

LED solutions

LED emergency lighting system

Solutions for emergency lighting



TRIDONIC

LÅNA

KOPIERING



Light that makes people feel safe. At all times.

A system is only as good as the weakest link of its chain. This is why we consider emergency lighting as a functional unity – from power supply to battery, from optimal use of the light source to easy integration into the lighting management and building management systems.



The complete solution – for your emergency lighting

Tridonic solutions for emergency lighting systems provide for safety in your building, even in case of a power failure.



LED emergency lighting system

A functional unity

Focused Tridonic competence



All over the world, Tridonic is a synonym for excellent products and services associated with perfect light. The company is impressive with a clearly arranged portfolio that will meet any requirement. With LED/OLED, LED Drivers and lighting management as core competencies - and with a view to the integration of emergency lighting, we are the right partner for electronic component solutions and systems.

Everything from a single supplier

At Tridonic, the competencies of various disciplines merge. We can provide you with the entire portfolio for solutions in the fields of general and emergency lighting: LED Driver, LED modules, LED Light Engine, batteries and controls. This is what makes us a market leader in emergency lighting systems in Europe. Be assured: we can provide you with the components of escape sign luminaires, escape route lighting as well as anti-panic lighting that's suitable for you – at the latest state of the art and in the reliable Tridonic quality that you have grown accustomed to.

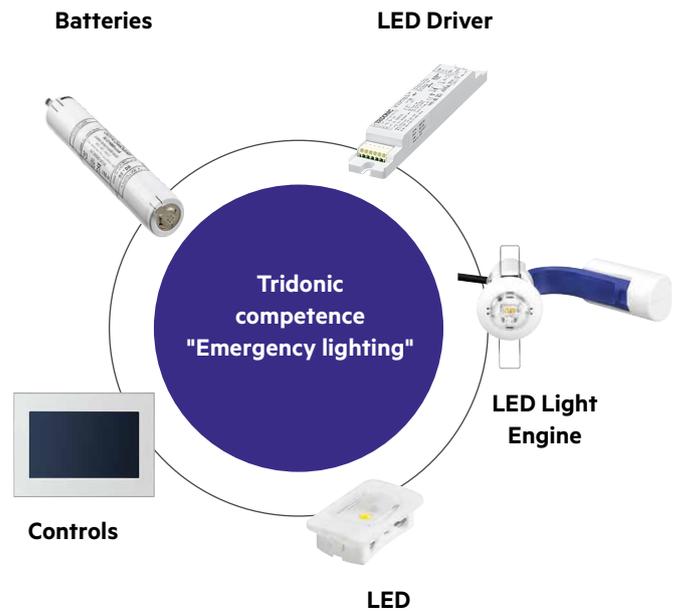
Trust, but verify.

From development to production, we check even the most inconspicuous detail for reliability and efficiency. In operation, too, emergency lighting is given particular attention: our automatic monitoring and test equipment guarantees that standards and specifications are reliably met.

Power supply for emergency purposes

Various systems are eligible to supply emergency lighting installations with electricity in case of a power failure: separate battery, group battery, central battery, power generators or high-security mains.

Whether you opt for emergency lighting with decentralised separate battery solutions or for a group or central battery installation – with Tridonic components you will always be on the safe side. The comprehensive range comprises both LED Driver for group and central battery supply and single battery-supplied emergency lighting units.



LED emergency lighting system

With good reason

Emergency lighting protects people against panic and accidents.



When the general artificial lighting fails, orientation must still be ensured in buildings even for visitors. Accordingly, there are legal provisions governing the equipment and dimensioning of emergency lighting installations that will be activated when there is no mains voltage. According to international standards and in line with the relevant European Directives, emergency lighting is divided into safety lighting and secondary lighting.



Safety lighting

Safety lighting must provide for a minimum brightness level to avoid panic in buildings and to allow for hazardous procedures to be completed and equipment to be turned off safely. Escape routes and safety devices must be clearly recognisable, thus enabling people to leave the premises quickly. Safety lighting breaks down into anti-panic lighting, escape route lighting and safety lighting for high-risk workplaces.

Secondary lighting

Secondary lighting provides light in places where power failures will not cause any hazard, but where nevertheless work needs to be continued. For a limited period of time, it will assume the function of general lighting.

Anti-panic lighting

Anti-panic lighting is meant to avoid panic in case of a power failure and to enable the people in the building to clearly recognise escape routes. The required illuminance level in the defined area is at least 0.5 lux.

Escape route lighting

Escape route lighting allows for safety devices to be recognised clearly and used safely. Escape routes must be illuminated across a width of 2 m. In doing so, an illuminance level of at least 1 lux along the center line for a path width of one metre must be guaranteed.

According to the EN 1838 standard, the ratio of highest to lowest illuminance must not exceed 40:1 for anti-panic and escape route lighting. The required illuminance level must be reached after no longer than 60 seconds. 50 per cent of the illuminance level, however, must be reached already after 5 seconds. The rated service time is at least one hour.

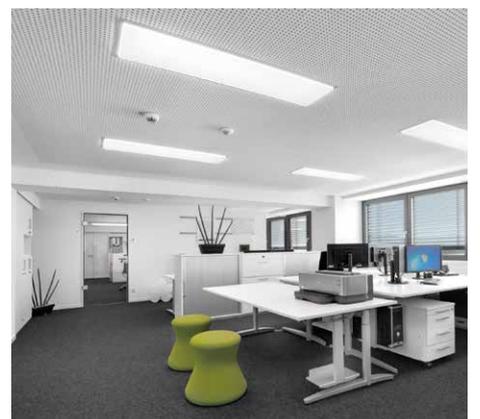
Emergency lighting for high-risk workplaces

Emergency lighting for high-risk workplaces must reach 10 per cent of the illuminance level required for the respective tasks or at least 15 lux after a maximum switch-on delay of 0.5 seconds. The ratio between highest and lowest illuminance must not exceed 10:1.

