

# Operating and mounting instructions

## DaliControl gc16-2

Order No. 4101-145-21

### General usage

The IPAS DALI Gateway DaliControl gc16-2 is a device used to control electronic control gears (ECGs) with a DALI interface (in accordance with EN 62386) via the KNX installation bus. 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 DaliControl gc16-2 is equipped with two DALI outputs which are independent from one another. 64 ECGs in 16 DALI groups can be controlled via each output. Both outputs offer the full range of functions described below.

The DaliControl gc16-2 is a so-called Single Master Application Controller (according to EN 62386-103). This means the device must only be used in DALI segments with connected ECGs and **not** with other DALI control devices within the segment (no multi-master operation). The required power supply for the up to 64 connected ECGs comes directly from the DaliControl gc16-2. An additional DALI power supply is **not** required and **not** permitted. Supported are ECGs according to EN 62386-102 ed1 (DALI1) as well as devices according to EN 62386-102 ed2 (DALI2).

**With firmware version 0.2.5 or higher the DaliControl gc16-2 is certified according to EN 62386-101 and -103 ed2 (DALI2) and therefore entitled to bear the DALI-2 logo.**

The device comes in a 4TE wide DIN Rail casing so it can be directly integrated into the mains distribution box.



In addition to the pure gateway function, the DaliControl gc16-2 also offers numerous additional functions

- Addressing of up to 16 DALI groups
- Flexible DALI commissioning concept in the ETS5
- Coloured light control with the help of device type 8 ECGs
- Coloured light control depending on ECG sub-type:
  - Colour temperature (DT-8 Sub-Type Tc)
  - XY colour (DT-8 Sub-Type XY)
  - RGB (DT-8 Sub-Type RGBWAF)
  - HSV (DT-8 Sub-Type RGBWAF)
  - RGBW (DT-8 Sub-Type RGBWAF)
- Support of time scheduling programmes to control groups according to values and/or colour.
- Different operating modes such as permanent mode, night-time mode or staircase mode
- Integrated operating hours counter for each group with an alarm for when the maximum life-span has been reached
- Individual fault recognition with objects for each light/ECG
- Complex fault analysis at group/device level with number of faults and fault rate calculation
- Fault threshold monitoring with individually configurable threshold values
- Scene module for extensive scene programming

- "Quick exchange function" for easy replacement of individual faulty ECGs
- Manual control of group and broadcast telegrams via control buttons on the device (see application program description for operating instructions)
- Signaling of a fault status via LEDs on the device (see application program description)

DALI devices for individual battery emergency lights of device type DT-1 can be read by DaliControl gc16-2 and switched and controlled via DALI telegrams. However, DALI commands to start and export test results are **not** supported. We recommend using the DaliControl e64 for DT-1 devices.

The special surface for the configuration of DALI segments is designed as DCA (Device Control App) for the ETS5.

Please remember to install the corresponding etsapp in addition to the product database knxprod. The etsapp is available for download on the IPAS website or from Konnex.

### Device types and accessories

At present the following DaliControl device types are available:

DaliControl gc16	Best.Nr.: 4101-145-11
DaliControl gc16-2	Best.Nr.: 4101-145-21
DaliControl e64	Best.Nr.: 4101-145-01

### Scope of delivery

The following individual components are included in the delivery of the DaliControl gc16-2 device:

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

### Application programs

At present the following application programs are available for the DaliControl gc16-2 device:

DaliControl gc16-2-01-0110

### Installation advices



**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 with return delivery note.

### Technical data

#### Power supply

- Operating voltage 110 to 240 V, 50 to 60Hz AC or DC
- Maximum power consumption 16W
- Bus power supply via KNX bus line, SELV 24V, ca. 5mA

#### Connectors

- Mains connector L N PE: Screw connector 3x 1- 2.5mm<sup>2</sup> single or threaded core
- DALI-Bus Channel 1 D+, D- : Screw connector 2x 1-2.5 mm<sup>2</sup> single or threaded core
- DALI-Bus Channel 2 D+, D- : Screw connector 2x 1-2.5 mm<sup>2</sup> single or threaded core

- Bus line: Bus connector KNX, screwless  
0.6...0.8mm, single core

#### Control elements

- Programming button to toggle between normal and addressing mode of the KNX
- 1 x button Man. to activate manual mode
- 8x buttons to toggle between groups in manual mode and to execute broadcast and service functions

#### Display elements

- LED red: Indicates normal/addressing mode
- LED red/green/blue: Indicates manual mode and error message
- 8x LED red: Indicates group status and error messages

#### DALI-Bus

- Number of outputs: 2 DALI output
- Output type: Single-Master Application  
Controller according to EN 62386-103 ed 2
- Number of ballasts: max. 64 ECGs according to EN 62386-101 ed1 and ed 2
- DALI voltage: typically 16 VDC, short-circuit proof max. 250mA, basic insulation (no SELV)
- Recommended wire cross-section: min. 1.5 mm<sup>2</sup>
- Guaranteed supply current: 128mA
- Maximum supply current: 250mA
- Shutdown delay: 600ms after DALI short circuit shutdown occurs
- Start-up attempt after shutdown: 5s after short-circuit detection

#### Mechanical data

- DaliControl gc16-2 casing: Plastic ABS – V0
- Dimensions REG casing 4TE: 71mm x 58mm x 90mm (WxHxL)
- Weight: ca. 130 g
- Mounting: 35mm DIN rail

