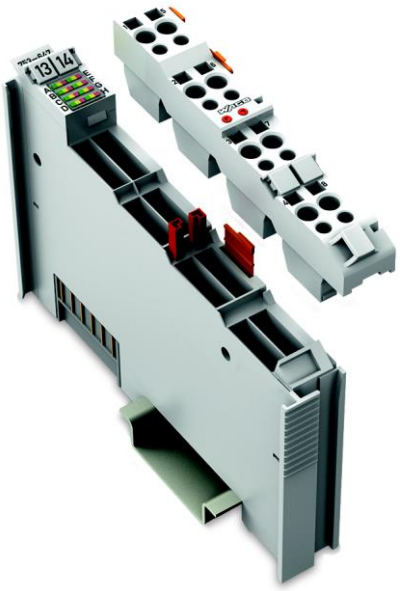
e!COCKPIT Application note

Building

Automation



WAGO-I/O-SYSTEM 750
DALI Multi-Master, 753-647
Configuration of DALI Sensors

2021-11-08

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Information about This Documentation

Copyright

Number Notation

Table 1: Number Notation

Number System	Example	Comment
Decimal	100	Normal notation
Hexadecimal	0x64	C notation
Binary	'100' '0110.0100'	In single quotes, nibble separated by a period

Font Conventions

Table 2: Font Conventions

Font Type	Explanation
italic	Names of paths and files are shown in italics, e.g.: *C:\Programs\WAGO-I/O-CHECK*
Menu	Menu options are shown in bold, e.g.,: **Save**
>	A “greater than” symbol between two names denotes the selection of a menu option, e.g.: **File > New**
Input	Names of input or optional fields are shown in bold, e.g.: **Start of measurement range**
“Value”	Input or selection values are shown in quotation marks, e.g.: Enter the value “4mA” under **Start of measurement range**.
[Button]	Button labels within the dialogs are bold and enclosed in square brackets, e.g.: **[Input]**
[Key]	Key labels on the keyboard are shown in bold and enclosed in square brackets, e.g.: **[F5]**

Symbols

DANGER 	**Warning against personal injury!** Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.
DANGER 	**Do not work on components while energized!** Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING 	**Warning against personal injury!** Indicates a moderate-risk, potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION 	**Warning against personal injury!** Indicates a low-risk, potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
ATTENTION 	**Warning against damage to property!** Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.
ESD (Electrostatic Discharge) 	**Warning against damage to property caused by electrostatic discharge!** Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.
Note 	**Important note!** Indicates a potential malfunction, but one which will not result in damage to property if not avoided.
Information 	**Additional information** Refers to additional information which is not an integral part of this documentation (e.g., the Internet).

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Moreover, the persons named here must also be familiar with all of the products cited in this document, along with the operating instructions. They must also be capable of correctly predicting any hazards which may not arise until the products are combined.

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Table of Contents

1 Description

This application note describes how to configure and put into operation a DALI network using the DALI Configurator. It also explains, among other things, how device addressing of DALI subscriber is performed and how group and scene assignment works. In addition to diagnostic options, it further explains how to import and use device addressing made using the DALI Configurator into an included ***e!****COCKPIT* project, or into any one.

This application note focuses on the included *WagoApp_x.x.x.x_DALI_Example_01* project. The main **PLC_PRG** program shows a simple way to read and use data from the different sensor types. The WAGO DALI Configurator is used to address sensors. As an alternative, we show how DALI ECGs can be addressed with the **PLC_VISU** visualization interface. The main program concludes with a simple light control example.

2 Material Used

2.1 Required Libraries

Library	Description
WagoAppDALI	DALI standard library

2.2 Devices

Supplier	Quantity	Description	Item No.
WAGO	1	PFC100 controller, 2 x ETHERNET	750-8101
WAGO	1	2-channel digital input module, 24 VDC	750-400
WAGO	1	DALI Multi-Master Module DC/DC converter	753-620
WAGO	1	DALI Multi-Master Module	753-647
WAGO	1	Bus end module	750-600
WAGO	1	DALI MSensor 02 5DPI 41rs	2851-8303
WAGO	1	DALI multi-sensor kit	2851-8201
-	x	Electronic control gear (ECG)	-

2.3 Tools

Description	Item No.
e!*COCKPIT* workstation license	2759-101/1110-2002

3 Setup

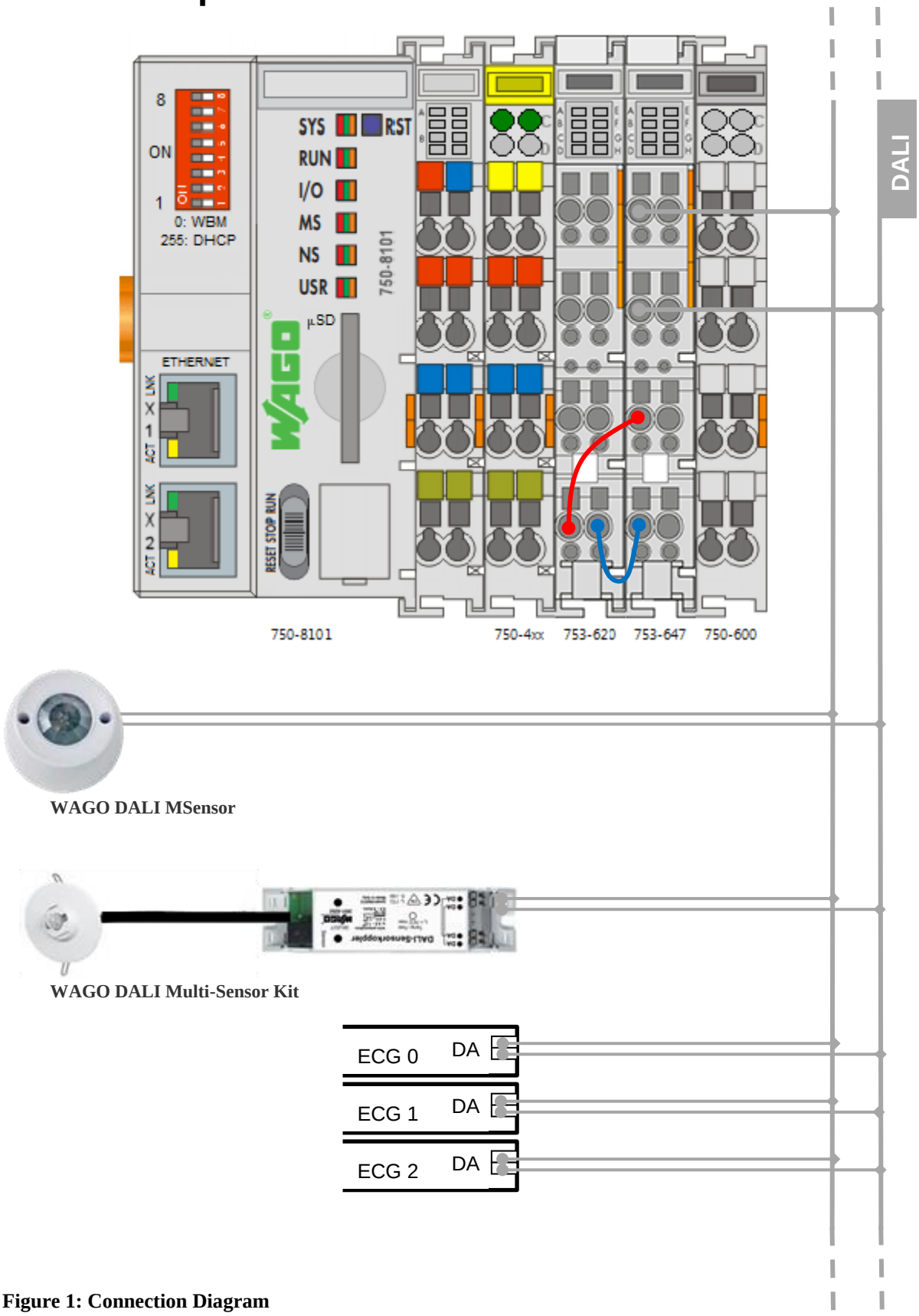


Figure 1: Connection Diagram

3.1 Project Configuration

Note

Installation of Sample Projects for *e!COCKPIT*

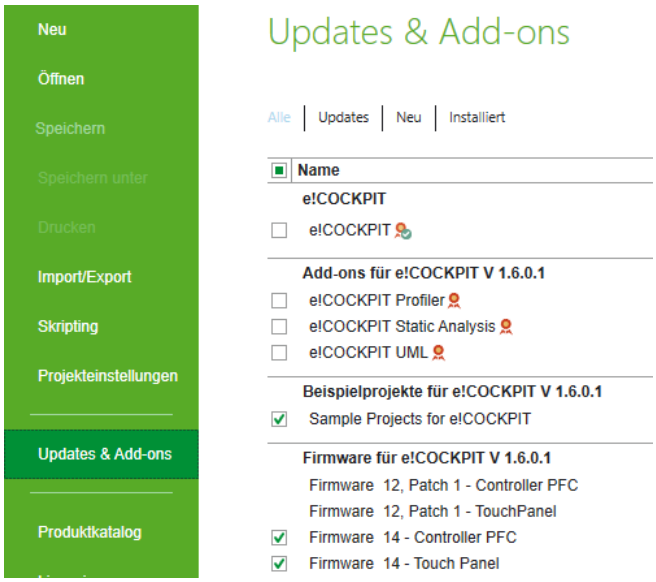


Figure 2: ***e!COCKPIT*** Sample Projects

Sample programs can be called up from the ***e!COCKPIT*** Backstage view by clicking the **Updates & Add-ons** button in the navigation bar.

Note

Example project – WagoApp_x.x.x.x_DALI_Example_01
The setup and functions of the included example project, and how custom configurations are performed, if necessary, are explained below.
When using the example project, no new ***e!***COCKPIT project needs to be created. The project configuration described has already been made.

1. Create a new project for the 750-8101 controller.

2. Open the library manager and integrate the `WagoAppDALI` library into the project.

3. To integrate the visualization interface into the project, first create an empty visualization page. Then open the page and integrate the **DALIConfigurator** element via the **Tools** > **WagoAppDALI** tab.