LED emergency lighting system

Controlled safety

Function testing – manual or fully automatic



Light enables people to leave buildings safely, helps them to find their way round and reduces accident hazards. Accordingly, various national and international standards, regulations and directives govern the operator's responsibility for reliable operation of the respective installations. What is required here is regular testing and function monitoring.

Three ranges: BASIC, SELFTEST and PRO

For the function test of the emergency lighting installation, Tridonic disposes of a ballast solution that is adequate both in economic and functional terms for each individual application – from manual testing of individual installations in the BASIC range, via integrated automatic test functions (SELFTEST range) through to central monitoring of the entire emergency lighting system in the PRO range.

Tridonic emergency lighting LED Driver with automatic test functions meet various testing and inspection algorithms according to the IEC 62034 standard. In the process, a random generator controls the start of the test cycles, thus preventing all batteries from being discharged at the same time and avoiding potential safety gaps. To ensure the right moment for running the annual system test, the switching status of the luminaires is permanently monitored. Based on this information, the annual system test can automatically be run at times when the rooms are not in use.

Emergency lighting management

Owing to the DALI communication standard, Tridonic emergency lighting components of the PRO range can easily be integrated into a monitored lighting and emergency lighting system. Additionally, Tridonic complements the general benefits of a DALI system through special highlights, such as the patented easy addressing system and scalable control systems – from the compact control unit through to the PC software.

LED emergency lighting system

Systematic emergency lighting – by Tridonic

The right answer to any requirement



High efficiency LED's are now the number one choice for use in emergency lighting applications. They are ideal for impressively efficient, and at the same time simple, emergency lighting solutions. Future-oriented solutions with perfectly matched components are generated from the combination of Tridonic's many years of experience in the field of LED Driver and the company's innovative LED light sources.

Solutions for application-specific use

EM powerLED emergency lighting control unit + LED emergency lighting modules

LEDs are ideally suited for use in escape sign, escape route and anti-panic luminaires. In this field, Tridonic offers a wide range of LED modules for emergency lighting operation that boast impressively high system efficiency. Optics that are optimised for the respective application guarantee high illuminance levels combined with extremely compact dimensions.

Emergency lighting LED Driver	Application-specific LED emergency lighting module	Application-specific LED emergency lighting module	Application-specific LED emergency lighting module
 <p>EM powerLED 1 W</p>	 <p>...for anti-panic luminaires</p>	 <p>...for escape route luminaires</p>	 <p>...for escape sign luminaires</p>

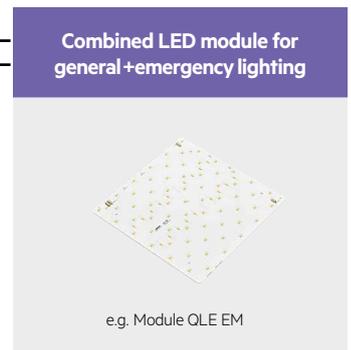
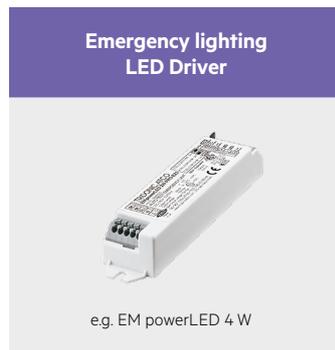
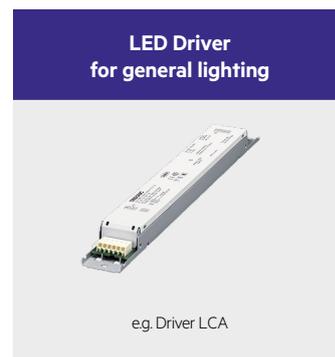


Solutions with separate integrated emergency lighting LED

EM powerLED emergency lighting LED Driver + combined LED modules for general and emergency lighting

For use in luminaires for general lighting, Tridonic can provide you with a wide range of LED modules. The modules of the EM range feature defined LED light points for emergency lighting operation – and accordingly an integrated emergency lighting function.

As these LEDs are addressed separately, reliability is increased even further, and ageing effects avoided. Direct integration also reduces wiring effort.



Universal solution for all LED modules

EM converterLED emergency lighting LED Driver + LED modules for general lighting

In the universal system, the LED modules that are also used for general lighting are switched by means of the emergency lighting control gear in case of an emergency.

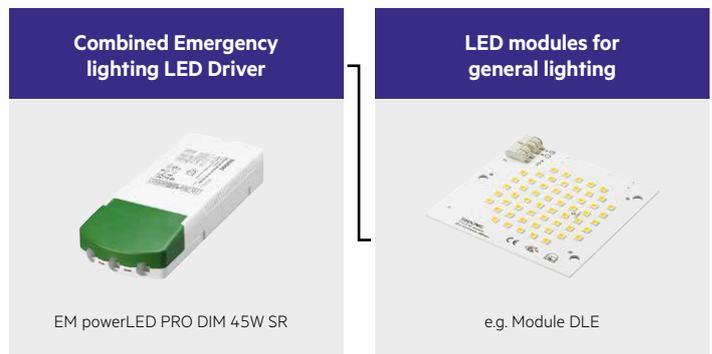
This solution offers maximum flexibility: it is compatible with all LED modules and all LED gear components made by Tridonic and other manufacturers.



Combined solution for normal and emergency lighting operation

EM powerLED emergency lighting control units for higher LED-power + LED modules for general lighting

The combined emergency lighting LED Driver EM powerLED (80 W Ip, 50 W/45 W C, SR) LED emergency lighting control units are the ideal solutions for a cost-optimised structure of the emergency lighting installation. They integrate the LED Driver for mains operation (four channels) and the emergency lighting function (one channel) in one assembly.



LED Light Engine for emergency lighting operation maintained and non-maintained

LED Light Engine EM ready2apply

The EM ready2apply complete solution (BASIC, SELFTEST, PRO) is the ideal solution for simple emergency lighting design. Thanks to the fusion of the LED driver and the LED module in combination with a long-lasting lithium-iron phosphate (LiFePO₄) battery, the unit is immediately ready for use.



