wDALI-2

Extra Long Range

wireless Bridge

Datasheet

Wireless DALI

Module for the wireless connection of spatially separated DALI systems

Art.Nr. 86452785

Art.Nr. 86452785-PS

wDALI-2 Extra Long Range Wireless Bridge

Overview

- Module for the easy connection of one or more spatially separated DALI systems.
- Bidirectional connection - allows addressed control and queries of DALI devices (single addresses, groups, broadcast)
- Synchronous light control (no time delays)
- Configurable operating mode as master or slave.
- A master can be connected with up to 20 slaves – this way up to 20 DALI sub-lines can be connected.
- Range of the wireless connection is up to 1km outdoors, inside buildings, depending on construction 100m to 500m are possible.
- Easy configuration with the DALI Cockpit Software and DALI USB interface.
- Support of DALI-2 control commands.
- The device is supplied from the main DALI line.
- Version with integrated bus power supply (Art. Nr86452785-PS) supplied by mains, provides a 20mA DALI bus power supply for the subnet (up to 10 DALI ballasts). If more power is required, the DALI sub-circuit can be extended with a DALI Expander.
- 2 sets of DALI terminals for easy connection - signal line can be looped through.

Specification, Characteristics

Type	**wDALI-2 Extra Long Range wireless Bridge**	**wDALI-2 Extra Long Range wireless Bridge PS20**
article number	86452785	86452785-PS
Input L,N		
input type	-	supply, mains- voltage
marking terminals	-	L, N
input voltage range	-	210Vac … 250Vac
max input current	-	5mA
input supply frequency	-	50-60Hz
max. power consumption	-	1 Watt
Output DA+,DA-		
output type	DALI control	DALI power supply 20mA (for up to 10 standard DALI-ballasts) DALI control
marking terminals	DA, DA	DA+, DA-
output voltage range according to IEC 62386	---	12,0Vdc … 20,5Vdc according to IEC62386
guaranteed DALI supply current	---	20mA
typ. current consumption Iin	2 mA	---

general data:

wireless technology / policy	E-LORA 868 MHz / RL 2014/53/EU
dimensions (l x w x h)	59mm x 33mm x 15mm
mounting	back box installation
rated max. temperature tc	75°C
protection class	II (when used/installed as intended)
protection degree housing	IP40
protection degree terminals	IP20

terminals:

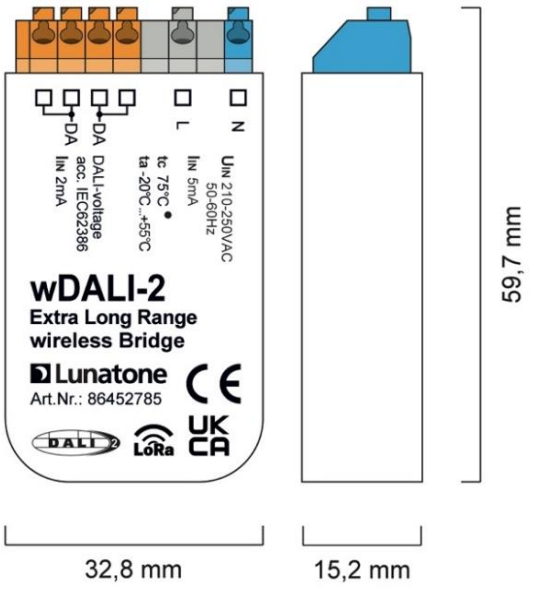
connection type	spring terminal connectors
wire size solid core	0,5 … 1,5 mm^2 (AWG20 … AWG16)
Wire size stranded wired	0,5 … 1,5 mm^2 (AWG20 … AWG16)
wire size using wire end ferrule	0,25 … 1 mm^2
stripping length	8,5 … 9,5mm / 0,33 … 0,37inch
release of wire	push button

environmental conditions:

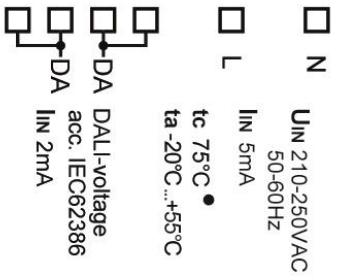
storing and transportation temperature	-20°C … +75°C
operational ambient temperature Ta	-20°C … +55°C
rel. humidity, none condensing	15% … 90%

standards

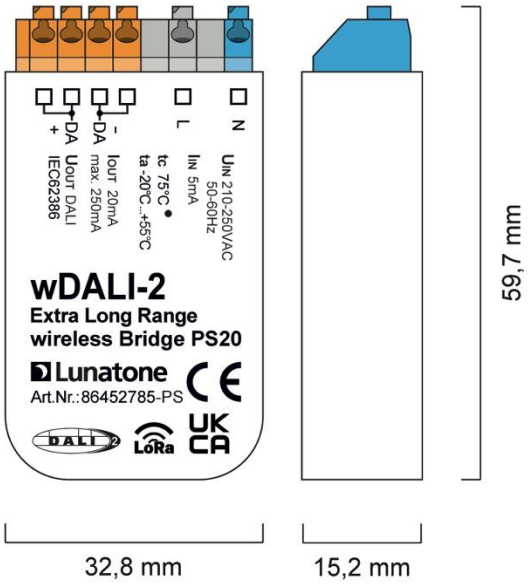
DALI	EN 62386-101 /104 Dali+
EMC	EN 61547 EN 50015 / IEC CISPR15
Safety	EN 61347-2-11 EN 61347-1
markings	CE



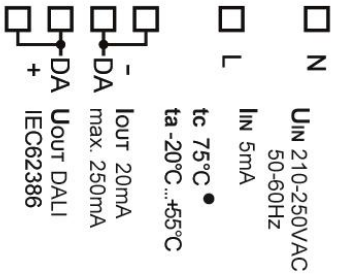
dimensions **wDALI-2 Extra Long Range wireless Bridge -** 86452785



connection plan **wDALI-2 Extra Long Range wireless Bridge -** 86452785



dimensions **wDALI-2 Extra Long Range wireless Bridge PS20**
86452785-PS



connection plan **wDALI-2 Extra Long Range wireless Bridge PS20**
86452785-PS

Typical Application

The system is ideal for use where DALI controls are to be implemented without having to lay long cables for the DALI bus, e.g. sports field lighting, garden lighting, garage doors, etc.
Distances of up to 1km in the open field are feasible. The control of single devices and the query of error states (e.g. lamp errors) is supported.

Compared to other radio systems, this system offers the advantage of being able to achieve a greater range, even indoors. Remote areas can thus be easily connected. Additional radio repeaters or mesh extensions can be omitted.

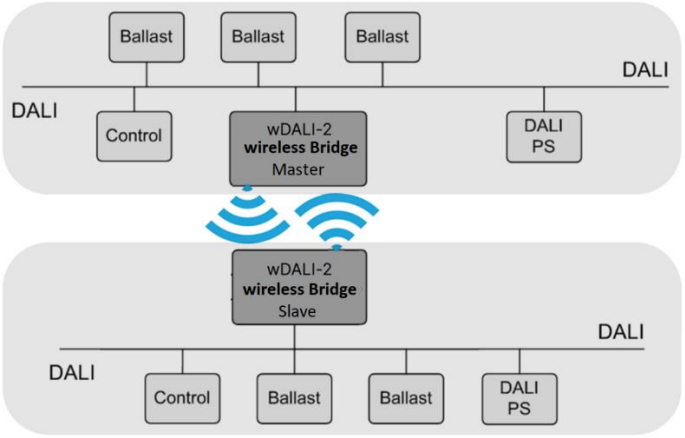


Figure 1 Typical application: wireless connection of spatially separated DALI-lines

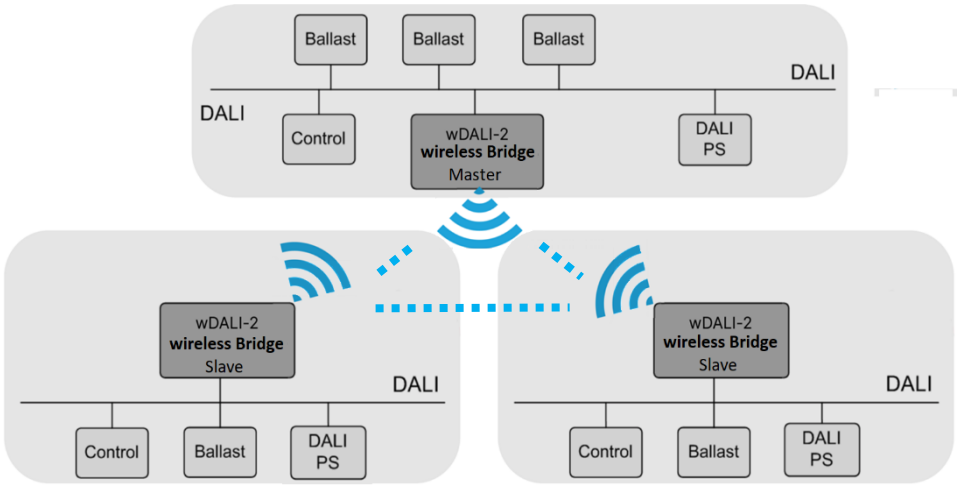


Figure 2 Typical application: wireless connection of multiple spatially separated areas

