WAGO I/O SYSTEM 750

DALI Lighting System Configuration via the Visualization of WAGO-I/O-PRO CAA

Application Note

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WAGO INNOVATIVE CONNECTIONS

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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we appreciate any information or suggestions for improving the documentation.

We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally protected by trademark or patent.

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1 Important Notes

To ensure quick installation and start-up of the units, we strongly recommend that the following information and explanations are carefully read and adhered to.

1.1 Legal Principles

1.1.1 Copyright

1.1.2 Personnel Qualification

The use of the product detailed in this document is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. WAGO Kontakttechnik GmbH & Co. KG declines any liability resulting from improper action and damage to WAGO products and third party products due to non-observance of the information contained in this document.

1.1.3 Intended Use

For each individual application, the components are supplied from the factory with a dedicated hardware and software configuration. Modifications are only admitted within the framework of the possibilities documented in this document. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH & Co. KG.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH & Co. KG.

1.2 Scope of Validity

This application note is based on the stated hardware and software of the specific manufacturer as well as the associated documentation. This application note is therefore only valid for the described installation.
New hardware and software versions may need to be handled differently.

Please note the detailed description in the specific manuals.

1.3 Symbols

Attention
Marginal conditions that must always be observed to ensure smooth operation.

Note
Routines or advice for efficient use of a device and software optimization.

Additional information
References to additional literature, manuals, data sheets and INTERNET pages.

2 Description

This document describes the configuration of a DALI lighting system via the visualization of WAGO-I/O-PRO CAA. The parameters of the DALI lighting system (e.g. group assignment, scene configurations...) are preset using special ready-made input masks and transmitted to the electronic ballasts via the DALI master module 750-641.

3 Programming the WAGO Fieldbus Controller

In the main program (PLC_PRG) of the WAGO fieldbus controller, only the **FbDALI_Joblist** module and the **DALI_Config** program need to be activated and parametrized. The program module **DALI_Config** controls the data exchange with the visualization described in chapter 4.

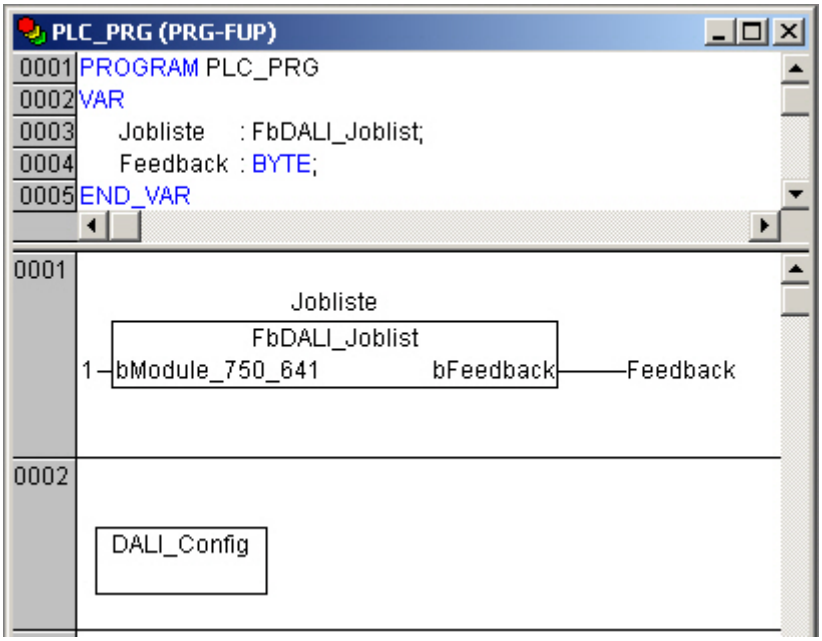


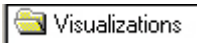
Figure 1: Program view

4 Configuration Interfaces

4.1 Creating a Visualization Page

1.) Clicking on the index card visualization 

(bottom left)

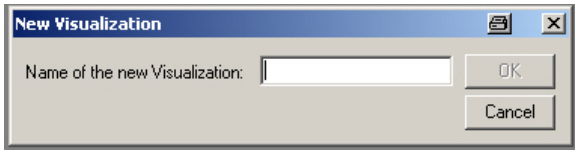
2.) The folder 

appears at the top left.

