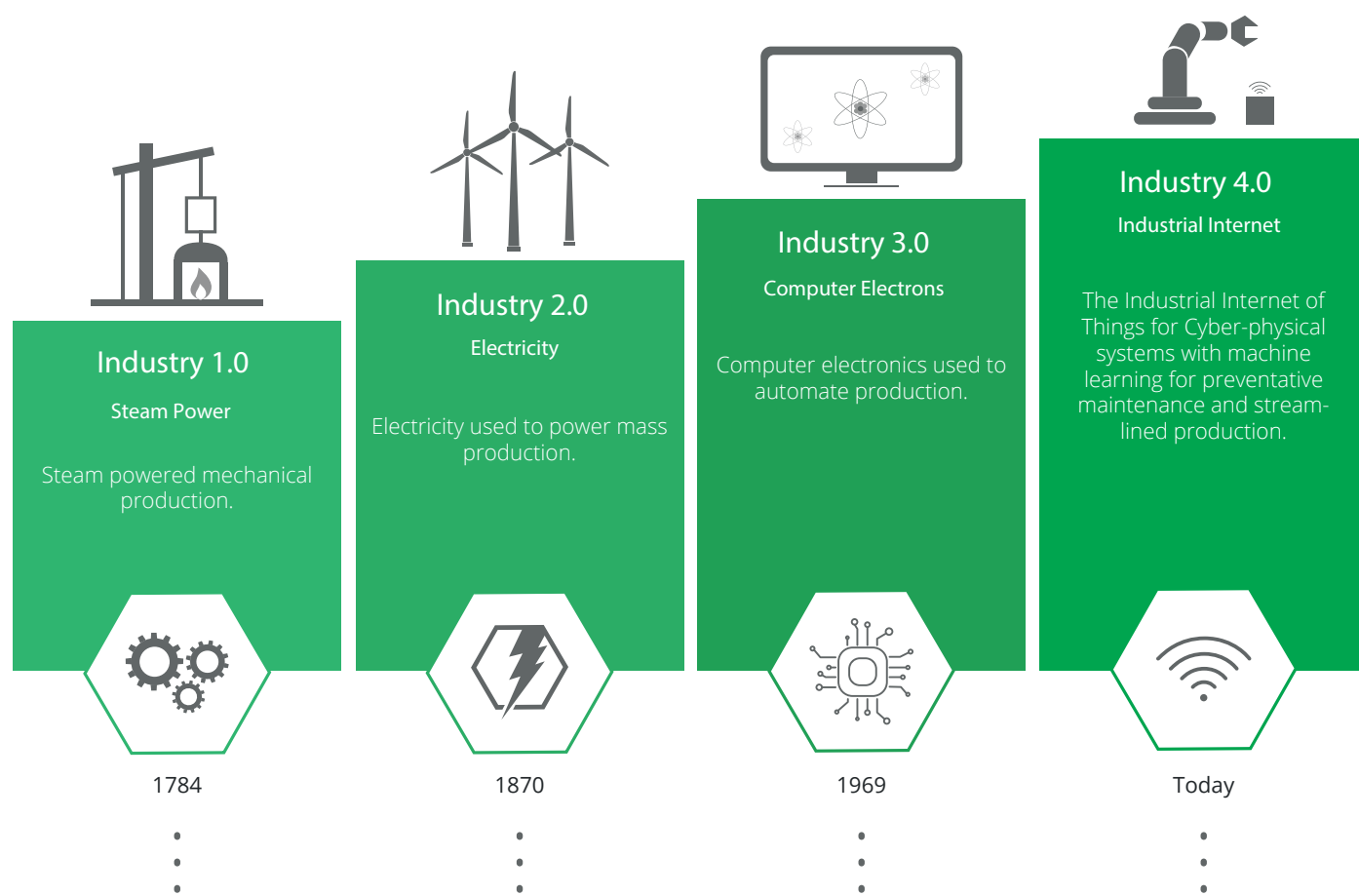# Litemesh

LiteMesh is Liteplan's robust, scale able and secure wireless emergency lighting platform. Providing the ultimate in compliance with a simple installation and commissioning process.