Installation

- The wDALI-2 wireless DALI Bridge is intended for back box installation or in an enclosure, ensure proper cable relief for installation in protection class II devices.
- The wiring should be carried out as a permanent installation in a dry and clean environment.
- Installation may only be carried out in a voltage-free state of the system and by qualified specialists.
- National regulations for setting up electrical systems must be followed.
- **wDALI-2 Extra Long Range wireless Bridge PS20:** connect power supply terminals L and N to mains voltage according to the labelling
- **wDALI-2 Extra Long Range wireless Bridge PS20:** the polarity of the output voltage is marked on the housing (DA+, DA-)
- **wDALI-2 Extra Long Range wireless Bridge:** the connection to the DALI terminals can be made regardless of polarity,
- The DALI inputs are protected against overvoltage (mains voltage).
- The DALI line may be routed together with the mains voltage (in one cable or as single wires in a tube)
- The DALI-line must **not** be connected to mains or a extra low voltage systems (SELV)
- Only 1 wire may be connected to each terminal. When using double wire end ferrules, the connection capacity of the terminal must be considered.
- The DALI wiring can be realised with standard low-voltage installation material. No special cables are required.
- Wiring topology of the DALI-line: Line, Tree, Star
- There are two sets of DALI terminals for easy connection, the signal line can be looped through.

Attention: The DALI-signal is not classified as SELV circuit (Safety Extra Low Voltage). Therefore, the installation regulations for low voltage apply.

The voltage drop on the DALI line must not exceed 2V at maximum length (300m) and maximum bus load (250mA).

- Do not use standard DC power supplies on the DALI-line, since they do not meet the requirements for DALI communication.

Attention: an unsuitable DALI power supply can cause damage of the DALI devices!

Commissioning

The wDALI-2 Extra Long Range wireless Bridge is connected directly to the DALI bus and powered by it. The module is ready for operation after connection.
When delivered, the device is in "slave" mode and can be found by a "master" device and connected to it.

The master mode can be configured via the DALI Cockpit.
The configuration of the device is described in the next section “Function”.

The range of the radio connection depends on the structural conditions. It is up to 5 km outdoors and depending on construction ranging from 100 m to 500m indoors.

Function

With the wDALI-2 Extra Long Range wireless Bridge, spatially separated DALI lines can be linked wirelessly. The wireless connection is bidirectional - control and queries are possible from both DALI main and sub lines.

System Configuration
For set up and configuration of the system the software tool DALI Cockpit is required and the PC must be connected to the DALI bus via a suitable Lunatone interface module (DALI USB, DALI 4Net, DALI SCI RS232, DALI-2 IoT, DALI-2 WLAN,..).

The wDALI-2 Extra Long Range wireless Bridge is automatically recognized by the DALI Cockpit during the addressing process and displayed in the device overview.
The device can then be set to master mode on the device page (by delivery default the device is in slave mode).

There can and has to be exactly one master device in the DALI bridge radio-system, but there can be up to 20 slave bridges.

Hint: It can be freely selected which device is made the master. The master device should be on the DALI bus, from which all future configurations will also be made.

The master searches for all other modules, slaves, within its range, these can be assigned to the master by selecting "Pair Devices...", see *Figure 3* below.

After the assignment, the addressing and subsequent configuration of the devices on the sub-lines is possible wirelessly. To do this, addressing with “system extension” must be started in the DALI Cockpit.
The devices of the sub-lines are displayed in the DALI Cockpit device list on the left as sub-items of the wDALI-2 Extra Long Range wireless Bridge.