3.) Click on the folder **Visualizations** using the **right** mouse button.

4.) Selection of the option **"Add object..."**

5.) Specify the name of the visualization and confirm with "**OK**"



4.2 Calling-Up a DALI Configuration Interface

1.) Calling-up the menu point "**visualization**"

2.) Defining the frame for the configuration interface

3.) Selection of the respective configuration interface from the menu **”Select visualization“**

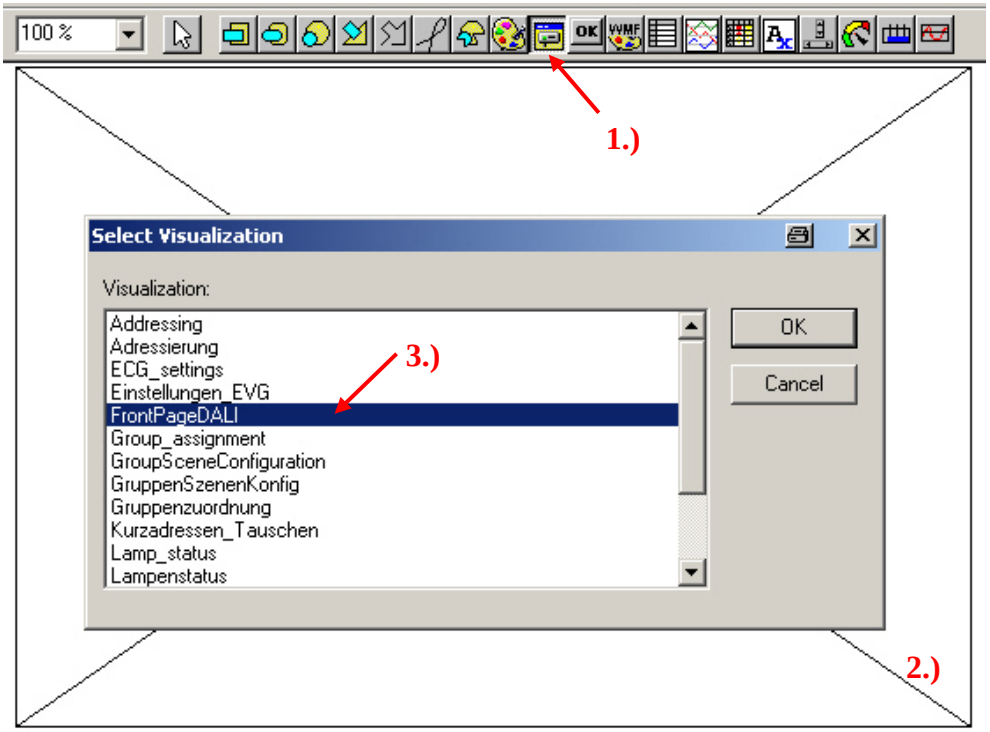


Figure 3: Calling-up the DALI configuration interface

4.3 Configuring the DALI Configuration Interface

1.) Double click on the visualization element

2.) Select category **"Visualization"**

3.) Remove the tick for frames **"Draw“** and **"Clip“**

4.) Activate **"Fixed"** view

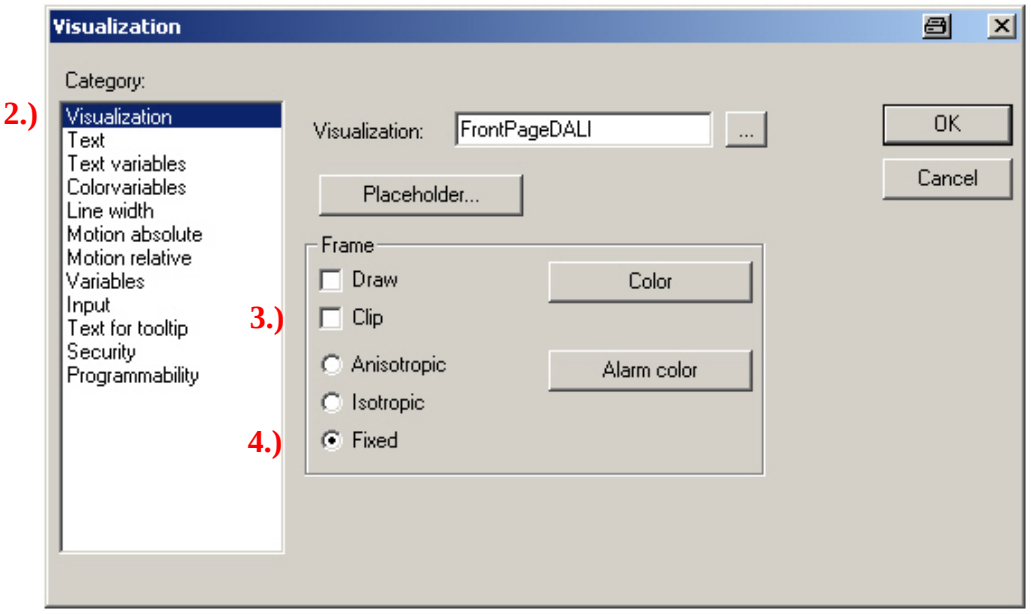


Figure 4: Configuration of the visualization elements

4.4 Description of Configuration Interfaces

4.4.1 Start Page