Emergency lighting solutions by Tridonic

Complete and standard-compliant

Tridonic offers a diverse range of complete emergency lighting solutions for separate battery-supplied emergency lighting installations – for different requirements and LED modules – that perfectly match the requirements of the various country-specific standards. Here you will find both entirely straightforward and highly sophisticated solutions. The range extends from cost-optimised through to high-end emergency lighting systems.

	Emergency lighting LED Driver	Combined Emergency lighting LED Driver for low power	Combined Emergency lighting LED Driver for high power	Control Systems	Emergency LED Engine
PRO DALI	EM converterLED PRO 	EM powerLED PRO 1-4 W 	EM powerLED PRO DIM 45 W C/SR 	x/e-touch PANEL EM LINK connecDIM 	EM ready2apply PRO 
SELFTEST	EM converterLED SELFTEST 	EM powerLED SELFTEST 1-4 W 	EM powerLED SELFTEST FX 45 W C/SR 		EM ready2apply SELFTEST 
BASIC	EM converterLED BASIC 	EM powerLED BASIC 1-4 W 	EM powerLED BASIC FX 50 W C/SR 80 W Ip 		EM ready2apply BASIC 

EM powerLED high power

Combined control gear for general lighting and emergency lighting operation

The EM powerLED high power range of combined units is the smart solution where cost optimised or feature driven emergency lighting is required. It integrates the LED driver for mains operation and emergency lighting into one unit. Drivers are available for all applications from low profile non-SELV units for use in linear and square luminaires to compact SELV units for use with downlights and decorative luminaires. Versions are available to cover Basic testing, Self-testing and DALI addressable and monitored testing installations.

The innovative PRO compact versions are true one for all products allowing lighting control and dimming alongside emergency testing with a single DALI address. The units are fully compatible with the main PREMIUM and EXCITE range of Tridonic mains LED Drivers and can be used seamlessly in any installation. Strain relief SR compact versions in conjunction with plug in remote battery offer an out of the box solution.



EM powerLED BASIC FX 80 W/50 W **Flexible and efficient**

The manually tested EM powerLED BASIC offers essential emergency functionality for cost optimised emergency lighting solutions.



EM powerLED SELFTEST FX 45 W **Independent automatic self-testing**

EM powerLED SELFTEST with its integrated automatic test functions is performing a weekly function test and an annual duration test independently. The test result is shown locally via a bi-colour status display LED.



EM powerLED PRO DIM 45 W **Central control and monitoring via DALI**

The DALI addressable EM powerLED PRO combines both lighting control and automatic tested and monitored emergency lighting in one product.

At a glance: EM powerLED high power

- Combined functionality
- Small range for maximum coverage including selection of duration and power output
- Compact SELV and linear* non-SELV units
- Strain relief and embodiment versions of SELV units
- Basic, self-testing and PRO DALI versions
- Integrated simple corridorFUNCTION for BASIC versions
- ST versions with switchDIM
- PRO versions with a single DALI address for emergency and lighting control
- I SELECT 2 for easy and accurate current selection

* Only currently available in BASIC test versions

EM powerLED low power

Emergency lighting LED Driver for a wide range of applications

The characteristic features of Tridonic emergency lighting LED Driver are small dimensions and extremely flexible applications. Apart from the operation of powerful individual LED light points, they are also able to actuate several LED points with a lower individual rating. The entire range of Emergency lighting LED Driver has been designed for operation with environmentally friendly NiMH batteries. The unique intelligent multi-level charging circuit provides for quick and gentle charging of the batteries.

EM powerLED 1 W and 2 W may be used in maintained mode and in non-maintained mode. They are accordingly suited for both maintained operation in escape sign luminaires or for minimum lighting at night as well as in safety luminaires with a low to medium rating. EM powerLED is available with 1, 2 and 4 W.



EM powerLED BASIC 1–4 W

Compact and efficient

EM powerLED BASIC 1–4 W is a high-grade emergency lighting control unit offering maximum reliability for the operation of 1 to 2 LEDs in a row within minimum space (cross-section of 21 × 30 mm).



EM powerLED SELFTEST 1–4 W

Automatic testing and monitoring

EM powerLED SELFTEST 1–4 W works independently and automatically runs all function tests and annual system tests as well as the control of the batteries. The result is displayed by the two-coloured status LED.



EM powerLED PRO 1–4 W

Integration into a DALI system

The top high-tech product of the range – EM powerLED PRO 1–4 W – boasts unrestricted DALI compatibility and numerous impressive features, including the patented addressing system allowing for simple control of DALI emergency lighting control gear in any installation.

At a glance: EM powerLED low power

- Basic, Selftest and DALI-addressable versions
- Compact design with 1, 2 or 4 W output power
- Combined unit for mains and emergency lighting operation
- Maintained and non-maintained mode
- Various mounting options

LED emergency lighting system

EM converterLED

Emergency lighting LED Driver
combined with LED Drivers for mains operation



The rapid growth of LED technology within the lighting sector has created need for suitable emergency lighting systems for luminaires. Thanks to power control in emergency operation, the slim, transparent range of the EM converterLED product group offers utmost flexibility for a number of combinations of LED light sources with LED Drivers by Tridonic and other renowned manufacturers.

As a LED Driver for non-maintained mode, EM converterLED is used in combination with standard and dimmable LED Drivers. It is available as SELV and Non-SELV versions and with different functions. According to SELV classification, versions with a maximum output voltage of 54 V, 97 V and 250 V are available.

EM converterLED

One housing format for all

The housing concept for the EM converterLED range with fixed dimensions for length, width and height (179 × 30 × 21 mm) provides luminaire manufacturers with the possibility to scale and extend their luminaire ranges with different emergency lighting functions, without having to change the mechanical design and holes of their luminaires.



EM converterLED BASIC

Cost-optimised and efficient

EM converterLED BASIC offers fundamental emergency lighting functions for cost-optimised emergency lighting solutions. National test standards for emergency lighting applications are implemented manually; test results must be manually documented.



