



DALI-2 Display 4"

Datasheet

DALI-2 Control System

Multifunctional DALI-2 control
and operating unit



DALI-2 Display 4"

Art.Nr.: 86456841-W (white)

Art.Nr.: 86456841-B (black)

DALI-2 Display 4" plus

Art.Nr.: 86456841-P-W (white)

Art.Nr.: 86456841-P-B (black)

DALI-2 Display 4" Multifunctional Control Device

Overview

- Multifunctional control device for DALI and DALI-2 systems
- 4" capacitive touchscreen with 24-bit color depth
- Dimensions: 88 x 88 x 8.5mm
- comfortable operation via numerous widgets
- customisable user interface
- **coming soon:** integration via WLAN in building management systems
- dimming and switching of groups and individual addresses
- Tunable White and RGB colour management
- recall and saving of scenes.
- Multi-master capable: Several modules can be installed within a DALI circuit.
- Easy installation: the device can be installed on a flush-mounted installation box
- Version with LAN and Power over Ethernet on request

Additional functionality of the Display 4" plus:

- addressing and set-up of DALI systems
- creating groups
- visualisation of sensor values such as temperature, air quality, air pressure, humidity, etc.
- control of blinds

Specification, Characteristics

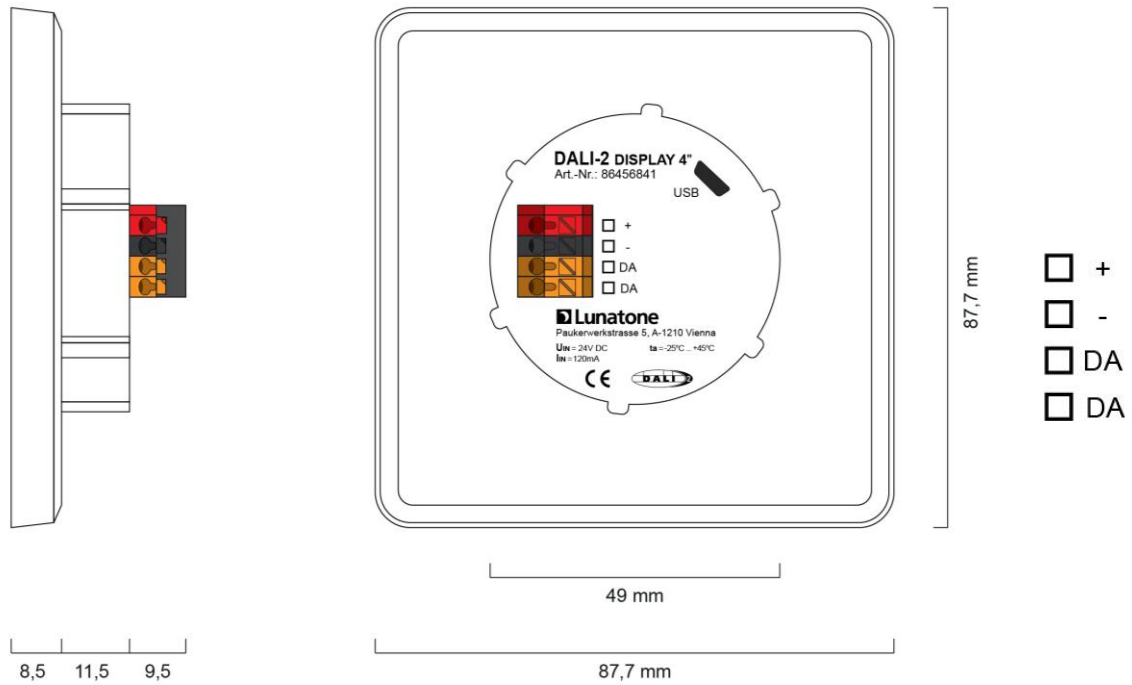
Type	DALI Display 4" (plus)	
article number	86456841-W 86456841-P-W	86456841-B 86456841-P-B
GTIN	9010342013560	

Electrical data:

rated supply voltage display	24-56V DC
power / p _{peak}	1.2W / 3W
number of DALI lines	1
Current consumption DALI-line	<2mA
Interface	DALI

Mechanical data:

ambient temperature	-10...50°C	
type of protection	IP20	
dimensions L x W x H	88 x 88 x 8.5mm	
touchscreen size	4"	
touchscreen pixel	480x480px	
colours	24Bit	
colour display frame	white	black
colour housing	white	black



Dimensions Art.Nr.: 86456841-...

connection plan

Typical application

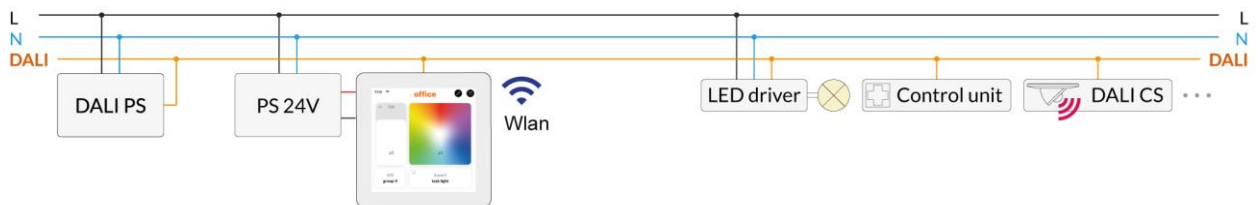


Figure 1 Typical Application

Usage

The DALI display is used for set-up (Version Display 4" plus), configuration and control of a DALI system. The DALI protocol standard IEC62386, is used to control the lighting equipment.

