

## DALI-2 ROT

rotary switch

### Datasheet

Control Device

Rotary knob  
for controlling light level  
in DALI/DALI-2-systems



Art. Nr. 86459822  
Art. Nr. 86459822-CH

all versions available with  
bus power supply (70mA): -PS

cover and rotary knob:  
see purchase order information at  
end of the document

# DALI-2 ROT Control Module

## Overview

- DALI-2 control module for switching, dimming.
- Individual DALI Commands can be assigned to the push and rotary button.
- brightness control  
 
- Instance mode sending DALI-2 event messages for integration in central control systems
- Multi-master capable, multiple modules can be installed on one DALI-line.
- factory settings allow easy application
- easy configuration via DALI USB interface and DALI-Cockpit software tool
- the module is supplied directly by the DALI-line, no additional supply required
- double DALI terminals for easy looping of the bus connection
- simple installation, (even with bus power supply), in a standard back box (version for Swiss back box -CH)
- Versions with integrated bus power supply 70mA, article number addition -PS
- suitable to be used with cover and knob of most common manufacturers, but also available as accessory
- beeper for localisation
- DALI-2 control device according to standard IEC 62386-103.
- Module with operating modes for colour & colour temperature control see: DALI-2 ROT NFC:  
<https://www.lunatone.com/en/product/dali-2-rot-nfc/>



## Specification, Characteristics

type	DALI-2 ROT
article number	86459822, 86459822-CH
<b>DALI-interface, supply</b>	
input type	DALI, supply
Marking	DA, DA
input voltage range	9,5V ... 22,5Vdc according to IEC62386
typ. current consumption DALI (at 16,5V)	3,5 mA
current consumption DALI (at 22,5V)	4 mA
addresses for control gear	0
addresses for control devices	1

**environmental conditions**

storing and transportation temperature	-20°C ... +75°C
operational ambient temperature	-20°C ... +60°C
rel. humidity, none condensing	15% ... 90%

**general data**

dimensions	70mm x 70mm x 38mm
shaft diameter	4mm, adapter with 6mm
mounting / intended use	back box
protection class	II in intended use
protection degree	IP20
manual control	rotary knob with integrated pushbutton function
Max start up time	150ms

**terminals**

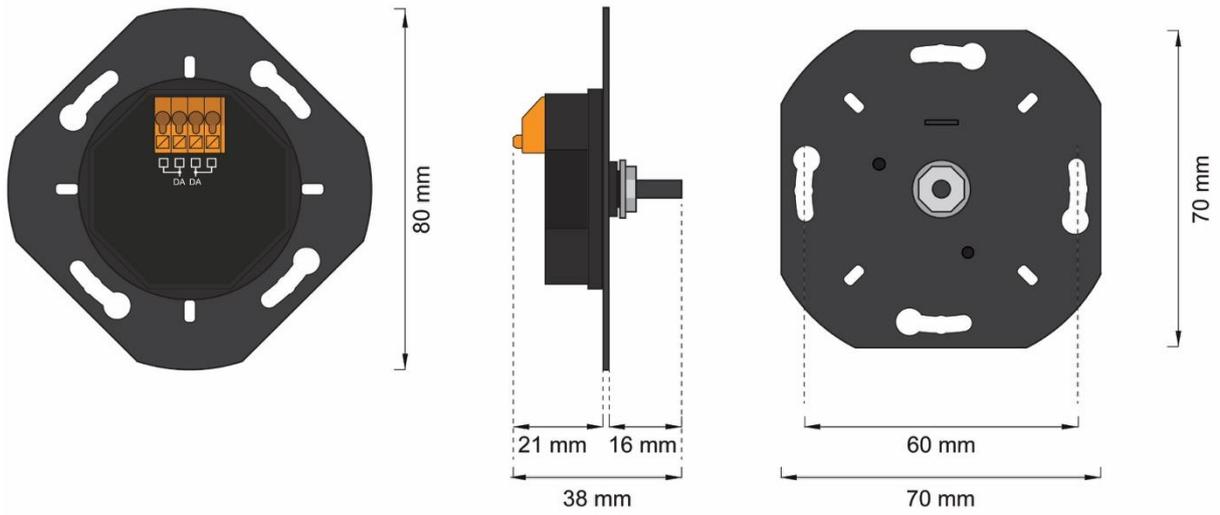
connection type	spring terminal connector
wire size solid core	0,5 ... 1,5 mm <sup>2</sup> (AWG20 ... AWG16)
wire size fine core	0,5 ... 1,5 mm <sup>2</sup> (AWG20 ...AWG16)
wire size using wire end ferrule	0,25 ... 1 mm <sup>2</sup>
stripping length	8,5 ... 9,5 mm / 0,33 ... 0,37 inch