EM converterLED SELFTEST

Local monitoring

EM converterLED SELFTEST features a decentralised selftest function in compliance with national standards for emergency lighting applications. Typically, the test results will be displayed at the luminaire by means of a two-coloured LED; the results are documented manually.



EM converterLED PRO

Central monitoring via DALI

EM converterLED PRO features a selftest function in compliance with national standards. The test procedures and test sequences as well as the documentation of test results are managed through a central DALI system.

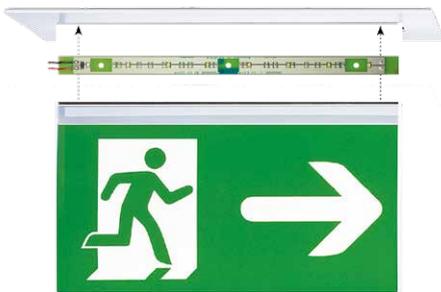
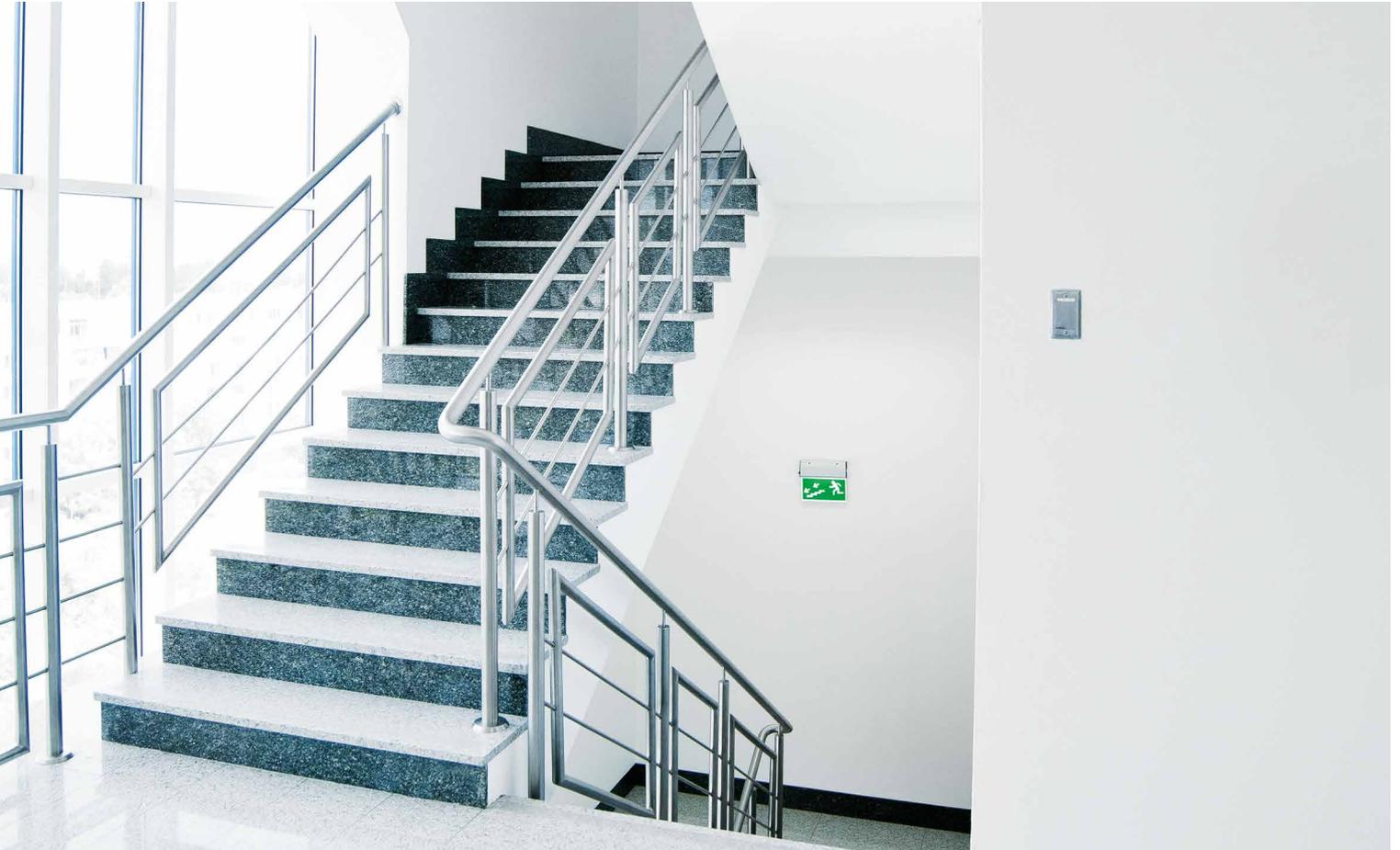
At a glance: EM converterLED

- Can be combined with dimmable and non-dimmable LED Drivers for maintained operation
- Can be used flexibly in combination with LED modules by Tridonic or other renowned manufacturers
- Basic, Selftest and DALI-addressable versions
- For medium to high LED performance
- Constant current operation for constant lighting result
- SELV and Non-SELV versions

LED emergency lighting system

Module EMERGENCY

Emergency light sources of utmost efficiency



Module EM-ES for uniform illumination of escape signs.

As compared to fluorescent luminaires, LEDs boast high system efficiency – even at low ambient temperatures. They can be switched on and off as often as necessary, immediately producing full light output. These are ideal conditions for emergency lighting systems with their regular tests and monitoring routines. Due to its compact size, the environmentally friendly LED also offers more flexibility.

Module EMERGENCY (EM) feature an optic ideally matched to the respective application. In spite of its extremely compact size and highly energy-efficient operation, it thus guarantees illumination in conformity with applicable standards.



Module EM-AP
For anti-panic luminaires

The unique design of the Module EM-AP light source ensures optimal light point spacings for anti-panic luminaires with minimal energy consumption. At a light point spacing of 10.4 m, it illuminates rooms with a height of 3 m at the required level of 0.5 lux.



