELD8130.315	ELD8153.315	ELD8230.315	ELD8330.315
36000	36000	30000	30000	ELD8130.360	ELD8153.360	ELD8230.360	ELD8330.360
40500	40500	33750	33750	ELD8130.405	ELD8153.405	ELD8230.405	ELD8330.405
45000	45000	37500	37500	ELD8130.450	ELD8153.450	ELD8230.450	ELD8330.450
49500	49500	41250	41250	ELD8130.495	ELD8153.495	ELD8230.495	ELD8330.495
54000	54000	45000	45000	ELD8130.540	ELD8153.540	ELD8230.540	ELD8330.540
58500	58500	48750	48750	ELD8130.585	ELD8153.585	ELD8230.585	ELD8330.585
63000	63000	52500	52500	ELD8130.630	ELD8153.630	ELD8230.630	ELD8330.630
67500	67500	56250	56250	ELD8130.675	ELD8153.675	ELD8230.675	ELD8330.675
72000	72000	60000	60000	ELD8130.720	ELD8153.720	ELD8230.720	ELD8330.720
76500	76500	63750	63750	ELD8130.765	ELD8153.765	ELD8230.765	ELD8330.765
81000	81000	67500	67500	ELD8130.810	ELD8153.810	ELD8230.810	ELD8330.810

Suffix	Description
/60	60Hz system - USA Bat only
/U	USA origin Batteries
/N	Nicad Cells
/TS	Touch screen
/XB	Excluding Batteries (Systems are Not Kite marked unless batteries are supplied by TNB) XB code will generally be used to split order to delay battery delivery and will not show on documentation or product in this instance. When used to supply system without battery the Code will need to show on documentation.
/NL	Dutch version
/M	Mexico origin Batteries

Example
ELD9110.015/N/TS
ELD9110.015/60/TS
ELD9110.015/NL/XB
ELD9110.015/NL/XB

Part Code Key:
ELD **A B C D . E F G**

A = Power factor - 9 for 0.85PF or 8 for 1.0 Unity PF
B (C) = Duration - 1 for 1hr 15 for 1.5hr 2 for 2hr and 3 for 3hr
C (D) = Phase - 1 for Single and 3 for 3 Phase
EFG = KVA (multiplied by 0.1)

Example
ELD9110.015 = 0.85PF, 1hr, 1 Phase @ 1.5KVA
ELD9151.015 = 0.85PF, 1.5hr, 1 Phase @ 1.5KVA

Order codes

Remote alarm

British Standard BS 5266 Part 8 (BS EN 50172) section 7.2.2 requires that a visual daily check of the central power supply alarms is made. It is also a requirement that the CPS should be located in a secure area, which is typically a locked switch room in the basement.

We offer an optional remote alarm unit (RAU), which assists the user to identify any alarm conditions.

Remote Alarm Unit RAU/240V **ELD0075.003A**

Remote alarm unit providing both audible and visual fault indication with mute facility. The RAU requires a local 220 – 240VAC supply and should be linked to the static inverter unit by a two core cable.

EMEX Test

The complete emergency lighting central system testing solution

The complete emergency lighting central system testing solution

Emergency lighting regulations state that periodic, mandatory tests must be carried out to verify the correct operation of any emergency lighting system.

Increasingly, changes in safety legislation, risk assessment, and the requirements of public liability insurance are placing responsibility for the testing of emergency lighting systems firmly with the owner or occupier of the building. Additionally, legislation states that records of this testing must be kept.

Automated testing solution

Manual testing (and record keeping) of emergency lighting systems can prove to be expensive, time consuming and disruptive (even dangerous) exacerbated by access problems caused by physical and commercial reasons.

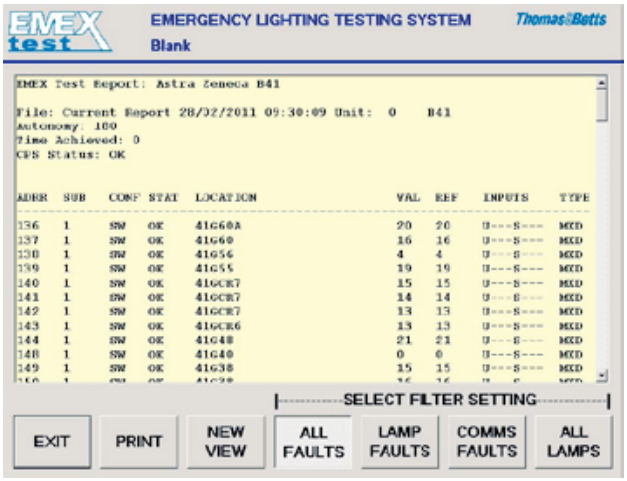
The EMEX Test Central Testing System ensures peace of mind by automating the normal, periodic testing of emergency lighting lamps and control gear.

EMEX Test is simple to operate being controlled by a standard desktop PC or a dedicated touch screen control panel and is feature packed:

- Multiple static inverter Central Power Supply Systems (CPS) can be networked to a single control PC
- Utilizing EMEX TS, Remote access via a Local Area Network (LAN) or internet connection is straightforward
- Building Management System communication can be easily incorporated

Scheduled testing

System tests are scheduled for periods of minimum disruption using EMEX Test.



Live luminaire data is compared against pre-programmed threshold data to identify any discrepancies. These are then duly highlighted in the test report which is generated and stored automatically.

The user has full control to access test reports locally or remotely at any time. Service personnel can then arrange a convenient time to access any faulty luminaires – ready prepared with any necessary spares in order to further reduce the amount of time required to effect a repair.

In addition, EMEX Test can conduct discharge tests and monitor and record the status of the CPS and end battery voltage. Since discharge tests cannot be performed until visual condition checks have been undertaken by an engineer on site, these annual tests are initiated manually.

"When considering central power emergency lighting, EMEX Test allows the consultant and end user to retain complete freedom of design. Specifying EMEX Test offers the most flexible and economic solution to providing addressable testing of emergency lighting"



EMEX Test is the most flexible emergency lighting testing system available today. With the ability to support virtually any type of slave 230V luminaire, including LED, EMEX Test affords freedom of choice for consultants, designers and end-users alike.

Two approaches, one solution

EMEX Test can utilise two different solutions to interface your emergency luminaires, whatever the scenario. Both systems utilise the same software and are fully compatible with each other on the same system:

MXC

MXC is ideal for use where a large number of high frequency, non-dimmable luminaires are situated in a relatively small area and where room for cable runs is restricted and the aesthetics are a primary concern.

The MXC substation solution employs compact LTC integral luminaire interfaces to support up to 40 luminaires from a single substation. It allows mixed operation modes of the emergency luminaires on the same circuit without data cable. Multiple local switched and unswitched circuit monitoring is marshalled by the substation, or direct into the luminaires. Substations are connected together and back to the control PC by data cable connection.

Ideal for high-rise buildings, MXC provides savings in cable, containment and installation costs.

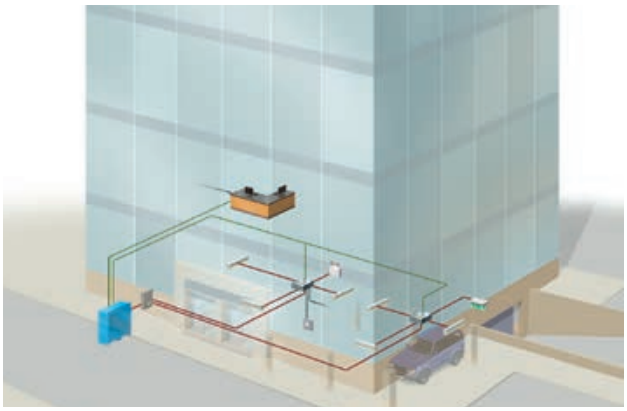
Features and benefits

- Maintained, non-maintained and switched luminaires on a single circuit
- Cable saving as a result of combined power and data lines
- High capacity substations
- Flexible local circuit monitoring options
- Fully compatible with MXD4

MXD4

MXD4 substation modules control luminaires in groups of four with no modification to the mains luminaires whatsoever. Data cable provides communication to the CPS. A data cable connection exists between the CPS and the PC.

MXD4 is ideal for use where a smaller number of luminaires are to be situated in an environment where aesthetic cabling is not an issue, for example warehousing or car parks.



Features and benefits

- Supports virtually any type of luminaire – no modification required
- High switching power capability
- Simple to install
- Compatible with digital and analogue dimming systems
- Fully compatible with MXC

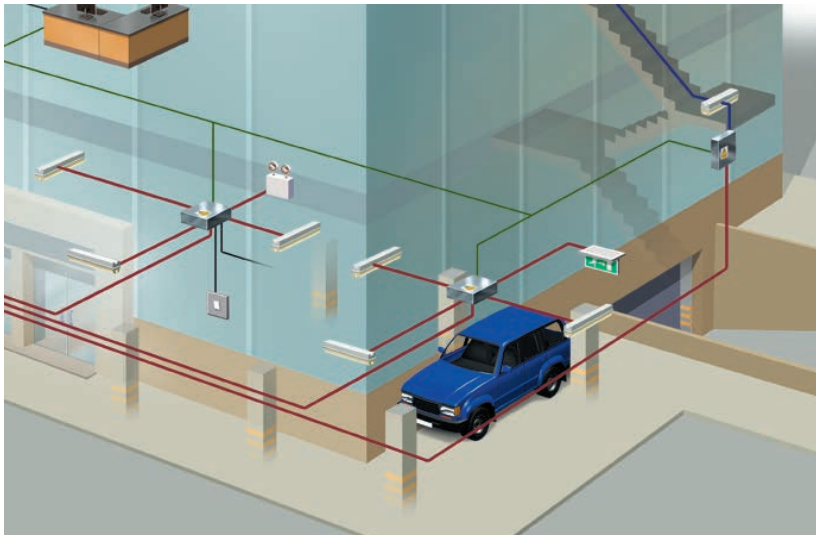
How to apply EMEX Test MXC and MXD4 Emergency Lighting Testing Systems, example case: High-rise building

A typical high-rise installation will employ a variety of luminaire types in different areas. It will have varying switching arrangements and cabling restrictions according to the usage of each area and the fabric of the building.

