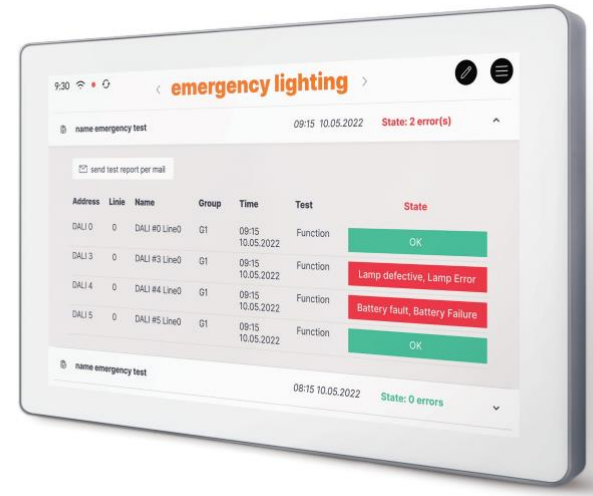
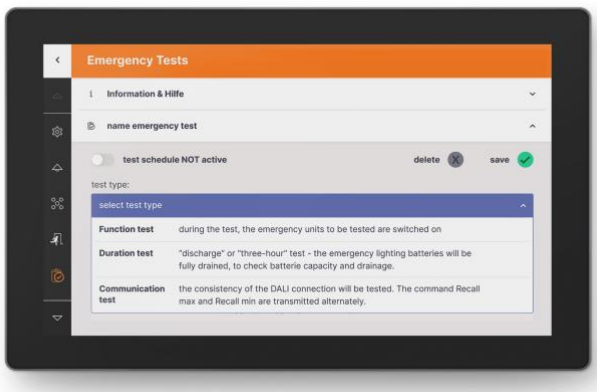
DALI-2 Display 7" Emergency





Datasheet

DALI-2 Control System

Multifunctional DALI-2 control
and operating unit for
DALI emergency light systems

DALI-2 Display 7" Emergency
Art.Nr.: 86456840-EM-W (white)
Art.Nr.: 86456840-EM-B (black)

Art.Nr.: 86456840-P-EM-W (white)
Art.Nr.: 86456840-P-EM-B (black)

DALI-2 Display 7" Emergency Control Device

Overview

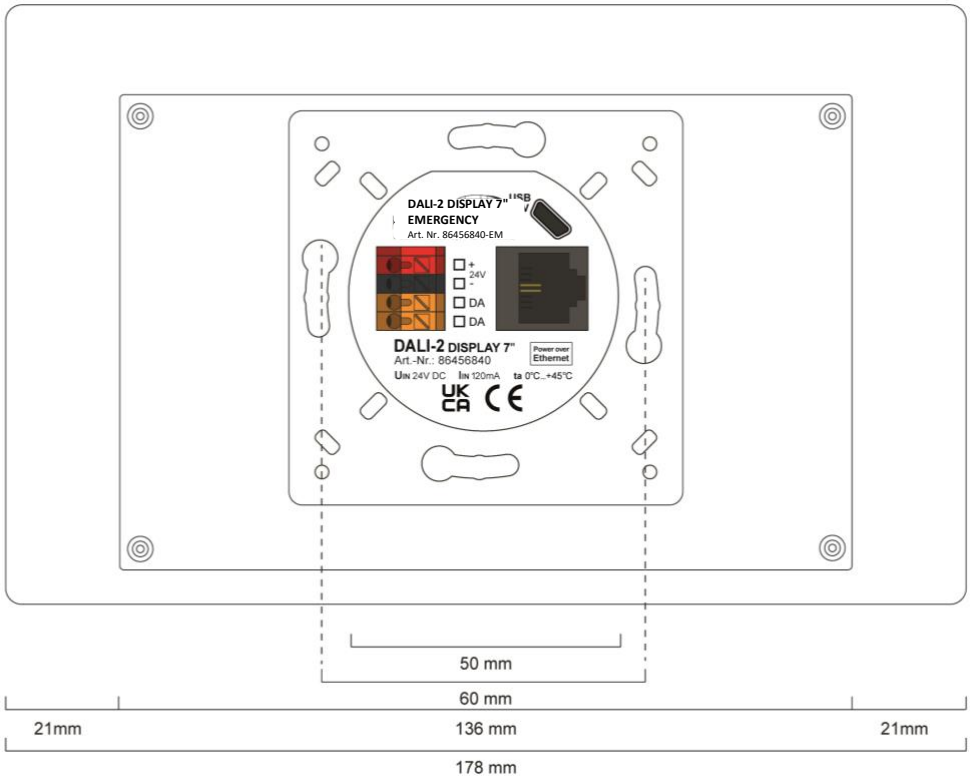
- Multifunctional control device for DALI Emergency Light systems
- 7" capacitive touchscreen with 24-bit colour depth
- Dimensions: 178 x 111 x 8 mm
- Addressing and set-up of the DALI emergency light system
- Configuration of emergency groups
- Easy monitoring and management of emergency light systems
- Scheduling and automatization of communication, function and duration tests
- Automatic Logging and e-mail support of test reports
- Multi-master capable: multiple operating devices can be used together with an emergency light display in the same DALI circuit
- Easy installation: the device can be installed on a flush-mounted installation box
- Supply via 24V power supply or Power Over Ethernet – POE
- Version with additional functions of the DALI-2 Display Plus for controlling the DALI system available Art.Nr. 86456840-P-EM-W and Art.Nr.: 86456840-P-EM-B (for the additional functions see DALI-2 display data sheet)