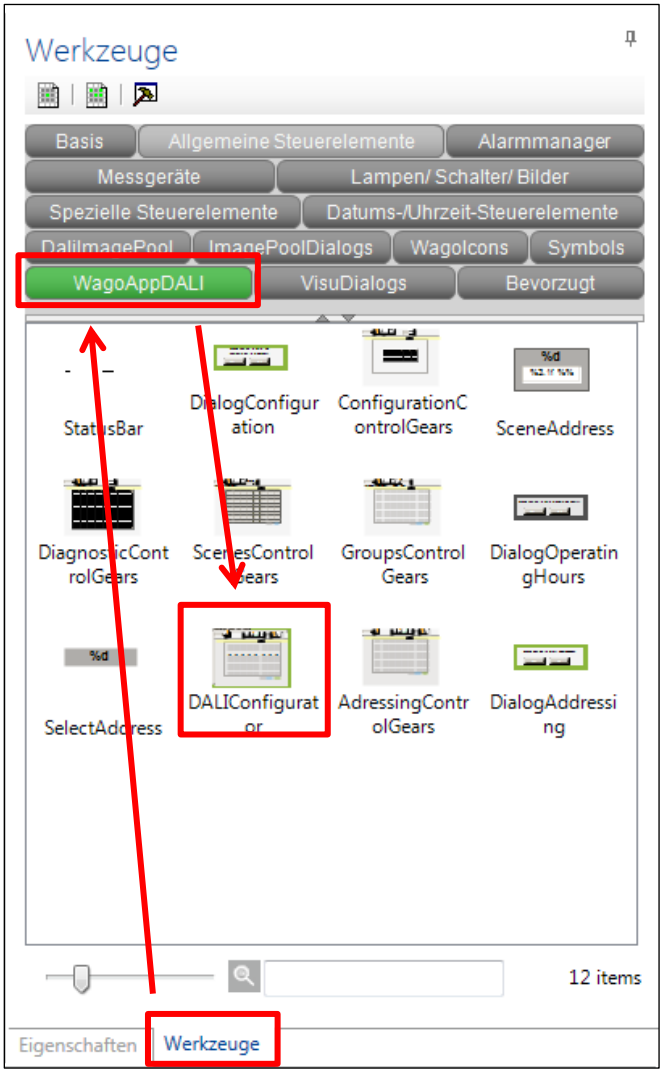


Figure 3: DALI Configurator Visualization Element

4. The following block and program calls should be integrated in the main program:

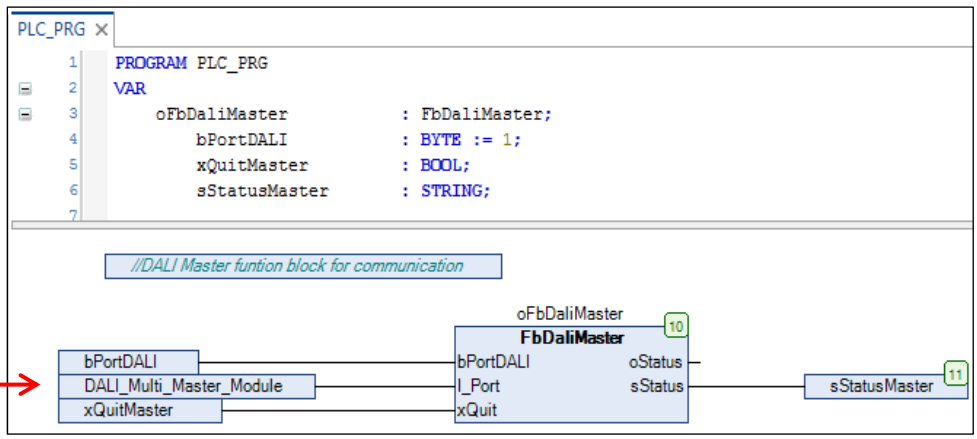


Figure 4: FbDaliMaster – Communication with the Module

For DALI communication, an instance of the **FbDaliMaster** function block is created in the respective program. Minimum one master module is required for each plugged DALI Multi-Master Module. A "1" is entered at the ***"bPortDALI"*** input to select the first connected DALI Multi-Master Module (753-647). The current status of the module is output at the ***"sStatus"*** output. Faults that arise can be acknowledged via a positive flank at the ***"xQuit"*** input.

The designation of the DALI Multi-Master Module assigned under the device structure must be indicated at the ***"I_Port"*** input (see Fig. 4).

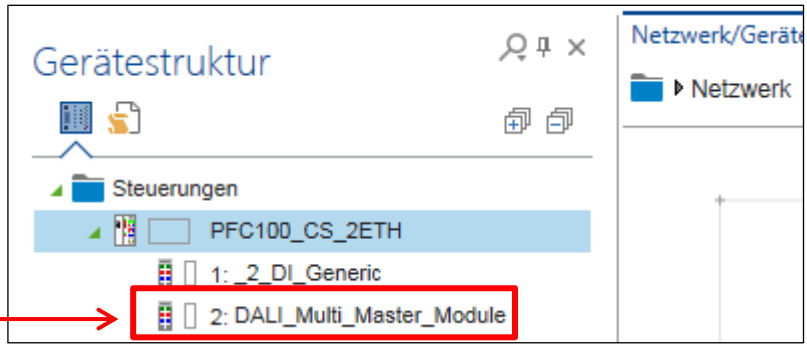


Figure 5: Device Structure Overview – Module Designations

Note

Assignment Master module:
The DALI blocks are assigned to the corresponding DALI Multi-Master Module via the corresponding type variable (e.g. *"typMultiSensorType1/2"*) of the individual blocks.

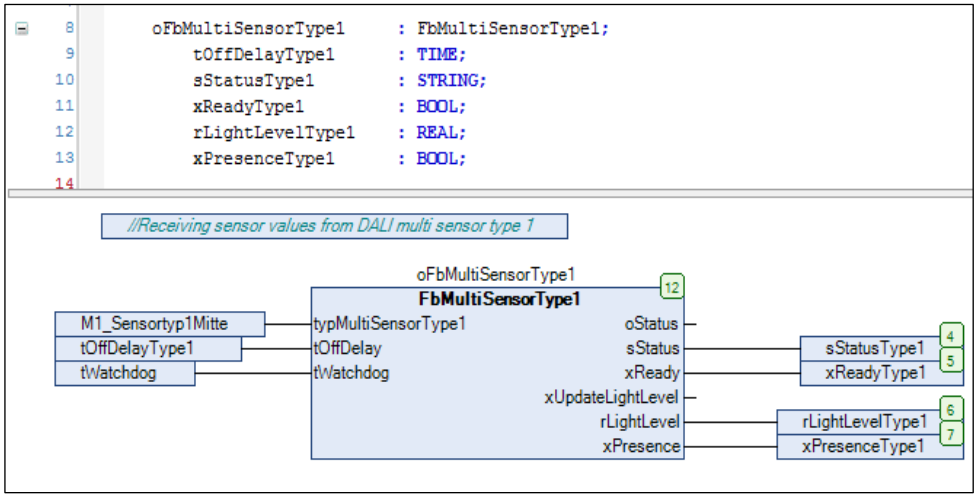


Figure 6: FbMultiSensorType1 – Sensor Values of Sensor Type 1

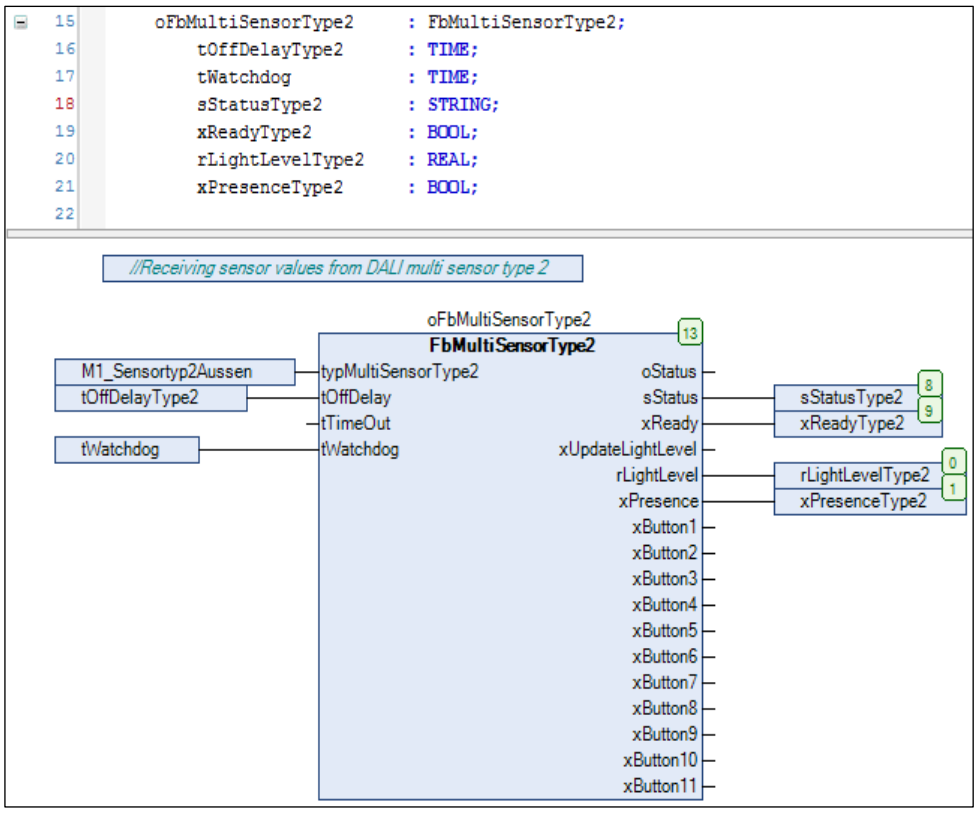


Figure 7: FbMultiSensorType2 – Sensor Values of Sensor Type 2

One instance of the **FbMultiSensorType1** or **FbMultiSensorType2** function block is declared per sensor for reading sensor type 1 or sensor type 2, respectively. The presence signal transmitted by the sensor coupler is output at the "**xPresence**" output. The switch-off delay for the presence detector can be defined at the "**tOffDelay**" input. The address of the presence detector is set in **typMultiSensorType1/2**.
The light sensor values can be received using the same instance of the function block. The light level measured is output at the "**rLightLevel**" output. The light sensor address is also set using **typMultiSensorType1/2**.

A time period for the watchdog timer can optionally be specified via the ***"tWatchdog"*** input. The ***"xReady"*** output signals whether the module is ready for operation or is currently in an ongoing operation. The current module status is output via the ***"sStatus"*** output.

The **FbMultiSensorType2** function block also includes the **xButton1 ... 11** outputs. The remote control of the sensor can be evaluated via these outputs. Each output has a corresponding button on the remote control. The infrared receiver address is also set using **typMultiSensorType2**.

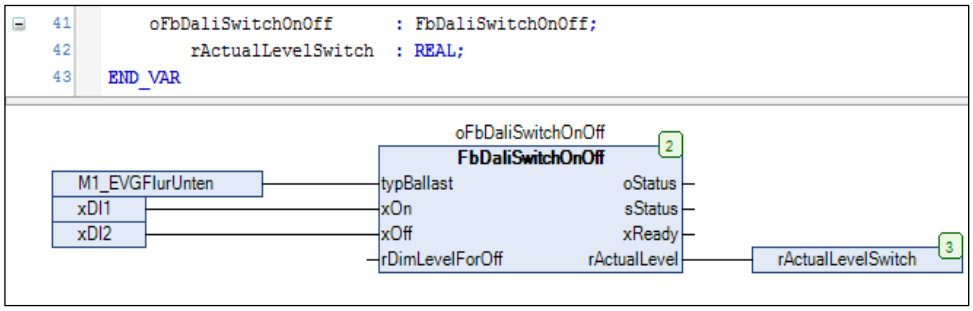


Figure 8: FbDaliSwitchOnOff – Switch Actuator

The **FbDaliSwitchOnOff** function block can be used to switch a DALI ECG on or off using digital input signals, for example. The available digital input module (750-400) can be used. The signal to switch the ECG on is defined at the "***xOn***" input. The signal to switch the ECG off is defined at the "***xOff***" input. The address of the ECG that is to be switched is set in "***typBallast***." The ***"rActualLevel"*** output supplies a return signal concerning the current switched status.

