

# dimming and lighting control

We are able to offer a range of dimming and lighting control options specific to the needs of your project, from simple wall box dimmers to fully featured scene setting control systems. When specifying such systems specific lighting control gear is required as detailed below: each with its own benefits depending on the complexity of application. Please contact our technical team for further information and assistance in specifying your particular project.

## **1-10 Volt control**

1-10V is one of the earliest analogue electronic lighting control signalling systems. The control signal is a DC voltage that varies between one and ten volts. The controlled lighting then scales its output so that at 10V, the controlled luminaire will be at 100% of its potential output and at 1V it will be at 10% output. Using specialist dimming control devices we are able to create various patterns/schemes by adjusting/maintaining the supplied voltage. As well as the correct control gear an additional controller/dimmer is required.

The main advantage to this control system is, due to its simple nature, it is straight forward to understand, implement and diagnose. Additionally this allows for the use of a cost effective dimmer controller.

The disadvantage is it requires a pair of control cables per control circuit.

## **digital signal interface (DSI)**

DSI is a dimming control system created by Tridonic ATCO and is the basis of the more sophisticated protocol Digital Addressable Lighting Interface (DALI). This system works in a similar format to the 1-10V control system which in its nature makes it straightforward to understand, implement, and diagnose, while its low voltage means it typically runs along relatively thin cables. The advantage of this is that because each device has its own wire to the controller (rather than being part of a network) it has no need of an address to be set, so can be replaced simply by unplugging the faulty one and plugging in the new. The disadvantage of the system being un-networked is that it requires a pair of wires per control channel so a sophisticated system could have hundreds of wires thereby making a diagnosis of problems difficult.

## **digital addressable lighting interface (DALI)**

DALI was established as a successor for the 1-10v and Digital Signal Interface (DSI). Each luminaire with a DALI interface can be communicated with over a given network. Using a bi-directional data exchange, a DALI controller can set the status of each light within a building/room. As a standalone system, DALI can be operated with a maximum of 63 devices. Alternatively, DALI can be used as a subsystem via DALI gateways which allows for an almost unlimited amount of luminaires. The system works by addressing each luminaire with a specific number (1-63) and by setting your control device so it recognises these numbers/addresses. You can then control each luminaire individually allowing the user the ability to create scenes within a room.

The benefit with utilising this system is that when wiring the luminaire only two wires are needed for the signal cable, these two wires can then be linked from one luminaire to the next and due to the nature of the system the signal cables are not polarity sensitive. This cuts down on both installation time and wiring complexity, also you are able to have multiple controllers per system.

The main weakness is that due to each luminaire being addressed, care must be taken that each installed luminaire is addressed in a logical order (following building layout) so when the system is commissioned both the installer and commissioning team are able to program the control device accurately.

## **low voltage electronic transformers**

Our standard low voltage electronic transformers are all capable of dimming by both leading and trailing edge and can be operated from a conventional style rotary dimmer.