



A day in the life with

Connected Lighting

iLumTechTM
i n n o v a t i o n a h e a d



Connected Lighting

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Light shapes every aspect of our lives, especially in modern life where we spend more time indoors and are active later into the evening. Lighting, therefore, should not be overlooked as we march towards a future of digitisation, technological innovation and the personal freedom it offers.

The Connected Lighting product range from iLumTech encapsulates the key concepts and technologies that are shaping future lighting. Practical, simple-to-use devices that can be easily incorporated into our everyday lives across work, rest and play.

Connected Lighting. The freedom to have the light you want.

iLumTech[™]
Innovation ahead



Bedroom

It is early morning and everywhere is dark. My husband Luke and I wake to the alarm. We find the morning light is too strong first thing so Luke always presses the switch beside the bed to turn the lighting on at 50 % so it isn't too bright. After a few minutes, I get up to open the blinds and let the morning sun in. Then I press the switch on my side of the bed to turn the lighting off. Enough of the artificial light, time for the Sun! It is a beautiful day outside. Luke, as usual, spends a few more minutes under the covers. I am going to enjoy a little time alone in the bathroom while I get ready for the day ahead.

Caroline



EASY DALI SWITCH

The switches beside the bed are DALI Input Units that allow for selection of preset lighting parameters with various combinations of pressing and holding. A single press may turn the lighting on or off, with other combinations of presses and holds changing the luminance and colour temperature. In fact, the device can be set to operate using a wide variety of combinations according to user choice.

The DALI/USB Bridge is a handy little USB stick device that connects a computer to a DALI bus and allows for the setting and commissioning of the installation. It includes a user-friendly application that runs on Windows to make it really simple to programme the functionality of everything from DALI Input Units to entire complex DALI installations.



Bathroom

In the bathroom, now that I'm fully awake, I like to have bright light. The temperature of the light can be tuned to cool by holding the switch down. I appreciate this especially in the morning because it is refreshing, and after a shower, helps me feel like new.



And now makeup time! The possibility to change the temperature of the light helps me to apply it perfectly. When I hold the switch a little bit longer, it tunes the lighting to a slightly warmer and more natural colour temperature that flatters my skin and ensures I will look the same during the day as I do there in front of the mirror. It is best to apply makeup under a neutral white light as this is closest to the kind of lighting we experience throughout the day both indoors and outside.



GOOD MORNING TUNABLE WHITE

We use DALI Input Units in the bathroom too. These units are programmed to allow them to not only choose different light levels, but also to change the colour temperature of the light.

Tunable White luminaires are becoming a standard part of modern office, education, retail and hospitality lighting thanks to their positive physiological and psychological influence on our wellbeing. But why stop there? The many benefits of Tunable White are just as relevant at home as they are at work and play.

Cool white light is perfect for helping us get going in the morning. It feels fresh and clean and activates the hormones that make us feel alert.

For standard houses where DALI is not standardly used, DALI PLC (PowerLine Communication) is a practical and easy solution because it sends the DALI communication signal along the standard power cables instead of a separate DALI bus. It manages the signal through DALI PLC transmitters connected to the control devices, such as switches, and DALI PLC receivers connected to the luminaires.

On my way past the children's rooms, I wake them up gently with a kiss and a soft low light, which is easy to set with the switches. Afterwards, our daughter Melissa can open her blinds, turn the lighting off and prepare herself for school. Luke will get our son Alexander ready for kindergarten. In the kitchen, I need to look around in the pantry for a new box of my son's cereal. He won't eat anything else at the moment.



Kitchen



EASY CONNECTION DALI RELAY

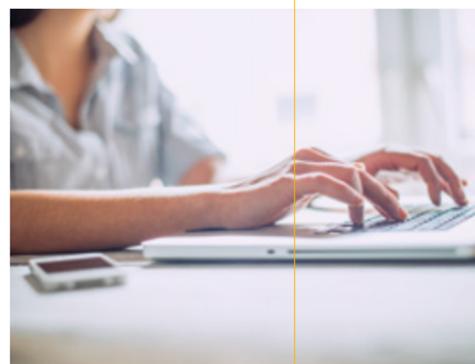
DALI Input Units are suitable for every room. They are the simplest way to control the lighting according to light level and colour temperature.

The lighting in the pantry is not dimmable like in the rest of the house. But it can still be controlled along with all the other lighting because it is connected via a DALI 4x Relay, which allows for non-DALI devices to be controlled using DALI. It means that when I turn the kitchen lighting off, the pantry lighting also turns off. This is very useful because I often forget about it.



