MOUNT KELVIN

401-D2 TECHNICAL GUIDE

Guest room management system for hospitality operators

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Floor distributor

Floor distributor

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401-D2 is a guest room management system based on DALI-2 and EnOcean technologies. The system has been designed for hospitality industry and it enables easy control, automation, and remote management of guest rooms.

Networking

The system includes one room control kit for each guest room and one main unit for each separate building. The main unit acts as a bridge between the room control kits and Mount Kelvin cloud.

The room control kits and the main unit are connected via LAN and only the main unit is directly connected to the internet. The internet connection is used for integrations and remote management in Fleet Manager application. Other features work independently even without internet connection.

DALI-2

The system is DALI and DALI-2 compatible. One room control kit contains a total of 128 DALI addresses, half of which are reserved for control gear (e.g. LED drivers) and half for control devices (e.g. sensors and switches).
Both DALI and DALI-2 devices can be connected simultaneously.

EnOcean

The system supports wireless and battery-free EnOcean lighting switches. The switches can be placed in the most convenient locations as they don't require any cabling. Compatible wireless EnOcean sensors can also be connected to the system.

02 AUTOMATION

Occupancy detection

Data from motion sensors, switches and door sensors continuously determine the occupancy states of the rooms.

The occupancy state is always set to either "occupied" or "unoccupied". The automation features are based on the use of occupancy and sensor data.

Welcome lights

The lighting automatically fades in when a guest opens the entrance door of an empty room.

The lighting scene is selected according to the time of day, so for example after 6pm welcome lights can be set to activate the evening scene.

Automatic bathroom lights

Bathroom lighting automatically turns on and off when a guest enters or leaves the bathroom.

The lighting scene is selected according to the time of day. For example, after 11pm the system can be set to activate the night scene.

Energy saver

The lighting automatically turns off when the guest leaves the room.

The energy saver can also be connected to the room ventilation or heating system, helping to achieve significant savings in energy costs.

The exact on and off delays for all automation-based features are configured directly in **Fleet Manager**.

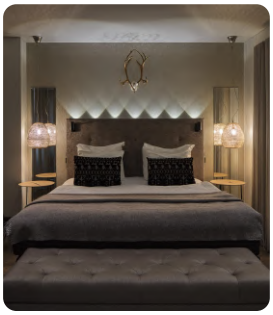
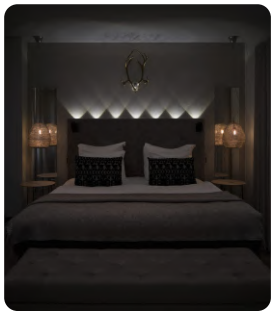
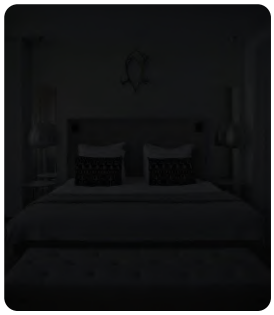
03

CONTROL

Four lighting scenes

Lighting control is based on four scenes: day, evening, night and all off.

The lighting scenes are configured together with the customer and changes can be made whenever necessary. It’s important to ensure that all the luminaires in the room are connected to the system so that all off really does turn off all the lighting.

Fixed luminaires

Once the fixed luminaires (e.g. downlights and LED strips) in the rooms have been selected, they are ordered directly from the luminaire manufacturers as dimmable and DALI-compatible versions.

Decorative luminaires

Decorative luminaires are controlled by phase dimmers, which are installed in electrical cabinet or junction box. The control of luminaires that are connected directly to sockets is done with dimmable luminaire sockets. The luminaires are ordered without their own switches and with a plug that is compatible with the luminaire socket.

Relay control for reading lights

Reading lights with integrated switches - one relay controls all the reading lights in the room. The reading lights are controlled based on the occupancy state of the room. The reading lights are controllable when the room is in occupied mode and they are switched off when the room enters unoccupied mode.

Reading lights without integrated switches - a separate relay is installed for each reading light. The reading lights are controlled by separate lighting switches located next to the bed.

Wireless and battery-free EnOcean switches (1)

Wireless and battery-free EnOcean switches are fixed to walls or furniture with screws, glue or double-sided tape. The switches are available in different colours and are printed with standardised and easy-to-understand switch labels.