Module EM-ER
Illumination of escape routes

Module EM-ER has been optimised for the tasks in escape routes. A special optic creates long, slender strips of light. Light point spacings of 10 m are sufficient to illuminate rooms of a height of 3 m at a level of 1 lux.



Module EM-ES
For escape sign luminaires

For uniform illumination of exit signs or escape signs, Tridonic offers convenient LED strips that make an excellent contribution to safety energy consumption of only 1 W for over 50,000 hours. Different models are available for the various luminaires, with the length and number of LEDs varying. EM powerLED Emergency lighting LED Driver provide for reliable low power operation.

At a glance: Module EMERGENCY

- LED modules for anti-panic and escape route luminaires
- LED of the latest generation
- Long service life thanks to optimal thermal management
- Low energy consumption
- Easy installation in luminaires and housings
- Wide range of applications

Module LED including Emergency

Reliable, bright – and highly functional

Module SLE EM, QLE EM, CLE EM and LLE EM are modules for general lighting fitted with additional separate LEDs for the emergency lighting function

Module SLE EM LED modules of the latest generation

Due to the circular, compact design with powerful lumen packages, the Module SLE product range opens up a new dimension of flexibility.

The reliable LED module is suitable both for downlights and for spotlights with uniform light distribution. In interiors, colour temperatures of 3,000 K and 4,000 K as well as a colour rendering index CRI > 80 enhance lighting quality, while in outdoor areas the versions with 5,000 K and a CRI > 70 are particularly impressive on account of their high efficiency.



Module CLE EM, QLE EM and LLE EM Flexible LED system solutions

By combining the octagonal, square and linear LED modules at will, it is very simple to integrate efficient LED technology into existing luminaire designs. At the same time, new design concepts can be implemented – regardless of the optic fitted, for LED system solutions are suitable for all systems, from wide-area luminaires to recessed luminaires. With their high colour rendering, warm white and intermediate colour temperatures, they are an equivalent alternative, in terms of quality, to traditional fluorescent lamps.

Another positive feature is their energy balance: excellent system efficiency of up to 155 lumens per watt results from the high energy efficiency of the LED modules and the perfectly matching LED Drivers. For emergency lighting operation, the respective emergency version of these modules is fitted with separate LED light points.

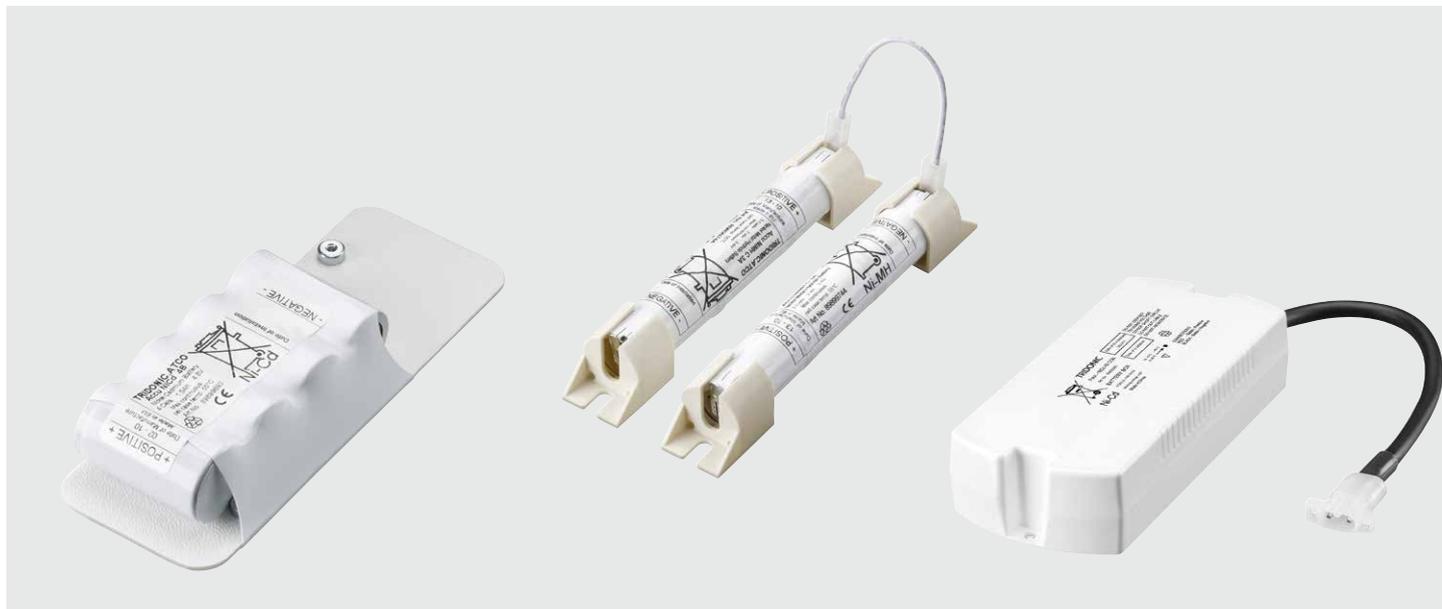


At a glance: LED modules with emergency lighting LEDs

- Minimum ageing of the emergency lighting LEDs
- Increased reliability
- Hardly any impact on normal lighting during function tests
- Easy wiring and full compatibility
- Independent from voltage and output of the main LEDs

Batteries

High quality for sophisticated applications



The proper function of an emergency lighting installation not only depends on reliable control gear – but, to a great extent, on the quality of the batteries used.

Due to continuous charging and high temperatures, the batteries used for emergency lighting installations are subject to demanding conditions during normal operation and they must provide full output at the times they are needed most urgently. Tridonic batteries have been specifically tested for this task, and have been designed for a service life of at least four years in maintained operation at high temperatures and constant charging.

Tridonic batteries have been developed and tested according to the most stringent standards applicable to emergency lighting installations.



