DALI MC Overview

Contents:

1. DALI Multi-Controller: DALI MC

The DALI MC is a multifunctional control module for the DALI circuit. It has four independent inputs with freely configurable functions. Any standard switches compatible with mains voltage can be connected to the module. It is also possible to control the inputs of the DALI MC via relays. There is also the option of providing a power supply monitoring system with the DALI MC. When the power supply returns a predefined lighting status is retrieved by the DALI MC. Its compact design means that the DALI MC can be installed together with standard switches in a flush-mounted box. The DALI circuit can therefore be decentralised. The four inputs are configured by means of masterCONFIGURATOR[1] configuration software.
The DALI MC module is multi-master-compatible so several control modules can be used in a DALI circuit.

1.1 Function

The behaviour of each of the four inputs can be defined with the aid of the masterCONFIGURATOR[1] software. Possible settings:
The input functions as

- a push to make switch
- a standard switch
- a changeover switch
- a stairwell switch
- a push to make switch that calls up a predefined sequence of DALI commands (macro)

In addition to defining the function you can set further parameters to select the destination address for which the function is intended (broadcast, group or individual address) and the type of DALI command to be performed. For a detailed description of the functions and the DALI commands see “Table 1: Function parameters“ and “Table 2: Parameters for commands” in section 1.2.2 Setting the parameters for the inputs.

Example: On/off switch
Destination address: Group 1
Function: Switch
DALI command: “Recall max. Level” when switched on and “OFF” when switched off

[1] MasterCONFIGURATOR, V1.10 and higher – available free of charge at www.tridonic.com.

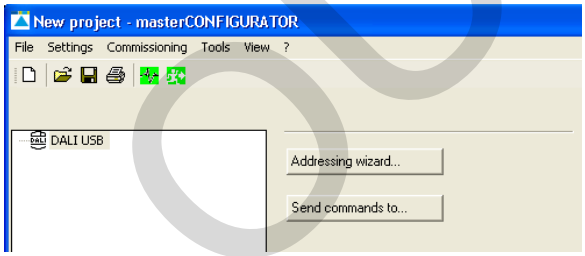
1.2 Configuration by masterCONFIGURATOR

The DALI MC can be configured by means of the masterCONFIGURATOR software tool (version 1.10 and higher). To set the parameters for the 4 inputs of the DALI MC you first have to address the DALI MC. The important thing here is that each input is given its own extended address (eAdr.). The input will appear later under this e-address in the DALI bus overview of the masterCONFIGURATOR and can then be parameterised.

Note: The e-address area does not reduce the DALI address area of the DALI units (ECGs, transformers, etc.). If a DALI MC is connected to the DALI circuit, all 64 DALI short addresses are still available for the ballasts.