Specification, Characteristics

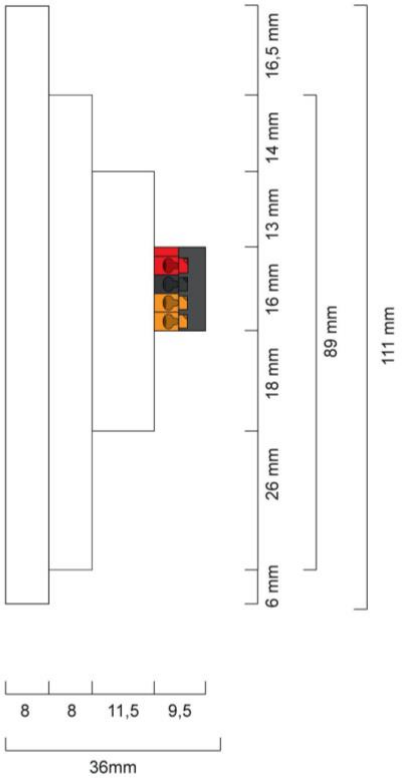
Type	**DALI Display 7" Emergency**	
article number	86456840-EM-W 86456840-P-EM-W	86456840-EM-B 86456840-P-EM-B

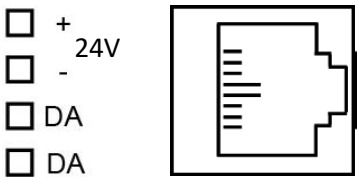
Electrical data:	
rated supply voltage display	24-56V DC
power consumption	3,5W
number of DALI lines	1
Current consumption DALI-line	<2mA
Interface	DALI

Mechanical data:		
ambient temperature	0…+45°C	
type of protection	IP20	
dimensions L x W x H	178 x 111 x 8 mm	
touchscreen size	7”	
touchscreen pixel	1024 x 600 px	
colours	24Bit	
colour display frame	white	black
colour housing	metallic grey	



dimensions Art.Nr.: 86456840-EM





Ethernet / POE

connection plan

Typical Application

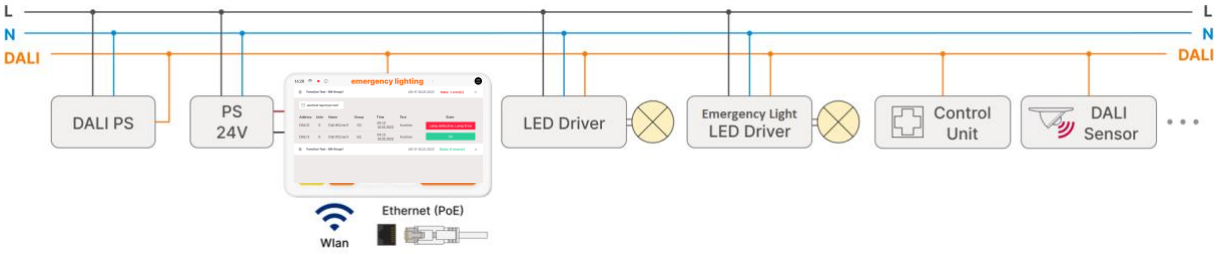


Figure 1 Typical Application – mixed DALI system

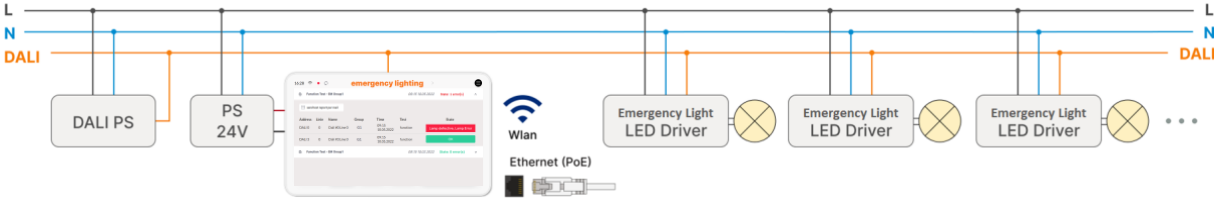


Figure 2 Typical Application 2 – Emergency light exclusive DALI system

Usage

The DALI-2 display 7” emergency is used for set-up, configuration and control of a DALI emergency light system. The DALI protocol standard IEC62386, is used to control the lighting equipment.

Via the display interface all luminaries can be controlled as groups and individual addresses.

The DALI-2 display offers scheduling of communication-, function-, and duration tests, an overview of available test reports of recently carried out emergency light tests and quick steps for error resolving of failed tests.

The DALI-2 Display Emergency Plus (Art.Nr. 86456840-P-EM incorporates all functionality of the DALI-2 Display Emergency described in this datasheet as well as the functionality of the DALI-2 Display Plus described in the DALI-2 Display datasheet.

Installation

- 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 can be powered over ethernet (POE) or 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 7" Emergency can be directly attached to a standard flush-mounted installation box/ electrical socket.

For assembly, the backplate has to be attached to the electrical socket, considering the orientation (connector facing upwards, see Figure 3). Then the display can be put in from above and fixed with the two screws from below

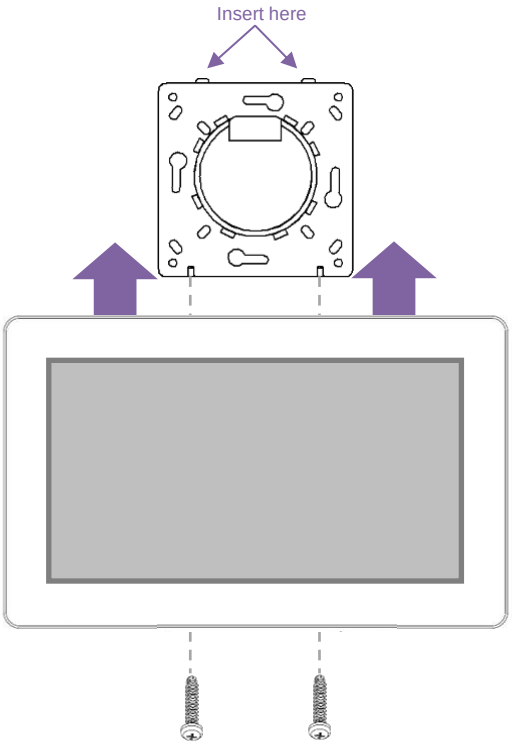


Figure 3 Mounting

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 7” emergency serves as a universal module for **control,** as well as **set-up and configuration** of a DALI emergency light system.