Batteries for any application

For the wide range of emergency lighting LED Driver, both NiCd and the more environmentally friendly NiMH batteries are offered. The charge controllers of these compatible devices were designed specifically for both technologies either with electronically regulated charging circuits or with the latest multi-level charge controllers to guarantee the least possible energy consumption combined with optimal battery service life.

At a glance: batteries by Tridonic

- High-grade batteries made by internationally renowned manufacturers
- High-temperature cells with long service life according to the latest battery technology
- NiCd for optimal efficiency
- NiMH for optimal energy density and extremely small dimensions
- Various configurations for any application

LED emergency lighting system

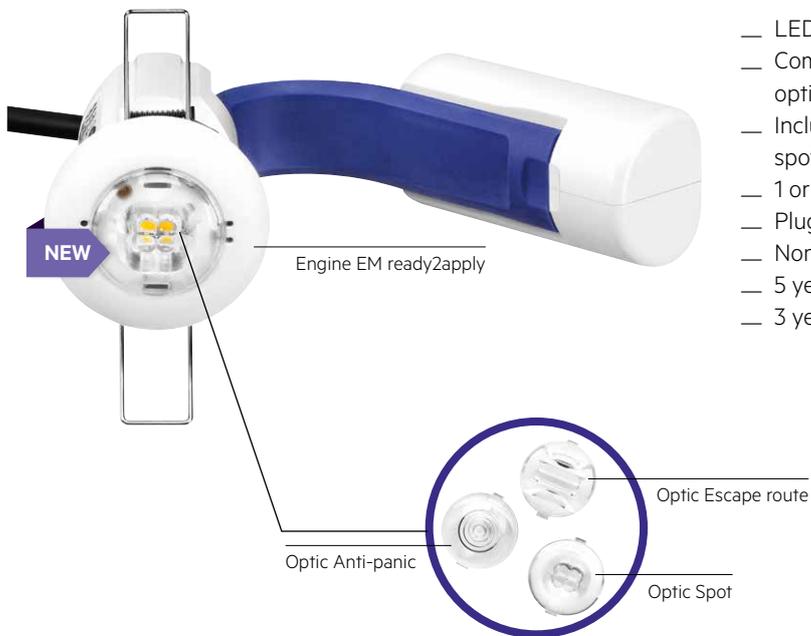
Engine EM ready2apply

For anti-panic, escape route and spot illumination



EM ready2apply represents a milestone in emergency lighting combining all of the components in a single small luminaire. Its flexible circuit technology enables a complete solution to be integrated in an extremely compact housing.

The user interchangeable optics provide maximum flexibility covering a wide range of emergency applications. The combination with an energy-optimised lithium iron phosphate (LiFePO₄) battery with a proven 8 years design life results in a high-quality product. A clever mounting concept saves valuable time during installation.

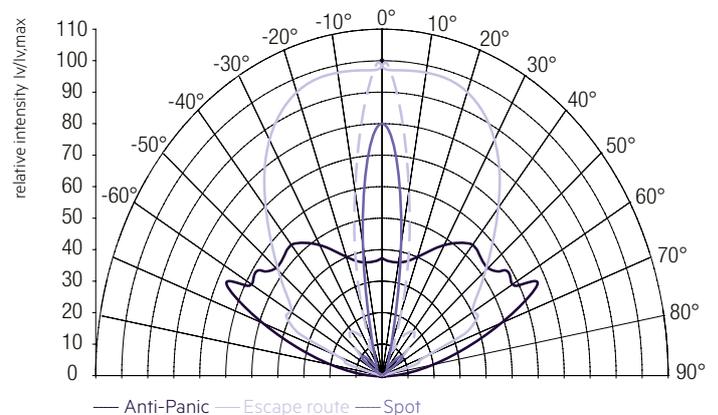


At a glance: Engine EM ready2apply

- LED emergency module suitable for direct installation in ceilings
- Complete set with integrated electronics, LED module, heat sink, optics and battery
- Includes click-in multi-lens option for anti-panic, escape route and spot illumination
- 1 or 3 h rated duration (separate variants)
- Plug-in Lithium Iron Phosphate battery with strain-relief
- Nominal life-time of 50,000 hours
- 5 years guarantee electronic (LED Driver)
- 3 years guarantee battery

This new EM ready2apply combines high-quality LED technology, a compact housing and a long-life lithium iron phosphate battery in a complete solution for emergency lighting in the form of a complete luminaire.

With three interchangeable optics, EM ready2apply is ideally equipped for anti-panic lighting, for illuminating escape routes and for use as a spotlight. Thanks to the integrated installation aid this luminaire is quick and easy to install. The mounting depth of only 80 mm means that attractive emergency lighting can be provided even if space in the ceiling is restricted.



LED emergency lighting system

DALI x/e-touchPANEL 02

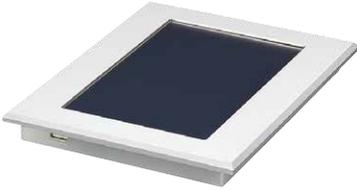
DALI emergency lighting management – Simple, reliable, and scalable to any project size



Simple control is the great advantage of the Tridonic emergency lighting system: installation is done quickly, and all tests are run automatically at the right time.

The x/e-touch emergency lighting concept by Tridonic offers an optimum solution for any application. It has been designed for small and large-networked emergency lighting systems with up to 3,000 emergency lighting LED Drivers. Additionally, it is possible to link the emergency lighting to a central monitoring system via Ethernet.

And the best part is: emergency lighting management based on x/e-touch can be scaled up and expanded almost at will. It is therefore extremely future-proof, and you can perfectly adjust the system to the respective requirements and needs. Maximum flexibility is achieved through the optional use of the control system for general lighting or emergency lighting. Upon commissioning, you can define the functionality of the panels yourself.



