THE
FUTURE
OF **LIGHTING CONTROL**

LIGHT **FORGE**

AN EYE ON THE FACTS...

41% of commercial electricity consumption in the UK is due to lighting, making it the single highest contributing item on an energy bill.

80% of all buildings which will be in use in 2050 have already been built.

75% of all the controllable lighting sold in Europe today is not currently controlled.

THERE IS HUGE POTENTIAL FOR ENERGY SAVINGS THROUGH LIGHTING CONTROLS WHICH ARE EASY TO INSTALL AND CAPABLE OF RETROFIT.

BINARY FORGE

TAKE CONTROL

We believe LightForge addresses many of the drawbacks that are currently limiting the adoption of lighting controls, such as ease of commissioning and the ability to retrofit existing buildings.
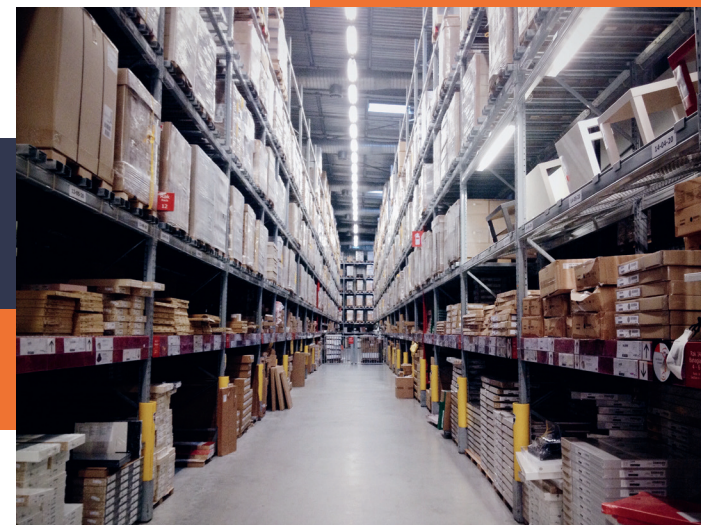
Early generation lighting controls provided energy savings but were difficult and expensive to fit retrospectively, requiring specialist engineers. Once installed, they were difficult to alter and not well suited to respond to changing building requirements.

LightForge banishes these problems. Installation and initial configuration is simple and controls can be altered at the touch of a button to meet a building's changing needs. Comparisons with existing technology are impressive, it is capable of controlling 500 devices from one wireless gateway.

LightForge will also allow connection to Building Management Systems and enable a variety of control strategies to be employed, for example daylight harvesting, occupancy sensing, time scheduling, and scene setting.