By default, the display shows the **user interface** for monitoring the emergency light system. The user interface of the DALI-2 emergency display is made up of 2 pages (boards): The **emergency lighting status** board and the **error resolving** board (details see pages 12 and 13 respectively)

The view between the 2 boards can be changed by swiping to the right / left or selecting the arrow in the top next to the heading. The length of the board is flexible: with an up / down swipe of your finger, you can navigate up and down.

The **set-up and configuration menu** can be opened with the menu button at the top right. general settings and emergency test settings can be found there, as well as the board overview

Menu button

Overview and settings see page 7.
DALI system set-up and configuration see page 9
Test schedules see page 10.
User Interface see page 12 and following.

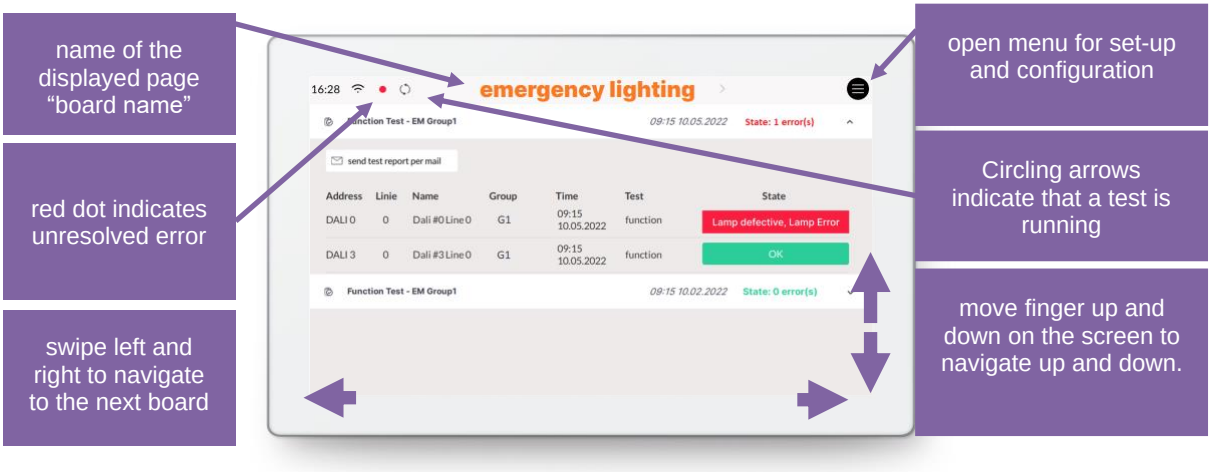
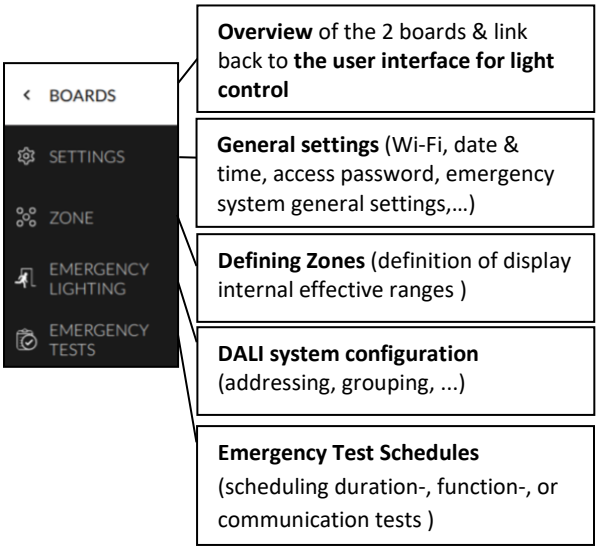


Figure 4 User Interface for Light Control DALI Display 7" Emergency

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, settings for the DALI emergency system and test schedules.

Navigation and menu items



Menu item: Boards

This tab provides an overview of the existing boards. By clicking on either of the boards, the selected board will be opened.

Clicking on the board tab again will open the board the configuration menu was entered from (also indicated with a yellow board title).

Menu item: General Settings

General settings for the display and the emergency lighting system can be made here:

- *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
  - Setting the *screensaver* percentage and timeout
  - Settings *night time brightness* percentage and time range
  - Settings *night time screensaver* percentage and timeout
- *Date, Time & Location*: setting the time zone, date, time and location coordinates
- *Wi-Fi/Ethernet*: 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. Specific boards can be password protected by selection.
- *Emergency Lighting -General Settings:* setting a prolong time to extend the operation of the emergency lighting even after the main power has been restored (max. 1h), (e.g. to bridge the restart time of high-pressure lamps in the event of brief mains voltage interruptions). The basic setting in the emergency lighting devices is 0 minutes. – The prolong time can only be maintained if the battery capacity is sufficient.
- *Emergency Lighting – Deactivation:* manually deactivating the emergency lighting, if the main power supply is switched off and the emergency lighting should not to be switched on (e.g. during maintenance, a holiday etc.), the emergency lighting devices can be deactivated in two ways:

- manually switching off the emergency lighting if the main power is already off
  → *REST*
- preventing the emergency lighting to turn on once the main power is turned off, within the next 15min
  → *INHIBIT*