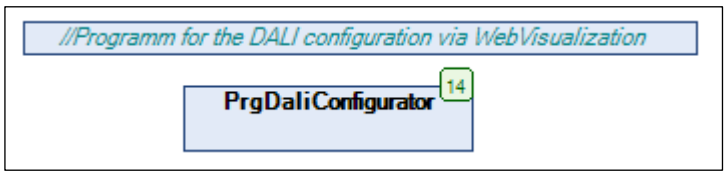


Figure 9: PrgDaliConfigurator Program for the Configuration Interface

The **PrgDaliConfigurator** program is required in order for the web visualization to be used (see section 5).

The project configuration is now complete, and the program can be transferred and launched. To do so, click the **Program** tab and then the **[Connect]** button. Once the transfer has been completed successfully, you must start the program on the same **Program** tab with the **[Start]** button.

4 Using the WAGO-DALI Configurator for Configuration and Addressing

The WAGO DALI Configurator offers an easy option to start up a DALI network using the DALI Multi-Master Module (753-647).

The WAGO DALI Configurator provides functions not only for easy startup and configuration, but also for the service, care and maintenance of a DALI network.

A clear network representation is provided in a tree structure. The configuration time can be optimized by selecting multiple devices.

Information

Download the WAGO DALI Configurator free of charge!
You can download the WAGO DALI Configurator as a stand-alone tool free of charge from the WAGO website at: www.wago.com.

The WAGO DALI Configurator is also integrated in the WAGO-I/O-*CHECK* startup software (item no. 759-302) version 3.4.1.9 or higher.

Note

Configuration file and export file
The WAGO DALI configuration file of the DALI network used in the example program is included as a .wdc2s file. The DALI Configurator can open the file if necessary (e.g., if no test network is available).

The export file of the DALI device addresses for ***e!****COCKPIT* created in section 4.8 is also included as an .export file. The file can be imported as needed as described in the same section.

4.1 Launch the WAGO DALI Configurator

Note

Before launching the WAGO DALI Configurator, the following requirements must be met!
A requirement for the following sections is that the hardware of your fieldbus node and the DALI network are set up properly and function error-free.

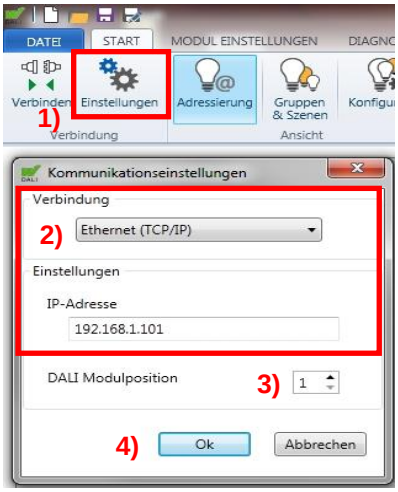


Figure 10: Communication Settings

1) After launching the Configurator, open the **Communication Settings** window by pressing the **[Settings]** button.

2) In this example, access to the DALI Multi-Master Module is achieved via Ethernet TCP/IP. To allow data exchange, communication must be established to the WAGO controller using the IP address.

3) The DALI Multi-Master Module to be addressed at the WAGO fieldbus controller is specified in the **DALI Module Position** input field. In the example program, a “1” is entered to select the first connected DALI Multi-Master Module (753-647).

4) Click the **[OK]** button to apply the settings made.

Click the **Connect** button to establish the connection.

Note

Connecting when PLC program is active:
If an application is already running on your controller, it is possible to connect to the WAGO DALI Configurator. In this case, a query is made about whether a connection is to be established via PLC mode. Click **[Yes]** to establish the connection.

4.2 Addressing

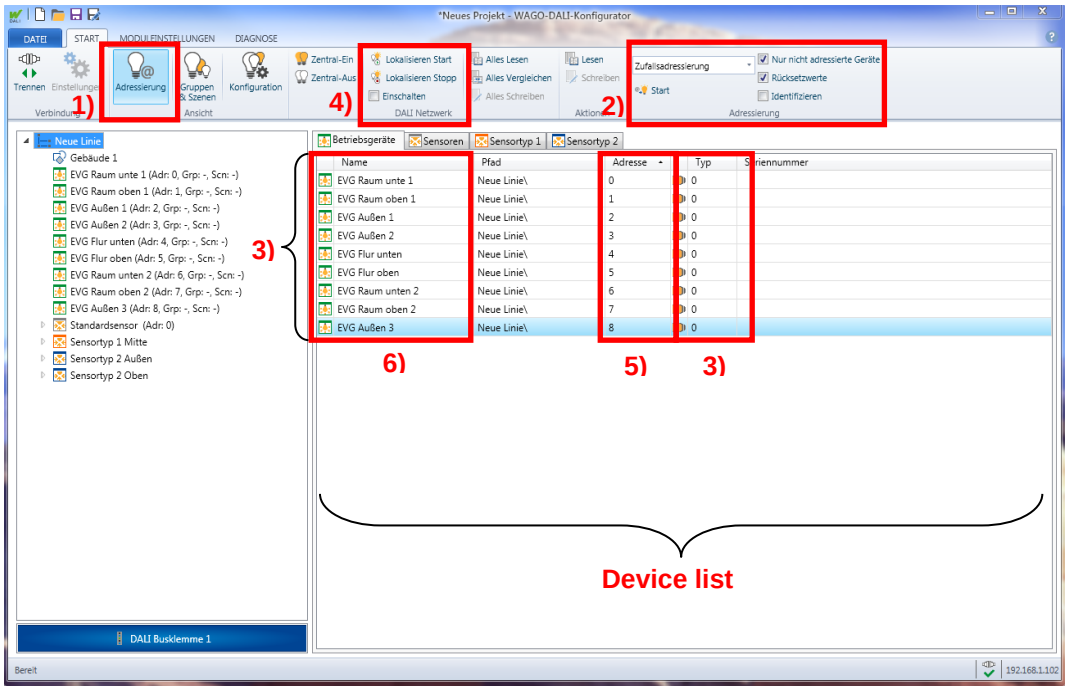


Figure 11: "Addressing" Overview

1) Click the **[Start]** > **[Addressing]** button to open the device list.

2) In this area, you can select the type of addressing and which devices are to be addressed. Additional options for addressing can be selected by checking the respective boxes. In this case, random addressing for all non-addressed devices listed on the **Operating Units** tab is selected. After the read-out, the devices are reset to their default values. The sensors given on the **Sensor Type 1**, **Sensor Type 2** or **Sensors** tab are addressed in the same manner.

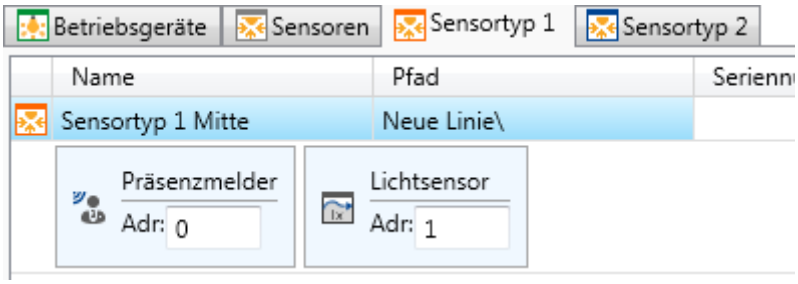


Figure 12: "Sensor Type 1" Tab

Note

Displaying the tabs and functions

The number of tabs displayed and the available functions varies depending on the number and type of attached sensor types.

However, before addressing starts, a query dialog appears with a description of the functions selected for addressing. Addressing is performed only after this dialog is acknowledged.

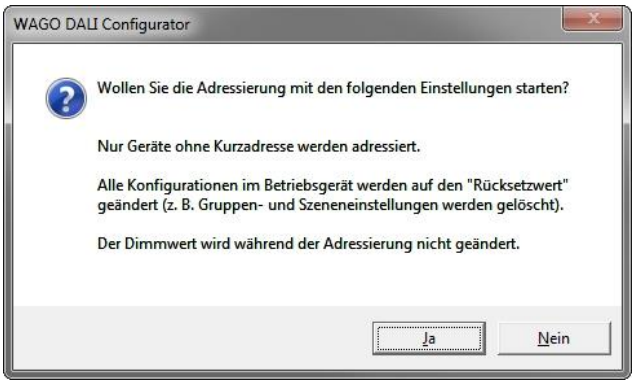


Figure 13: Query Dialog

3) The connected DALI subscribers with their short addresses are entered in the **device list** while addressing. The device type number is listed in the **Type** column. The device's current function is shown by the symbol in front of it.

Note

Addressed Subscribers
If the connected DALI subscribers are already addressed, no subscribers are displayed in the tree structure after point 2 is performed. In this case, the existing addressing must be determined by pressing the **Read** button in the "Actions" area.

4) After addressing is completed, the devices can be localized. The devices must be marked in the device list (multiple devices can be selected). Localization is started by clicking the **[Start localization]** button. The device selection can be changed during localization. Only the marked devices are localized. The **[Stop localization]** button is used at the end to terminate the function.

5) So that the addresses can be assigned in a logical order, it is possible to sort randomly assigned addresses in the "Address" column. If another short address is entered in the "Address" column, the Configurator automatically ensures that the short addresses are replaced on the DALI bus. If the short address is deleted from the "Address" column, it is also deleted from the DALI bus.

6) During localization, it makes sense to give the devices relevant names, which precisely describe their function and/or spatial arrangement (e.g. "3rd ceiling light east side"). The device name can be edited.

Note

Number of addresses
The module supports a total of 64 addresses (address 0 to 63) for control gears (ECG) and 64 addresses (address 0 to 63) for control devices (sensors), with a maximum of 16 multi-sensors supported.