Office

During an afternoon meeting with my boss, I set the lighting from my smartphone, which means I don't have to get up and disturb anyone. All I need to do is select a desired pre-programmed lighting scene at any point during the meeting. For presentations we like to dim the lighting and for discussions the best choice is bright neutral lighting.



As a personal assistant, I must be in the office before 8 to get everything ready for my boss and the day ahead. The lighting in our offices and the open office where the other employees sit is controlled by sensors that adjust the artificial lighting to complement the daylight coming in through the windows. It means a consistent brightness and colour temperature is maintained all day.



IDEAL AMBIENT LIGHT FOR WORKING

The sensors used in the offices are DALI Ambient Sensors that fully automate the lighting control to make sure visual conditions are always comfortable. None of the staff can imagine having any other type of lighting control now. One even installed a DALI Ambient Sensor at home in the living area.

DeeBridge can be used on a computer, tablet or smartphone. A single installation can be controlled from various devices, allowing great flexibility and user-comfort.

Alexander is two years old and has only recently started kindergarten. The school where he attends kindergarten installed Tunable White luminaires last year. The teachers use BlueBridge on tablets to control the luminance and colour temperature of the lighting throughout the day to help the small children focus when they need to learn and relax when they can play. All of the teachers have found that the children are more settled when they can adjust the lighting. It is especially useful at times when the children get over-excited because warm white light seems to calm them down. On the other hand, bright cool white light is perfect after lunch to help them concentrate.



Alexander



Kindergarten



ADPATIVE LIGHT FOR THE LITTLE ONES

The school building is quite old and was rewired only three years earlier, so it did not make sense to change the electrical installation when the new lighting was done. Instead they opted to use DALI PLC, which allows all DALI communication to be implemented along the standard power cables.

BlueBridge uses bluetooth to communicate with and control the lighting, meaning there is no need to use a Wi-Fi router. This makes it easy to control the brightness and colour temperature of individual luminaires and groups with just a smartphone.



School

Melissa is 14 years old. Today she will have standard lessons in the morning, and in the afternoon will sit some exams. All of the classrooms are equipped with DALI Ambient Sensors to make sure the lighting inside maintains a set luminance and colour temperature. This is great for supporting the natural rhythm of the children's bodies, especially as teenagers often struggle with circadian disruption.

Melissa



Melissa takes her exams in one of the common areas. The lighting in each common area is controlled by a DLS Touch Panel II, which allows for the easy setting and use of lighting scenes. One of the lighting scenes is specifically for exams and sets the lighting to a bright cool white light. This has been proven to greatly improve concentration and exam performance. The teachers are very happy with the results, and the children too feel much more confident when taking exams.



PERFECT LIGHTING FOR BRIGHT MINDS

The school is a brand new building and had modern lighting installed throughout during construction. Tunable White luminaires are used in every classroom and common area.

There are many other lighting scenes set for the common areas too, for example, for drama and art activities, and scheduled scenes for breaks and cleaning that run automatically based on the school schedule. The DLS Touch Panel II can also be programmed for use with RGB luminaires, and the head of the school is thinking of installing an RGB system in the main hall for events such as school plays.



Shop

I picked my children up, and we have come shopping together. It's my husband's birthday tomorrow and we want to buy him a really nice watch. There is a great jewellers near my office that offer a wide range of products, so there will certainly be something we like. Luke always looks at the window displays when we pass; that is what gave me the idea to buy him a watch. We too are impressed by all the items, which are displayed under special cool white lighting that makes the watches sparkle and look so fresh! It's a great way to convince me to buy something.



Once inside, Alexander is immediately attracted by a colourful display of jewellery. The shop owner chose to use RGB lighting for some of the displays to add drama. When he sees Alexander approaching, he selects a dynamic lighting scene using the touch control panel next to the counter. My small boy seems to be very happy when the light colour changes every few seconds.

Elsewhere in the store, each display is shown under lighting with different colour temperatures. For example, there are yellow gold rings and necklaces with precious gems displayed under warm white light that brings out the richness and glow of the colours. Elsewhere, cool white light really emphasises the crispness of platinum items. The owner can easily change the colour temperature of these luminaires from his computer or smart phone using DeeBridge. The RGB luminaires can also be controlled by DeeBridge.

We bought a watch that we think Luke will love and are now on our way home to be together as a family for the evening.



