DALI gateway Tunable White Plus
Order no.: 2108 00

Operating instructions

1 Safety instructions

Electrical devices may only be mounted and connected by electrically skilled persons.

Serious injuries, fire or property damage possible. Please read and follow manual fully.

Danger of electric shock. Always disconnect before carrying out work on the device or load. In so doing, take all the circuit breakers into account, which support dangerous voltages to the device and or load.

Danger of electric shock. Device is not suitable for disconnection from supply voltage.

The DALI control voltage is a functional extra-low voltage (FELV). On installing, ensure safe isolation between KNX and DALI.

These instructions are an integral part of the product, and must remain with the end customer.

2 Function

System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite to proper understanding.

The function of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer´s product database.

Planning, installation and commissioning of the device are carried out with the aid of KNX-certified software. Full functionality with KNX commissioning software version ETS3.0f onwards.

Intended use

- Controlling of luminaires and other applications with DALI operating device in KNX installations e.g. electronic ballast
- Installation on DIN rail according to EN 60715 in distribution boxes

Product characteristics

- Control of up to 64 DALI devices in up to 32 groups
- Setting the colour temperature for luminaires with DALI Device Type 8 for Tunable White in accordance with IEC 62386-209
- Suitable for operation in emergency lighting systems
- Individual, group or central addressing
- 16 light scenes
- Effect control for dynamic lighting effects or colour games
- Read out DALI device state via KNX, e.g. brightness or luminaire error
- Manual operation of the DALI groups
- Restraint
- Feedback of switching state and brightness value in bus and manual mode
- Collective feedback
- Central switching function
- Disabling function for each DALI group
- Separate ON and OFF delay
- Staircase lighting timer with run-on time

- Corridor function: when combined with motion detectors, reduced continuous lighting, if no motion is detected
- Online or offline project design of the DALI devices with ETS plug-in
- Short circuit protection
- Surge protection
- Overload protection
- Operating hours counter
- Signal of the global switching status of the DALI devices, e.g. to switch off the mains voltage of the DALI devices to avoid standby losses
- An individual DALI device can be exchanged during operation without software.
- With device generation I03 or higher: DALI-2 certified.

i Delivery state: construction site mode, the DALI groups can be operated using button field. All DALI devices are controlled jointly.

3 Operation

See illustration of the button field (Figure 1).

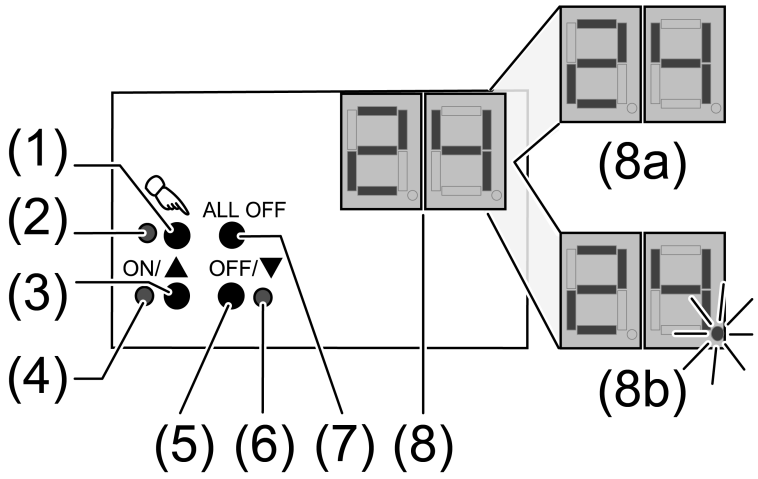

Figure 1

(1) Button – Manual operation
(2) LED – On: Continuous manual mode active
(3) Button **ON**/▲ switch on or increase brightness
(4) LED **ON**/▲ On: DALI device or group switched on, brightness 1...100 %
(5) Button **OFF**/▼ switch off or reduce brightness
(6) LED **OFF**/▼ On: DALI device or group switched off, brightness 0 %
(7) Button **ALL OFF** – Switch off all DALI devices
(8) Display of DALI number (1…64)
(8a) Display of the DALI group
(8b) Display of the individual DALI device

i If the display shows (8) **bc** (Broadcast operation), the device is not programmed or set to master control in the KNX configuration. All DALI devices are then controlled jointly.

In operation with the button field the device distinguishes between a short and a long press.

- Short: Pressing for less than 1 second
- Long: Pressing for between 1 and 5 seconds

Switching on the temporary manual control

Operation using the button field is programmed and not disabled.

- Press the ✎ (1) button briefly.
  Display (8) shows **01** or **bc**, LED ✎ (2) remains off.

i After 5 seconds without a button-press, the device returns automatically to bus mode.

