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.

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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Introduction to Emergi-Lite together with definitions of different types of Central Power Supply System

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Details of the EMEX Power AC/AC Central Power Supply System

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Details of the EMEX Power AC/AC Central Power Supply System

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The complete emergency lighting central system testing solution

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Spacing Data tables for the Emergi-lite range of luminaires

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Introduction

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

www.emergi-lite.co.uk
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.
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
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
# 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

<table>
<thead>
<tr>
<th>Part No</th>
<th>ELD8000.015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Static Inverter EMEX Mini 1.5kVA 1-3H SPN</td>
</tr>
</tbody>
</table>

### 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
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.

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 of ICEL 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.

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

<table>
<thead>
<tr>
<th>Battery</th>
<th>Initial cost</th>
<th>Design life</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRLA</td>
<td>££</td>
<td>YY</td>
<td>££</td>
</tr>
<tr>
<td>Ni-CAD</td>
<td>£££££</td>
<td>YYYYYYYY</td>
<td>£££££</td>
</tr>
<tr>
<td>Planté</td>
<td>£££££</td>
<td>YYYY</td>
<td>££££</td>
</tr>
</tbody>
</table>

www.emergi-lite.co.uk
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
## EMEX Mini - Single Phase 220-240 V 50/60 Hz

<table>
<thead>
<tr>
<th>Commercial Rating</th>
<th>ICEL Rating</th>
<th>1 Hour Duration</th>
<th>2 Hour Duration</th>
<th>3 Hour Duration</th>
<th>Emex Mini Part No.</th>
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<tbody>
<tr>
<td>1500VA</td>
<td>1250VA</td>
<td>1200W</td>
<td>725W</td>
<td>525W</td>
<td>ELD8000.015</td>
</tr>
</tbody>
</table>

Note: Emex Mini is a standard rated system for all autonams 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

<table>
<thead>
<tr>
<th>Commercial Rating</th>
<th>ICEL Rating</th>
<th>1 Hour Duration</th>
<th>1.5 Hour Duration</th>
<th>2 Hour Duration</th>
<th>3 Hour Duration</th>
<th>Emex Power Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VA</td>
<td>Watts</td>
<td>Watts</td>
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### EMEX Power - Three Phase 220-240 V, 380-415 V 50/60 Hz (adjustable)

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www.emergi-lite.co.uk
# Unity PF Designed Systems

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

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## EMEX Power - Three Phase 220-240 V, 380-415 V 50/60 Hz

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## 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** = 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 = 0.85 PF, 1.5hr, 1 Phase @ 1.5KVA

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<td>Dutch version</td>
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## Order Codes

For more information, visit [www.emergi-lite.co.uk](http://www.emergi-lite.co.uk)
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

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.

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**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.

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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.
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.
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 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 /TS 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 /TS 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/m²), 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, (1.0mm² 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 1154-65 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

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

SEVENTH FLOOR

FIRST FLOOR

PLANT ROOM

CONTROL ROOM

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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 way 12 amp hold-off relay</td>
<td>ELD9600.001</td>
</tr>
<tr>
<td>10 way 12 amp hold-off relay</td>
<td>ELD9600.002</td>
</tr>
<tr>
<td>15 way 12 amp hold-off relay</td>
<td>ELD9600.003</td>
</tr>
<tr>
<td>20 way 12 amp hold-off relay</td>
<td>ELD9600.004</td>
</tr>
</tbody>
</table>

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.

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

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.

Local mains supply

Static inverter output

Hold-off relay

Local light switch

Changeover relay

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

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 throughout, 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.

<table>
<thead>
<tr>
<th>Battery</th>
<th>Initial cost</th>
<th>Design life</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRLA</td>
<td>££</td>
<td>YY</td>
<td>££</td>
</tr>
<tr>
<td>Ni-CAD</td>
<td>£££££</td>
<td>££££££</td>
<td>££££££</td>
</tr>
<tr>
<td>Planté</td>
<td>£££££</td>
<td>£££££</td>
<td>£££££</td>
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</table>
Order codes

1 hour 110V AC/DC systems

<table>
<thead>
<tr>
<th>KVA</th>
<th>Watts</th>
<th>Cabinet quantity</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>1,900</td>
<td>1</td>
<td>ELD9100.120</td>
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<tr>
<td>3.0</td>
<td>2,700</td>
<td>1</td>
<td>ELD9100.121</td>
</tr>
<tr>
<td>4.0</td>
<td>4,000</td>
<td>1</td>
<td>ELD9100.122</td>
</tr>
<tr>
<td>5.5</td>
<td>5,500</td>
<td>1</td>
<td>ELD9100.123</td>
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</tbody>
</table>

3 hour 110V AC/DC systems

<table>
<thead>
<tr>
<th>KVA</th>
<th>Watts</th>
<th>Cabinet quantity</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>1,000</td>
<td>1</td>
<td>ELD9100.130</td>
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<tr>
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<td>ELD9100.131</td>
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<td>2.0</td>
<td>2,000</td>
<td>1</td>
<td>ELD9100.132</td>
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<tr>
<td>3.0</td>
<td>2,700</td>
<td>1</td>
<td>ELD9100.133</td>
</tr>
<tr>
<td>4.0</td>
<td>3,600</td>
<td>1</td>
<td>ELD9100.134</td>
</tr>
<tr>
<td>5.5</td>
<td>4,860</td>
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</tr>
<tr>
<td>5.5</td>
<td>5,400</td>
<td>2</td>
<td>ELD9100.136</td>
</tr>
</tbody>
</table>

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.

