

# LED wDALI MC Switch Input Modul Set - User Manual



Button modul (Transmitter)



Receive modul (Receiver)

Item No.: LC-004-302

## 1. Product Description

The wDALI MC Switch Input Modul Set is a compact wireless Multi Control module with 4 freely programmable switching inputs (potential-free closing contacts).

The module can be used in a flush box directly behind a light switch.

The supply of the module directly via the DALI Line.

## 2. Specifications

supply receiver	via DALI- Bus
typ. current consumption	3,8 mA
output	DALI
frequency	2,4Ghz
frequency range	upto 300m
Connecting wire cross section	0.5-1.5 mm <sup>2</sup>
estimated battery lifetime	6 years
Dimensions Transmitter (LxWxH) in mm	40 x 28 x 15 mm
Dimensions Receiver (LxWxH) in mm	59 x 33 x 15 mm
weight	10g (Transmitter), 25g (Receiver)

## 3. Description

1. DALI- control module with 4 general purpose inputs.
2. The wDALI MC can control a DALI circuit wirelessly
3. The wDALI MC consist of two components - the user interface which can be placed anywhere (sender) and a transceiver, which has to be connected to the DALI signal line.
4. The wDALI MC can be used without any configuration effort by using the factory settings.
5. Configuration via DALI line and the free software package „DALI-Cockpit“.

6. Destination address, switching mode and DALI-command can be assigned to each pushbutton.
7. Individual addresses (0-63), group addresses (0-15) or broadcast can be set as destination address.
8. Various switching modes (short, long press; toggle; etc.) can be assigned to each pushbutton.
9. The following functions are available: up, down, off, recall min/max, goto scene 0-15, direct arc power in % as well as macros.
10. DALI DT8 support for adjustable white luminaires with the help of special macros.
11. 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).
12. Multiple wDALI MC can be used on the same DALI signal line.
13. The sender module of the wDALI MC can be placed in a flush mounted socket anywhere in the radio receiver range of the transceiver module (up to 300m).
14. The sender module is battery powered (lifetime about 6 years at typical use)
15. The receiver module of wDALI MC is directly supplied with power via the DALI signal line and does not need an additional connection to the mains.

### Addressing and Configuration, Factory Settings

With the help of a DALI-USB interface the DALI-Cockpit software tool can communicate with the wDALI MC. This way the desired functionality can be configured easily on PC. During the addressing process with the PC Software you will be asked to press any button of the control-module attached to the wDALI MC. Afterwards the module will be registered and listed in the DALI Cockpit. If multiple wDALI MCs are in use, the order of activation will define allocation. The DALI-Cockpit software is a free configuration tool for DALI systems. Standard

DALI ballasts can be addressed and configured as well as the wDALI MC. 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 the following commands can be retrieved, the necessary commands are sent to the entire DALI circuit. (Broadcast)

factory setting: Switch&Dim

T1: Macro Switch On (switch on last set level)

T2: Dim Up

T3: Makro Switch Off (safe set level and turn off)

T4: Dim Down

Info: Please note that after turning off with the macro Switch OFF, the macro Switch ON has to be used to for turning on. This is especially important if multiple devices are in use.

### Adjustable Functionality

With the DALI Cockpit software the 4 inputs of the wDALI MC can be configured. By pressing the device connected to the wDALI MC, 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 regard the switching modalities, the functionality of the switching module connected to the wDALI MC. Practical examples would be: 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 two commands.

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

	Function	Action	Description
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.
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	Push Button	short: 1*command X on release long: command Y repeated	Briefly pressing the push button and release will send command X Holding down the push button will send command Y repeated
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.

Besides the switch functions the reactions/resulting behaviour has to be defined. The devices that should receive DALI commands should be registered. It is possible to use single-device-addresses, groups, or broadcast. Each input can be assigned 4 addresses. In the next step the DALI commands that should be send to these addresses or groups have to be defined.

