



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
DALI-interface, supply	
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

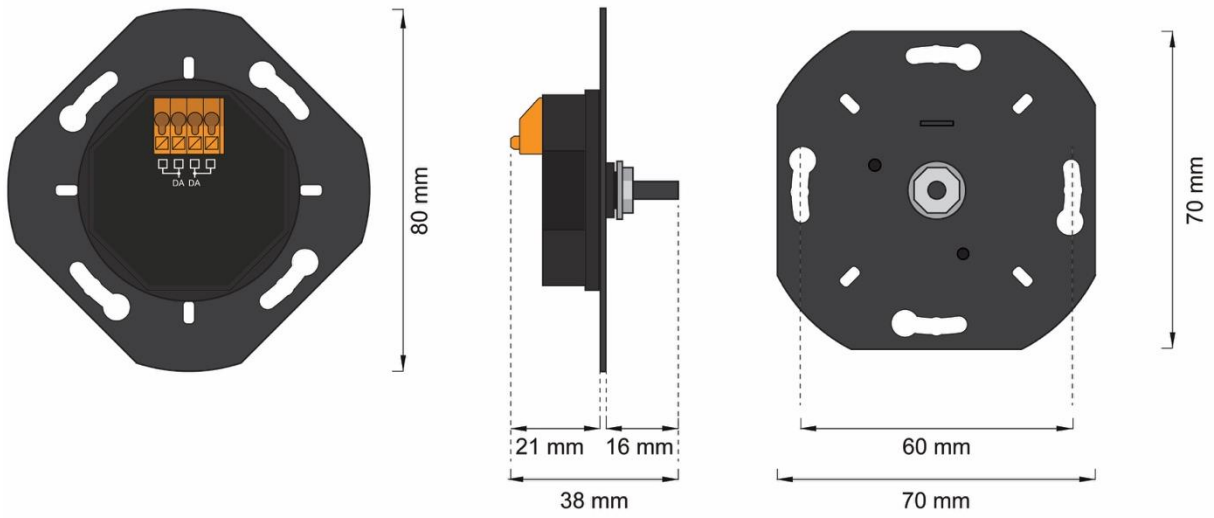
connection type	spring terminal connector
wire size solid core	0,5 ... 1,5 mm ² (AWG20 ... AWG16)
wire size fine core	0,5 ... 1,5 mm ² (AWG20 ...AWG16)
wire size using wire end ferrule	0,25 ... 1 mm ²
stripping length	8,5 ... 9,5 mm / 0,33 ... 0,37 inch

standards

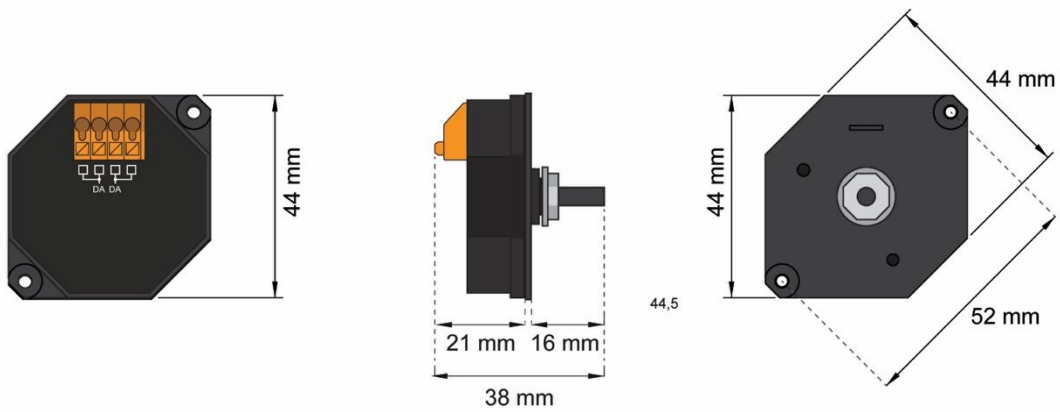
DALI	IEC62386-101:2014 IEC62386-103:2014
EMC	EN 61547 EN 50015 / IEC CISPR15
safety	EN 61347-2-11 EN 61347-1
markings	DALI-2, CE, UKCA

