

☀ Morning

☀ Noon

☀ Evening

Circadian Control – RAPID Lighting Control System

Human centric lighting as a function can be achieved from a combination of elements. One contributing element comes from lighting control systems in the form of circadian control.

CP Electronics offer circadian control as part of the RAPID lighting control system. The RAPID lighting control system is a comprehensive fully addressable network system combining state-of-the-art technology, modular mechanics and an easy to use graphical interface.

Circadian control is offered as a function based on time events that control the brightness and colour temperature of the light fixtures throughout the day. The system uses the DALI protocol to control the light fixtures.

Improved atmosphere throughout the day

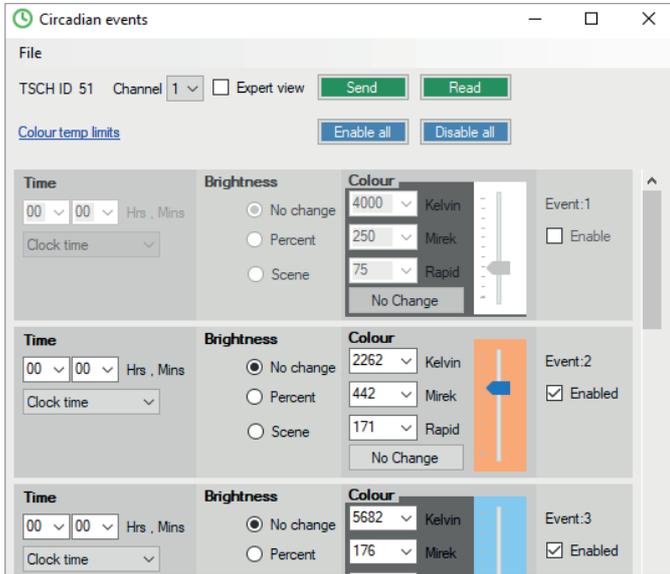
Warmer colour temperature scenes are generally understood to offer a more casual feel whilst cooler brighter lighting can boost alertness. The overall desired influence of the colour temperature of the light is likely to be different depending on the application, and likely to change utilising the latest discoveries from the continuing research of the benefits of human centric lighting.

Whether it be a static scene, a flowing change or even a repeating day to night cycle, the flexibility that the RAPID lighting control system offers gives the user the power to develop as they learn.

Intuitive Configurations

Intuitive user software

The graphic user interface adjustment of the system is intuitive and convenient as it is embedded with the standard RAPID front end software.



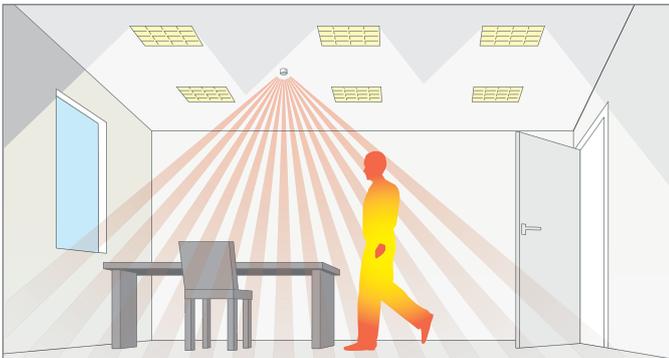
Colour temperature control range

The most commonly used range of colour temperatures within lighting control products is around 2300 to 6700 Tc (K). The RAPID lighting control system is able to control well beyond these as shown in the chart below.

Source	Tc (K)	Mirek	(m-100)/2	
	1,644	608.3	254	Warmest RAPID
Candle fame, sunrise/set	1,800	555.6	228	
Incandescent lamps	2,500	400.0	150	
Very warm white LED	2,700	370.4	135	
Warm white LED/flori	3,000	333.3	117	
	3,500	285.7	93	
Cool LED	4,000	250.0	75	
Moonlight	4,100	243.9	72	
Sunlight above atmosphere	5,900	169.5	35	
Overcast daylight, LCD monitor, very cool LED	6,500	153.8	27	
	10,000	100.0	0	Coollest RAPID

