

## DALI Pre-Commissioning Guide

As a result of repeated issues found on job sites during the commissioning of DALI systems Morban has put together this "Pre-Commissioning Guide".

*Note: The information in this guide is provided in good faith. Standards change and individual manufactures may have different requirements. Morban accept no responsibility for the accuracy of the information supplied within.*

### The DALI Protocol

- DALI stands for Digital Addressable Lighting Interface. It allows individual control and grouping of fittings on the DALI universe.
- The DALI protocol allows for up to 64 devices per Universe (leg/bus).
- It is a slow speed (1200 bits per second) digital bus that affords good noise immunity
- To allow for future expansion and ballast replacement etc. Morban recommends an initial design with no more than 50-55 devices on each universe.
- There is an absolute maximum of 64 devices per DALI universe (controlling leg). Too many devices on the bus can prevent correct operation and commissioning. Watch out for multichannel devices that look like one physical ballast but might actually appear as say 3, eg: some LED drivers.

### Power

- There needs to be at least one power supply to each DALI universe (this may be integral to a DALI controller)
- The voltage of the PSU is nominally 16Vdc (9.5-22.5V being acceptable)
- The maximum acceptable current consumption of all the devices on the bus is 250mA
- The voltage drop from the DALI power supply to the furthest point on the universe should be no more than 2V

### Bus Wiring

- Daisy chains, star wiring & spurs are all acceptable but please document them as fault finding after the event can be very time consuming
- 2-core 1.5mm<sup>2</sup> is recommended.
- The wiring can be run alongside mains cables
- Total cabling distance should be limited to 300m and is dependent upon the gauge of cabling used.
- Although based on low voltages it is not SELV compliant and in the event of a failure mains voltages could be present.
- Wiring is not polarity sensitive although using a common method through out the job is recommended.

### Common Gotchas!

We have seen them all. At their worst they can result in equipment damage that will not be supported under manufactures warranties. Either way it can be very time consuming chasing wiring faults once the commissioning engineers are on-site.

- Two or more DALI universes connected together: If this happens after commissioning it can result in a loss of programming. The DALI topology allows for most wiring configurations but can also lead to sloppy configurations. Keep good records of wiring runs.
- Short circuits - Although there is no reason for this it is often seen. The use of different coloured wiring should help prevent it occurring and even though the bus is not polarity sensitive use a common scheme through out the job.
- Mains on the bus – Given that the working voltage of the DALI interface is up to 22V as you can imagine mains voltages can be very destructive to the devices on the bus. The most common cause is where the bus wiring is brought together with the mains wiring to the light fitting in a single multi-core cable or connector.

