# Lunatone

# DALI BUS POWER SUPPLY & EXTENSION

DALI     DALI 2

# Lunatone

# DALI BUS POWER SUPPLY & EXTENSION

Every DALI system requires a DALI bus power supply. Lunatone bus power supplies (DALI PS) are available for various applications, with currents from 30mA up to 250mA and different housing types. A maximum of 64 addresses can be assigned on the DALI bus.

In order to expand the DALI system Lunatone offers various solutions:
• DALI Expander for power supply and bus extension
• DALI Repeater for the extension of the DALI line
• wDALI Transmitter for the wireless integration of devices

## TABLE OF CONTENTS                                           Folder D

# DALI-2 PS - DALI bus power supply

Every DALI system requires a DALI bus supply for the DALI communication of the connected controls, sensors and operating devices.

The DALI-2 PS supplies the entire DALI bus with power, depending on the model this can be up to 250mA (see table below). The DALI-2 PS2 30mA is suitable for smaller DALI installations, it can easily be inserted into a flush-mounted installation box due to its small dimensions.

In addition, Lunatone offers DALI bus supplies with 24-48V DC input and DALI output, for example for systems with a 24-volt on-board network or systems with an emergency power supply. The DALI-2 PS modules are available for DIN rail, suspended ceiling installation (housing with strain relief) or flush-type installation boxes.
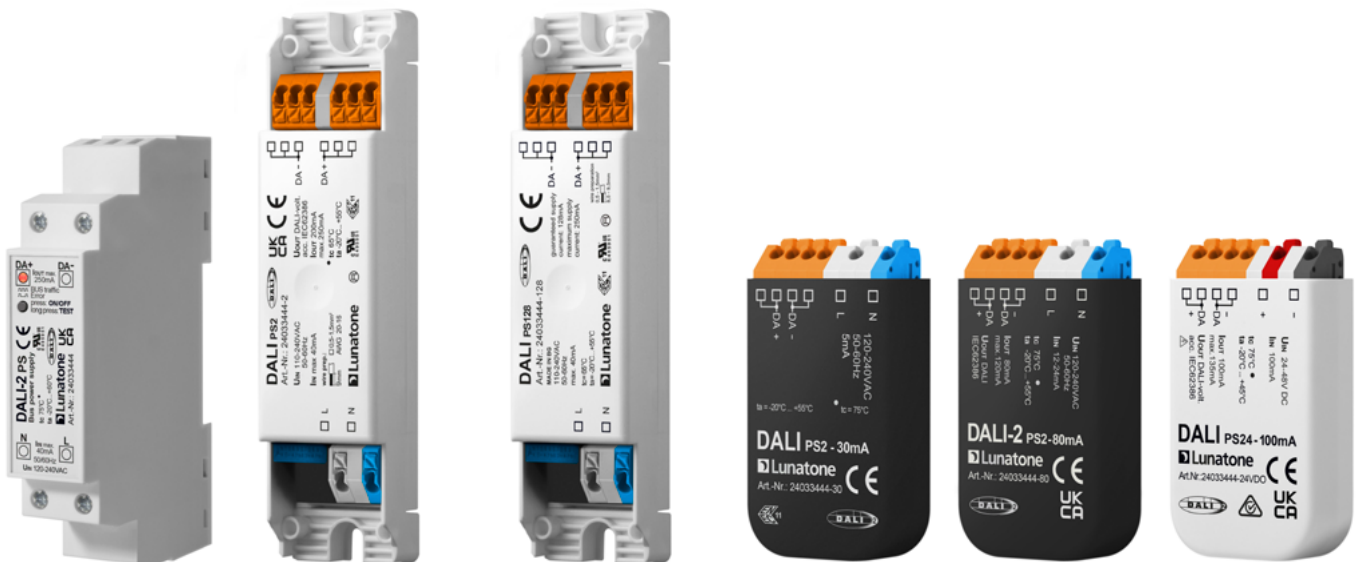
| NAME | ARTICLE NUMBER | INPUT VOLTAGE RANGE | GUARANTEED DALI OUTPUT CURRENT (AT 15V) | MAX. DALI OUTPUT CURRENT | OPERATING TEMPERATURE (TA) | MODEL | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|
| DALI-2 PS | 24033444 | 120 - 240V AC | 220mA | 250mA | -20°C ... +55°C | for DIN rail | 98 × 17,5 × 57 |
| DALI-2 PS2 | 24033444-2 | 110 - 240V AC | 200mA | 250mA | -20°C ... +55°C | with strain relief for suspended ceilings | 120 × 30 × 22 |
| DALI-2 PS128 | 24033444-128 | 110 - 240V AC | 128mA | 250mA | -20°C ... +55°C | with strain relief for suspended ceilings | 120 × 30 × 22 |
| DALI-2 PS2 30mA | 24033444-30 | 120 - 240V AC | 30mA | 50mA | -20°C ... +55°C | for flush-type installation boxes | 59 × 33 × 15 |
| DALI-2 PS2 80mA | 24033444-80 | 120 - 240V AC | 80mA | 120mA | -20°C ... +55°C | for flush-type installation boxes | 59 × 33 × 15 |
| DALI-2 PS24 100mA | 24033444-24VDO | 24 - 48V DC | 100 mA | 250mA | -20°C ... +55°C | for flush-type installation boxes | 59 × 33 × 15 |