**standards**

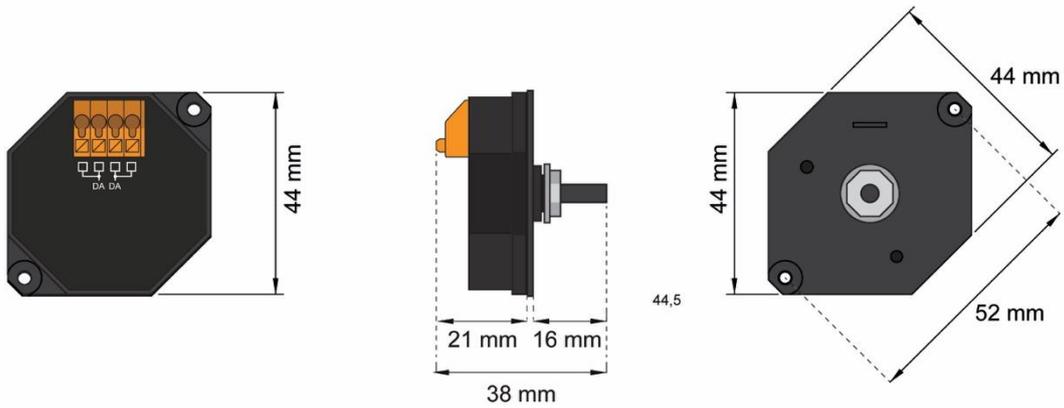
DALI	IEC62386-101:2014 IEC62386-103:2014
EMC	EN 61547 EN 50015 / IEC CISPR15
safety	EN 61347-2-11 EN 61347-1
markings	DALI-2, CE, UKCA

## Installation Variants

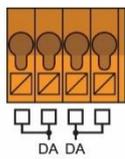
type	DALI-2 ROT	DALI-2 ROT CH
installation	for European back box (screw spacing 60mm)	for Swiss back box (screw spacing 52mm)
article number	86459822	86459822 -CH



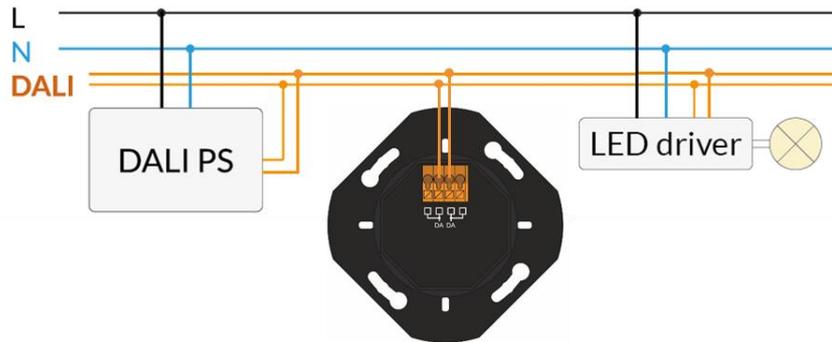
dimensions rotary  
Art. Nr.: 86459822



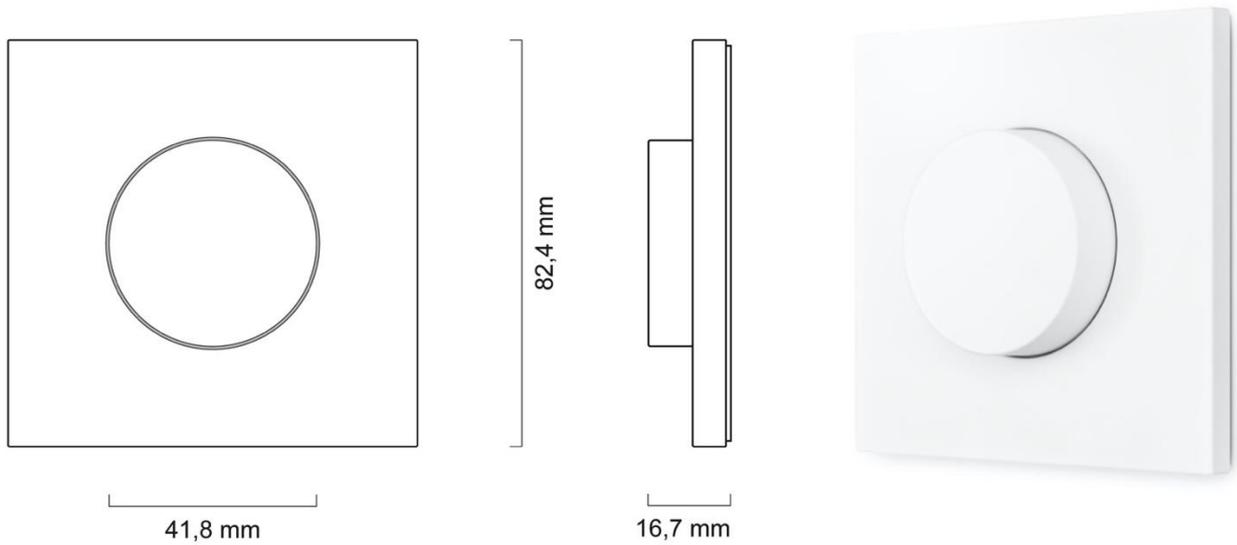
dimensions rotary - version for swiss back box  
Art. Nr.: 86459822 -CH