The fourth Industrial revolution

Industry 1.0

Steam Power

Steam powered mechanical production.

1784

Industry 2.0

Electricity

Electricity used to power mass production.

1870

Industry 3.0

Computer Electrons

Computer electronics used to automate production.

1969

Industry 4.0

Industrial Internet

The Industrial Internet of Things for Cyber-physical systems with machine learning for preventative maintenance and stream-lined production.

Today

Introducing Liteplan's wireless emergency lighting self-test and lighting control system known as LiteMesh. A robust mesh system reporting the status of your building's emergency lighting. Commands are sent using industry standard DALI (digital addressable lighting interface) protocols enabling multi-manufacturer compatibility.

The cloud platform is used to store compliancy data and report on the status of your building's emergency lighting. This therefore gives peace of mind that your emergency lighting is always fully functional. Any failures are immediately reported to the platform advising the exact location of any issue in a graphical floorplan format and which parts will be required to cure the fault. This allows for a fix first time maintenance visit.

The system uses DALI emergency control gear which carries out a function test once a month and a three-hour duration test once a year. This is all in keeping with the testing requirements of BSEN 60598-2-22. Rather than using DALI bus cables, we employ a robust and secure mesh network as the vehicle for the data.

The schedule and timing of the function and duration tests can be programmed in keeping with the requirements of the building and its occupants. The system not only accurately reports on failures for a fix first time scenario but can help large estates schedule maintenance more efficiently. Compliance reports are held on the system for accountability.
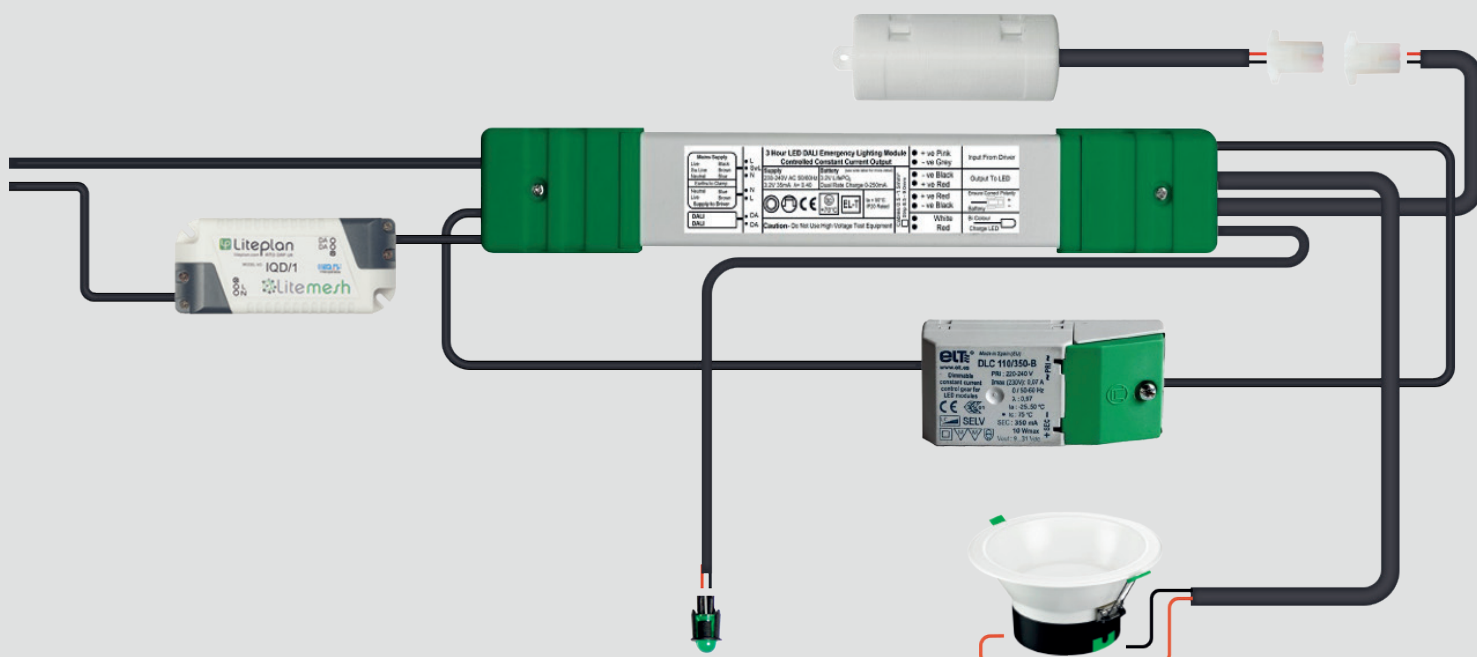
Our Network