Via the display interface all luminaries, groups, individual addresses can be controlled, and scenes can be recalled.

The user interface can be customized, including background images and colour, function, position, size of control widgets and more.

Installation

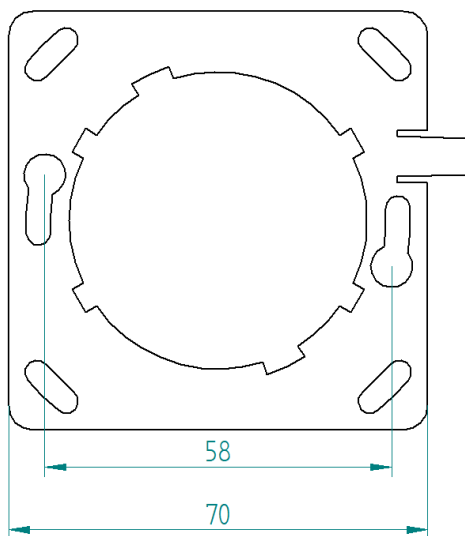




Figure 2 mounting plate


- The DALI-2 Display can be directly connected to the DALI bus. A DALI bus power supply (e.g. DALI PS) is required.
- The device requires an additional 24V supply, which is connected to the corresponding terminals. (suitable power supply unit: PS 24V, 300mA Art.Nr.: 24166012-24HS)
- The connection to the DALI terminals can be made regardless of polarity. The bus input is protected against overvoltage (mains voltage).
- 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.
- The DALI wiring can be realised with standard low-voltage installation material. No special cables are required.
- Only 1 wire may be connected to each terminal. When using double wire end ferrules, the connection capacity of the terminal must be considered.

 **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).

Mounting

The DALI Display 4" can be attached to a standard flush-mounted installation box/ electrical socket using the mounting plate (included), see Figure 2, page 4.

For assembly, the mounting plate has to be attached to the electrical socket, the marking:  has to face upwards. Rotate the Display approx. 5 ° clockwise and slide it into the cut-out (center circle). Rotate the Display 5 ° counterclockwise to clamp it in a horizontal position.

The display is correctly installed when the clip on the right side falls into the recess provided -> click sound.

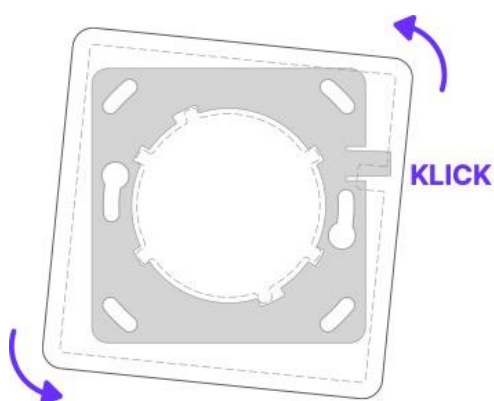


Figure 3 Mounting

To demount the Display, the clip on the right side can be pushed back with a tool and the display can be released again by turning it clockwise.

Safety instructions

- The device is only suitable for indoor installation.
- Keep the product away from liquids and moisture.
- Cleaning is possible with a dry duster. Please do not use abrasives or solvents. Avoid contact with liquids.
- The housing is made of glass and metal, contact with sharp-edged objects can damage the display.
- If the device is defective, send it to Lunatone Industrielle Elektronik GmbH. Under no circumstances should the display be opened. Dismantling / disassembling the display can lead to damage and / or injuries.

Recycling

This product has been designed and manufactured using high quality materials and components that can be recycled and reused.

The device must be disposed of separately from household waste. Please follow the local regulations for the separate disposal of electronic products. The correct disposal of old devices protects our environment.

Functionality and Features

The DALI-2 Display serves as a universal module for **control** of a DALI system, as well as **set-up and configuration** for version Display 4" plus.

By default, the display shows the **user interface for light control**. The user interface of the DALI display is made up of individual pages (boards) and the operating elements (widgets) on them.

Boards: Any number of boards (pages) can be created, these can be reached by swiping your finger to the right / left or using a link widget. The length of the board is flexible: with an up / down swipe of your finger, you can navigate up and down.

Widgets: Any number of widgets can be created for each board. These can be flexibly arranged on the board.

The user interface can be edited using the pencil symbol at the top right. See section: Editing the user interface on page 10.



Button: edit user interface

The **set-up and configuration menu** can be opened with the menu button at the top right. General settings and DALI device settings can be found there. See section: Set-up and system configuration on page 7.




Menu button



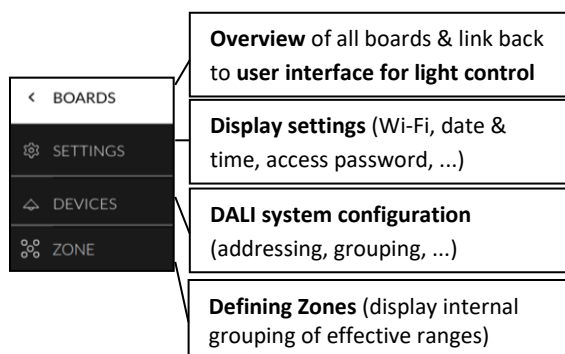
Figure 4 User Interface for Light Control DALI Display 4"

Set-up and configuration Menu

The configuration menu can be reached via the menu button at the top right. 