# DALI-2 Expander - intelligent expansion & DALI bus power supply

With the DALI-2 Expander or DALI Expander 3 additional DALI sub-lines can be created and supplied with power and information. The connected operating devices within the DALI sub-line can be controlled broadcast via the address of the DALI-2 Expander. Alternatively the DALI sub-line can also be controlled directly via a pushbutton (input SW&DIM). The devices have an integrated DALI bus power supply for the DALI sub-line. Furthermore, the Expander can also be used to increase the line length by 300m.

| NAME | ARTICLE NUMBER | INPUT VOLTAGE | DALI BUS POWER SUPPLY | INPUT | OUTPUT | OPERATING TEMPERATURE (TA) | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|
| DALI-2 Expander DO | 89452937-DO | 120-240V AC | 25mA | DALI | DALI | -20°C ... +55°C | 59 × 33 × 15 |
| DALI-2 Expander DIN rail | 89452937-HS | 120-240V AC | 200 mA | DALI / pushbutton | DALI | -20°C ... +55°C | 98 × 17,5 × 57 |
| DALI-2 Expander DES | 89452937-DES | 120-240V AC | 200 mA | DALI / pushbutton | DALI | -20°C ... +60°C | 120 × 30 × 22 |
| DALI Expander 3 | 89453847-3 | 100-240V AC | 3 × 50mA | DALI / pushbutton | 3x DALI | -20°C ... +60°C | 120 × 41 × 22 |