TAKE CONTROL

LIGHTFORGE **INDUSTRY**

LIGHTFORGE **LOGISTICS**

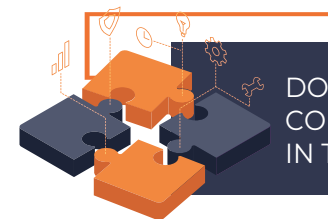LIGHTFORGE **RETAIL**

TAKE CONTROL

LIGHTFORGE **HEALTH CARE**

LIGHTFORGE **RECREATION**

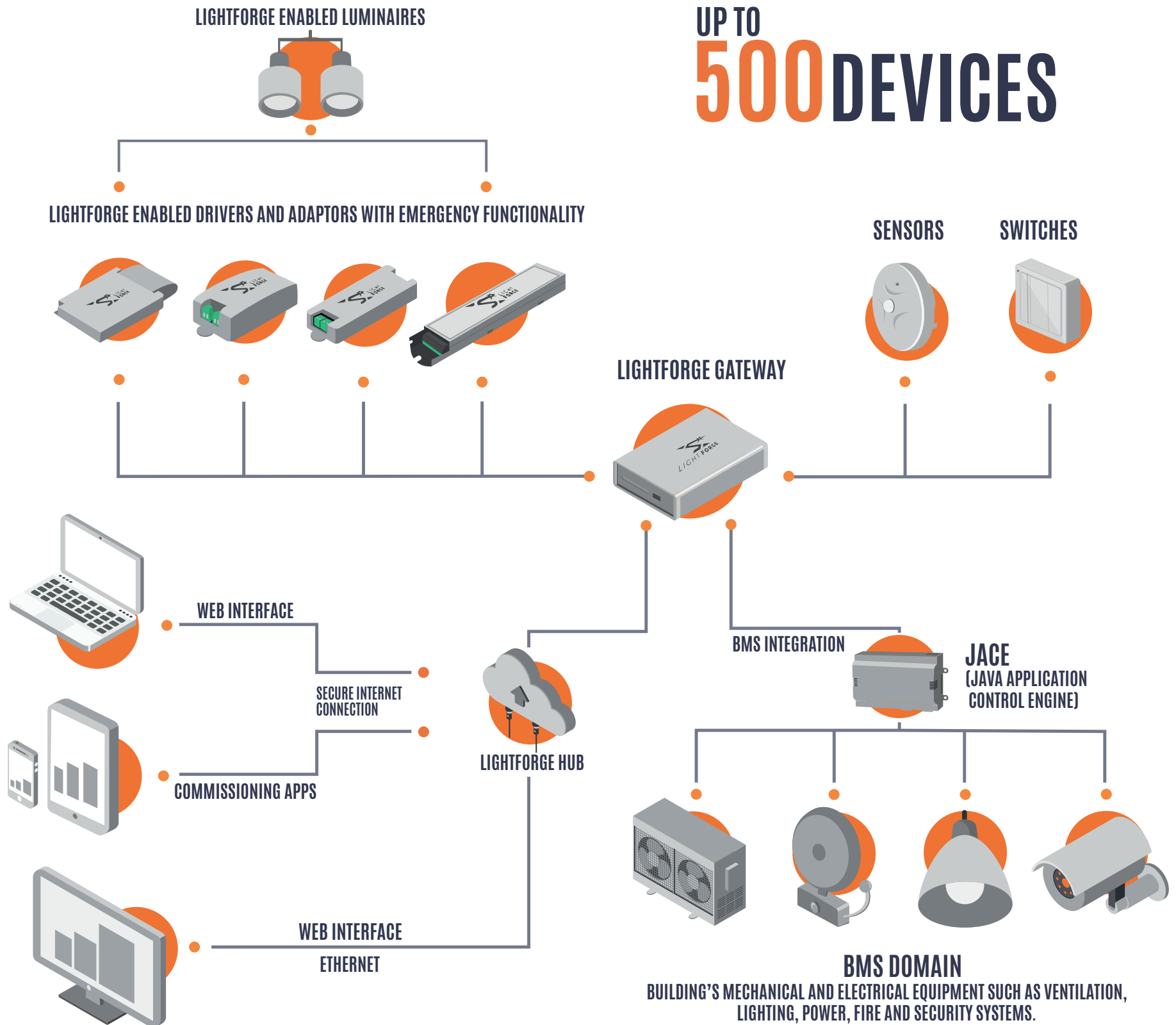IS YOUR LIGHTING OUT OF CONTROL?

IS YOUR LIGHTING WASTING ENERGY?

DO YOU WANT CONTROL AND SAFETY IN THE FACILITY?

BINARY FORGE

HOW **LIGHTFORGE** WORKS

LIGHTFORGE ENABLED LUMINAIRES

UP TO
500 DEVICES

LIGHTFORGE ENABLED DRIVERS AND ADAPTORS WITH EMERGENCY FUNCTIONALITY

SENSORS

SWITCHES

LIGHTFORGE GATEWAY

WEB INTERFACE

SECURE INTERNET CONNECTION

COMMISSIONING APPS

LIGHTFORGE HUB

BMS INTEGRATION

JACE
(JAVA APPLICATION CONTROL ENGINE)

WEB INTERFACE

ETHERNET

BMS DOMAIN
BUILDING'S MECHANICAL AND ELECTRICAL EQUIPMENT SUCH AS VENTILATION, LIGHTING, POWER, FIRE AND SECURITY SYSTEMS.

