

FAQ

# DALI Emergency Lighting

## Questions and answers

### 1. What cable is required and what is the max. cable length?

Please find more information in below visual.

#### Connections

Cable requirements	
Power	3-core TPS Twin & Earth 1.5mm <sup>2</sup> minimum
Network	Cat 5e Ethernet Cable RJ45
DALI 1 and 2	2-core Mains Rated 1.0 to 1.5mm <sup>2</sup>

#### Mains Supply

Mains supply with suitable protection at external source.

#### Network

Connection by RJ45 cable to LAN network via network switch or other suitable network products.

#### DALI cabling

2-core cable mains rated. Can be laid tightly coupled with the mains wiring. May also be within the same sheath as the mains cable. 5 core cable can also be used.

The DALI cables must be mains rated and capable of carrying the full mains voltage. In the event that under certain fault conditions the DALI bus can become live at mains voltage.

Maximum lengths of cables permitted to be connected to the DALI network, depends on the size of cable used. This is the sum of the main lead cable and all the sub-branches.

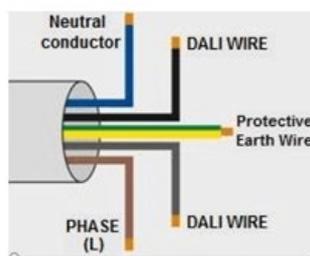
Do not allow any loop of cable to be formed.

1.0mm<sup>2</sup> < 200metres

1.5mm<sup>2</sup> < 300metres

**Recommended mounting height: 1.5 to 1.6 metres at finished floor level**

It is recommended the panel is installed in a lockable secure room where end user clients and facility managers can access and monitor the device freely.



1.0mm - 200 metres / 1.5mm - 300 metres.  
Can be increased with a Tridonic repeater.

## 2. How many luminaires fit into a DALI system?

For each DALI Control Unit (DCU) you can typically fit 2 x 64 luminaires =128 fittings max per DCU.

There are two lines A and B which can fit 64 each. We provide in the DCU box, two sets of stickers to assist in labelling the box and luminaire during addressing so that when the luminaires get to site the plan drawings can be married up to the addressed luminaires and the DCU can be reconnected and all the installation will be complete.

## 3. How do the luminaires get addressed?

The luminaire is attached to the DCU and addressed with the simple touch of the screen. See the helpful slide below showing the 4 basic steps. Once a luminaire is addressed it can be removed from the DCU.

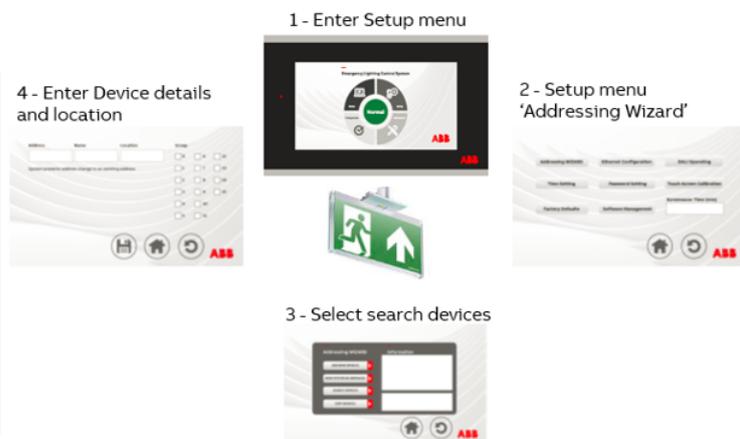
See below visual explaining the installation steps.

### Ease of installation & maintenance

Simple addressable set up following standard DALI commissioning procedures

#### Ease of installation & maintenance

- Ease of installation:
  - Easy, system driven, DALI addressing and grouping
  - Standard DALI commissioning procedures applied
- Ease of maintenance:
  - No need for expensive service engineers as our solution identifies location of the fault & allows the end-user to fix.
  - Easily downloadable test reports



## 4. Is there a maximum of controllers in a system project?

The number of controllers can be as many as the end client requires. If there are multiple buildings or it is small or medium sized project it can easily handle up to 10 devices provided they are set up correctly. Below visuals explains this in detail.

In theory, there is no limit but when you have many screens it may be preferential to utilise a BMS and the EPBP KNX DALI gateway. The key conversations must be had with the IT team responsible and the IT professional attached to the project or building. Effectively you set the DCU up like you would a network printer.