## DALI-2 Expander and DALI Expander 3 as DALI system extension
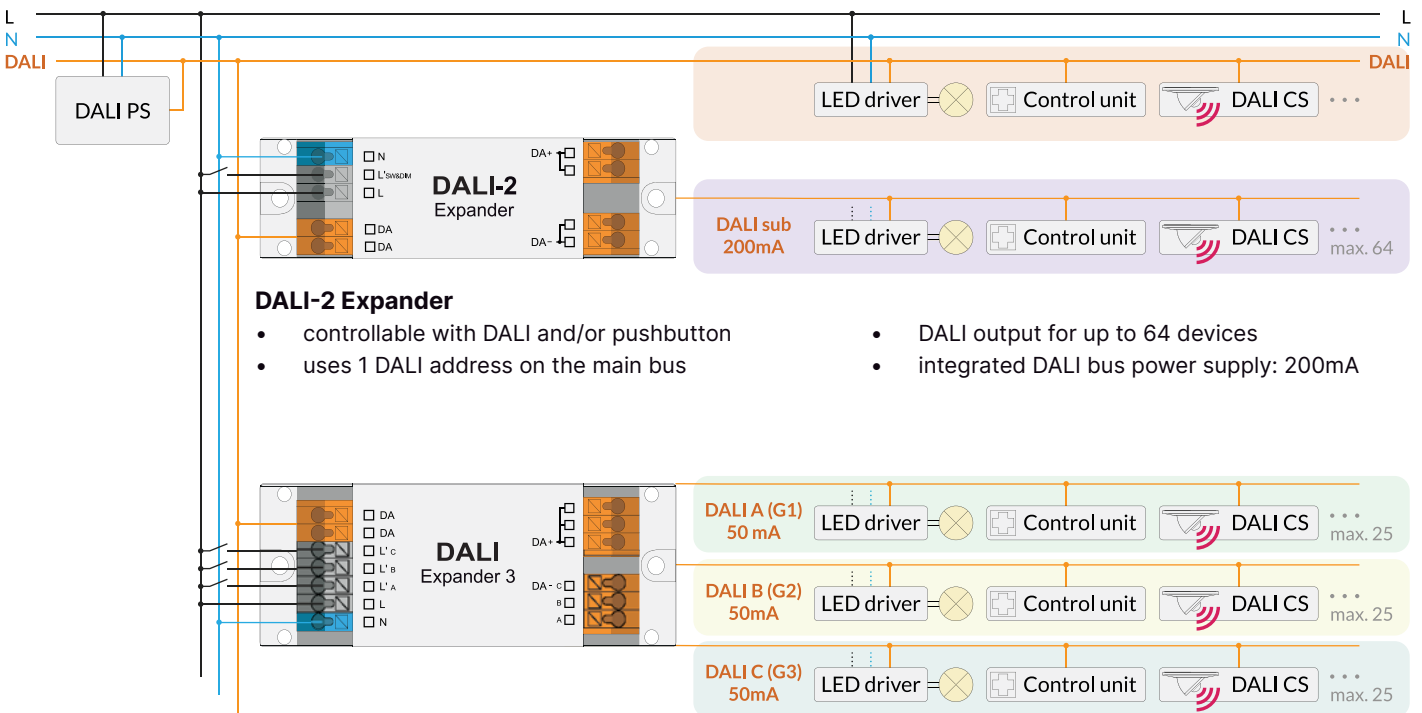


### DALI-2 Expander
- controllable with DALI and/or pushbutton
- uses 1 DALI address on the main bus
- DALI output for up to 64 devices
- integrated DALI bus power supply: 200mA

### DALI Expander 3
- controllable with DALI and/or pushbutton - 3 pieces
- uses 3 DALI addresses on the main bus
- 3 outputs for up to 25 devices each
- integrated DALI bus power supply: 3×50mA

## DALI-2 Expander and Expander 3 as DALI System extension (illustration page 3)

With a **DALI-2 Expander** an existing DALI installation can be expanded by up to 64 DALI devices. The connected devices (sub-line) can be controlled with the address of the DALI-2 Expander (1 address). It is possible to connect control units and sensors to the sub-line to control the devices locally, these control signals are not forwarded to the main bus.

**DALI Expander 3** uses 3 DALI addresses on the main bus and can control 3 separate sub-lines. Each sub-line has a 50mA DALI bus supply and each can supply 25 DALI devices.

In order to send DALI commands between sub-lines, group commands can be used (e.g. to control two sub-lines with a single DALI CS sensor). The following group assignments are defined in the factory settings:

**FACTORY SETTING: GROUP ASSIGNMENT**

| | |
|---|---|
| G1 → DALI A | G5 → DALI A + DALI C |
| G2 → DALI B | G6 → DALI B + DALI C |
| G3 → DALI C | G7 → DALI A + DALI B + DALI C |
| G4 → DALI A + DALI B | |

## DALI-2 Expander and Expander 3 as DALI bus power supply, controllable via pushbutton

The **DALI-2 Expander** can be used as main power supply for a DALI system (200mA). In addition to all the functions of a normal power supply, the entire DALI system can be controlled with a pushbutton (SW&DIM input) to send commands to all devices in the sub-line (broadcast). The factory settings are: on/off, dimming. This way, a simple and inexpensive DALI system can be realised without any programming.

The **DALI Expander 3** has three separate DALI outputs and corresponding inputs for pushbuttons (SW&DIM input), which enables independent dimming of up to three zones. Each output provides 50mA, to power up to 25 DALI devices.
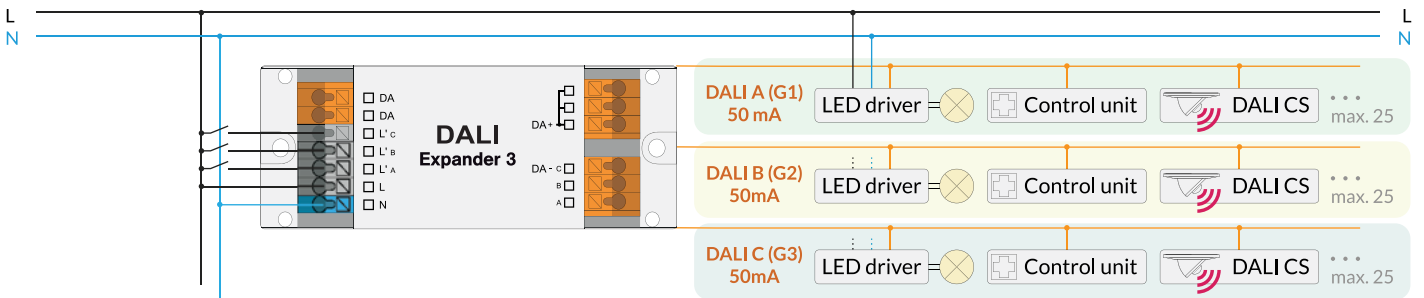


## DALI-2 Expander and Control Systems with 0/1-10V Signal (xComfort and others)

To convert a 0-10V analog signal into a DALI dimming value, a 0-10V to DALI module is used (Art.Nr.: 86468352). This Lunatone device has an integrated bus supply of 10mA and can supply up to 4 DALI devices. With the help of the DALI-2 Expander up to

