

Installation and operating instructions

1. General use

B.E.G. DALI Gateways bring together the crossfunctional KNX installation bus and the lighting control specific DALI-Bus (IEC 60929). Lights with cost-effective, digital DALI ECGs can therefore be integrated into an overall KNX architecture and operated via the multitude of existing KNX devices.

The **B.E.G.** DALI/KNX Gateway IP-N is a device used to control ECGs with a DALI interface via KNX. The device transforms switch and dim commands from the connected KNX system into DALI telegrams and status information from the DALI bus into KNX telegrams.

The DALI/KNX Gateway IP-N is a Category 1 device (in accordance with EN 62386-103). This means the device must only be used in DALI segments with connected ECGs and not with other DALI gateway devices within the segment (No multi-master function).

Power supply for the up to 64 connected ECGs comes directly from the DALI/KNX Gateway IP-N. An additional DALI power supply is not required and not permitted.

The device comes in a 4TE wide DIN Rail casing so it can be directly integrated into the mains distribution box. Connection to the bus is via a bus connector. Network and DALI lines are connected via screw connectors on the device.

ECGs can be switched, dimmed and set to a defined value in 16 groups per gateway. In addition to group control, the DALI/KNX Gateway IP-N offers the possibility to individually control up to 64 ECGs.

Please remember that once ECGs have been assigned to a group, they can no longer be controlled individually. An ECG can only be allocated to one DALI group. The DALI/KNX Gateway IP-N does not support multi-group allocations. If multi-group allocation is required, it must be performed via KNX communication objects.

Numerous communication objects are available for the visualisation of status and error information on an ECG as well as group and gateway level. (Current application: 11 communication objects per ECG and 8 communication objects per group + numerous individual objects).

In addition to all standard operating devices, the DALI/KNX Gateway IP-N also allows the control of individual battery emergency lights (EN 62386-202). For individual battery emergency lights, a distinction is made between devices with switchable ECGs (usually emergency lights with one ECG) and devices with non-switchable ECGs (converters), which are usually used in connection with another "normal" ECG (2 ECGs per light). The DALI/KNX Gateway IP-N allows for the mixed control of different ECG types within a DALI segment. Emergency lighting systems with a central battery are also supported.

A scene module for the extensive programming of up to 16 scenes from groups and individual ECGs as well as an effect module for the control of processes and light effects are also available on the device.

The DALI/KNX Gateway IP-N enables different forms of DALI commissioning (allocation of DALI ECGs to individual groups and changes in configuration):

1. Commissioning on the device
2. Commissioning via integrated web server

The ETS (Engineering Tool Software) with the data base entry of the current application program is also required for the final commissioning of the KNX communication.

For more details regarding the commissioning of a DALI segment, please see the current application program description.

2. Device types and accessories

At present, the following device types are available from the DaliControl product group:

DALI/KNX Gateway IP-N Part number 90134

3. Scope of delivery

The following individual components are included in the delivery of the DALI/KNX Gateway IP-N device:

- Complete device with connected bus connector
- 1x heat shrinkable tubing 1.2 x 2 cm for additional insulation of the bus cable
- Operating and mounting instructions
- Delivered in break-proof individual packaging

4. Application programs

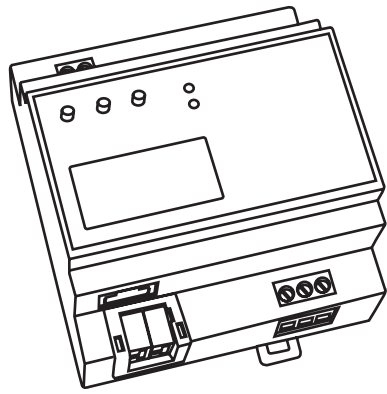
The following application programs are currently available for the DALI/KNX Gateway IP-N device:

DALI/KNX Gateway IP-N

For application program functions, please see the application program description.

5. Installation advice

- **Risk of death by electric shock**
- The device is intended for interior installation in dry rooms.
- The device must only be installed and commissioned by an accredited electrical engineer.
- Please follow country-specific safety and accident prevention rules as well as all current KNX guidelines.
- Please follow country-specific rules and regulations for the planning and construction of installations, especially with regard to emergency lighting systems.
- For the installation the device must be switched to zero potential.
- Do not open the device! Faulty devices must be returned to the manufacturer.



6. Technical data

Power supplies

- Mains connector for 100 to 240V, 50 to 60Hz AC or DC
- Maximum power consumption 7W
- In addition via KNX bus, SELV 24V

Connectors

- Mains connector L N PE: Screw connector 3x 1- 2.5 mm² single or threaded core
- DALI-Bus D+, D-: Screw connector 2x 1-2.5 mm² single or threaded core
- Bus connector: KNX bus connector
- Ethernet Eth1: RJ-45 plug connector for standard patch cables

Control elements

- Programming Button to toggle between normal and addressing mode
- 3 buttons (Move, Prg/Set, ESC) on display front to commission the device and set parameters

Display elements

- LED red: Indicates normal/addressing mode
- LNK-LED yellow: Signals device Ethernet readiness
- ERR-LED red: Signals fault status
- LC-Display, 2x12 characters: for the commissioning and configuration menu

Inputs

- Passive input for connecting pushbuttons with auxiliary voltage
- 9 - 32VDC or 8 - 26VAC, cable length max. 15m

Output DALI-Bus

- Connection of up to 64 ECGs in accordance with IEC 60926
- DALI-Voltage 16-20 VDC, short circuit proof max. 250 mA
- Category-1 device (in accordance with EN 62386-103). No other control devices (DALI-Master) must be used.
- Additional DALI power supply is not required or permitted.

