zencontrol

Technical Submittal

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zencontrol | ektor uk emergency lighting

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zencontrol ltd

zencontrol ltd have been established within the market place for over 10 years. We pride ourselves on our quality products, after sales service and involvement with end users, offering maintenance, technical support and on-going system checks throughout the life cycle of our products.

We are committed to further product development in order to remain at the forefront of the Automated Lighting Control and Emergency Lighting industries and we aim to offer our customers the very cutting edge in technology with a service to suit.

To find out more about zencontrol ltd please visit our website.

www.zencontrol.co.uk

DALI IEC62386 Standard Compliance

Full compliance with DALI standards ensures that our products function as expected to ensure a consistent experience through the systems life cycle.

Built for compliance.

zencontrol's automation and simple control is built on the functions and commands from the latest versions of the DALI standard. Full compliance with DALI standards ensures that connected devices function as expected to ensure a consistent experience through the system life cycle.

The zencontrol product range has been built for compliance with DALI and DALI version 2 to the IEC Standard. Product database - Digital Illumination Interface Alliance

DALI compliance is not just for zencontrol. With a compliant device, commissioning, setup and everyday usage is more consistent and more reliable on all DALI control systems.

New updates to the DALI standards provide

Provision for full compliance and operation of the new IEC Standard;

- Occupancy sensors.
- Light sensors
- Input devices including sensors and switches
- Control system
- Power supplies

Additionally the updated standards provide

- Backwards compatibility with traditional DALI
- Full set of standards, test flows, test equipment and certification

Advantages of DALI-2

- Simpler wiring – one line for lighting, emergency switches and sensors
- Endorsed & compliant switch and sensor devices
- Cross manufacturer compatibility
- Lower over-all costs
- Published under IEC 62386
- Certification of the control system components

Why choose DALI/DALI-2

DALI is an international standard with support from many manufacturers, suppliers and installers. Using a DALI certified product and seamless integration.

Additionally, because of the large number of suppliers and third parties you are not locked into a single manufacturers supply. This gives the customer confidence and choice in their buildings, multiple suppliers give you greater freedom.

DALI-2 Compliance

With DALI-2 lighting control has been simplified further. Now the switching and sensor devices which were normally locked to a proprietry control system, or contained within another protocol have been moved onto the DALI line. This increases freedom, availability and choice for the installers and customers as now they can choose from a large number of compatible products.

Choosing DALI-2 is a clear decision that frees customers from the lock-in approach from proprietry suppliers. Customers can feel secure in knowing that they are not locked to one company.

The standards

IEC 62386	Description
Part 101 ed 2	System components
Part 102 ed 2	Control gear
Part 103 ed 1	Control devices
Part 202	Self-contained emergency lighting (device type 1)
Part 207	LED modules (device type 6)
Part 209	Colour change
Part 216	Load referencing
Part 217	Thermal gear information
Part 218	Dimming curve selection
Part 219	Power measurement
Part 220	Emergency DC
Part 301	Particular requirements – Input devices – Push buttons
Part 302	Particular requirements – Input devices – Absolute input devices
Part 303	Particular requirements – Input devices – Occupancy sensor
Part 304	Particular requirements – Input devices – Light sensor
Part 305	Colour sensor (upgradeable)

zencontrol case studies

One Embassy Gardens

Nine Elms, London

One Embassy Gardens is the flagship commercial building at Ballymore Groups Embassy Gardens development in Nine Elms and provides 215,000 sq. ft. of office space over 10 floors with both Penguin Random House and DK set to occupy floor space.

zencontrol will provide a fully addressable DALI-2 lighting control system throughout, consisting of DALI-2 Application Controllers, DALI-2 LCM's, DALI-2 Relays, DALI-2 PIR's, DALI-2 Switch Interfaces and DALI-2 Scene Sets.

A graphical user interface will allow users to schedule emergency lighting tests and view emergency lighting test reports in addition to making system changes through the intuitive easy to use user interface.

A touchscreen controller will be provided at the reception desk to allow end users to create, store and call lighting scenes.

The zencontrol system will fully integrate with the BMS using BACnet, providing information such as occupancy status and DALI faults.

Contractor: Briggs & Forrester Engineering Services

One Chamberlain Square

Paradise Circus, Birmingham

One Chamberlain Square is the first building on the Paradise Circus re-development within Birmingham city centre. Providing 172,000 sq. ft. of office space across 8 floors the building will be occupied in its entirety by financial services specialist PwC.

zencontrol will provide a fully addressable DALI-2 lighting control system throughout, consisting of DALI-2 Application Controllers, DALI-2 LCM's, DALI-2 Relays, DALI-2 PIR's, DALI-2 Switch Interfaces and DALI-2 Scene Sets.

Custom panels will be located within the shell & core to provide sub-circuit monitoring and change-over relays for central battery integration.

A graphical user interface will allow users to schedule emergency lighting tests and view emergency lighting test reports in addition to making system changes through the intuitive easy to use user interface.

Contractor: Briggs & Forrester Engineering Services

Leicester Royal Infirmary

Leicester

Completed in early 2018 the new Emergency Department at Leicester Royal Infirmary is set to become the busiest in the country for emergency admissions.

Specifically designed to meet the needs of an aging population the new emergency department are paper free, providing a fully electronic service, saving space and speeding up processes. CT and MRI scan facilities reduce waiting times and improve diagnostics and treatments.

zencontrol provided a fully addressable DALI-2 lighting control system throughout, consisting of DALI-2 Application Controllers, DALI-2 LCM's, DALI-2 PIR's and DALI-2 Switch Interfaces.

zencontrol provided human centric lighting control (circadian rhythm) within the recovery wards, adjusting the colour temperature of the luminaires throughout the day.

A graphical user interface allows users to schedule emergency lighting tests and view emergency lighting test reports in addition to making system changes through the intuitive easy to use user interface.

Contractor: Interserve Engineering Services

Brighton 3T's

Brighton

The new £485 million programme will see the replacement of all buildings located at the front of the site with the new 3T's development specialising in Teaching, Trauma and Tertiary care.

The state-of-the-art hospital buildings will bring elderly care, general medicine, HIV and clinical infection wards up to modern standards and establish the hospital as the major trauma centre for the region. The new build will include 361 beds, 65% of which will be in single en-suite rooms, a helipad and additional parking spaces underground.

zencontrol will provide a fully addressable DALI-2 lighting control system throughout controlling over 20,000 luminaires, the system consists of DALI-2 Application Controllers, DALI-2 Relays, DALI-2 PIR's and DALI-2 Switch Interfaces.