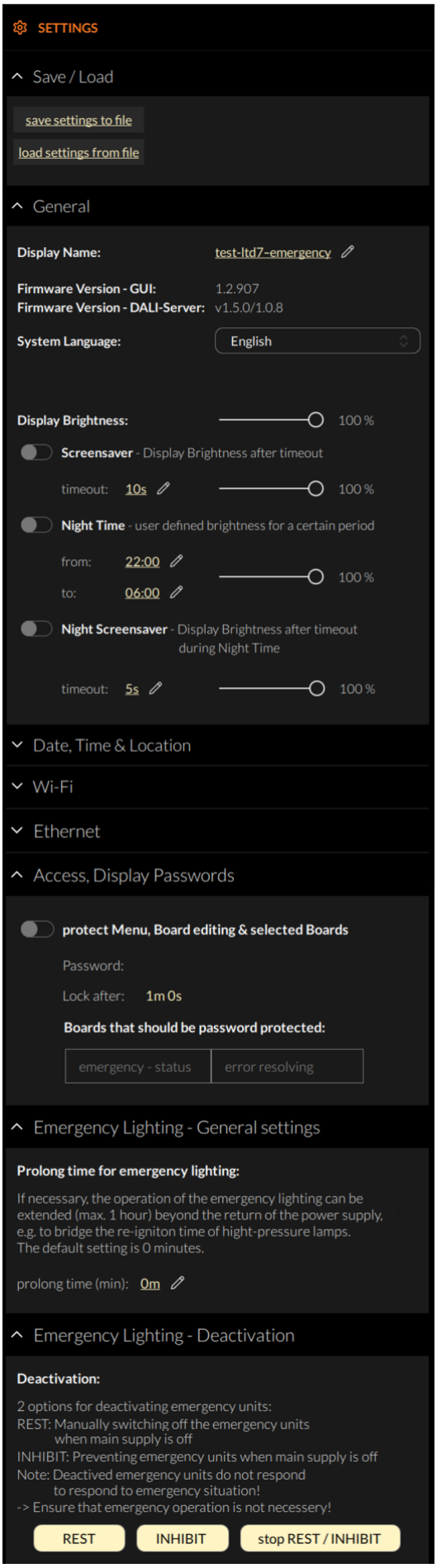
Important: Deactivated emergency lighting devices will not switch on in an emergency. **Ensure that no emergency lighting operation is required!**

When main power returns the emergency lighting will be activated again.

To activate the emergency lighting devices before switching on the main power supply, select " STOP REST / INHIBIT "

- *Emergency Lighting – Error Signalling:* Two DALI addresses can be specified for error signalling. This makes it possible to send the error status to a higher-level system via e.g. DALI RM relay modules or indicating the status ("OK"/ "Error") with signal lamps

- *Emergency Lighting – Notification:* set up notification via email (input email server and address) – notifications can be sent for all tests or only when errors are detected. Email settings can be tested via the button: send test report mail



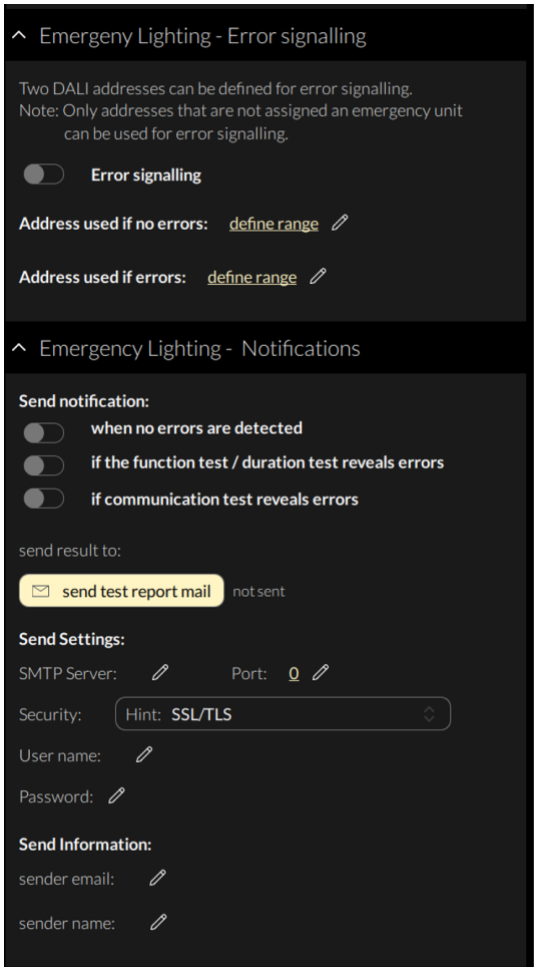


Figure 5 Overview Menu item: Display Settings

Menu item: Emergency Lighting Devices

The tab includes set-up and configuration options for the DALI system. Addressed and configured DALI device type 1 (DT1 - emergency lighting) devices of the connected DALI bus are read and listed here.
The DALI Display 7” emergency supports addressing/readdressing as well as DALI system extensions. The devices found can then be grouped.

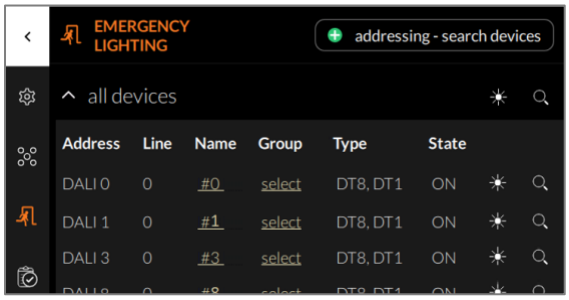


Figure 6 Menu item "Devices"

In order to control device groups from the display, the appropriate zones must also be defined - see section: Zones page 10

Only after the configuration has been completed, the test schedules can be created.

Addressing devices: Select "addressing - search" at the top right

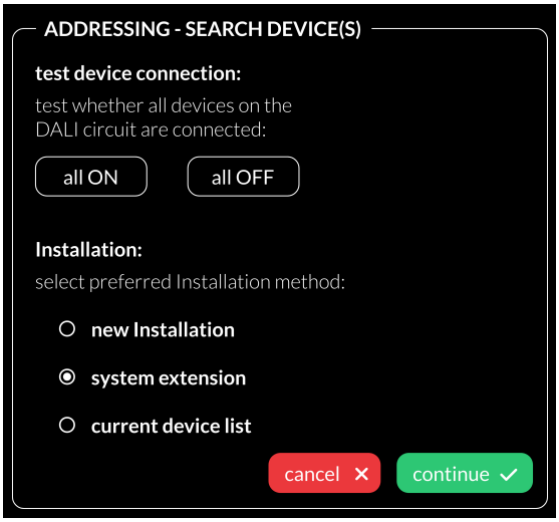


Figure 7 Pop-up addressing, search for devices

The “all ON” and “all OFF” buttons can be used to test whether all DALI devices are connected (see Figure 7).