Installation Variants

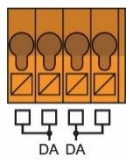
type	DALI-2 ROT	DALI-2 ROT CH
installation	for European back box (screw spacing 60mm)	for Swiss back box (screw spacing 52mm)
article number	86459822	86459822 -CH



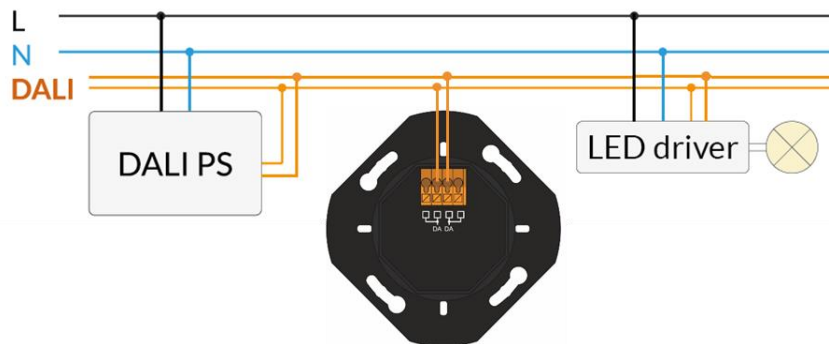
dimensions rotary
Art. Nr.: 86459822



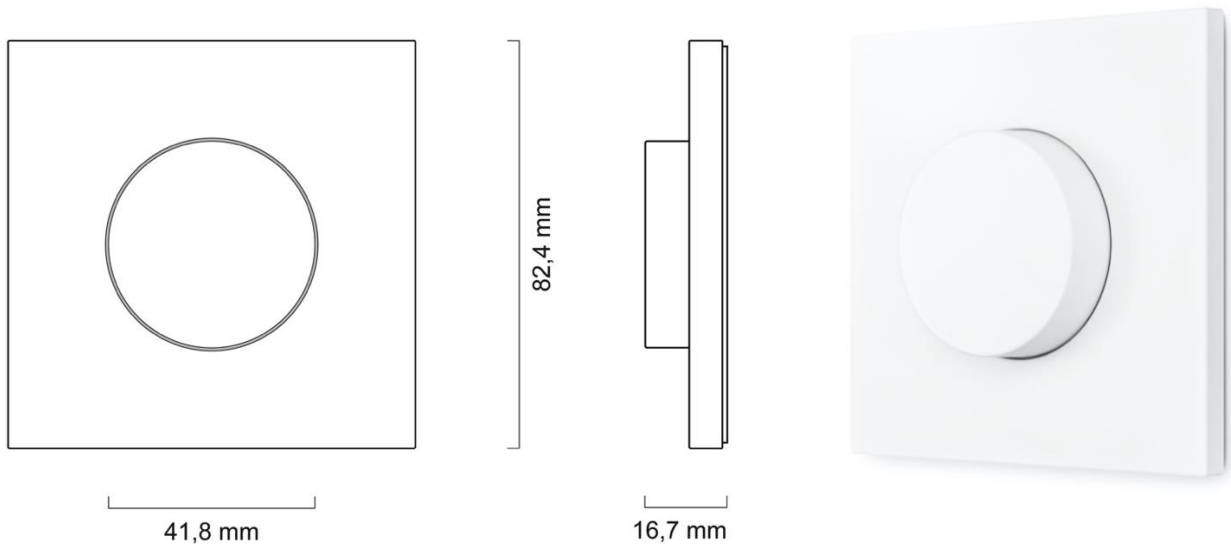
dimensions rotary - version for swiss back box
Art. Nr.: 86459822 -CH



connection plan DALI-2 ROT



example installation DALI-2 ROT



dimensions rotary cover Lunatone (-Z04 & -Z05)