64 DALI devices can be controlled via the 0/1-10V signal. The DALI-2 Expander simply needs to be connected to the 0-10V to DALI module.
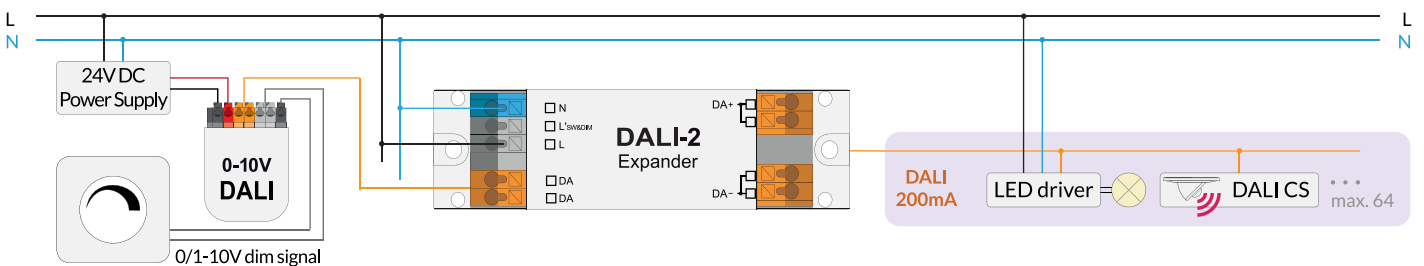
# DALI Proxy

The compact module is used to expand a DALI circuit and allows the devices connected to the output (DALI OUT) to be easily replaced without re-addressing. On the input side (DALI IN) the DALI Proxy represents one device (1 DALI address) and can be handled like any DALI ballast. All commands received by the device are forwarded broadcast to the underlying devices (DALI OUT). Hence the devices connected to DALI OUT can be controlled via the DALI address of the DALI Proxy. With this module the exchange of a lamp or dimmer is possible without re-addressing!



| NAME | ARTICLE NUMBER | INPUT | TYP. DALI CURRENT CONSUMPTION | OUTPUT | DALI BUS POWER SUPPLY | OPERATING TEMPERATURE (TA) | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|
| DALI Proxy | 89452887 | DALI control input | 2mA + Iout | DALI (DA+, DA-) | 2× 4mA | -20°C … +55°C | 59 × 33 × 15 |
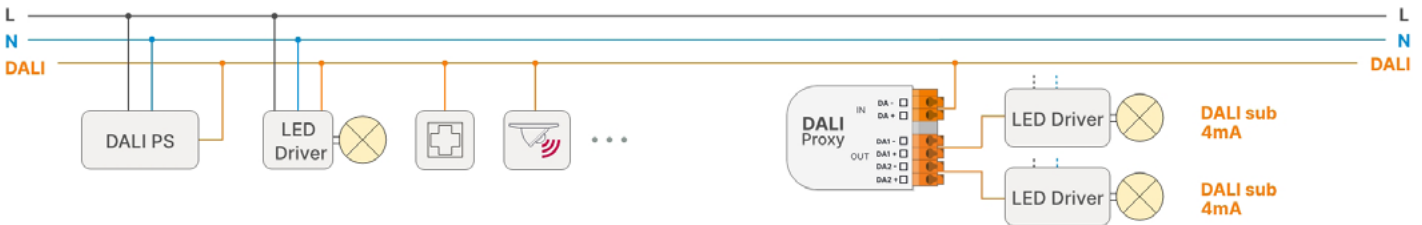


# DALI Repeater

DALI installations have a maximum range of 300 meters. For larger installations, a DALI Repeater can be used to amplify signals and extend the installation by an additional 300m. The DALI Repeater provides a galvanic isolation between DALI input and DALI output. The device supports bidirectional communication and can be used in DALI systems with multiple control devices (multi-master systems and DT8). The DALI Repeater is available in two versions: Art. Nr.:86458401 in a DIN rail housing for the control cabinet and Art.Nr.:86458401-PS with strain relief for suspended ceiling installation and integrated DALI bus power supply for the output.



| NAME | ARTICLE NUMBER | STROM-VERSORGUNG | TYP. DALI CURRENT CONSUMPTION | DALI BUS POWER SUPPLY | MODEL | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|
| DALI Repeater DIN rail | 86458401 | via DALI line | 6mA | - | for DIN rail | 98 × 17,5 × 57 |
| DALI Repeater PS DIN rail | 86458401-PS-HS | via DALI line / 100-240V AC | 2mA | 200mA | for DIN rail | 98 × 17,5 × 57 |
| DALI Repeater PS | 86458401-PS | via DALI line / 100-240V AC | 2mA | 200mA | with strain relief for suspended ceilings | 120 × 41 × 22 |
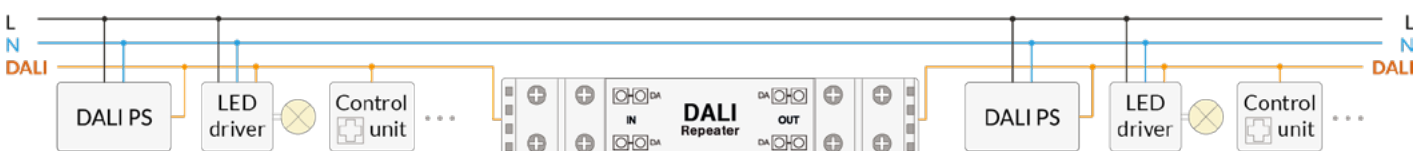
# wDALI GR-Transmitter – Receiver PS20