Attention: some Emergency Lights are of the type ‘not maintained’ and therefore do not respond to DALI commands such as MAX/OFF. If normal DALI devices or maintained Emergency DALI devices do not respond please check the DALI bus power supply (not included in the display) and the device wiring.

Available options:

- current device list: loads an already addressed DALI bus
- system extension: if devices were added to an existing system; the existing system keeps its addresses and new addresses will be added.

- new installation: for new installations or re-addressing, devices that already had an address will also get a new address.

After read out/addressing, all emergency devices are displayed in the emergency lighting device list.

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

Assign groups: 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). – Attention: emergency lights of the type ‘not maintained’ will not respond the sent DALI control commands.

Magnifying glass: click on the magnifying glass to start the IDENTIFY process for emergency lighting. How emergency lights behave with the DALI command IDENTIFY depends on the respective manufacturer and should be taken from the documentation for the emergency lighting ballasts.

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

Menu item: Zones

Zones are a grouping of display internal DALI devices similar to 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.
Within the display from here on only zones or devices can be selected as destination address (DALI groups are not available).

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

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:

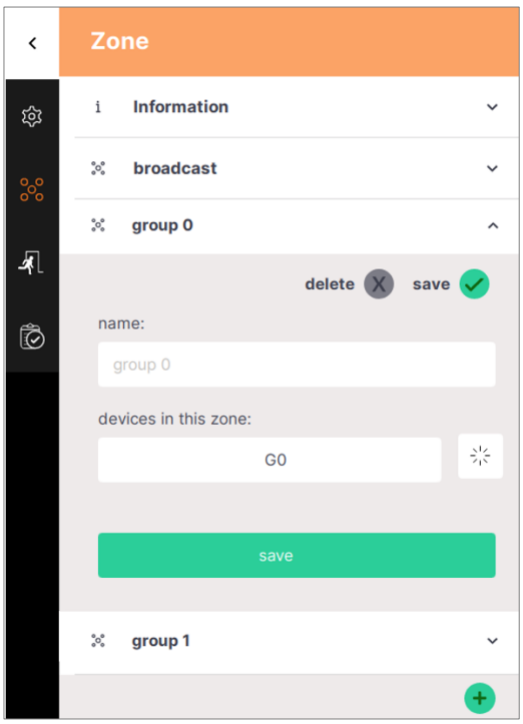


Figure 8 Menu item "Zones"

Menu item: Emergency Tests

In this section the communication-, function and duration tests can be schedules – for more details see section “Emergency Test Schedules” page 10.

Emergency Test Schedules

In the configuration menu section: Emergency Tests,  the three different emergency tests: communication test, function test and duration test can be created for different emergency devices or emergency groups and scheduled for different time intervals . For details on the test settings see Figure 10 below.

Additional schedules can be added using the Add-Button: 

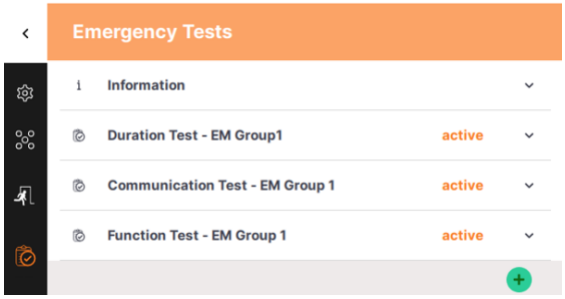


Figure 9 Menu item "Emergency Tests"

3 different test types can be selected:

- Communication Test: checking if the DALI communication with the device is possible
- Function Test: switching on the emergency lights to test the functionality
- Duration Test: the batteries of the emergency unit will be fully drained to check the battery capacity and discharge behaviour.
  Attention: Depending on the emergency lighting device, the duration test can take up to three hours. The batteries should be charged for at least 24 hours before starting the duration test.

For each test the devices that should be tested, a repetition interval and a start date and time can be selected. For each type of test different repetition intervals are available:

Communication test	
No repetition	only tested once on the specified day and time
every 10 minutes	tests periodically: checks all selected devices sequentially within 10 minutes. A new cycle is started after 10 minutes.
daily	the test is carried out daily at the specified time

Function test	
No repetition	only tested once on the specified day and time
weekly	the test is carried out once every week – on the weekday specified (input. “weekday”)
Jan - Dec	the test is carried out on the selected months on the first occurrence of the selected weekday (“repeated on week day”) and the specified time – (enables: monthy, every 2nd , 3rd etc. month up to yearly repetitions)

Duration test	
No repetition	only tested once on the specified day and time
Jan - Dec	the test is carried out on the selected months on the first occurrence of the selected weekday (“repeated on week day”) and the specified time (enables: monthy, every 2nd , 3rd etc. month up to yearly repetitions)