Specification, Characteristics – DALI-2 ROT PS

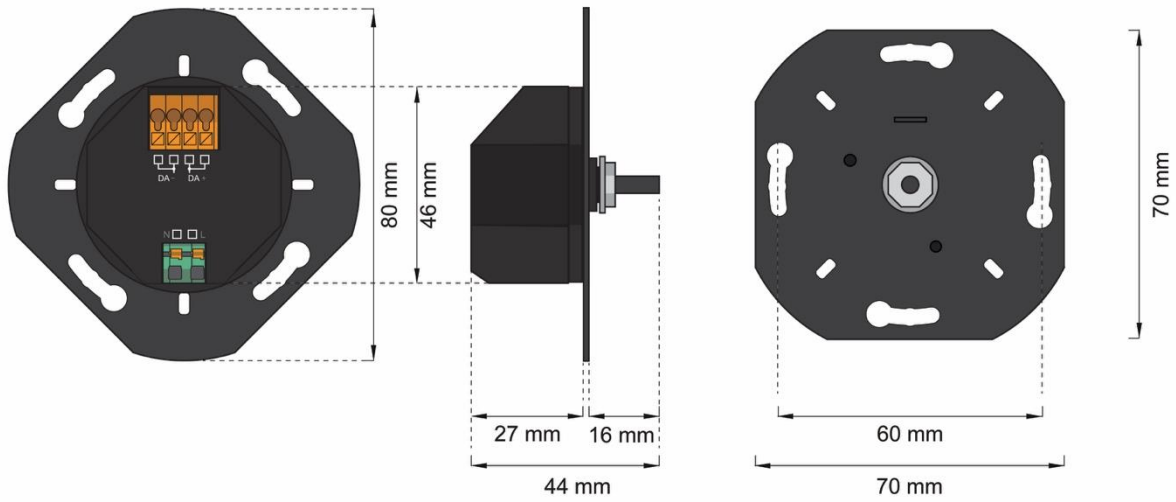
Version with integrated bus power supply (70mA). If not stated otherwise in the table below all information for standard version applies – all ROT versions are available with integrated power supply 70mA.

type	DALI-2 ROT PS
article number	86459822 -PS 86459822 -CH-PS
input L,N	
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
output DA+, DA-	
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
insulation data	
Impulse voltage category	II
Pollution degree	2

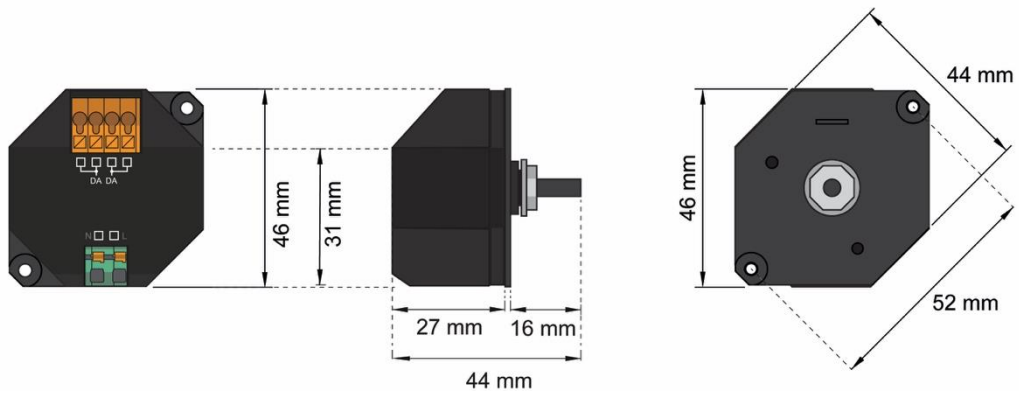
Rated insulation voltage	250V
Rated impulse withstanding voltage	4 kV
Insulation DALI / mains	reinforced isolation
Insulation test voltage DALI /mains	3000 V a.c.