The DALI line to be configured can be selected from the **Front page DALI**. Each DALI line is controlle via a DALI master module 750-641. DALI lines to which no joblist has been assigned yet are shown in red in the visualization. All other DALI lines are shown in green.

Navigating on the different DALI configuration interfaces is done via the selection menu from the front page

The ***"Search short address"*** button is used to read out all short addresses that are identified by the DALI master module. The short addresses are stored in the module's internal memory.

Attention
Once the DALI bus line is connected, it takes some minutes for the DALI master module until the short addresses available can be read from the memory.

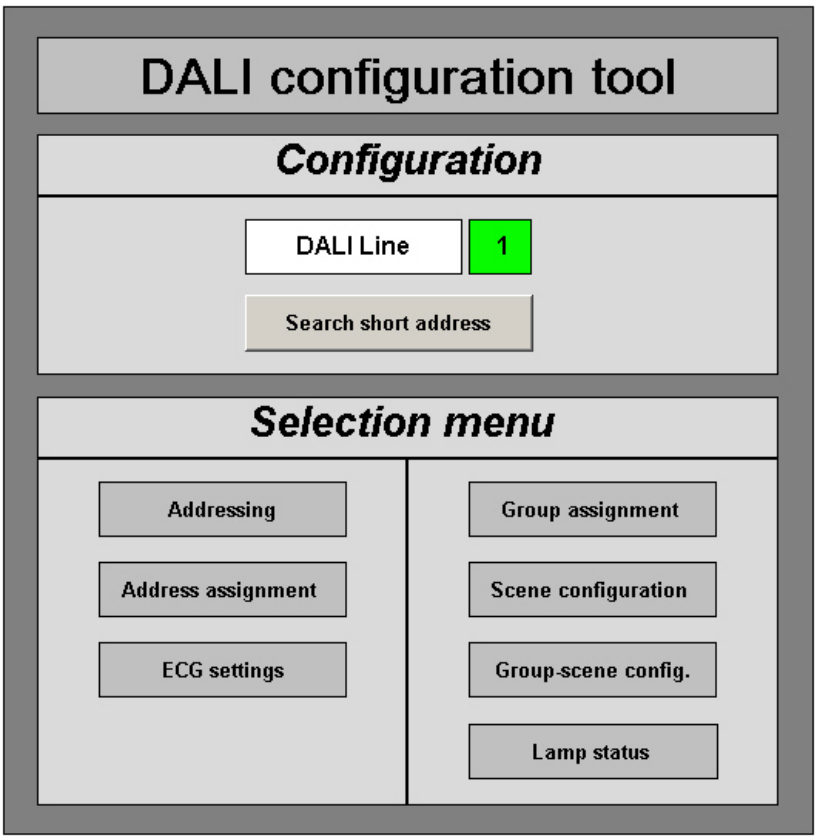


Figure 5: Front page of the DALI configuration tool.

4.4.2 Addressing

Allocating short addresses can be controlled via the **“Addressing“** page. Furthermore, the parameters set in the DALI electronic ballast (e.g. group assignment, scene values...) can be reset back to factory setting..

