



Selecting the right emergency lighting fixture

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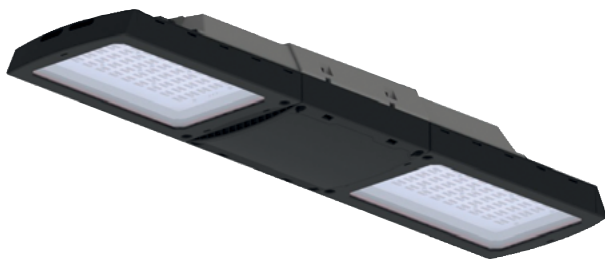
Challenge:

Commercial buildings, hospitals, healthcare, data centers, plants and other facilities rely on a robust emergency plan to help ensure the safety of employees and customers during a power outage.

While safety guidelines and maintenance vary, lighting and backup power in a harsh and hazardous area is critical for any emergency plan. The recommendations made here are general and can be used as a guide for most countries.

Solution:

For emergency lighting in hazardous (Ex) environments, Eaton's Crouse-Hinds series [ExLin V-CG-S LED fitting](#) combined with Eaton's CEAG central battery system is the ideal solution.



One goal, different solutions

The required duration of emergency lighting in most Ex applications is at least 60 minutes, and this can be achieved using two different approaches.

The first approach is to use a centralized battery system in which the lighting fittings are connected to a central battery.

The second approach features a decentralized system that uses fittings containing a battery.

However, historically the use of a fitting with a self-contained battery is preferred for Ex offshore installations. This provides a lower maintenance cost by reducing the inspection time through remote inspection, central battery replacement, and the added benefit of a low energy consumption of a LED fitting.

Why choose ExLin V-CG-S LED fittings?

Universal solution for hazardous areas

According to the European directive for hazardous area equipment 2014/34/EU and International IECEx standards, the [ExLin V-CG-S LED fitting](#) is certified as 2G for gas group IIC and 2D for dust group IIIC.

Therefore, it can be used in all areas classified as Zone 1 and 2, as well zone 2 and 22, resulting in a universal solution for hazardous areas.

The electronics and control gear of the ExLin V-CG-S LED fitting are compatible with Eaton's CEAG technology for central battery systems CG, Star and Star+. These systems enable automatic monitoring of any single luminaires without additional data cables, which can result in maintenance cost savings.

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Low inrush current

The [ExLin V-CG-S](#) has an extremely low inrush current of 6A for 1ms which allows for installs up to 20 fittings in a single circuit, reducing installation complexity.

Easy to install and commission

The [ExLin V-CG-S LED fitting](#) features a very low profile and weight, making it easy and fast to install.

The ExLin fitting features a control gear in a separate Ex eb compartment, making it is easier to access compared to other solutions where metal or plastic plates must be removed to access the electronic devices.

The control gear features two knobs (image shown below). By rotating these two knobs, the installer can select the address of the fitting and the light output in an emergency mode.

The selection of the address and light output in an emergency mode can be changed after installation, giving a further degree of flexibility and control for the end user.



Broad offering can help reduce number of fittings

The [ExLin V-CG-S LED fitting](#) is available in one of the broadest offerings to meet various application requirements, which help customers optimize their lighting design with fewer fittings.

- ~3000 to more than 8000 lumen output
- Standard, narrow and wide beam optic options
- Clear and frosted cover

Understanding impact of lumen output and beam quality

Today, many lighting solutions have diminished performance during emergency situations. Often the emergency light output is ~50% lumen with lower beam quality when compared to its main operation performance.

This originates from the use of fluorescent luminaires with a linear fitting and two fluorescent tubes (2x18W or 2x36W) for general illumination with central batteries, typically using only one tube (1x18W or 1x36W) in emergency situations to reduce the total load on the battery.

In contrast, the ExLin V-CG-S combined with the CEAG central battery can maintain several lumen outputs during main operation and emergency situations while retaining a quality beam pattern.

The ExLin solution allows for various lumen outputs based on the emergency needs of the application and customer requirements.

"The solution allows users to select three different lumen output (~25%, ~50%, 100%) within the same product. Simply choose the emergency output you need and easily modify as needed in the future."

It is important to consider the correct emergency lumen meet the application need. The options and benefits to consider are as follows.

- 100% of main operation lumen output
 - ◊ Ideal for areas when a higher illumination is required for increased safety.
 - ◊ The high efficiency of the ExLin V-CG-S allows choosing this option without increasing the battery dimension dramatically.
- ~50% of main operation lumen output
 - ◊ This is the common value on the market like fluorescent fitting: a good compromise between lighting requirement and energy consumption in emergency mode.
- ~25% of main operation lumen output
 - ◊ The required lux level achieved with a consistent reduction of the battery capacity and consequent system cost and complexity.
 - ◊ Can be used for main operation at a higher lumen version with possible reduction of number of fittings and installation effort, while keeping the battery capacity at a minimum level by minimizing the load in emergency mode.

Why upgrade to ExLin V-CG-S

The ExLin V-CG-S with the Eaton central battery system is an ideal replacement and upgrade for eLLK and many other fitting installations

Superior optical performance

Retrofit and upgrade lighting design must confirm the lux level and homogeneity.

To help ensure the minimum level of light intensity required by lighting standards, it is important to understand the importance of optical performance.

When compared to traditional linear fittings, the ExLin has superior light output and the beam spread.

- Provides accurate light intensity
- Potential for reduction in the total number of fittings required

Maximum number of fittings the central battery system can support

When compared to fluorescent lighting, the ExLin V-CG-S is highly efficient and can provide optimal illumination with less energy consumption.

The installed battery system has the capacity to drive the more efficient ExLin V-CG-S in emergency situations.

The control gear has been designed to limit the in-rush current value to a minimum, even lower of the value of the eLLK V-CG-S system.

The two parameters, lower efficiency and lower in-rush current, allows to install even more ExLin in the same circuit that eLLK.

Therefore, the installed Eaton central battery system and circuit can support the quantity of ExLin required for a retrofit project without any redesign.

Summary

The unique features of the ExLin V-CG-S allow a new approach to the design of an emergency lighting system with Eaton CEAG central batteries.

The flexibility in optical pattern and lumen output in emergency mode helps reduce the number of fittings and reduce the battery capacity.

The low in-rush current just confirms the ExLin V-CG-S as the perfect choice for new projects and upgrade projects.

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