Lunatone

wDALI Switch

Datasheet

Wireless DALI Switch Module

Wireless DALI control unit with four
programmable momentary switches

Art. Nr. 86459541-W (white)
Art. Nr. 86459541-B (black)

wDALI Switch Wireless DALI Switch Module

Overview

- DALI control unit in cross switch design with 4 configurable pushbuttons.

- The wDALI Switch can control a DALI circuit without physical connection between DALI circuit and control device.

- The wDALI Switch consist of two components - the user interface which can be placed anywhere (transmitter) and a transceiver, which has to be connected to the DALI signal line.

- The wDALI Switch can control DALI systems without any configuration effort by using the factory settings.

- 2 default settings available.

- Configuration via DALI line and the free software package „DALI-Cockpit"

- 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 1-16, direct arc power in % as well as macros.

- DALI DT8 support for adjustable white luminaires with the help of special macros.

- Memory function for brightness realized with specific macros.

- The wDALI Switch 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).

- Multiple wDALI Switches can be used on the same DALI signal line.

- The transmitter part (input device) of the wDALI Switch is designed as wall switch and can be placed anywhere in the radio receiver range (up to 300m).

- The receiver part of the wDALI Switch (wDALI Transceiver) must not be connected to the mains. It is supplied directly via DALI signal line.
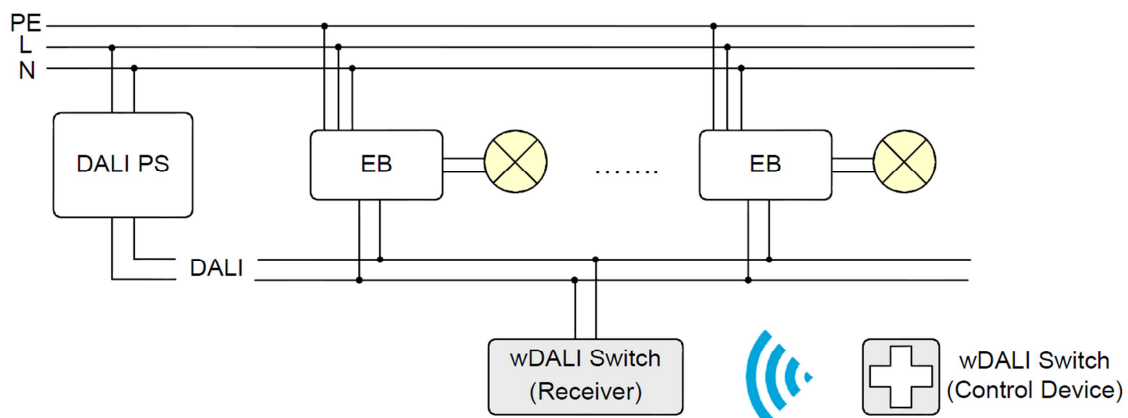
typical installation
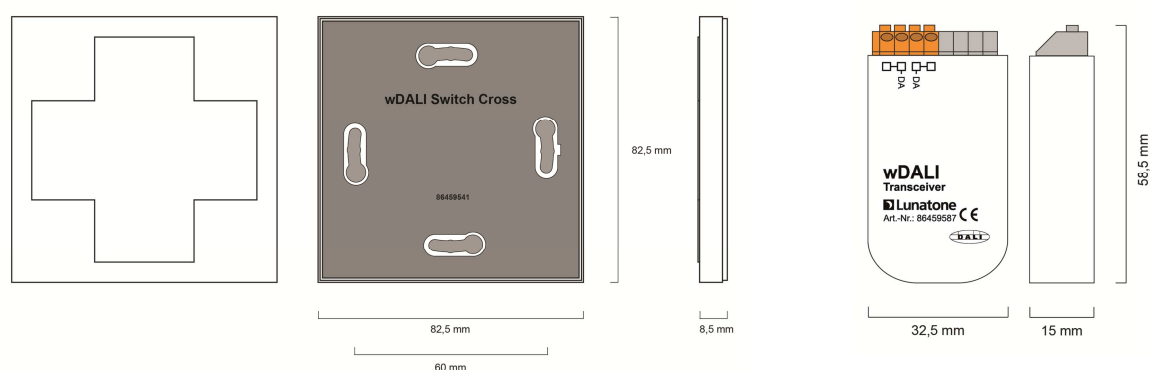
Specification, Characteristics

type	wDALI-Switch
article number	86459541-W / 86459541-B
colour	white / black
supply	via DALI-line
typ. current consumption	3,8 mA
output	DALI
function	programmable
frequency range	2,4Ghz
range	up to 300m
geometry input device (L/B/D)	82mm / 82mm / 8.5mm
estimated battery lifetime	6 years
geometry receiver (L/W/H)	59mm / 33mm / 15mm
temperature	-10°C to +50°C
protection class	IP20
Connecting wire cross section	0.5-1.5 mm^2