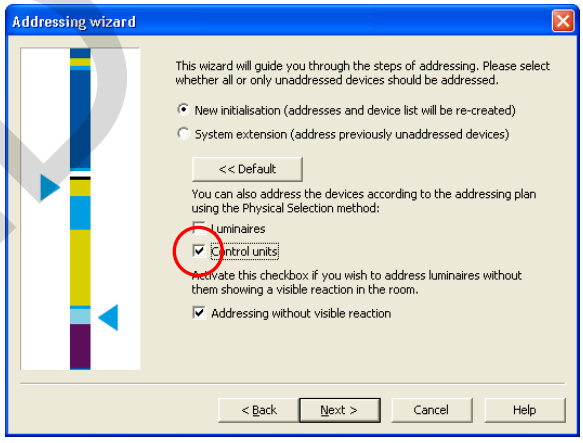
1.2.1 Addressing the DALI MC

1. Start the Addressing Wizard



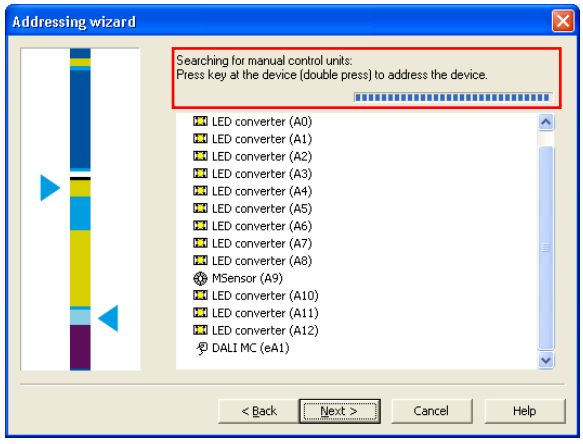
2. Select either “System expansion” or “Complete new installation” and in the advanced settings activate the function: Use “Physical Selection Methode” for “Control Units”

   Press “Next” to start the addressing cycle.



3. The system now searches the DALI circuit for DALI units. The search starts with the DALI ballasts, followed by other types of DALI unit one after the other, and then the manual input devices (e.g. DALI MC, DALI Touchpanel).

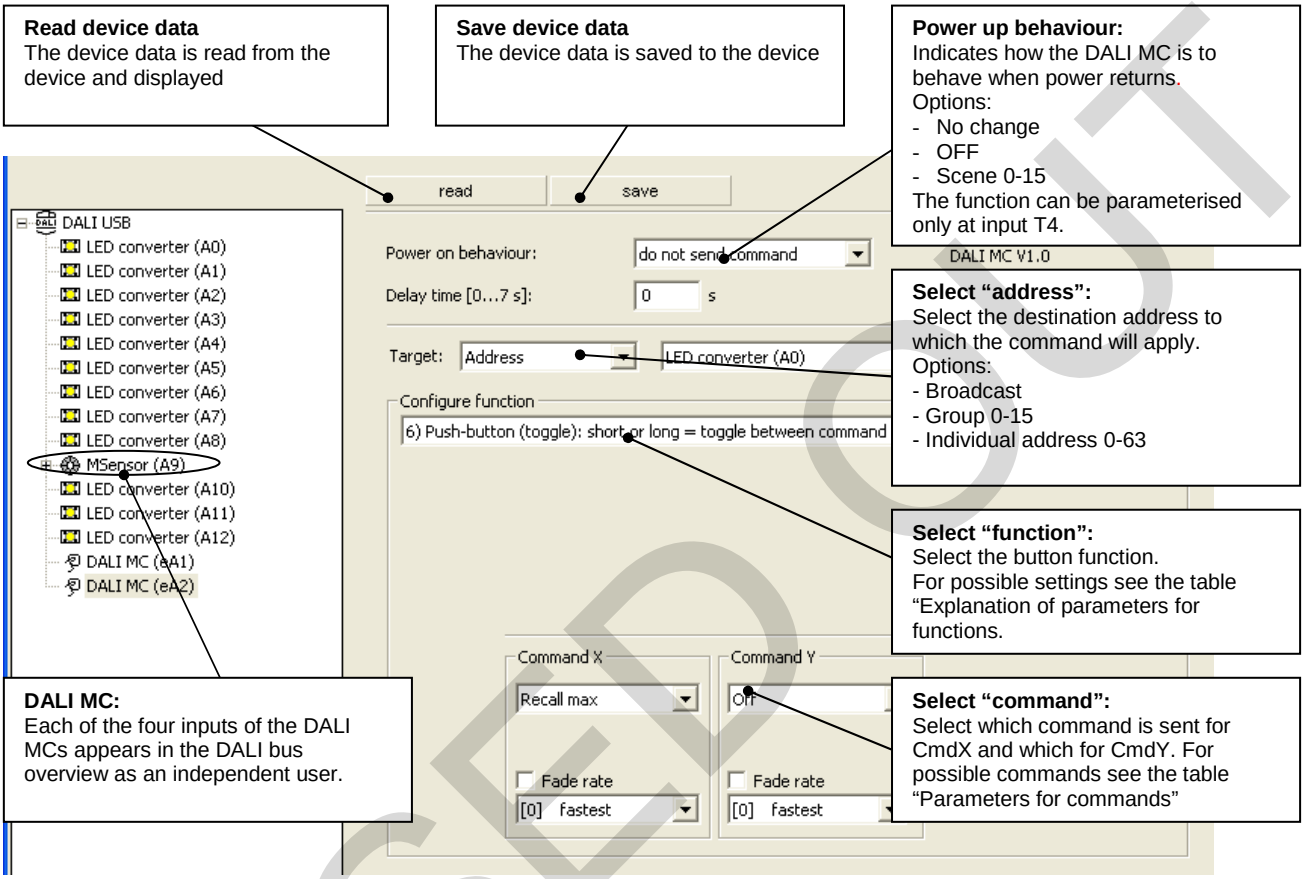
   For addressing the manual input devices the masterCONFIGURATOR asks the user to press a button on the manual input device. Pressing the button **twice** (double-clicking) on the DALI MC causes the input to be detected and an e-address to be assigned to it. Repeat this process until e-addresses have been assigned to all the inputs of the DALI MC. The e-addresses are assigned in the sequence in which the buttons on the DALI MC are pressed. After the addressing cycle they are listed in the DALI bus overview under these e-addresses.