The configuration menu contains settings for boards, general settings, and settings for the DALI system.

Navigation and menu items



Menu item: Boards 

This tab provides an overview of the existing boards and their management.

The pen button at the top right enables the configuration options: renaming, reordering, removing and adding of boards. See section: Boards on page 10.

Clicking on the board tab again will open the interface for light control. Alternatively, clicking on one of the boards, will open the corresponding user interface.

Menu item: Display Settings 

General settings for the display can be made here, see also Figure 5

- **Save/Load:** saving and loading display settings and boards
- **General:**
 - Setting the *name* of the display in the network
 - Information on *firmware version*
 - Setting the system language

- change the percentage displayed for sliders: between *linear percentage* and DALI norm percentage (logarithmic)
- Setting the *screensaver* percentage and timeout
- Settings *night time brightness* percentage and time range
- Settings *night time screensaver* percentage and timeout
- **Date & Time:** setting the time zone, date and time
- **Wi-Fi:** establishing an internet connection and displaying the IP address. To avoid unwanted access by third parties, the device should only be connected to a secure network.
- **Access, Display Passwords:**
 - with enabling “*protect Menu & Board editing*” and entering a password, the access to the configuration menu and editing mode is restricted. The restriction takes effect on after the selected time. Accessing boards can also be password protected (from firmware version 1.2.0 on) by selecting the respective board in the list
 - with enabling “*long press to Store Scene*” long press on a scene button saves the current lighting status as the selected scene (see also section: “Create scenes” page 13) (Disabling is available from firmware 1.2.0 on)

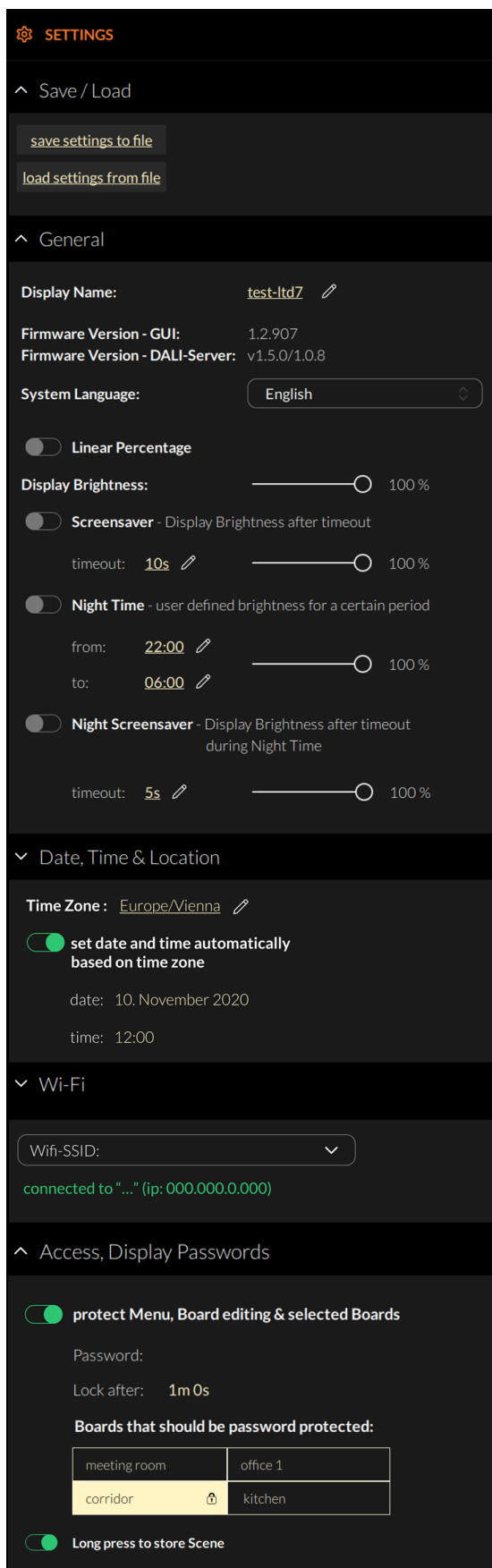


Figure 5 Overview Menu item: Display Settings

Menu item: Devices 

The tab includes set-up and configuration options for the DALI system. Addressed and configured DALI devices of the connected DALI bus are read and listed here.

The DALI Display 4" plus additionally supports addressing/readdressing as well as DALI system extensions.

With the Display 4" plus the devices found can be grouped.

After the configuration has been completed, the user interface for light control can be created, containing boards and widgets for individual addresses, groups, and scenes.

Addressing devices:

Select "addressing - search" at the top right (within the menu item "devices").