A graphical user interface will allow users to schedule emergency lighting tests and view emergency lighting test reports in addition to making system changes through the intuitive easy to use user interface.

The zencontrol system will fully integrate with the BMS using BACnet, providing information such as occupancy status and DALI faults.

Contractor: Crown House Technologies

Brinell Building

Brighton

Located just a 3-minute walk from Brighton train station the Brinell Building will provide 65,000 sq. ft. of Grade A office space across 7 floors.

zencontrol will provide a fully addressable DALI-2 lighting control system throughout, consisting of DALI-2 LCM's, DALI-2 PIR's and DALI-2 Scene Sets.

A graphical user interface will allow users to make system changes through the intuitive easy to use user interface.

Contractor: RED M&E

London Stadium

Queen Elizabeth Olympic Park, London. E20 2ST

The old

The Stadium at Queen Elizabeth Olympic Park, commonly known as the Olympic Stadium, is a stadium located in Stratford, London, England. It is located at Marshgate Lane in London's Stratford district in the Lower Lea Valley. It was constructed primarily to serve as the host stadium for the 2012 Summer Olympics and Paralympics, where it hosted the track and field events, along with its opening and closing ceremonies.

The new

The former Olympic Stadium is currently undergoing a transformation in Queen Elizabeth Olympic Park, reinventing itself as an all-year round multi-use venue that will deliver a lasting sporting, cultural and community legacy in east London.

Elements of the transformation work include installing the largest roof of its kind in the world, a community track, innovative retractable seating, spectator and hospitality facilities and external landscaping. The stadium re-opened temporarily for five matches at Rugby World Cup 2015, before opening permanently as the new home of West Ham United Football Club and national competition centre for UK Athletics in 2016.

zencontrol supplied and commissioned their addressable lighting control system, controlling all general lighting and, more importantly, the 14 Field of play paddles. Each paddle contains around 50 lights and can offer differing combinations depending on the sport being played and the type of lighting required. We also provided full support at the venue through the string of 2015 Rugby World Cup matches played there.

Case-study: 1 Sherwood Street (Lucent)

On March 26, 2024

Illuminating One Sherwood Street (Lucent)

Located behind the iconic Piccadilly Lights, One Sherwood Street (Lucent) stands tall as a beacon of modernity and sophistication, offering over 140,000 sq. ft. of Grade A office space.

In collaboration with zencontrol ltd, One Sherwood Street embarked on a transformative journey to elevate its lighting infrastructure. The mission? To seamlessly integrate cutting-edge technology that not only enhances functionality but also foster sustainability and user-centric control.

zencontrol provided a DALI-2 lighting control system that revolutionised the space. This comprehensive system comprised zencontrol's compliant DALI-2 application controllers, relays, PIRs, switch interfaces, and scene panels.

One of the standout features of the zencontrol solution is its intuitive graphical user interface. It enables scheduling of emergency lighting tests and access to detailed test reports and offers a user-friendly platform for making system adjustments, simplifying the overall user experience.

Project details

Project name	Sherwood Street (Piccadilly Lights)
Location	London / United Kingdom
Client	Landsec
Size	140,000m² Office
Supplied	Lighting control Cloud services

Case-study: Blossom Street

On July 17, 2024

Illuminating Blossom Street

Following renovation of a number of existing warehouses, Blossom Street provides 336,000 sq. ft. of Grade A office space in central London.

In collaboration with zencontrol ltd, Blossom Street embarked on a transformative journey to elevate its lighting infrastructure. The mission? To integrate modern technology that not only enhances functionality but also fosters sustainability and user-centric control.

zencontrol provided a fully addressable DALI-2 lighting control system throughout. This comprehensive system comprised zencontrol's DALI-2 Application Controllers, DALI-2 Relays, DALI-2 PIRs, DALI-2 Switch Interfaces, and DALI-2 Scene Sets.

One of the standout features of the zencontrol solution is its intuitive graphical user interface. It enables scheduling of emergency lighting tests and access to emergency lighting test reports. The interface also offers a user-friendly platform for making system changes, simplifying the overall user experience.

Project details

Project name	Blossom Street
Location	Central London / United Kingdom
Developer	British Land
Size	336,000m² Grade A office space
Supplied	Lighting control Cloud services

Project Proposal

The zencontrol system is to be installed within Northwood & Pinner Our proposal is based on Networked DALI-2 LCM situated within the ceiling voids. Dali-2 Application controller provide to switch DALi-2 for Non DALI loads. Zencontrol control has been installed across several NHS sites including 3ts in Brighton.

Areas include:

Ground Floor 41935(63)001 to 003 (P2)

First Floor 41935(63)101 to 103 (P2)

Roof 41935(60)201 to 203 (P2)

Ground Floor - External Lighting 41935(63)001 to 003 (P2)

LCM Room Controllers are installed with the ceiling and connected to the associated lights, sensors and switches and then fed back to the IP network switch via CAT6 cables with data point for connection to the building wide network or GSM Unit for access to the cloud.

All luminaires, sensors, switch interfaces, scene sets, photocells and relays will be connected directly to the DALI pair, The DALI pair is to be wired in 2 core 1.5mm2 mains rated cable and no bus length shall exceed 300 metres. The DALI pair can be ran within the mains containment and is not polarity sensitive.

All luminaires require a DALI compliant driver, all emergency luminaires require a DALI compliant inverter. All standard luminaires are to contain a single DALI driver with the exception of the S3 type (direct/indirect) which is assumed to contain 2no DALI drivers (+DALI inverter where applicable).

Fire Alarm is to be connected via Volt Free Dali input module.

All emergency luminaires are to be automatically tested and monitored through the lighting control system GUI (graphical user interface), users can also make system adjustments through the software package to their demise.

The lighting control system will be programmed in accordance with the configuration section of this document.

Specification Compliance

Hully & Kirkwood Specification

Lighting Management System

The DALI lighting control system shall be provided incorporating detectors on a comms bus, with a combination of integral and stand-alone controllers to each luminaire controlled by the system. The system shall be Ex-Or MLS or equal and approved.

Compliant: Zencontrol offers the latest DALI-2 compliant Lighting control solution.