When considering their mains lighting, the consultant and end user can retain complete freedom of design, assured in the knowledge that specifying EMEX Test will offer the most flexible and economic solution to provide addressable emergency lighting.

Underground car parks

In underground car parks and service areas the designer will prefer basic batten fittings or filament lamps. In this instance, where surface cabling is acceptable, MXD4 substations are ideal. There is no modification to the slave 230V 50/60Hz luminaires whatsoever. This makes the installation very straightforward as the substations are identical no matter the wattage or operation of the luminaires (substations can even be “first fixed” before the luminaires arrive!), and has the great benefit that in the event of any damage or vandalism the slave 230V 50/60Hz luminaires can be replaced without interfering with the addressable emergency system.

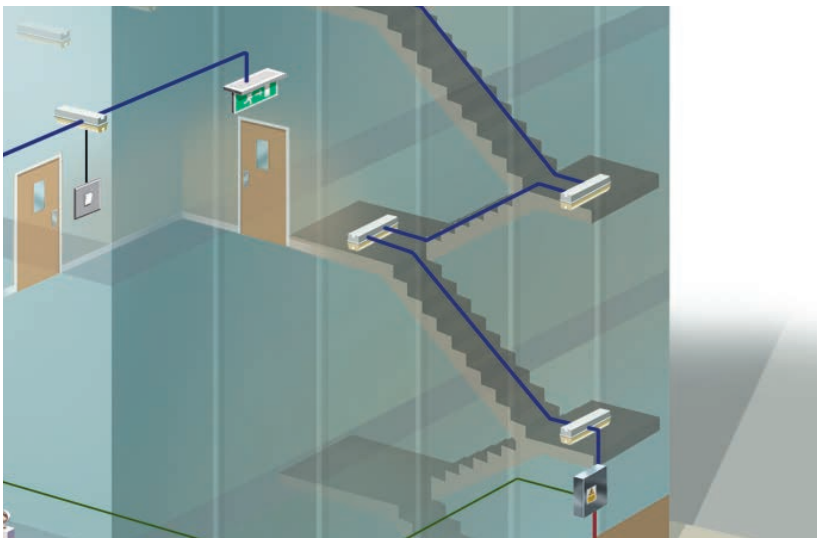


Open plan areas

For lower floors with typically open plan areas where suspended ceilings are employed and switching arrangements are uncomplicated, MXD4 substations also offer benefits. In addition, the client would be free to refurbish at a later date, changing luminaires types at will, with only reprogramming of the EMEX Test software required to suit.

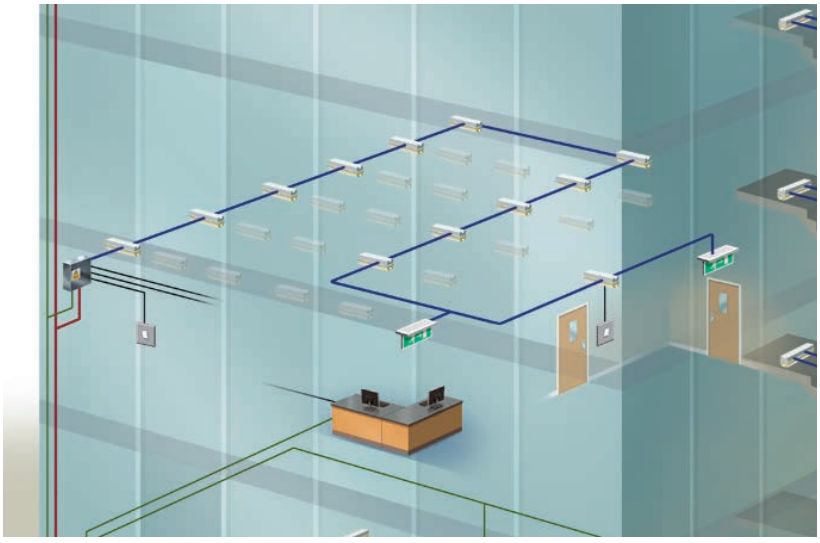
Stairwells

In stairwells, the MXC substation solution with LTC equipped luminaires offers great benefits in cable saving and installation costs. The MXC substation(s) can be mounted in risers at the foot of each stairwell, removing the need for data cable or remote boxes in the stairwell itself. The maintained exit signs, switched luminaires, and even any non-maintained external units can all share a single supply cable. Monitoring feeds can all come to a single point at the substation, simplifying the cabling within the stairwell. Conversely, if it is inconvenient or impossible to wire a switched or monitoring feed back to the substation, it can be wired directly into the relevant luminaire.



Upper floors

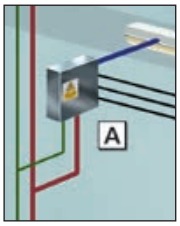
Upper floors with a larger number of rooms per area (for example offices or hotel rooms), will also use MXC in order to take advantage of the large number of switched feeds that can be monitored by each substation. Coupled with the option to wire monitoring feeds directly into the luminaires, this will offer great savings in cable and simplify the installation, whilst retaining flexibility of programming should the mode of operation of the luminaire change.



EMEX Test can accommodate this scenario – and more – whether the system is one large Central Power Supply System (CPS) feeding the whole building, one smaller CPS per floor, or any combination thereof.

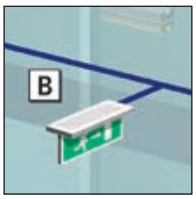
Turn over to see our 'How to apply' illustration of EMEX Test MXC & MXD4

MXC substation



Each MXC substation can control up to 40 luminaires. Power and datalines feed the substation which in turn monitors & controls the luminaires via a single combined power/data line. Each substation can monitor up to 8 local switched and/or unswitched circuits.
Luminaires operate in maintained, switched maintained, or non-maintained modes on the same circuit, according to the system programming.

MXC compatible luminaires

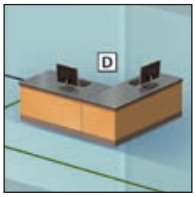


The MXC testing system requires luminaires (bulkheads, exit signs) to be MXC compatible.
A comprehensive range of luminaires can be found starting on page 23. In addition, virtually any standard mains luminaires can be converted for use with the MXC system using an integral or remote LTC interface module. Luminaires must contain a high frequency ballast (please check with Emergi-Lite). MXCs are not compatible with switch start control gear, please use MXD4 for these applications.

Switching

One switched and/or one unswitched local feed can be wired directly into the MXC System LTC module, in addition to the monitoring/ switching provided via the MXC substation.

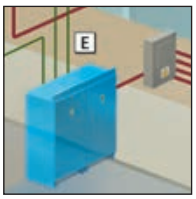
EMEX Test control station



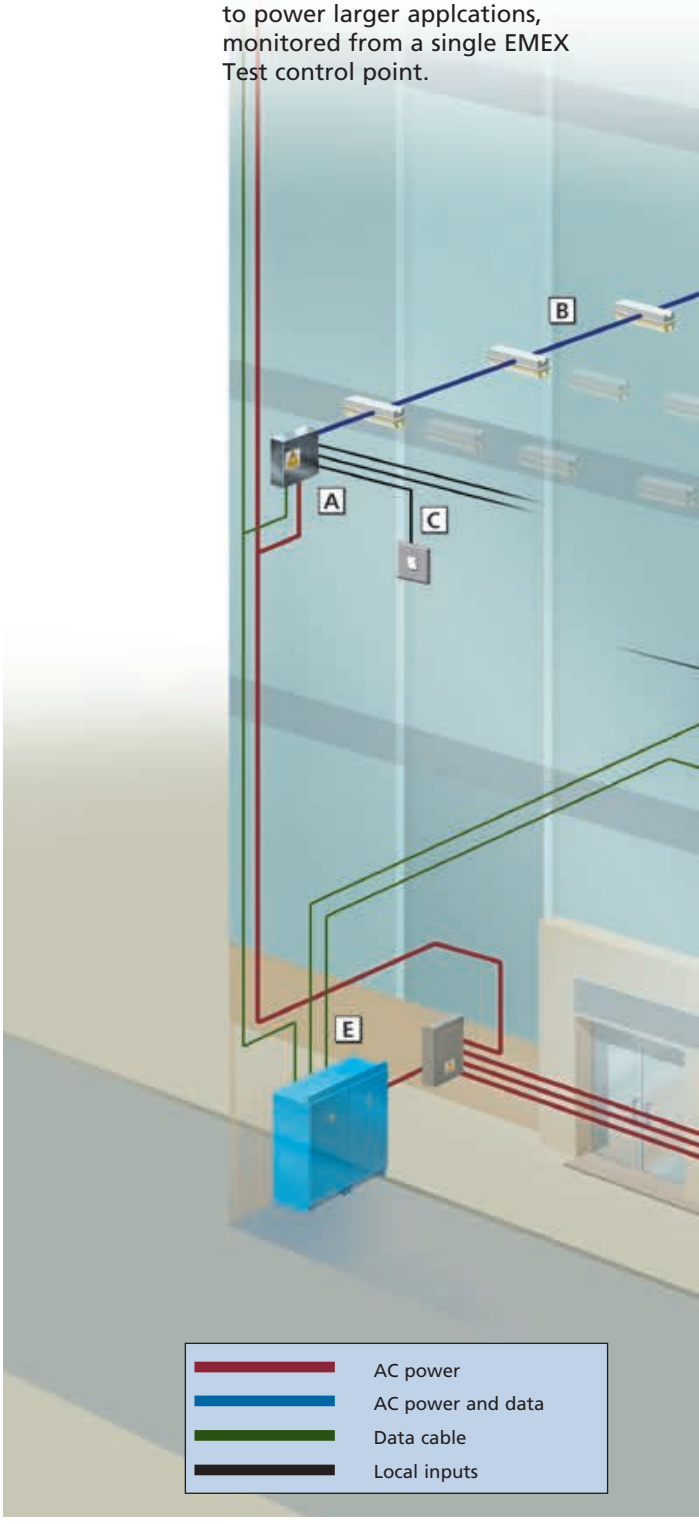
EMEX Test software is installed on a standard desktop PC to initiate scheduled tests and collate test report data. System status can be accessed remotely over a Local Area Network (LAN), or via the internet utilizing the EMEX TS option. EMEX Test can optionally export system status in BACNET or LONWORKS format to a Building Management System. (Note: The output format will be dependent on the Building Management integrators system functionality and capabilities, see EMEX LONWorks profile document for further information)

A network node enables the engineer to access test reports and control the system using a laptop PC from any point on the data cable.

