

# Legrand and Kerlink partner to create safer building evacuation system

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*“Legrand draws its strength from innovation and everyday reflection on the future. Kerlink’s Reference Design fits in this approach and that is what made us chose this collaboration. We are glad to have developed this range of products and offer new practice for a safer world “*

**Mr. Vincent LOUSTAU , Software Manager France, LEGRAND**

Smart Building is a fast-expanding segment of IoT-network deployments. Worldwide, the smart combination of communication networks, sensors and applications brings unprecedented tools and solutions for energy optimization, alerting systems and decision-making processes, so as to reduce the energy consumption or improve security in a building. Being able to regularly monitor the proper functioning and the battery level of an equipment helps preventive maintenance and avoiding any risk of failure during operation.

The bigger the building is, the more complex the security guaranties to deploy are. The case of emergency lightings is a concrete example: a simple light bulb failure could have major consequences in case of an emergency. In that context, Legrand in Australia and New-Zealand decided to develop a new solution: a connected emergency lighting management system called Galaxy.

## Challenge

Legrand is a French worldwide leading industrial group specialized in electric equipment and digital infrastructure for all types of building, with notably switches, electrical connectors, circuit breakers, electrical cabinets and other



**Company name:** Legrand

**Headquarters:** Limoges, FRANCE

**Year founded:** 1865

**Industry sector:** Electrical Equipment

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cable management products. More specifically, Legrand Australia has been manufacturing emergency lighting systems since 1967, with a comprehensive range of exit signs and emergency lighting fittings for all environments (small office blocks, large sports stadiums, infrastructure projects, airports and much more).

Since a long time, Legrand has been engaged in the Internet of Things, notably in domains like emergency lighting systems, residential systems and energy efficiency, with the objective to connect its existing products or to develop new natively connected solutions. All Legrand emergency lighting systems are intelligent and capable to test themselves (batteries & bulbs), but one major challenge was to be able to equip

them with an addressable technology allowing to easily and in real time monitor locally or remotely the entire installation.

## Solution designed for simplicity and user-experience

In 2015, Legrand launch the Eliot program in order to boost the development of its connected offer. Working on the future connected emergency lighting system, Legrand Australia made extensive market research with customer interviews and market surveys to better know their expectations. Feedback was notably for a system that was easy to design and install, user-friendly and adaptable to any type of building.

In order to connect the system, there was a need to choose the best wireless communication technology. The choice stops to LoRa® as a Low Power Wide Area communication between luminaires and stations, in order to be able to cover a large indoor area at a lower cost. This also minimizes the need of routers and need of upgrading building infrastructure. Bluetooth wireless technology was also chosen into every luminaire to help local commissioning during installation. Finally, a dashboard application giving an overview of the installation along with embedded maps, providing the geographical location and status update of each luminaire was designed.

## A solution based on Kerlink Reference Design

The initial Legrand solution (AXIOM), equipping luminaires with a device that makes them communicate was based on an in-house protocol but there was a will to adopt an interoperable normative solution. Legrand was then looking for a company that was able to deliver LoRa® & radio expertise. Kerlink, as a global leading provider of infrastructure and value-added services, was the ideal candidate to provide Legrand support on that project. The new device has then been developed by Legrand Team leveraging the industrial-grade Kerlink's Reference Design.

*"Kerlink accompanied us from the very beginning of the project to design and develop an industrial solution that can be easily deployed and is future-proof."*

**Mr. Vincent LOUSTAU, Software Manager France, LEGRAND**

The Reference Design is an offer brought by Kerlink to help OEMs, solutions designers or equipment manufacturers to

cut their development costs and speed-up their production timelines when they planned to design and launch LoRa® end-devices. By supplying them with blueprints, step-by-step operations, recommended components for quickly conceiving and producing IoT connected end-devices, it offers high performance and resilience, low energy consumption, optimized radio performances, robustness and reliability on the field, based on latest LoRaWAN™ specifications and standards.

Legrand also relied on Kerlink's expertise for specific embedded software development & hardware design including RF study and validation, in order to provide the full design of the device. It was notably including dedicated schematics, layout and source code specifically developed for Legrand, like a BLE functionality, and a DC/DC alimentation. Performances of the existing product were reviewed and advices on the mechanical integration were provided. Two sets of prototypes have been made to optimize RF (BLE, LoRa) performances with antenna choice and positioning recommendations. Support was also provided on the testbench implementation and the Australian and New-Zealand certification. Finally, an adaptable daughter board has also been designed to adapt to more than 20 Legrand product variants with different form factors.



## Galaxy: connected emergency lighting system

Legrand has been able to develop Galaxy, a state-of-the-art Emergency Lighting monitoring system for smart buildings. Manufactured in Australia, it is specifically designed to streamline the process of testing Emergency Lighting. From specification and installation to day-to-day monitoring and testing, GALAXY creates one simple solution.

Emergency Lightings in the Galaxy project can communicate with the LoRa® connectivity, known for its maximum indoor penetration, coupled with Bluetooth for a direct communication with a nearby smartphone/tablet for local configuration during installation.



## Benefits: Quicker, Easier, Cheaper!

Thanks to Kerlink Reference Design, Legrand has been able to quickly and efficiently design its device, in a short timeframe allowing it to keep its competitive advantage and be the first on the market to deploy such products.

The solution is designed to accommodate all building configurations: commercial buildings, malls, airports, shopping centers, hospitals, education facilities or even correctional facilities. Thanks to an intuitive and easy-to-operate platform, Legrand brings to Smart Building applications a new solution to make the world safer. Powered by Kerlink, Galaxy project has brought to emergency lighting:

An unique infrastructure adapted to the building architecture and configuration makes the solution flexible and adaptable to each specific need. Using different gateways from the Kerlink Wirnet™ range, Legrand can finely adapt infrastructure to the building size and particularities:

- For small buildings or out of reach floors, Wirnet™ iFemtoCell is preferred,
- For medium and large buildings, Wirnet™ Station can be used with a normal or high-gain antenna

### Efficient installation:

- Up to 30% reduction in installation cost
- Compact and minimal infrastructure
- Plug and play into existing IT infrastructure
- Easy retrofit into existing structures

The luminaires, called Galaxy Emergency Luminaires, embed Bluetooth and LoRa® communication for instant communication and direct smart commissioning while granting remote access through to the local server for day-to-day overall system operations.

### Fast tracked commissioning:

- Up to 50% faster
- Smart device enabled
- No need for manual recording

The installation is made easy thanks to a minimal plug and play infrastructure that allow to install and deploy with a 30% reduction in the cost. The existing structures can even be retrofitted to be integrated to a Galaxy solution.

While this is a significant milestone in the Lighting industry, Legrand's journey is far from over. The company continues to support the needs and services of the building infrastructure through technological innovation, sophisticated design and premium quality.

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## Read more:

**Legrand :** <http://www.legrand.com.au/products/emergency-lighting/emergency-testing-systems/galaxy/>

**More success stories:** <https://www.kerlink.com/customers-usecases/use-cases/>