CONTROLLED TECHNOLOGY

LightForge is...

Wireless and ideal for retrofit as well as new build

Intuitively controllable through a graphic user interface

Able to give a clear view of your energy consumption through a monitoring and reporting capability with sophisticated energy mapping

Compatible with other control gear

Easy to install without hiring an expensive specialist engineer and easily configurable

Suitable for multi-building or multiple site control as well as for small installations

Able to integrate with building management systems

HUB

- **CONSTANT CURRENT OUTPUT**
- **UP TO 94% EFFICIENT**

Each installation requires one LightForge hub, hosted by Binary Forge in the cloud, to act as the central controller for the entire system.

The secure hub hosts the user interface, reporting and analysing data from the installation, and is capable of supporting access by multiple simultaneous users over any number of sites.

Hosting any number of Gateways and unlimited devices, the hub supports one or more installation devices to aid system configuration.

GATEWAY

- **ZIGBEE COMPATIBLE**
- **CONNECTS TO 500 DEVICES WIRELESSLY**
- **CONNECTS TO THE LIGHTFORGE HUB**

The LightForge Gateway provides a high performance solution for controlling multiple lighting equipment giving users the freedom to commission, configure and completely control their own lighting to maximise energy savings.

ZigBee compatible Ethernet Wireless control of a wide variety of lighting equipment.

Operates from supply range 110V to 240V nominal

Supports the connection of up to 500 LightForge devices to Ethernet, for use with an LightForge Hub device.

ADAPTERS

LIGHTNODE
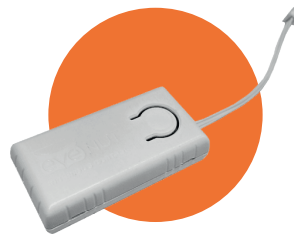
- **CAN BE RETROFITTED**
- **MULTI DRIVER CONTROLLABILITY**
- **LED STRING FAULT REPORTING**

LightNode is the next generation in intuitive wireless control technology, delivering a convergence of indoor and outdoor lighting controls from one user interface for truly connected lighting.

LightForge wireless control and management solution, enables users to monitor and manage both indoor and outdoor lighting fixtures from a single interface for the first time. Users can gain access to real time data on energy usage, cost savings, energy hotspots and even lamp failures across multiple buildings and locations.

Operating via a ZigBee protocol, the LightForge node provides the perfect solution for close proximity lighting installations. Whilst enhanced wireless connectivity and complete scalability means the solution is ideal for large-scale applications such as university campuses, shopping centres, airports, shipping ports, theme parks, holiday resorts and beyond.

PEBBLE

- **CONTAINS FCC ID: SAGEM3568X**
- **ZIGBEE: 2.4GHZ + 3DBM CE**

The Pebble enables LightForge for the following products:

CLZ17-350-240-B/C

CLZ24-500-240-B/C

CLZ33-700-240-B/C

CLZ33-1050-240-B/C

CLS40-700A-UNI-B-I

CLS50-1400A-UNI-B-I

4, 12 WAY, DNET1 & EMERGENCY

- **4-WAY, SUPPORTS UP TO 4 DALI DEVICES**
- **12 -WAY, SUPPORTS UP TO 12 DALI DEVICES**
- **EMERGENCY, ENABLES EMERGENCY TESTING**

The LightForge Adaptors provide a high performance solution for converting DALI drivers to ZigBee protocol giving users the freedom through LightForge to commission, configure and completely control their own lighting to maximise energy savings.

ZigBee compatible Wireless Lighting Adaptor with support for DALI, and on/off control of a wide variety of lighting equipment.