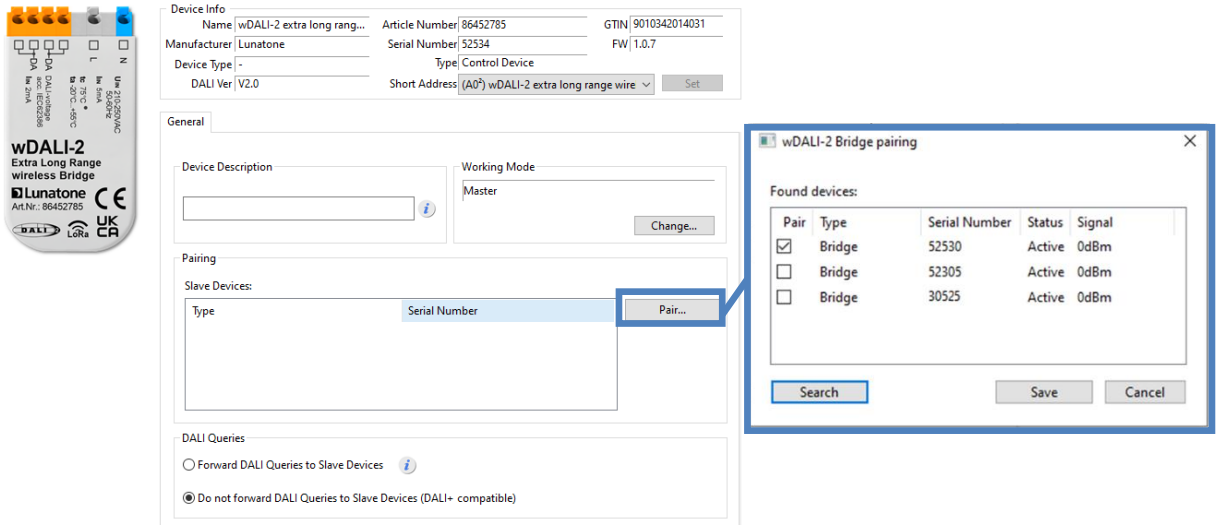


Figure 3 DALI Cockpit DALI-2 Extra Long Range wireless Bridge – Master

Setup - Step by Step

1. Connect the DALI interface to the DALI bus and the PC and start the DALI Cockpit software.
2. Start device addressing. An address is assigned to the DALI bridge and the device is displayed in the device tree.
3. Open the DALI bridge device page, in the settings select the mode “Master" and save the changes to the device  .
4. Start the search for the surrounding slave devices with "Pair Devices".
   
5. The found slave devices are listed.
6. Select the desired devices via the checkbox and press save to pair them with the master device.
   The settings are adopted in the master and the associated slave bridges.
7. Restart the addressing as "System extension" via  or the DALI interface device "Addressing".
8. The devices on the DALI buses of the paired slave devices are found and listed in the DALI Cockpit device tree as sub-items of the master bridge.(Slave bridges are not displayed and do not receive an address)
9. The respective device pages can be selected, read  and configured  via the DALI Cockpit and master bridge, identical to other DALI bus devices.

Add or Remove a Slave Bridge

The assigned slave devices can be changed at any time via "Pair Devices", by changing the selection and then saving.
See also "Setup - Step by Step" 4.-6.

DALI Control Commands

The master bridge creates a fully bidirectional addressed network with the salve bridges. A control command is thus always transmitted to all other DALI lines, regardless of which DALI line it originated from. The control commands can be sent as in a wired network to single DALI addresses, DALI groups or broadcast. The lighting is controlled synchronously, there is no noticeable time delay between the DALI lines, regardless of how many slave bridges are assigned to the master.

DALI Queries

Forwarding of DALI queries to the sub-lines is deactivated as delivery default.

Whether forwarding of query commands is supported or not can be specified in the master bridge settings. The setting also applies to all slave bridges, i.e. to the entire network.

DALI queries can be activated if the devices sending queries fulfill the multi-master functionality according to DALI-2 (62386-101) or have collision detection. The query functionality must be deactivated for applications with a single master (without collision detection).

Purchase Information

Art. Nr. 86452785: wDALI-2 Extra Long Range wireless Bridge, back box installation

Art. Nr. 86452785-PS: wDALI-2 Extra Long Range wireless Bridge PS20, integrated 20mA DALI bus power supply, back box installation

Additional Information and Equipment

DALI Cockpit - free configuration software for DALI systems
https://www.lunatone.com/en/product/dali-cockpit/

Lunatone DALI products
https://www.lunatone.com/en

Lunatone Datasheets and Manuals
https://www.lunatone.com/en/download s-a-z/

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Requests: sales@lunatone.com

www.lunatone.com

Disclaimer

Subject to change. Information provided without guarantee. The datasheet refers to the current delivery.

The function in installations with other devices must be tested for compatibility in advance.