Wired DALI-2 switches (2)

Wired DALI-2 switches are connected to the DALI bus. The switches are available in different colours and are also printed with standardised and easy-to-understand switch labels.

1

2

Motorised curtains

Motorised curtains can be connected to the system. The curtain motors should be 230V without the proprietary control solution from the curtain motor supplier. The curtains can be controlled with wireless EnOcean switches or wired DALI-2 switches. The opening of the curtains can be included in welcome lights.

Socket outlets

The system can also control socket outlets. The selected sockets can be set to follow the room's occupancy status, e.g. to improve fire safety. The socket outlets are connected to the system with for example a Helvar 494 (4-channel, 10A/channel) or a Helvar 498 (8-channel, 16A/channel) relay unit.

Keycard switch

Occupancy detection eliminates the need for a keycard switch in the rooms. Welcome lights activates the room lighting and energy saver turns off the lighting based on occupancy data. If a room is designed to be implemented completely without sensors, a keycard switch can also be included in the system.

Charging mobile devices

The rooms are equipped with 2USB sockets, which in addition to the standard socket, have two USB ports for charging mobile devices, e.g. USB-A & USB-C.

2USB sockets are designed in exactly the same way as standard sockets.

04 MANAGEMENT

Fleet Manager

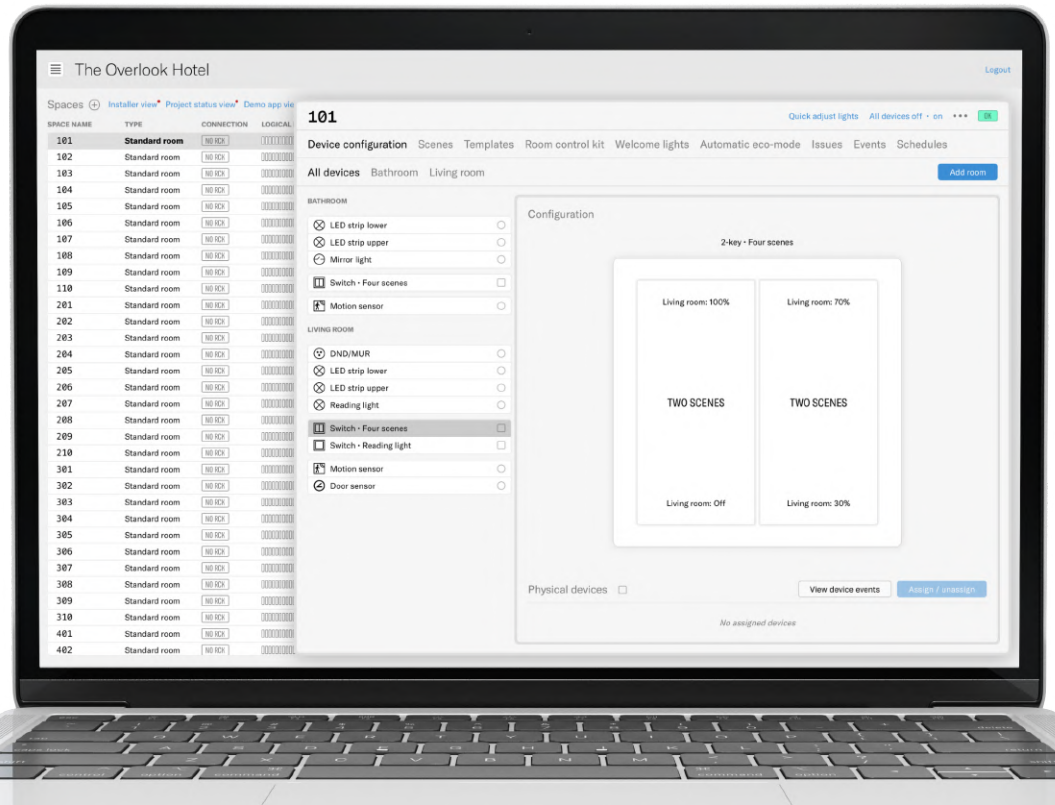
The system is managed through Fleet Manager web application. Fleet Manager is an easy-to-use tool that runs directly in a web browser and requires no separate installation or training. The application is used to configure, commission and monitor the system.

Cloud API

The system includes a cloud-based REST application programming interface that allows other systems to control, configure and collect data from the system and connected devices. Through cloud API, integrations with other systems can be implemented easily and quickly.