The LightForge DNET 1 Adaptor provides a high performance solution for converting a DALI driver and a DNET 1 occupancy sensor to ZigBee protocol.

The Emergency interface adaptor allows scheduled tests to be run on DALI emergency luminaries with results reported to the dashboard.

Measures power consumption from a range of loads, 0.1A to 5A.

Operates from supply range 120V to 277V nominal.

SENSOR

SWITCH

WALL SWITCH

- ● **ZIGBEE COMPATIBLE**
- ● **LOW POWER CONSUMPTIONNT**

The LightForge Wall Switch allows control of lighting installations from traditional wall switch locations.

When paired with LightForge enabled lighting devices, the wall switches have low power consumption in standby mode.

The LightForge switch comes in four types; one, two or three button switch, plus a two button raise/lower dimmer switch.

Working wirelessly, each LightForge switch button can be configured as either a toggle (on/off) or level (scene).

LIGHT SENSOR

- ● **AMBIENT LIGHT DETECTION**
- ● **OCCUPANCY DETECTION**
- ● **SUPPORT OVER THE AIR (OTA) UPDATES**

Recessed, ceiling-mounted sensor allowing occupancy and daylight harvesting control strategies to be employed within LightForge.

Includes PIR motion detector which allows detection of room occupancy.

LightForge software allows occupancy configuration in presence or absence mode. Includes photocell for ambient light detection, and adjustment of luminaire dimming within the LightForge system.

Based on ZigBee Home & Building Automation protocol

Sensor signals are transmitted wirelessly and therefore no additional wiring is required to the system apart from the mains input.

CAPACITIVE TOUCH

- ● **LOW POWER CONSUMPTION**
- ● **IN-WALL INSTALLATION**
- ● **ZIGBEE COMPATIBLE**

The Wall Switch allows control of LightForge lighting installations from traditional wall switch locations.

When paired with LightForge enabled lighting devices, the wall switches have low power consumption in standby mode.

The LightForge switch comes in seven types; one, two, three and four button switch, plus a two button raise/lower dimmer switch also the seven button with four scenes plus raise/lower and the eleven button with 8 scenes plus raise/lower.
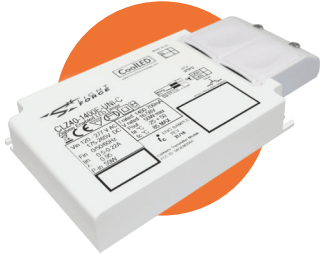
Working wirelessly, each LightForge switch button can be configured as either a toggle (on/off) or level (scene) controller.

Comes in 2 styles; Heritage and Tech.

DRIVERS

CLZ-40/50W

- ZIGBEE HOME & BUILDING AUTOMATION STANDARD
- SELF RESETTING THERMAL TRIP
- CONSTANT CURRENT OUTPUT

LightForge drivers provide a high performance solution for powering LEDs from a mains supply.

The ZigBee controlled dimmable driver operating at 2.4 GHz offers the following key benefits:
Full Dimming Capabilities - Full dimming support from 100% to 1% output current and the ability to turn completely off.
Individual and Group Control - Ability to control individual LED luminaires and simultaneous control of all or specified groups.
High Efficiency and Long Life - High Efficiency design ensures cool operation and long life. There is an extra benefit of a very low off power.
Compact Enclosure and Fast Assembly - Available in Integral (B) and Remote Mount (C) versions.
Energy Management - Enables energy consumption to be monitored and savings identified.
Emergency version - Allows Emergency luminaires to be enabled for auto testing with results reported to the dashboard.
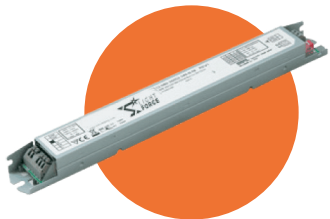
CLZ-33W

- LIGHTFORGE ENABLED
- 33W MAINS POWERED LED DRIVER
- OUTPUT CURRENTS PROGRAMMABLE UP TO 1400MA

The Binary Forge LightForge enabled combined emergency LED Driver is a 'One Product' solution for intelligent emergency luminaire design. Integrating Lightforge Wireless control with a 33W LED driver, battery charger & DC-DC convertor for emergency backup, simplifies the installation and reduces luminaire build cost.