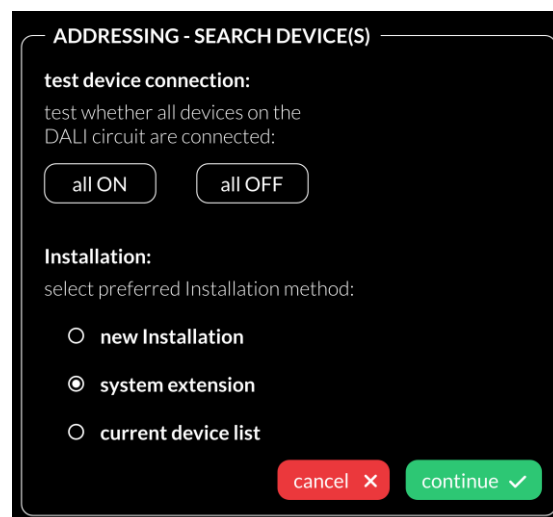


Figure 6 Pop-up addressing, search for devices

Function test: The on and off button can be used to test whether all DALI devices are connected. If all devices respond properly, addressing can be continued (if the devices do not respond check the DALI bus power supply and the device wiring).

Available options:

- current device list: loads already addressed DALI bus

additional options for the Display 4"plus:

- New Installation: for new installations or re-addressing; new addressing of all devices on the DALI bus. (devices that already had an address will also get a new address).
- system extension: if devices were added to an existing system; the existing system keeps its addresses and new addresses will be added.

After reading out/addressing, all devices are displayed in the device list.

Assign device name: Click on the respective device name in the device list

Assign groups: - Version Display 4" plus
Click on the respective group entry ("select") in the device list to add the device to the corresponding groups.

State: click on the state symbol to switch the respective devices on and off (for easy localization).

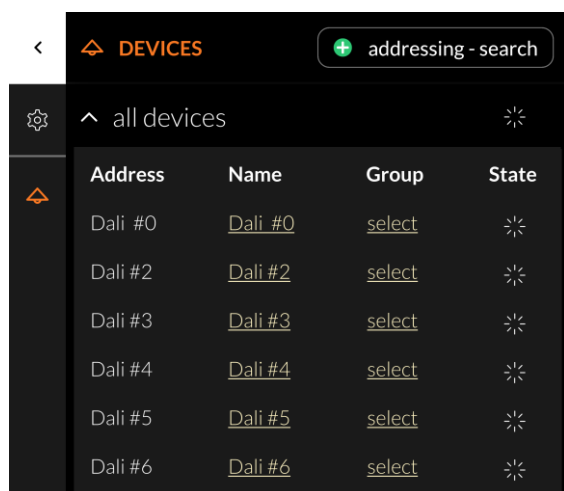


Figure 7 Menu item "Devices"

Further configuration of DALI devices is possible with the DALI Cockpit – see section "DALI Cockpit" page 15.

Menu item: Zones



Firmware Version 1.1.0 and higher

Zones are a grouping of DALI devices like DALI groups but without a limitation to 16 and without a limitation of one DALI line in case of a display with multi-line module.

The devices in a Zone can consist of any number of devices (single addresses) and already formed DALI groups.

Attention: Zones in one display do not necessarily match zones of another display!

Within the display from here on only zones or devices can be selected as destination address (DALI groups will not be available).



With this button it is possible to turn the selected devices on/off for review the assigned devices.

Additional zones can be added using the Add-Button:

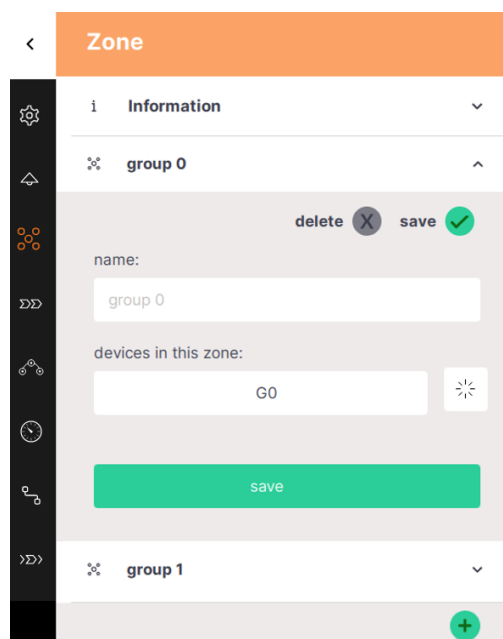






Figure 8 Menu item "Zone"

Edit user interface for light control

The user interface of the DALI Display is made up of individual pages (boards) and the operating elements (widgets) on them.

Boards

An Overview to all boards can be found in the configuration menu  at section BOARDS . To **create, delete, duplicate, or move** a board: select the edit symbol  next to the title BOARDS.

- Create new boards -> button at the top left "new board".
- Edit board: click the pencil symbol  in the board window: rename, duplicate (including or excluding the widgets) or delete.
- Change the order of the pages: select board (blue highlight) move with drag and drop.

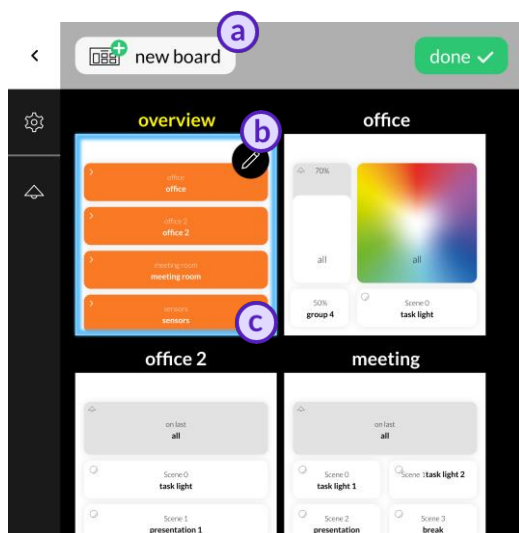



Figure 9 Menu item "Boards"


Close the board setting via the done button: . Return to one of the user interfaces by selecting the respective board.