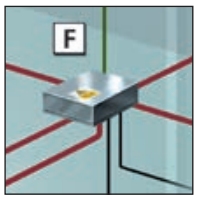
EMEX Power



EMEX Power Central Power Supply System provides AC power to emergency luminaires via standard AC distribution boards. EMEX Test can support both MXC and MXD4 systems simultaneously. Multiple EMEX Power CPS units can be used to power larger applcations, monitored from a single EMEX Test control point.



MXD4 substation

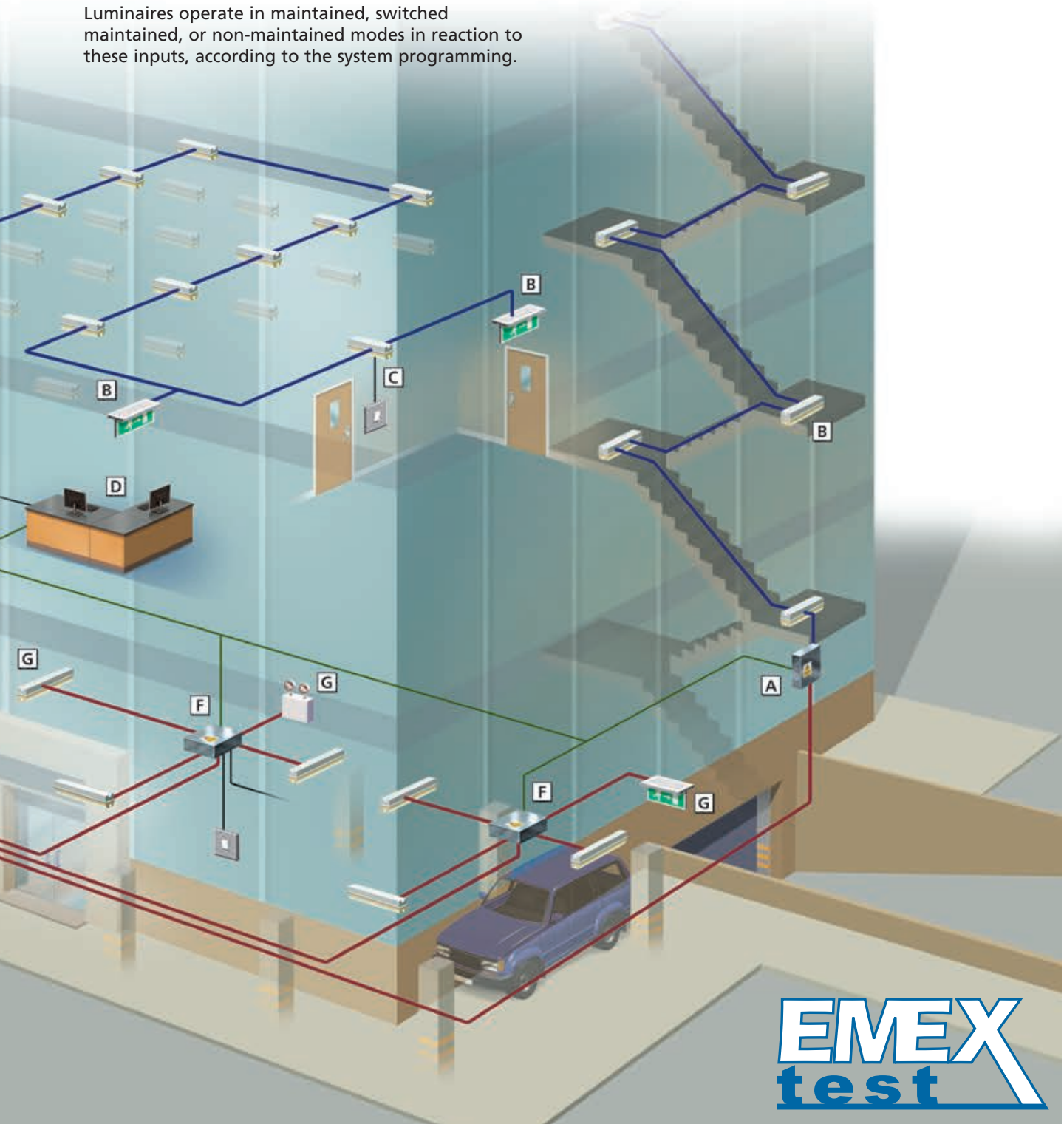


MXD4 controls up to 4 unmodified mains luminaires on an individual basis. Power and datalines feed the substation with individual power outputs to each luminaire. Each MXD4 can monitor up to 8 local switches and/or unswitched circuits.

Luminaires operate in maintained, switched maintained, or non-maintained modes in reaction to these inputs, according to the system programming.

MXD4 luminaires

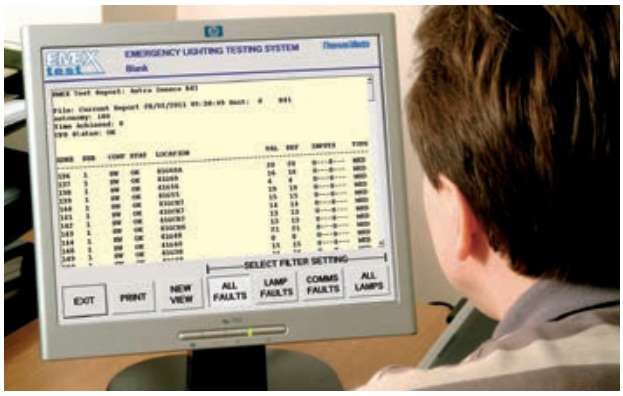
MXD4 can support virtually any fluorescent, LED, filament, or halogen luminaire, without modification. Each MXD4 substation includes a single dimming control relay.



EMEX Test software

The focal point of an EMEX Test monitoring network is a PC running the EMEX Test software package.

EMEX Test software is Windows™ based. It provides detailed address information of all connected Central Power Supply Systems and luminaires. Scheduled testing is configured quickly and easily – once set up it can be left to operate, without further input, in the background. Reports are created and collated automatically. These are date stamped and can be printed or distributed electronically.



MXKP station adapter kit

Included with ITS Systems

The MXKP station adapter kit is required to integrate the EMEX Power static inverter with the EMEX Testing System. Ordered separately, the MXKP station adapter kit is factory fitted in the inverter cabinet.

- 4,000 luminaire address capability
- Output capacity of 100 x MXD4 and/or MXC units per MXKP
- 2-core data bus to MXD4 and MXC units and to/from MXKP units
- 2-core screened 240V, (1.0mm² minimum) data cable (Max. distance 2500 metres – additional repeaters available)

MXIN test input node

Included with ITS Systems

Provides an input point to allow roving access to the system using a laptop PC.

Wall mounted EMEX Test Control Panel

Description

- Wall mounted EMEX Test Control Panel utilising a touch screen for operation of the Emex Test programme 8" High Brightness TFT LCD (400 cd/m), long life-time display, support 800 x 600
- Fanless and AMD LX-800 500MHz processor
- One 200-pin SO-DIMM DDR 266/333MHz
- up to 1GB Sealed resistive touch screen
- Support Panel / VESA 75 mount
- DC 11~28V wide-range power input

Specification details

- Maximum AC voltage 240V AC 50/60Hz
- Windows CE net 4.2 / 5.0, XP, XP Embedded
- I/O ports: COM1: RS-232, COM2: RS-232/422/485, COM3: RS-232, External USB 2.0 x2, 2x5 2.0mm pin header for internal USB 2.0 x2, 1xVGA, 1 x PS/2 keyboard & mouse, 1xReset switch , 1 x power on/off switch 1 x LAN (10/100Mb),

Construction

- Plastic front panel & metal housing IP 20
- Enclosure dimensions 318mm L x 270mm W x 104mm H
- Cable termination 2.5mm² maximum
- Cable entry 20mm gland hole

MXC substation

The MXC substation controls up to 40 LTC equipped HF luminaires. It can also monitor 8 switched or unswitched inputs.

- 40 x LTC units over 2 radials (20 per radial)
- Maximum 270V AC
- 2 x 1,150VA (5 ampere) maximum output power
- 200 metres maximum distance (per output radial) to final luminaire
- 2-core screened 240V, (1.0mm^2 minimum) cable (fireproof recommended)
- 210mm x 253mm x 60mm
- Operating temperature 0 – 50°C
- Galvanised steel enclosure (colour options available as specials)
- Substation rated to IP2x as standard. Option of higher IP rating available to order
- For further details on the MXC & MXD please refer to the

MXD4 4-way addressable substation

The MXD4 addressable substation controls up to 4 unmodified mains luminaires. It can also monitor 8 switched and/or 8 unswitched inputs.

- 4 luminaires on individual circuits
- Maximum 270V AC, 230W (1 ampere per circuit)
- Switching threshold of 230V -60% to -85%
- Address range of 4 to 3999 (blocks of 4)
- Analogue and digital compatible dimming capability using on-board dimming relay to break dimmer control line
- 2-core screened 240V, (1.0mm2 minimum) cable (fireproof recommended)
- 2,500 metres maximum distance from MXKP to MXD4 transmitter
- 254mm x 210mm x 60mm
- Operating temperature 0 – 50°C
- Galvanised steel enclosure (colour options available as specials)
- Substation rated to IP2x as standard. Option of higher IP rating available to order

MXT data repeaters

MXT100
MXT200

The MXT data repeater is used to increase the number of interfaces on an individual data line.

- Maximum 270V AC
- 2-core data inputs
- 2-core screened 240V, (1.0mm2 minimum) cable (fireproof recommended)
- 300mm x 400mm x 120mm

Up to 100 substations may be fed from the internal transmitter within the CPS. Additional MXT data repeaters are available for situations where more than 100 substations are required. For example the MXT200 data repeater is capable for handling up to 200 substations.