Ethernet

- IP-connection via Ethernet, speed 100 Mbit / second
- IP address allocation via DHCP service or fixed IP address

Connections

- Bus line: KNX bus terminal
- Mains supply: Screw terminal for individual wires up to 2.5 mm² or 2 x 1.5 mm²
- DALI bus: Screw terminal for individual wires up to 2.5 mm² or 2 x 1.5 mm²
- Input for connecting pushbuttons, each contact: Screw terminal for individual wires up to 2.5 mm² or 2 x 1.5 mm²
- Ethernet: RJ45 connector for standard patch cable

Mechanical data

- DALI/KNX Gateway IP-N casing: Plastic ABS - V0
- Dimensions REG casing 4TE: Width: 70 mm, Height: 58 mm, Length: 86 mm
- Weight 200g
- Mounting: 35 mm DIN rail

Electrical safety

- Pollution class (in accordance with EN60664-1): 2
- Protection type (in accordance with EN 60529): IP20
- Protection class (according to IEC 1140) I
- Overvoltage category: III
- KNX Bus: separated extra-low voltage SELV DC 24 V
- DALI Bus: Functional extra-low voltage FELV DC 18 V (base isolation)

EMC requirements

Complies with EN 50090-22

Environmental conditions

- Weather resistance: EN 50090-22,
- Environmental conditions during operation: -5°C to +45°C
- Storage temperature: -25°C to +70°C
- Rel. humidity (non condensing): 5 % to 93 %

Certification

KNX certified

CE-Signage

According to EMC-Guidelines (Residential and commercial buildings), Low Voltage guidelines

7. Location and function of indication and control elements

The device connectors as well as the programming button and programming LED that are required for commissioning are only accessible in the distribution box when the cover is removed.

The 3 buttons (MOVE, Prg/Set, ESC) that are required to commission and configure the DALI and the 2-line display and control LEDs (ERR und LNK) are accessible when the cover is closed.

The following connectors can be found on the underside of the REG casing (left to right):

- A1:** RJ-45 plug for Ethernet connection
- A2:** KNX bus connector
- A3:** Power supply connector
- A4:** DALI output connector

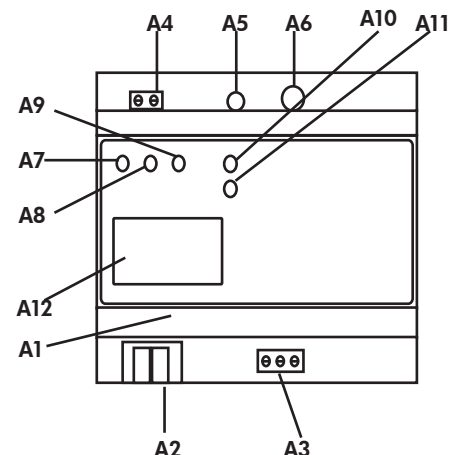
The following elements can be found on the upper side of the REG casing (left to right):

- A5:** Programming LED for normal/addressing mode
- A6:** Programming button normal/addressing mode
- A7:** MOVE button

The following elements can be found on the device front:

- A8:** Prg/Set button
- A9:** ESC button
- A10:** Error-LED
- A11:** LNK-LED
- A12:** Display 2x12 characters for DALI configuration

You must follow the terminal pin assignment as labelled on the casing!



8. Installation and wiring

As an REG device the **DALI/KNX Gateway IP-N** is suitable for mounting in distribution boxes on 35 mm DIN rails. To mount the device it must be angled to slide onto the DIN rail from above and then locked into place with a downward movement. Please make sure that the security latch at the bottom side of the device snaps into place and that the device is firmly attached to the rail.

To dismount the device, the security latch can be pulled downwards with a suitable tool and then the device can be removed from the rail.

After the device has been inserted, the cable for the DALI bus should be attached to the upper left connector. In accordance with IEC90929, the DALI gateway lines can be carried in a 5-wired cable together with the power supply (simple basic insulation is sufficient).

However, please make sure that these are labelled clearly. For the entire DALI installation of a segment, a maximum length of 300 m must not be exceeded. (Recommended cross-sectional area 1.5mm²).

The power supply is connected to the bottom right-hand side connector according to the order indicated on the casing.

To connect the KNX cable, a standard bus connector is plugged into the respective entry on the device.

Please make sure that there is double basic insulation between the KNX installation and the power supply. To do so, please insulate the wires of the KNX cable up to the bus connector with the enclosed shrinkable tubing.

After the device has been mounted and the bus connector connected, you can plug the RJ-45 Ethernet connector into the respective

socket on the underside of the device. Use a standard patch cable to connect the device with a switch or router of the IP network (Ethernet). When connecting the network, please make sure that the cables are laid in a way that ensures sufficient distance between the IP cable and the power cable.

After all the connections have been completed and the power supply is turned on, the product name and firm ware version appear on the display.

You can now start the commissioning of the DALI segment and programming with ETS. For all further processes, please see the application program description.