Switching on/off the permanent manual mode

Operation using the button field is programmed and not disabled.

- Press the ✎ (1) button for at least 5 seconds.
  LED ✎ (2) is illuminated, display (8) shows **01** or **bc**, permanent manual mode is switched on.

  - or in case of repeated actuation -

  LED ✎ (2) is off, display (8) is off, bus mode is switched on.

Operating DALI devices

The device is in continuous or short-term manual mode.

- Press ✎ (1) button briefly as many times as necessary until the display (8) shows the desired DALI number.
- Operate output with **ON**/▲ (3) button or **OFF**/▼ (5) button.
  Short: switch on/off.
  Long: dim brighter/darker.
  Release: Stop dimming.
  The LEDs **ON**/▲ (4) and **OFF**/▼ (6) indicate the status.

i The display (8) shows first the numbers of the available DALI groups (8a), followed by the individual addresses of the DALI devices (8b).

Switch off all DALI devices

The device is in continuous manual mode.

- Press the **ALL OFF** button (7).

Disabling/enabling individual DALI devices or groups

The device is in continuous manual mode.

- Press ✎ (1) button briefly as many times as necessary until the display (8) shows the desired DALI number.
- Press the buttons **ON**/▲ (3) and **OFF**/▼ (5) simultaneously for at least 5 seconds.
  The selected DALI number flashes in the display (8).

  DALI device or group is blocked.

  - or in case of repeated actuation -

  The display (8) no longer flashes.

  DALI device or group is enabled.
- Activate bus mode (see section Switching on/off the permanent manual mode).

i DALI devices blocked via manual operation can be operated in manual mode.

4 Information for electrically skilled persons

4.1 Fitting and electrical connection

DANGER!

Mortal danger of electric shock.

Disconnect the device. Cover up live parts.

Fitting the device

- Mount device on DIN rail.

Connecting the device

Control cable: appropriate type, cross-section and routing for the specifications for 250 V cables. DALI and mains voltage wires can be run together in a cable, e.g. NYM 5x1.5 mm².

- The DALI control voltage is a functional extra-low voltage (FELV). When performing installation, perform the installation in such a way that when an area is disconnected the lines carrying both the DALI and also the mains voltage are disconnected.
- If multiple circuit breakers supply dangerous voltages to the device or load, couple the miniature circuit breakers or label them with a warning, to ensure disconnection is guaranteed.
- DALI participants from some manufacturers have expanded functions and can e.g. be controlled via mains voltage on the DALI connection. When existing DALI installations are refitted, remove all corresponding operator controls.
- Connect device as shown in the connection example (Figure 2).

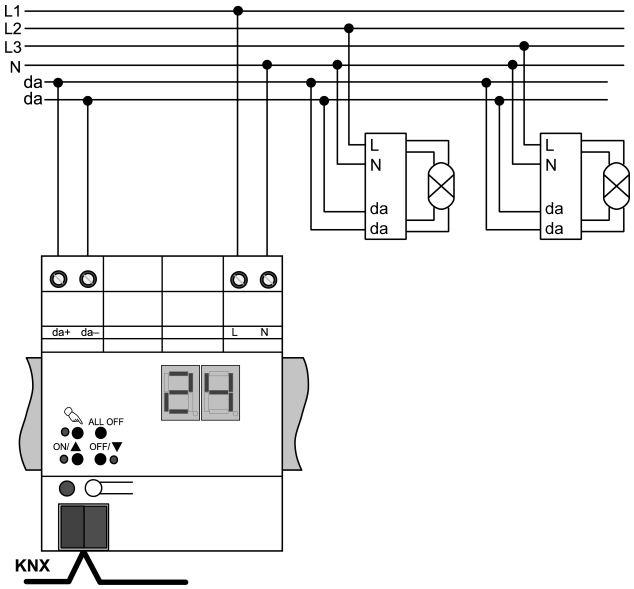

Figure 2

- Attach the cover cap to the bus cable connection as protection against hazardous voltages.

i If the display (8) shows **Er** (error), an installation fault occurred that causes mains voltage to reach the DALI cable. In this case disconnect the device and and the DALI devices from mains voltage and disconnect bus voltage. Correct installation.

Operation in emergency lighting systems

The device can be used in in centrally-powered emergency lighting systems.

i The statutory and standard specifications vary from country to country. In any event, the user / technical planner must check whether the specific specifications are observed.

i Observe the number of DALI devices in the emergency luminaires used.

Emergency lighting systems with a central safety supply are required in buildings larger than 2000 m². Depending on the scope of functions of the system, only the emergency luminaires are supplied by the central safety supply (Figure 3), or the KNX system and DALI gateway are also supplied (Figure 4). In the latter case, in emergency operation, the DALI gateway can transmit the appropriate fault messages to a central system and other DALI gateways in the system.