System components

Lamp Test Controller addressable interfaces

The LTC is designed specifically to control luminaires with fluorescent or incandescent lamps when working from a static inverter system.

The LTC is part of the EMEX MXC automatic emergency lighting testing system, and can control the lamp and dimmer signal when testing. It measures the lamp power consumption and communicates this and the lamp status back to the EMEX central PC using power line communication via the MXC substation. It is fully addressable and programmable for any lamp type or configuration. This is done in situ from the central PC.

70W LTC addressable interface

The LTC addressable interface unit is required when connecting standard mains luminaires to the MXC substation system.

- Maximum 270V AC
- 70 watt maximum switching output power
- 2 control inputs configurable as local switched and unswitched monitoring
- Factory pre-addressed
- 116.5mm x 24.5mm x 22mm
- Complies with Radiated & Conducted Emissions Standard EN55015:2000

230W DIM LTC addressable interface

- Maximum 270V AC
- 230 watt maximum switching output power
- 2 control inputs configurable as local switched and unswitched monitoring
- Dim Relay to disconnect dimming signal
- Factory pre-addressed
- 155 x 42 x 30, 148mm fixing centres
- Complies with Radiated & Conducted Emissions Standard EN55015:2000

Lon Adapter

The LON adaptor interface allows integrators of Open System Networks to provide network connectivity to Thomas & Betts Emergilite emergency lighting systems.

The unit is housed in an industry-standard M36 DIN rail enclosure and supports both RS232 and 11S4-65 communication options.

Simple ASCII string generated by the Emergilite system over RS232 is made available through the open LonTalk protocol using Standard Network Variable Type SNVT_str_ascii.

Note: The output format will be dependent on the Building Management integrators system functionality and capabilities, see EMEX LONWorks profile document for further information.

BACnet Interface

Bacnet is a Data Communication Protocol for monitoring and communicating building management data to and from the BMS workstation. The module is fed with data from an InfraLINK Lonworks module.

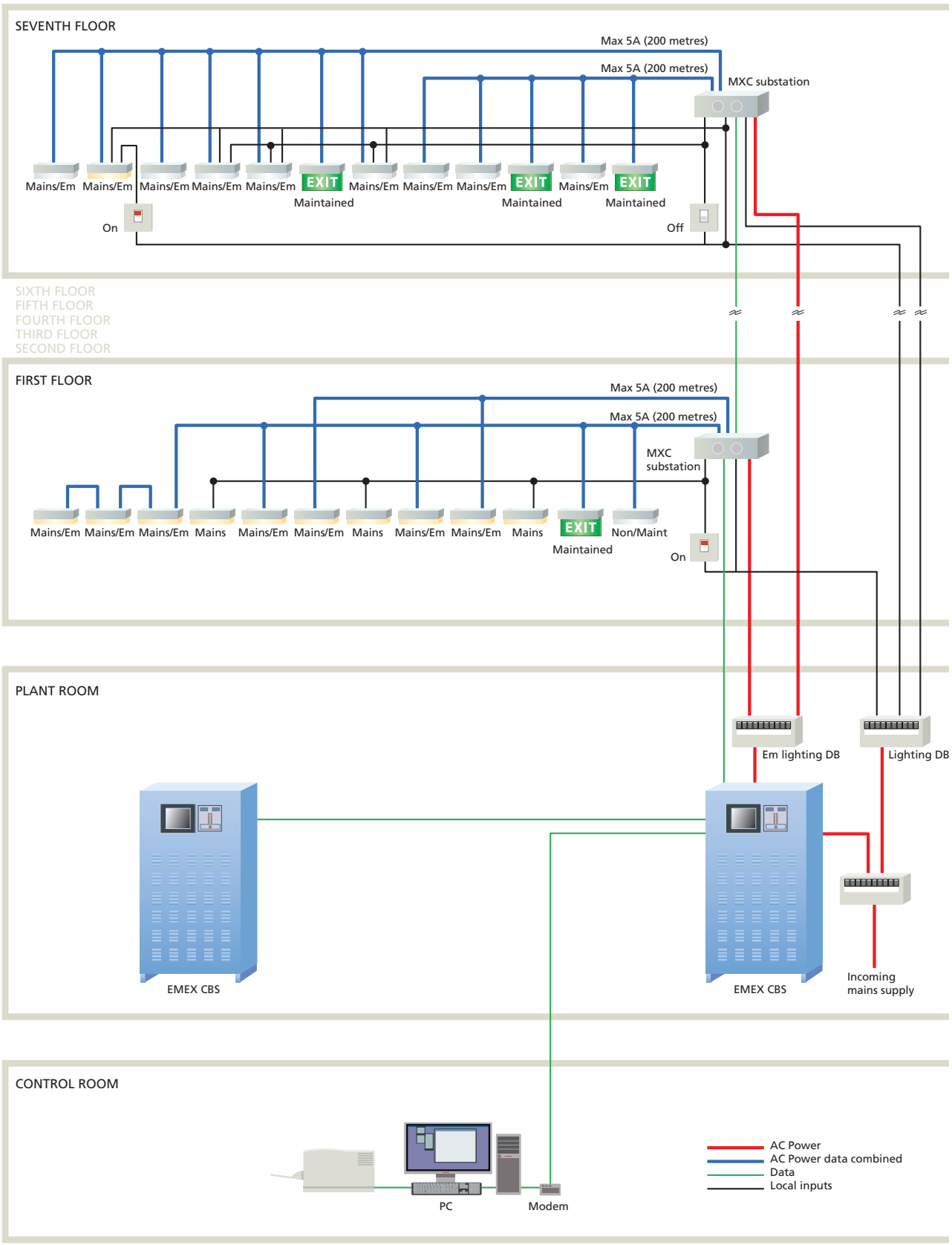
The InfraLINK module is specifically pre-configured to work with the L-GATE module.

The data is converted from Lonworks protocol into Bacnet protocol in the L-GATE module. This data is connected to the BMS by Ethernet using TCP/IP internet protocol.

Order codes

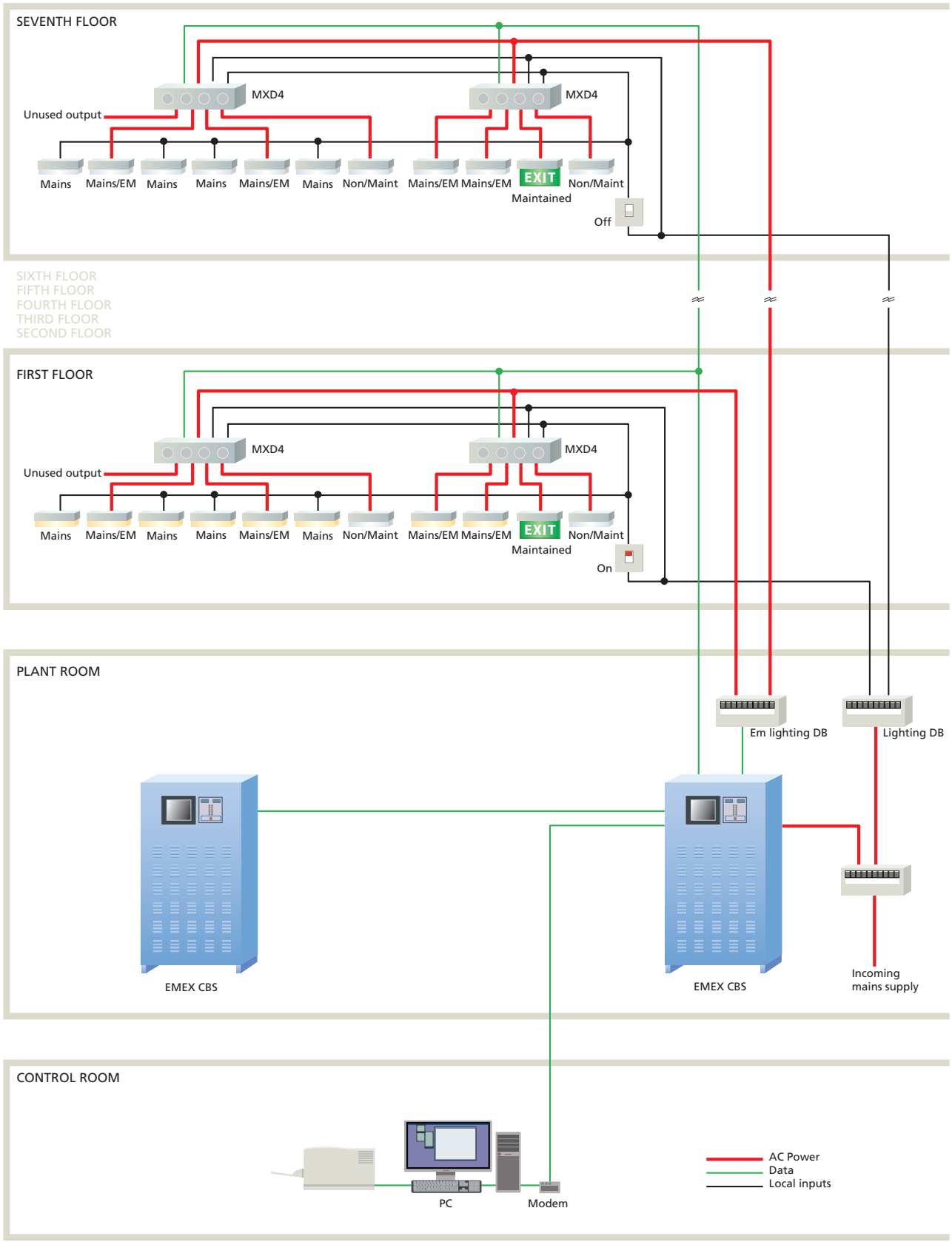
Part No.	Item name	Description
CBS & Control		
ELD9500.910	MXKP	MXKP Static inverter interface
ELD9500.925	MXTS	Wall mounted EMEX Touch screen control Panel
ELD9500.039		MXIN Remote Test Node Input (Modem)
ELD9500.917	PC+Printer	Desktop PC and Printer
ELD9500.918	LON Adaptor	LON Adaptor for Wall mounting adjacent EMEX PC
ELD9500.920	LON Adaptor	LON Adaptor for static inverter C/W EMEX TS
ELD9500.923	BACNet	Wall mounting BACNet Interface
ELD9500.924	BACNet	Static inverter integral BACNet Interface
ELD9500.921	/TS	Static inverter integral EMEX test panel; (Touch Screen)
ELD0077.009	RS232 to USB	RS232 to USB
MXD Range		
ELD9500.120	MXT100	MXT100 data transmitter
ELD9500.121	MXT200	MXT200 data transmitter
ELD9500.016	MXD4/8E	MXD4/8E data line interface
MXC Range		
C-LTC70HF	LTC 13-70W	LTC Addressable Interface 70W Integral Conversion
C-LTC70HFRW	LTC 13-70WREM	LTC Addressable Interface 70W Remote Conversion
C-LTC230HF	LTC 230W AC Dim REM	LTC Addressable Interface 230W Integral Conversion
C-LTC230HFRW	LTC 230W AC Dim REM	LTC Addressable Interface 230W Remote Conversion
ELD9500.048F	LTC 230W Dim parts Kit	LTC Addressable Interface 230W AC Dim NEW parts kit
ELD9500.036F	LTC 13-70W Parts Kit	LTC Addressable Interface 70W parts KIT
ELD9500.048FRW	LTC 230W AC Dim ENC	LTC Addressable Interface 230W AC Dim NEW Kit in enclosure
ELD9500.036FRW	LTC 13-70WParts Kit ENC	LTC Addressable Interface 70W Kit in Enclosure
ELD9500.030	MXC Substation	MXC Substation, 2 x 4A Nominal O/P, 8 SU-CCTS I/P
ELD9500.030/60	MXC Substation 60Hz	MXC Substation, 2 x 4A Nominal O/P, 8 SU-CCTS I/P 60Hz