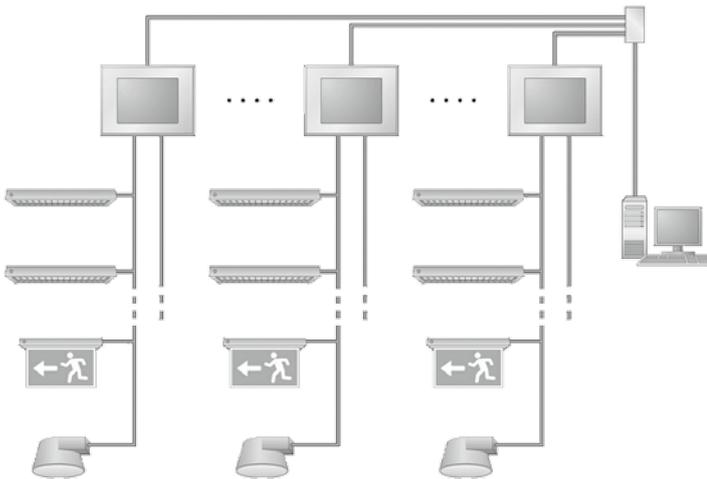
DALI x/e-touchPANEL 02

Basis for comprehensive emergency lighting management

The new x/e-touchPANEL 02 combines safety with comfort and flexibility: with an enlarged screen and higher resolution, up to 120 emergency lighting LED Drivers are now managed even more conveniently.

Keep a clear view conveniently

The 7-inch touch screen conveniently displays the emergency lighting systems. If an error occurs anywhere in the installation, it will be displayed clearly and visibly on the touch panel. Each individual component can be accessed at the press of button; a simple navigation system safely guides the user through control and management.



EM LINK

Efficiently linked emergency lighting

With a few mouse clicks, you can control more than 3,000 individually addressable emergency lighting LED Drivers: EM LINK links up to 25 x/e-touchPANEL 02 via Ethernet. The status of all devices can be monitored on a computer-aided basis. The test logs can be collected, stored and printed.

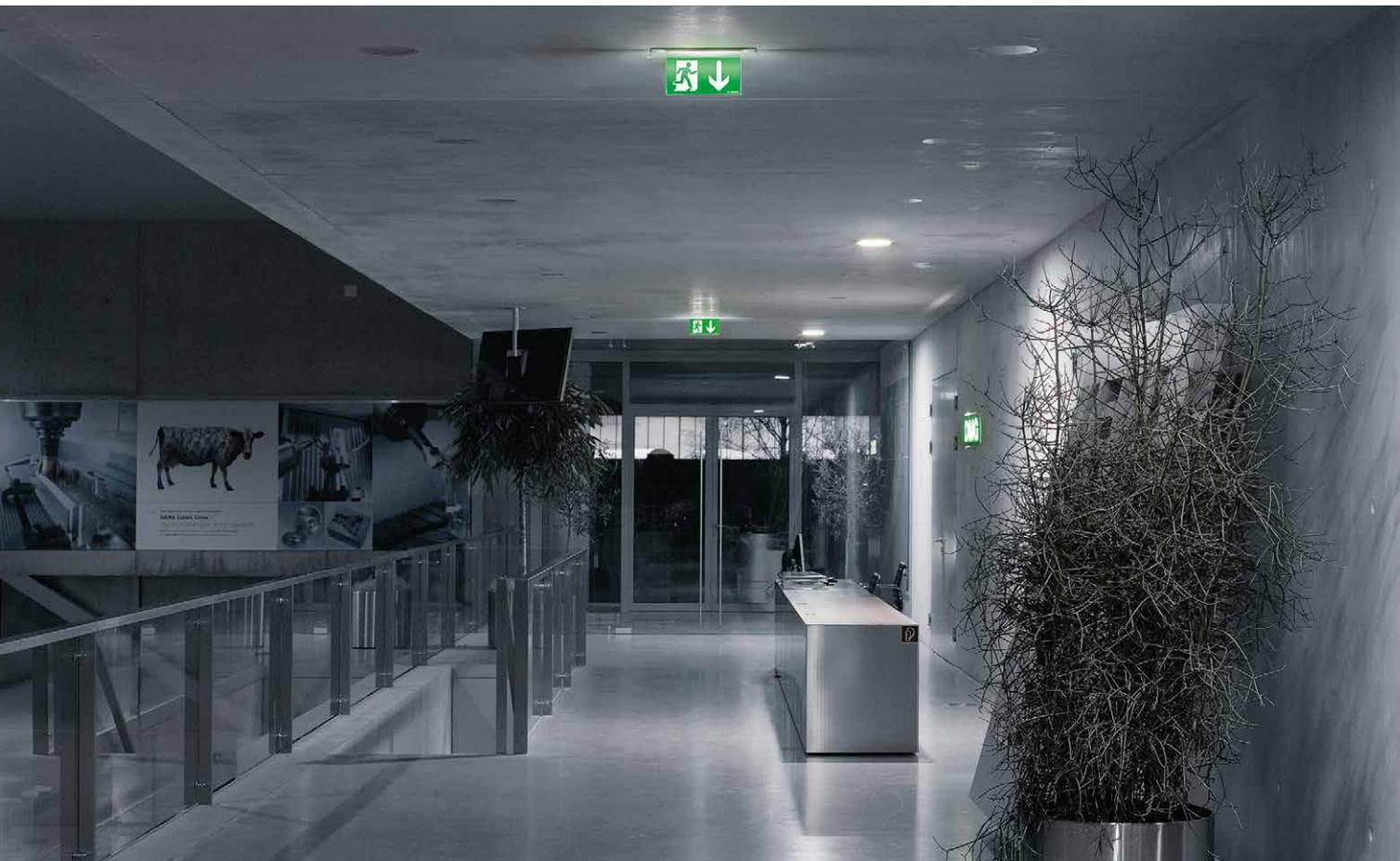
At a glance: DALI x/e-touchPANEL02

- Flexible control system for general and emergency lighting
- Two DALI circuits (120 DALI emergency lighting LED Drivers)
- IrDA, USB and Ethernet interface
- Two addresses for external status display
- Remote control via standard Internet browser or EM LINK software