Page 32 of the ABB DALI Manual explains more.

## **5. What are the advantages of DALI?**

This is a popular communication system and technology that is prevalent in 32% of all (smart) buildings and has the widest choice of luminaires and emergency products across the world. The DALI technology is loved as a communication medium because it can quickly send large and complex data packets in volume and you can combine it with mains cabling without any detriment to the transmitted and received messages.

When it comes to emergency lighting the DALI emergency lighting codes enable automatic local and central testing, system monitoring, control and fault reporting.

## **6. What about commissioning?**

There is no commissioning needed from ABB. The system is so easy to use that the DALI installer or the client can set the system up themselves. We can offer commissioning but the cost per day tends to re-focus minds in getting this task done without our help.

## **7. Can I add other DALI products?**

In the majority of cases you can use any DALI product from other manufacturers. In some cases options like “Night light function” or “Group 15 ON and OFF switching” may not work on some proprietary systems.

## **8. Can I add ABB DALI to other DALI systems?**

Yes, provided that the other DALI products are compliant and compatible to the DALI protocol standard but it is advisable to get luminaires on a project tested first to see if there are any idiosyncrasies.

DALI 2 will mean that interoperability will be guaranteed but there is no DALI 2 standard yet for Emergency lighting and unlikely to appear in the near future.

## **9. Is it possible and normatively permissible within a DALI BUS to mix general DALI lighting devices and emergency DALI lighting devices with the DCU?**

No, this is not possible if using the DCU. The DCU is only designed to address and communicate with emergency lighting drivers. Therefore, it should have a separate DALI bus for any emergency fittings.

**10. Is it possible and normatively permissible within a DALI BUS to mix general DALI lighting devices and emergency DALI lighting devices with the ABB KNX DALI gateways?**

Yes, this can easily be done by the system integrators as they can address each driver/ballast separately when addressing the lighting and emergency lighting system.

**11. What should be considered when using emergency lighting luminaires from different manufacturers?**

In 99% of cases in DALI most luminaires are compatible and compliant with DALI. This will increase to 100% when we move emergency lighting drivers into DALI 2.

**12. Is it possible to change the DCU (to another) later when the system is in operation?**

There is no logical reason for replacing the DCU once installed as the luminaires on the system are addressed and logging all the function and duration tests. However, it is possible to do this but the emergency lighting system will need to be re-addressed by the DCU by selecting 'Search devices' in the Set Up menu.

**13. Will the new DCU recognize the already assigned short addresses?**

Yes

**14. Is the DALI BUS electrically separated from the mains power?**

At the luminaire, we have optical separation and at the DCU we have a transformer that powers down the DALI 12V d.c. line when power is interrupted to it. In addition, it is impossible to pass standard certification or pass DALI certification without meeting all electrical separation guidelines. In DALI, there is also the fail-safe that when the DALI line fails if there is power at the luminaire the luminaire defaults to the ON position, thus informing the end users that the power is still at the luminaire. In normal operation, and if the reverse happens, the luminaire power fails then there is no link to make the DALI line live thanks to separation undertaken at the PCB.