Operates mesh network uses the IQRF protocol. This features mesh hopping capability. A secure, scalable and resilient mesh network. The network becomes stronger, the more it grows. The nodes feature automatic self-healing for maintenance, therefore mitigating the need for expensive re-commissioning scenarios.

Technical Mesh Data:

IQMESH® routing protocol utilising optimised directional flooding brings outstanding network robustness

IQRF® DPA commands (a standardising language) assure simple integration and interoperability

OTA (Over-The-Air) service enables remote centralised network management lowering maintenance costs. All network communication is encrypted with AES-128.

Multilayer security based on industry standard AES-128 is extended by dynamic key generation and exchange which makes wireless communication significantly more immune to cyber-attacks.

FRC ® (Fast Response Command) dramatically increases network throughput and reliability.

SW: OS + DPA + Appl. + SDK

Band: 433 / 868 / 916 MHz

Network topology: mesh

Range (device to device): Up to 500 meters line of sight, up to 100 meters within a building.

Range (device to gateway): tens of kilometres

Native multi-hop: 240 hops per packet

Routing algorithm: optimised directional flooding

Security: multilayer, AES-128, dynamic keys

Directionality: bidirectional

End devices OTA management: for all operations needed

Main benefit: easy adoption / reliability

With 240 hops and robust routing, IQRF® is the best fit for large control applications.

Each mesh hops data to the gateway which then reports to the cloud platform which can be viewed at any location via a web browser. The gateways are persistent without communication. Therefore, if for any reason communication is lost, data is held at the gateway until the signal is re-established.

The main drive for the creation of the LiteMesh platform was interoperability. Therefore trying to move as far away from a proprietary system as possible. As and when parts require end of life replacement, our use of the DALI language and agnostic gateways means that you are not held to one manufacturer for spares.

The Mobius Flow gateway transmits data to the cloud platform. It can accept sensor and actuator data from any source such as OPC UA / DALI / EnOcean / Analog / Digital etc.

