

# DALIcontrol Application Note

## Auditoriums

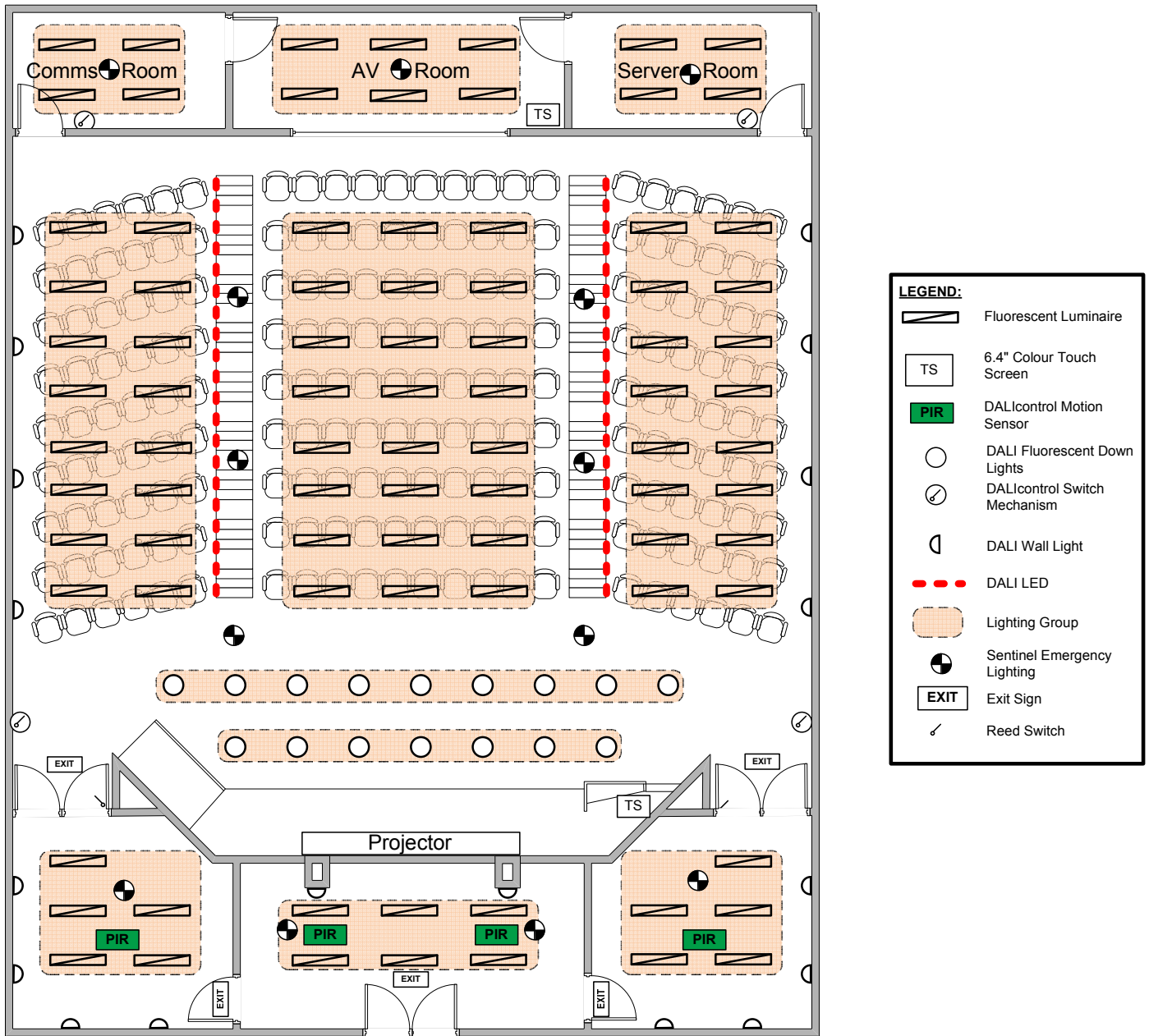
### Overview

Auditoriums are designed to support many kinds of activities from forums, lectures, to video presentations and conferencing.