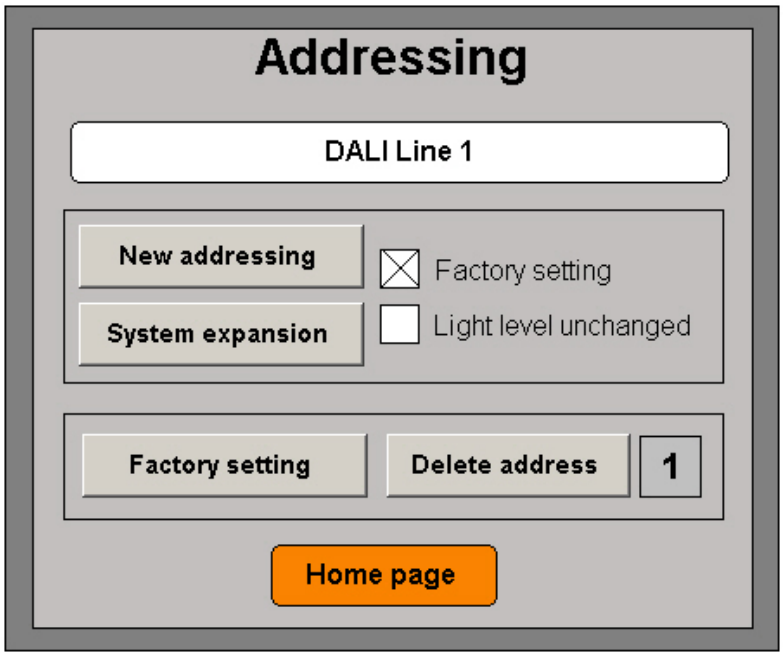


Figure 6: Addressing visualization

Before new addressing can be performed, all DALI devices are set back to factory setting when the ***"Factory setting"*** field is activated.

During addressing, the lighting is not switched on when ***"Light level unchanged"*** is activated.

New addressing: Pressing this button for **more than two seconds** will initiate new addressing of the connected DALI devices. No other buttons can be used during new addressing.

System extension: Pressing this button only the DALI devices are addressed that have no short address yet.

Factory setting: Pressing this button **for more than two seconds** will reset all connected DALI devices back to factory setting (see table in section 5.2).

Delete address: The selected short address is deleted by pressing this button.

4.4.3 Address Assignment

Changing and finding short addresses can be done using the **“Sort short addresses“** page.

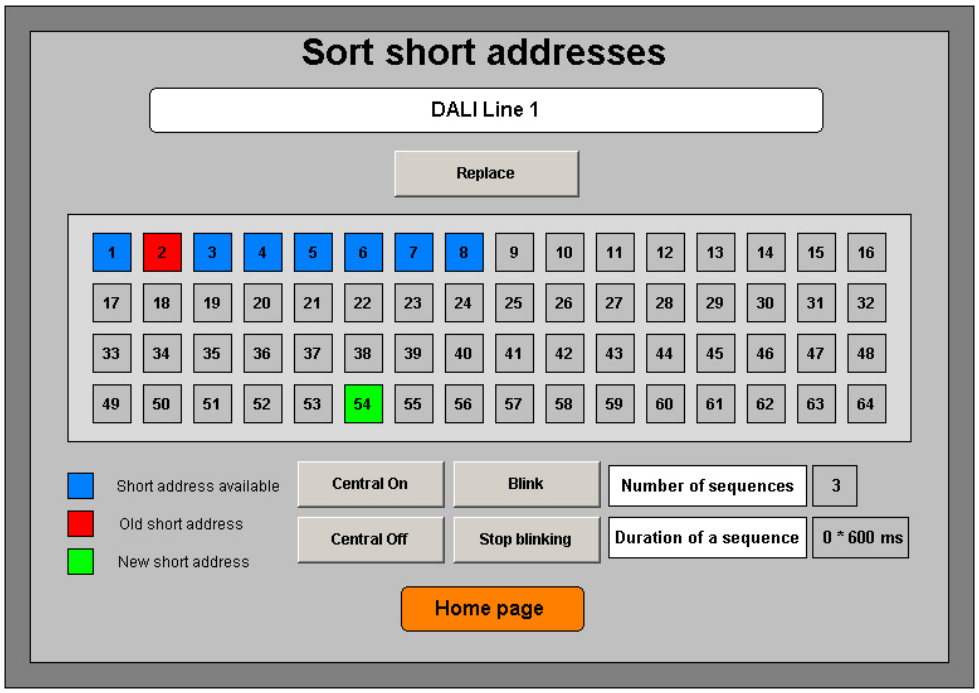


Figure 7: Visualization for changing short addresses

Blink: To find a short address, a blink command can be sent to the DALI devices. This short address will be shown in red. Then press the ***”Blink“*** button to find the short address. The blink time can be set using parameters ***"Number of sequences"***and ***“Duration of a sequence”***. A blinking sequence can be stopped at any time by pressing the ***“Stop blinking“*** button.