PERSUASIVE & FUN COLOUR CONTROL

The shop owner understands that lighting can be used to put every item in its own best light, which boosts his sales. In the window, he uses DALI Manual Tunable White spotlights. They allow him to easily change the colour temperature of the light to suit different materials and displays.

The shop is also equipped with a DLS Touch Panel II to control the RGB lighting inside the shop. It lets him adapt the lighting to encourage customer engagement with the products, all from behind the counter. It means that even if he is serving one customer, he can still do something to keep the interest of another.

DeeBridge and BlueBridge can be used as superior controls over some other types of control. In this case, the DALI Touch Panel II can be overridden by RGB lighting scenes selected in DeeBridge or BlueBridge. This means the shop owner can control all of his interior lighting from anywhere, which is great for when he is setting up displays.

Luke works as a production manager at an industrial firm where he spends his days working in the office and walking around the factory hall and warehouses. His office is equipped with special switches, like ours at home. They allow him to dim the lighting and select lighting scenes according to the time of day and available daylight.



Luke



Office



EVERYDAY DIMMING MADE EASY

Luke uses DALI Input Units to control his office lighting. That is where he found out how simple and useful they are, which gave him the idea to also install them at home. We're glad he did, because the whole family finds them really useful.



Factory

Most of the warehouses in the company are equipped with DALI dimmable lighting and presence detectors that allow the light to be dimmed to a safety level in areas where there is no activity. However, one small warehouse is not used often and so the non-dimmable lighting is simply turned on and off as needed. A special relay unit is used to control the non-DALI lighting as part of the overall DALI installation.

The factory hall is currently not in use because it is being equipped with new machines. The lighting design has been updated to match the new layout and now includes DLS Touch Panel II control so that shift leaders can set lighting scenes according to the activities being carried out. To save costs, the new DALI installation uses DALI PLC.



EFFECTIVE SIMPLICITY FOR COMPLEX REGULATION

The DLS Touch Panel II is really easy to programme and enables precise control. They firm chose to use this control system because of its ability to control the lighting for quite complex areas.

It would also be suitable to use DeeBridge in this application, which would make it easy for lighting scenes to be selected or run according to schedules.

The DALI 4x Relay allows for simple switching of non-DALI luminaires as part of a DALI installation, which means they can still be included in a DALI Lighting Management System and controlled by DALI control devices such as DLS Touch Panel II.



LIGHTING TO PLEASE THE SENSES

Staff can control the RGB lighting using a DALI Touch Panel II located next to the kitchen door. If it is a quiet evening, they tend to select more subtle effects, but if there is a party, especially a kid's party, they can choose very exciting effects that always add a sense of fun to the occasion.



Restaurant

All day, Luke has been looking forward to taking the family for a birthday dinner at our favourite restaurant where they make great pizza. The kids love the fun atmosphere created by dynamic RGB lighting that looks like it is moving around the room.



Melissa also gets ready for bed and sets the lighting in her room to 50 % and warm white. She will sit and read for a few minutes before sleep.

After a long and busy day, we all return home. Warm white light in the living room helps everyone relax before bed. Luke takes Alexander to the bathroom to get him ready for sleep where he selects a calming 50 % warm white light. After getting him ready for bed, he tucks him in for the night and sets the lighting to 10 % so the room is not totally dark. You know, Alexander is very young and still afraid of the dark.



House



TAKE IT EASY
LIGHTING

We use DeeBridge to control the lighting in the living area because it allows us to choose just the right light without having to get up and find a switch. It is great for relaxing evenings, for family time, and even for when watching movies because we can turn some of the lighting on so the children can see to go to the bathroom.

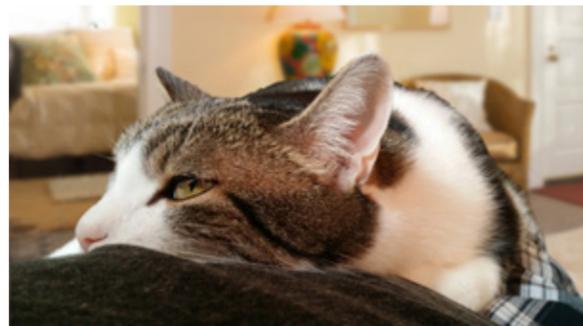


My mother Evelyn and her cat Spot live in a small apartment attached to the house. She is 72 now and not in good health so tends to spend most of her time indoors, sometimes doing a little light gardening and taking care of Alexander. As a result, we installed lighting in her apartment that simulates daylight, which helps to regulate her natural daily rhythm so she can sleep and function at her best. This kind of lighting is called biodynamic lighting and uses Tunable White luminaires. Luke set up an automatic lighting schedule using a DLS II panel that changes the lighting to match the natural changes of daylight throughout the day without my mother needing to think about it.