With programmable output current, battery chemistry and cell quantity, the LightForge combined emergency driver is a one sku product. Using our easy to use programming interface and an RFID writer (sold separately), you can simply program the unit to match the application.

Operates from supply range 120V to 277V nominal.

CLS 40/80/90W SWITCHABLE

LIGHTFORGE LED DRIVER

- CONSTANT CURRENT OUTPUT
- OVER TEMPERATURE FOLDBACK
- UP TO 94% EFFICIENT

Zigbee drivers provide a high performance solution for powering LEDs from a mains supply.

The 2.4 GHz ZigBee wireless controlled dimmable driver offers the following key benefits:
Full Dimming Capabilities - Full dimming support from 100% to 1% output current and the ability to turn completely off.
Individual and Group Control - Ability to control individual LED luminaires and simultaneous control of all or specified groups.
High Efficiency and Long Life - High Efficiency design ensures cool operation and long life. There is an extra benefit of a very low power.
Compact Enclosure and Fast Assembly - Available in Integral (B) style.
Energy Management - Enables energy consumption to be monitored and savings identified.

CEMX - 33W

COMBINED EMERGENCY LED DRIVER

- LIGHTFORGE ENABLED
- PROGRAMMABLE VIA RFID
- ENERGY MONITORING

The LightForge enabled combined emergency LED Driver is a 'One Product' solution for intelligent emergency luminaire design. Integrating LightForge Wireless control with a 33W LED driver, battery charger & DC-DC convertor for emergency backup, simplifies the installation and reduces luminaire build cost.

With programmable output current, battery chemistry and cell quantity, the LightForge combined emergency driver is a one sku product. With our easy to use programming interface and an RFID writer (sold separately), you can simply program the unit to match the application.

THE **SOFTWARE**

INTUITIVE PLANNING AND FAST COMMISSIONING

LIGHTFORGE IDENTIFIES DEVICES VIA RADIO FREQUENCY IDENTIFICATION AND CAN CREATE LOGICAL GROUPS OF LUMINAIRES TO BE CONTROLLED TOGETHER, OR CONTROL GROUPS WHERE LUMINAIRES CAN BE LINKED TO SWITCHES OR SENSORS.
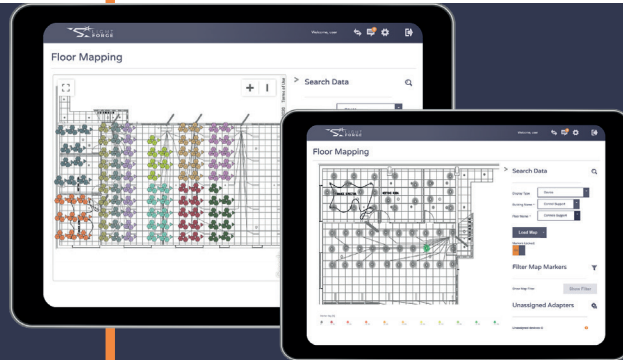
DASHBOARD