Editor: edit boards and widgets

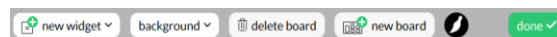
Menu and Board overview





Editor: Widgets and Background Images

On the user interface: Click on the editor icon: .

If the icon is not visible, check the settings in the menu: -> Settings -> Access, Display Passwords -> protect Menu & Board editing.



Widgets can be added:


 new widget , details see page 11.

or a background image can be loaded:

background , details see page 11 .

boards can be added or deleted:

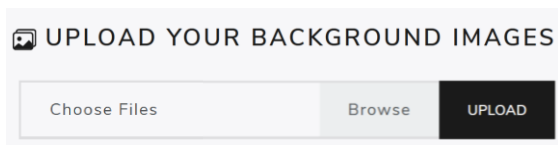


The paintbrush button  enables editing of the board style. Different colours can be assigned to the background and toolbar.

Load background images

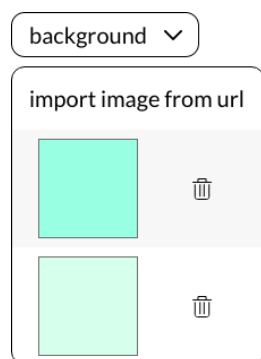
Loading images is possible via the web interface of the display, see section “Web Interface” on page 14.

On the web interface select the tab “Uploads” (see also Figure 13) – browse for the image to upload and select the button “upload”.



The background image should have the dimensions 1361x1361 and a resolution of 72dpi, RGB.

As soon as the image has been uploaded, it can be accessed on the Display by clicking on "background". An individual background image can be assigned to each board.

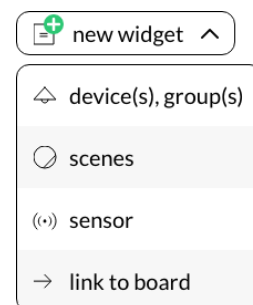


Create a widget

In the user interface for light control:

Click on the editor

icon: and select "new widget".



The following widget types are available, see Figure 10 and Figure 11.

The sensor widget (version: Display 4" plus) provides measurement and visualization of temperature, air pressure, humidity and air quality.

The appearance of the widgets is configurable, so widgets on your display may look different.

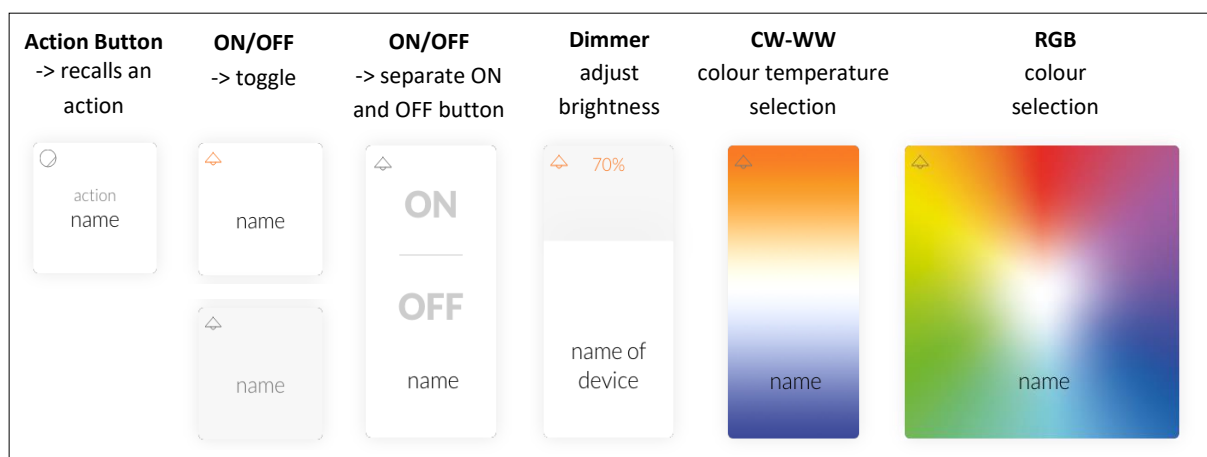


Figure 10 Widgets for devices and groups

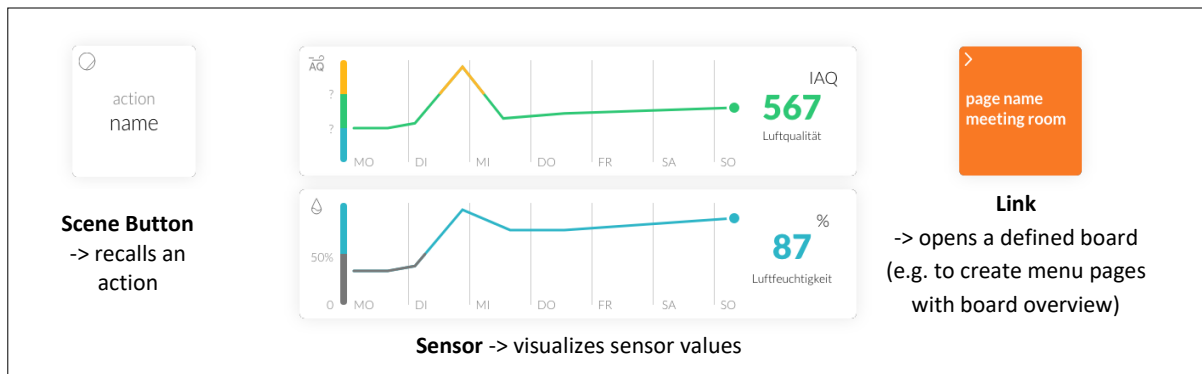


Figure 11 Widgets for scenes, sensors and links

Dialog box “New Widget”