EMEX Test layout schematic – MXC substations



A version of this schematic in PDF format can be found at www.emergi-lite.co.uk/schematic

EMEX Test layout schematic – MXD4 substations



A version of this schematic in PDF format can be found at www.emergi-lite.co.uk/schematic

Sub-circuit monitoring

Hold-off and changeover relays

Hold-off/changeover relays

It is a mandatory requirement that Emergency Lighting is energised in the event of a local sub-distribution failure, not just on total building supply failure.

Hold-off & sub-circuit monitoring relays are used to energise luminaires in the case of local supply failure. They may be used to feed more than one luminaire on the same switched circuit and are available in 1 amp, 8 amp & 12 amp versions.

Hold-off relays

Hold-off relays are required to monitor the relevant lighting supply circuits such that a failure brings on the emergency luminaires automatically in the event of local supply failure.

Non-maintained luminaires are connected to a localised sub-circuit hold-off relay fed from a maintained battery system. These luminaires are only energised when the supply to the hold-off relay fails.

5, 10, 15 and 20 way sub-circuit monitors (with 12 amp hold-off relay) are available.

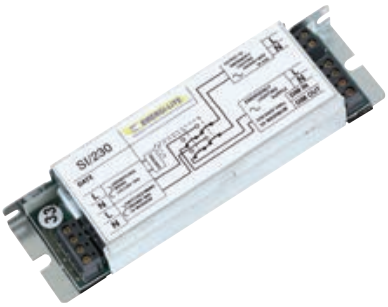
Description	Part No.
5 way 12 amp hold-off relay	ELD9600.001
10 way 12 amp hold-off relay	ELD9600.002
15 way 12 amp hold-off relay	ELD9600.003
20 way 12 amp hold-off relay	ELD9600.004

Changeover relays

The basic use of a switched maintained system is to energise the emergency lighting when required by operation of the local switched supply but automatically illuminate in the event of local sub-circuit supply failure (irrespective of the position of the local switch).

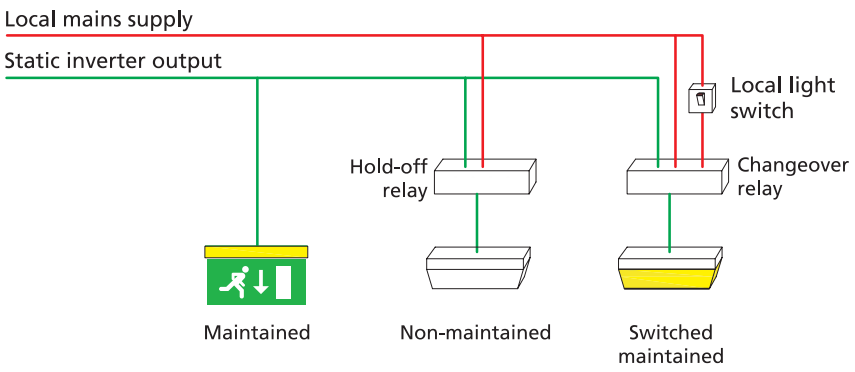
SI230 changeover relays are compact and easy to install. When using these changeover relays switched maintained emergency luminaires are energised whenever a local switched supply is present and, automatically, when a local sub-circuit failure occurs.

Description	Dimensions HWD	Part No.
230 volt 1.0 amp mains changeover relay	155 x 43 x 30mm	SI230DIM
230 volt 1.0 amp mains changeover relay in remote enclosure	200 x 130 x 40mm	SI230DIM-S
230 volt 8 amp mains changeover relay with 2 x 2.5mm² terminal capacity	200 x 130 x 40mm	ELD9600.010



SI230 changeover relay

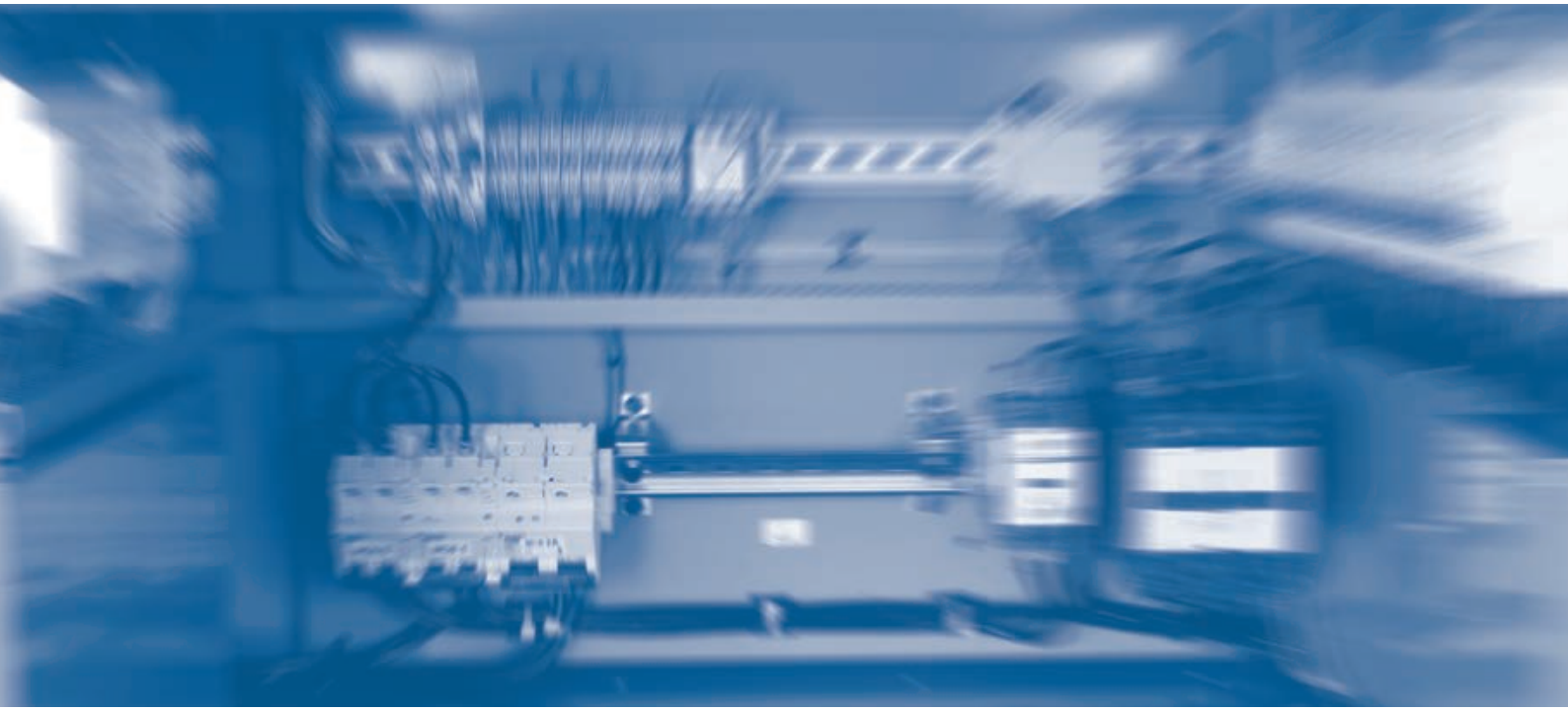
Emergi-Lite offer a Conversion Service to install integral changeover relays into your free-issue mains luminaires. IP20 rated enclosures are supplied as standard. Changeover relays are available with an IP65 enclosure as an option, please contact Emergi-Lite for further details.



Maintained
Do not require sub-circuit monitoring or hold-off relays

Non-maintained
Require a hold-off relay (1 per circuit)

Switched maintained
Require a changeover relay (1 per switched circuit)



EMEX 110 and EMEL

110, 50 and 24 volt AC/DC Central Power Supply Systems

EMEL24 EMEL50 EMEL110 EMEX 110 power

EMEX 110 – System design

EMEX 110 units provide 110V AC/DC to provide power to 110V slave luminaires or converted slave 230V luminaires.

Systems provide 110V AC continuously under mains healthy conditions, and battery back-up at 110V DC upon mains failure.