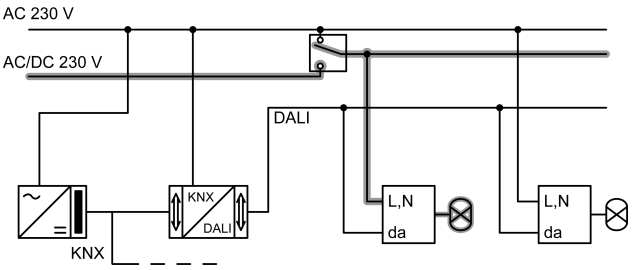

Figure 3: Emergency luminaires supplied through a central safety supply

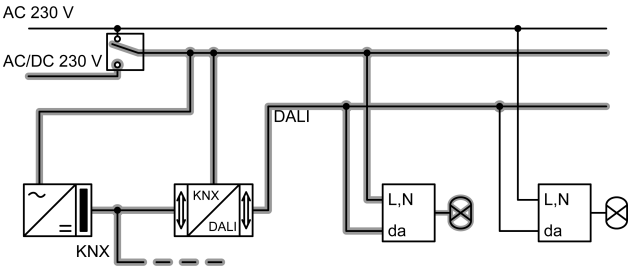

Figure 4: Emergency luminaires, KNX system and DALI gateway supplied through a central safety supply

4.2 Commissioning

Load physical address and application program

- Switch on mains voltage.
- Switch on the bus voltage.
- Press the programming button.
  The programming LED lights up.
- Load physical address and application program using the ETS.
- Commission DALI system using commissioning software.

i For more detailed information on commissioning of the DALI system, see the technical product information for this device.

- Load application program with the ETS.

i No programming is possible if no mains voltage is connected.

5 Appendix

5.1 Technical data

Supply	
Rated voltage	AC 110 ... 240 V ~
Mains frequency	50 / 60 Hz
Rated voltage	DC 110 ... 240 V
Power loss	max. 3 W
Ambient conditions	
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +70 °C
DALI	
Rated voltage DALI	DC 16 V (typ.)
Output current DALI	typ. 128 mA, max. 250 mA for short periods

Number of DALI subscribers	max. 64
DALI transmission rate	1.2 kBit/s
DALI protocol	EN 62386
Cable type	Sheathed cable 230 V, e,g. NYM
DALI cable length	
with Ø 1.5 mm²	max. 300 m
with Ø 1.0 mm²	max. 238 m
with Ø 0.75 mm²	max. 174 m
with Ø 0.5 mm²	max. 116 m
Housing	
Fitting width	72 mm / 4 module
Connection of power supply and DALI	
Connection mode	Screw terminal
single stranded	0.5 ... 4 mm²
Finely stranded without conductor sleeve	0.5 ... 4 mm²
Finely stranded with conductor sleeve	0.5 ... 2.5 mm²
KNX	
KNX medium	TP 256
Commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32 V SELV
Current consumption KNX	4.5 ... 5.0 mA
Connection type for bus	device connection terminal

5.2 Troubleshooting

Indication shows "Er", connected DALI devices have no function, no operation possible

Cause: Mains voltage on DALI cable.

Installation error. Disconnect device and connected DALI devices from mains voltage and disconnect bus voltage. Correct installation.

Indication shows "bc" in manual mode, control of individual luminaires not possible.

Cause: The device has not been programmed or is programmed to "Broadcast".

Check the device status. If necessary, program the device and put DALI system into operation.

Individual DALI devices have no function

Cause 1: Load is defective, e.g. lamp.

Exchange load.

Cause 2: DALI device is defective.

Exchange defective device.

Switch on voltage.

Press and **ALL OFF** buttons together for at least 10 seconds.

The device detects the exchanges DALI device and loads in the necessary data. The display (4) shows **LE**.

Simultaneous exchange of multiple DALI devices is only possible with commissioning software and project data.

None of the DALI groups can be operated.

Cause 1: All DALI groups disabled via bus or manual operation.
Cancel disabling.

Cause 2: Continuous manual mode switched on.
Deactivating permanent manual control.

Cause 3: Application software has been stopped, programming LED is flashing.
Perform reset: Disconnect device from bus, switch on again after approx. 5 seconds.

Cause 4: Application software missing or faulty.
Check programming and correct.

5.3 Warranty

The warranty is provided in accordance with statutory requirements via the specialist trade. Please submit or send faulty devices postage paid together with an error description to your responsible salesperson (specialist trade/installation company/electrical specialist trade). They will forward the devices to the Gira Service Center.

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