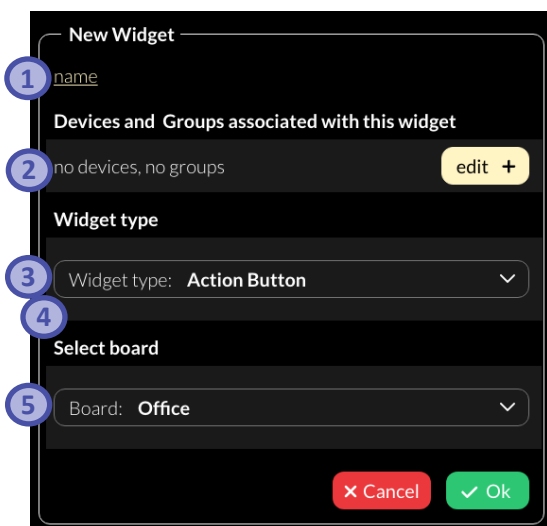


Figure 12 Pop-up “New Widget”

1. Define the name of the widget,
2. Select the devices and groups to be controlled.
3. Select / change the widget type,
4. Depending on the widget type, further settings can be made e.g. defining an action.
5. Select the board on which the widget should be displayed

Edit Widget

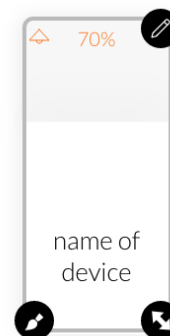
In the user interface for light control: click on the editor icon select the widget to edit:

Pencil icon:

- edit (opens dialog box: “create widget”)
- duplicate
- delete

Brush icon:

- edit style
- copy style
- assign style
- more (more style related options)



With the style colours and form of the widgets can be customized.

Arrow icon:

- drag the arrow key to change the widget size.

Drag and Drop:

- hold and move to change the order of the widgets.

Create scenes

The scene widget on the display enables recalling and saving of scenes

A short press of the scene widget recalls the scene.

A long press of the scene widget saves the current light status (brightness, colour temperature, colour) of the effective range as the scene. The following procedure should be followed:

1. Create a scene widget (with the intended scene number and effective range), see also “Create a widget” page 11.
2. Set up the room lighting as desired for the scene (using for example the other widgets on the display).
3. long press the previously created scene widget
4. a pop-up appears to confirm saving of the scene settings.

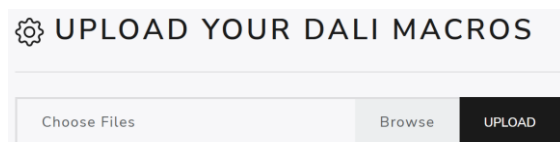
Info: The functionality to save scenes can be blocked in the settings from firmware version 1.2.0. on – see also “Settings” > “Access, Display Passwords”, page 7

Load Macors

Firmware version 1.2.0 and higher

Existing macros from the DALI Cockpit Macro Editor can be uploaded via the web interface of the display, see section “Web Interface” on page 14.

On the web interface select the Tab “Uploads” (see also Figure 13) – browse for the macro to upload and select the button “upload”.




Marcos to upload can be created in the DALI Cockpit – “DALI Commands..” in the tab: “Commands Over Time” (for more information see the DALI Cockpit Manual – Section Macros https://www.lunatone.com/wp-content/uploads/2018/03/DALI-Cockpit_StartUp_Guide_Manual_EN_M0010.pdf)

The uploaded macros can be used with the macro widget. When creating a widget (section “Create a widget”, page 11) select widget type: “Toggle Button for Macros” or “Action Button for Macros” (from firmware version 1.2.3 on available) – and from the drop down menu select the uploaded macro.

With “Toggle Button for Macros” macros can be started and stopped – this option should be used for macros with infinite loops or very long sequences of commands.

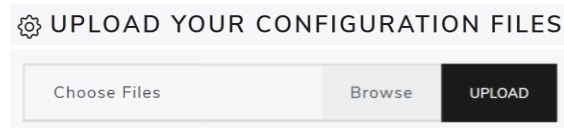
With “Action Buttons for Macros” (Firmware 1.2.3 and higher) macros can only be started.

Save and Load Configuration Files

The display configuration can be saved in the display menu  under “Settings” - in the “Save / Load” tab. The configuration file includes all settings, boards and widgets.

The saved configurations can be downloaded on the web interface (see section “Web Interface” on page 14) on the tab “Download” e.g., to transfer created display user interfaces to other displays.

The files can also be uploaded to a display on the web interface –under the respective display web interface - tab “Upload”.



Web Interface

The display web interface allows uploading images, loading firmware updates, and downloading/uploading display configuration files.