4.3 Arranging Devices in the Tree Structure

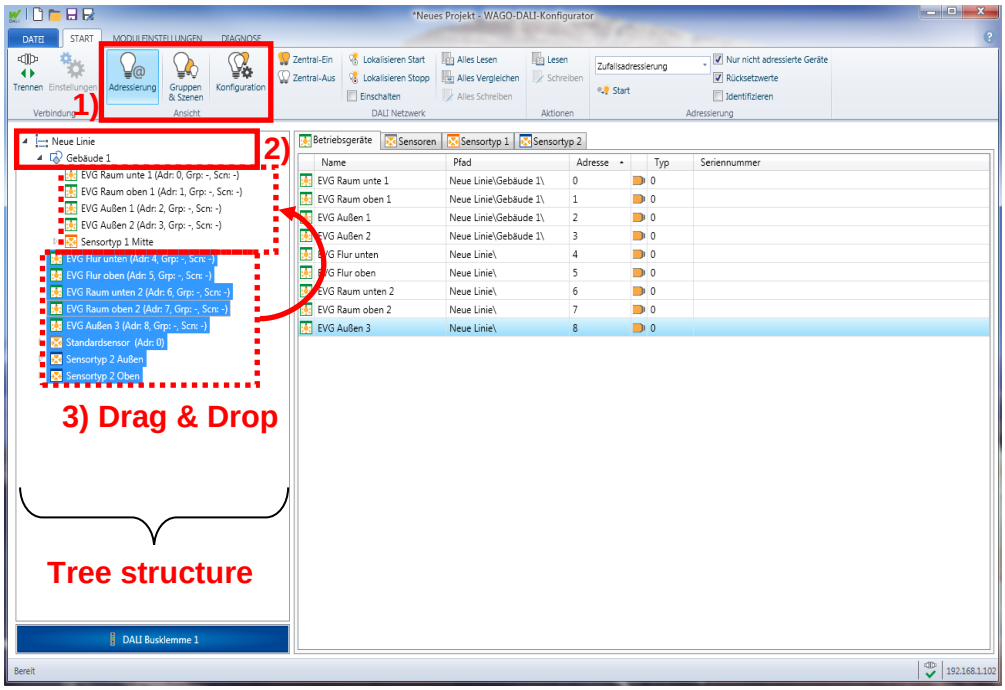


Figure 14: "Tree Structure" Overview

1) You can switch between the individual views using the **Addressing**, **Groups & Scenes** and **Configuration** buttons. The **Tree structure** view does not change.

2) From the context menu (right-click) of the **New Line** entry, you can create a new DALI area. In this application note, a DALI area called **Building 1** is created.

3) You can arrange the corresponding devices in the desired DALI areas within the **tree structure** by dragging and dropping.

4.4 Group and Scene Assignment

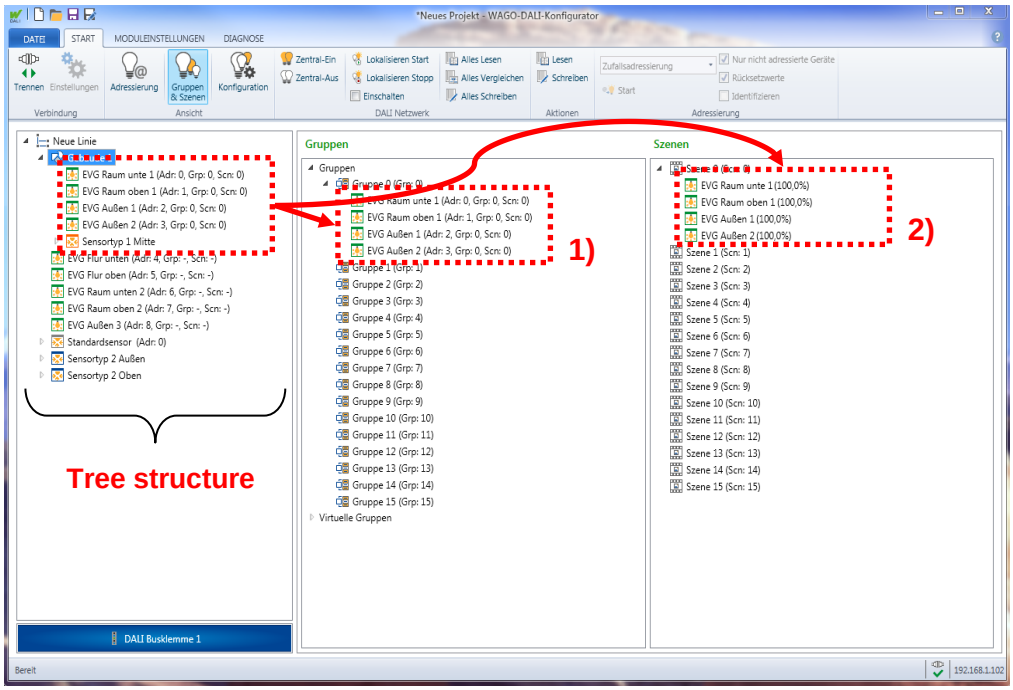


Figure 15: "Groups & Scenes" Overview

The configuration screen for groups and scenes is opened using the **[Groups & Scenes]** button.

1) Select all devices to be combined in a DALI group in the **tree structure**. As an alternative, an area like "Building 1" in the example here can also be selected. You can then assign your selection to a particular group by dragging and dropping (as shown in this example, "Group 0"). Once the devices have been assigned to a group, the updated data is transferred to the ECG.

2) All of the devices which are to be included in a DALI scene must be marked in the **tree structure**. You can then assign your selection to the particular scene by dragging and dropping (here, for example, "Scene 0"). When you release the mouse button, the following window is displayed for setting the scene values:

Figure 16: Scene Settings

The values can also be changed within a scene to different values. Once the devices have been assigned to a scene, the updated data is transferred to the ECG.

Note

Group formation
A total of 16 standard groups (0 ... 15) and an additional 16 virtual groups (16 ... 31) for 64 devices can be configured; a maximum of eight devices can be assigned to one virtual group.

4.5 Configuration

This section describes the general sequence for configuring a DALI device.

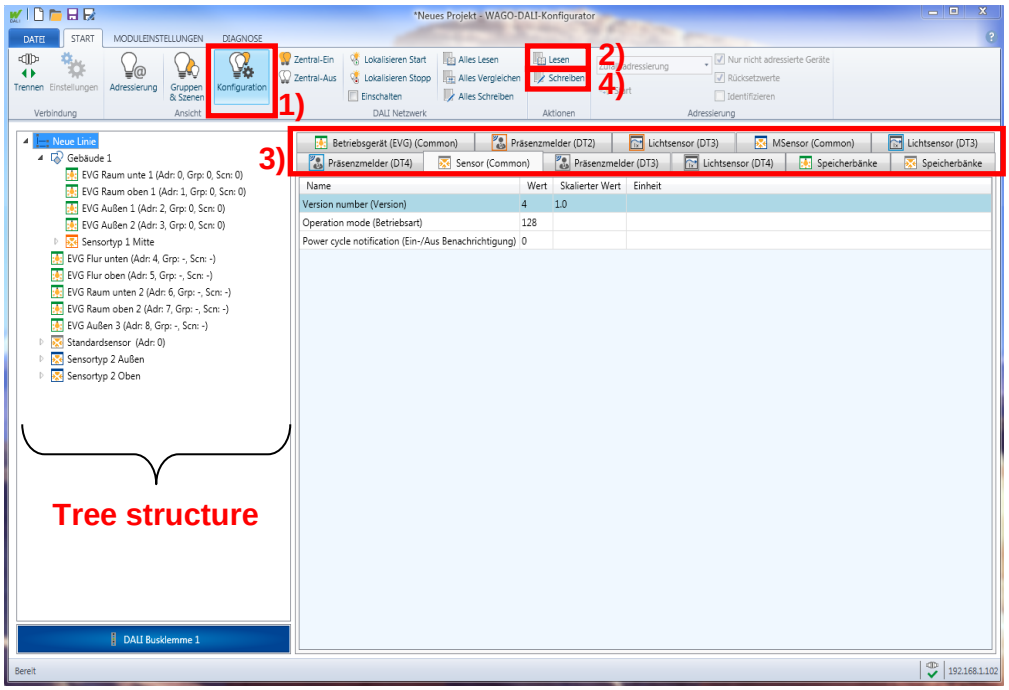


Figure 17: "Configuration" Overview

1) Use the **Configuration** button to configure individual devices in the **tree structure**. If a DALI area (e.g., Building 1) is selected in the **tree structure**, all tabs that appear in the subordinate devices are displayed.

2) The configuration for the marked devices is read for the active view using the **Read** button.

3) Functions for the marked devices or areas can be selected and configured on the corresponding tabs.

4) The configuration for the marked devices is written using the **[Write]** button. The configuration is **not** written automatically. The button must be clicked to apply the configuration.

Note

Displaying the tabs and functions

The number of tabs displayed and the available functions varies depending on the number and type of attached sensor types.

Note

Operating device settings

The settings apply to all selected devices that support the device type.

4.6 Module Settings

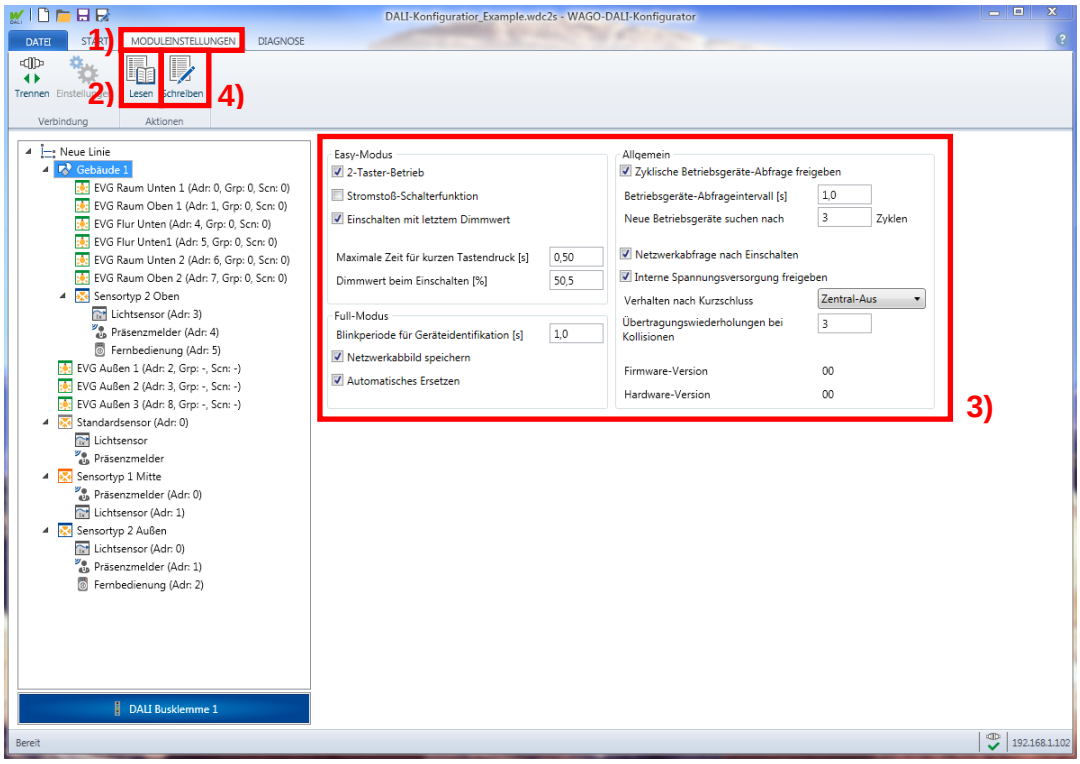


Figure 18: "Module Settings" Overview

1) The diagnostics dialog for module settings is opened from the **[Module Settings]** tab.