   Pressing the “Next” button closes the addressing cycle and transfers the devices to the DALI bus overview.

1.2.2 Setting the parameters for the inputs

In the DALI bus overview each input of the DALI MC appears as an individual bus user. Clicking on an input opens the relevant parameter window.



Behaviour on power return:
The "Behaviour on power return" function can be used to define whether the DALI MC is to switch the lighting to a predefined state when power returns.
The following settings are available:

- No change
- OFF
- Scene 0-15

You can use the Delay parameter to specify how long to wait until the selected command is sent. (Allowance for the start-up time of the DALI ballasts when power returns)
The function parameters are set in the parameter window of input T4. The function is not available for any of the other inputs.

Table 1: Explanation of parameters for functions

Function	Description
1) Push-button: short or long = 1 * command X	Briefly pressing or holding down the push-button will send command X one time.
2) Push-button: short = 1 * command X, long = 1 * command X then 1 * command Y	• Briefly pressing the push-button will send command X one time. • Holding down the push-button will send command X once, and then command Y once.

Function	Description
3) Push-button: short = 1 * command X, long = 1 * command X then repeatedly command Y	• Briefly pressing the push-button will send command X one time. • Holding down the push-button will send command X once, and then command Y repeatedly.
4) Push-button: short = 1* command X, long = repeatedly command Y	• Briefly pressing the push-button will send command X one time. • Holding down the push-button will repeatedly send command Y.
5) Push-button (toggle): short or long = toggle between command X and Y	Briefly pressing or holding down the push-button will alternate between sending commands X and Y.
6) Push-button (toggle): short or long = toggle between command X and Y, lighting-based	Briefly pressing or holding down the push-button will alternate between sending commands X and Y. The command sent in each case depends on the status of the lighting: • If the lighting was previously switched off, command X is sent. • If the lighting was previously switched on, command Y is sent.
7) Push-button (dimming key): short = toggle between command X and Y, long = dimming, lighting-based	SwitchDIM mode • Briefly pressing on the dimming key will alternate between sending commands X and Y. The command sent in each case depends on the status of the lighting. • If the lighting was previously switched off, command X is sent. • If the lighting was previously switched on, command Y is sent. Holding down the dimmer switch dims or brightens the lighting.
8) Switch: close = command X, open = command Y	• When the switch is closed, command X is sent. • When the switch is opened, command Y is sent.
9) Changeover switch: close = command X, open = command Y, lighting-based	Each time the switch is pressed, the commands X and Y are sent in alternating order. The command sent in each case depends on the status of the lighting: • If the lighting was previously switched off, command X is sent. • If the lighting was previously switched on, command Y is sent.
10) Stairwell function: close = command X, start run-on time, run-on time elapsed = command Y	If the push-button is pressed, command X is sent and the run-on time starts. Once the run-on time has elapsed, command Y is sent.
Macros	8 DALI macros can be called up - Macro 1: Go Home - Macro 2: MSensor automatic - Macro 3: Sequential scene recall - Macro 4: Dynamic scene - Macro 5: DALI reset - Macro 6: e-Power ON Level - Macro 7: PCA compatibility - Macro 8: User-defined DALI commands For a more detailed description see Section 3.4.2.3 Macros