general data:

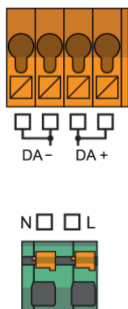
dimensions	70mm x 70mm x 44mm
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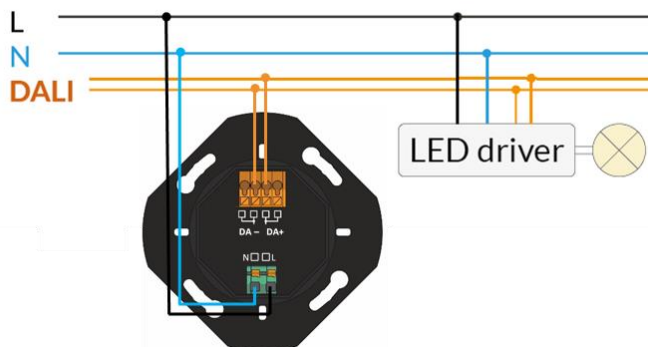
dimensions DALI-2 ROT PS Art. Nr.: 86459822 -PS



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

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)

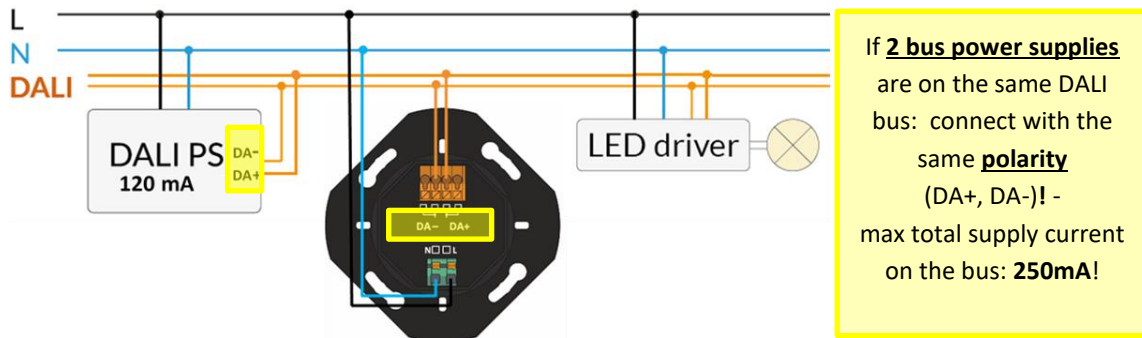


Figure 1. Installation Example DALI-2 ROT PS with additional DALI PS on the DALI Bus

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

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).

The screenshot shows the 'General' configuration tab for a DALI-2 ROT device. The interface includes several sections:

- Device Info:** Contains fields for Name (DALI-2 Rotary), Article No., Manufacturer (Lunatone), Device Type, DALI Ver (V2.0), and Short Address (A0⁵ DALI-2).
- General:** Includes a 'Device Description' field (freely definable, max. 31 characters), a checkbox for 'enable status queries', and a 'Behavior on DALI Reset Command' dropdown set to 'DALI Reset Command is ignored'.
- DALI-2 Control Device Parameters:** Includes checkboxes for 'Application Controller Enable' (checked), 'Power cycle notification Enable', and 'Instances Enable'.
- Membership in Groups for DALI-2 Controls:** A grid of 32 numbered buttons (0-31) for assigning the device to control groups.