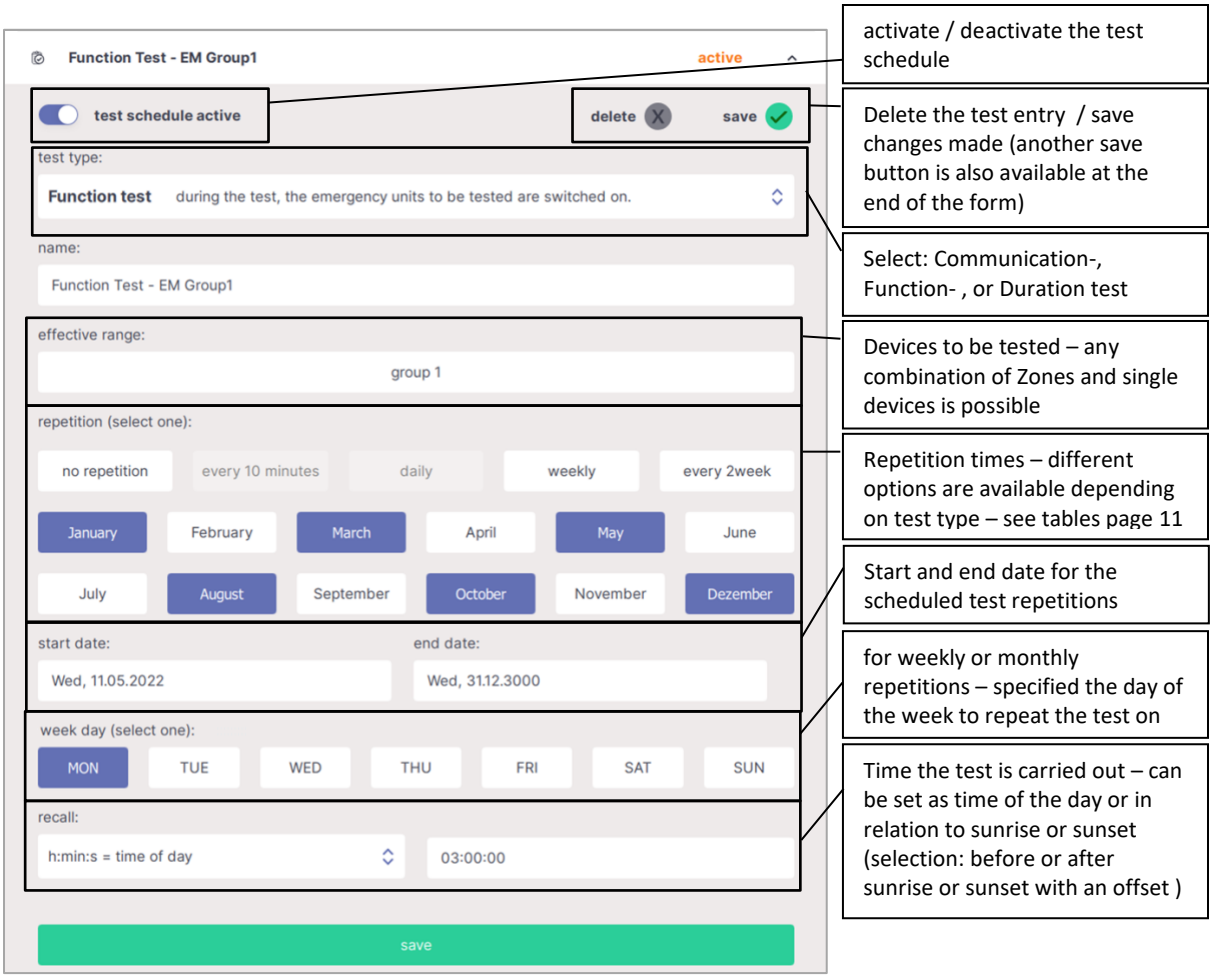


Figure 10 Configuration of emergency test schedules

User interface – Emergency Lighting

The user interface of the DALI Display is made up of two pages (boards): the report page and the error resolving page (see next section).

On the report page – the most recent result of each configured test is listed – when expanding the test list with the arrow on the right the test results for each device tested within the scheduled test can be reviewed.

The complete list of all carried out tests can be downloaded via the web interface of the display, see section “Emergency Test Reports” page 14.

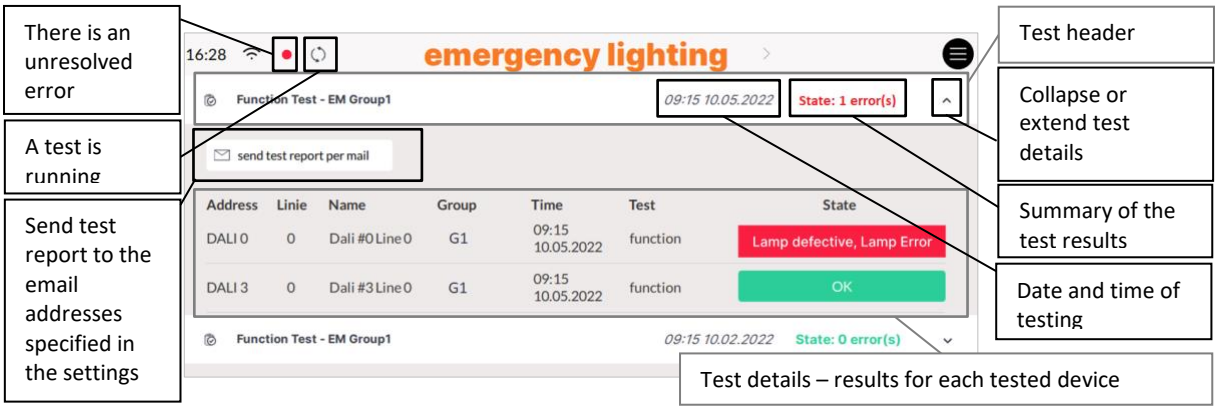


Figure 11 overview of test report page

Following test results are possible:

status:	description / details:
OK	Test successful – no error
lamp defective, lamp error	possible reasons: broken or wrong luminaire, or wrong wiring
battery fault, battery failure	possible reasons: battery capacity too low, battery defective, or battery wiring wrong
Error in emergency unit, charger failure	emergency unit defective
Communication error	possible reasons: emergency unit defective, emergency unit has been replaced but not addressed, or DALI wiring error
Test failure case 1, test could not be performed within 24 hours	Test could not be performed: duration test was interrupted, battery was not fully charged **Corrective action**: charge battery for at least 20 hours and start duration test manually
Test failure, case 2: function test was performed but previous duration test ended with an error (failed to reach full operating time) which has not been corrected	Even if the function test is performed successfully, the display shows the error message, to signal that the error detected during the last duration test has not been corrected. **Corrective action**: replace battery and perform duration test manually

User interface – Error Resolving

The Error resolving page offers an easy way to restart failed tests – repeating a test of single devices can be done with the repeat-test button next to each entry.