connection plan DALI-2 ROT



example installation DALI-2 ROT



dimensions rotary cover Lunatone (-Z04 & -Z05)

### Specification, Characteristics – DALI-2 ROT PS

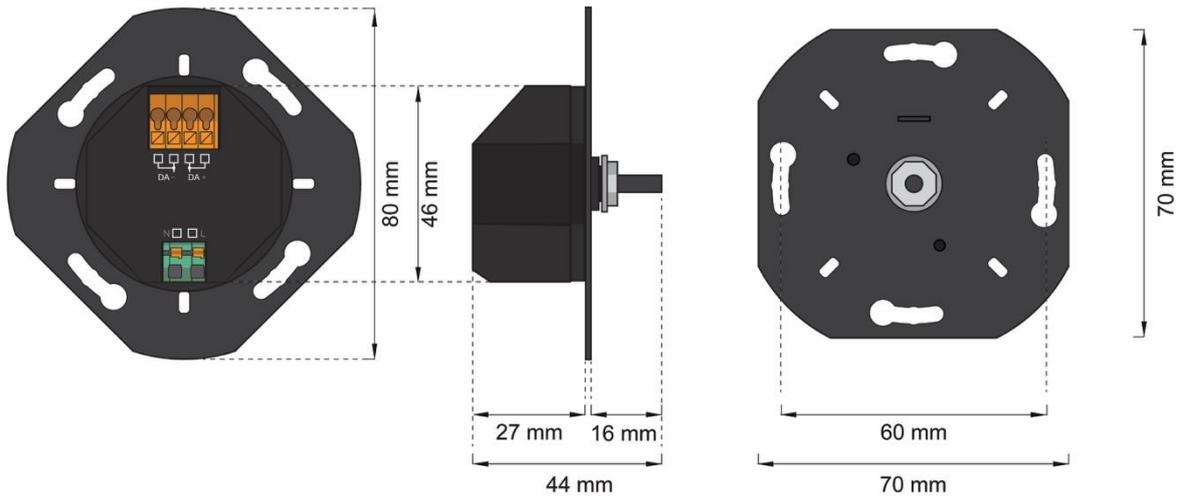
Version with integrated bus power supply (70mA). If not stated otherwise in the table below all information for standard version applies – all ROT versions are available with integrated power supply 70mA.

<b>type</b>	<b>DALI-2 ROT PS</b>
article number	86459822 -PS 86459822 -CH-PS
<b>input L,N</b>	
input type	supply, mains-voltage
markings	N, L
input voltage range	230V AC
max. input supply current	17 mA
Input supply frequency	50Hz / 60Hz
power consumption max.	2W
start-up time	<250ms
<b>output DA+, DA-</b>	
output type	DALI
markings	DA-, DA+
output voltage range	12Vdc.... 20,5 Vdc
guaranteed DALI supply current	70mA
max. DALI supply current	80mA
Open circuit proof	yes
Short circuit proof	yes
<b>insulation data</b>	
Impulse voltage category	II
Pollution degree	2