Table 2: Parameters for commands

Function	Description
Light level (DAP)	Calls up a particular light value in percent
Off	Switches the light off
Up	Increases the light value by the dimming steps defined in the fade rate
Down	Reduces the light value by the dimming steps defined in the fade rate
Step up	Increases the light value by one step
Step down	Reduces the light value by one step
On and step up	Switches the light to the Minimum Level if the device was already off. If the device is on, the light value is increased by one step.
Step down and off	Reduces the light value by one step. If the device is at Minimum Level it is switched off.
Recall min.	Calls up the minimum level
Recall max.	Calls up the maximum level
Go to scene X	Calls up lighting scene “X”

Note: After the input has been configured the parameters have to be transferred to the DALI MC by pressing the “Save” button.

1.2.3 Macros

The inputs of the DALI MC can also be parameterised so that they call up a predefined macro. The following macros are available:

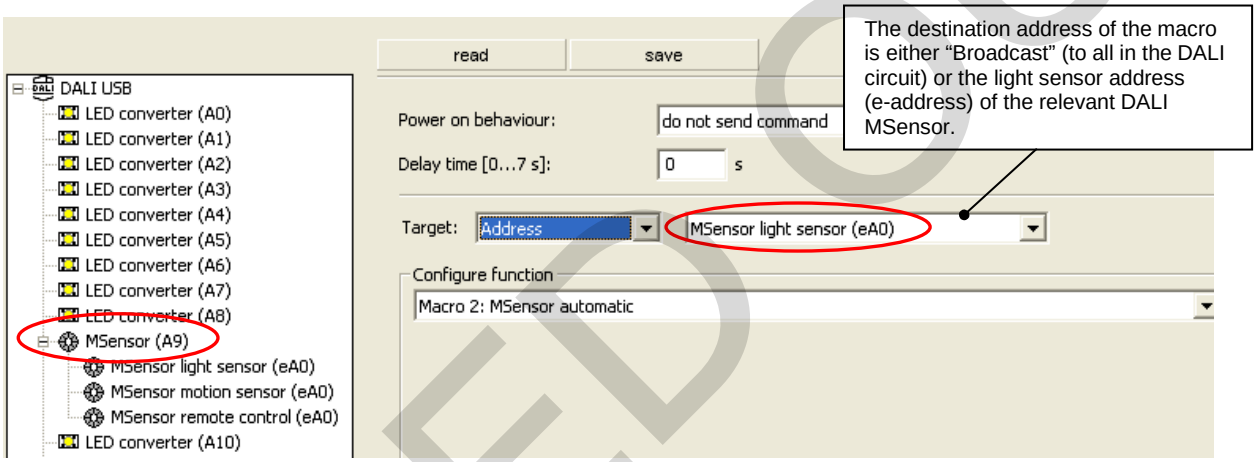
- Macro 1: Go Home

Function:	Delayed light off (slow fade down)

	Name	**Description**
Adjustable parameters:	Fade Time	Fade time for the off command
	Reset Fade Time	Time to which the cross-fade time is to be reset after execution of the off command