2) Click the **[Read]** button to read the current parameters of the selected DALI Multi-Master Module.

3) You can make individual module settings in the different setting areas.

4) Click the **[Write]** button to transfer the required settings to the module.

4.7 Diagnostics

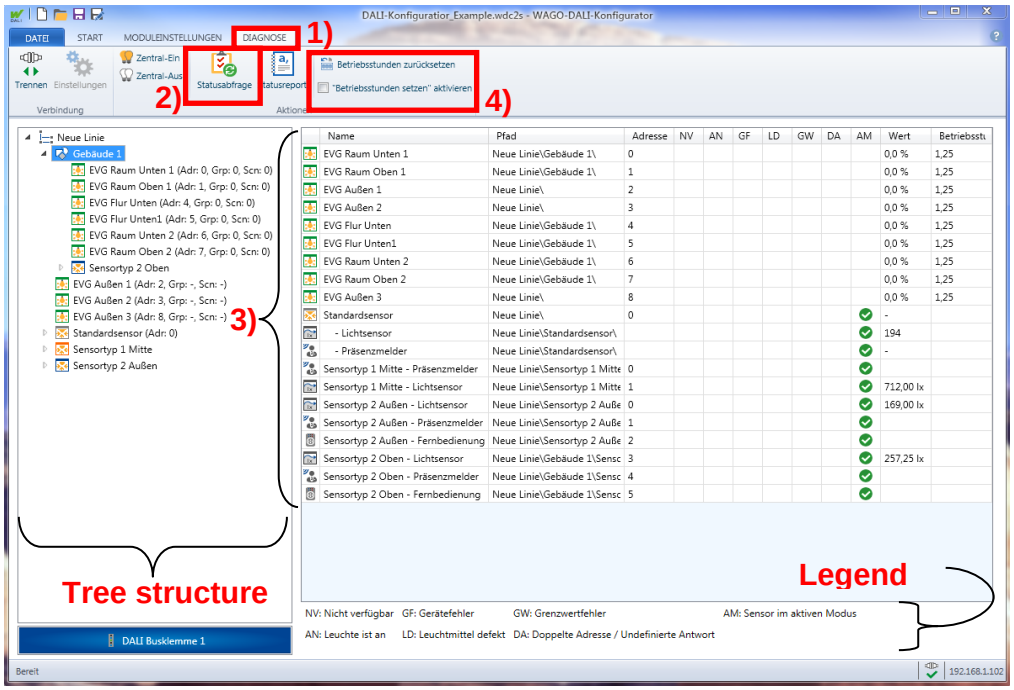


Figure 19: "Diagnostics" Overview

1) The diagnostics dialog window is opened on the **[Diagnostics]** tab.

2) Click the **[Status Query]** button to query the status of the devices listed.

3) The status of all devices then appears in a tabular list. The **Legend** is given in the bottom section.

- Any errors are indicated in the respective table cell by a red exclamation mark (). The path specified in the diagnostics table or **tree structure** can be used to locate a defective device.

- You can view the current value for the specific DALI subscriber in the "Value" column. This simplifies localization, as the current status is displayed directly. For example, you can click a button and directly see which button changes its value.

4) Desired devices are selected by clicking them. You can then reset the operating hours for the selected devices using the button **[Reset operating hours]**. Check the **"Activate set operating hours"** box to edit the operating hours.

Note

Error indicator

This error indicator is copied to the **tree structure** up to the associated main level (DALI line) and is thereby immediately apparent. Detailed error diagnostics, however, are not available in the **tree structure**, only in the "Diagnostics" dialog window.

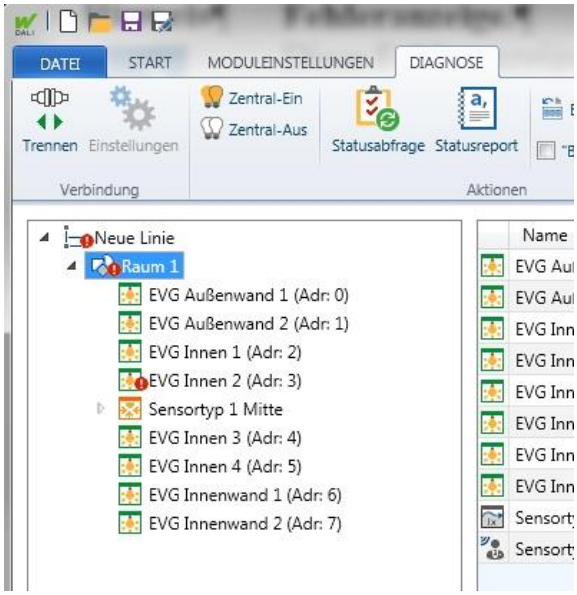


Figure 20: "Error Diagnostics" Tree Structure

4.8 Exporting Device Addresses

The following steps must be performed to export the device designation settings and address information from the WAGO DALI Configurator and then to import them into CODESYS:

1) Click the **FILE** button to open a menu view with the **[Export to CODESYS]** button via "Export."
You can select whether to create the export file for CODESYS 2.3 or *e!COCKPIT* in the adjacent drop-down menu.

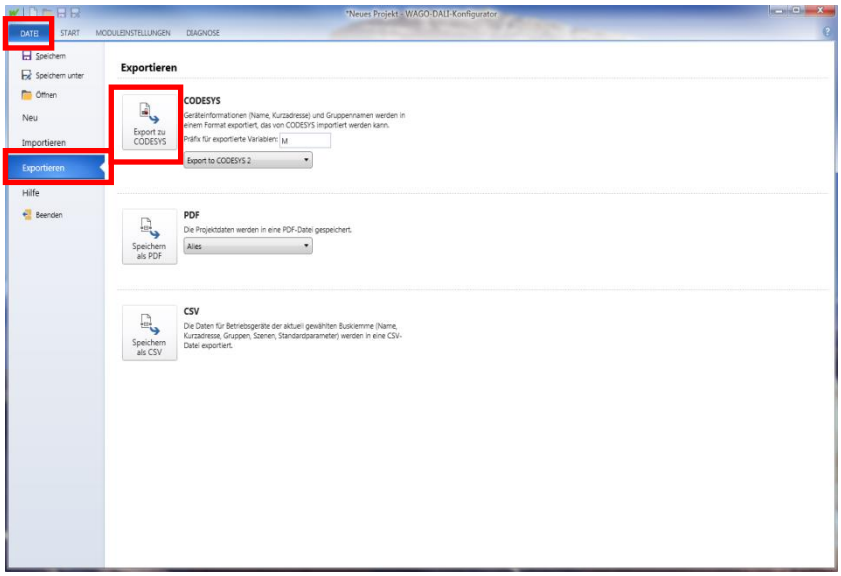


Figure 21: WAGO DALI Configurator, "Export" Overview

2) The export file can then be saved to any available directory.

3) Now open the included example project in *e!COCKPIT* and switch to the program structure. Select the **Program** tab, and then select the **Import** menu item.

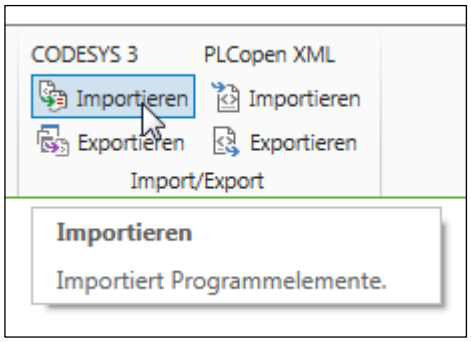


Figure 22: Importing File – *e!*COCKPIT

4) In the dialog that opens, select the file created before and confirm with **Open**.

The following dialog opens in ***e!****COCKPIT*. The target device and the files to be imported must first be selected here. Confirmation the select with **Insert elements** and finish the import process.

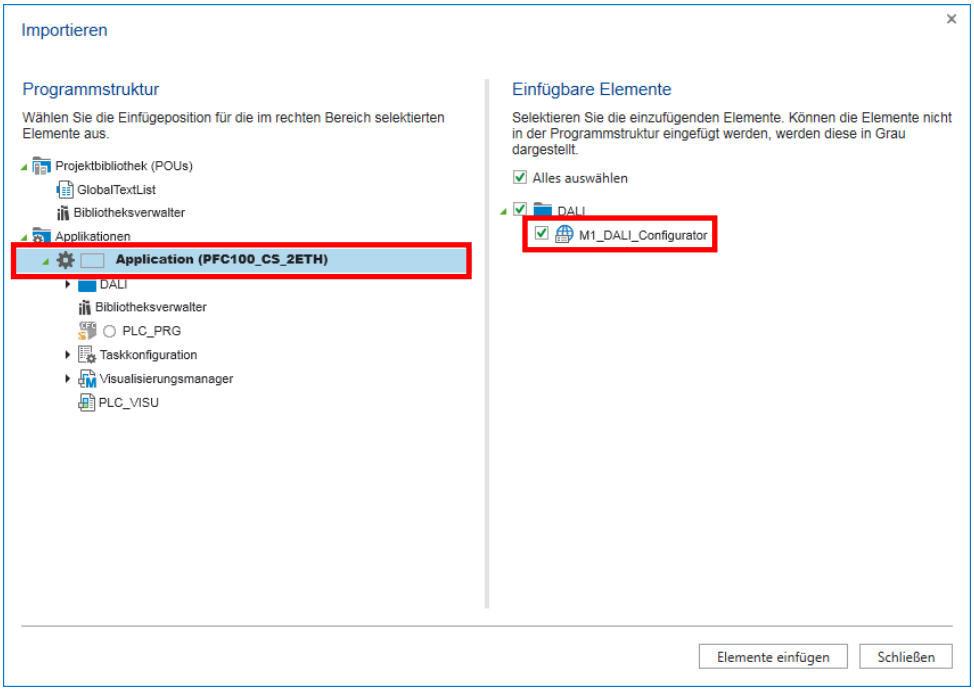


Figure 23: Import Dialog – *e!*COCKPIT

5) After a successful import, a subfolder called “DALI” containing the “M1_DALI_Configurator” variable list can be found in the program structure.

The designations of the DALI subscribers that the list contains can now be used in the project. For this purpose, an element from the list must be assigned to a block input that requires device assignment (e.g., typSensor; typBallast; typMultiSensorType1/2).

It is advisable to first connect the corresponding input to an empty input element and then select the desired DALI element from the variable list using the input assistant **[F2]**.

For the current example, the “M1_EVGFlurUnten” ECG is selected and placed on the **typBallast** input of the **FbDaliSwitchOnOff** switch module.