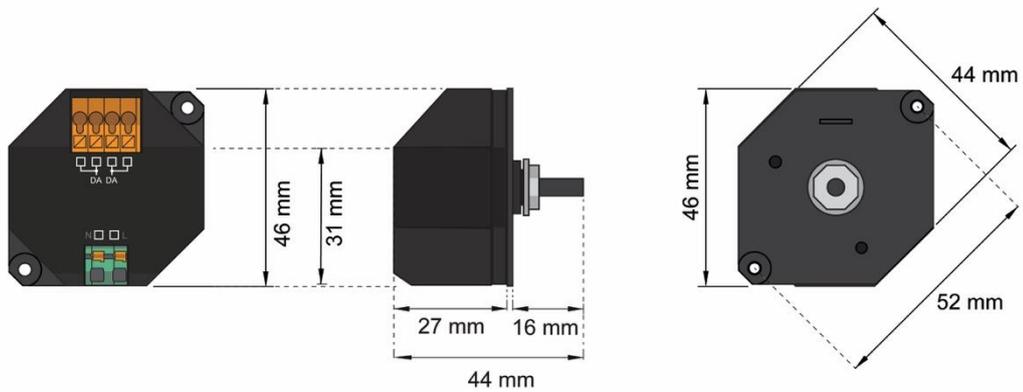
Rated insulation voltage	250V
Rated impulse withstanding voltage	4 kV
Insulation DALI / mains	reinforced isolation
Insulation test voltage DALI /mains	3000 V a.c.

**general data:**

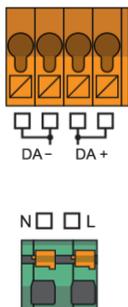
dimensions	70mm x 70mm x 44mm
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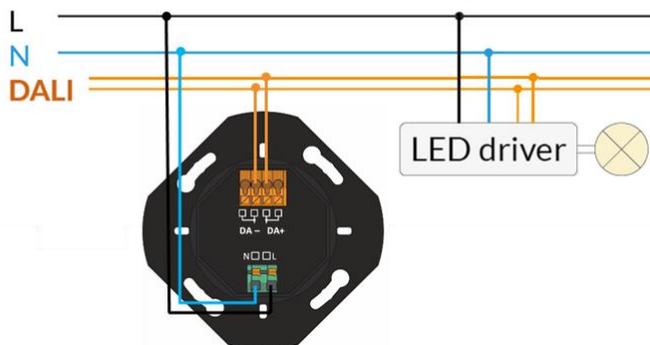
dimensions DALI-2 ROT PS Art. Nr.: 86459822 -PS



dimensions DALI-2 ROT PS CH Art. Nr.: 86459822-CH-PS



connection plan DALI-2 ROT PS



example installation DALI-2 ROT PS

## Installation

- The DALI-2 ROT is intended for mounting on a flush mounted box or on a cavity wall
- Subsequent assembly of the cover. The device is available with or without a cover and can be combined with covers of common manufacturers. The shaft diameter is 4 mm (or 6mm with adapter)
- The DALI-2 ROT module is connected and supplied directly by the DALI-line. If no DALI-2 ROT PS is used a general DALI bus power supply (e.g., DALI PS) is required.
- **DALI-2 ROT PS:** If 2 or more bus power supplies are on the same DALI bus, they need to be connected with the same polarity! (connectors marked with DA+, DA-), see Figure 1, page 8.
- **DALI-2 ROT (and ROT PS with no additional DALI PS):** the connection to the DALI terminals can be made regardless of polarity. The bus input is protected against overvoltage (mains voltage).
- The wiring should be carried out as a permanent installation in a dry and clean environment.
- Installation may only be carried out in a voltage-free state of the system and by qualified specialists.
- National regulations for setting up electrical systems must be followed.
- The DALI wiring can be realised with standard low-voltage installation material. No special cables are required.
- Only 1 wire may be connected to each terminal. When using double wire end ferrules, the connection capacity of the terminal must be considered.
- Multiple DALI-2 ROT modules and DALI luminaires can be connected to a DALI-line.



It is possible to connect multiple PS to one DALI line, but the sum of all maximum supply currents must not exceed 250 mA!

**Attention:** The DALI-signal is not classified as SELV circuit (Safety Extra Low Voltage). Therefore, the installation regulations for low voltage apply.

**Note:** The cross section: the voltage drop on the DALI line must not exceed 2V at maximum length (300m) and maximum bus load (250mA)