Evelyn



Grandma's apartment



SIMPLE TO
CONTROL
LIGHTING
FOR HEALTH

DLS Touch Panel II lets you use predefined lighting sequences or to create your own. It also lets you override automatic control any time. This allows Mother to change the lighting from automatic mode to manual mode whenever she wants by selecting the right button on the touch screen, for example, if she wants to go to bed earlier or if she just feels like having different light. In this way, it is really easy for her to be in control without needing to understand anything about IT.



Garden

Finally, Luke and I sit down for a while and talk about the day and our plans for the big party tomorrow. It is easy to dim the living room lighting with DeeBridge using a smartphone. We are nicely relaxed and looking forward to the next day. Tomorrow we will have a party in the garden for Luke's 40th birthday, and we decided to use RGB lighting outside. To be honest, it is more for the kids than for him, but why not! Seeing them happy and excited is the best gift. We have hired the lighting system from a local company who will come and set it up in the morning the way that my we can control it with DeeBridge on our smartphones.

Now it is time for us to go to bed too. Tomorrow will be a big day!



LIGHT FOR
INDOOR
OUTDOOR
FUN

It is easy to add new luminaires and settings to DeeBridge. The lighting company was really happy that we have DeeBridge at home and know how to use, because it makes their lives a lot easier.



DALI 4X RELAY

- The only mains powered DALI compliant switching device on the market
- Allows for the control of non-DALI, non-dimmable luminaires within a DALI network
- DALI device type 7 – each output is independent
- Integrated push button for manual control
- Housed in a standard DIN-railed mountable box



DALI PLC

- allows for coupling DALI network via mains, without using additional wiring
- translate the DALI signal to the PLC (power line communication) and PLC back to the DALI signal
- no need of DALI wiring, just standard main for communication of DALI commands



DeeBridge

- Allows for intuitive control of DALI installations from computer, tablets and smartphones
- Application runs on Windows, Android and iOS
- Provides dimming control via buttons, switches and sliders
- Offers standard or advanced Tunable White and RGB control as well as lighting scenes and timers
- Integrated web server for initial setting
- Wireless control via external Wi-Fi router



BlueBridge

- Allows for wireless control of DALI installation via Bluetooth 4 (low energy)
- Application runs on Android 4.3 and later
- Powered directly from the DALI bus with a steady current below 10 mA
- Small form factor
- Simple electronic construction



DALI AMBIENT SENSOR

- Allows for measurement of illuminance (lux [lx]) and Correlated Colour Temperature (Kelvins [K]) properties
- Illuminance or CCT regulation, or dual regulation
- Passive mode measures brightness and CCT values to be used in centralised regulation
- Active mode both measures and directly controls connected luminaires
- Ceiling mounted



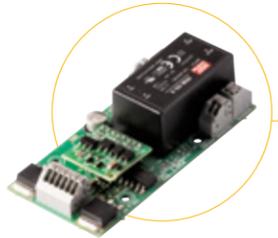
DALI/USB Bridge

- Simple to use tool for setting-up and commissioning of DALI networks
- Supports DALI standards for device types 1, 6, 7 and 8 as well as all iLumTech devices
- Application runs on Windows (Android app to be released soon)
- Functions independently of the DALI network – USB powered
- Small form factor (USB stick)
- Simple electronic construction



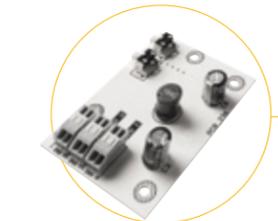
DALI INPUT UNIT

- Allows for the connection of any type of standard switch or button
- Powered from the DALI bus with up to 4 inputs
- DALI part 103 compatible to support all standard DALI commands
- Universal binary (2-state) input with DALI bus output
- Pre-define functionality
- Small form factor



DALI TW MODULE TYPES 6 AND 8

- Extension for standard LED driver that allows for DALI Tunable white control
- Standard 1 DALI LED driver needed for dimming control
- DALI device type 6 with all features appears with two DALI addresses – brightness and CCT
- DALI device type 8 appears with one DALI address – simultaneous control of brightness and CCT
- Allows user to set a wide range of lighting scenes