6) After successful connection, the block looks as follows:

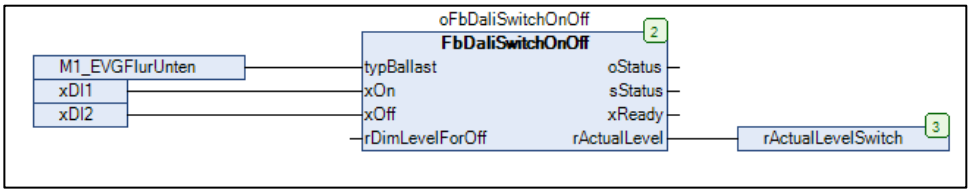


Figure 24: Connected "FbDaliSwitchOnOff" Block

The digital inputs of the assigned DALI subscribers, for example, can then be switched on and off. The names of the digital inputs can be adjusted individually in the device structure.

5 ECG Addressing via the Web Visualization

This section describes the option of addressing DALI ECGs via the visualization interface. For this purpose, the **PrgDaliConfig** program must be called and launched (see section 3.1, Project Configuration). In the example project, the program call is already implemented, so this does not need to be done again.

Note

Functional Scope of Visualization Interface

The visualization interface can only be used to address and parameterize DALI ECGs and make group and scene assignments.

It is not possible to address or parameterize sensors.

Note

Description of the Visualization Interface

A detailed description of the visualization interface is available in the appendix.

If addressing of DALI ECGs with the DALI Configurator is not possible, or if the DALI Configurator is not available, the ECGs can addressed via the visualization interface as an alternative. The exact procedure and subsequent connection of the blocks is explained below.

1. Start the example project and open the **PLC_VISU** visualization.

2. Open the **[Addressing]** tab in order to first start addressing the connected DALI ECGs.

   The following settings can be made in advance:

   - **Only Unaddressed Devices:** If this setting is selected, only the ECGs that have not already been assigned a short address are addressed. If the setting is not enabled, all connected elements are assigned a new random element address.

   - **Reset Values:** If this setting is enabled, the setting parameters of the connected ECGs are reset to their default values. If it is disabled, the current parameters are retained.

   - **Identify:** If this setting is enabled during addressing, all ECGs are set to the minimum dimming level at the start of addressing. After an address has be assigned to an ECG, the ECG that is now addressed changes its dimming level to the stored maximum value.

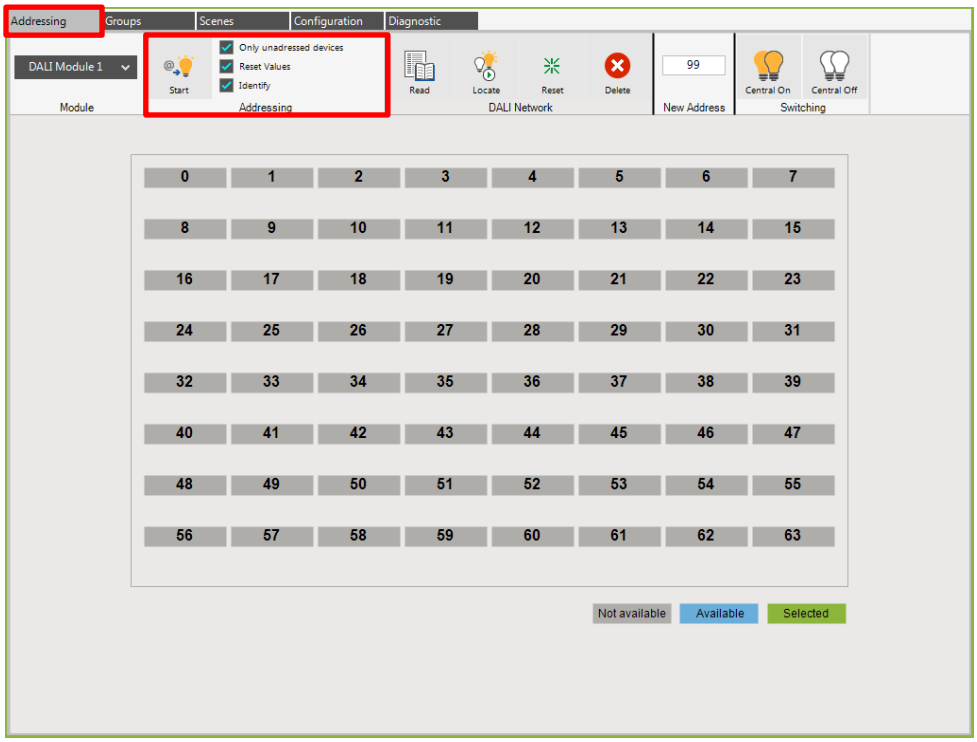


Figure 25: DALI Configurator Visualization Interface – Addressing

3. After the desired settings have been made, addressing can be started with the **[Start]** button. The following dialog opens:

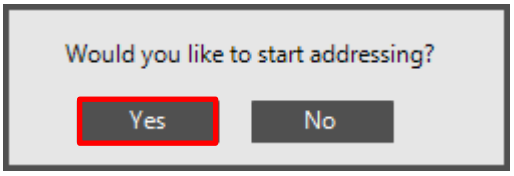


Figure 26: Start Addressing Dialog

Confirming with the **[Yes]** button starts the addressing process.

4. After successful addressing, the available ECGs and their assigned short addresses are displayed in the lower section.

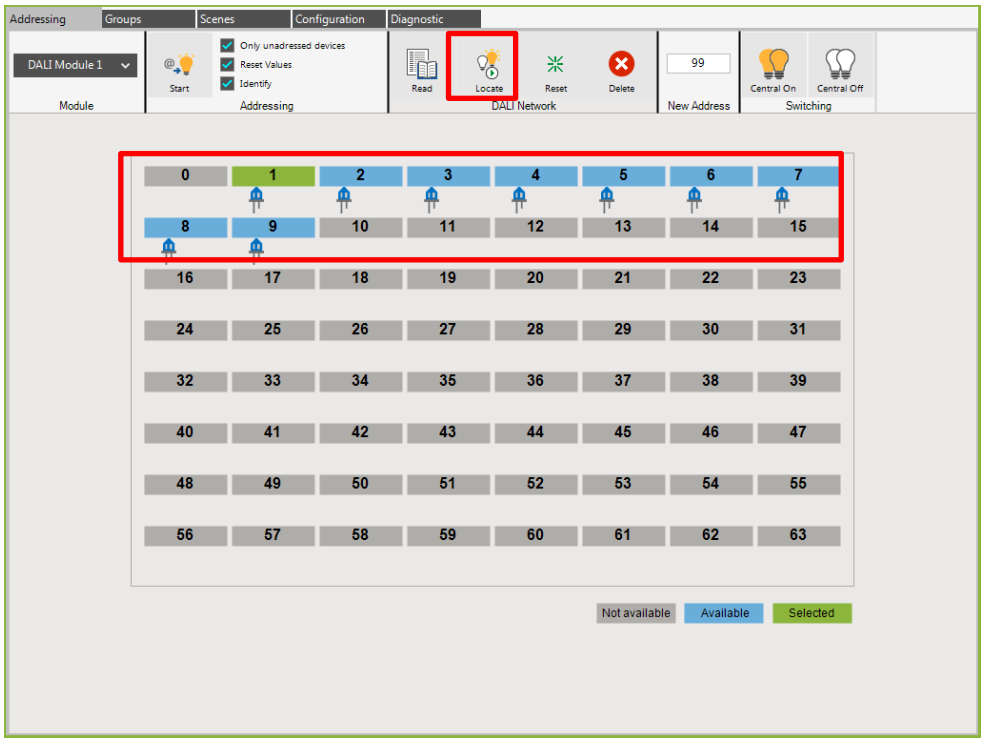


Figure 27: DALI Configurator Visualization Interface – Addressed Subscribers

The subscribers are addressed randomly. The **[Locate]** button can be used to identify which light is behind the assigned short address. To do this, click the button and select a short address. The selected subscriber now flashes until the button is clicked against (deactivate function).
The short addresses of the ECGs can be replaced by first selecting an ECG and then entering a new short address under **New Address**. In the process, it is possible both to swap the addresses of two ECGs and to assign an unused address to an ECG.
Once addressing is complete, all that remains is to link the addresses to the desired block in order to enable control via the application.

5. For example, in order to assign the ECG with address 2 to the **FbDaliSwitchOnOff** function block, the addressing already performed must first be removed from the *"typBallast"* input in the example project. Then create a new variable. When the variable declaration opens, enter "typBallast" under data type.

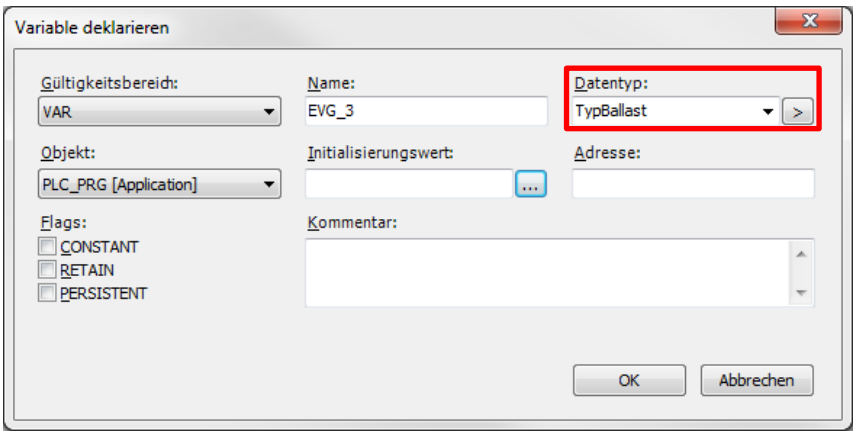


Figure 28: Declare Variables Dialog

6. Then click the **[...]** button next to the "Initialization value" input field. The following dialog opens:

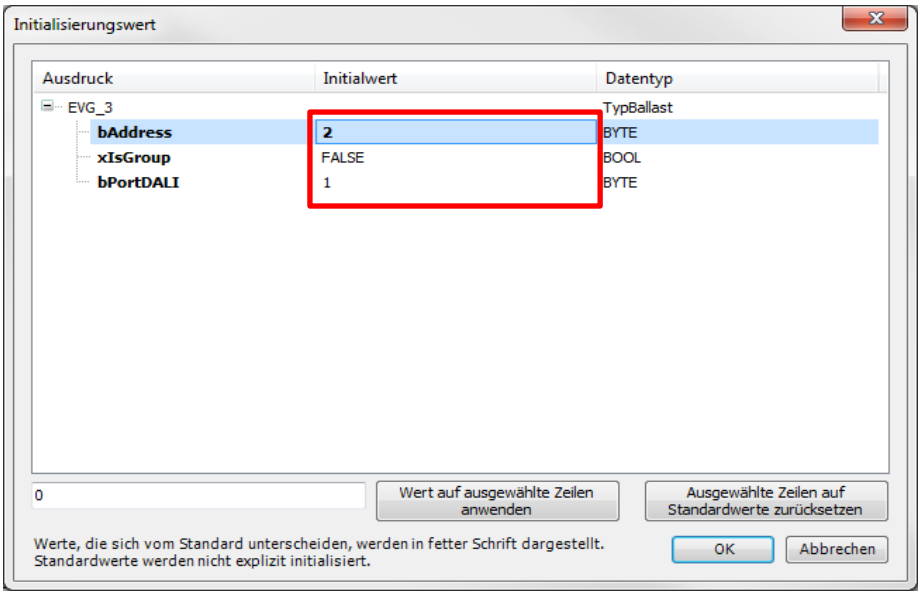


Figure 29: Initialization Values Dialog

The following initialization values can be changed for the block:

- **bAddress:** The address of the ECG to be controlled by the block is set here. In our example, enter number 2.
- **xIsGroup:** This specifies whether the address entered before is a group address ("TRUE") or an individual address ("FALSE").
- **bPortDALI:** This specifies with which DALI Multi-Master Module communication is to take place (identical to the **FbDaliMaster**).