wDALI GR Transmitter / Receiver PS is an interface to wirelessly integrate DALI devices into the DALI system. The transmitter is connected to the main DALI bus. The receiver forms a DALI sub-line that wirelessly receives commands from the main bus.
A group can be assigned to the wDALI Receiver using the dial on the device's housing. Commands on the main line directed to this group are forwarded to the entire sub-line. The wDALI Receiver PS20 has a 230V AC input and supplies the DALI sub-line with 20mA for up to 10 DALI devices.



| NAME | ARTICLE NUMBER | FEATURES | FREQUENCY | SUPPLY | DALI POWER SUPPLY | RANGE | OPERATING TEMP. (TA) | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|---|
| wDALI GR Transmitter | 86459587-GRTM | • wireless transmission of DALI commands | 2.4 GHz | via DALI line (3.8mA) | - | • up to 150m outdoors • indoors typically 8m-12m | -20°C...+75°C | 59×33×15 |
| wDALI GR Receiver PS20 | 86459587-GRRPS | • wireless reception of DALI commands • **dial on the device** for group selection • commands to the assigned group are **broadcasted** to the sub-line | 2.4 GHz | mains voltage 210-250VAC 50-60Hz | 20mA | | -20°C...+60°C | 59×33×15 |
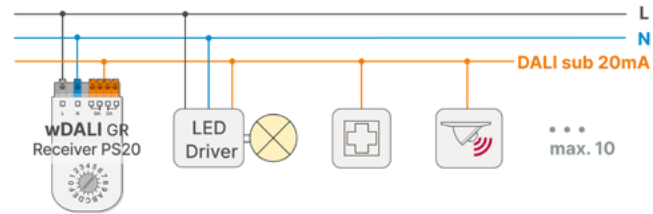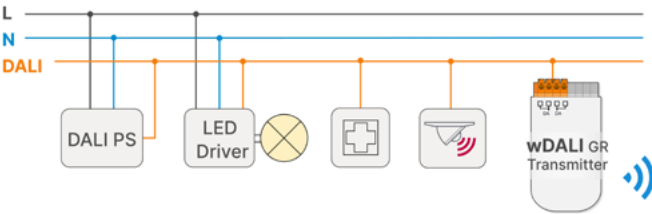


# wDALI-2 Bluetooth 5 Long Range Transmitter – Receiver

Module to wirelessly connect spatially separated DALI loads to a DALI system with Bluetooth 5 Long Range. The transmitter sends DALI commands from the DALI system to one or more receivers. The receiver is available with or without an integrated DALI bus supply. The devices on the sub-line can be controlled via broadcast or an assigned group. Easy configuration with the PC software DALI Cockpit. Support of DALI-2 control commands.



| NAME | ARTICLE NUMBER | FEATURES | FREQUENCY RANGE | SUPPLY | DALI POWER SUPPLY | RANGE | OPERATING TEMP. (TA) | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|---|
| wDALI-2 BT5 Long Range Transmitter | 89453321-GRTM | • wireless transmission of DALI commands: **Bluetooth 5 Long Range** | 2.4 GHz | via DALI line (3.8mA) | - | • up to 300m outdoors • indoors typically 10m-20m | -20°C...+75°C | 59×33×15 |
| wDALI-2 BT5 Long Range Receiver | 89453321-GRR | • wireless reception of DALI commands • group assignment: DALI Cockpit • commands to the assigned group are **broadcasted** to the sub-line | 2.4 GHz | via DALI line (3.8mA) | - | | -20°C...+75°C | 59×33×15 |
| wDALI-2 BT5 Long Range Receiver PS20 | 89453321-GRRPS | | 2.4 GHz | mains voltage 210-250VAC / 50-60Hz | 20mA | | -20°C...+60°C | 59×33×15 |

