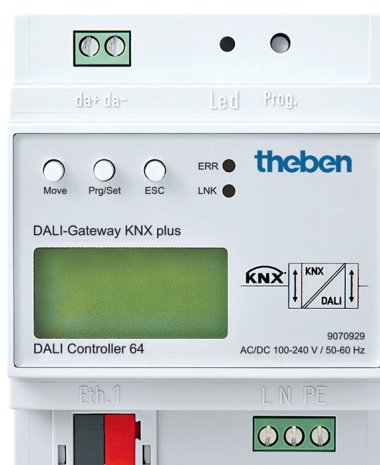


# Manual

## Application description for the DALI-Gateway KNX plus



## Content

1. Use of the application programme	4
2. General product information	4
2.1 DALI bus system properties	4
2.2 DALI-Gateway KNX plus – product features	4
3. General features of the ETS application programme	5
3.1 Plugin installation	5
3.2 Basic structure of the plugin	6
3.3 Plugin operating modes: DALI commissioning	6
4. DALI commissioning	8
4.1 The commissioning process with the DALI-Gateway KNX plus using the web page or buttons	8
4.2 The commissioning process with the DALI-Gateway KNX plus using the ETS plugin	9
5. Display and button operation	9
6. Operation via a web browser	14
6.1 Function of the configuration buttons	16
6.2 Function of the operating buttons	16
6.3 Function of the ECG fields	17
6.4 Function of the group fields	18
6.5 Function of the information and status fields	18
7. ETS special and commissioning functions	22
7.1 Special functions in 'Normal Mode'	22
7.1.1 Synchronisation with the connected DALI segment	22
7.1.2 User-friendly naming of ECGs and groups	23
7.2 Special functions in 'Extended Mode'	24
7.2.1 Preparation and planning of DALI commissioning in 'Extended Mode'	24
7.2.2 DALI commissioning in 'Extended Mode'	25
7.2.3 ECG and lamp failures during DALI commissioning in 'Extended Mode'	28
7.2.4 Use of dummy ECGs in 'Extended Mode'	28
7.3 Universal ETS special functions	29
7.3.1 Use of IP for plugin communication	29
7.3.2 Parameters – templates	29
7.3.3 Data back-up of the DALI configuration	30
8. DALI service and extension	31
8.1 Rapid replacement of one individual ECG	31
8.2 Extension of an existing system – post-installation	31
9. Operating modes	31
9.1 Normal Mode	31
9.2 Continuous Mode	32
9.3 Staircase mode	32
9.4 Night mode	32
9.5 Panic/emergency mode	32
9.6 Test mode for emergency luminaires with central battery	32
9.7 Burn-in mode	32

9.8	Operating mode hierarchy .....	33
10.	Analysis and service functions .....	34
10.1	Runtime recording .....	34
10.2	Individual failure detection at ECG level .....	34
10.3	Failure analysis at group level .....	35
10.4	Failure analysis at device level .....	36
11.	Scenes and effects .....	37
11.1	The scene module .....	37
11.1.1	Scene programming using the scene web page .....	37
11.1.2	Scene programming using the ETS in 'Extended Mode' .....	38
11.2	The effect module .....	39
11.2.1	Effect programming using the effect web page .....	39
11.2.2	Effect programming using the ETS in 'Extended Mode' .....	40
12.	Individual-battery emergency luminaires .....	41
12.1	Properties of individual-battery emergency luminaires .....	41
12.2	Block mode for individual-battery emergency luminaires .....	41
12.3	Test mode for individual-battery emergency luminaires .....	41
13.	Overview of ETS communication objects .....	43
13.1	General communication objects .....	43

## 1. Use of the application programme

Product family: Lighting  
Product type: Gateway  
Manufacturer: Theben AG

Name: DALI-Gateway KNX plus  
Item no.: 9070929

## 2. General product information

### 2.1 DALI bus system properties

The manufacturer-independent DALI bus (DALI = Digital Addressable Lighting Interface) is a system for controlling electronic control gear (ECG) in the field of lighting technology. The DALI communication interface is defined in the IEC 60929 international standard.

The DALI bus is not only capable of receiving switching and dimming commands, but also of reporting status information relating to light level values or failure statuses, such as the failure of a lamp or ballast. Furthermore, the latest DALI standard supports operating devices with an emergency lighting function too (EN 62386-202). The status and operating mode of emergency luminaires can be monitored and various prescribed test procedures can be carried out.

Up to 64 individual DALI ballasts (slaves) can be connected in one DALI segment via the connected control device/gateway (master). During DALI commissioning, the ECGs receive an automatically generated 3-byte long address and, during the subsequent commissioning process, they receive a short address of 0 to 63, which is based on the long address. Since the addresses are assigned automatically, the order of the devices is random too and the individual ECGs/lamps have to be identified first during commissioning (see below).