#### Electrical safety

- Protection type (in accordance with EN 60529): IP20
- Protection class (according to IEC 1140): I
- Overvoltage category: III
- Pollution class (in accordance with EN60664-1): 2
- KNX Bus: SELV DC 24 V
- DALI Bus: typical 16V DC, 250mA base isolation, (no SELV)

#### EMC requirements

Complies with directive 2014 / 30 / EU

#### Environmental conditions

- Weather resistance: EN 50090-2-2,
- Environmental conditions during operation: -5°C to +45°C
- Storage temperature: -25°C to +55°C
- Transportation temperature: -25°C to +70°C
- Rel. humidity (non condensing): 5 % to 93 %

#### Certification

- KNX certified
- DIIA certified acc. to EN 62386-101 ed 2 and EN 62386-103 ed 2

#### CE-signage

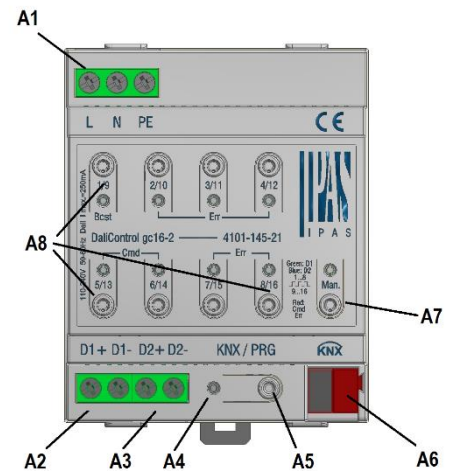
According to EMC guidelines (residential and commercial buildings), low voltage guidelines

#### Location and function of display and control elements

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

The buttons required to activate manual control and to operate groups and commands as well as the status and control LEDs are accessible when the cover is closed.

**You must always follow the pin assignment as labelled on the casing!**



- A1:** Mains connection
- A2:** DALI Channel 1 output
- A3:** DALI Channel 2 output
- A4:** Programming LED to display normal/addressing mode
- A5:** Programming button normal/addressing mode
- A6:** KNX bus connector
- A7:** Operating button/signal LED RGB manual mode
- A8:** 8x operating button/signal LED red group control/status, broadcast and service functions

#### Mounting and wiring

As a REG device the DaliControl gc16-2 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.

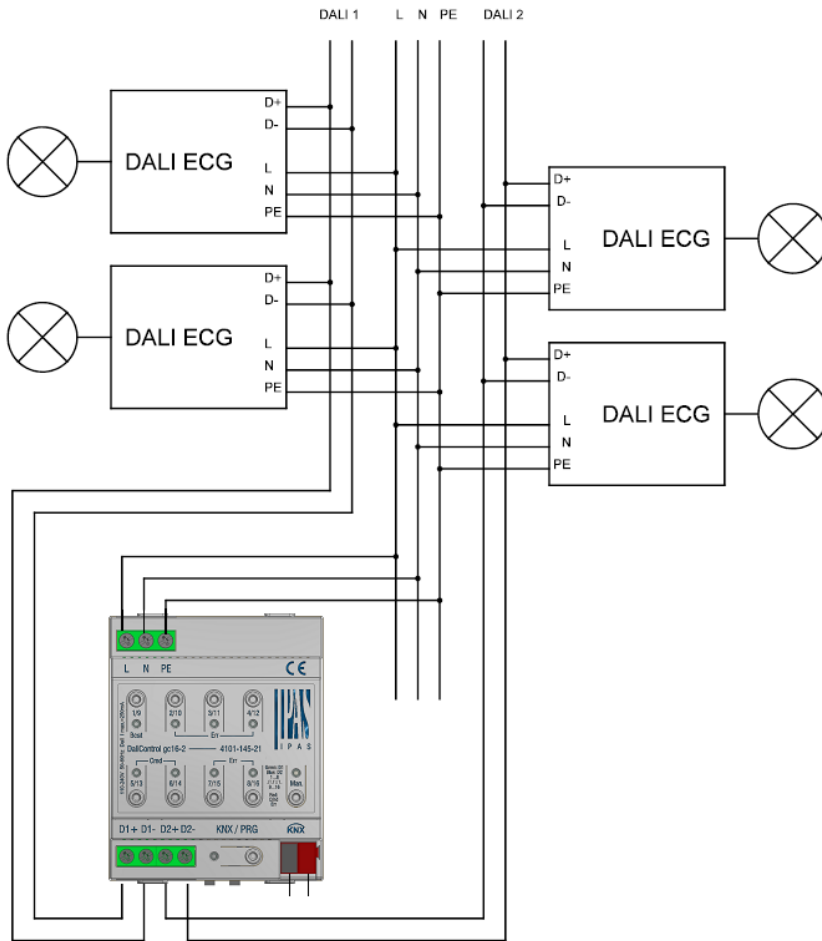
To dismount the device, the security latch can be pulled downwards with a suitable tool and then the device can be removed from the rail.

After the device has been inserted, the cable for the DALI bus should be attached to the upper left connector first. In accordance with EN 62386, the DALI control 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 cable length of 300m must not be exceeded. (Recommended cross-sectional area 1.5mm<sup>2</sup>).

The power supply is connected to the top left-hand side connector in the order indicated on the casing.

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

**Attention: 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.**



Once the connection is complete and the power supply is turned on, you can start commissioning the DALI segment and programming with ETS. For all further processes, please see the application program description.