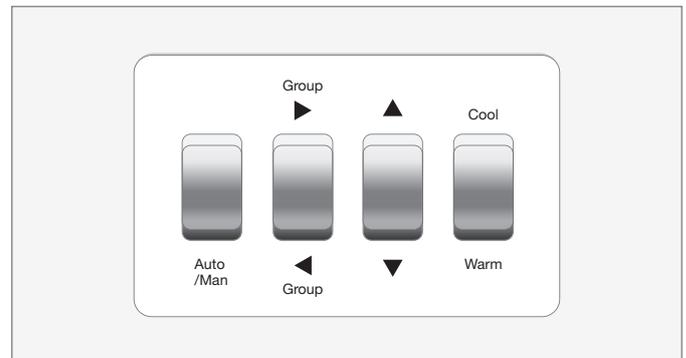
Capabilities of the System

Interrupting Circadian with other controls



Occupancy controls

Whilst the colour and mood are determined by the circadian control event scheduler, the local presence detectors can still be co-ordinated to switch off at times of no occupancy and thereby get the best results from people-friendly lighting balanced with good energy control.



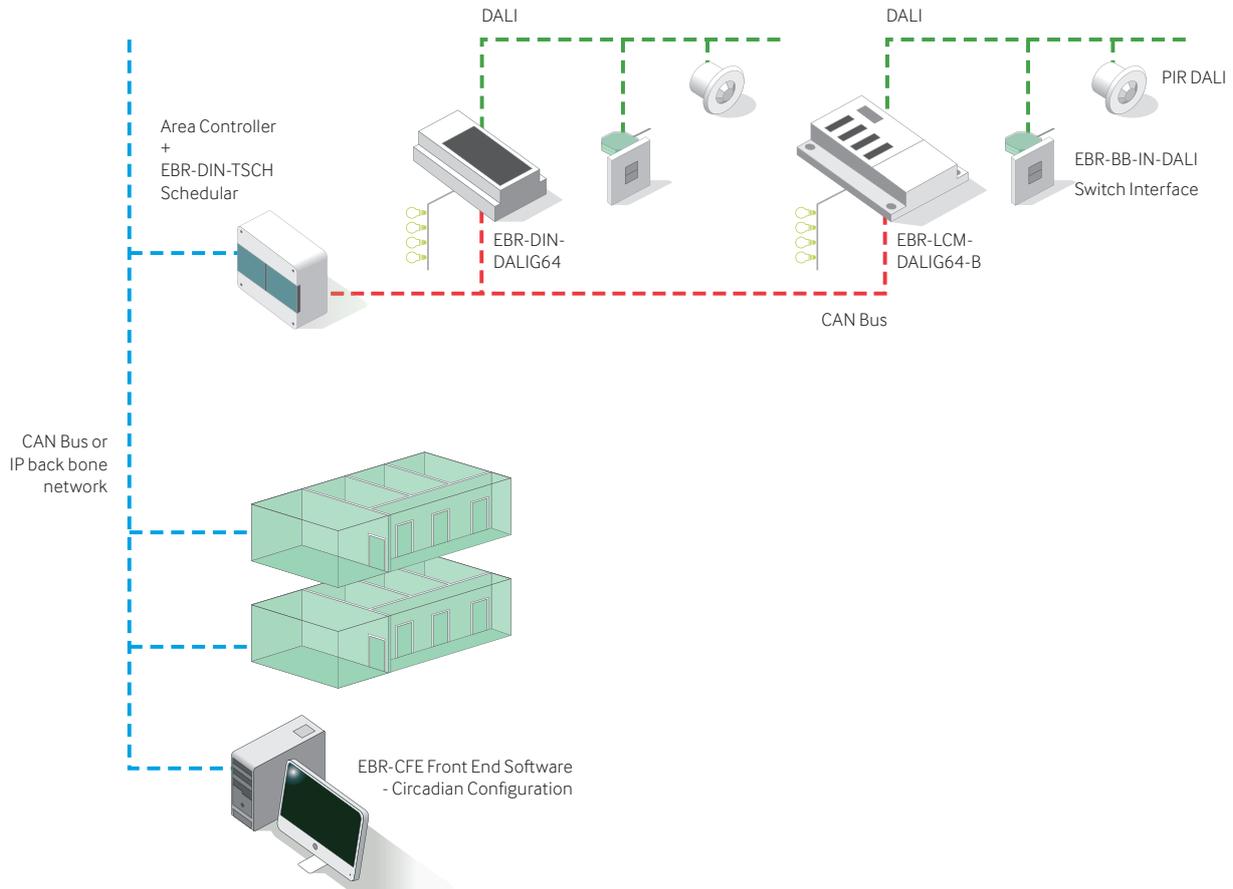
Switch controls

Interruptions to the circadian system may be needed for maintenance, unexpected events or just personal preference. These interruptions can be made by using the switch input override facility. This facility allows simple overrides to the brightness and colour temperature for each lighting group within the pre-set zones.

De-centralised resilience

The RAPID lighting control system benefits from an architecture of de-centralised intelligence meaning each component will continue to operate as best it can in the event of a failure to any of the other components. An example of this could be if the front end software is disconnected for any reason, the system will continue with its programmed circadian control cycle, making the system as resilient as it can be.

Example schematic



Control Details

Circadian event scheduling

Each time scheduler unit provides circadian event control to light output groups within any lighting control module. The system is configurable as required so that varying control can be achieved within specifically assigned areas.

Modes and operation

The lighting system under circadian lighting control will operate in the following modes:

- 1) Automatic – circadian control mode
- 2) Manual – normal lighting control mode

The system will enter automatic mode upon activation from the assigned switch. In automatic mode, the system will send light level and colour temperature commands to each channel of lighting in the manner detailed under the heading titled Automatic mode.

Automatic mode

When the system is in automatic mode, the grouped lighting will dim to different levels and colour temperature settings at specific times of the day, these settings will repeat daily. These pre-set time and level settings are made at the point of commissioning.