Lighting control plays an important role in providing the required level of illumination in these spaces. There are different lighting requirements for each user, for instance for the audience to read and take notes, for presenters to see their audience and to provide minimal lighting and reflection when the projector screen is used so both audience and speaker can see the displayed image. Furthermore it also requires interaction with AV equipment. A well planned and designed lighting control system can integrate all of the above requirements into a centralised point providing the ease of control at the same time allowing for the flexibility of layout changes in the future.

All of this can be achieved using the DALIcontrol system.

## Example Area Layout & Features



### Features:

- DALI Fluorescent Luminaire
- DALI Fluorescent Down Lights
- DALIcontrol Motion Sensors
- DALIcontrol Key Mechanisms
- 6.4" Colour Touch Screen
- DALI Emergency Exit Signs
- DALI Emergency Sentinel Lighting
- DALI Feature Wall Lights
- DALI LED Lightings
- Reed Switches at Auditorium Entrance

## Control Strategy – Auditoriums

- **Occupancy Control**

The lights located in the main entrance to the auditorium can be switched ON by motion sensors with the arrival of the first person. After this time, motion sensors determine when an area is unoccupied and can commence an override sequence to switch off all lighting in the area.

- When lighting in an area is OFF, lights can be brought ON when motion is detected. A timer can be restarted every time motion is detected.
- If an area is left unoccupied and no movement detected for a set period of time, lighting can be automatically set to a warning level (minimum level) before switching OFF after a preset period (Refer Device Functionality Table for details).

The use of the DALIcontrol 30mech motion sensor allows the sensor to be installed into the light fitting resulting in savings on installation time and enhancing the architectural aesthetics.

- **Reed Switch Control**

Reed switches can be easily installed at the doors leading into the auditorium. When the doors are opened, it can switch the LED strip lights along the stairs, and wall lights within the auditorium to ON (only if they were originally OFF). This will ensure that the auditorium is illuminated sufficiently to prevent any possible hazard. No action will be taken when these doors close.

- **DALIcontrol Key Switch Control**

DALIcontrol switch mechanisms located at the auditorium entrances can provide a single button dimmer function to control the fluorescent luminaires within the auditorium. Short press on the key switch will toggle all fluorescent luminaires ON/OFF. Long presses will enable the dimming of lights UP/DOWN. Another DALIcontrol switch mechanism in the same area could provide a Master ON/OFF function to all lighting groups in the auditorium. This will include lighting groups in the AV, Communications and Server rooms. The use of DALIcontrol 30mech rotary knob or up/down button can provide the user with a more intuitive dimming control.

- **Zone Control**

The 6.4" colour touch screen ideally located at the podium and AV control room, allows for control of individual lighting groups and scenes throughout the Auditorium. These touch screens can allow the presenter at the podium or AV personnel located at the back of the auditorium, to effectively control all of the lighting. The lighting environment can then be controlled and triggered with a few simple touches from this single point, providing the user control of all lighting via preset scenes to meet the auditoriums functional requirements and to provide presentational effect when required.

- **Corridor Linking**

Corridor linking can be configured to keep the main aisles illuminated when areas of the auditorium are occupied. LED strip lighting along the stairs and wall lights in the auditorium can be controlled in this manner. Once all lighting groups in the Auditorium area are switched OFF, Corridor Linking will automatically switch OFF the LED strip lighting and wall lights according to the associated sequence (Refer Device Functionality Table for details).

## Control Strategy – Auditoriums

- **Sequences**

To ensure a person is never plunged into immediate darkness, Sequences are used to gradually reduce the amount of light before switching OFF. Lights are restored by a triggering of the motion sensors, or manually through DALIcontrol switch mechanisms or via the touch screen.

- **Dimming of General Lighting (Fluorescent)**

Having the ability to dim fluorescent lights provides greater energy efficiency and can provide a more comfortable working environment. DALI light fittings have a logarithmic dimming curve which is better suited to the human eye. To further conserve energy and increase the lifespan of lamps, DALI ballasts can be set to a maximum dim level of 85% without compensating the overall lighting level.