Detectors shall be located to suit the occupancy pattern of the area under control and shielded from erroneous influences.

Absence detectors will be used in all internal areas this shall enable lights to be automatically switched/ dimmed off to suit daylight levels, and extinguished if left on within a pre-set time of the room been unoccupied. Compliant

Offices/Treatment Rooms/Exam-Consultation Rooms will be provided with means of manually switching lights at windows and lights at door by means of 2 gang retractive switches and to dim lighting up/down manually. – Compliant.

Pluggable LCM's with leads will be provided where cabling length permits as well as void space (especially at ground floor level) Hard Wired LCM's to be provided where lengths are not achievable by leads or via void spaces in conduit and LSOH singles. Compliant: Zencontrol has offered Pluggable intelligent DALI-2 LCMs.

The LMS shall include BACnet interface in order to initiate or inhibit the HVAC systems. Compliant: The Zencontrol intelligent LCM's have BACnet including with each device.

Commissioning/Programming shall be undertaken by a Handheld Device without License Agreements, enabling the Client to "own" their system post completion. Compliant: Commissioning is done using the Zencontrol Cloud via Tablet or Phone.

The system should be able to control DALI and Non-DALI Dimmable luminaires and should be able to upgrade to a DALI (Broadcast) Control System without the requirement of further equipment, only recommissioning. Compliant: The Zencontrol system allows both DALI and Non Dali switching via LCM's or DALI Relays.

The system shall be provided with a 5 year warranty - Compliant

Emergency Lighting

Emergency lighting shall be provided throughout the building, comprising conversion of the general lighting. Provision shall generally be located as indicated on the drawings and as

follows:

▪ Corridors/Corridor intersections

▪ Changes of direction/Changes of level stairways

▪ Exit doors and external to final exits.

▪ Firefighting Equipment/Call Points

▪ Plantrooms

▪ Minor procedure rooms/Treatment rooms

Emergency lighting and illuminated emergency signage will comply with BS 5266 and BS EN1838 Category M3.

The MLS Automictic Lighting Control system shall provide an emergency lighting automatic test feature. The contractor shall provide this test facility in their proposals whereby strategic placement of key-switches terminated into the Bus Power Supply will force all emergency lights to go into test mode whilst not affecting the non-emergency luminaires. Compliant: All Emergency Testing and monitoring is done via the Zencontrol Head-end as per other NHS buildings.

The test facility should be able to be used for both monthly short tests and annual full duration tests. The test facility should be protected from unauthorized operation. The test device should not interrupt power to any other electrical equipment that could cause a hazard.

All emergency lights shall be supplied complete with control gear compatible with the proposed emergency lighting test and monitoring system and shall ensure all equipment is compatible with their chosen system prior to ordering inclusive of any DALI EM-Pro inverters or equivalent. - Agree

Product Hardware overview

LCM Dali Marshalling Box (Applicable)

LCM Marshalling box provides 10 L,N,E DA+ DA- connection to the luminaires, PIR's and Switches. The DALI and communication us fed from the Application Control lines situated in the Riser Cupboard. Mains 230VAC is supplied from the current Modular Wiring solution.

Max Load is 16Amp

Product range

Order code	Description
zc-marshall	10 way marshalling box for DALI lighting control

Features

- Six circuit distribution board
- Active, switched active, earth, neutral, DALI, DALI
- Switching capacity max. 1200 W
- 16A total circuit loading
- 10 output connections for simple wiring

Specifications

Supply voltage	230 V ~ 50 Hz
Terminal capacity	1 – 4 mm^2
Total circuit loading	16A (excluding DALI)
DALI circuit loading	2A (limited to <250mA by DALI power supply)
Operating temperature	0 to 45°C
Material	PC
Classification	Class 1
Mounting	Independently mounted
Compliance standards	IEC 61535 CISPR 15 EMC-2004/108/EC LVD-2006/95/EC

Accessories range

For cordsets see datasheets here

DALI PIR Sensor (Applicable)

The DALI PIR Sensor is available in two variants, a 5 metre (detection zone) sensor and an 8 metre (detector zone) sensor, both of which can be recessed or surface mounted to suit the required application.

The sensors are multi-functional devices and can be programmed to detect presence, ambient light measuring between 0 - 10,000 lux and colour, sensors can also trigger scenes, groups and events.

Each sensor is supplied with a 2 core flying lead for connection to the DALI line.

The DALI PIR Sensor draws 4mA from the DALI bus.

Product range

Order code	Description
zc-pir-5m	DALI-2 PIR sensor 5 m
zc-pir-8m	DALI-2 PIR sensor 8 m

Features

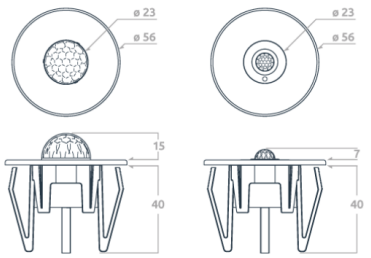
- DALI-2 certified
- For use with DALI-2 application controller
- Suitable for up to 32 devices per DALI line
- 8 m suitable for high ceilings(10 m) and warehouses
- Light control based on ambient light and motion detection
- Multi-master compatible / multiple control devices per line
- Designed for compliance to IEC 62386-303 and 62386-304
- Available as surface & recessed mount, and as a plug-in module
- Control scenes / groups / actions / events with a zencontrol control system

Datasheet | Instructions

Resources

DALI-2 certified

Dimensions (mm)

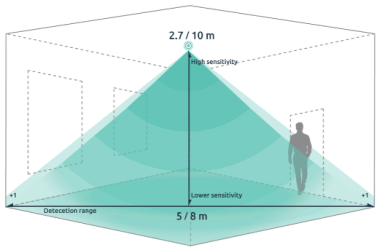


Specifications

Supply	DALI
Control system	DALI-2
Supply current	8 mA
Lens	Fresnel
Sensors	PIR, ambient light, colour
Wiring	Flylead
Operating temperature	0 to 45°C
Material	PC (body)
Ingress protection	IP20
Compliance standards	IEC 61347-2-11 CISPR 15 EN 55015 IEC 62386-303 IEC 62386-304

Detection pattern

Order code	Range ø	Height
zc-pir-5m	5 m	2.7 m
zc-pir-8m	8 m	2.7 – 10 m



Accessories range

Order code	Description
zc-pir-rs-kit	PIR sensor recessed mount kit
zc-pir-cd-kit	PIR sensor conduit mount kit
zc-pir-sm-kit	PIR sensor surface mount kit

DALI Switch Interface (Applicable)

The DALI Switch Interface's small form factor ensures that it can be easily located within a standard 35mm back box.