Annotations provide further details:

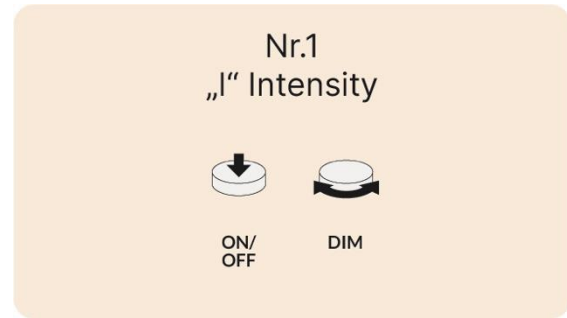
- The device-info block contains general information such as the device name, article number, serial number, firmware version, DALI address, etc.
- 1. tab for general settings, 2. tab for configuration of the application, 3. tab for instance settings
- Configurable Behaviour on DALI Reset
- DALI-2 setting: activate/deactivate the application (Application Controller)
- Activation of the notification after a PowerUp
- Assignment of the device to the 32 control device groups (attention: these are not the luminaire/ gear groups)
- Freely definable device description (max. 31 characters), saved in the device

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:

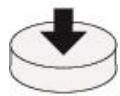
<https://www.lunatone.com/en/product/dali-2-rot-nfc/>



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

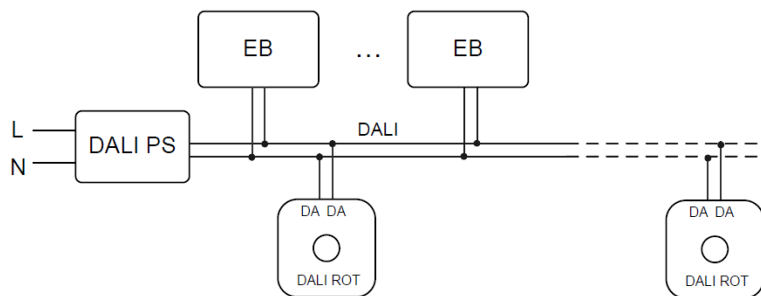


ROTATE: DIM




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: (A0⁵) DALI-2 Rotary Set

General | Application | Instances

Destination Addresses

0 All (DALI Broadcast) [dropdown]

1 none [dropdown]

2 none [dropdown]

3 none [dropdown]

OnCmd Light Level: [dropdown] [input] %

Light Level (DAP) 100 %

OffCmd Light Level: [dropdown] [input] %

Light Level (DAP) 0 %

Interpret Scene Command as: On Command

Send ON AND STEP UP command on right turn

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

Dimmen mit Mikroschritten

Setting if scenes should be interpreted as ON or OFF states

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

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):

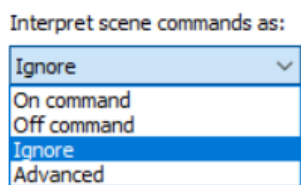
Command	Description
DIRECT ARC POWER	specify the light level in %
RECALL MAX	Recalls light level MAX
RECALL MIN	Recalls light level MIN
GOTO LAST ACTIVE LEVEL	command for DALI2 gears – recalls last active light level
GO TO SCENE _	Recalls respective scene (0-15)