- **Emergency Lighting**

Emergency and exit lights can be incorporated into the DALIcontrol system. This alleviates the need to install additional emergency lighting system that monitors and maintains emergency lights. DALIcontrol Reporter software can be configured to test and report on the status of all connected DALI fittings including the emergency lights.

- **Centralised Lighting Management (Server Computer - Optional)**

A front end computer located in the communications room can be connected to the DALIcontrol system. This will allow the building manager to have a centralised point of control for the DALI lighting. This computer can be configured to report lamps status and faults. Emergency lamp test can also be initiated from this front end computer.

- **Security Input (Optional)**

Security systems are commonly interfaced to a DALIcontrol system via low level integration methods using dry contacts. This enables security events such as “armed”, “disarmed” and “alarm” to trigger lighting events. An event can be when an “Alarm” is triggered “All Lighting” is switched ON, to provide security cameras a clearer view of the area.

Security Modes can include:

- Armed: All lighting that are currently ON, to dim to MIN level for a fixed period then OFF.
- Disarmed: Turn ON wall lights at the main entrances to the auditorium.
- Alarm: All lighting to switch ON.

- **Fire Alarm Panel (Optional)**

Fire alarm panels can be interfaced to a DALIcontrol system via low level integration methods with dry contacts. It can be configured to trigger lighting scenes in an event of fire. A scene can be when a fire is detected, all lighting to switch to a dim level of 75% while the major exit path at 100%.

## Control Strategy – Auditoriums

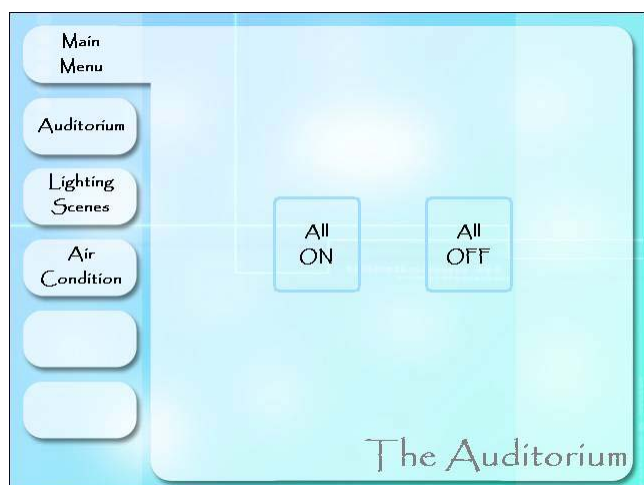
- Air Conditioning (Optional)

A high level interface to the BMS can be used (i.e DALIcontrol BACnet, DALIcontrol OPC) to integrate with the auditorium's A/C system. Switching capabilities can be configured to operate using BMS. Buttons can also be configured on the touch screen to provide manual switching of the A/C.

## Device Functionality Table

Devices	Normal Hours Operation	After Hours Operation
DALIcontrol Motion Sensors	<ul style="list-style-type: none"><li>- MAX if unoccupied with override sequence (delay 20min &gt;&gt; MIN &gt;&gt; delay 5min &gt;&gt; OFF)</li><li>- Corridor linking when auditorium is occupied</li></ul>	<ul style="list-style-type: none"><li>- MAX if unoccupied with override sequence (delay 20min &gt;&gt; MIN &gt;&gt; delay 5min &gt;&gt; OFF)</li><li>- Corridor linking when auditorium is occupied</li></ul>
DALIcontrol Switch Mechanism (Auditorium, Server and Comms Room)	<ul style="list-style-type: none"><li>- Single Button Dimmer Function (ON/OFF on short presses and dims UP/DOWN on long presses)</li></ul>	<ul style="list-style-type: none"><li>- Single Button Dimmer Function (ON/OFF on short presses and dims UP/DOWN on long presses)</li></ul>
DALIcontrol Switch Mechanism (Master ON/OFF)	<ul style="list-style-type: none"><li>- Toggle Function (ON/OFF)</li></ul>	<ul style="list-style-type: none"><li>- Toggle Function (ON/OFF)</li></ul>
Reed Switches	<ul style="list-style-type: none"><li>- ON (when lighting group is OFF)</li></ul>	<ul style="list-style-type: none"><li>- ON (when lighting group is OFF)</li></ul>
6.4" Colour Touch Screen	<ul style="list-style-type: none"><li>-ON and OFF lighting groups and A/C.</li><li>- Buttons for scene triggering.</li></ul>	<ul style="list-style-type: none"><li>-ON and OFF lighting groups and A/C.</li><li>- Buttons for scene triggering.</li></ul>