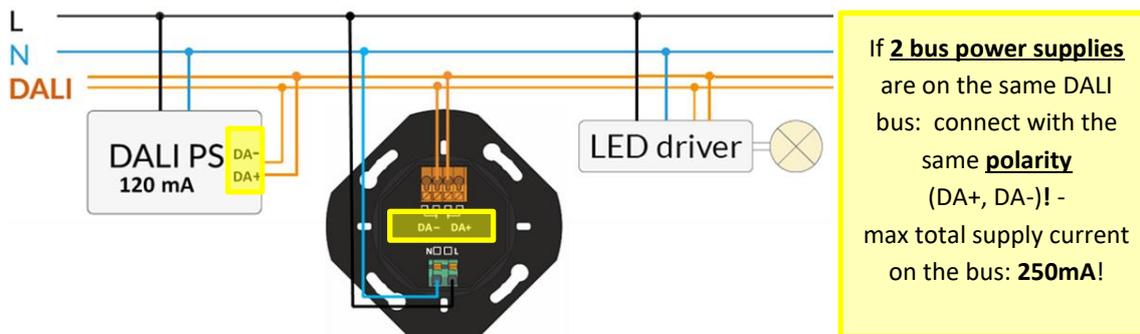


Figure 1. Installation Example DALI-2 ROT PS with additional DALI PS on the DALI Bus

## Set Up

After installation, the device can be operated with the factory default settings. For simple installations, the basic setting is usually sufficient. In default mode (delivery state) the light is controlled broadcast, factory default settings see page 17

Addressing and changes to the settings, such as setting the effective range and functions, are possible with the Software tool DALI Cockpit (Windows PC).

When using the [DALI Cockpit Software](#), the PC must be connected to the DALI bus via a suitable interface module ([DALI-2 USB](#); [DALI USB](#), [DALI-2 WLAN](#), [DALI-2 Display](#), [DALI-2 IoT](#), [DALI 4Net](#), [DALI SCI RS232](#)).

The DALI-2 ROT is automatically recognized by the DALI Cockpit during the addressing process and listed in the device overview.

The addressing is done according to the DALI-2 specification and the device receives a corresponding address.

The device has a buzzer for localization. Alternatively, the device can also be identified by the serial number on the housing. (The serial number is displayed in the DALI Cockpit in the section “device info” at the top, see also Figure 2, page 9)

## Application and Function

The DALI-2 ROT is a rotary switch and is used to adjust brightness on DALI-compatible luminaries.

**It is necessary to distinguish between application controller and DALI-2 instances.**

The application controller gives direct DALI control commands that are immediately executed by the DALI drivers.

The DALI-2 instances generate event messages that are interpreted and processed by higher-level control units (WAGO, Beckhoff...).(General information on the DALI-2 instance mode:

[https://www.lunatone.com/wp-content/uploads/2021/10/DALI-2\\_Instance-Guide\\_EN\\_M0024.pdf](https://www.lunatone.com/wp-content/uploads/2021/10/DALI-2_Instance-Guide_EN_M0024.pdf)

The Application controller and instances can be active at the same time.

**Additional Information:** A deactivated Application Controller is indicated in the DALI Cockpit device tree with: **A**.

A device with active instances is indicated with: **i**

## DALI-Cockpit

Addressing and device configurations can be done with the [DALI Cockpit Software](#) and a suitable interface module ([DALI-2 USB](#); [DALI USB](#), [DALI-2 WLAN](#), [DALI-2 Display](#), [DALI-2 IoT](#), [DALI 4Net](#), [DALI SCI RS232](#)).

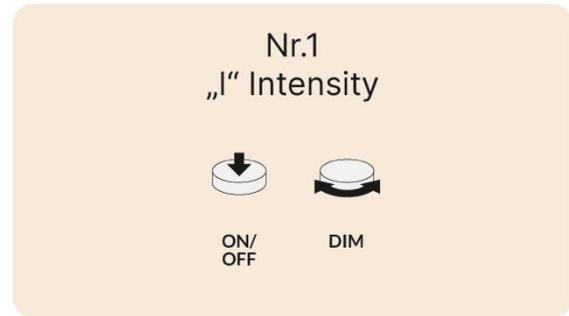
With the selection of the device in the component tree, the DALI-2 ROT settings page is shown. The settings page is split in two tabs: one for general settings (see Figure 2) and one for application settings (see Figure 3 on page 16).

Figure 2. DALI Cockpit: general Configuration options – Tab: “General”

### Operating Mode

The operating mode of the DALI-2 ROT is fixed on Intensity control. For a DALI-2 Rotary version with operating modes for colour & colour temperature control see: DALI-2 ROT NFC:

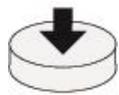
<https://www.lunatone.com/en/product/dali-2-rot-nfc/>



press: ON/OFF  
rotate: dimming

### Details on the Operating Mode

#### Operating Mode 1: “I” – Intensity: Switch / Dim



**PRESS: ON/OFF**



pressing the rotary push button turns the respective luminaires on or off

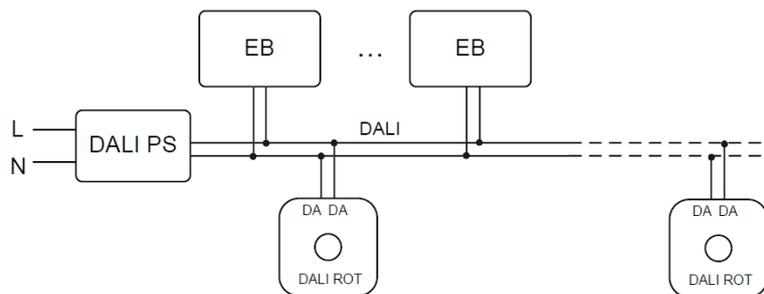


**ROTATE: DIM**



Turn clockwise to dim up or counterclockwise to dim down the light (UP / DOWN DALI commands)

#### Application: switch and dim with DALI-2 ROT module



Value to activate mode with SET OPERATING MODE: 0xA0 or 0x0 (default)



Device Info

Name: DALI-2 Rotary    Article Number: 86459822    GTIN: 9010342010309

Manufacturer: Lunatone    Serial Number: 73093    FW: 5.0

Device Type: -    Type: Control Device

DALI Ver: V2.0    Short Address: (A0<sup>5</sup>) DALI-2 Rotary    Set

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General   Application   Instances

Destination Addresses

0 All (DALI Broadcast)    [dropdown]

1 none    [dropdown]

2 none    [dropdown]

3 none    [dropdown]

OnCmd    Light Level:

Light Level (DAP)    [dropdown]    100 %

OffCmd    Light Level:

Light Level (DAP)    [dropdown]    0 %

Interpret Scene Command as: On Command    [dropdown]

Send ON AND STEP UP command on right turn

Send DAP (100%) on fast right turn when OFF

Dimmen mit Mikroschritten

Effective Range: define which luminaires will be controlled

ON Commands: DAP, RECALL MAX, RECALL MIN, GOTO SCENE X, GOTO LAST ACTIVE LEVEL

Off Commands: DAP0, OFF und GOTO SCENE X

Setting if scenes should be interpreted as ON or OFF states

activate/ deactivate "On with Dimming" Feature: Turns light ON with a right turn if the light status is currently OFF

Figure 3 DALI Cockpit configuration of the application – Tab: "Application"

### Destination address / effective range

defines which devices are affected by the commands sent. Possible destination addresses:

- Broadcast (to all)
- DALI group (0 - 15)
- DALI single address (0 - 63)

Up to 4 different target addresses can be defined. When the button is pressed the target addresses 1 to 4 will be processed sequentially.

### Commands

Which commands are sent when pressing the pushbutton can be defined with the OnCmd and OffCmd.

On Commands (OnCmd):

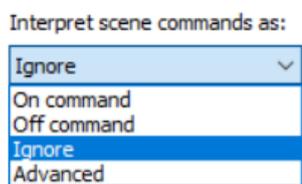
Command	Description
DIRECT ARC POWER	specify the light level in %
RECALL MAX	Recalls light level MAX
RECALL MIN	Recalls light level MIN
GOTO LAST ACTIVE LEVEL	command for DALI2 gears – recalls last active light level
GO TO SCENE _	Recalls respective scene (0-15)

### Off Commands (OffCmd)

Command	Description
DIRECT ARC POWER 0	specification of the light level as 0%
OFF	Turns light off
GO TO SCENE X	Recalls respective scene (0-15)

### Interpretation of scene commands

In order to correctly trigger the on and off commands with the toggle button, scene calls must be interpreted correctly. It is possible to set whether a scene should be interpreted as Off or On status



### Additional Settings

- **On and Step Up on Right Turn:** When this option is activated, the light can be turned on, from an off state, by turning the button clockwise (dim up). Turning on to the minimum dimming level.
- **100% on Fast Right Turn:** this option allows the light to be turned on to 100% brightness, from an off state, by quickly turning the button clockwise.
- **Micro-Step Dimming:** This option limits the fade process to the smallest dimming steps when dimming slowly (single steps).

### Factory Default Settings

The DALI-2 ROT is delivered with these settings:

- Operating Mode 1: „I“ – Intensity:
- Destination:** Broadcast
- On-Command:** DAP 100%
- Off-Command:** DAP 0%
- Interprete Scene commands:** On Commands
- On and Step Up on Right Turn:** active
- 100% on Fast Right Turn:** active
- Micro-Step Dimming:** active
- Instance event messages:** disabled

### DALI-2 Instances

With DALI-2 instances no DALI control commands are sent on the bus, but DALI-2 event messages for DALI-2 compatible central control systems.