The web interface can be accessed via a web browser. The PC, phone or tablet and the display must be in the same network and address range.

The network settings and the IP address of the display can be found under "Settings" -> "Wi-Fi".

The web interface can be opened by entering the IP address of the display in the browser. The web interface has several tabs - for downloads, uploads and firmware updates see also Figure 13 below.

Firmware Update

Firmware updates are possible via the web interface of the display, see section "Web Interface" on page 14.

On the web interface on the tab "Firmware update" the firmware update file can be uploaded and the update can be started using the "Upload" button, see also Figure 13.

The update can take up to 15 minutes. After an automatic restart of the display, the update is complete.

Attention: With the browser "Microsoft Edge" problems can occur during updates. It is recommended to use a different browser for firmware updates.

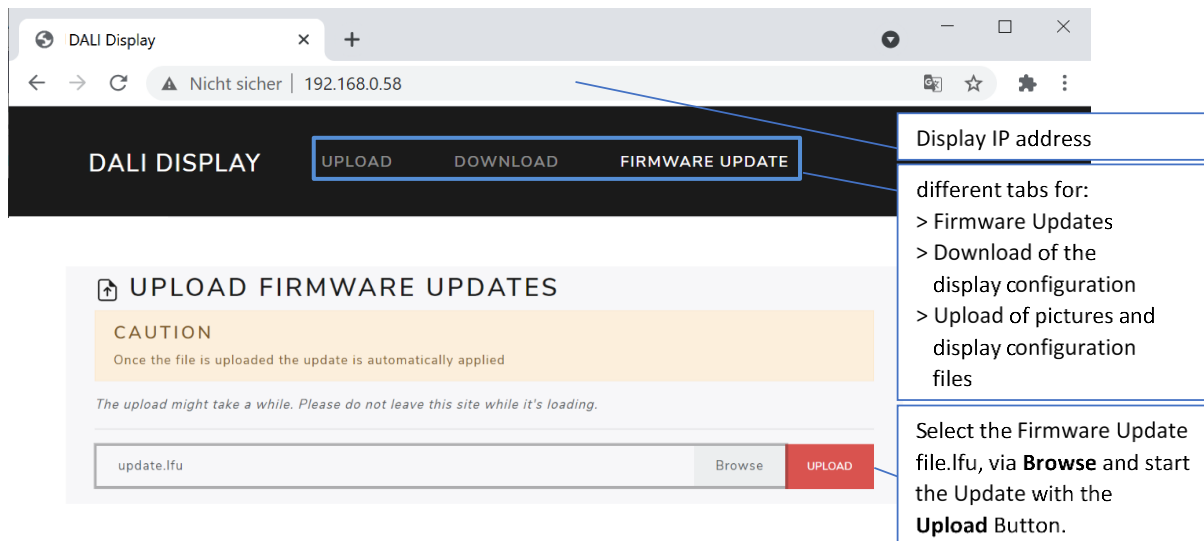


Figure 13 display web interface - tab Firmware Update

DALI Cockpit

Firmware Version 1.2.0 and higher

The DALI-2 Display can be used as a DALI Cockpit Interface (Cockpit Version 1.38 or higher), for configuration of the DALI devices on the connected DALI bus.

The Windows PC from which the DALI Cockpit is used and the DALI-2 Display need to be in the same local network.

When selecting the DALI bus interface in the DALI Cockpit: choose the option "Network" and "DALI-2 Display, DALI-2 IoT, DALI-2 WLAN" and specify the device's IP address see Figure 14. If the IP address is not known, the network can be searched for devices using the button next to the IP address input field:



The DALI-2 Display interface can then be selected in the DALI Cockpit device tree and allows addressing and configuration of all connected DALI devices, like other interface modules e.g. DALI USB, see also Figure 15

Warning: Addressing in the DALI Cockpit should only be either "System Extension" or "Read current device List"! If "new installation" is selected the device addresses are reassigned and the set effective ranges of widgets, zones, automations etc. in the display are no longer correct!

