



Eaton's emergency lighting system with remote monitoring ensures safety for new biomedical research building

Location:

Coventry, UK

Challenge:

To install emergency escape lighting that can be monitored remotely to save time, ensure safety and avoid unnecessary interventions in hazardous or sensitive areas.

Solution:

Eaton ZB-S central battery emergency lighting system with CGVision - Supervision & central visualization system.

Results:

The University's maintenance team can remotely monitor all 710 emergency lighting and exit signs in the new Interdisciplinary Biomedical Research Building from a single PC. If there is a fault, the system will pinpoint the exact device in need of maintenance to save time and minimise any disruption.

"The Eaton system saves our maintenance team hours of time in terms of testing and troubleshooting and gives us peace of mind that we can identify the location of any fault to prioritise and address it. This is a great system to have at your disposal if you are dealing with multiple buildings and enables us to minimise disruption for their occupants."

*Paul Holland,
Design Engineer,
University of Warwick*

Background

The University of Warwick has invested £54.3 million in a new research building on its Gibbet Hill site that will bring together 300 biomedical researchers to fight human infectious diseases. The work in the Interdisciplinary Biomedical Research Building (IBRB) will focus on understanding the origins and mechanisms of diseases and find new ways to extend healthy life spans. The five-storey, 7,000 m² building also includes a lecture theatre that can hold up to 400 people and several social and collaborative spaces.

Challenge

A fully functioning and properly illuminated emergency evacuation system is vital for the building, which can house up to 700 people at a time. As the biomedical research facility contains sensitive material, a manual inspection of individual emergency luminaires and exit signs would be difficult and disruptive in certain areas. In addition, the high ceilings in the atrium and lecture theatre make access for repairs and luminaire replacements a challenge.

The maintenance of the evacuation systems of all of the University's buildings is the responsibility of a small team, who need to plan and use their time well to ensure that all of them are fully operational.



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Solution

The University opted for Eaton's ZB-S central battery system and escape route luminaires, as it had already installed these in nearly 50 of its other buildings. The system uses CGVision technology to monitor all 710 luminaires from a central PC.

Eaton's ZB-S system provides a reliable power supply (230 V AC/220 V DC) to the escape route luminaires. It automatically tests itself and individually monitors each luminaire using CEWA Guard technology (CG) via the power supply cable, without the need for an additional data cable.

Featuring Eaton's STAR technology (CG-S), ZB-S allows the installer to programme the switching mode of every connected CG-S luminaire within a 50/60 Hz supply network via the system's controller. This enables the combination of switched maintained, maintained and non-maintained lighting modes in a single final emergency-lighting circuit.

NG Bailey, the electrical and mechanical contractors for the project, worked with Eaton to design, install and commission the system in the new building. The central battery connects to a series of substations on the different floors with multiple final emergency-lighting circuits. Each circuit can connect up to 20 exit sign luminaires, reducing the cost of

installation as there is no need for separate data cables. After installation, each substation/luminaire is assigned its own address so that it can be identified and monitored remotely.

According to Steve Butler, project manager at NG Bailey, "The phased installation of the luminaires was clearly structured, and both the installation and commissioning proved very simple. One supply line provides power and data from the central battery system to each luminaire, and after they were installed, Eaton's commissioning engineer simply uploaded the luminaires' individual switching modes using a laptop."

The installation took place in several phases, with the deliveries of luminaires and substations coordinated by a local electrical wholesaler.

Result

With staff and student safety a priority, Eaton's ZB-S helps to ensure that the new building's emergency evacuation system – as well as those of a number of existing structures on the University's campuses – are well-maintained and fully operational. Installing the system in the new research facility also means that the maintenance team can minimise disruption to areas where access is limited due to the sensitive nature of the work being done.

The system also reduces the need for maintenance in the atrium, lecture theatre and other areas that are difficult to access due to high ceilings: while remote monitoring minimises the need for manual inspection, the long lifespan of the LEDs means that they have to be replaced less frequently. And thanks to the use of a central battery system rather than individual luminaire batteries, much of the inspection and maintenance work can take place in a safe area without causing any disruption.

Talking about the installation, Paul Holland, electrical design engineer at the University of Warwick, says, "We use the Eaton ZB-S system in almost 50 buildings on site to save time and simplify maintenance by being able to pinpoint exactly where there is a fault. For the new biomedical research building, where access to certain areas is restricted but the escape route lighting must remain fully operational, remote monitoring is vital to minimise disruption and ensure safety."

In the event of a circuit fault or any other issue, the system indicates the location of the fault and sends an email and/or text message to the maintenance team. It also records individual reports of ongoing maintenance across the University estate and maintains a log of all testing, which is a legal requirement.

This allows the maintenance team to manage the emergency lighting systems and to ensure that they are fully operational in case of an evacuation. Regular walk-throughs of a building for visual inspections typically take about an hour, and remote monitoring informs the team if and where there is an issue and provides an additional safeguard against malfunctions.

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The installation is now complete, and the University of Warwick is considering installing the same system in more of its buildings in the near future.



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