The DALI-2 ROT supports 3 instances:

- **Instance 0** push button function, instance type: Input Devices - Push Button (instance type 1, IEC62386-301) event information see table 1, page 18
- **Instance 1** rotary movement, instance type: General Purpose (Instance type 0 IEC62386-103), event information see table 2, page 18
- **Instance 2** rotary movement, instance type: Input Devices - Absolute Input Devices (instance type 2, IEC62386-302) 8 bit resolution, as an alternative evaluation of the rotary movement.

As defined in the standard, the following events are supported and placed on the DALI bus as INPUT NOTIFICATIONS

Further parameters of the instances 0-2 are: event filter, event timer settings (short timer, double timer, repeat timer, stuck timer),

which can be configured via the DALI cockpit software (see Figure 4, page 18).

### Instance Type 1 – Pushbutton

Event name	Event Information	Description
Button released	00 0000 0000b	The button is released
Button pressed	00 0000 0001b	The button is pressed
Short press	00 0000 0010b	The button is pressed and released, without being pressed quickly again (in case of double press enabled), or the button is pressed and quickly released (in case double press is disabled)
Double press	00 0000 0101b	The button is pressed and released, quickly followed by another button press
Long press start	00 0000 1001b	The button is pressed without releasing it
Long press repeat	00 0000 1011b	Following a long press start condition the button is still pressed, the event occurs at regular intervals as long as the condition holds
Long press stop	00 0000 1100b	Following a long press start condition, the button is released
Button free	00 0000 1110b	The button has been stuck and is now released
Button stuck	00 0000 1111b	The button has been pressed for a very long time and is assumed stuck.

Table 1 event information Instance 0 - pushbutton

### Instance Type 0 - General Purpose

Event name	Event Information	Description
Rotation Clockwise Started	00 0000 0000b	The rotary knob has started to rotate clockwise
Rotation Counterclockwise Started	00 0000 0001b	The rotary knob has started to rotate counterclockwise
Rotation Stopped	00 0000 0010b	The rotation of the rotary knob has stopped

Table 2. Event information Instance 1 – general purpose

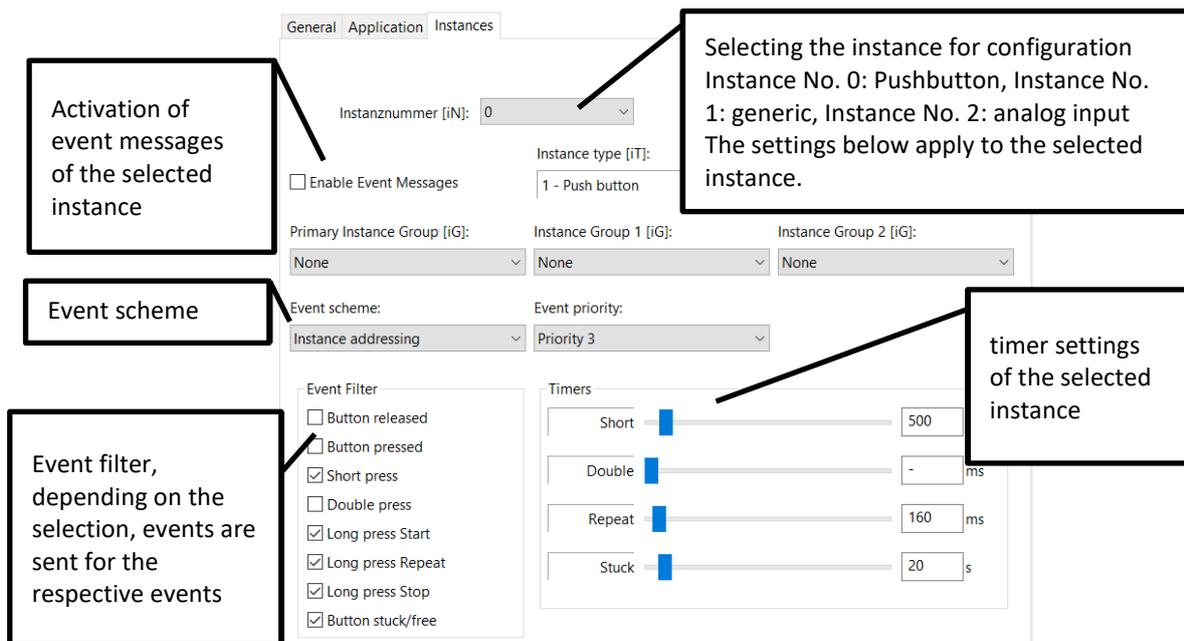


Figure 4 Configuration of : Instances of the DALI-2 ROT in operating mode D2I - Instancemode