Central On / Central Off: Pressing these buttons, the whole DALI line lighting can be switched on and off via a broadcast command.

Change: Addressing the DALI devices is done in a random order. To sort the addresses in a logical sequence, it is required and helpful to change the addresses. The short addresses can be simply marked by means of the visualization. Both old (red) and new (green) short addresses are marked via mouse click. The short addresses can then be changed by pressing the ***“Change“*** button.

Note
The most effective way of sorting short addresses is by setting all short addresses available on the upper range of addresses. Then the sorting procedure can be started.

4.4.4 ECG Settings

The configuration parameters of the electronic ballasts can be read or written via the **"Electronic ballast settings"** page. The values can be written for individual short addresses or groups. Only the short addresses can be read.

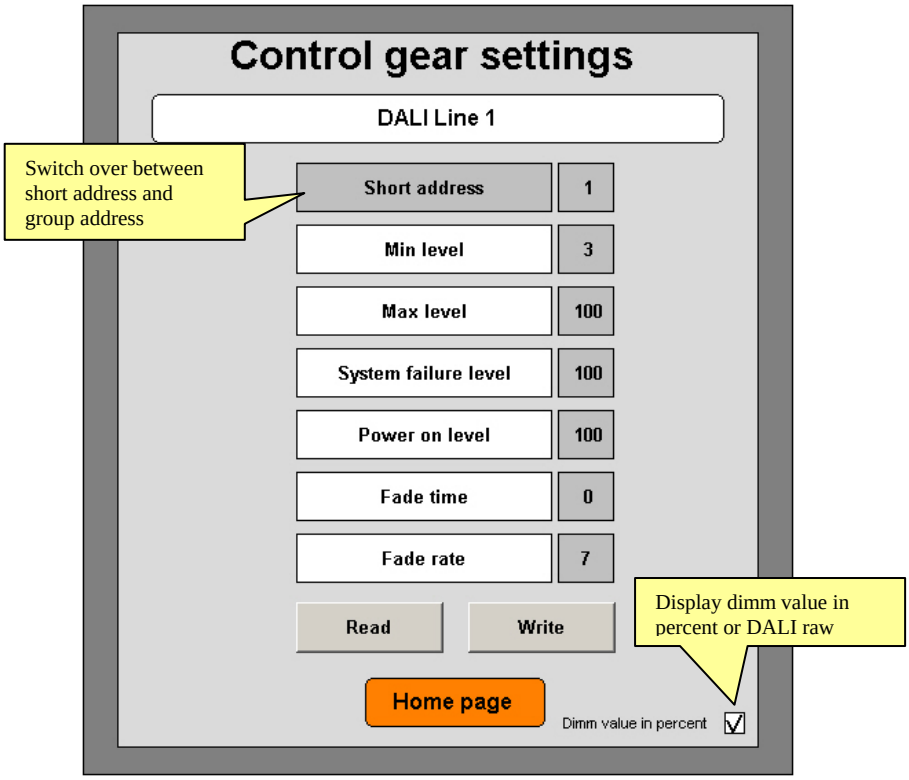


Figure 8: Settings of the electronic ballasts

Min level: This value defines the lower limit of the dimming range.

Max level: This value defines the upper limit of the dimming range.

System failure level: This parameter defines the dimming value when a system failure occurs (e.g. bus short-circuit).

Power on level: Switch-on lighting level when the mains power is restored.

Fade time: The fade time defines the fade speed at an absolute dimming level. The dimming speed can be read off from the table shown in section 5.1 in relation to that parameter.

Fade rate: The values of this parameter range from 1 to 15. This parameter determines the dimming speed at a relative dimming level. The dimming speed can be read off from the table shown in section 5.1 in relation to that parameter.