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

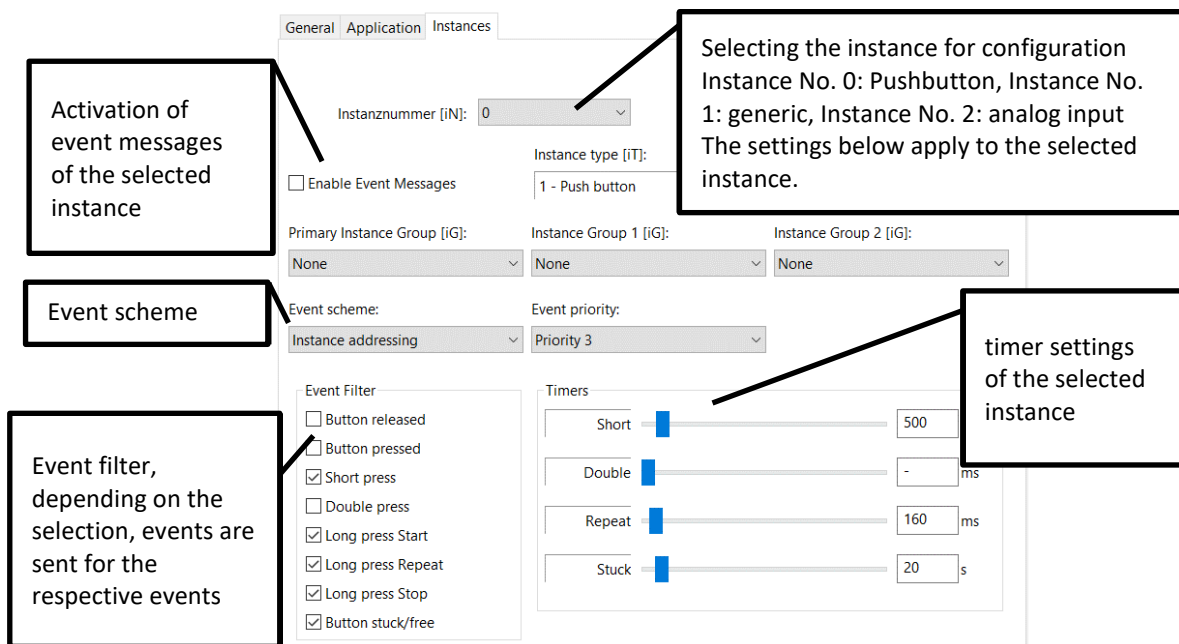


Figure 4 Configuration of : Instances of the DALI-2 ROT in operating mode D2I - Instancemode

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)

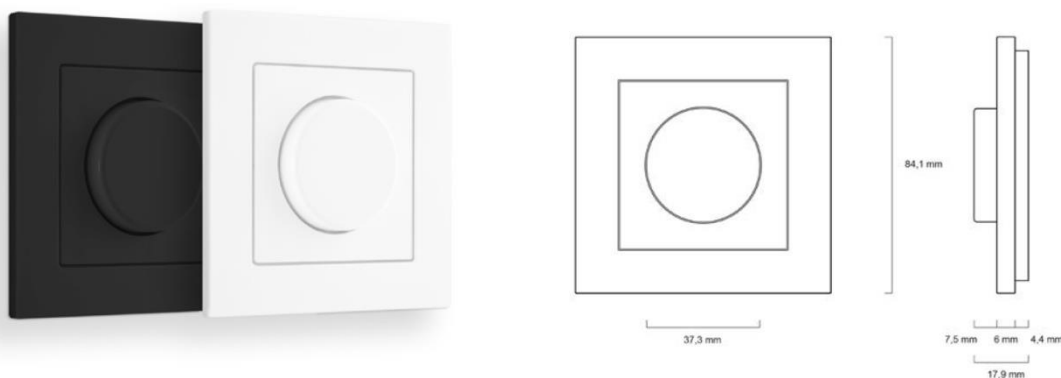
DALI-2 ROT Integration: version without application controller: 86459822-D2

https://www.lunatone.com/wp-content/uploads/2018/03/86459822-D2_DALI_ROT_INT_EN_D0089.pdf

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

Accessory:

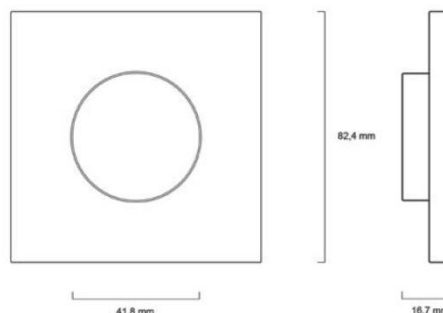


Art.Nr. 86459822-Z01: cover and rotary knob, alpine white, Jung Series A – discontinued model

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

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Requests: sales@lunatone.com

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.