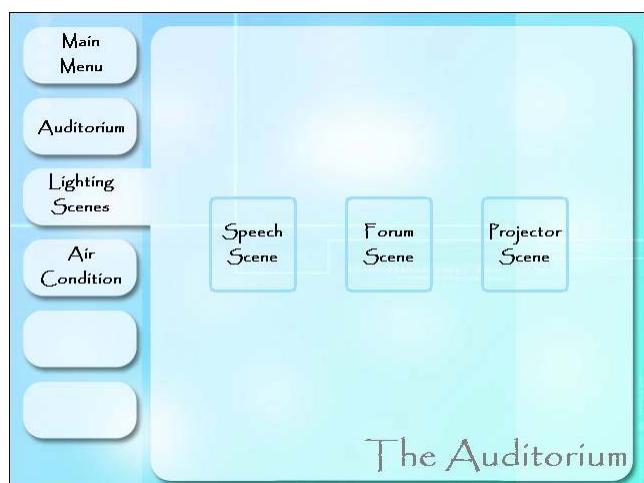
## Example 6.4” Colour Touch Screen Function and Labelling



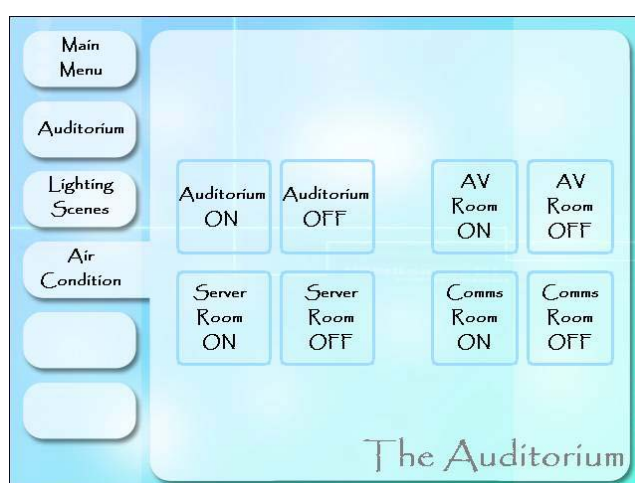
Main Menu Page



Auditorium Page

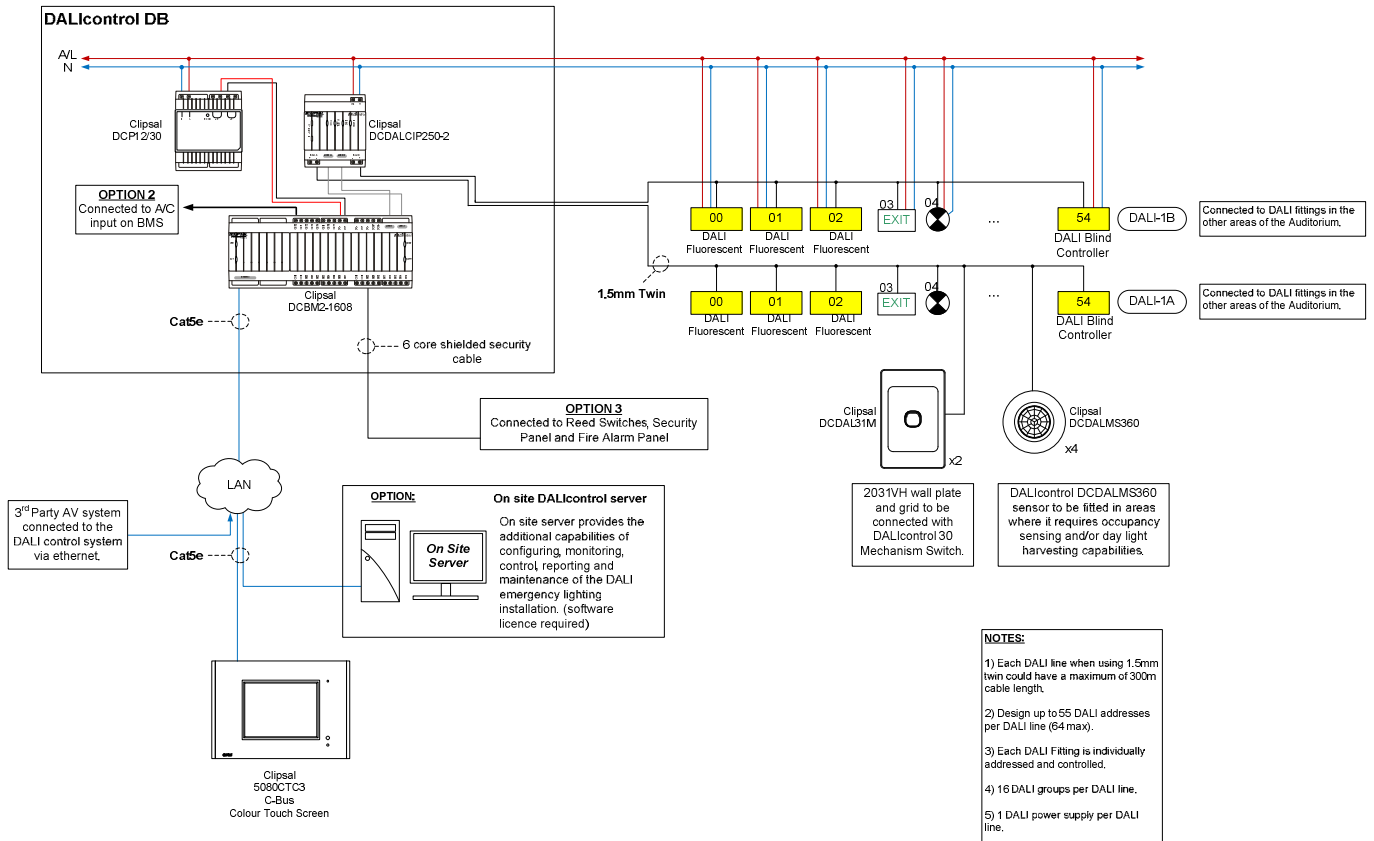


Lighting Scene Page



Air Condition Page

## Auditoriums Single Line Diagram



\*Note: DCBM2-1608 shown above allows for the control of 2 DALI lines with up to 128 DALI fittings. If only 1 DALI line (max 64 fittings) needs to be controlled, the DCBM1-1608 (Single line DALI control line controller) can be used.

**\*\*Note:** A UDP Interface can be used for third party integration with the DALIcontrol line controller.

\*Note: DCDALMS360 DALIcontrol sensor shown above is a recessed mount unit. Alternatively, a DCDAL31MOD DALIcontrol sensor fitted in surface mount 30mech holders could be used for surface mount applications.

\*Note: DCDALM31M DALI control switch mechanism shown above could be added with 30mech rotary knob or up/down button to provide the user with a more intuitive dimming control.

## Third Party Integration

- **PUSH Control by Schneider Electric and 3<sup>rd</sup> Party AV equipment** can communicate with DALIcontrol line controller using TCP/IP. This connection will allow the third party AV equipment to control DALI fittings at a high level.
- **Building Management Systems (BMS)** can be integrated to the DALIcontrol system by;
  - low level contact closures to communicate a state change
  - high level interface using DALIcontrol OPC Server software
- **UDP** is a standard Ethernet protocol which can issue commands to the DALIcontrol line Controller (DCBMx-1608).