MANUAL TV MODULE

- Allows for CCT control via push buttons, negating the need for a DALI bus
- Powered by standard LED drivers (FIX, 1–10 V and DALI)
- Smooth CCT regulation using long presses of push buttons
- Discreet incremental CCT regulation using short presses of push buttons
- Two variants with fixed or flexible positioning of the push buttons on the luminaire



DLS PANEL II

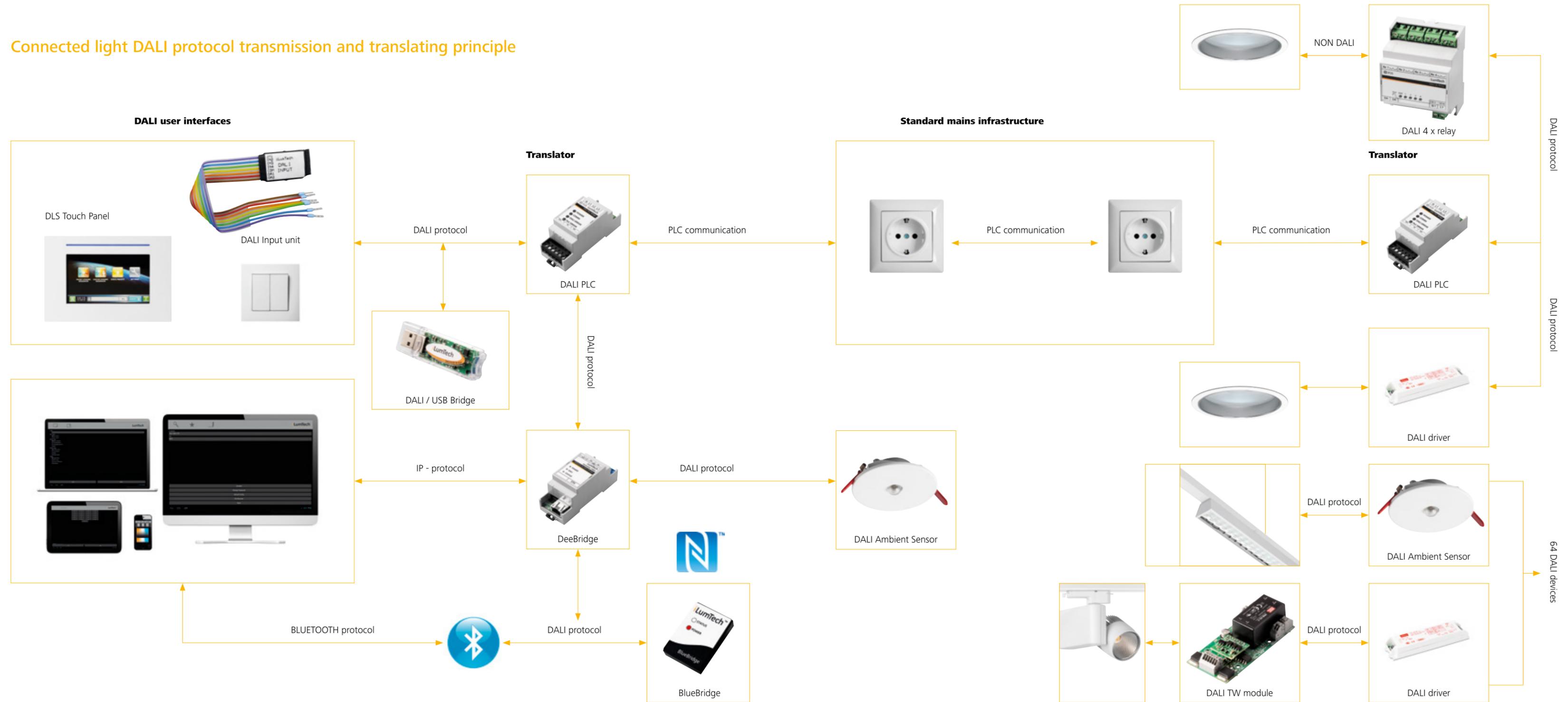
- 7-inch touch panel device with user-friendly GUI for Tunable White and RGB luminaire regulation
- Supports DALI type 8 control gears (up to 192)
- 3 independent DALI lines – one internally powered
- Offers automatic or manual control options
- Provides pre-set dynamic lighting scenes – daylight simulation
- Customisable static and dynamic lighting scenes
- Possibility of connection to illuminance and movement sensors
- Password protection option