EMEX 110 units benefit from the same modular construction as the EMEX Power static inverter range. Charger modules utilise solid state electronics of the highest reliability. Units feature BS 5424 contactors and MCB protection throughtout, to provide a rugged easy to maintain system with exceptional performance for emergency lighting use.

Each charger has input and output protection, and measures and limits its own current, making it a self-contained unit.

Alarms and status indicators are provided on the front panel display, which provides clear and concise information, rather than a long list of parameters, which may be confusing. EMEX Power is designed and manufactured in the UK.

Standard features: EMEX 110 system overview

EMEX Power offers a host of standard features & benefits, as listed below. Note that some items will be optional, extra cost items on other systems, or may not be available at all if the system is not designed specifically and solely for emergency lighting use.

Performance

- 110V AC/DC output
- Excellent recharge capability – 80% after 12 hours following rated discharge
- MCB protection throughout; no fuses
- EMEX Power true modular construction with common spares (charger, control PCB, and system interface common across the full system range)
- Individual MCB protection for each module - AC and DC circuits
- Individual cooling fans for each charger with on-demand operation (not continuously running)
- Split parallel charger above 10 amps – enhanced integrity with the ability to operate with one or more charger modules isolated (subject to increased recharge time)
- Integral maintenance bypass facility (ability to support output load in bypass mode whilst maintenance is performed)
- Temperature compensated charger
- Standard maintained transformer and switchable for non-maintained

Alarms and instrumentation

- Comprehensive display
- Charger alarm pack
- Momentary “push to test” button
- Fire alarm interface
- Final exit interlock
- Internal and external MCB monitoring
- Local/remote maintained circuit control
- Sub-circuit monitor connection
- Two sets of volt–free alarm relay contacts
- System-inhibit engineers’ switch
- Remote Alarm Unit option

Mechanical

- IP21 rated cabinet as standard
- Easy front panel access
- Inter-cabinet trunking for battery cables
- Fork-lift plinth
- Lifting eyes for crane lift as standard
- Installation pack with all tools required
- Detailed instruction manual

Batteries

Standard systems are supplied with Valve Regulated Lead Acid (VRLA) batteries, also known as ‘Sealed Lead Acid’. These batteries are sealed for their design life of 10 years.

Lead Acid Planté and Nickel Cadmium batteries are available upon request, however, these batteries require a much larger physical area, and emit potentially explosive gases, meaning the battery room must be adequately ventilated in line with EN50272 Special attention to EN50272 should be observed.

These reasons, along with the additional capital cost, generally outweigh the additional life obtained, as demonstrated below.

Battery	Initial cost	Design life	Maintenance
VRLA	ff	YY	ff
Ni-CAD	fffff	YYYYY	fffff
Planté	ffff	YYYY	ffff

Order codes

1 hour 110V AC/DC systems

Rating KVA	Watts	Cabinet quantity	Part No.
2.0	1,900	1	ELD9100.120
3.0	2,700	1	ELD9100.121
4.0	4,000	1	ELD9100.122
5.5	5,500	1	ELD9100.123

60Hz Central power supply systems available. Please contact Emergi-Lite for details.

Other system sizes and ratings are available – please contact us if your requirements are not shown here.

3 hour 110V AC/DC systems

Rating KVA	Watts	Cabinet quantity	Part No.
2.0	1,000	1	ELD9100.130
2.0	1,600	1	ELD9100.131
2.0	2,000	1	ELD9100.132
3.0	2,700	1	ELD9100.133
4.0	3,600	1	ELD9100.134
5.5	4,860	2	ELD9100.135
5.5	5,400	2	ELD9100.136

Remote alarm

British Standard BS 5266 Part 8 (BS EN 50172) section 7.2.2 requires that a visual daily check of the central power supply alarms is made. It is also a requirement that the CPS should be located in a secure area, which is typically a locked switch room in the basement.

We offer an optional Remote Alarm Unit (RAU), assists the user to identify any alarm conditions.

Remote Alarm Unit RAU/240V **ELD0075.003A**

Remote alarm unit providing both audible and visual fault indication with mute facility. The RAU requires a local 220 – 240VAC supply and should be linked to the static inverter unit by a two core cable.

Cabinet size

Standard cabinet size is 750mm wide x 650mm deep x 1800mm tall. For larger installations, cabinets are mounted side by side to provide sufficient accommodation for the batteries.

Overall depth of 725mm is required to allow a ventilation gap of 75mm (rubber back-stop provided ensures this distance is maintained).

Cabinets may be mounted side-by-side since no side ventilation is required.

EMEL mid-range

- 110V, 50V and 24V AC/DC Central Power Supply Systems in 1, 2 or 3 hour durations
- Compatible with a range of AC/DC slave luminaires and converted mains luminaires
- Suitable for small and medium sized installations, EMEL Light Duty provides an effective solution where self-contained luminaires may not be appropriate, eg where ongoing maintenance may be disruptive
- Ideal for refurbishment of an existing installation, and is suitable for local authority specification work

EMEL Economy systems are supplied with 5 year design life valve regulated lead acid batteries. They include a mains on indicator and charge fail alarm as standard.

EMEL 24V AC/DC Economy	100W to 700W

EMEL Standard systems are supplied with 10 year design life valve regulated lead acid batteries and include mains on indicator and charge fail alarm, together with a moving coil ammeter and voltmeter as standard.

EMEL 24V AC/DC Standard	400W to 800W
EMEL 50V AC/DC Standard	200W to 2,000W
EMEL 110V AC/DC Standard	600W to 3,500W

For larger 110V systems, please refer to our EMEX 110 range

Option list (EMEL Standard only)

Remote Alarm Unit	(/RAU)
Phase Failure Relay	(/PFR)
Fire Alarm Relay	(/FAR)
Sub-Circuit Control Relay(s)	(/SCR)
Maintained Control Relay	(/MCR)
Digital Ammeter/Voltmeter	(/DM)
Time Switch	(/TS)
High/Low Volts Monitor	(/HL)
Earth Fault Monitor	(/EFA)
Common Alarm Relay	(/CAR)

AC/DC conversion modules

A conversion module is required for a conventional fluorescent mains luminaire when it is powered from a Central Power Supply System for emergency lighting use. This provides fail-safe emergency operation from the CPS supply upon failure of the local lighting circuit whilst retaining the switchable function of the luminaire under mains healthy conditions.

The MDG inverter module has been designed to efficiently operate 4 – 100 watt 4-pin fluorescent lamps, from 50 volt or 110 volt AC/DC Central Power Supply Systems.

Features and benefits

- Ideally suited for individual local circuit failure monitoring via the connection of an unswitched supply
- Incorporates an integral five pole relay which disconnects the normal mains lighting ballast from the lamp when the monitored 230/240 volt mains supply is disconnected
- A delayed energy relay prevents the automatic protection circuit of the electronic ballast sensing an open circuit condition, in emergency test mode, thus enabling the lamp(s) to restrike without having to re-set the switched supply
- Electrical connections are made via screw terminals
- Remote boxes available where integral mount is not possible

Specifications

- 220 – 240V AC, 50Hz
- Changeover voltage in compliance with BS EN 60598.2.22
- Input voltage range
  50 volt systems: 45 – 55V
  110 volt systems: 99 – 121V
- Weight: 0.5kg
- Zinc coated steel enclosure

Order codes

MDG50
Conversion module suitable for 4 – 100W fluorescent, 50V AC/DC

MDG110
Conversion module suitable for 4 – 100W fluorescent, 110V AC/DC

For 24 volt AC/DC conversion modules, please contact our Sales Department.

Dimensions

230mm x 42.5mm x 29mm

CE marking & warranty

A modified luminaire must be compliant with the Electro-Magnetic Compatibility (EMC) and Low Voltage (LV) Directives, and carry a CE mark to signify the compliance.

The company modifying the general luminaire is legally responsible for the re-certification of the complete unit after modification.

In addition, the warranty provided by the mains manufacturer will be invalidated by the modifications.

Conversion service

Emergi-Lite offers a specialist conversion service backed by the highest level of expertise, from a number of strategic Conversion Centres in the UK.

Emergi-Lite is registered under ICEL1004 for luminaire conversion.

Specifying the conversion service to be performed by Emergi-Lite ensures full compliance. In addition, the warranty provided by the mains manufacturer is taken over by Emergi-Lite and provides complete peace of mind.

Note: Luminaires to be converted to emergency must themselves carry a CE mark to be considered suitable for conversion.

Appendix

Specifications and spacing data

EMEX Power detailed specification

1.0 General standards

The Emergency Lighting System and all of its components shall be manufactured and certified to meet the requirements of BS EN 50171, ICEL 1009, and CE. The system shall be CE marked.

