Dali Without Addressing

10 insider tips to optimise Dali installation

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1 Don't just consider Dali Buswire

Dali is best known for the ability to individually address luminaires along a common buswire, and this is the way most people apply Dali technology.

However the drawback to the Dali Buswire approach is that you have to address every ballast after installation which takes time and has project cost and programme implications: also ballasts have to be addressed when they are replaced which is additional work for maintenance staff.

What is less well known is that this is only one way of applying Dali and using other Dali approaches can provide all the benefits of Dali without the need to address ballasts.

This Guide shows how to apply Dali in different ways to different areas of a building to optimise Dali control and minimise Dali addressing.

2 Consider other Dali approaches which don't require on-site addressing

There are two approaches which avoid the need to address Dali ballasts on site.

Dali Plug-in

Office areas require total flexibility enabling lighting control arrangements to be reconfigured to suit layout and partitioning changes. The **Dali Plug-in approach** provides total flexibility with individual control of each luminaire and all the benefits of Dali monitoring without the need to address Dali ballasts on site.

Dali Broadcast

Areas such as lobbies, corridors and toilets do not require individual control of each luminaire although they still require lamp & ballast failure and emergency lamp monitoring. The **Dali Broadcast approach** controls channels of Dali lights while still monitoring lamps and ballasts and is the perfect solution in these areas.

3 Where to use Dali Plug-In

For Individual Control without addressing

The Dali Plug-in approach provides the full flexibility of Dali with individual control of every light fitting, as well as Dali lamp and ballast failure monitoring, without the need to address the ballasts on site.

Functionality

The Dali Plug-in modules contain pre-addressed ports so avoid the need to address ballasts on site which greatly reduces the time and cost of Dali commissioning: the modules are typically used in areas with suspended ceilings where the speed and convenience of plug-in connectivity is a major benefit.

Dali Plug-in also simplifies maintenance as ballasts can be replaced without the need to assign a replacement address.

Additional benefits of Dali plug-in approach

Dali Plug-in saves energy by switching off power to the ballasts at 0% output so avoiding wasteful standby power consumption.

Dali Plug-in enables the control of non-Dali light sources as well as devices such as fan coils, window blinds etc. which are controlled by relays within the module.

Dali Plug-in approach areas include

Offices
Retail Areas
Administrative
Medical
Laboratories

And for **retrofits** you can quickly install a Dali plug-in module to provide total flexibility without the need to address ballasts and with no changes to the existing mains wiring. Ask for more details.

4 Where to use Dali Broadcast

For Group Control without addressing

The Dali Broadcast approach switches and dims channels of Dali lighting and is frequently used in areas where there is a requirement to adjust lighting levels through dimming, but the control of individual luminaires is not needed.

Functionality

The Dali Broadcast approach provides the dimming and monitoring benefits of Dali without the need to address ballasts on site.

The module broadcasts individual dimming commands to each Dali channel (for example, lobby, male toilet, female toilet etc) while monitoring each luminaire and ballast and displaying failures per channel: emergency luminaires are monitored on an individual basis.

Dali Broadcast delivers the benefits of Dali dimming, lamp failure, ballast failure and individual emergency lamp monitoring in areas where you do not need full flexibility

Dali Broadcast approach areas include

Lobbies
Core areas
Corridors
Toilets
Car Parks
Plant rooms

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An optimum design selects a Dali approach that matches the degree of flexibility and installation type for each area of the project.

5			6
Select the type of area or **the amount of flexibility required in the area**		**Recommended type of installation**	**Recommended Dali approach**
Area	**Degree of flexibility**		
Lobbies Core Areas Corridors Toilets Car parks Plant rooms	Fixed – unlikely to change	Hardwired	Dali Broadcast - no addressing required
Staircases (one group)	Fixed – unlikely to change (lights on all floors energise when staircase in use)	Hardwired	Dali Broadcast - no addressing required
Staircases (multiple groups)	Fixed – unlikely to change (lights on specific floors energise related to which staircase floors are in use)	Hardwired	Dali Buswire - addressing required
Offices	Flexible – very likely to change	Plug-in	Dali Plug-in – no addressing required
		Busbar (buswire) or chilled beam	Dali Buswire (traditional) – addressing required

7 Consider Dali Zero Power to increase energy savings

Dali digital ballasts, like any digital device such as a television, PC monitor etc, consume power in standby mode. In a building with thousands of Dali luminaires, this can represent a large percentage of the overnight stand-by power consumption.

Dali Zero Power technology eliminates the standby consumption of digital lamps and achieves even greater energy savings by switching off the supply to luminaires when they are dimmed to 0%. Software algorithms analyse occupancy and switch off 230V supplies to areas where all individual Dali lights are at zero output.

8 Halve your cabling using Dali single buswire technology

Some systems use one twisted pair cable to connect to the Dali luminaires and a second twisted pair cable to connect to local control devices such as switches and sensors: this doubles the amount of cabling to be bought and installed.

A true Dali lighting control system enables Dali control devices (switches, presence detectors, multisensors etc) to be connected to the same two core cable that connects the Dali luminaires.