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

definition depress time

factory settings 1:
Switch&Dim

factory settings 2:
Switch&Dim, Colour Temp Control

geometry

Installation

The transceiver of the wDALI Switch is connected to the DALI-line and powered directly via the DALI signal line. A typical value of the DALI Switch current consumption is 3,8mA. For the DALI bus supply a DALI PS should be used.

The connection to the DALI-line is polarity free and protected against overvoltage of up to 270Vac.

The input device of the wDALI-Switch can either be mounted on a recessed conduit box or be glued on any place of your choice. The range of the wireless connection depends on the structural conditions, outdoors it is up to 300m.

Addressing and Configuration, Factory Settings

With the help of a DALI-USB interface the DALI-Cockpit software tool can communicate with the wDALI Switch. This way the desired functionality can be configured easily on PC.
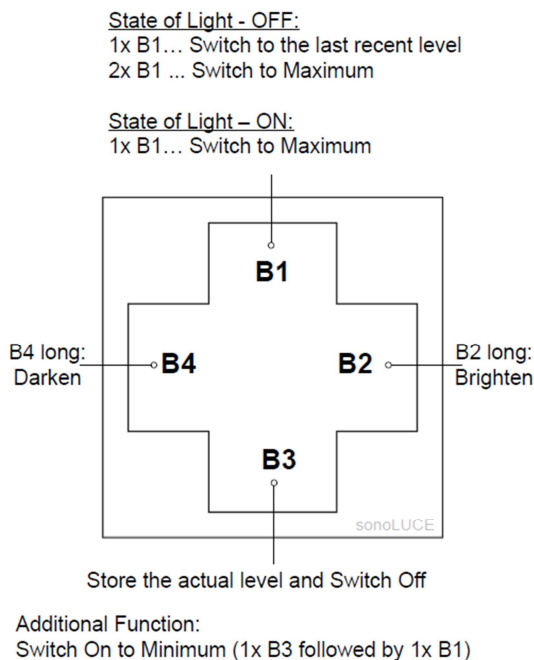
During the addressing procedure the DALI-Cockpit sofware will request pressing a pushbutton on each installed wDALI Switch. As a result the DALI-Cockpit will automatically detect and number all modules. If there are more wDALI Switches on a DALI-line spatial

arrangement and numbering are established by the software.

The DALI-Cockpit software is a free configuration tool for DALI systems. Hence standard DALI ballasts can be addressed and configured as well as the wDALI Switch[1]. DALI-Cockpit and DALI-USB Interface are only required for configuration and can be removed after setup (see typical installation drawing).

For the most common applications a PC-configuration is not needed, preset 1 (factory default) is for Switching and Dimming only. Another preset can be selected with the help of the DALI-Cockpit. Preset 2 can be used for controlling DT8 adjustable white DALI-ballasts. The presets and commands are shown in the diagram. All commands are sent to the entire DALI circuit (Broadcast).
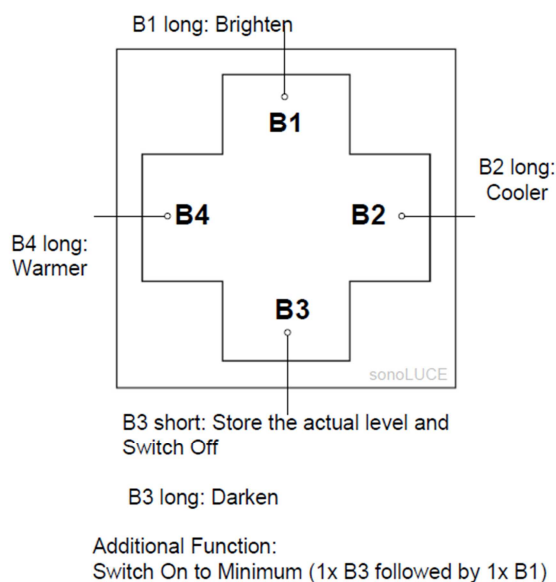
Preset 1: factory default