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 (HLM)
- 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
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.
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 1mm² 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.

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

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>SER-F Escape route (min. 1 lux) + normal risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>4.8</td>
</tr>
<tr>
<td>3.5</td>
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</tr>
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<td>4.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>SER-SA Anti panic (min. 0.5 lux) open area</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>4.1</td>
</tr>
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<tr>
<td>5.0</td>
<td>4.1</td>
</tr>
</tbody>
</table>

For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue.
## Spacing data

### Serenga Sun-Lite SER-DA & SER-DW

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>SER-DW Escape route (min. 1 lux) + normal risk</th>
<th>SER-DA Anti panic (min. 0.5 lux) open area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>4.6</td>
<td>10.5</td>
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<td>5.2</td>
<td>11.8</td>
</tr>
<tr>
<td>3.5</td>
<td>5.6</td>
<td>12.9</td>
</tr>
<tr>
<td>4.0</td>
<td>6.0</td>
<td>14.1</td>
</tr>
<tr>
<td>5.0</td>
<td>6.7</td>
<td>16.0</td>
</tr>
</tbody>
</table>

Distances in metres

### Serenga Sun-Lite SER-DS

**Spotlight: 5 lux on centre of object**

<table>
<thead>
<tr>
<th>Centre object to ceiling (C)</th>
<th>Luminaire to wall (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
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<td>2.3</td>
</tr>
<tr>
<td>4.0</td>
<td>2.6</td>
</tr>
</tbody>
</table>

### Horizon OH / OZ 8 Watt

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
<th>Anti panic (min. 0.5 lux) open area</th>
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<tr>
<td>2.8</td>
<td>3.8 11.1 5.4 1.9</td>
<td>5.6 14.8 6.8 2.7</td>
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</tr>
<tr>
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<td>- 3.2 2.8 -</td>
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</tbody>
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### Aqualux OW / STF 8 Watt

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
<th>Anti panic (min. 0.5 lux) open area</th>
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<td>5.1 16.0 8.2 1.6</td>
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<td>- 15.0 5.8 -</td>
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</table>

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

### Aqualux OW / STF 11 Watt

<table>
<thead>
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<th>Mount height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
<th>Anti panic (min. 0.5 lux) open area</th>
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<tbody>
<tr>
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<tr>
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### Previx PX LED

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<table>
<thead>
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<th>Mount height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
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### Way-Fer PLX 8 Watt / LED

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<th>Mount height (m)</th>
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#### Fluorescent 8 W T5

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<th>Anti panic (min. 0.5 lux) open area</th>
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#### LED strip

<table>
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</table>

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

www.emergi-lite.co.uk
### Spacing data

#### Silver-Lite AR 8 Watt / LED

<table>
<thead>
<tr>
<th>Mount Height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
<th>Anti panic (min. 0.5 lux) open area</th>
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</thead>
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<td>Fluorescent 8 W T5</td>
<td>LED strip</td>
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<td>2.6 7.2 6.1 2.3</td>
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<td>1.9 7.2 6.2 1.6</td>
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#### Silver-Scape RB 8 Watt / LED

<table>
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#### Weatherforce B / WA 8 Watt (opal diffuser)

<table>
<thead>
<tr>
<th>Mount Height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
<th>Anti panic (min. 0.5 lux) open area</th>
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<tbody>
<tr>
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<td>3.2 8.5 7.3 2.8</td>
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<tr>
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</tr>
</tbody>
</table>

#### Weatherforce B / WA 8 Watt (clear prismatic diffuser)

<table>
<thead>
<tr>
<th>Mount Height (m)</th>
<th>Escape route (min. 1 lux) + normal risk</th>
<th>Anti panic (min. 0.5 lux) open area</th>
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For more information on luminaires please refer to the Emergi-Lite Emergency Lighting Catalogue
### Day-Lite Ex-cel XXW 8 Watt / LED

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>Fluorescent 8 W T5 170 lumens</th>
<th>Fluorescent 8 W T5 100 lumens</th>
<th>LED strip</th>
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</thead>
<tbody>
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<td>Anti panic (min. 0.5 lux) open area</td>
<td>Escape route (min. 1 lux) + normal risk</td>
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<tr>
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### Camarque CLQ 28 Watt / 38 Watt

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>OPAL 28 W 2D</th>
<th>OPAL 38 W 2D</th>
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<tr>
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<td>Escape route (min. 1 lux) + normal risk</td>
<td>Escape route (min. 1 lux) + normal risk</td>
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<tr>
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<td>8.7</td>
</tr>
<tr>
<td>4.0</td>
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<td>8.9</td>
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</table>

### Cordona CPW 28 Watt

<table>
<thead>
<tr>
<th>Mount height (m)</th>
<th>CLEAR POLYCARBONATE 28 W 2D</th>
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<tbody>
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<tr>
<td>4.0</td>
<td>8.1</td>
</tr>
</tbody>
</table>

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

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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.
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 focused.

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.

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.