9 Consider integration

Dali presence detectors and multisensors can be used to control other building services such as heating, ventilation and air-conditioning and solar shading so that these can also be linked to occupancy and the extent of daylight.

Integration enhances efficiency and can double energy savings without additional hardware cost.

10 Learn more about Dali technology

Sign up for a CIBSE accredited CPD seminar on Dali technology covering the technical and installation considerations of Dali, how Dali may be applied, ways to avoid on-site addressing of Dali ballasts, as well as latest updates on Dali emergency testing and monitoring.

For more guidance and advice, contact Delmatic's specialist team:

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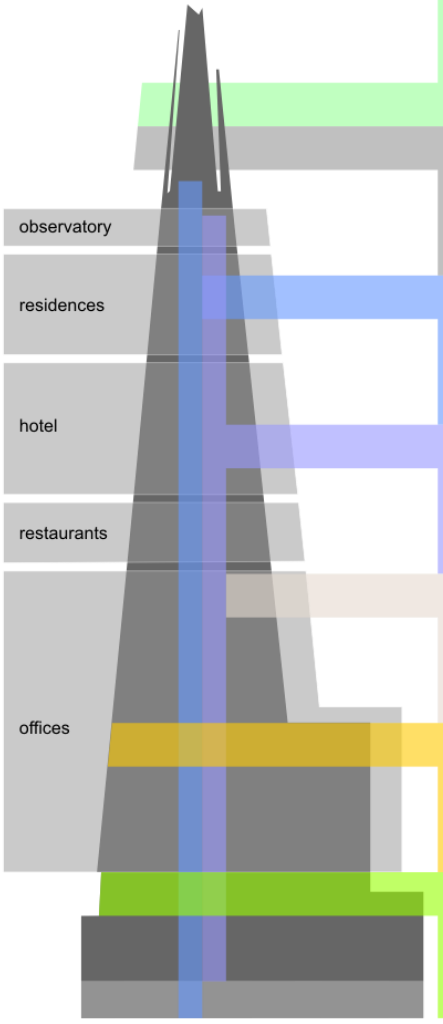
case study – A text-book Dali application

The 310m Shard is the tallest structure in Europe.

The Shard is a text-book example of how to apply Dali technology, and demonstrates the benefit of applying different Dali strategies to different areas of a building.

Dali technology is used throughout the project - within shell and core areas, staircases, lobbies and toilets, hotel and residence public areas, observatory and reception foyers, retail malls and the office tenant fit-out floors. Yet across all these areas, Dali technology is applied in different ways to best match the control flexibility required with the preferred method of electrical installation while minimising, and in many cases, avoiding entirely the need for on-site addressing of the Dali ballasts.

The project makes full use of Delmatic's extensive range of Dali hardware – Dali Plug-in modules, Dali Broadcast modules and Dali Buswire modules as well as Dali presence detectors, multisensors, switch-interfaces, scene-set panels, Dali relays and Dali emergency monitoring devices.



Emergency monitoring	The Delmatic system provides comprehensive testing and monitoring of emergency lighting throughout the building using a combination of Dali emergency monitoring devices, Dali battery monitoring units and Dali photocell monitoring units, all reporting back to the head-end PC.
External lighting	**Circuit Switching Modules** control external lighting based upon calendar schedule with solar clock and photocell.
Staircases	**Dali Buswire Modules** connect to Dali lights, **Dali Presence Detectors** and Dali emergency monitoring devices across multiple floors. Detectors operate lighting above and below the floor on which motion is sensed - lighting the way in an energy-efficient floor-by-floor manner.
Shell and core	**Dali Broadcast Modules** and **Dali Plug-in Modules** control shell & core and lobby lighting based upon occupancy monitored by **Dali Presence Detectors**. Modules provide lamp/ballast failure and emergency monitoring yet avoid the need to address ballasts on site.
Toilets	**Dali Broadcast Modules** control lighting in each toilet on a channel basis providing lamp/ballast failure and emergency monitoring yet avoiding the need to address ballasts within multiple enclosed areas. **Dali Presence Detectors** relate lighting to occupancy and **Dali Relays** control water valves.
Office areas	**Dali Plug-in Module**s provide tenants with total flexibility and plug-in connectivity, individual lamp and ballast failure, and Dali emergency monitoring while avoiding the need to address ballasts after installation or replacement. **Dali Multisensors** link lighting to occupation and daylight.
Reception areas	**Dali Scene-set panels** combine with **Dali multisensors** to provide scene-set and daylight-linked control of a range of lighting sources controlled by a selection of modules including switching, Dali dimming and DMX dimming.

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So to summarise …

1	**Don't just consider Dali Buswire**
2	**Consider other Dali approaches which don't require on-site addressing**
3	**Use Dali Plug-In**
4	**Use Dali Broadcast**
5	**Consider the area and the degree of flexibility required**
6	**Select the appropriate Dali approach**
7	**Consider Dali Zero Power to increase energy savings**
8	**Halve your cabling using Dali single buswire technology**
9	**Consider integration**
10	**Learn more about Dali technology**

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