Lunatone

DALI MC

Datasheet

Multi Control Module

DALI control module with four
programmable inputs for standard
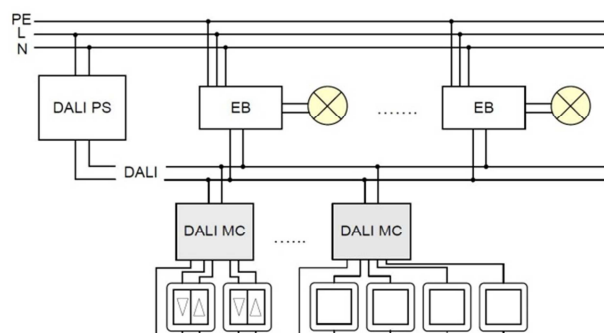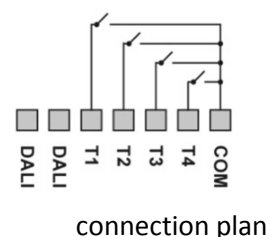push button switches

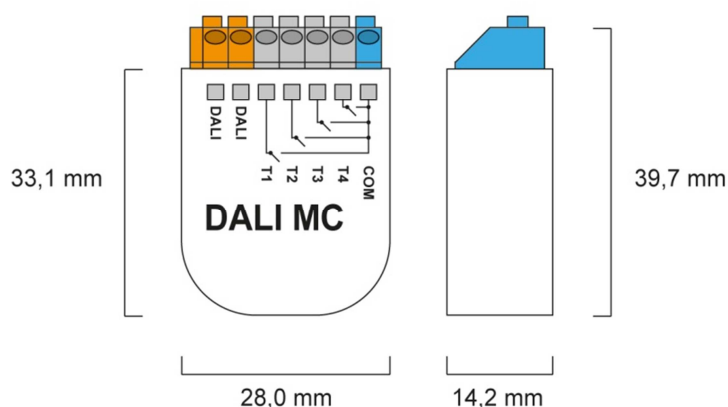Art. Nr. 86458507

DALI MC Multi Control Module

Overview

- Compact DALI control unit with 4 free programmable switch inputs

- Via the programmable switching modes (short, long press; toggle; etc.) a maximum of two options can be assigned to each input. One function can be set as pre-set in each case.

- The following functions are available: dim up, dim down, off, recall min, recall max, goto scene 1-16, direct arcpower in % as well as predefined and self-configured macros

- The DALI MC also has an adjustable „power-up"-function. In other words a user-defined command can be sent on power up (e.g. after a power failure)

- Individual addresses (1-64), group addresses (1-16) or broadcast can be set as destination

- For simple dimming and switching functionality the default configuration can be used (Recall Max / Off / Dim Up / Dim Down / Recall Min - Broadcast).

- Any other configuration of the DALI MC can be set up with „DALI-Cockpit" software and DALI-USB interface

- Multiple DALI MC modules can be used on the same DALI-line

- The DALI MC can be installed in the conduit box behind the momentary switch.

- The DALI MC must not be connected to the mains. It is supplied directly via the DALI signal line.

- The momentary switches are connected directly to the DALI MC (potential free contacts).

Specification, Characteristics

type	DALI MC
article number	86458507
supply	via DALI signal line
typ. current consumption	4.1 mA
input	4 switches or relays
output	DALI
function	programmable
permitted ambient temperature	0°C-50°C
protection class	IP20
connecting wire cross section	0.5-1.5 mm^2
wiring length to momentary switches	50cm max.

connection plan

typical installation

press switch	duration	
definition	min	max
brief	40 ms	500 ms
long	>500 ms	

definition depress time

geometry

Installation

The DALI MC is connected to the DALI-line. It is powered like all DALI modules directly by a DALI PS via the DALI signal line and does not need a separate power supply. A typical value for the current consumption is 4.1mA.

The DALI-line is polarity free and protected against overvoltage of up to 270Vac. DALI signals are not SELV. Therefore same procedures should be applied as working with main voltage.

Any standard switch compatible with mains voltage can be connected to the module. It is also possible to control the inputs of the DALI MC with relays. The switch-inputs are not overvoltage protected.

DALI MC modules allow multi master operation. Multiple control modules can be used on the same DALI network. When using this option do not ever connect COM-ports of several DALI MCs (potential-free control).

Due to the compact design the DALI MC can be easily placed into the mounting box of a momentary switch.

Functionality and Configuration

By using a DALI MC standard (230V) switch or pushbutton can be transformed into a "DALI-switch". On any switching action DALI-commands can be sent to various desired destinations.

Via a DALI-USB interface the software tool "DALI-Cockpit" can communicate with the DALI MC. So the desired functionality can be configured easily on PC.

When pressing a pushbutton connected to a DALI MC in addressing mode it will be automatically detected and registered by the DALI-Cockpit. The relationship between spatial arrangement of the switch and assigned number in the software is simply established that way.

For each application a high level on flexibility and individualism is offered due to the parameters available. Switching modes, destination addresses and DALI commands belong to the settings that can be configured. Moreover the behaviour after "system recovery" can be set.