The individual ECGs are addressed in the system either based on the short address (single control) or on a DALI group address (group addressing). To this end, as many of a segment's ECGs as you like can be organised in up to 16 DALI groups. Group addressing in the DALI system ensures that switching and dimming processes can be performed for different lamps within a system simultaneously, without any time offset.

As well as addressing using short addresses and group addresses, light level values for individual DALI ECGs can also be grouped into scenes and addressed via scene addressing.

See the DALI manual for a detailed description of the DALI system at:

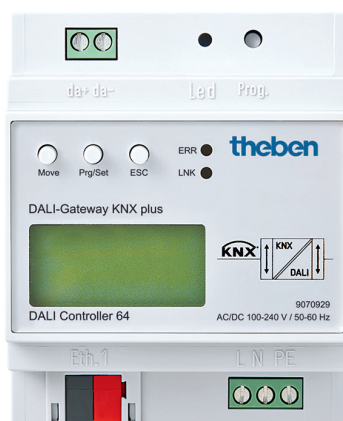
[www.dali-ag.org](http://www.dali-ag.org)

### 2.2 DALI-Gateway KNX plus – product features

The DALI-Gateway KNX plus is a device for controlling electronic control gear with a DALI interface via the KNX installation bus. The device converts switching and dimming commands from the connected KNX system into corresponding DALI telegrams, or status information from the DALI bus into KNX telegrams.

The DALI-Gateway KNX plus is a category 1 device (according to IEC 62386-103), i.e. the device is only allowed to be operated in DALI segments with connected ECGs, and not with other DALI control devices within the segment (no multi master operation). The power required to supply up to 64 connected ECGs is obtained from the gateway directly. An additional DALI power supply is **neither** necessary **nor** permitted.

The device is available in a 4 MW top-hat rail housing for direct installation in an electrical distribution box.



The DALI-Gateway KNX plus provides a number of additional functions over and above its straightforward gateway function:

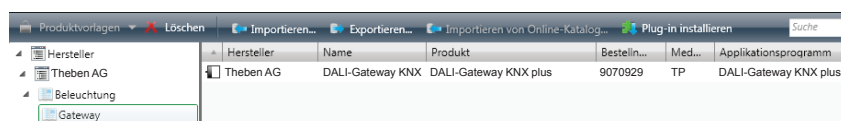
- ◆ Addressing of 16 DALI groups and/or individual addressing of up to 64 individual ECGs
- ◆ Flexible DALI commissioning concept: directly on the device or via an integrated web server
- ◆ Various operating modes for groups and ECGs, such as continuous mode, night mode, staircase mode
- ◆ Burn-in mode for each lamp with a specific burn-in time
- ◆ Integrated hour counter for each lamp with an alarm once the service life has been reached
- ◆ Individual failure detection with objects for each individual lamp/ECG
- ◆ Complex failure analysis at group/device level with number of failures and failure rate calculation
- ◆ Failure threshold monitoring with individually adjustable thresholds
- ◆ Scene module for comprehensive scene programming from groups and individual ECGs
- ◆ Effect module for sequential control and lighting effects
- ◆ "Rapid replacement function" for simple replacement of individual faulty ECGs
- ◆ Test operating mode for systems with emergency luminaires powered by a central battery
- ◆ Support for individual-battery emergency luminaires
- ◆ Support for test procedures for emergency luminaires with time and date stamp
- ◆ Integrated web server with extensive commissioning and service options
- ◆ "Visualisation" integrated via a web browser for direct operation and display

### 3. General features of the ETS application programme

#### 3.1 Plugin installation

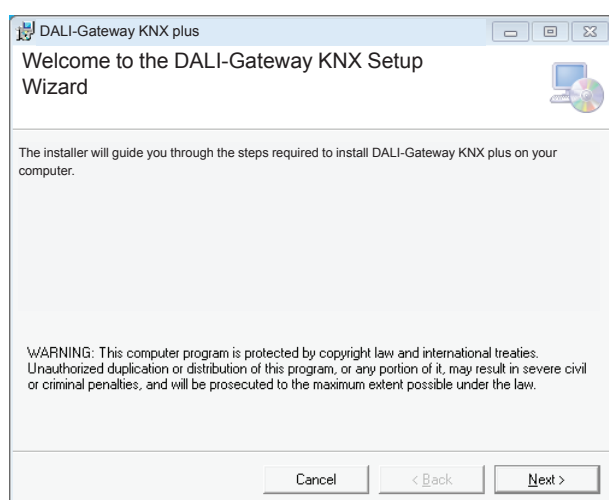
The application for the DALI-Gateway KNX plus is based on a powerful system B KNX protocol stack. It has been designed as a plugin for ETS-3 and ETS-4. Unlike a standard ETS application, the plugin necessitates an additional installation process. All the necessary programme files are created automatically when the associated ETS product file (vdx file) is imported.

Once the import is complete, the product can be added to the ETS as usual. It is classified as part of the "Lighting" product family, under the "Gateways" product type.