# wDALI-2 Bluetooth 5 wireless Bridge

Module to wirelessly connect spatially separated DALI lines (Bluetooth 5). The wireless connection is bidirectional – control is possible from both DALI lines. Additionally, DALI queries are supported. The wireless connection is set up using the PC software DALI Cockpit. The device connected to the DALI Cockpit can be set to Master mode and wirelessly searches for all other modules (Slaves) within range. The Slaves can then be paired with the Master via the Cockpit software. After pairing, the DALI devices on the Slave-DALI-lines can be addressed and configured wirelessly via the wireless DALI bridge that has been set
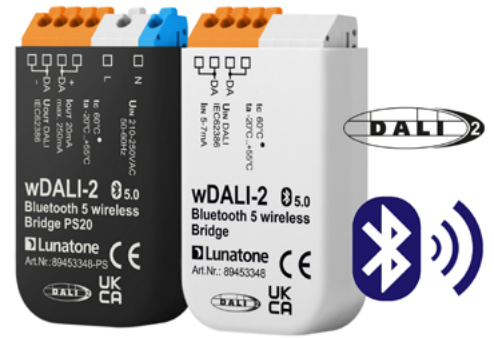
up. Version with integrated DALI power supply (Art. Nr. 89453348-PS), provides 20mA for the sub-line (up to 10 DALI ballasts).



| NAME | ARTICLE NUMBER | FEATURES | FREQUENCY RANGE | SUPPLY | DALI POWER SUPPLY | RANGE | OPERATING TEMP. (TA) | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|---|
| wDALI-2 Bluetooth 5 wireless Bridge | 89453348 | • **bidirectional connection:** wireless control and query of DALI devices between main and sub-lines • configurable operating mode: Master or Slave | 2.4 GHz | via DALI line (2mA) | - | • up to 300m outdoors • indoors typically 10m-20m | -20°C...+55°C | 59×33×15 |
| wDALI-2 Bluetooth 5 wireless Bridge PS20 | 89453348-PS | | 2.4 GHz | mains voltage 210-250VAC 50-60Hz | 20mA | | -20°C...+55°C | 59×33×15 |
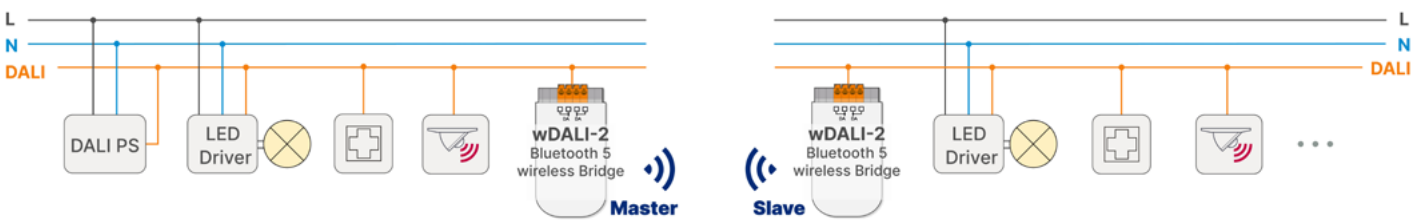


# wDALI-2 Extra Long Range wireless Bridge

Module to wirelessly connect spatially separated DALI lines (LoRa). The wireless connection is bidirectional – control is possible from both DALI lines. Additionally, DALI queries are supported. The wireless connection is set up using the PC software DALI Cockpit. The device connected to the DALI Cockpit can be set to Master mode and wirelessly searches for all other modules (Slaves) within range. The Slaves can then be paired with the Master via the Cockpit software. After pairing, the DALI devices on the Slave-DALI-lines can be addressed and configured wirelessly via the wireless DALI bridge that has been set up.
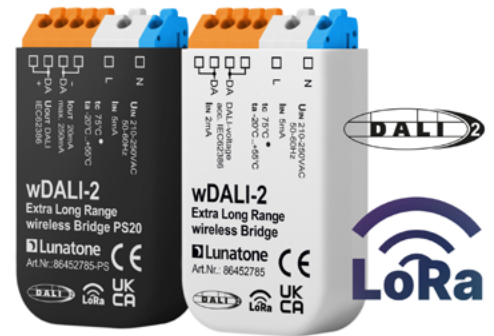


Version with integrated DALI power supply (Art. Nr. 86452785-PS), provides 20mA for the sub-line (up to 10 DALI ballasts).

| NAME | ARTICLE NUMBER | FEATURES | FREQUENCY RANGE | SUPPLY | DALI POWER SUPPLY | RANGE | OPERATING TEMP. (TA) | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|---|
| wDALI-2 Extra Long Range wireless Bridge | 86452785 | • **bidirectional connection:** wireless control and query of DALI devices between main and sub-lines • configurable operating mode: Master or Slave | E-LORA 868 MHz | via DALI line (2mA), 210-250VAC / 50-60Hz | - | • up to **1km** outdoors • indoors typically **100m-500m** | -20°C...+55°C | 59×33×15 |
| wDALI-2 Extra Long Range wireless Bridge PS20 | 86452785-PS | | E-LORA 868 MHz | mains voltage 210-250VAC / 50-60Hz | 20mA | | -20°C...+55°C | 59×33×15 |

# DALI 4Net - control of 4 DALI lines

The compact 1DU DIN rail module enables the independent control of up to 4 DALI lines, which equals 256 DALI operating devices. Efficient scaling is possible with external DALI bus supplies.