2.0 Central inverter system

The system should offer the following standard features as summarised below and further detailed in sections 3.0, 4.0, 5.0, 6.0 & 7.0:

1. True AC/AC 50/60Hz output
2. Ability to use standard proprietary AC distribution and protection devices on outgoing circuits
3. Rated for any load power factor, zero to unity, at any output power up to the maximum rated KVA
4. Compatibility with addressable test package using EMEX technology
5. Excellent overload capability in full emergency mode: 200% for 10 seconds without reduction in output voltage
6. Excellent recharge capability – 80% after 12 hours following rated discharge
7. MCB protection throughout – no fuses
8. EMEX Power true modular construction with common spares (inverter, charger, control PCB, and system interface common across the full system range)
9. Individual MCB protection for each module – AC and DC circuits
10. Individual cooling fans for all modules with on-demand operation (not continuously running)
11. Split parallel charger above 10 amps – enhanced integrity with the ability to operate with one or more charger modules isolated (subject to increased recharge time)
12. Integral maintenance bypass facility (ability to support output load in bypass mode whilst maintenance is performed)
13. Temperature compensated charger
14. Comprehensive display
15. Charger and inverter alarm pack
16. Momentary “push to test” button
17. Fire alarm interface
18. Final exit interlock
19. Internal and external MCB monitoring
20. Local/remote maintained circuit control
21. Sub-circuit monitor connection
22. Two sets of volt–free alarm relay contacts
23. Inverter-inhibit engineers’ switch
24. Remote Alarm Unit option
25. Easy front panel access
26. Inter-cabinet trunking for battery cables
27. Fork-lift plinth
28. Lifting eyes for crane lift as standard
29. Cabinet levelling feet available
30. Installation pack with tools included
31. Detailed instruction manual
32. Transfer time both directions max. 0.5 seconds

3.0 Static inverter specification

LED Indications

Mains healthy	Green
Maintained circuit on	Green
Battery high volts	Amber
Battery low volts	Amber
Supply from battery	Red
Charge fail	Red
System fault	Red
Common alarm	Red
Battery discharged	Red
System inhibited	Red

Metering

DC metering	Combined digital battery voltage and charge/discharge current
AC metering	Combined digital AC output Voltage and current

Alarms

Alarm outputs	Two sets of voltage free contacts 1A @ 230V AC / 1A @ 28V DC Local audible alarm (can be muted)

Controls

Final exit interlock	Requires volt-free contact
Sub-circuit monitor	24V control loop
Maintained circuit control	24V control loop
Fire Alarm Control	12/24V DC from fire panel
Remote MCB monitoring	24V control loop
Changeover device	Four pole contactor to BS 5424 and EN 60947

Inverter Module(s)

Nominal output	220V – 240V 50Hz AC
Rating	1.5KVA or 3KVA rating with Master or Slave configuration
Overload	120% continuous with full output 150% for 1 minute with full output 200% for 10 seconds with full output
Short Circuit	350% for 5 seconds
Cooling	Integral fan (on-demand operation)
Protection	AC 2 pole type D DC 2 pole type B
Module Dimensions	360mm x 170mm x 575mm
Handling	Recessed handles front and rear
Weight	50kg



Charger Module(s)

Constant voltage current limited with temperature compensation.

Voltage control to ±1% with full mains supply variations.

Rating	10 amp minimum
Cooling	Integral fan (on-demand operation)
Protection	AC 2 pole type D DC 2 pole type B
Module dimensions	360mm x 170mm x 575mm
Handling	Recessed handles front and rear
Weight	50kg

Protection Devices

Mains input Switch	2/4 pole switch
Charge circuit MCB	2/3 pole Type D
Battery MCB	2 pole Type B
DC control circuit MCB	2 pole Type B
AC control circuit MCB	2 pole Type B

Mechanical

Input / Output Terminals	10mm/50mm dependant on rating
Control Terminals	2.5mm

4.0 Battery

Battery should be comprised of one or more strings of not more than 120V nominal voltage.

The batteries shall be maintenance free sealed lead acid, gas recombination type with a minimum design life of 10 years. They shall have extremely low gas generation, low self-discharge and have sealed pressure release vents. Other battery technologies to be available upon special request.

The batteries shall be sized to power the complete system for the rated duration following mains failure at 100% light output of all emergency lamps.

5.0 Environmental conditions

Indoor equipment categorized

Ambient temperature of the installation (switch room) should be in the range 15 – 25°C. Air conditioning is required where normal ambient will exceed 25°C.

NOTE: Batteries must not be subject to prolonged extreme temperatures prior to installation and must be stored in a suitable environment.

Ambient Temperature (Nominal)	5°C – 35°C
Extreme Temperature	0 – 40°C
Humidity (non-condensing)	40 – 85%
Noise Level at 1 metre	55 dBA
Altitude without extra ventilation	2,500 metres

6.0 Inverter and battery cabinets

Material	2.0mm ZINTEC steel (side panels and rear 1.6mm)
Construction	Modular without welds; battery cubicles can be flat-packed for ease of access to site
Ingress protection	IP21
Colour	RAL 5015 gloss (Medium Blue) Other RAL colour finishes available to special order
Lifting & handling	M12 lifting eyes and 110mm plinth
Levelling	Levelling feet available
Access	Single door with 8mm square block key Front access only required - opening angle 180° Key lockable doors on request Removable top gland plate
Ventilation	Ventilation in rear and front only – cubicles can be mounted adjacent to each other (no side ventilation)
Dimensions	1800mm x 750mm x 725mm (Dimensions are inclusive of 75mm ventilation back-stop)

7.0 Transient overvoltage protection

To protect against damage caused by transient overvoltages, factory fitted Furse ESP transient overvoltage protectors should be available as an option.

EMEX Test detailed specification

General

The system should use EMEX Technology to provide full addressable monitoring of the complete emergency lighting system including the EMEX Power Central Power Supply System(s).

The system must be capable of monitoring fluorescent, cold cathode fluorescent, filament, LED, or halogen luminaires.

Software

System should use EMEX Test software to schedule the automatic regular testing of emergency lighting system components. The system should automatically generate and collate test reports. These reports should be automatically date-stamped and should be available in a notepad format such that engineer's notes can be added.

Remote access

Software and test reports must be accessible remotely via a LAN or internet connection. The system must be capable of exporting data to a BMS in LONWORKS or BACNET format.

CPS capacity

The system should support up to 255 Central Power Supply Systems (CPS). Each CPS must be able to communicate with up to 4,000 luminaires.

Communication

The system must use data cable to link the control computer to the CPS unit(s), and from each CPS to the associated luminaire interfaces only. Data cable must NOT be required direct to any luminaires.

Up to 100 substations may be fed from the internal transmitter within the CPS. Additional MXT data repeaters are available to situations where more than 100 substations are required (see page 22).

MXD4 substation

The system must offer remote MXD4 substations having 4 separate outputs, each capable of monitoring up to 4 no. fluorescent, filament, LED, or halogen luminaires completely without modification to the luminaire. The systems should be capable of monitoring a lamp wattage of up to 230 watts. The substation should provide minimum 8 no. monitoring inputs, free programmable switched or unswitched with mixed mode of operation (maintained, non-maintained, switched maintained).

MXC substation

The system must offer remote MXC substations each having 2 outputs, which are capable of monitoring up to 40 no. luminaires / 10 amps in total. The substation should provide minimum 8 no. monitoring inputs, free programmable switched or unswitched. Luminaires must share the same supply cable with mixed mode of operation (maintained, non-maintained, switched maintained).

LTC luminaire module

Luminaires for use with MXC each require a local LTC module. Each LTC must provide 1 no. switched and 1 no. unswitched local monitoring input to act directly on the luminaire in addition to any communication received from the substation. A full range of exit signs, bulkhead luminaires, decorative luminaires, and twinspot units must be available ready fitted with LTC modules. LTC modules must also be available loose and in remote enclosures for the adaptation of standard slave 230V luminaires to the MXC system.

Each LTC must be capable of switching up to 230 watts. The LTC module must retain the existing mains ballast in the luminaire.

Flexibility

The system must permit both MXD4 and MXC solutions on the same system, controlled from a single PC.

Test input nodes

The system must offer test input nodes which allow the engineer to access test reports and control the system using a laptop PC, from any point on the data cable.

Cable specification

Cable must be 2 core with additional earth or drain wire and must be a composite screened cable. The conductor cross section must be a minimum of 1mm^2 and must be rated for 230V AC. General data cables do not meet this requirement.

These requirements can be met by using FP200 or similar fireproof cable or LSFOH type cable.

In the UK, Building Regulation 2000 regulation B1 covers the provision of safe and effective means of escape from a building. Approved Document B (2000) (ADB) is a published guide to the Building Regulations, which specifies that standards for the installation of escape lighting should be according to BS 5266 Part 1.

BS 5266 Part 1:2005 is the umbrella standard which refers to BS 5266 part 7:1999 (EN 1838), defining emergency lighting levels of minimum 1.0 lux on the centre line of an escape route, and 0.5 lux minimum for open areas larger than 60m².

British Standards are recognised worldwide, or are commonly used as the basis of local standards.

NFPA 101 Life Safety Code standards require an average of 10.8 lux with not less that 1.1 lux at any point for escape routes.

We recommend that a copy of relevant local standards are obtained prior to any design work.

We are pleased to supply data for any of our luminaires in LUMDAT format, for use with Relux or similar lighting packages.

We offer the following data for guidance to assist with design work to BS 5266 requirements.

Data is shown for a selection of 8W luminaires, for a typical 2.5 metre ceiling height.

Slave 230V 50Hz luminaires

		Escape route (min 1 lux) normal risk				Anti panic (min 0.5 lux) open area			
	Page	Transverse to wall	Transverse spacing	Axial spacing	Axial to wall	Transverse to wall	Transverse spacing	Axial spacing	Axial to wall
Silver-Scape RB	36	4.4	11.4	6.9	2.6	5.6	13.2	8.5	2.7
Day-Lite XW	37	3.9	11.0	5.8	2.2	5	13.4	7.5	2.8
Weatherforce B and WA (Opal)	38 and 40	2.8	7.5	6.4	2.4	3.3	8.7	7.3	2.7
Weatherforce B and WA (Prismatic)	38 and 40	2.8	9.7	5.9	2.5	4	12	7.6	3.2
Way-Fer PL	41	2.8	7.6	5.7	2.1	3.8	9.8	7.1	2.8
Horizon OH	42	4.3	11.9	5.4	2.0	5.2	13.5	7	3.3
Silver-Lite AR	44	3.1	7.8	7.0	2.8	3.4	9.4	8.1	2.9

Serenga Escape SER-F

Mount height (m)	SER-F Escape route (min. 1 lux) + normal risk			
3.0	0.9	4.8	4.9	1.0
3.5	-	4.8	4.4	-
4.0	-	4.2	3.5	-

Serenga Surface Mounted SER-SA & SER-SE

Mount height (m)	SER-SE Escape route (min. 1 lux) + normal risk		SER-SA Anti panic (min. 0.5 lux) open area	
3.0	11.7	3.1	9.2	9.2
3.5	13.4	3.4	10.3	10.3
4.0	14.8	3.7	11.5	11.5
5.0	17.7	4.1	13.2	13.2