4.4.5 Group Assignment

Assigning short addresses to the group numbers is done in the **Group assignment** visualization.

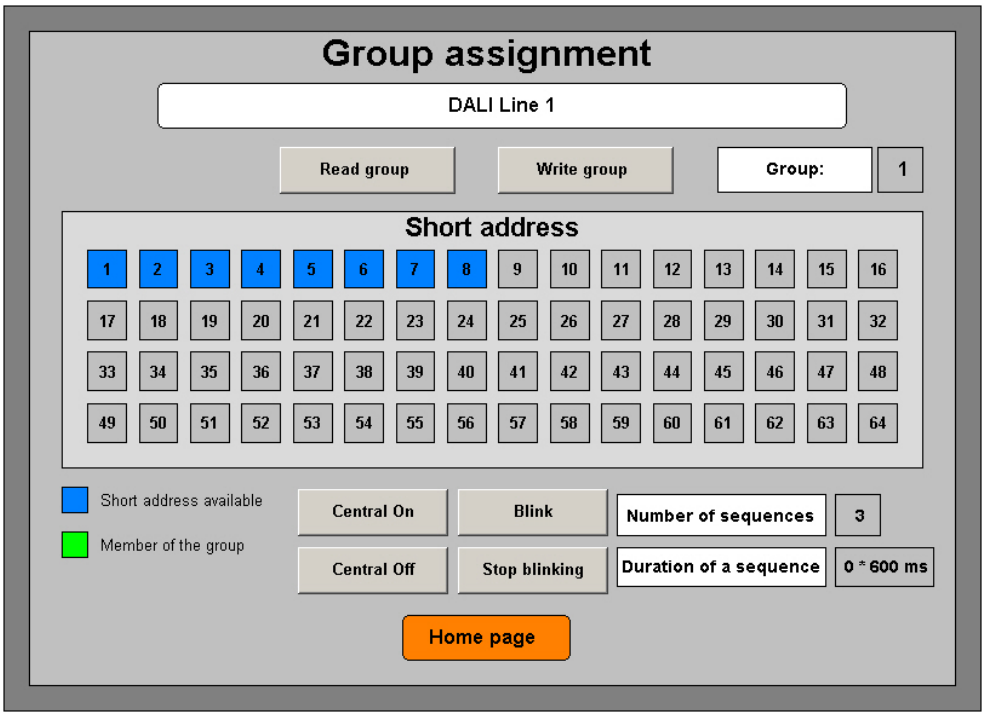


Figure 9: Group configuration

The short addresses available in the DALI line are shown in blue. Assigning the short addresses to the groups is done by clicking on the buttons. Members of the group are shown in green.

Read group: Reading group assignments

Write group: The group assignments are written into the memory of the DALI devices.

Blink: Group assignments available are shown in green. A blinking sequence can be activated for the members of group by pressing the ***"Blink"*** button. The blink time can be parameterized. A blinking sequence can be stopped at any time by pressing the ***"Stop blinking"*** button.

Central On / Central Off: Pressing these buttons, the whole DALI line lighting can be switched on and off via a broadcast command.

4.4.6 Scene Configuration

The configuration interface **Scene configuration** is used to define DALI light scenes.