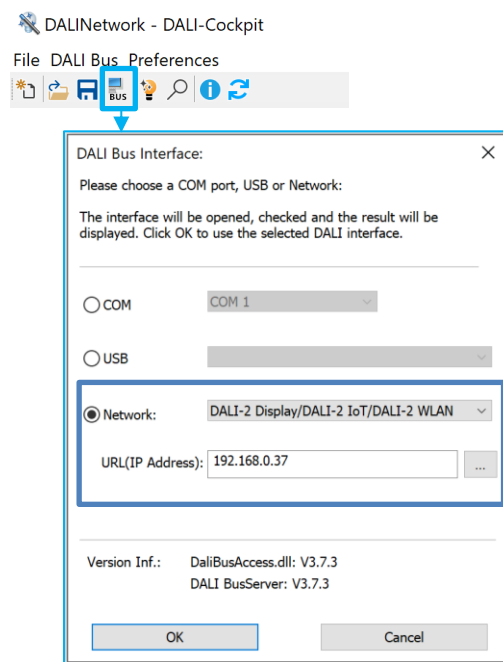
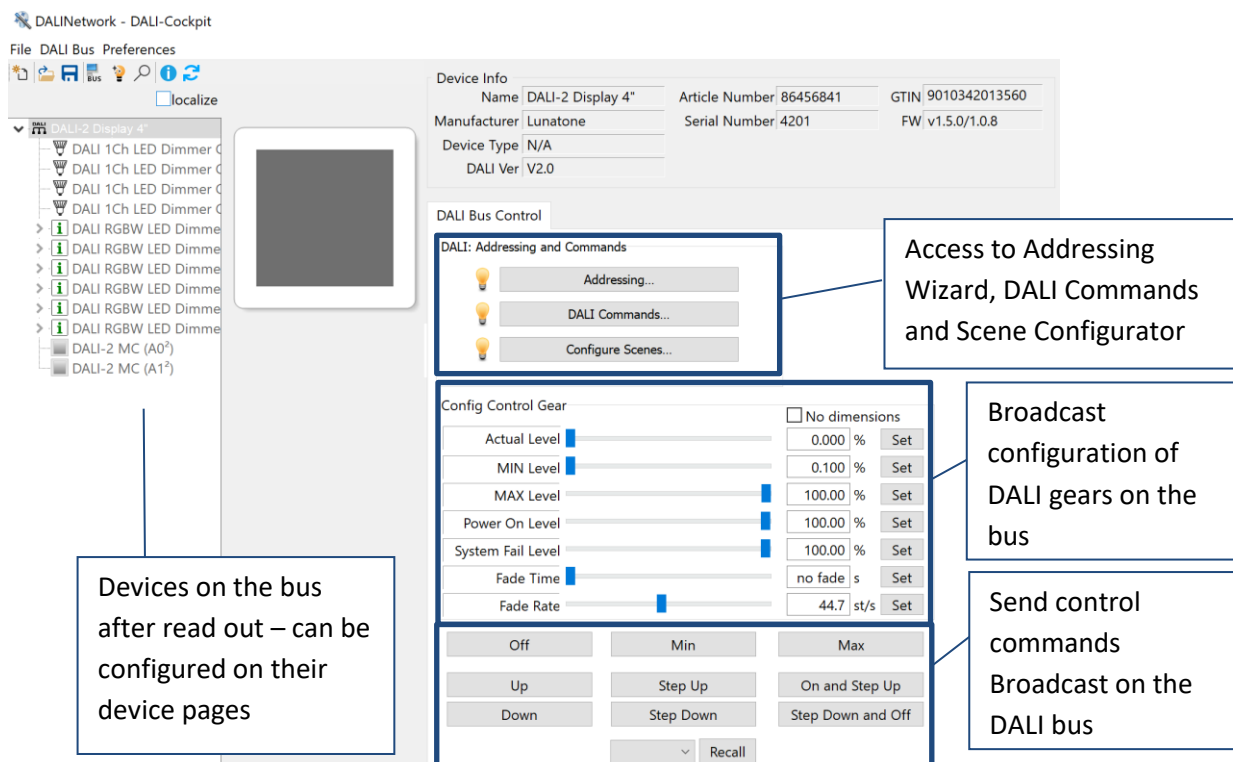


Figure 14 DALI Cockpit –DALI bus interface



Devices on the bus after read out – can be configured on their device pages

Access to Addressing Wizard, DALI Commands and Scene Configurator

Broadcast configuration of DALI gears on the bus

Send control commands Broadcast on the DALI bus

Figure 15 DALI Cockpit – display interface

Version Overview

	Display 4" 86456841	Display 4" Plus 86456841-P
customisable user interface	✓	✓
Integration via WLAN	✓	✓
dimming and switching	✓	✓
Tunable White and RGB colour management	✓	✓
configuration of scenes	✓	✓
configuration of groups		✓
create zones	✓	✓
integrated sensors for measurement and visualisation of sensor values such as temperature, air quality, air pressure and humidity		✓
addressing and set-up of DALI systems		✓
load Cockpit Macros	✓	✓
DALI Cockpit interface	✓	✓

Purchase Information

Art.Nr.: 86456841-W

DALI-2 Display 4", white
 capacitive touchscreen with 24-bit colour depth, control unit for 64 DALI addresses, customisable user interface
 white, 88x88x8.5mm
 GTIN 9010342013768

Art.Nr.: 86456841-P-W

DALI-2 Display 4" plus, white
 capacitive touchscreen with 24-bit colour depth, control unit for 64 DALI addresses, customisable user interface, advanced features: addressing, configure groups and scenes, control blinds, measure and visualize temperature, air-quality, air-pressure, and humidity
 white, 88x88x8.5mm
 GTIN 9010342013768

Art.Nr.: 86456841-B

DALI-2 Display 4", black
 capacitive touchscreen with 24-bit colour depth, control unit for 64 DALI addresses, customisable user interface
 black, 88x88x8.5mm
 GTIN 9010342013775

Art.Nr.: 86456841-P-B

DALI-2 Display 4" plus, black
 capacitive touchscreen with 24-bit colour depth, control unit for 64 DALI addresses, customisable user interface, advanced features: addressing, configure groups and scenes, control blinds, measure and visualize temperature, air-quality, air-pressure, and humidity
 black, 88x88x8.5mm
 GTIN 9010342013775

Additional Information and Equipment

Art.Nr.: 24166012-24HS

PS 24V, 300mA – fitting power supply

Lunatone DALI products

<https://www.lunatone.com/en>

Lunatone Datasheets and Manuals

<https://www.lunatone.com/en/downloads-a-z/>

DALI Cockpit - free configuration software for DALI systems

<https://www.lunatone.com/en/product/dali-cockpit/>

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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.