For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue

Spacing data

Serenga Sun-Lite SER-DA & SER-DW

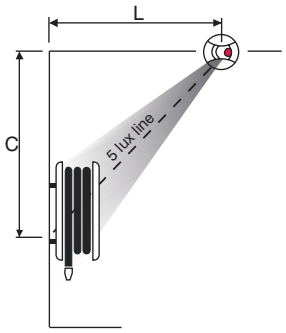
Mount height (m)	SER-DW Escape route (min. 1 lux) + normal risk		SER-DA Anti panic (min. 0.5 lux) open area	
2.5	4.6	10.5	3.1	7.8
3.0	5.2	11.8	3.2	8.2
3.5	5.6	12.9	3.2	8.6
4.0	6.0	14.1	3.1	8.9
5.0	6.7	16.0	2.4	9.1

Serenga Sun-Lite SER-DS

Spotlight: 5 lux on centre of object

Centre object to ceiling (C)	Luminaire to wall (L)
0.5	0.2
1.0	0.6
1.5	0.9
2.0	1.3
2.5	1.6
3.0	2.0
3.5	2.3
4.0	2.6

Distances in metres



Horizon OH / OZ 8 Watt

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
2.8	3.8	11.1	5.4	1.9	5.6	14.8	6.8	2.7
3.0	3.6	11.2	5.5	1.8	5.6	15.1	7.0	2.7
3.5	2.6	11.0	5.5	1.4	5.5	15.7	7.4	2.7
4.0	0.8	10.6	5.2	0.7	5.3	15.8	7.6	2.6
6.0	-	-	-	-	-	14.5	7.1	-
8.0	-	-	-	-	-	3.2	2.8	-

Aqualux OW / STF 8 Watt

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
2.8	3.9	9.9	5.8	2.1	4.9	12.0	7.3	2.9
3.0	4.0	10.2	5.9	2.0	5.1	12.3	7.6	2.9
3.5	4.0	10.7	6.0	1.8	5.4	13.2	8.0	3.0
4.0	3.7	11.2	5.9	1.4	5.6	14.0	8.2	2.9
6.0	-	10.1	3.2	-	5.1	16.0	8.2	1.6
8.0	-	-	-	-	-	15.0	5.8	-

For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue

Aqualux OW / STF 11 Watt

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
2.8	4.3	10.7	7.8	3.0	5.3	12.9	9.6	3.9
3.0	4.5	11.0	8.0	3.1	5.5	13.3	9.9	4.0
3.5	4.7	11.7	8.3	3.1	5.9	14.3	10.5	4.2
4.0	4.8	12.3	8.6	3.1	6.2	15.1	11.1	4.3
6.0	2.7	13.0	8.5	1.4	6.5	17.9	12.3	4.3
8.0	-	9.1	5.6	-	4.0	19.0	10.4	2.8

Previx PX LED

Mount height (m)	Escape route (min. 1 lux) + normal risk			
LED strip				
2.5	2.6	6.9	6.7	2.6
3.0	2.6	7.3	7.2	2.7
4.0	2.3	7.5	7.5	2.4
LED strip plus PX/LENS4 lens kit				
2.5	4.9	11.8	5.4	2.1
3.0	4.7	13.2	5.8	1.8
4.0	3.3	13.7	5.5	1.2

Way-Fer PLX 8 Watt / LED

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
Fluorescent 8 W T5								
2.5	2.8	7.6	5.7	2.1	3.8	9.8	7.1	2.8
4.0	2.2	8.0	6.1	1.7	4.0	11.1	8.3	3.0
5.0	-	7.2	5.7	-	3.6	11.4	8.6	2.8
LED strip								
2.5	2.2	7.3	4.5	1.6	4.0	10.1	6.1	2.3
3.0	2.5	7.0	4.5	0.9	4.2	10.8	6.4	2.3
4.0	-	3.7	2.8	-	3.4	9.8	6.4	1.7

For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue

Spacing data

Silver-Lite AR 8 Watt / LED

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
Fluorescent 8 W T5								
2.5	1.8	5.1	4.7	1.7	2.6	7.2	6.1	2.3
4.0	-	4.7	4.3	-	1.9	7.2	6.2	1.6
6.0	-	-	-	-	-	-	-	-
LED strip								
2.5	2.3	6.0	5.5	2.2	3.1	7.5	7.0	2.8
4.0	1.8	6.3	5.9	1.8	3.2	8.6	7.9	3.0
6.0	-	4.2	4.1	-	2.2	8.8	8.3	2.2

Silver-Scape RB 8 Watt / LED

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
Fluorescent 8 W T5								
2.5	2.65	7.81	4.53	1.36	5.59	13.57	8.44	3.39
4.0	-	6.89	3.06	-	6.18	16.48	9.92	3.58
6.0	-	-	-	-	5.68	17.59	10.09	2.72
LED strip								
2.5	0.6	5.8	3.3	0.3	3.9	9.3	6.2	1.7
3.0	-	2.7	2.5	-	1.4	8.0	5.9	1.3
4.0	-	-	-	-	-	7.6	3.9	-

Weatherforce B / WA 8 Watt (opal diffuser)

Mount Height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
2.5	2.2	6.4	5.6	1.9	3.2	8.5	7.3	2.8
4.0	0.7	5.9	5.2	0.4	3.0	9.1	7.8	2.6
6.0	-	-	-	-	-	-	-	-

Weatherforce B / WA 8 Watt (clear prismatic difuser)

Mount Height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
2.5	1.4	4.5	4.2	1.3	2.6	7.2	6.1	2.3
4.0	-	2.9	3.0	-	1.9	7.2	6.2	1.6
6.0	-	-	-	-	-	-	-	-

For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue

Day-Lite Ex-cel XXW 8 Watt / LED

Mount height (m)	Escape route (min. 1 lux) + normal risk				Anti panic (min. 0.5 lux) open area			
Fluorescent 8 W T5 170 lumens								
2.5	2.9	8.5	4.7	1.6	4.6	12.3	6.4	2.5
4.0	-	7.8	3.9	-	4.2	12.6	6.8	2.0
6.0	-	-	-	-	-	-	-	-
Fluorescent 8 W T5 100 lumens								
2.5	1.65	6.0	3.55	0.5	3.3	9.7	5.2	1.7
4.0	-	2.7	0.5	-	1.0	9.5	5.5	0.7
6.0	-	-	-	-	-	-	-	-
LED strip								
2.5	-	4.3	2.4	-	4.2	8.5	4.2	1.3
3.0	-	4.9	1.0	-	4.9	10.0	4.1	-
4.0	-	-	-	-	-	6.7	2.1	-

Camarque CLQ 28 Watt / 38 Watt

Mount height (m)	OPAL 28 W 2D Escape route (min. 1 lux) + normal risk	OPAL 38 W 2D Escape route (min. 1 lux) + normal risk
2.0	6.0	8.1
2.5	6.3	8.4
3.0	6.5	8.7
4.0	6.5	8.9

Cordona CPW 28 Watt

Mount height (m)	CLEAR POLYCARBONATE 28 W 2D Escape route (min. 1 lux) + normal risk
2.5	7.9
3.0	8.0
4.0	8.1

For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue

Testing

BS 5266 Part 8 (EN 50172) and BS EN 62034:2000 specify the statutory requirements for testing the entire emergency lighting installation, and a copy of this standard should be obtained.

It should be noted that, immediately after a test, the battery might not have sufficient capacity to provide emergency lighting cover. For this reason all tests should be performed, where possible, at a time of minimum risk.

Record keeping

It is a requirement of BS 5266 Part 8 (EN 50172) that accurate records of testing are kept. Emergi-Lite have produced an Emergency Lighting Record Log Book designed to assist with these requirements. These are available to order – part code YLB-EL0807.

General maintenance

Check the system has adequate ventilation. Louvres in the door, and grilles in the rear panel must not be obstructed. Door access must not be obstructed.

The operating environment should be free from dust, which can accumulate inside modules.

Charger maintenance

The charger output voltage should be tested on a monthly basis by a competent engineer to ensure it is set correctly. Charger voltage may be affected by the ambient temperature in the battery compartment.

Any variation in charger voltage should be noted, and, if in doubt, contact Emergi-Lite Service Department for advice and assistance.

Equipment should be maintained dust free and clean to prevent premature failure.

Battery and cells maintenance and storage

Battery storage, maintenance and handling shall be fully carried out in line with the battery manufacturers instructions.

The battery should be visually inspected each month by a competent engineer to check that there is no evidence of damaged or leaking cells. Damaged or leaking cells require replacement. Please contact Emergi-Lite Service Department for advice and replacements.

Individual cell voltages should be recorded on the record sheets provided in the manual. A digital DC voltmeter is required for this purpose. Only record cell voltages when the battery is fully charged, which takes a maximum of 24 hours after a test.

Cell voltages should remain constant over the life of the battery. Cells showing a voltage differing from previous readings require investigation (please note charger is temperature compensated and cell voltages will vary with ambient room temperature changes). Do not at any time attempt to remove or replace cells or re-commission the system. Please contact Emergi-Lite Service Department for advice and assistance.

Temperature extremes severely affect battery life. Always check and record the ambient temperature in the battery room. The optimum temperature is 20°C.

Handling

Most cells are heavy and difficult to handle. Care should be taken and the correct technique employed when using manual or other lifting methods.

Explosion hazard

Recombination (sealed) cells, when operated correctly, have negligible rates of gas evolution.

Repair/disposal

No attempt should be made to repair any cells, they should be treated as disposable when they have outlived their use.

Batteries must be disposed of in accordance with current waste disposal and pollution legislation. It is recommended that the following authorities are contacted before any attempt is made to dispose of cells; Environment Agency Local Office, Local Authority Environmental Health or Waste Handling Department.

Our Service Department is available to provide advice regarding disposal of batteries, replacement of batteries and re-commissioning of Central Power Supply Systems. Please contact us for assistance.

Warranty

Failure to observe above guidance may invalidate the Thomas and Betts warranty.

Terms and conditions of warranty apply which are available on request.

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At Thomas & Betts, our focus is on improving your business performance by providing practical, reliable electrical products and services that connect and protect for life and solve everyday problems in the areas of Wire & Cable Management, Cable Protection, Power Connection & Control and Safety Technology. Our extensive engineering, supply chain management and technical sales support teams are committed to understanding everything that impacts your ability to accomplish your business objectives by reducing your total cost of ownership.

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