## Typical Equipment

Part Number	Description	Quantity
DCBM2-1608	DCBM DALI Line Controller, 16-Input, 8-Output, 2 DALI Lines, Din Rail Mount	1
DCP12/60	BM Power Supply, Din Rail Mount, 12V, 60W	1
DCDALCIP250-2	DALicontrol Intelligent Dual Power Supply and Dual Serial Interface	1
DCDALMS360	DALicontrol Digital Motion Detector, 360 Degree.	4
DCDAL31M	DALicontrol 30 Mechanism Switch	6
5080CTC3	6.4" Colour Touch Screen	2
EXITREC	Exit / Emergency Lighting, Wafer Recessed Edgelite Exit - Suits Single or Double sided applications.	5
EMG DALI	Exit / Emergency Lighting, Sentinel Emergency	13
(OPTIONAL)		
2032VH	Clipsal 2000 Series, Flush Surrounds and 2 Gang Grids	2
2031VH	Clipsal 2000 Series, Flush Surrounds and 1 Gang Grids	2
DCDAL31MOD	DALicontrol 30 Mechanism Sensor, 360Deg	4
DCDAL31SROKUD	DALicontrol 30 Mechanism Rocker Up/Down Switch (Slave)	6
DCDAL31SPBUD	DALicontrol 30 Mechanism Push Button Up/Down Switch (Slave)	6
DCDAL31SROT	DALicontrol 30 Mechanism Rotary Knob (Slave)	6



## DCBM2-1608 Line Controller Input and Output Channel Schedule

DCBM2-1608	Channel Number	Description	Normal Hour Profile	After Hour Profile
INPUT	1	Reed Switch-Left	MAX if OFF	MAX if OFF
	2	Reed Switch-Right	MAX if OFF	MAX if OFF
	3	Security Armed/Disarmed Signal (optional)	Armed – Override sequence to OFF Disarmed – MAX to entrance wall lights	Armed – Override sequence to OFF Disarmed – MAX to entrance wall lights
	4	Security Alarm Signal (optional)	MAX	MAX
	5	Fire Alarm Panel (optional)	Emergency – Lighting Scene	Emergency – Lighting Scene
	6	Spare	-	-
	7	Spare	-	-
	8	Spare	-	-
	9	Spare	-	-
	10	Spare	-	-
	11	Spare	-	-
	12	Spare	-	-
	13	Spare	-	-
	14	Spare	-	-
	15	Spare	-	-
	16	Spare	-	-
OUTPUT	1	A/C (BMS)	MAX / OFF	MAX / OFF
	2	Spare	-	-
	3	Spare	-	-

	4	Spare	-	-
	5	Spare	-	-
	6	Spare	-	-
	7	Spare	-	-
	8	Spare	-	-

## Resource Links

For information including Product Datasheets, Installation Instructions and Downloads visit

<http://www.clipsal.com/dalicontrol>

It is recommended that a Clipsal DALIcontrol System Partner be engaged on projects involving integration for design, programming and commissioning.

Clipsal DALIcontrol System Partners have undertaken specialist training so they are equipped to provide the technical services and support to help you successfully implement a DALIcontrol lighting system.

In addition, a Clipsal DALIcontrol System Partner will provide professional detailed documentation and specifications for projects including handover training to the client.

Engaging a Clipsal DALIcontrol System Partner provides key benefits to the contractor, consultant and the end user including the manufacturers support from project design through to completion. A Clipsal DALIcontrol System Partner will also be able to educate the Building manager on how to run reports on the fittings for an installation.

A major advantage of the DALIcontrol system is the ease of installation and commissioning. The five-pin 'soft-wiring' system reduced labour costs and the distributed architecture enabled sections to be tested and commissioned ready for the tenant as each area is installed.

### For further information:

Clipsal DALIcontrol M3 Soft Wiring Solutions:

[www.clipsal.com/cablemanagement](http://www.clipsal.com/cablemanagement)

DALIcontrol:

[www.clipsal.com/dalicontrol](http://www.clipsal.com/dalicontrol)

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