At the bottom of the error resolving page all created test schedules can also be started manually (without repetition). The result of this test will be added to the test report page. Herewith the error report can be updated after error resolving.

If the error was resolved for single devices and the status is OK the entry on the error resolve page will disappear with the next manual or scheduled test carried out.

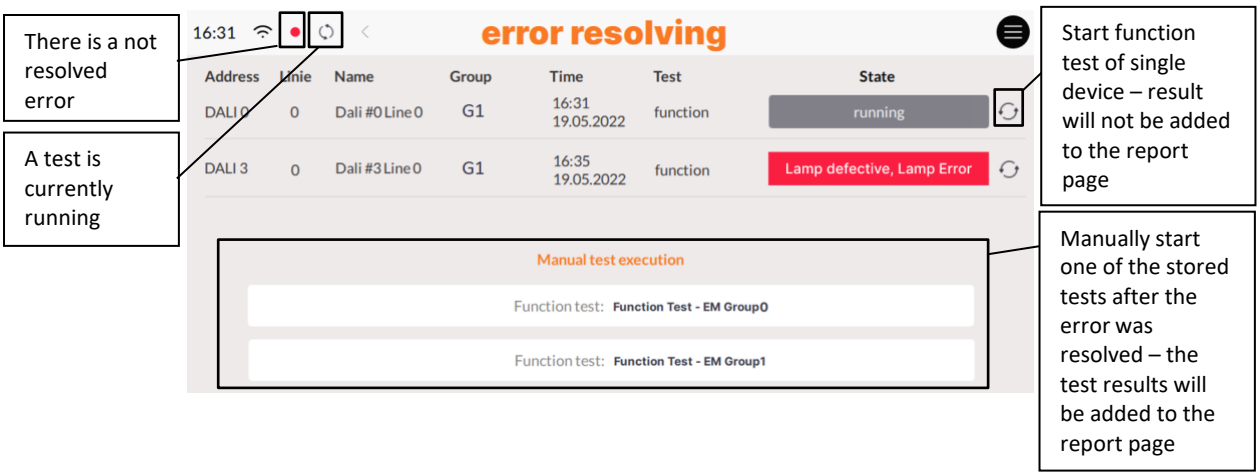
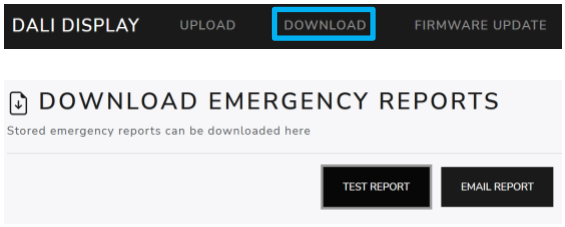


Figure 12 overview of error resolving page

Emergency Test Reports

The complete Test report logs can be downloaded on the display webinterface, see next section.

The report can be downloaded in the tab "Download"



Web Interface

The display web interface allows loading firmware updates, and downloading the emergency test reports.

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” -> “Ethernet” or “Settings” -> “Wi-Fi”.

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

Firmware Update

Firmware updates are possible via the web interface of the display, see previous section.

On the web interface on the tab “Firmware update” the firmware update file (.lfu) 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.

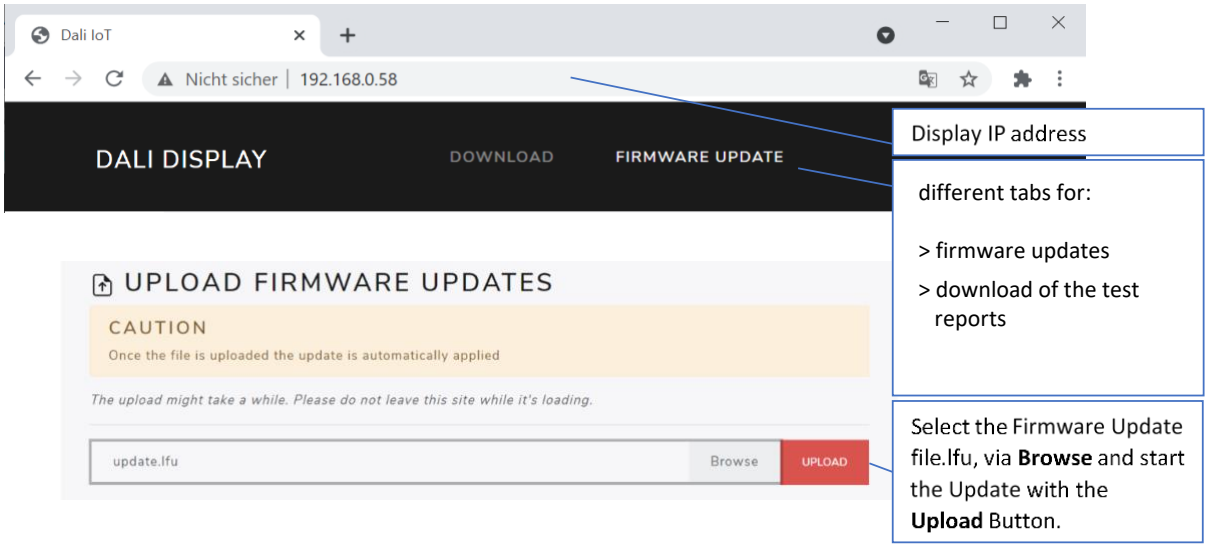


Figure 13 Web browser: Display Firmware Updates

DALI Cockpit

The DALI-2 Display can be used as a DALI Cockpit Interface (DALI 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 zones, test schedules etc. in the display are no longer correct!