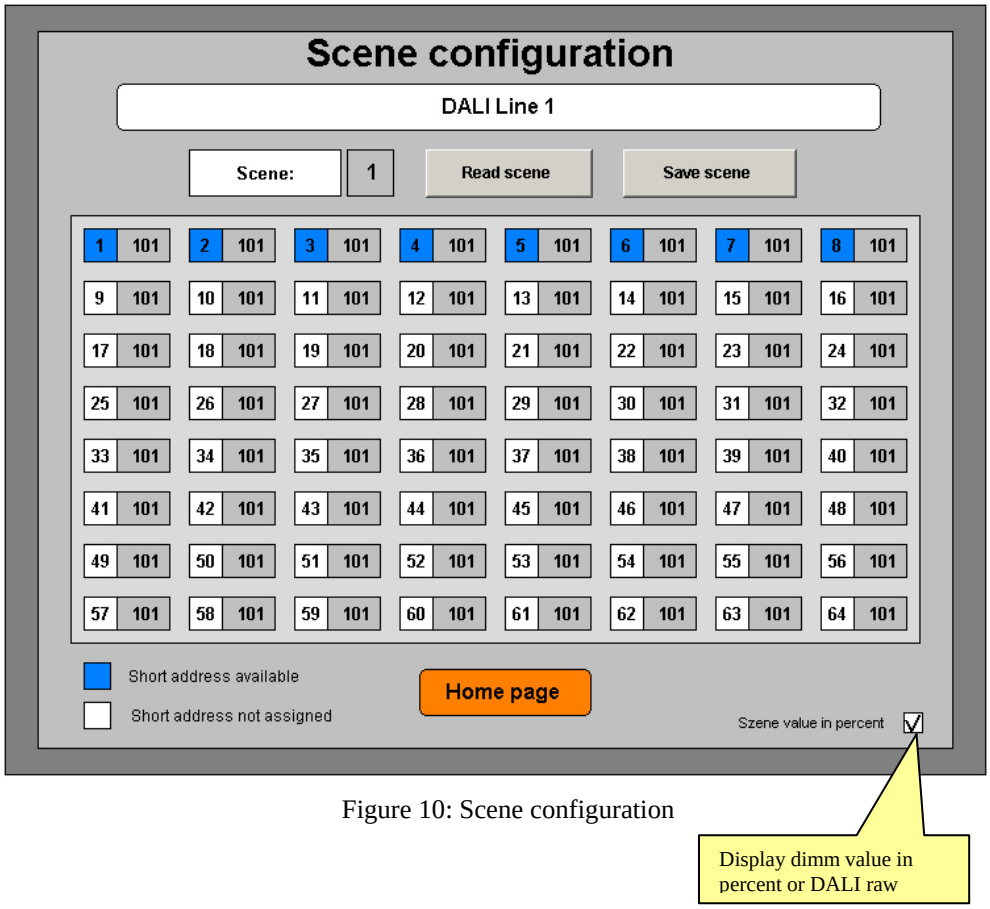


Figure 10: Scene configuration

All short addresses available in the DALI line are shown in blue. The scene values can be parameterized for each individual short addresses. The default value is 101 % or 255. This value means that no change occurs when calling the scene. As a result, the short address is removed from the scene assignment.

Read scene: The scene configuration is read for the selected scene number.

Save scene: The scene configuration is saved in the electronic ballasts for the selected scene number.

4.4.7 Group Scene Configuration

The group-scene configuration makes the scene configuration easier, if every DALI device in the group will get the same scene value.

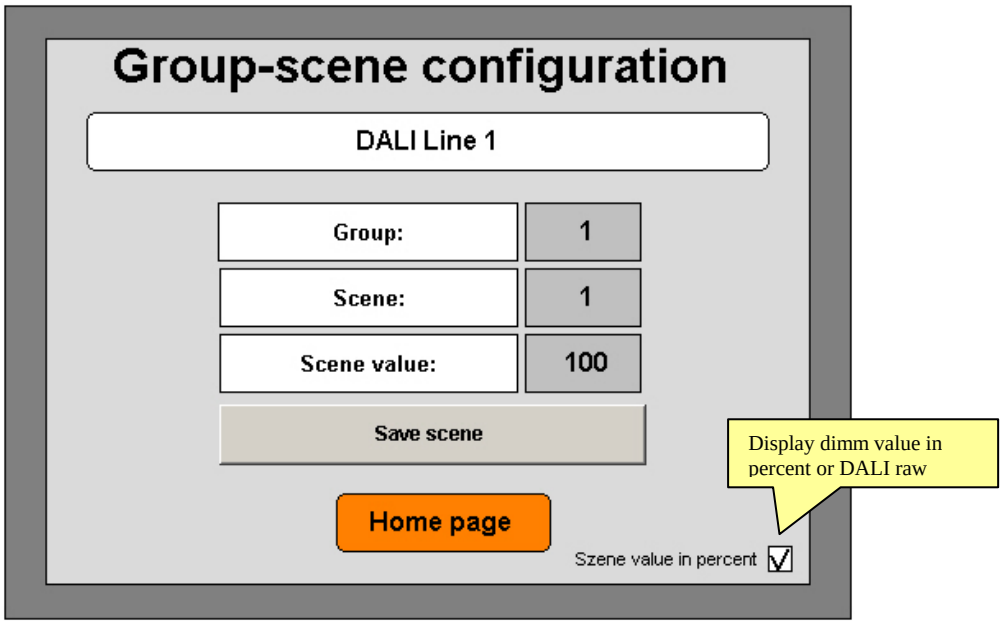


Figure 11: Scene configuration with group commands.