BACnet/IP

The BACnet/IP integration connects the system to the building management system and transmits room occupancy data. The HVAC units in the rooms can be configured to operate on the basis of the occupancy data, for example with energy saver function.



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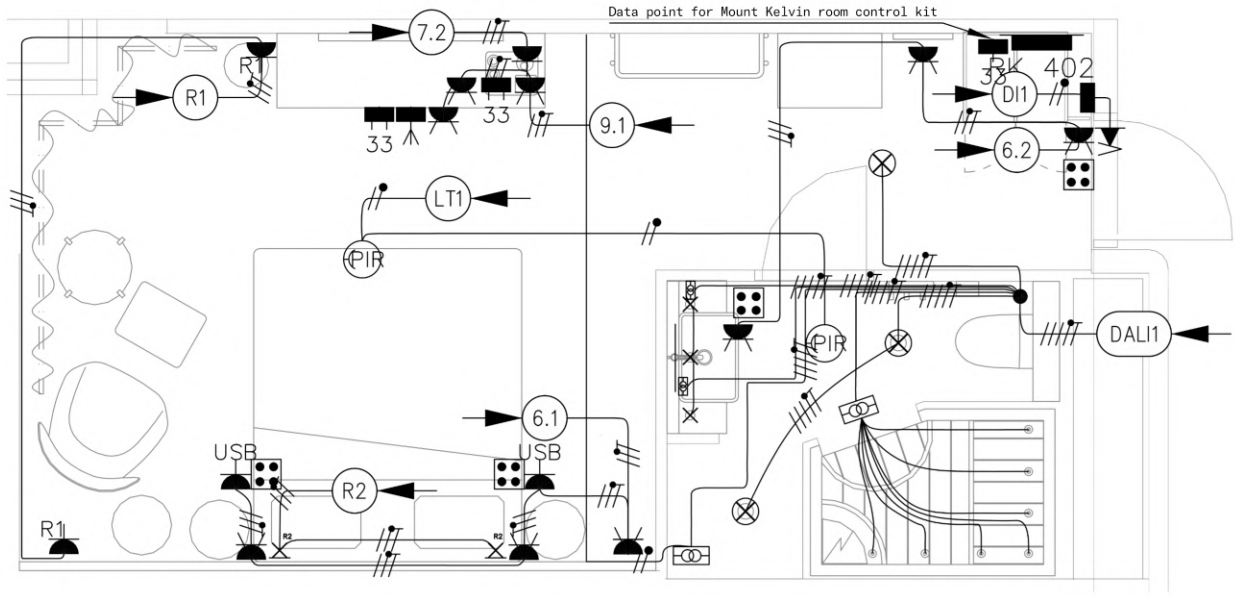
EXAMPLE ROOM ELECTRICAL PLAN



- 2-key Gira EnOcean switch with symbols
- 1-key Gira EnOcean switch with symbols
- Distribution board 402
- 1-piece schuko socket outlet, flush-mounted + 2USB
- 1-piece schuko socket outlet, flush-mounted
- 2-piece schuko socket outlet, flush-mounted
- Ballast
- Ceiling junction box, flush-mounted
- Spotlight
- Reading light
- LED luminaire with DALI control gear
- LED strip with DALI control gear

- Semi-fixed installation of a bedside table lamp
- Antenna socket, flush-mounted
- IT socket, flush-mounted
- Magnetic switch, flush-mounted
- Helvar 320 D2 PIR motion sensor
- Distribution box, flush-mounted
- DALI bus for Helvar 444 D2 digital input unit
- DALI bus for motion sensors
- Relay-controlled luminaires / socket outlets
- 230V + DALI- bus cabling for lighting

The room uses a Mount Kelvin guest room management system for lighting control.
The spotlights in the room and bathroom and the LED strip in the room are equipped with DALI control gear.
The bedside reading lamps are controlled by a 230V DALI dimmer, which is placed in the distribution box according to the plan.
The lighting is controlled by wireless and battery-free Gira EnOcean switches with customized texts/symbols for lighting scenes.
The door magnet is connected to the DALI bus via a DALI input unit, which is placed in the distribution box next to the door.
The EnOcean antenna of the room control kit is taken outside the electrical cabinet. It can be placed in a suitable location in the false ceiling.
Furniture set of switches and 2USB+Schuko sockets from Gira. Cover plates Gira E2 series. Other electrical fittings may be from other furniture sets.