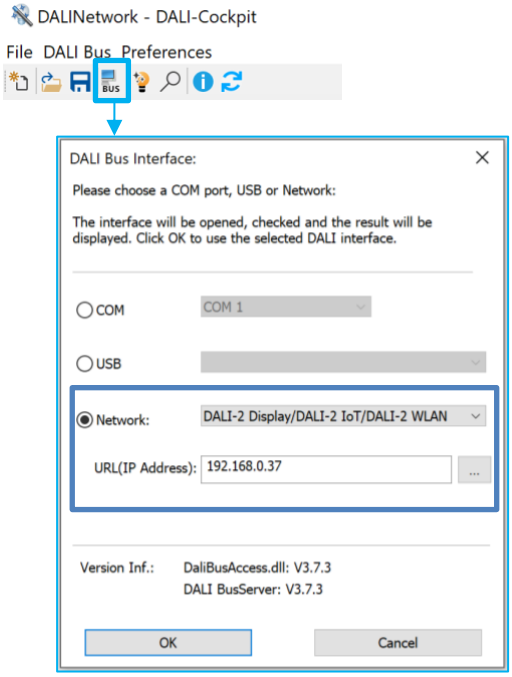


Figure 14 DALI Cockpit – selection of DALI bus interface

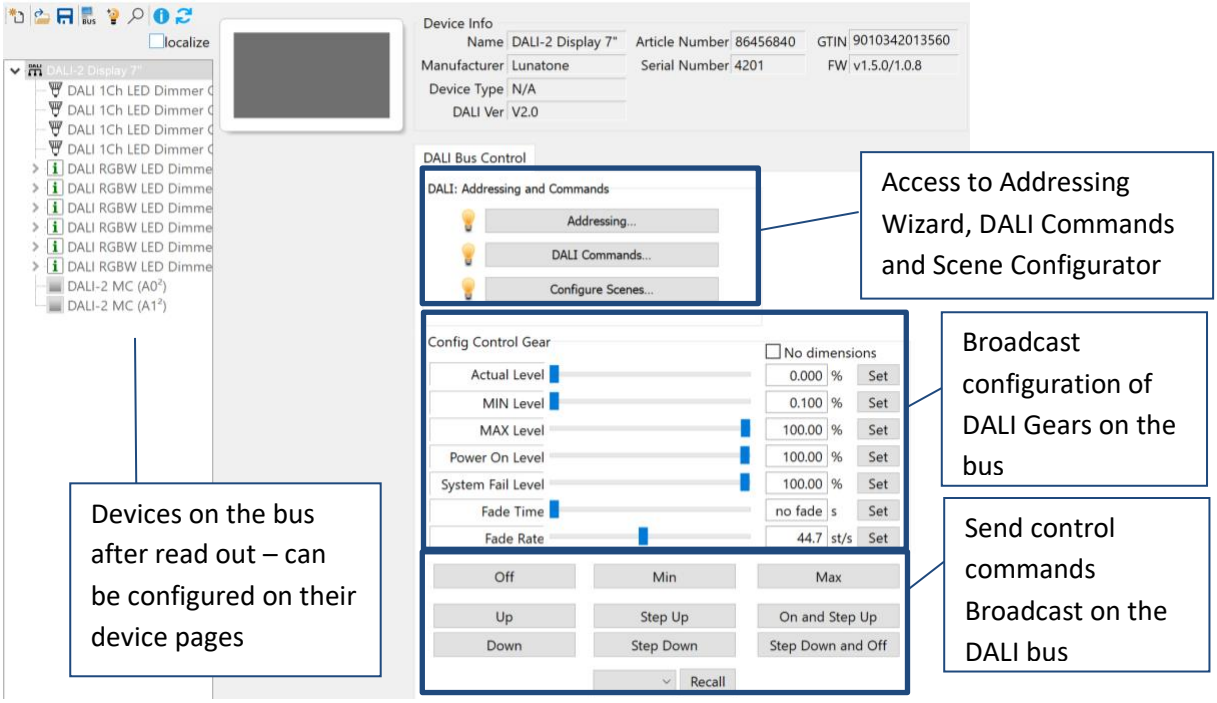


Figure 15 DALI Cockpit – display interface

Purchase Information

Art.Nr.: 86456840-EM-W
DALI-2 Display 7" Emergency, white capacitive touchscreen with 24-bit colour depth, emergency light unit for 64 DALI addresses, white, 178 x 111 x 8mm

Art.Nr.: 86456840-EM-B
DALI-2 Display 7" Emergency, black capacitive touchscreen with 24-bit colour depth, emergency light unit for 64 DALI addresses, black, 178 x 111 x 8mm

Art.Nr.: 86456840-P-EM-W
DALI-2 Display 7" Emergency, white capacitive touchscreen with 24-bit colour depth, emergency light unit for 64 DALI addresses additionally including all functionality of the DALI-2 Display Plus see datasheet: https://www.lunatone.com/wp-content/uploads/2020/11/86456840_DALI-2_Display_7Inch_EN_D0095.pdf ,
white, 178 x 111 x 8mm

Art.Nr.: 86456840-P-EM-B
DALI-2 Display 7" Emergency, black capacitive touchscreen with 24-bit colour depth, emergency light unit for 64 DALI addresses additionally including all functionality of the DALI-2 Display Plus see datasheet: https://www.lunatone.com/wp-content/uploads/2020/11/86456840_DALI-2_Display_7Inch_EN_D0095.pdf ,
black, 178 x 111 x 8mm

Accessories

Art.Nr.: 24166012-24HS
PS 24V, 30mA – fitting power supply

Art.Nr.: 86451848
Display Bus Extension
Module, DALI system extension, DIN rail,
https://www.lunatone.com/en/product/dali-2-display-bus-extension-2/

Additional Information

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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support@lunatone.com

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.