By means of the switching mode different actions for brief and long depress time can be defined for the momentary switches for miscellaneous applications. The functions vary from simple push buttons or toggle push buttons to more automated systems like lighting based push button dimming keys and stairwell functions. A complete overview is given in the table below.

Nr	Function	Action	Description
1	Push Button	short/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 or holding down the push-button will send command X one time Holding down the push button will send command X once and then command Y once
3	Push Button	short: 1 * command X long: 1 * command X then repeatedly command Y	Briefly pressing or holding down 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 or holding down the push-button will send command X one time Holding down the push button will repeatedly send command Y
5	Push Button Toggle	short/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/long: toggle between command X and Y lighting status based	Briefly pressing or holding down the push button will alternate between sending commands X and Y lighting status based: If the light was previously switched off -> command X If the light was previously switched on -> command Y
7	Push Button Dimming Key	short: toggle between command X and Y, lighting status based long: dimming, lighting based	Briefly pressing the push button will alternate between sending commands X and Y lighting status based: If the light was previously switched off -> command X If the light was previously switched on -> command Y Holding down the dimmer switch dims or brightens the lighting.
8	Switch	off: Command X on: Command Y	Switching On will send command X Switching Off will send command Y
9	Toggle-Switch	On/Off: Toggle between command X and Y, lighting status based	Switch On/Off toggles between sending command X and Y – if the light is on command X, if the light is off command Y
10	Stairwell Function	short/long: command X, after run-on time command Y	If the pushbutton is pressed, command X is sent and the run-on time starts. Once the run-on time elapsed, command Y is sent.
	Macro	short/long: call DALI-Macros	predefined macros or user defined DALI command set

In addition to the switching mode the reaction on a switching action has to be defined. It consists of a DALI command and destination address. Individual addresses (1-64), group addresses (1-16) or broadcast can be set as destination address.

As an alternative to the transmission of any single DALI command initiated by a switching action, it is possible to transmit a set of commands within a DALI-macro. This option can be used for either predefined processes (such as a scene sequencer) or any user-defined sequence of DALI-commands.

For more details on the selection of predefined macros and the ability to create custom macro files check the manual of the DALI-Cockpit configuration software.

In the table below a summary of the DALI commands available is given.

command number	command name	function
-	DIRECT ARC POWER	direct arc power Level in %
0	OFF	off
1	UP	dim up (using fade rate)
2	DOWN	dim down (using fade rate)
3	STEP UP	increases light level by one increment
4	STEP DOWN	decreases light level by one increment
5	RECALL MAX	recalls MAX value
6	RECALL MIN	recalls MIN value
7	STEP DOWN AND OFF	decreases light level by one increment, if value at MIN switch off
8	ON AND STEP UP	increases light level by one increment, if OFF switch on
16-31	GO TO SCENE	go to scene 0-15

Another configurable feature is the "power-up"-function. This is a user-defined reaction on a power up. The following options are available for the DALI MC:

- no action
- OFF
- go to scene 0-15

To take the startup-time of DALI-ballasts into account a delay time can be configured between power up and the start of transmission of the selected command.

This functionality of the DALI MC can thus be interpreted as an extension for DALI control gears. Although those ballasts have a POWER ON LEVEL for mains power up, they don't have a predefined dim level for bus voltage return. With the help of this feature the SYSTEM FAILURE LEVEL (which is set at bus voltage loss) can be overruled.

On the basis of the described configuration Options the combination of DALI MC and 4 standard switches enables comprehensive and flexible lighting control in a very simple manner.

For simple applications the default configuration is sufficient, in this case a configuration via PC is unnecessary. Using the initial settings the DALI-commands in the table below will be sent broadcast.

Input	Default (Function-Nr)	Action
1	Push Button Toggle (6)	Recall Max / Off
2	Push Button (1)	Dim Up
3	Push Button (1)	Dim Down
4	Push Button (1)	Recall Min

DALI Instruction Set

The DALI MC operates as control device on the DALI-line and transmits the predefined DALI-commands on switching actions. It is based on the standard for DALI Control Gears (IEC 62386-102). In addition to the DALI commands mentioned above the special command for writing the data transfer register and command 47 (STORE DTR AS FADE RATE) are implemented. This is necessary in order to transmit the respective fade rate for various dimming speeds before each dimming action.

Additional Information and Equipment

DALI-Cockpit – free configuration tool from Lunatone for DALI systems
http://lunatone.at/en/downloads/Lunatone_DALI-Cockpit.zip

DALI Tutorial – short introduction describing the structure and fundamental principles of DALI systems. Using the DALI Cockpit the configuration of groups and scenes, the configuration and parameter settings of various Lunatone DALI components are shown.
http://lunatone.at/en/downloads/Lunatone_DALI_Tutorial_EN.pdf

DALI-Manual http://www.dali-ag.org/c/manual_gb.pdf

DALI USB – PC interface for DALI system. The DALI-Cockpit can access DALI components using the DALI USB
http://lunatone.at/en/downloads/Lunatone_Art24138923_DALI_USB_Datasheet_EN.pdf

DALI PS – power supply for a DALI line
http://lunatone.at/en/downloads/Lunatone_Art24033444_DALI_PS_Datasheet_EN.pdf

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