The available set of commands is listed below:

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

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 (3 Byte)	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

macro (required memory)	Function
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 (3 Byte)	Switches to last recent level, works only in combination with Switch Off
Switch Off (2 Byte)	Stores last recent level and switches off
Dim Up (after Switch Off) (2 Byte)	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 “powerup”-function.

This is a user-defined reaction on a power up.

The following options are available for the DALI Switch Cross:

- 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 wDALI 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 a bus voltage loss) can be overruled. The wDALI MC will turn to the last set light value after restarting.

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 wDALI MC operates as control device on the DALI-line and transmits the predefined DALI-commands whenever the push-button 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.

#### Operating modes

The wDALI MC supports 3 operating modes (available from firmware version V1.5).

##### Master Mode (Default)

In this operating mode the wDALI MC works as a control unit and sends DALI commands to the loads, according to the configuration settings. In combination with an other central control device this default setting should be changed to one of the other operating modes.

## Event Message Mode

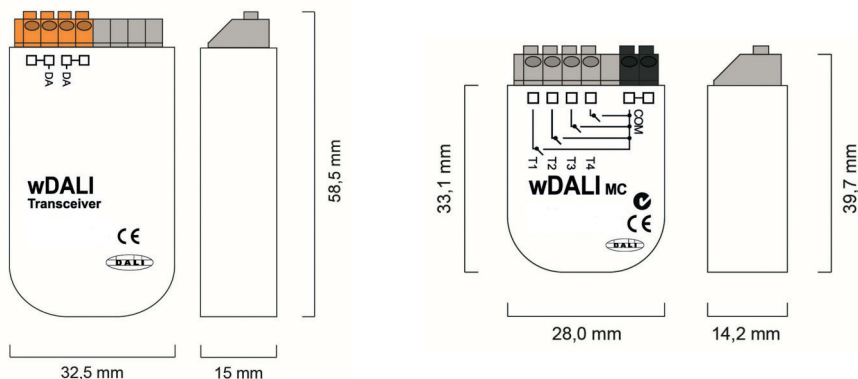
If an event occurs at the input a command is sent to the target address as an event indicator, this happens within the scope of the proprietary protocol extension. This message contains information about the type of action (short push, long push, or the end of a long push). Additionally the master-module can retrieve the origin of the event (switch number).

In this operating mode the wDALI MC does not control DALI-loads.

## Slave Mode

The slave mode is a passive operating mode. The wDALI MC is not automatically active, it only replies on request. For information retrieval a set of commands can be used, provided within the scope of the proprietary protocol extension, or the wDALI MC can be given an address and information can be retrieved via scene-retrieval. The operating mode can be set within the DALI cockpit.

## 4. Dimensions



## 5. Safety warnings

- 5.1. To avoid installed the product in minefield, strong magnetic field and high voltage area.
- 5.2. To ensure the wiring is correct and firm avoiding short circuit damages to components and cause fire.
- 5.3. Please install the product in a well ventilated area to ensure appropriate temperature environment.
- 5.4. The product must be worked with DC constant voltage power supply.  
Please check the consistence of input power with the product, if the output voltage of the power comply with that of the product.
- 5.5. Connect the wire with the power on is forbidden. Ensure proper wiring first then check to ensure no short-circuit, then power on.
- 5.6. Don't repair it by yourself whenever an error occur. Contact the supplier for any inquiry.

## 6. Wiring Diagram

### Installation

The receiver of the wDALI MC is connected to the DALI-line and powered directly via the DALI signal line. A typical value of the wDALI MC current consumption is 3,8mA. (For DALI bus supply the DALI PS can be used.) The connection to the DALI-line is polarity free and protected against overvoltage of up to 270Vac. The sender of the wDALI MC can be placed in a flush mounted socket, or anywhere in the radius of the receiver. The frequency range is depending on structural conditions (building construction), in open air the frequency reaches a distance of 300m.