06 EXAMPLE ROOM COMPONENTS

Room control kit

401-D2 RCU
Room control unit
70 x 90 x 62 mm

Helvar 402
DALI power supply unit
35 x 58 x 90 mm

401-D2 PSU
RCU power supply unit
17,5 x 90 x 54 mm

Eltako FA250
EnOcean antenna

Other components

Helvar 320D2
Motion sensor

Helvar 444D2 + magnetic door switch
Door sensor

Helvar Digidim 498
8-channel relay unit, 16A
160 x 90 x 58 mm

Malmbergs MD01
1-channel 230V dimmer unit

Gira E2 + EnOcean PTM 215
Wireless 2-key switch
55 mm kehys

Gira E2 + EnOcean PTM 215
Wireless 1-key switch
55 mm kehys

The system also supports standard DALI control gear and EnOcean devices from other manufacturers. Compatibility can be verified in advance.

Main unit

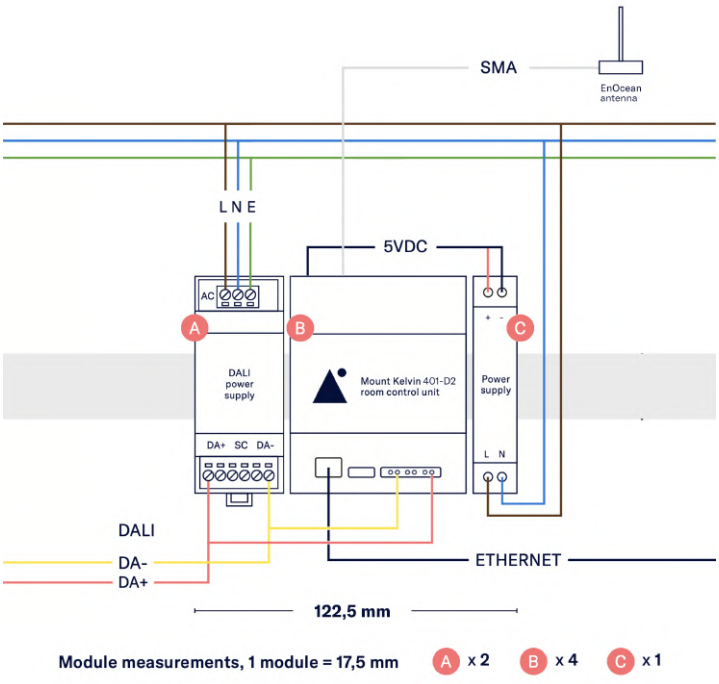
The main unit is connected to all room control kits on site and allows remote control and configuration changes to the system. The main unit converts commands sent from Fleet Manager or cloud API integrations into DALI commands and forwards them to the selected room control kits.

Room control kits

The room control kits installed in the electrical cabinet of each room include a room control unit, a room control unit power supply, a DALI power supply and an EnOcean antenna. The units do not require a specially dimensioned electrical switchboard or non-standard cabling.

The room control kit can be connected with

1. Wireless and battery-free EnOcean switches
2. DALI-2 switches and DALI-2 sensors connected to the DALI bus
3. DALI or DALI-2 control gear
4. Wireless EnOcean sensors



07 ADDITIONAL INFORMATION

Remote and mass management

Fleet Manager is designed for hotel use and mass management - rooms and equipment can be managed from anywhere in the world via an internet connection.

For each room type (e.g. "standard"), a separate room template is created in Fleet Manager. The template is connected with all rooms of the same type. When changes are made to the room template, they can be synchronised to all rooms of the same type with a single click.

Warranty and maintenance

The room control system and the room control components supplied by Mount Kelvin are covered by a two-year warranty.

During the warranty period, components damaged during normal use will be replaced free of charge to the customer. Mount Kelvin also offers its customers the possibility to keep spare parts for components on site, which helps to solve issues regardless of the speed of spare parts deliveries.

Environmental impact

The Mount Kelvin room control system saves the environment both during and after the construction of the hotel. The system contributes to various environmental certifications, including LEED Gold and Green Key.

Green Key

Chosen by

SOKOS HOTELS

AUTOGRAPH COLLECTION

Scandic

Radisson BLU

IHG HOTELS & RESORTS

LAPLAND HOTELS

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