LIGHTFORGE PUTS LIGHTING CONTROL AT YOUR FINGERTIPS WITH ITS INTUITIVE USER DASHBOARD. THE DASHBOARD GIVES AN OVERVIEW OF THE SYSTEM, SHOWING KEY DATA AND ALLOWING QUICK AND EASY VISUALISATION OF THE SYSTEM'S STATUS. IT CAN BE DISPLAYED PROMINENTLY ON TV SCREENS AND IS POTENTIALLY A VALUABLE TOOL TO INCENTIVISE STAFF TO CHANGE ENERGY USE BEHAVIOURS. PERSONAL CONTROL CAN BE ALLOWED WITH DIFFERENT USERS HAVING ACCESS TO DIFFERENT FEATURES WITHIN THE SYSTEM.
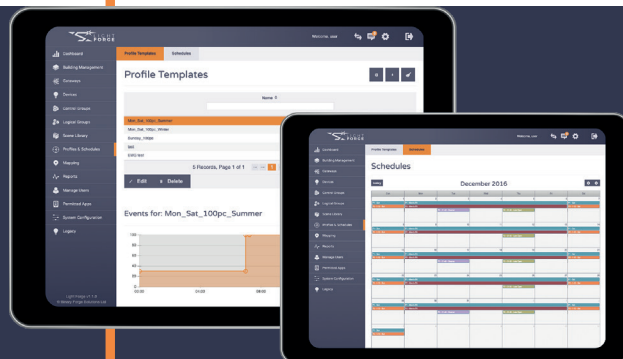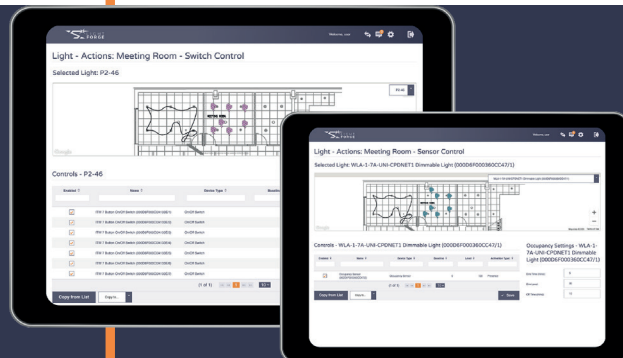
THE **SOFTWARE**

MAPPING

MAPPING FUNCTIONS AND VISUALISATION REPORTS REPRESENT RICH DATA ON A FLOOR PLAN OF THE BUILDING, REPORTS SHOW DEVICES WITH HIGH ENERGY USAGE, OR HIGHLIGHT LUMINAIRE FAILURES AND OTHER ISSUES. THIS MAKES DEVICES EASY TO LOCATE ONSITE FOR ANY MAINTENANCE TEAMS, WHILST ALSO HELPING TO IDENTIFY AREAS THAT MAY REQUIRE FURTHER OPTIMISATION.

PROFILES & SCHEDULES

APPLY SWITCHING AND DIMMING PROFILES FOR 24-HOUR PERIODS. ASSIGN THESE TO INDIVIDUAL OR LIGHTING GROUPS, AND SCHEDULE THESE USING THE INTUITIVE CALENDAR. USE REPEAT SCHEDULING TO RUN REGULAR PROFILES SWITCHING FOR SETS OF LIGHTS, OR PLAN IN-ADVANCE FOR DIFFERENT PROFILES TO RUN ON HOLIDAYS OR SPECIAL EVENTS.
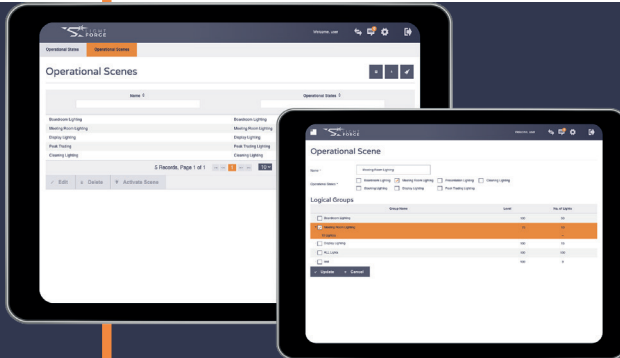
LIGHTING CONTROLS

USERS CAN CREATE CONTROL GROUPS, FOR SENSOR AND SWITCH ACTIONS TO DEFINE THE BEHAVIOUR OF SELECTED LIGHTS AFTER SENSOR OCCUPANCY IS ACTIVATED OR A SWITCH BUTTON IS PRESSED.