The DALI 4Net module enables cross-DALI line control using 15 cross-bus zones. The DALI groups from the 4 DALI lines can be assigned to these zones. This makes it possible to extend the effective range of a command beyond its DALI line.

Furthermore, the "Trigger Action" function of the DALI 4Net module enables control devices from one DALI bus to control areas of the other 3 DALI buses.

DALI devices and DALI LED dimmers can be configured via the PC software tool DALI Cockpit via the Ethernet interface of the DALI 4Net.

With the Modbus interface, the DALI 4Net can also be integrated into building management systems (BMS).

The DALI 4Net is available in a basic version with limited functions (see table), or in an extended version with real time clock (RTC), circadian daylight schedules (CDC), programmable

schedules, cross-line functions for input devices and sensors, emergency function and sensor value recording.

Information from the DALI operating devices can be read and displayed using the PC software tool DALI Visual.

| NAME | ARTICLE NUMBER | INTERFACE | POWER SUPPLY | BASIC FUNCTIONS | ADDITIONAL FUNCTIONS | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|
| DALI 4Net Basic | 22176666-B | 4xDALI, Ethernet | 24V DC | • gateway Modbus ↔ DALI • ModBus TCP control • ModBus TCP queries • zone definition (areas over multiple lines) | - | 98 × 17,5 × 57 |
| DALI 4Net | 22176666 | 4xDALI, Ethernet | 24V DC | | • real time clock • central scheduling • cross-line functions • circadian daylight schedule • emergency function • sensor value polling | 98 × 17,5 × 57 |
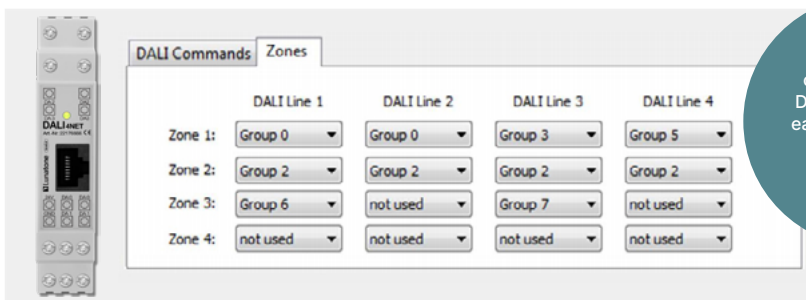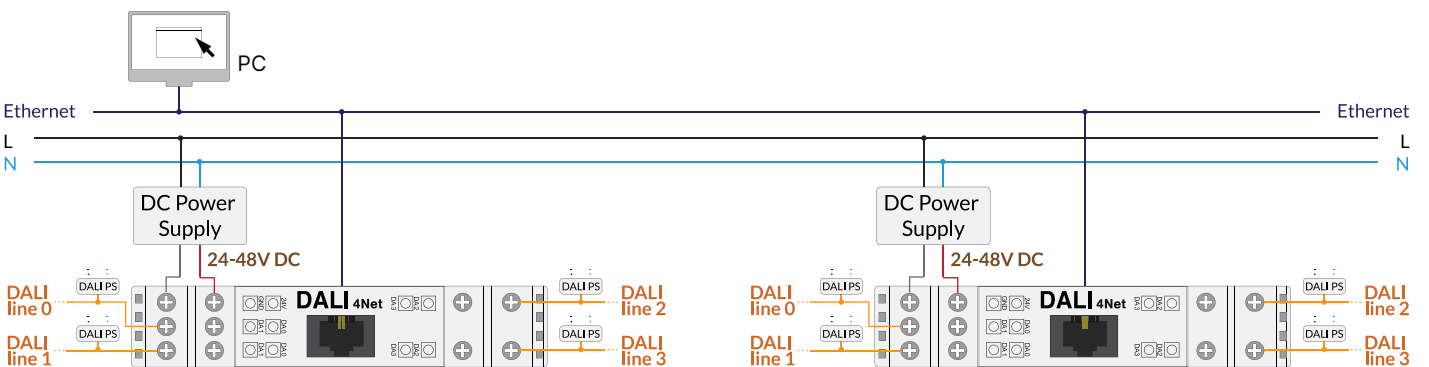


15 zones can be defined. DALI groups from each DALI line can be assigned to these zones.

"Cross-line operations" allow sending commands to multiple DALI lines or a user defined zone.

