



DALI MC4L

Datasheet

**Multi Control Module with galvanic
isolated switching inputs**



DALI control module with four freely
programmable switching inputs for
mains voltage

Art. Nr. 86458507-4L
Art. Nr. 86458507-4LHS

DALI MC4L Multi Control Module

Overview

- DALI control module with 4 switching inputs for mains voltage
- galvanic isolation between switching input and DALI-line
- The function of each switching input can be configured individually
- The configuration can be set and changed with the help of the DALI Cockpit and a DALI USB interface
- Destination address, switching mode and DALI-command can be assigned to each pushbutton
- individual addresses (0-63), group addresses (0-15) or broadcast can be set as destination address
- Various switching modes (short, long press; toggle; etc.) can be assigned to each pushbutton
- The following functions are available: up, down, off, recall min/max, goto scene 0-15, direct arc power in % as well as macros.
- DALI DT8 support for adjustable white luminaires with the help of special macros.
- memory function
- The module also has an adjustable „power-up“-function. In other words a user-defined command can be sent on power up (e.g. after power-failure)
- Multi-master capability, several modules can be installed on the same DALI-line
- modules available for back box installation and din rail mounting

Specification, Characteristics

Typ	DALI MC4L	DALI MC4L-HS
article number	86458507-4L	86458507-4LHS
supply	Via DALI-line	
typ. current consumption	2,6 mA	
output	DALI	
function	4x switching input 230V~	
article number	programmable	
geometry	58mm / 32mm / 15mm	98mm / 57mm / 18mm
temperature	-10°C bis +65°C	
protection class	IP20	
connecting wire cross section	0.5-1.5 mm ²	0.5-2.5 mm ²
mounting	back box	din rail

Button Press	Duration	
	min	max
short	40 ms	500 ms
long	>500 ms	

definition putton press

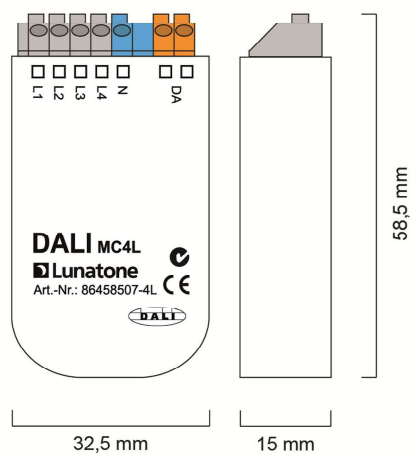
Factory Default: Switch&Dim

L1: Recall Max (Broadcast)

L2: Up (Broadcast)

L3: Off (Broadcast)

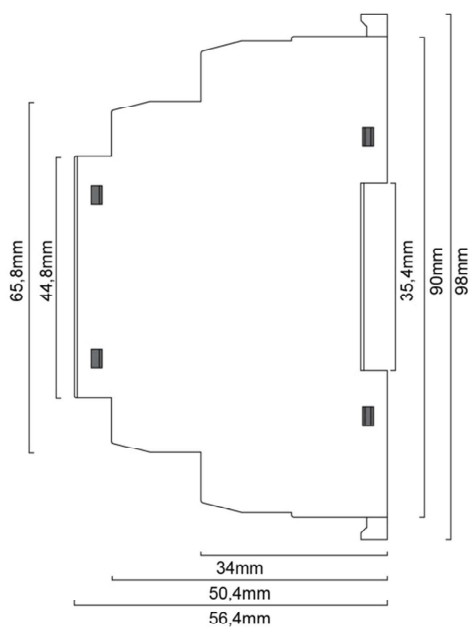
L4: Down (Broadcast)



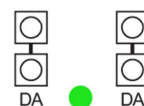
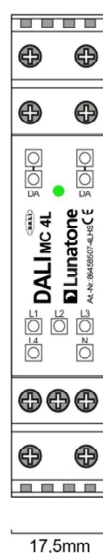
geometry MC4L (back box installation)