The DALI control pair and input/output tails are connected to the DALI Switch Interface via the push in cage clamps which are suitable for 0.5mm2 - 0.75mm2 cables.

The DALI Switch Interface has 2no software configurable inputs which can be used to trigger scenes, groups and events. Either input can be re-configured as an output for indication (Max. 3.3v).

In most applications 2no 1 button retractive light switches will be connected to a single DALI Switch Interface, we would recommend that MK K4910 are used.

The DALI PIR Switch Module draws 5mA from the DALI bus.

DALI-2 switch

You are here: Home / Products / DALI-2 switch

Product range

Order code	Description
zc-switch	DALI-2 switch module

Features

- DALI-2 certified
- Compliant to IEC 62386-301
- Multiple control devices per line
- Suitable for DALI-2 application controller
- Suitable for up to 32 devices per DALI line
- Suitable for momentary switch mechanisms
- Two configurable inputs for volt-free contacts
- Upgradeable to match changes in DALI standards
- Small form factor for mounting behind switch panels
- Either input can be reconfigured to act as a logical output
- Powered directly from DALI line, no separate supply required
- Control scenes / groups / actions / events with a zencontrol control system

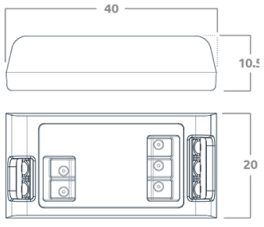
Resources

Datasheet

Instructions

DALI-2 certified

Dimensions (mm)

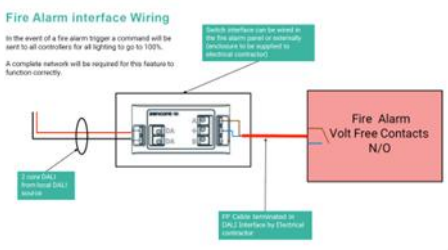


Specifications

Supply	DALI
Control system	DALI-2
DALI line current	5 mA
Input	2 floating contacts
Output	3.3 V logic level output
Wiring	0.5-0.75mm2 Strip 6-7mm (supplied with 100mm flylead)
Operating temperature	0 to 45°C
Material	PC
Ingress protection	IP20
Compliance standards	IEC 61347-2-11 CISPR 15 IEC 62386-301 EMC-2004/108/EC LVD-2006/95/EC

Notice

- The switch must not be connected to any mains. It is powered directly from the DALI line.
- Input switches should be connected directly to the switch. They shall be volt-free contacts and must not be connected to mains.
- The DALI line is not SELV. It must be treated like LV mains and treated with the same precautions and wiring regulations.



DALI Application Controller/DALI Power Supply Unit (PSU) (Applicable)

The DALI Application Controller works in conjunction with the DALI Power Supply Unit (PSU), both modules are DIN-RAIL mounted and require a 230v power supply, connections are made via the rising clamp terminals located at the top (L/E/N) and bottom (DA/DA) of the modules.

Connectivity is via Ethernet connection using Cat6 cable with each DALI Application Controller supporting 10/100 TCP/IP Ethernet.

The DALI Application Controller supports up to 64 DALI ECG's such as DALI Drivers, DALI Inverters and DALI Relays and up to 64 DALI ECD's such as DALI PIR's, DALI Switch Interfaces and DALI Scene Select Plates as per the latest DALI standard, please note that the DALI Application Controller itself is considered to be a DALI ECD.

DALI devices are connected to the DALI Application Controller via the DALI control pair. The DALI control pair is polarity insensitive and can be ran over a maximum distance of 300 metres when using 1.5mm2 cable, please note that the maximum distance is reduced when smaller cable sizes are used.

The DALI control pair can be located within the mains containment.

The DALI Application Controller draws 2mA from the DALI bus.

Product range

Order code	Description
zc-controller-pro-3	DALI application controller and Ethernet DALI gateway, 6DIN, with 3 DALI lines

Features

- Suitable for 3 DALI lines of up to 64 devices, and 63 control devices each
- Pro application controller which supports additional instances and bigger sequences
- Reinforced insulation between DALI, mains supply and Ethernet
- 2x 10/100 TCP/IP Ethernet port switch compatible with standard IT switches and equipment (upgradeable)
- Suitable for distribution board mounting on standard DIN rail
- DALI compliant application controller
- Compliant to IEC62386-103 Ed 2.0
- Compatible with DALI devices
- Protected against DALI over-voltage
- LED indicators for system status
- Optional DMX (upgradeable)

Specifications

Supply voltage	230 V ~ 50 Hz
Control system	DALI-2
DALI line current	2 mA/channel
Ethernet	2x 10 / 100 Ethernet port switch
RS-485 network type	3x Half duplex
Wiring	1-4mm^2 Strip 6-7mm
Operating temperature	0 to 55°C
Material	PC
Classification	Class II
Mounting	DIN rail (35mm)
Ingress protection	IP20
Compliance standards	IEC 61347-2-11 IEC 60950-1 CISPR 15 CISPR 22 EN 55015 EN 55022 IEC 62386-301 Ed 2.0 EMC-2004/108/EC LVD-2006/95/EC

Accessories range

Order code	Description
zc-psu	DALI power supply

DALI Relay supplied with enclosure for control of Non-Dali Lights (Applicable)

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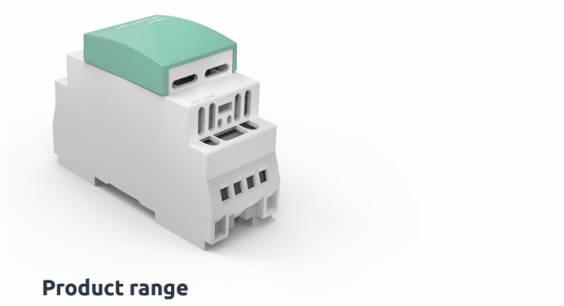
DALI relay **datasheet**