- Macro 2: MSensor automatic

Function:	Lighting control for the selected DALI MSensor is activated

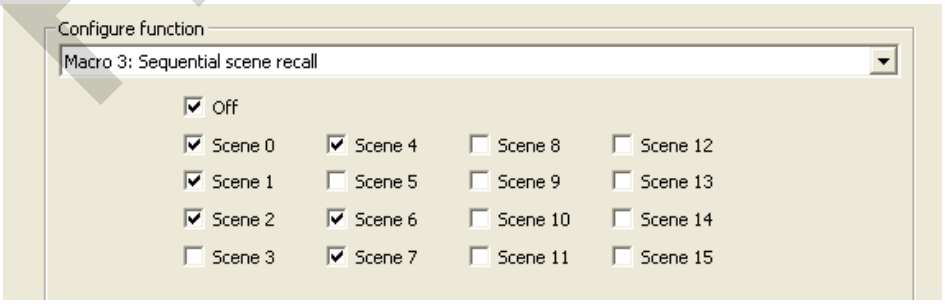


- Macro 3: Sequential scene recall

Function:	The next scene is called up each time button connected to the input is pressed. At the end of the sequence the process starts again from the beginning.

Process:	Press => Scene 0 => Press => Scene 1 => etc.

	Name	**Description**
Adjustable parameters:	Scenes 0-15	Selection of the scenes to be recalled
	OFF	Selection as to whether an off command is to be sent at the end of the sequence.



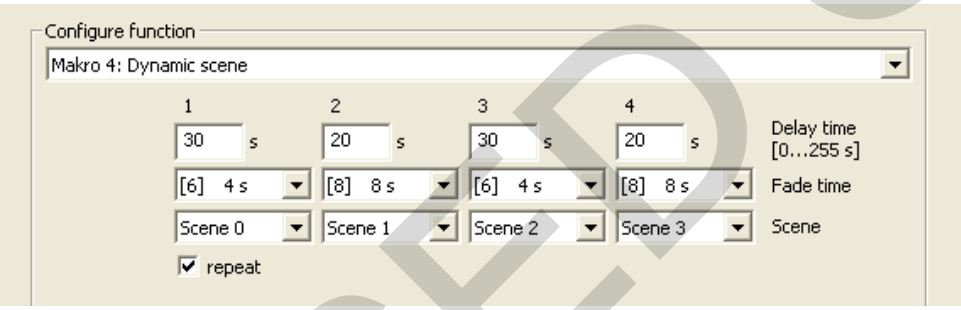
Note: The sequence of the scenes cannot be influenced. The scenes are always sent in ascending order.

- Macro 4: Dynamic scene

Function:	Pressing the button calls up a sequence of four scenes. The cross-fade time and dwell time can be freely defined for each scene.

Process:	Short press => Starts the sequence Short press (with sequence running) => Stops the sequence Long press (with sequence running) => Stops the sequence and sends an OFF command

	Name	**Description**
Adjustable parameters:	Delay	Delay time until the scene is called up. The delay time of the second scene is therefore the dwell time of the first scene, etc. The delay time of the first scene is effective only if the sequence is repeated (the dwell time of the fourth scene before the first scene is called again) and is ignored when the sequence is started by means of the button
	Fade Time	Fade time for the new scene
	Scene	Selection of which scene is to be called up
	Repeat	The sequence is started again at the first scene after the last scene has been reached



- Macro 5: DALI reset

Function:	Reset for the defined devices As an option all the DALI addresses can be deleted The following parameters are reset to the factory setting: - Group and scene settings - max. Level, min. Level, Power On Level, System Failure Level - Fade Time and Fade Rate If the DALI ballast has any other parameters (e.g. ePower On Level for PCA lp) they are not reset.

	Name	**Description**
Adjustable parameters:	Delete DALI addresses	Reset the devices and delete the DALI addresses

- Macro 6: e-Power ON Level

Function:	Sets the Power ON Level of the DALI ballast to the predefined value DALI devices that do not support this function ignore the command

	Name	**Description**
Adjustable parameters:	Memory value	Sets the Power ON Level to DALI Memory
	Fixed Power ON value	Light level in percents

- Macro 7: PCA compatibility

Function:	Sets the “PCA compatibility” parameter in PCA EXCEL lp devices to the predefined value DALI devices that do not support this function ignore the command

- Macro 8: User-defined DALI commands

Function:	This macro executes a COT file that can be created by the user. Note the following: - The COT file must not exceed ten commands. - The destination address must be specified in the COT file - The send delay time from one command to the next is fixed at 100 ms and cannot be changed

Note: Macro 8 requires a very good knowledge of the DALI command set.