BINARY FORGE

THE **SOFTWARE**

SCENE LIBRARY

OPERATIONAL SCENES ALLOW YOU TO CREATE GROUPS WITH ANY NUMBER OF LIGHTS SET TO OPERATE AT DIFFERENT LIGHT LEVELS AND ACTIVE THESE AT ANY TIME, AT THE PRESS OF A BUTTON.

ONCE CONFIGURED THESE CAN BE ACTIVATED AT CERTAIN POINTS IN THE DAY E.G. CLOSED, OPEN, NORMAL TRADING SCENE, PEAK TRADING SCENE, EVENTS EVENING, COMPANY CONFERENCES, STOCKTAKING, CLEANING. FOR A MORE PERSONALISED LIGHTING SYSTEM YOU CAN CONFIGURE YOUR LIGHTING TO CREATE SCENES TO SUIT YOUR MOOD, REDUCING LIGHTING LEVELS FOR TIRED EYES OR HAVING GREATER LIGHT OUTPUT FOR PROACTIVE MEETINGS.
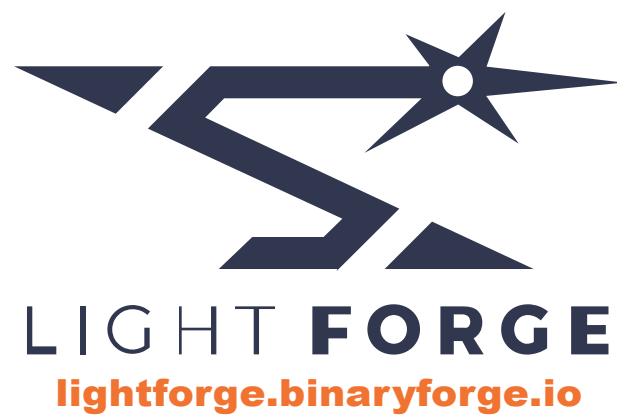
INTEGRATION

THE LIGHTFORGE HUB HAS BEEN DESIGNED TO INTEGRATE WITH OTHER SYSTEMS, THIS MAY BE YOUR BUILDING MANAGEMENT SYSTEM (BMS), AN IN-HOUSE DASHBOARD OR YOUR ASSET MANAGEMENT SYSTEM (AMS). LIGHTFORGE CAN WORK AS A KEY COMPONENT OF THE BIGGER SOLUTION OR THE HEAD-END PACKAGE DRIVING OTHER COMPONENTS. LEVERAGING THE POWER OF LIGHTFORGE IN PARTNERSHIP WITH YOUR EXISTING INFRASTRUCTURE ALLOWS YOU TO SEAMLESSLY INTEGRATE LIGHTFORGE INTO YOU EXISTING WORKFLOWS OR TO INTRODUCE NEW POWERFUL WORKFLOWS ADDRESSING THE CHANGING NEEDS OF YOUR FACILITY.

LIGHTFORGE HAS A WIDE RANGE OF OFF THE SHELF INTERFACES TO FACILITATE DATA EXCHANGE WITH OTHER SOFTWARE AND HARDWARE SOLUTIONS. HOWEVER, IF YOUR REQUIREMENTS ARE MORE SPECIALISED LIGHTFORGE IS FLEXIBLE ENOUGH TO SUPPORT THE NEEDS OF YOUR BUSINESS AND OUR TEAM HAVE MANY YEARS OF EXPERIENCE SUCCESSFULLY INTEGRATING LARGE ENTERPRISE SYSTEMS AND WOULD BE HAPPY TO TAILOR THE PRODUCT TO MEET YOUR NEEDS.

LIGHT **FORGE**

lightforge.binaryforge.io

BINARY

FORGE