State of Light - OFF:
1x B1... Switch to the last recent level
2x B1 ... Switch to Maximum

State of Light – ON:
1x B1... Switch to Maximum

B1

B4 long: Darken — B4 — B2 — B2 long: Brighten

B3

sonoLUCE

Store the actual level and Switch Off

Additional Function:
Switch On to Minimum (1x B3 followed by 1x B1)

Preset 2:

State of Light - OFF:
1x B1... Switch to the last recent level
2x B1 ... Switch to Maximum

State of Light – ON:
1x B1... Switch to Maximum State of

B1 long: Brighten

B1

B4 long: Warmer — B4 — B2 — B2 long: Cooler

B3

sonoLUCE

B3 short: Store the actual level and Switch Off

B3 long: Darken

Additional Function:
Switch On to Minimum (1x B3 followed by 1x B1)

Adjustable Functions

With the help of the DALI-Cockpit the wDALI Switch can be configured. Any pushbutton can be assigned with DALI-commands which will be sent to max. 4 destinations when pressed.

For each application a high level on flexibility and individualism is offered due to the parameters available. Switching mode, destination addresses and DALI commands belong to the settings for a momentary switch. 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 via lighting based push button dimming keys to standard stairwell function with configurable delay time. A complete overview is given in the table below.

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[1] beside the DALI Switch all other Lunatone DALI components are supported

	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 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, long: ON AND STEP UP and repeatedly: dim UP/DOWN	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 starts the ON AND STEP UP function. Afterwards the current light status is dimmable with UP or DOWN.
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	Briefly pressing the push button and release will send command X
		long: command Y repeated	Holding down the push button will send command Y repeated
11	Push Button	short: 1*command X, then command Y repeated without long button press delay	Pressing the pushbutton will send command X and then command Y repeated without long button press delay.

In addition to the switching mode the reaction on a depress action has to be defined.

It is necessary to define the command receiver. It is possible to send to single addresses, groups as well as broadcast. Each button can be assigned 4 target addresses.

In the next step the DALI commands have to be defined. The table below contains a summary of the available DALI commands.

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

As an alternative to the transmission of any single DALI command initiated by a depress 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.

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 Commands (5 Byte per cmd, 19 cmds 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 (3 Byte)	MEMORYFUNKTION recalls last used level, only works in combination with Switch Off macro
Switch Off (2 Byte)	MEMORYFUNKTION Stores the actual value in the ballast and switches off
Dim Up (after Switch Off) (2 Byte)	MEMORYFUNKTION Macro for dimming up if Switch Off Macro has been used before

For each push button a macro memory of max 96 bytes is available. Those can be devided on commands X and Y. The sum of CmdX and CmdY macro memory may not exceed this value of 96 bytes. 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.

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 wDALI Switch:

- 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.

Those ballasts usually have a POWER ON LEVEL for mains power up, but no predefined dim level after bus voltage return. (SYSTEM FAILURE LEVEL in case of bus voltage loss). The wDALI Switch turns to the last set dim level at power up.

Based on the described configuration options the wDALI Switch enables comprehensive and flexible lighting control in a very simple manner.

DALI Instruction Set

The wDALI Switch operates as control device on the DALI-line and transmits the predefined DALI-commands when a momentary switch is pressed. 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 (DTR) and command 47 (STORE DTR AS FADE RATE) are implemented. Furthermore the ACTIVATE command and the DT8-commands STEP COOLER and STEP WARMER are used for colour temperature control.

Modes of Operation

The DALI Switch Cross offers 3 modes of operation. (firmware V1.5 or higher)

Master Mode (Default)

In this operating mode the device works as DALI control device sending DALI commands to DALI ballasts, according to the configuration settings. When used in combination with a central system controller the direct master mode might not be suitable and 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 Switch does not control DALI-loads.

Slave Mode

The salve mode is a passive operating mode. The wDALI Switch 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. It is also possible to give the wDALI Switch an address and information can be retrieved via scene-retrieval.

The operating mode can be set within the DALI Cockpit.

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/

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