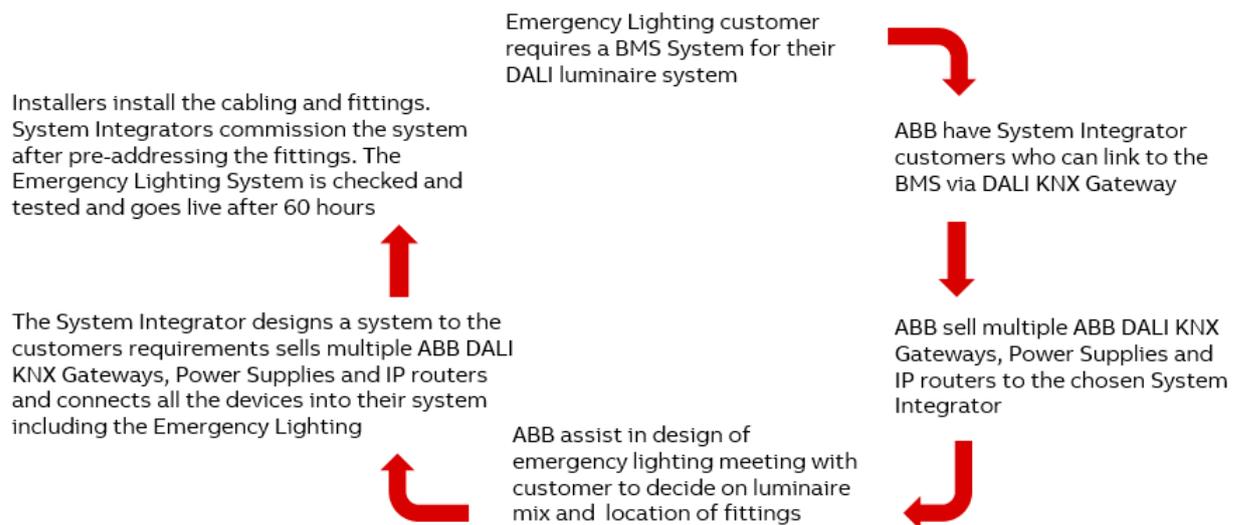
**15. If you find 2 short addresses repeated, for example, 2 short addresses are 0 and connected to the A BUS at the same time, can this be resolved easily?**

Yes, it is possible to edit the address 0 to 255, change these two devices to 255 and then click "Add new address", the two devices will be re-set to the available two short addresses that are available.

## 16. Is there a process to follow when utilising the KNX DALI gateways and system integrator?

Yes, if there is no preferred system integrator of the client, ABB can easily introduce a local system integrator to the emergency lighting sales teams to assist and help with the integration of an emergency lighting system within the designated lighting plan and connect together utilising head end options from multiple sources.

### ABB Emergency Lighting System Integrators



## 17. What are the differences between DALI and DALI 2?

The DALI protocol was first drafted in the late 1990s and has undergone a number of revisions as it has evolved. The result is version 2 of the DALI standard IEC 62386, which is known as DALI-2.

DALI-2 helps fill the gaps in the original standard, resulting in significant improvements in interoperability. DALI-2 adds new features, and introduces standardisation of control devices including the recent addition of input devices, while maintaining backwards compatibility.

Please note: there is no DALI 2 standard certification test yet published for emergency lighting drivers.

## 18. Where can the errors be found on the DCU?

The errors will be shown on the main screen and when the red dot is selected the DCU displays the error.

**19. Is there a backup power supply when the DCU loses power?**

No, there is no backup power because we want people to leave the building in a power failure.

**20. Can the DCU be used only locally?**

Yes, this is a local central automatic control system. 128 luminaires max and multiple DCUs can be installed on a site or building. Test functions can be set up to take place automatically.

**21. How long will the information be stored on the DCU?**

The information can be stored for up to 4 years and is stored in the EEPROM memory and released as an Excel document.

**22. Can the luminaires also be programmed with a DCU of a different brand?**

Yes, this is possible unless the competitor product is a proprietary solution but this is increasingly rare as DALI is an open protocol and it is not in any a manufacturers interests to have a situation where interoperability is affected.

**23. How can I use the DCU in combination with a PC?**

Utilising the LAN network and via an RJ45 connector from the DCU into the LAN, it is possible to download the excel spreadsheets. The end users PC or laptop must have the software downloaded on it and it can be accessed much like a PC or laptop accesses a printer.

**24. Can you tell more about how to setup groups with the DCU?**

Setting up groups is easy because the DCU addresses the 64 possible addresses on each line into six equally divisible Groups automatically when the luminaires are addressed. Groups 0 to 5 are utilised repeatedly until the DALI line A and DALI B have 64 devices max on them. In practice most DALI engineers will use 60 of the 64 possible addresses to allow for any system expansions.

Adres      Naam      Locatie      Groep

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/> 0	<input type="checkbox"/> 6	<input type="checkbox"/> 12
Het systeem voorkomt adressering naar een bestaand adres			<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 7	<input type="checkbox"/> 13
			<input type="checkbox"/> 2	<input type="checkbox"/> 8	<input type="checkbox"/> 14
			<input type="checkbox"/> 3	<input type="checkbox"/> 9	<input type="checkbox"/> 15
			<input type="checkbox"/> 4	<input type="checkbox"/> 10	
			<input type="checkbox"/> 5	<input type="checkbox"/> 11	

   **ABB**

Group 0 to 5