STANDARD TUNABLE WHITE COMPARED TO ILUMTECH'S TRUE TUNABLE WHITE

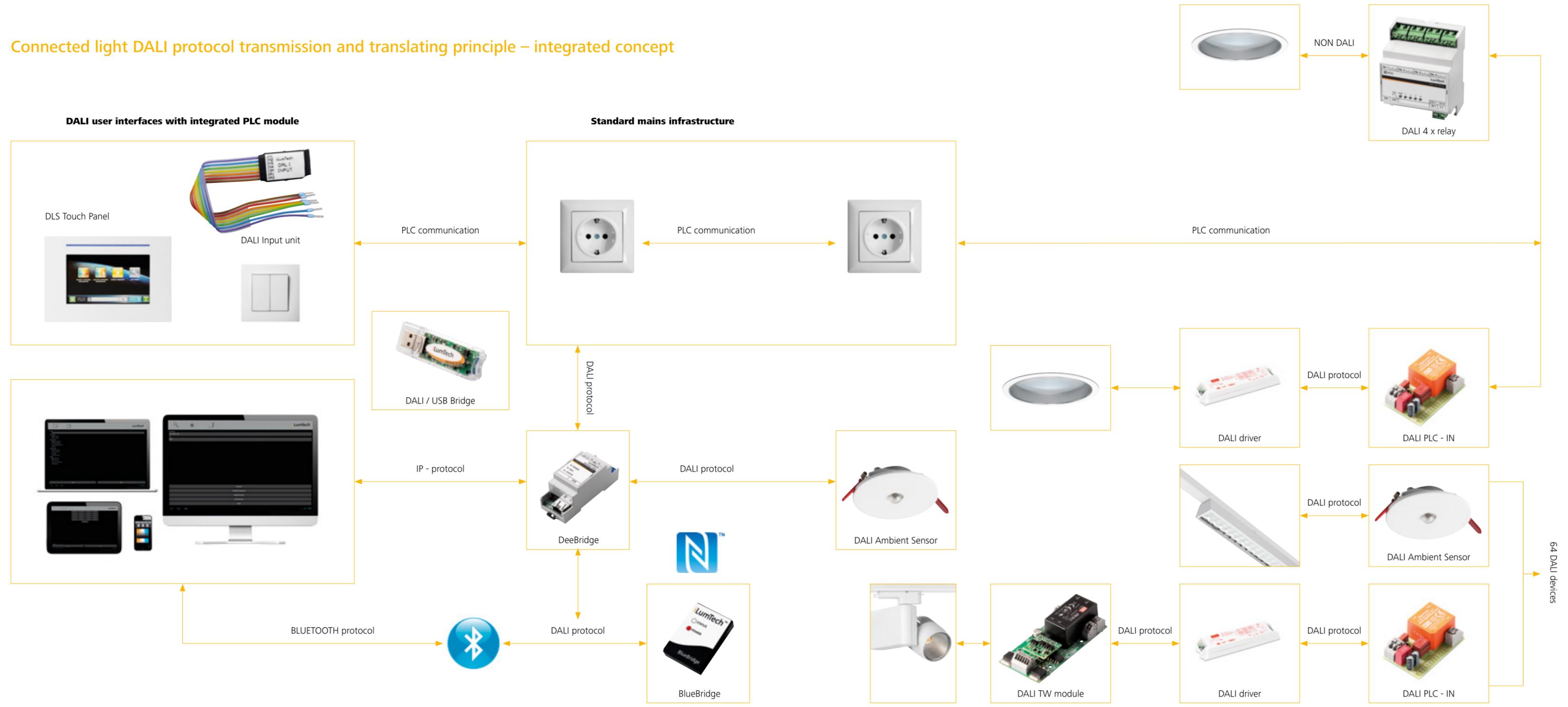
Standard Tunable White luminaires require the use of two independent power sources to supply separate warm and cold white LED arrays. Efficiencies are dependent on the selected CCT with the warmest or coldest settings performing best. It is difficult to combine such CCT control with dimming. Such luminaires have a bigger BoM and lower reliability.

True Tunable White uses only one power supply for both LED arrays, which provides consistent efficiency across the entire CCT range. It is easy to combine true Tunable White control with dimming. This type of regulation makes it possible to offer advanced control options – through DALI or using manual push buttons. Such luminaires have a smaller BoM and higher reliability.

Connected light DALI protocol transmission and translating principle



Connected light DALI protocol transmission and translating principle – integrated concept



iLumTech[™]
i n n o v a t i o n a h e a d

HEAD OFFICE

iLumTech

906 02 Dojč 419

Slovakia

Email: info@ilumtech.eu

www.ilumtech.eu