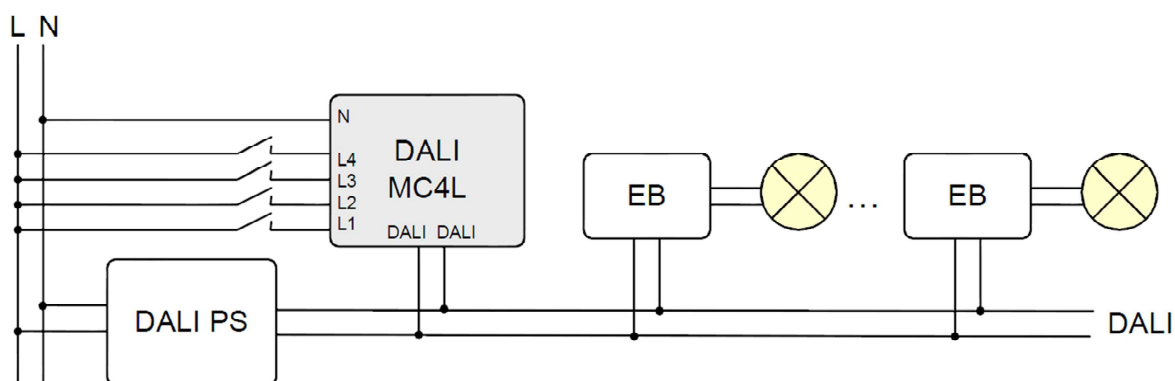
connection plan (MC4L)



Geomtry MC4LHS (din rail mounting)



connection plan (MC4LHS)



typical application

Installation

The DALI-MC4L is connected to and supplied directly by the DALI signal line (typical current consumption: 2,6 mA (MC-4L) and 4mA (MC-4LHS)). The connection to the DALI-line is polarity free and protected against overvoltage of up to 270Vac.

The switching inputs L1-L4 are designed for operating with mains voltage. The inputs L1-L4 are galvanically isolated to the DALI-line.

Addressing and Configuration, Factory Settings

With the help of a DALI-USB interface the DALI-Cockpit software tool can communicate with the DALI MC4L. This way the desired functionality can be configured easily on PC.

During the addressing process the DALI MC4L is automatically detected and listed in the DALI Cockpit.

The DALI-Cockpit software tool can be downloaded from the Lunatone website. Standard DALI ballasts can be addressed and configured as well as the DALI MC4L. DALI-Cockpit and DALI-USB Interface are required for configuration only and can be removed for standard operation.

For simple applications the factory settings can be sufficient (dim&switch function). In this case there is no need for a DALI USB interface and configuration tool. With the factory settings dimming and switching of the entire DALI circuit (Broadcast) can already be performed.

Adjustable Functionality

With the DALI Cockpit software the 4 inputs of the DALI MC4L can be configured. By pressing the device connected to the DALI MC4L DALI commands can be sent to one or more target addresses and groups.

The available parameters allow very flexible and individual solutions.

The first settings handle the switching modalities, the functionality of the switching module connected to the DALI MC4L.

Practical examples are: A switch where brief and long pressing duration results in different DALI commands or a switching key, which sends commands depending on the lighting status or its deployment as automatic staircase device with configurable delay between On- and Off-command.

A complete list of all functions is listed in the table below:

nr	function	action	description
0	-	No action	
1	Push Button	short/long: 1 * command X	Briefly pressing or holding down the push button will send command X once
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 Toggle	short: toggle between command X and Y	Briefly pressing the push button will alternate between sending commands X and Y

5	Push Button Toggle	short: toggle between command X and Y lighting status based	Briefly pressing the push button will alternate between sending commands X and Y lighting based: If the light was previously switched off -> command X If the light was previously switched on -> command Y
6	Push Button Dimming Key	short: toggle between command X and Y, lighting status based long: dimming, lighting status based	Briefly pressing the push button will alternate between sending commands X and Y lighting 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.
7	Switch	CmdX if On, Cmd Y if Off	If switch position is changed CmdX if switched to On, CmdY if switched to Off
8	Crossover Switch	Cmd X or Cmd Y, lighting status based	If switch position is changed CmdX or CmdY is sent dependent on light status
9	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.
10	Taster	Kurz: 1xBefehl X (nach auslassen) Lang: wiederholt Befehl Y	Nach einem kurzen Tastendruck (nach dem Auslassen) wird Befehl X gesendet, bei langem Tastendruck wird Befehl Y wiederholt ausgegeben.
11	Push Button	1 * command X, then command Y repeated without long button delay	Pressing the pushbutton will send command X and then command Y repeated without long button press delay.
12	Push Button	Sends CmdX, Short Press Release: CmdY Long: repeats CmdX	Sends CmdX on button pressed, if button is released within short press duration send CmdY, else repeat CmdX

Each input up to 4 destination addresses can be assigned to. Single-device-addresses, groups, or broadcast can be used.