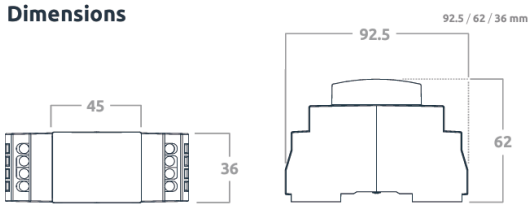
Product range

Order code	Description
zc-relay	DALI volt-free relay, DIN mount

Features

- For use with DALI control system
- Compatible with DALI and DALI-2
- Compliant to IEC 62386-208
- Protected against DALI over voltage
- Suitable for distribution board mounting on standard DIN rail
- Mains rated dry-contact volt-free relay output
- DALI device type 7

Dimensions



Specifications

Supply voltage	230 V ~ 50 Hz
Control system	DALI
DALI line current	2 mA
Output load	10 A resistive 6 A inductive
Output type	Dry-contact volt-free relay
Max. in-rush	80 A
Min. rated relay operations	40 000
Max. operations per hour	360
Relay type	Non-latching normally open
Wiring	1 - 4 mm² Strip 6 - 7 mm
Operating temperature	0 to 45°C
Material	PC
Classification	Class II
Mounting	DIN rail (35 mm)
Ingress protection	IP20
Compliance standards	IEC 60669-2-1 CISPR 15 EN 55015 IEC 62386-208 EMC-2004/108/EC LVD-2006/95/EC

GUI User Interface (Head End) (Applicable)

The User Interface is a cloud based software package which can be accessed via any PC supplied by the client. Multiple user names and passwords can be created to provide multiple levels of access which in turn can be further restricted to individual floors or rooms.

Should the client reside in multiple buildings then they can all be managed centrally via the User Interface, the individual building is simply selected following initial log in to the cloud.

Once the user has logged in the software is broken down into three main sections, The Grid, The Plan and Emergency Testing & Fault Reporting.

The Grid is where commissioning settings are stored and edited, the dynamically displayed dataset allows users to quickly and easily make programming alterations to the system configuration. The viewing platform can be changed to floor or area with settings that can be simply copied and pasted for commonly controlled areas.

The Plan is a graphical representation of the building floor plate, drawings are imported to serve as back drops with icons overlaid for user interaction. Statuses of all connected luminaires and control gear are displayed including activated luminaires and failures. Individual luminaires can be selected and controlled and emergency testing can be sequenced.

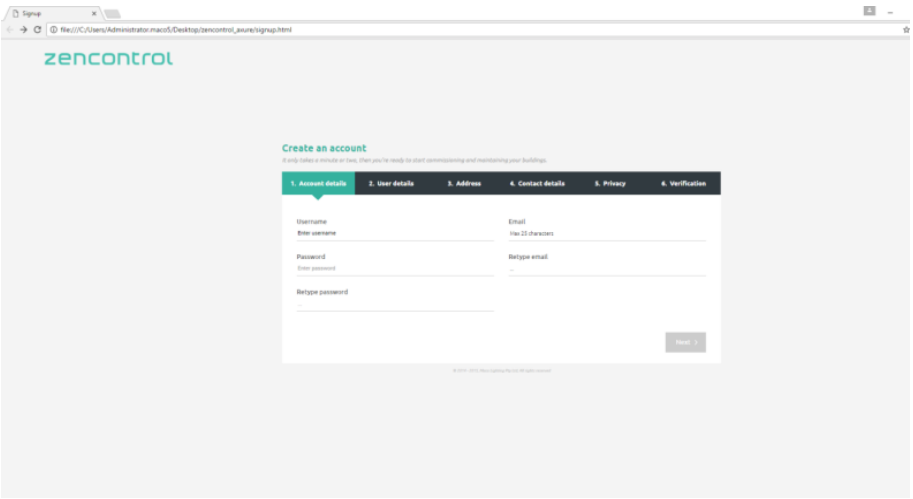
Emergency Testing & Fault Reporting allows users to schedule both function and duration tests via the emergency testing schedule. Following completion of an emergency lighting test results are published to the cloud and are available instantly and can be emailed to dedicated FM teams identifying any reactive works that need to take place. The fields can be further populated with manufacturer, product and serial numbers to ensure that correct replacement parts are ordered should this be necessary.

All data and software configurations are backed up to the cloud, this allows the user to restore settings from previous dates in the event of misuse.

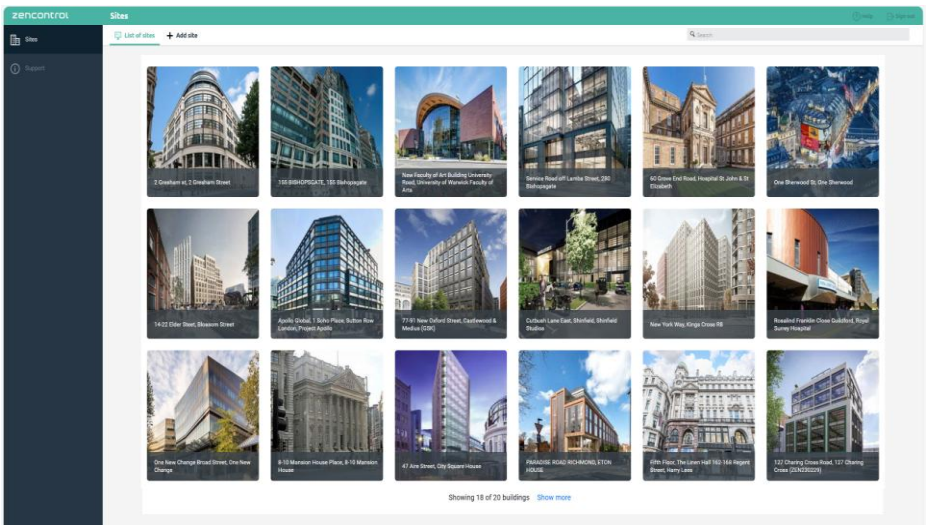
The cloud is built on robust industry preferred protocols making sure that connections between the cloud and controllers are not compromised. zencontrol has the ability to ban individual rogue devices from its network to ensure that devices and security are not compromised.