1.2.4 Default setting:

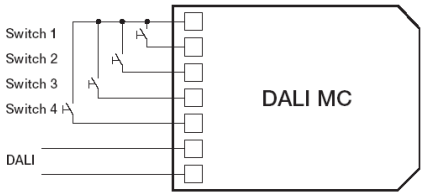
The DALI MC has the following factory default input settings:

Table 3: Default settings

	Input 1	**Input 2**	**Input 3**	**Input 4**
Destination address	Broadcast	Broadcast	Broadcast	Broadcast
Function	Button: CmdX on press, repeats CmdY on long press	Button: CmdX on press, repeats CmdY on long press	Button: sends CmdX	Macro 2: MSensor automatic
CmdX	Recall max	Off	Scene 1	---
CmdY	Up	Down	---	---

1.3 Connection

The DALI MC switch module is connected directly to the DALI control line and does not need a separate power supply. It is powered via the DALI circuit (current draw = 6 mA). It can be connected to the DALI circuit with either polarity.



Note: The connection leads between the switch or button and the DALI MC must not be longer than 50 cm.
The DALI circuit is not SELV. This means that the switches and cabling must be suitable for mains voltage.

1.4 Example: Conference room with DALI MSensor and DALI MC

Requirement

- Switch on via momentary switch
- Switch off via motion detector (off-only function)
- Daylight-dependent control of illuminance
- Retrieval of user-defined lighting scenes (e.g. the presentation scene)

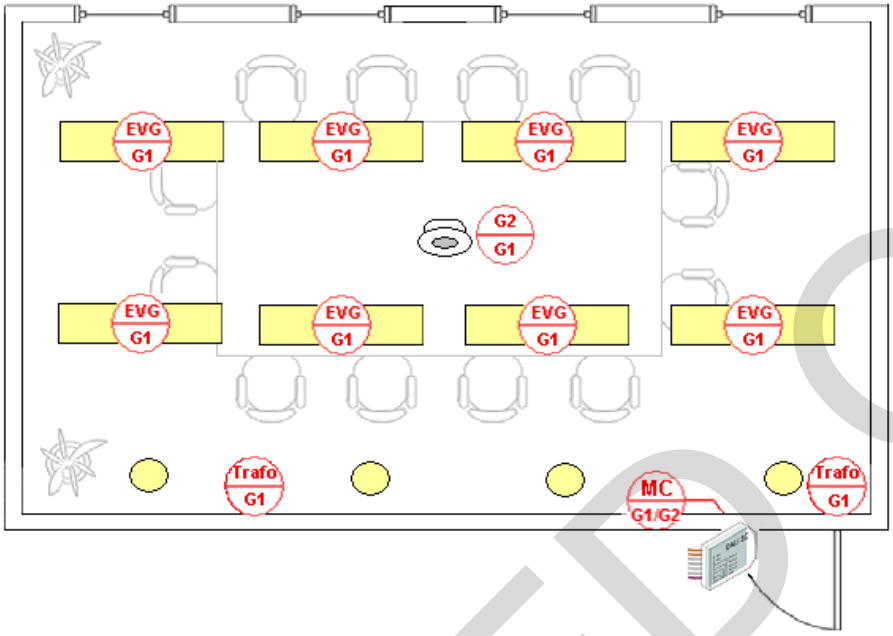


Fig. 1: Overview of a conference room set-up

Table 4: Assignment of DALI MSensor and DALI MC

Controls	Assignment
DALI MSensor	Luminaire group: Group 1 Sensor group: Group 2 Rotary switch setting 1 (Groups 1+2):
DALI MC	Input 1: Destination address: Broadcast Function: Macro 2: MSensor automatic Inputs 2-4: Destination address: Broadcast Function: Button Command: Go to Scene 1-3