### Purchase Order Information

**Art.Nr. 86459822:** DALI-2 ROT, operating mode „I“-Intensity, rotary switch insert for switching, and dimming in DALI systems

**Art.Nr. 86459822-PS:** DALI-2 ROT PS, with integrated bus power supply

**Art.Nr. 86459822-CH:** DALI-2 ROT CH, version for Swiss back box installation (Feller)

**Art.Nr. 86459822-CH-PS:** DALI-2 ROT CH PS, with integrated bus power supply 70mA, for Swiss back box installation (Feller)

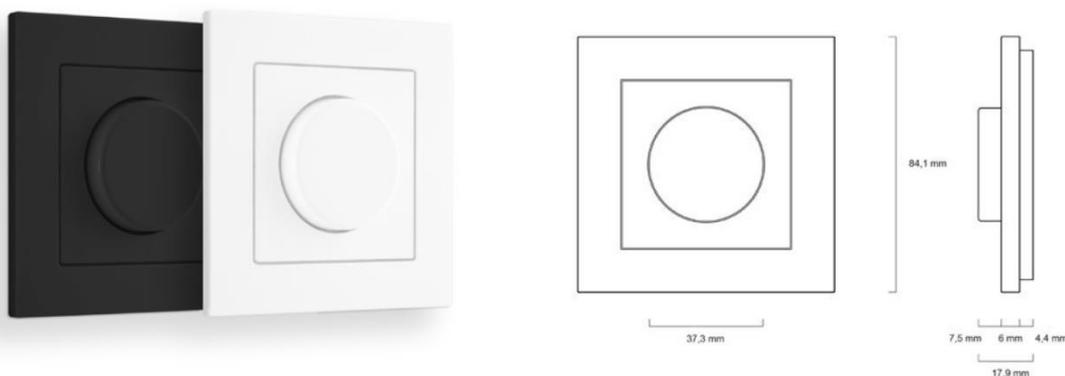
**DALI-2 ROT Integration:** version without application controller: 86459822-D2

[https://www.lunatone.com/wp-content/uploads/2018/03/86459822-D2\\_DALI\\_ROT\\_INT\\_EN\\_D0089.pdf](https://www.lunatone.com/wp-content/uploads/2018/03/86459822-D2_DALI_ROT_INT_EN_D0089.pdf)

**DALI-2 ROT NFC** with operating modes for colour and colour temperature control: 86459822-NFC

[https://www.lunatone.com/wp-content/uploads/2018/03/86459822-NFC\\_DALI\\_ROT\\_NFC\\_EN\\_D0086.pdf](https://www.lunatone.com/wp-content/uploads/2018/03/86459822-NFC_DALI_ROT_NFC_EN_D0086.pdf)

### Accessory:

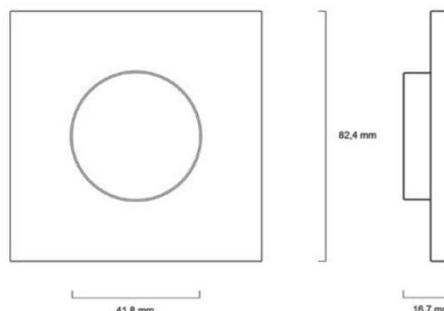


**Art.Nr. 86459822-Z01:** cover and rotary knob, alpine white, Jung Series A – discontinued model

**Art.Nr. 86459822-Z02:** cover and rotary knob, black, Jung Series A – discontinued model



**Art.Nr. 86459822-Z03:** Adapter 6mm (for combination of the DALI-2 ROT with covers/rotary knobs of other manufacturers anticipating a bigger axis diameter)



**Art.Nr. 86459822-Z04:** cover and rotary knob, white (RAL9016)

**Art.Nr. 86459822-Z05:** cover and rotary knob, black

### Additional Information and Equipment

DALI-Cockpit – DALI system configuration tool, free when using a Lunatone interface device  
<https://www.lunatone.com/en/product/dali-cockpit/>

Lunatone DALI products  
<https://www.lunatone.com/en/>

Lunatone datasheets and manuals  
<https://www.lunatone.com/en/downloads-a-z/>

### Contact

Technical Support: [support@lunatone.com](mailto:support@lunatone.com)

Requests: [sales@lunatone.com](mailto:sales@lunatone.com)

[www.lunatone.com](http://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.