Close both dialogs by confirming with **[OK]**.

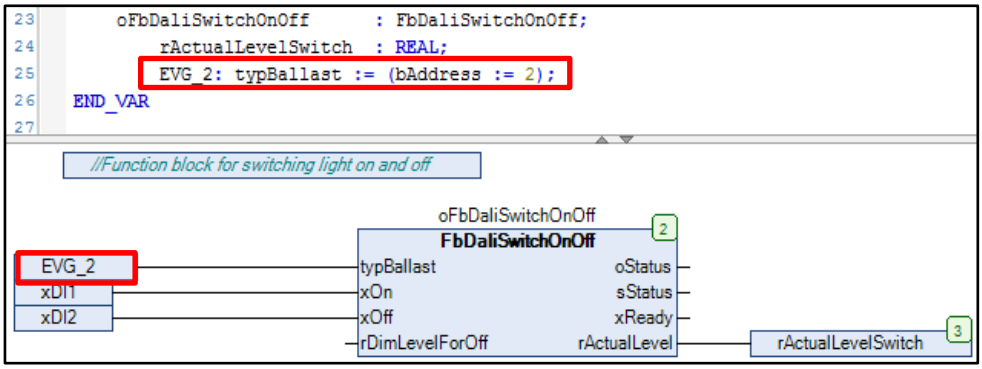


Figure 30: Connected FbDaliSwitchOnOff Block

Addressing is now complete. ECG address 2 has been successfully assigned to the block. The application can then be used to switch light number 2 on and off with the digital inputs.

6 Appendix

6.1 “Addressing” Visualization Page

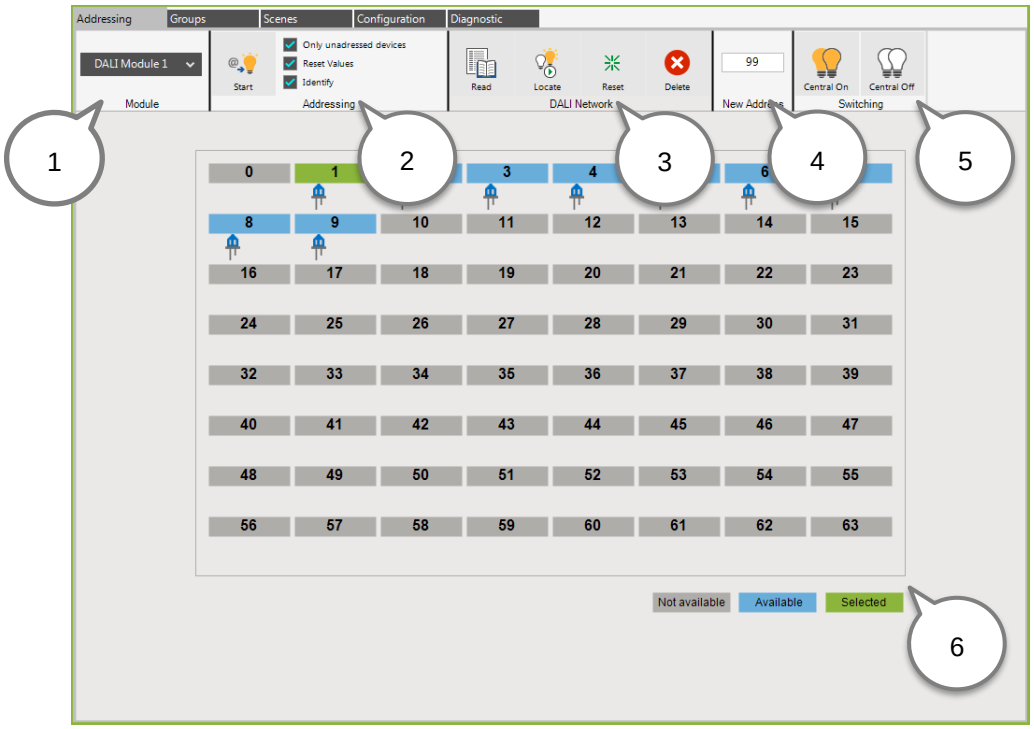


Figure 31: Addressing Visualization Page

The assignment of the ECG short addresses can be controlled on the **Addressing** page.

1 Module

The DALI Multi-Master Module that is to be operated is selected from the drop-down menu.

2 Addressing

Addressing of the ECGs can be started in this area with the **[Start]** button. Three settings options are available in advance:

- **Only Unaddressed Devices:** If enabled, only the ECGs that have not already been assigned a short address are addressed.
- **Reset Values:** If enabled, the settings of the newly addressed ECGs are reset to “Default.”
- **Identify:** If enabled, the ECGs change their dimming level after addressing.

3 DALI Network

Four functions are available in this area.

- **Read:** When activated, the connected and already addressed ECGs are queried and marked in blue in the overview. No addressing occurs in this process.
- **Locate:** When activated, the light with the selected short address starts flashing. Clicking this again stops the function.
- **Reset:** When activated, the setting parameters of the selected ECG are reset to Default.
- **Delete:** If pushed, the selected short address is deleted.

4 New Address

Short addresses can be replaced in this area. Once an address has been selected, the desired new short address can be entered in the input field. The selected ECG address is then replaced with the entered short address.

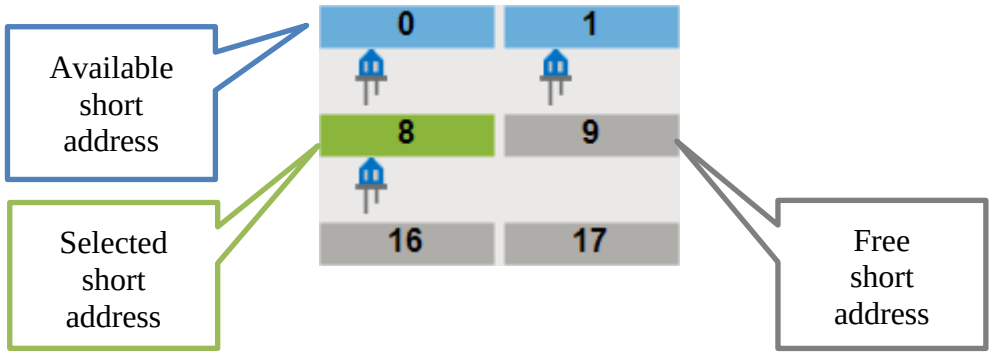
5 Switching

This section contains central commands for switching all connected lights on and off.

- **Central On**
- **Central Off**

6 Overview of short addresses

This section visually indicates which ECG short addresses are available (blue), which short address is currently selected (green) and which short addresses are not available (gray).



6.2 “Groups” Visualization Page

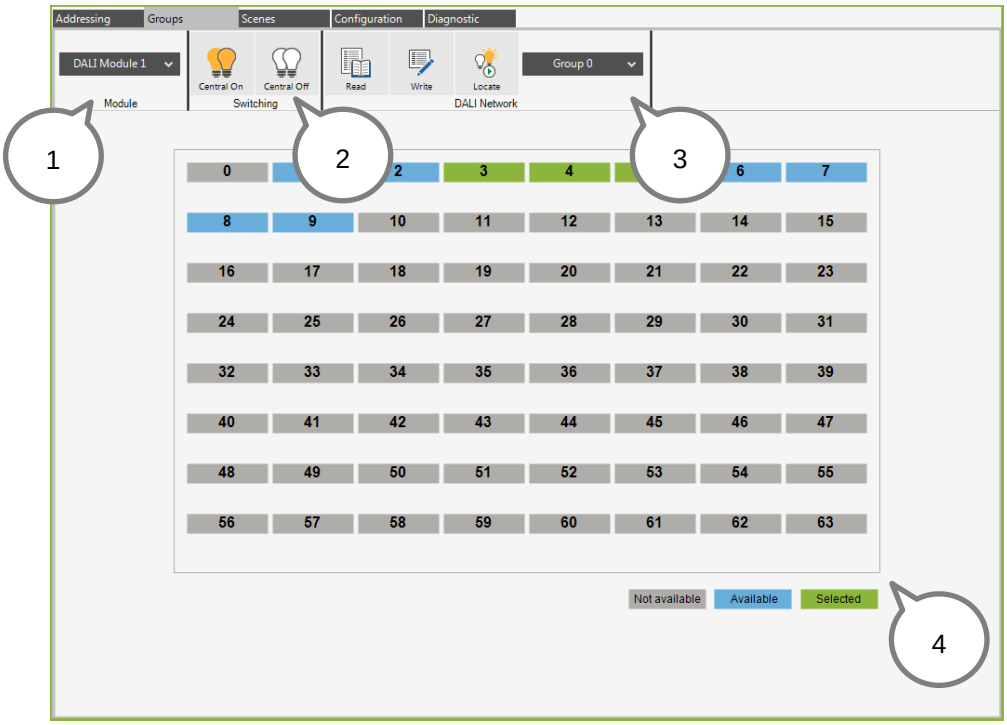


Figure 32: Groups Visualization Page

A group of DALI ECGs can be formed on the **Groups** page.

1 Module

The DALI Multi-Master Module that is to be operated is selected from the drop-down menu.

2 Switching

This section contains central commands for switching all connected lights on and off.

- **Central On**
- **Central Off**

3 DALI Network

Four functions are available in this area:

- **Read:** When activated, the group configuration is read out. Group participants are marked in green; available short addresses are marked in blue.
- **Write:** When activated, the group formation shown in the lower area is carried out and saved under the selected group number.
- **Locate DALI Network:** When activated, all elements of the group

start flashing. Clicking this again stops the function.

- **Group selection:** The group number can be selected from the drop-down menu.

4	**Overview of short addresses**	The groups are formed in this area. All available short addresses are shown in blue. Multiple available short addresses can be marked as group elements (green) by single-clicking them.  Pressing the **[Write]** button (area 3) then applies the group formation.