# DALI-2 Display Bus Extension

The module is used in combination with a DALI-2 Display 7" Plus or DALI-2 Display 7" Emergency. It allows a DALI system expansion with up to 3 additional DALI lines. The device has 2 Ethernet sockets for connecting the DALI-2 Display and the local network. Up to three DALI lines can be connected via terminals DA1, DA2 and DA3.

The Display Bus Extension Module requires a 24V supply (suitable power supply unit: PS 24V, 300mA, Art. Nr.: 24166012-24HS). The DIN rail housing is suitable for installation in control cabinets.

| NAME | ARTICLE NUMBER | DESCRIPTION | INTERFACE | COMPATIBILITY | POWER SUPPLY | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|
| DALI-2 Display Bus Extension | 86451848 | DALI System Extension for the DALI-2 Display 7" Plus and DALI-2 Display 7" Emergency | network socket - Ethernet network socket - Display | 86456840-P 86456840-EM 86456840- P-EM | 24VDC | 98×18×56 |
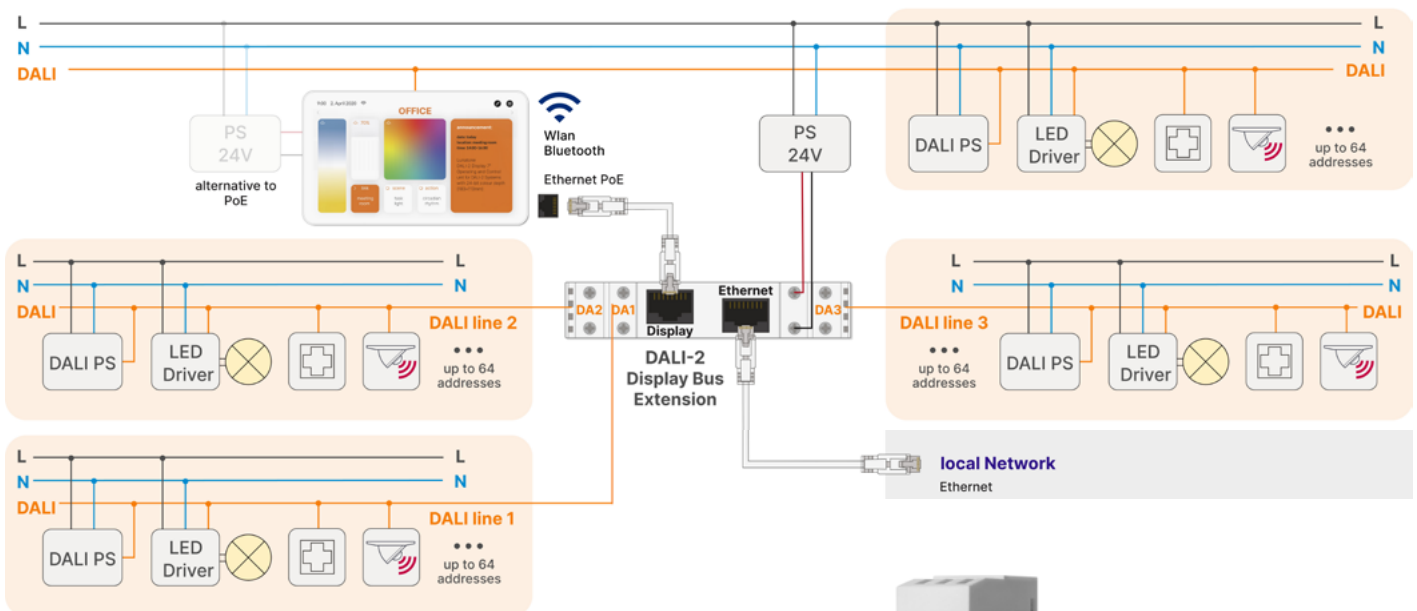


# 24V DC Power Supply

Module for DIN rail mounting with up to 300mA output current. Module for the installation box with either 60mA or 130mA output current.

| NAME | ARTICLE NUMBER | INPUT VOLTAGE | INPUT-CURRENT | OUTPUT-VOLTAGE | OUTPUT-CURRENT | OPERATING TEMP. (TA) | MODEL | DIMENSIONS (MM) |
|---|---|---|---|---|---|---|---|---|
| PS 24V 300mA | 24166012-24HS | 230 V AC | 50 mA | 24V DC | max. 300mA | -20°C … +55°C | for DIN rail | 98 × 17,5 × 57 |
| PS 24V 130mA | 24166130-24 | 230 V AC | 18 mA | 24V DC | max. 130mA | -20°C … +55°C | for flush-type installation boxes | 59 × 33 × 15 |
| PS 24V 60mA | 24166012-24 | 230 V AC | 15 mA | 24V DC | max. 60mA | -20°C … +55°C | for flush-type installation boxes | 59 × 33 × 15 |

# Lunatone

# OVERVIEW FOLDER A-E

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