Litework
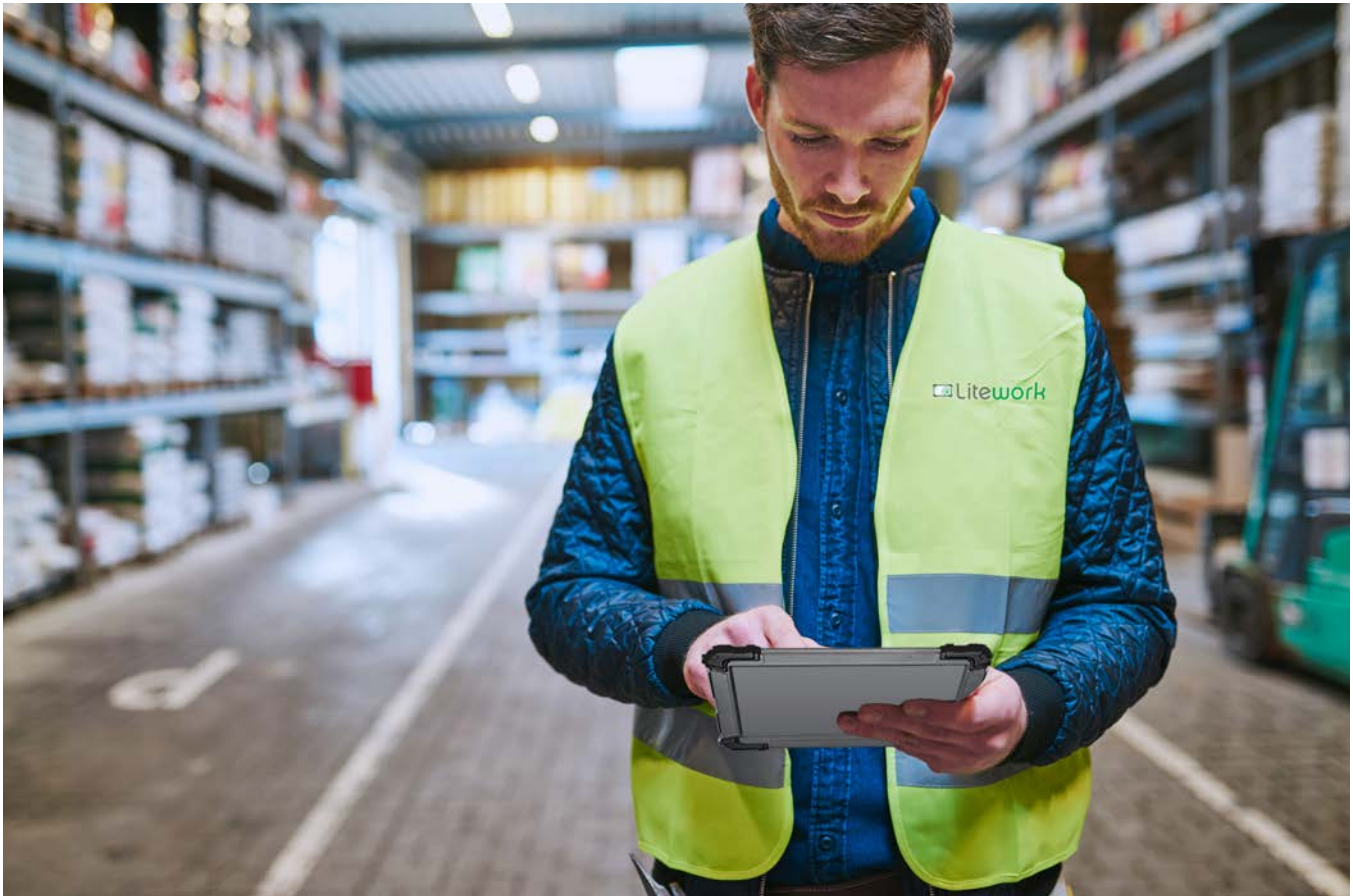
We have developed what we believe to be the simplest commissioning tool available in lighting control. LiteWork is a robust tablet that has been drop tested to a height of 4ft. Once the LiteMesh nodes have been installed, the LiteWork software builds the mesh network at the touch of a button. Once the mesh has been established, lights are plotted onto a floorplan by the installer in a fraction of the time of traditional methods.
Nodes local to the LiteWork tablet are commissioned to the floorplan as the installer walks around the building.

Once this process is complete, the complete floorplans are sent via the gateway to the platform ready for test schedules to be set up. This completes the process and the monitoring of your buildings emergency lighting has commenced.