Graphical user interface

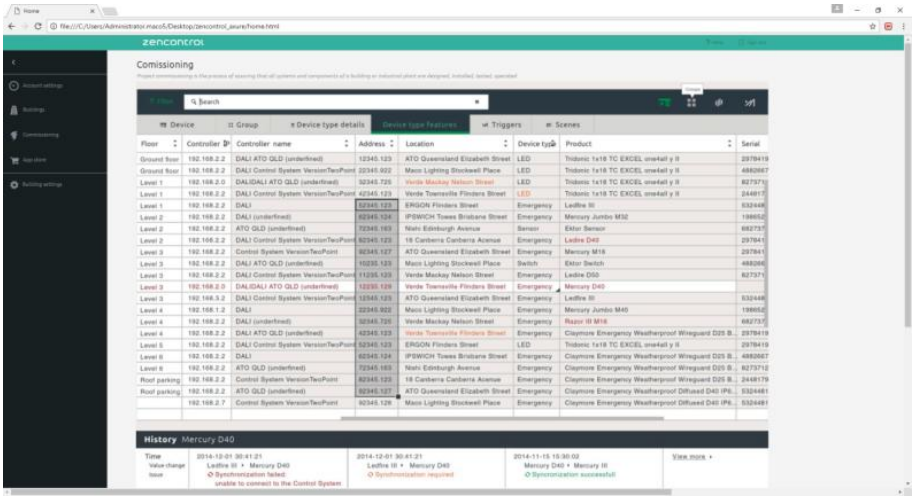
Please find below a selection of sample images from our User Interface



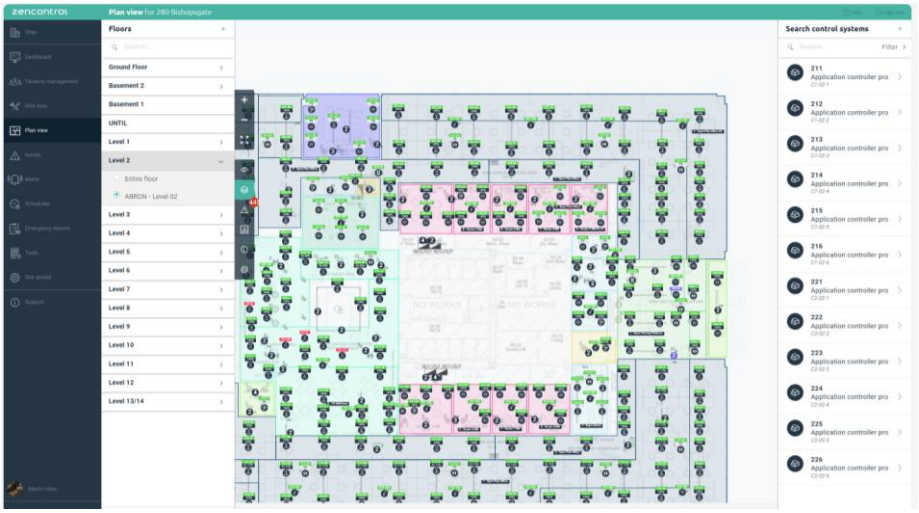
Create an account
Users create log in and passwords for the user interface.



Site Dashboard
Users can see list of sites



Commissioning
Users can re-programme system parameters and restore previous system configurations.



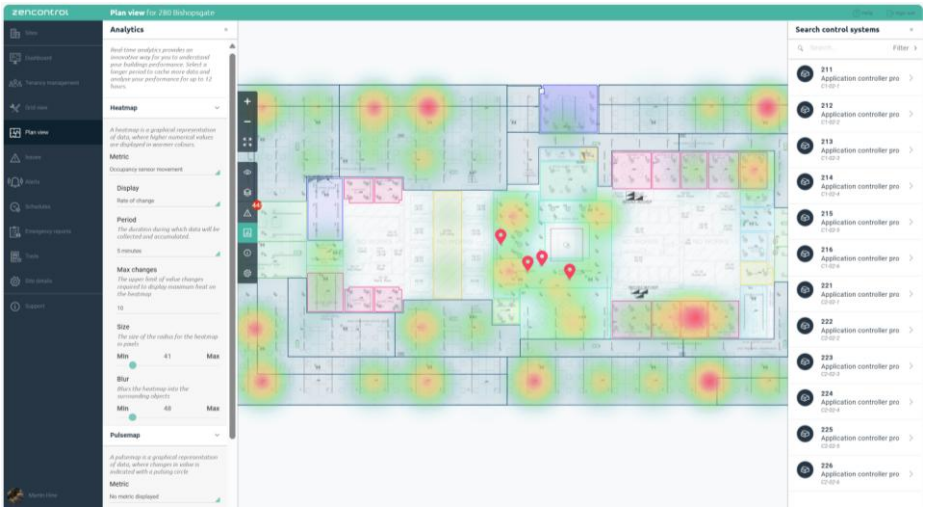
Plan View Floor and Groups
Users can filter all floors, groups and devices

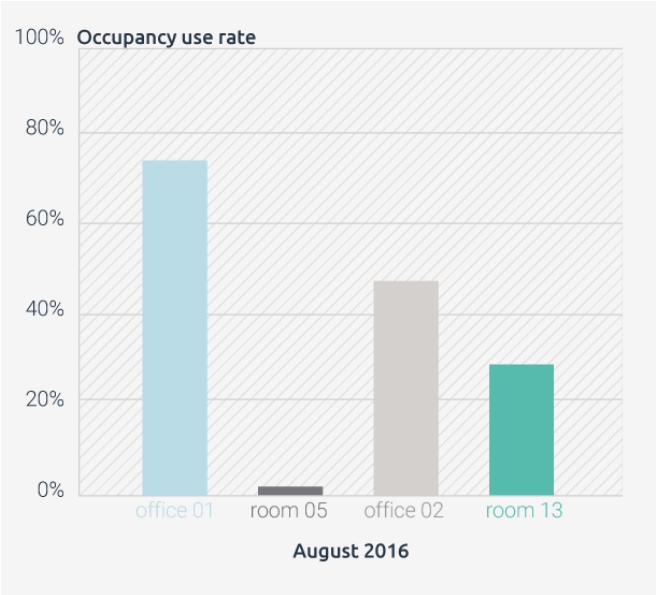
Analytics (Additional Cost options available)

Occupancy use maps

Occupancy use maps are visual reports on area utilisation and are perfect for designers and building managers looking to better understand their building usage.