Manual mode (tuneable white control)

The circadian lighting settings can be overridden by changing the system to manual mode via the assigned switch. Once in manual mode, the normal energy-saving occupancy, daylight control and switch overrides will be made available.

Adjustment of clock

Adjustments to the clock used to trigger the different levels of the circadian control cycle can be made via the lighting controls head-end PC with the user Front End software (product code EBR-CFE).

Equipment compatibility details

To ensure full compatibility, luminaires under the control of circadian lighting control should match the following interface specifications:

Interface items		Requirements
1	Method of control	DALI type 8 (0-100% dimming)
2	Colour temperature control range	1,644K – 10,000K
3	Device type ID as specified in IEC 62386-209	Type 8, MUST support colour type Tc (colour temperature)

Key Products and Part Codes



EBR-CFE

RAPID graphical interface is designed to provide the user flexible control and monitoring of the lighting from a PC.

Software version 2.4.2.2 or higher



EBR-DIN-TSCH

RAPID TSCH Time Event Scheduler unit provides time events to the configured zones of lighting within the RAPID lighting control system.

Software version 2.01 or higher



EBR-LCM-DALIG64-B

The EBR-LCM-DALIG64 is a plug & socket RAPID lighting control module designed for controlling addressable DALI devices such as fluorescent or LED lighting drivers.

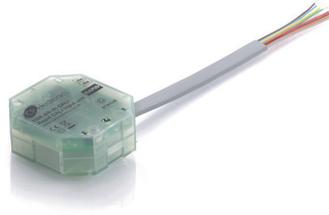
Software version 3.14 or higher



EBR-DIN-DALIG64

The EBR-DIN-DALIG64 is a hardwired RAPID lighting control module designed for controlling 64 addressable DALI devices such as fluorescent or LED lighting drivers.

Software version 3.14 or higher



EBR-BB-IN-DALI

EBR-BB-IN-DALI input unit provides an interface between a RAPID DALI lighting control system and external devices such as switches, security systems and AV equipment.

Software version 1.03 or higher



+44 (0)333 900 0671
 info@cpelectronics.co.uk
 www.cpelectronics.co.uk

connect with us