LED emergency lighting system

connecDIM

Controlling and managing light has never been easier

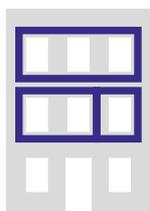


Innovative lighting

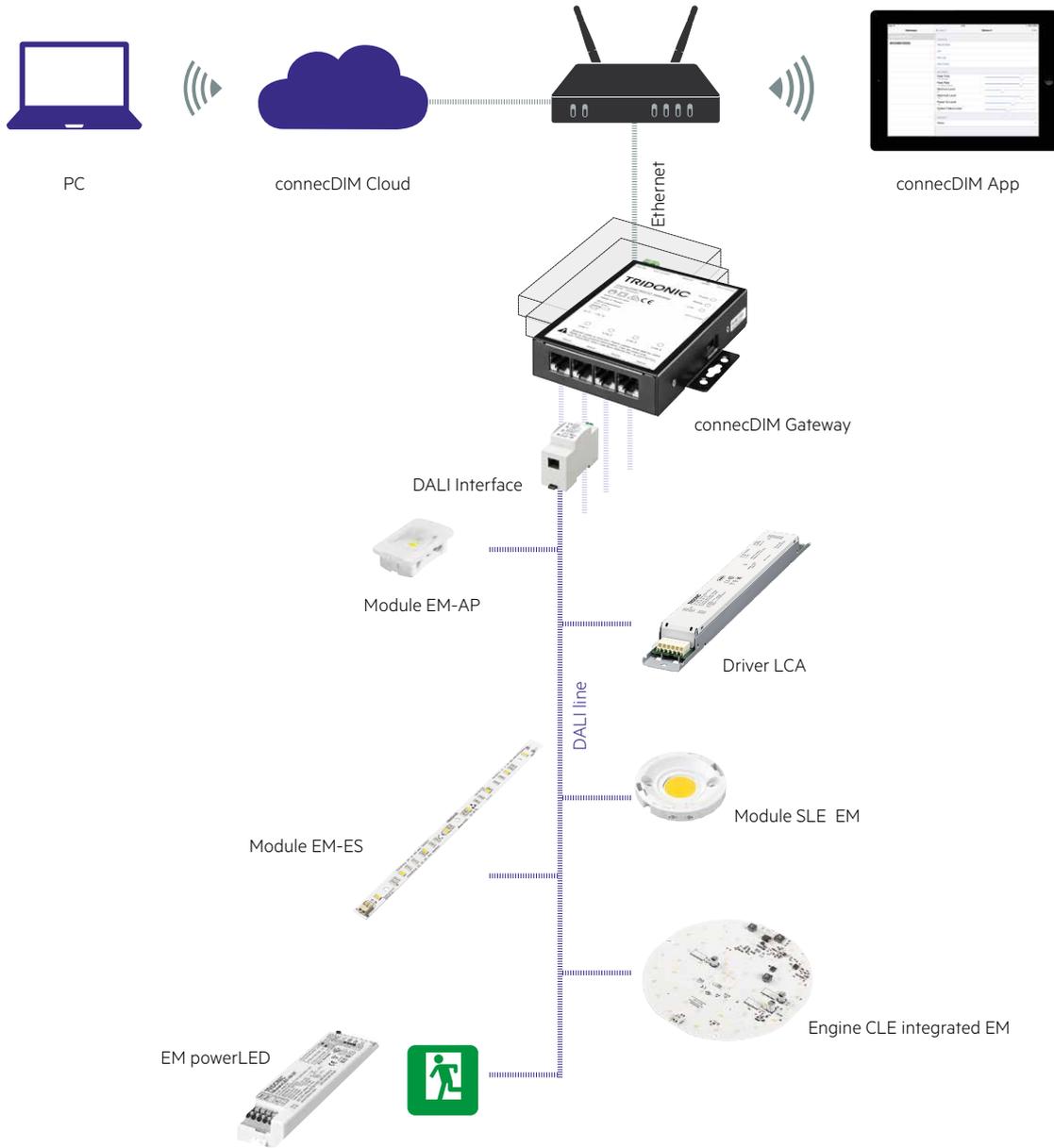
DALI emergency lighting units from Tridonic can be easily integrated in the connecDIM light management system – and the prescribed function and service life tests can therefore be performed automatically.

The results of the tests are stored in the connecDIM Cloud and can be easily printed out from there. There is also the possibility of incorporating several buildings at different sites in the cloud service. This greatly simplifies central planning for emergency lighting system maintenance.

For even greater convenience, management of the connecDIM Cloud can be outsourced to a partner company which will regularly check the status of the system and carry out maintenance of the emergency lighting system on behalf of the customer.



Building/branch



Automated emergency testing and reporting

Facilitate maintenance and centralised monitoring. Reporting of functionality and duration testing and failures.



Central management of test reports in the cloud

A service accessible online round the clock from anywhere in the world. Remote monitoring of the site, calendar synchronisation, maintenance, emergency lighting tests, energy monitoring and offsite backup. Email notification in the event of a fault in the system, together with a description of the fault.

At a glance: connectDIM

- DALI Commissioning via tablet or smartphones
- Always with the latest firmware version
- Inexpensive solution using industrial standard hardware and internet technologies (DALI, TCP/IP)
- With one gateway, up to 4 DALI lines can be controlled

The Light

Into a connected future with light.

Tridonic is paving the way for networking. We will show you how you can develop smart luminaires based on our intelligent technologies, and improve your business at the same time. Our 1,700 experts are working on five continents to set new standards in intelligent networked lighting and exploit the opportunities that the Internet of Things offers for the lighting industry. In addition to our component solutions we offer a new LED system platform which can take light far beyond mere illumination. We are taking light into a networked future. Come with us on this journey.

Supporting information and instruments:



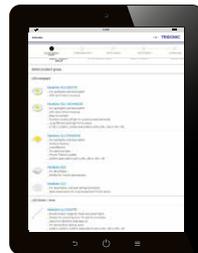
LED solutions product catalogue



Data sheets at www.tridonic.com, under "Technical data"



Product Solutions App productsolutions.tridonic.com



Setbuilder V2.0 setbuilder.tridonic.com



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Light you want to follow.