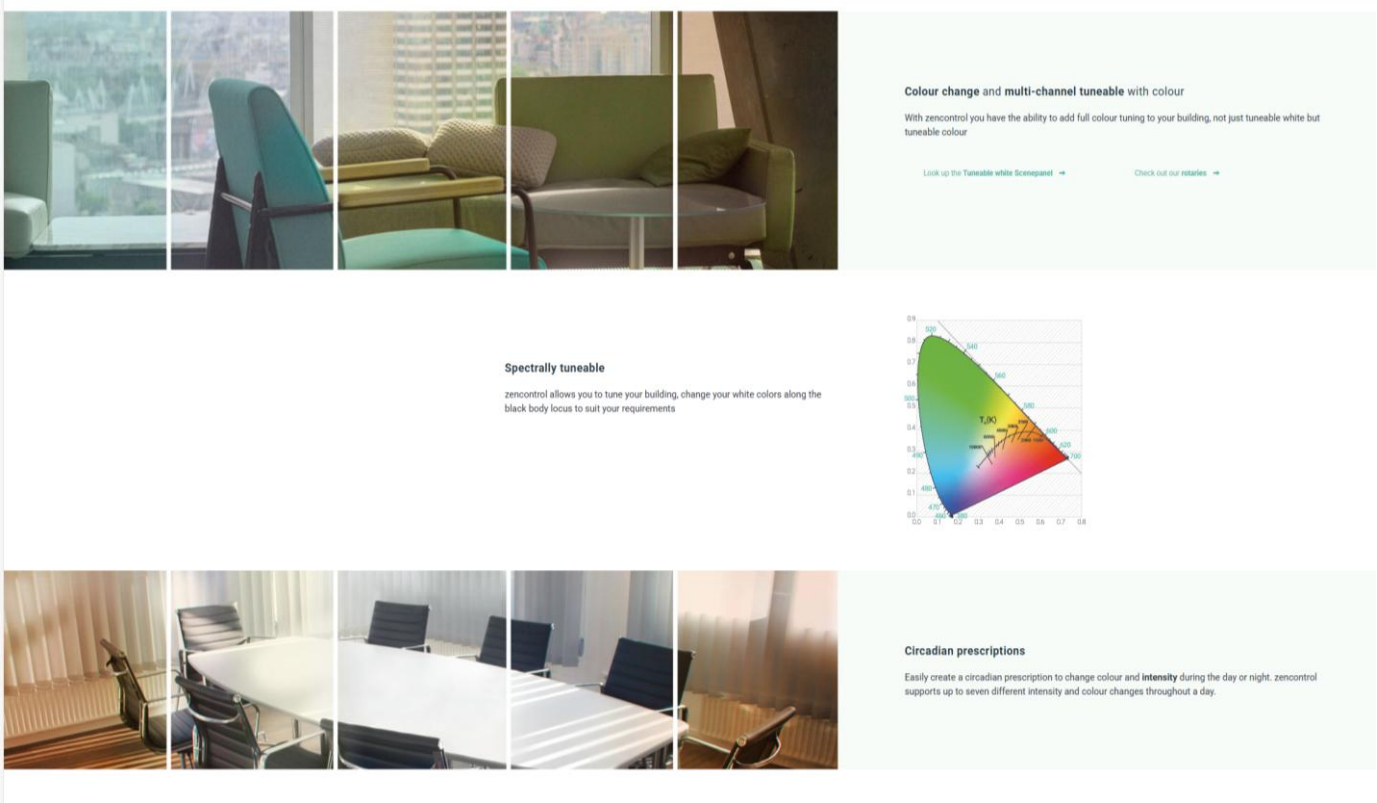
- Understand when resources are over booked.
- Determine main movement paths and critical areas for maintenance.
- Schedule maintenance on usage.
- Prioritise maintenance and upgrade based on risk.
- Change the lighting control based on usage to gain maximum energy savings.
- Analyse which room and areas have the highest utilisation, and reconfigure the building accordingly.





Human Centric Lighting Control

Human-centric lighting (HCL) refers to lighting designed to align with the natural rhythms of the human body, mimicking changes in natural daylight throughout the day. It aims to support biological, emotional, and psychological needs, enhancing mood, alertness, and sleep patterns. By considering both the visual and non-visual effects of light, HCL promotes overall well-being and comfort in various environments



Tuneable White

Tuneable white LED lighting has emerged as a dynamic and flexible lighting to support human centric lighting (HCL) as a result of advancements in LED technology. Tuneable white lighting allows for the adjustment of its colour temperature, benefiting our health, productivity, and comfort. This can be achieved by using DT6 or DT8 drivers.

Configuration general Setup up (Unless otherwise specified)

Room Name	Presence	Absence	Corridor Hold	PIR Time (Minutes)	Daylight (Lux)	Manual Switching	Manual Dimming	Time Control	Photocell Switched	Scene Select	Tuneable White	Human Centric Lighting
Reception	✓			20						✓		
All Room occupying PIR	✓	✓		20								
Corridors (all)	✓		✓	20								
Open Plan Offices (all)	✓	✓		20	✓							
Meeting Rooms	✓	✓		20		✓				✓		
Cupboards/Risers where PIR or Switches show on Drawing	✓			20		✓						

Specific Requirements

Where scene set plates are used the following scenes are to be configured unless otherwise instructed:-

- Scene 1 – All luminaires 100%
- Scene 2 – All luminaires 75%
- Scene 3 – All luminaires 50%
- Scene 4 – All luminaires 25%