LiteMesh User Interface

The platform is not only capable of monitoring your emergency lighting. Being a true IoT platform, it is capable of reporting data from multiple sensors. This creates a smart building in real sense. The possibilities are endless, from lighting to fire doors, from monitoring of footfall to drain flow management, from heating to HVAC. A simple, if this, then that form of programming allows the system to be designed specifically for the needs of the individual premises. Sensors, actuators and software collect and analyse data, sending messages to other technologies with the aim of making user's lives easier and reducing costs. A bespoke set of commands can be deployed to ensure the ultimate balance between user comfort and energy conservation.
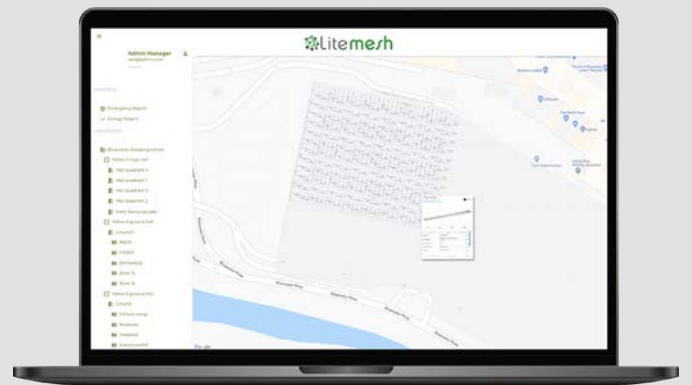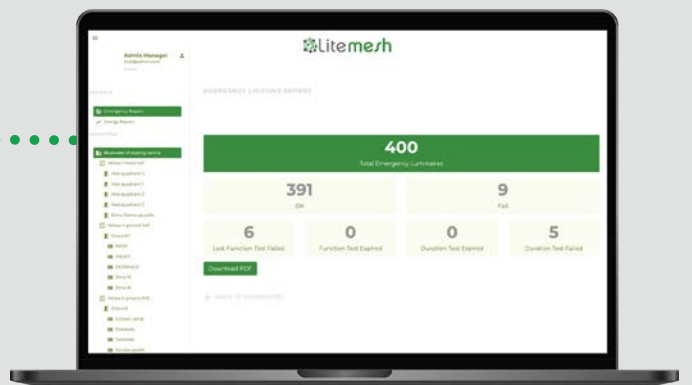
Holistic Status Overview
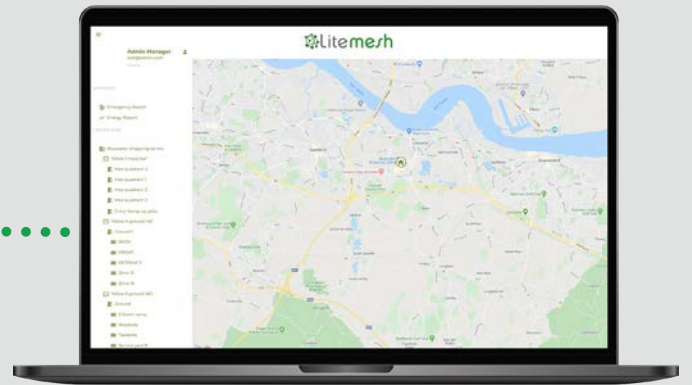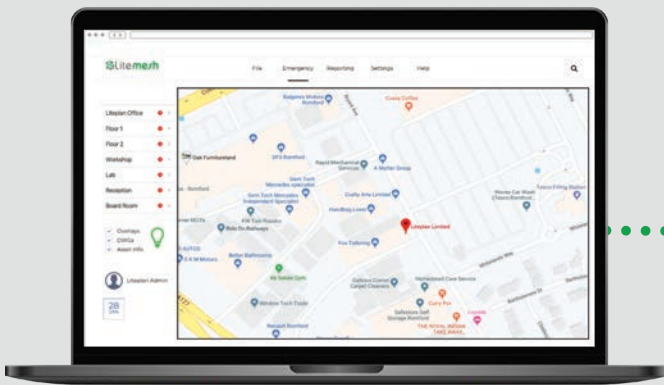
Compliance Report

Asset ID and Status

Emergency Summary

What is a Smart Building?

The smartness of a building is not only about discrete technology, it is how technology is integrated to develop insights and actionable data with the aim of enabling buildings to function more efficiently and effectively, reducing costs, improving compliance and enhancing stakeholder experiences.

IQRF Alliance

IoT is a puzzle with hundreds of pieces that must fit one another. The mission of the members of the IQRF Alliance is to deliver interoperable wireless IoT devices and solutions, or pieces of the puzzle, to enable the fast and effective realisation of a wide range of IoT projects.

IQRF Alliance members closely cooperate to build up an ecosystem of IQRF-interoperable end-devices, gateways, software, clouds, mobile apps, and integration platforms. IQRF Alliance supports them by providing them an effective communication platform, IQRF Interoperability Standard and promotion support.

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