In the next step the DALI commands that should be sent to these addresses or groups have to be defined. The available set of commands is listed below:

cmd number	cmd 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
10	GOTO LAST ACTIVE LEVEL	DALI2-Cmd for switching on to the last active level (Memory-Function)
16-31	GO TO SCENE	go to scene 0-15

Besides the recall of commands, pressing a push button can also recall a DALI macro. These macros can be used for predefined processes (for example a sequential recall of scenes, cyclic "Scene-switch") or any other sequence of user-defined DALI commands.

The available set of macros is listed below:

macro (required memory)	function
Go Home (2 Byte)	Light dims down to DAP 0 with predefined fade time, then fade time is set back to a programmable value
Sequential Scenes (3Byte)	Selectable scenes (or OFF) will be sent sequentially

	with each button press.
Dynamic Scenes (33 Byte)	Dynamic sequence of up to 16 selectable scenes, fadetimes and delays, stops with next button press
DALI-Reset (1 Byte)	Sends DALI-Reset (address can be deleted optionally)
user defined cmds (5 bytes per command, 19 commands max.)	A user defined macro file can be loaded to the switch
DT8 Cooler 3x (0 Byte)	Activates DT8 and sends STEP COOLER command 3x
DT8 Warmer 3x (0 Byte)	Activates DT8 and sends STEP WARMER command 3x
Switch On (4 Byte)	MEMORY FUNCTION Switches to last recent level, works only in combination with Switch Off
Switch Off (3 Byte)	MEMORY FUNCTION Stores last recent level and switches off
Dim Up (after Switch Off) (3 Byte)	MEMORY FUNCTION Allows to Dim Up from Off-State to MAXLEVEL, when having used Switch Off before

For each button there are 96 byte macro memory, which can be divided freely on macros for command X and command Y. The total amount should not exceed 96bytes. Detailed information on predefined macros and the setting of user-defined macros are described in the user-manual of the configuration software (DALI cockpit).

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 MC4L:

- 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 MC4L can thus be interpreted as an extension for DALI control gear. 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 a bus voltage loss) can be overruled.

Furthermore the MC4L offers memory function (Switch On to the last active level) This can either be done with the help of the DALI2-Cmd GOTO LAST ACTIVE LEVEL (if the addressed control gear already support this command) or with the help of the macros Switch On and Switch Off (which have always to be used together!).

With the described configuration settings it is possible to set complex but also very flexible light applications, in a rather easy way.

DALI Instruction Set

The DALI MC4L operates as control device on the DALI-line and transmits the predefined DALI-commands whenever the push-button at the input is being pressed. It is based on the standard for DALI Control Gears (IEC 62386-102). In addition to the above mentioned DALI commands there are special commands implemented for writing data transfer registers (DTR) and command 47 (STORE DTR AS FADE RATE). Furthermore the ACTIVATE command and the DT8-commands STEP COOLER and STEP WARMER are used for colour temperature control.

In addition it is also possible to set up a Button to send out the “DALI2”-Cmd Nr 10 – GOTO LAST ACTIVE LEVEL.

Purchase Information

Art.Nr. 86458507-4L: DALI MC4L, 4 switching inputs for mains voltage, back box installation

Art.Nr. 86458507-4LHS: DALI MC4L, 4 4 switching inputs for mains voltage, din rail mounting

Additional Information and Equipment

DALI-Cockpit – free configuration tool from Lunatone for DALI systems

<http://lunatone.at/en/downloads/Lunatone-DALI-Cockpit.zip>

Lunatone DALI products

<http://www.lunatone.at/en/>

Lunatone datasheets and manuals

<http://lunatone.at/en/downloads/>

Contact

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www.lunatone.com



Disclaimer

Subject to change. Information provided without guarantee.
The datasheet refers to the current delivery.

The compatibility with other devices must be tested in advance to the installation.