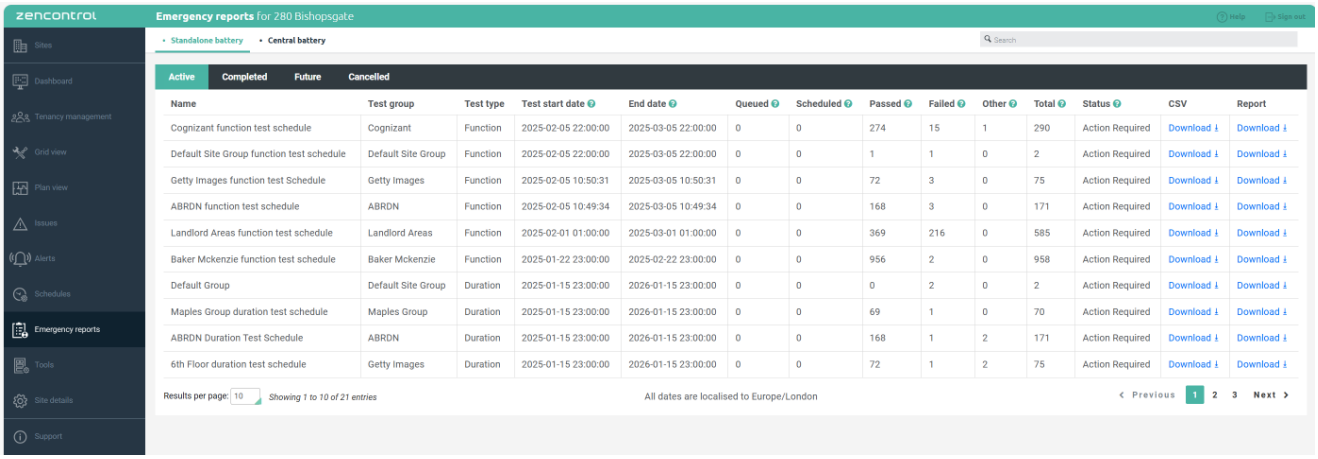
DALI Relays used for solenoid valve control.

BMS option provided for BACnet interface to be confirmed by contractor

Smart Enabled – System is smart ready for future integration via converged network to third party system such as Facilio, Smart Spaces etc.

Emergency Lighting Operation

Unless otherwise specified, all emergency luminaires are to be automatically tested and monitored through the lighting control system via DALI EM Inverters.



Zencontrol Configuration Table Definitions

Presence Detection

Luminaires are controlled automatically via PIR or Microwave sensors. Upon activation of the sensor(s) luminaires turn on, following a period of inactivity luminaires turn off.

Absence Detection

Luminaires are turned on manually via a 1 button retractive light switch (zencontrol recommends MK4910). Luminaires can then be turned off manually via the light switch or will be turned off automatically via the sensor following a period of inactivity.

Corridor Hold

Luminaires remain on when associated rooms and/or areas are occupied, following a period of inactivity within all of these rooms and/or areas the corridor hold luminaires will then turn off.

PIR Time (Minutes)

The length of time in which the luminaires remain on after the last detection signal was received by either the PIR or Microwave sensor(s). Luminaires can turn off or alternatively luminaires can dim (progressively or staged) over a further time period.

Daylight (Lux)

The PIR sensor(s) constantly monitor light levels (0 - 10,000 lux) and automatically adjust luminaire output to achieve an average light level.

Manual Switching

No automatic control, luminaires are switched via a 1 button retractive light switch (zencontrol recommends MK4910). One press turns the lights on, one press turns the lights off.

Manual Dimming

Luminaire output can be manually adjusted and daylight levels can be overridden via a 1 button retractive light switch (zencontrol recommends MK4910). Press and hold the light switch and luminaire output shall increase, release, press and hold the light switch and luminaire output shall decrease, release the light switch when the desired light level is achieved.

Time Control

Luminaires turn on, off or dim at times configured via the GUI. Time control can also be used to trigger profiles such as cleaning, security and weekend modes.

Photocell Switched

Typically used for external lighting setups and often used in conjunction with time control, the photocell set point (2-2000 lux) can be used to trigger lights on or off.

Scene Select

Pre-set lighting scenes are recalled via an indicated scene select plate.

Tuneable White (Colour Temperature)

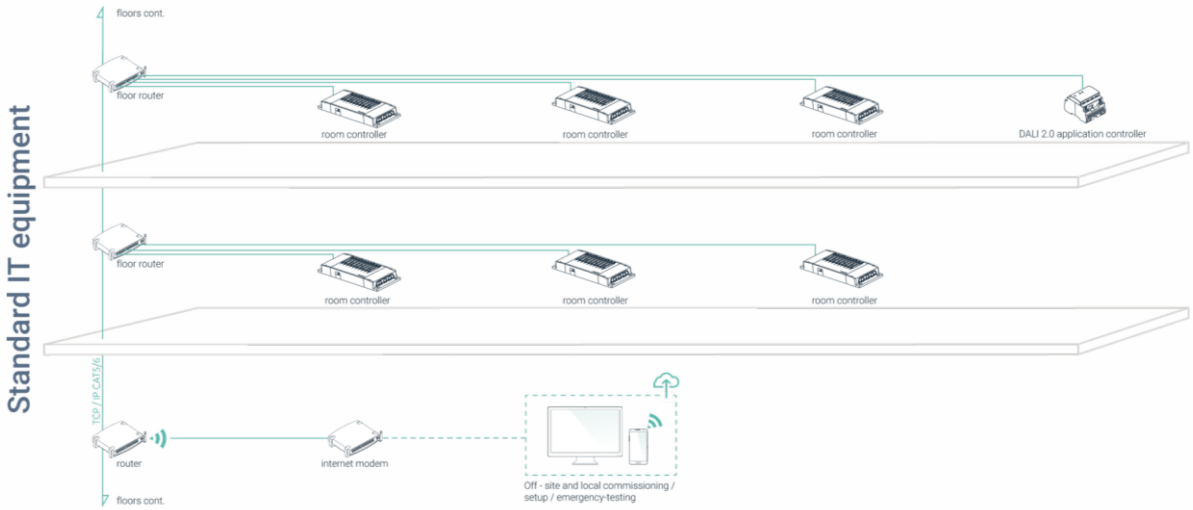
Control of white light ranging from cool to warm tones.

Human Centric Lighting (Circadian Rhythm)

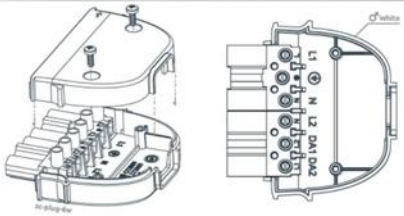
Replicate natural lighting cycles through automatic adjustment of tuneable white light.

General system schematic

Fast 10/100 TCP/IP interfaces need to be connected to all RCMs and DALI 2.0 application controllers



Drawings



L1 - Switched Live – Connects to general lighting.
L2 – Permanent Live – Connects to permanently "on" loads and non-DALI emergency lighting.

DALI luminaire with DALI PIR
*If the luminaire also has a DALI inverter (emergency) ensure the DALI driver and invertor are linked within the fitting.

DALI luminaire with non-DALI emergency.

Non-DALI luminaire or device solenoid valve, extract fan etc.

Non-DALI Luminaire with non-DALI emergency