Save scene: If you press the button ***"Save scene"***, every ballast of the selected group saves the scene value in the selected scene.

4.4.8 Lamp Status

The status of the electronic ballasts can be queried using the **“Query ECG status“** visualization.

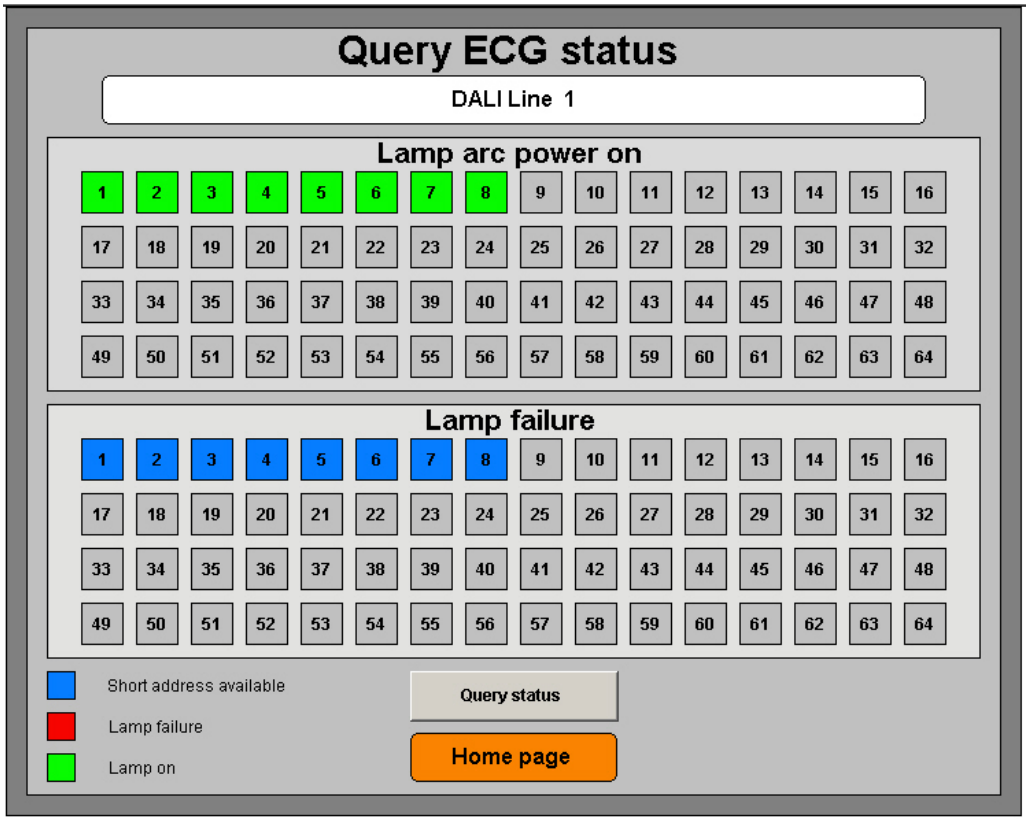


Figure 12: Status query

Clicking on the ***“Query status“*** button will send a status query to the electronic ballasts, which will be shown on the display.

The upper part of the display shows which lamps are on. The lamps that are on are shown in green. Lamp failures are shown in red in the lower part of the display.

5 Tables

5.1 Fade Time and Fade Rate

Value	Fade time [s]	Fade rate [Fades/s]
0	< 0.707	not usable
1	0.707	357.796
2	1.000	253.00
3	1.414	178.898
4	2.00	126.500
5	2.828	89.449
6	4.000	63.250
7	5.657	44.725
8	8.000	31.625
9	11.314	22.362
10	16.000	15.813
11	22.627	11.181
12	32.000	7.906
13	45.255	5.591
14	64.000	3.953
15	90.510	2.795

5.2 Factory Set Device Parameters

Parameter	Default value
Min-level	Physically smallest value
Max-level	100 %
Fade rate	7
Fade time	0
Power on level	100 %
System failure level	100 %
Group assignment	All deleted
Scene values	No scene defined

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