6.3 “Scenes” Visualization Page

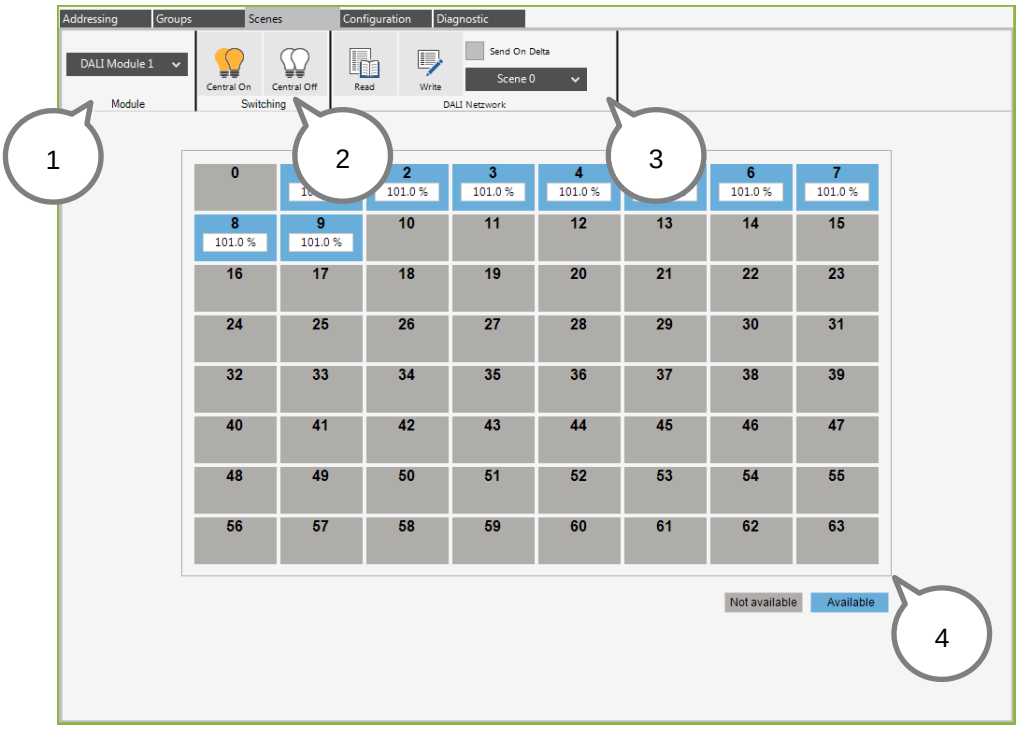


Figure 33: “Scenes” Visualization Page

Different scenes can be configured on the **Scenes** page.

1 Module

The DALI Multi-Master Module that is to be operated is selected from the drop-down menu.

2 Switching

This section contains central commands for switching all connected lights on and off.

- **Central On**
- **Central Off**

3 DALI Network

Four functions are available in this area:

- **Read:** When activated, the available short addresses are queried and marked in blue.
- **Write:** When activated, the dimming values entered under the short addresses are written to the ECGs as a scene configuration.
- **Send On Delta:** If the function is activated, dimming value changes that are made are transferred directly to the

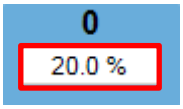
corresponding ECG.
The advantage of this is that it is not necessary to open a scene in order to test the parameterized scene configuration.

Note:
The function does not obviate the necessity of clicking the **[Write]** button to transfer the scene configuration.

- **Scene selection:** The scene number to be configured can be selected from the drop-down menu.

4 Overview of short addresses

The scenes are formed in this area. All available short addresses are shown in blue. The desired dimming level of the ECG can be entered in the input field under the short address.



Clicking the **[Write]** button (area 3) applies the scene configuration.

6.4 “Configuration” Visualization Page

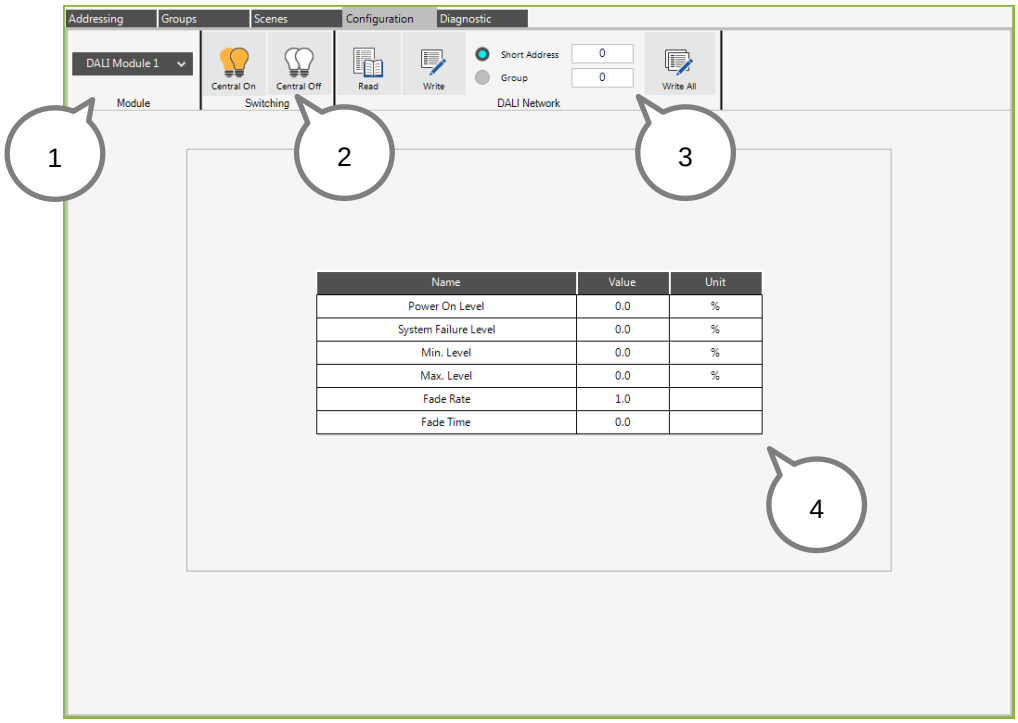


Figure 34: Configuration Visualization Page

The setting parameters of the ECGs can be changed on the **Configuration** page.

1 Module

The DALI Multi-Master Module that is to be operated is selected from the drop-down menu.

2 Switching

This section contains central commands for switching all connected lights on and off.

- **Central On**
- **Central Off**

3 DALI Network

Four functions are available in this area:

- **Read:** When activated, the available short addresses are queried and marked in blue.
- **Write:** When activated, the dimming values entered under the short address are written to the ECGs as a scene configuration.
- **Short Address/Group:** Selection for switching between parameterizing an individual address or a group address. The

address to be operated is entered in the input field next to it.

- **Write All:** When activated, the parameterization that has been carried out is transferred to the short or group address that is entered.

4 Configuration parameter

The following parameters of the ECGs can be changed in this area:

- **Power On Level:** Dimming value when the supply voltage returns
- **System Failure Level:** Dimming value when a system failure occurs (e.g. bus short circuit)
- **Min. Level:** Minimum allowed dimming value
- **Max. Level:** Maximum allowed dimming value
- **Fade Rate:** The fade rate determines the dimming speed (e.g., dimming via button).The definition of the dimming speed is available in the appendix of the DALI_647_04.lib. library description.
- **Fade Time:** The fade time determines the fade rate for direct dimming value changes. The definition of the fade time is available in the appendix of the DALI_647_04.lib. library description.

6.5 “Diagnostics” Visualization Page

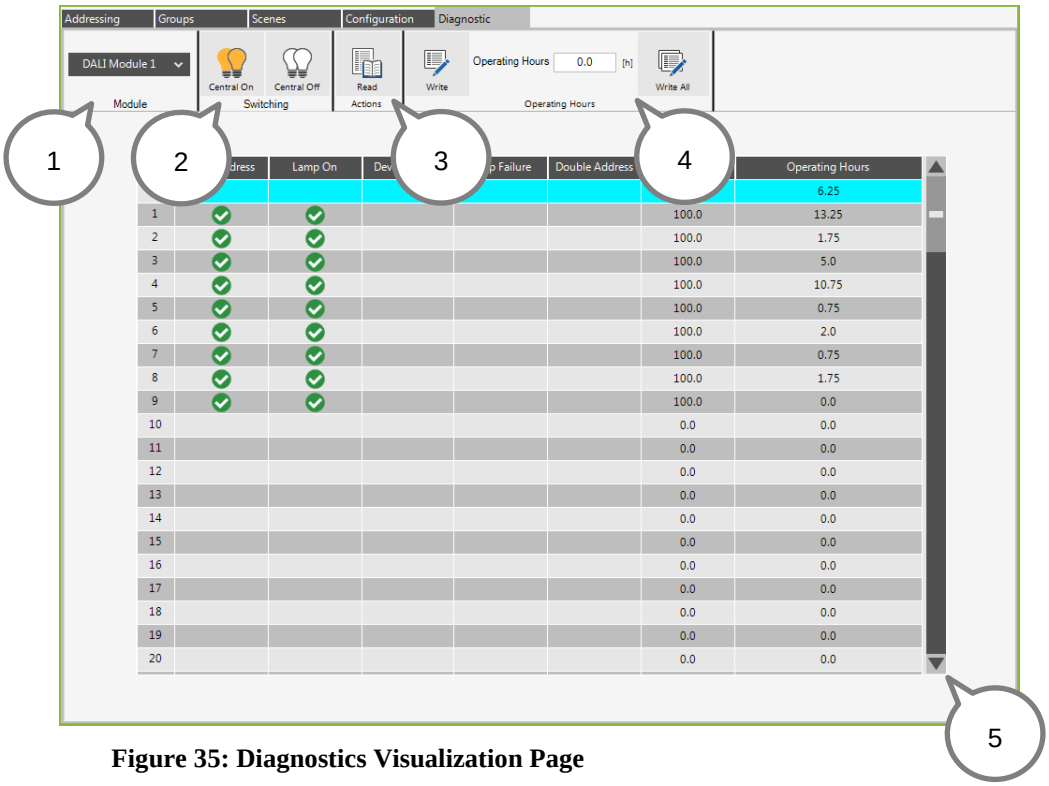


Figure 35: Diagnostics Visualization Page

The current status and operating hours of the ECGs can be viewed on the **Diagnostics** page.

1 Module

The DALI Multi-Master Module that is to be operated is selected from the drop-down menu.

2 Switching

This section contains central commands for switching all connected lights on and off.

- **Central On**
- **Central Off**

3 Actions

Pushing the **[Read]** button queries the current status of the ECGs.

4 Operation Hours

The operating hours of the ECGs can be reset or edited in this area.

- **Write:** When activated, the operating hours entered in the “Operating Hours” field are written to the selected ECG (highlighted in gray).
- **Operating Hours:** The operating hours to be written to the selected ECG can be entered in this field.
- **Write All:** When activated, the entered operating hours are written to all available ECGs.

5 Status table

The table shows the current status of the ECGs and their operating hours. The table provides the following information:

- **Short Address:** An available short address is represented by the following symbol: 
  If an address is not available, the field remains empty.
- **Lamp on:** This indicates whether the light is currently switched on or off.
- **Device Failure:** This column indicates whether the ECG has a fault.
- **Lamp Failure:** This indicates whether the lamp is defective.
- **Double Address:** Indicates whether the there is a duplicate assignment of the short address.
- **Actual Level:** If the lamp is switched on, this indicates the current dimming level.
- **Operating Hours:** This column indicates the current operating hours of the ECG.

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