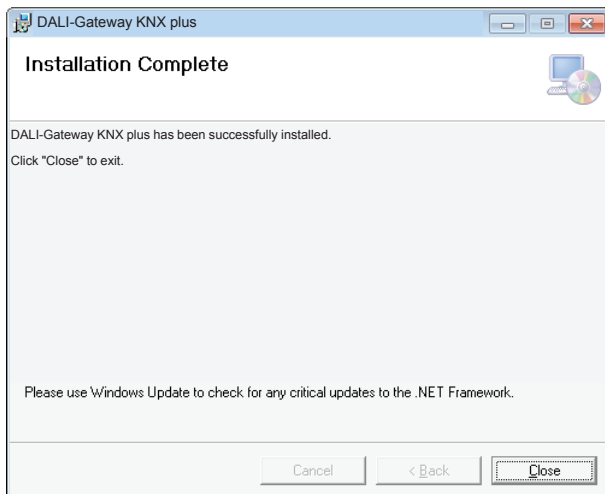


⚠ The first time the product is called in the ETS, you have to start installing the required plugin files by pressing 'Next'.

⚠ Refer to the Theben AG software licence terms prior to installation. Performing the installation indicates that you accept these terms.



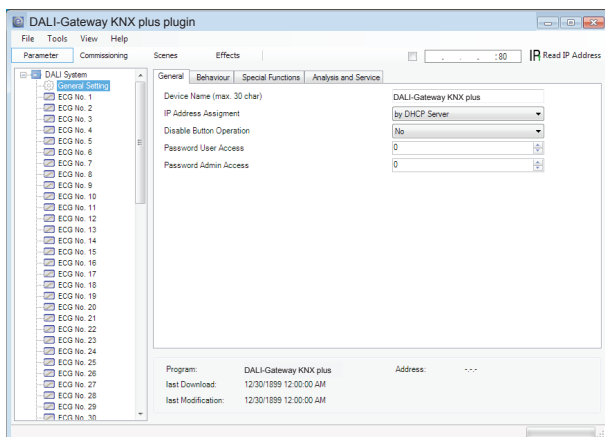
If the installation has been completed successfully, this will be confirmed by a message in a corresponding window.



Note: The installation requires .NET Version 4.0. This framework is usually already available on every modern PC. If an older version of .NET is installed, or none at all, .NET will have to be updated. You will find the necessary set-up files on the Microsoft website.

### 3.2 Basic structure of the plugin

The gateway is a product with a very high level of functionality and, as such, with a large number of setting options within the parameters. To make the parameter design as simple and clear as possible for the system integrator, additional servicing levels have been introduced over and above those found in a standard ETS application.

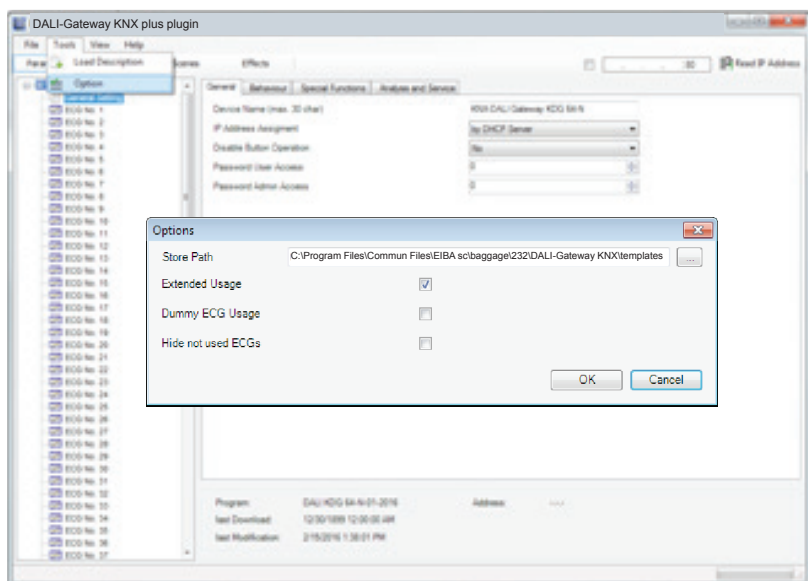


Unlike standard applications, each node of the main parameter tree not only has its own parameter page on the right-hand side, but several sub-pages can also be selected via tabs at the top. Whilst the main element required in each case, 'General Setting, ECG No. XX, Group No. XX', is selected via the main tree, the desired parameters are set on the sub-pages. This structure is fundamentally different from that of a standard device.

Furthermore, the three menus 'File, Tools, Help' in the menu bar of the plugin window can be used to execute higher-level functions and settings.

### 3.3 Plugin operating modes: DALI commissioning

The plugin can basically be used in two different operating modes, 'Normal Mode' and 'Extended Usage'. The mode is selected via the menu 'Tools' → 'Option' according to which concept is required for DALI commissioning.



The concept to be chosen for commissioning depends on the particular system integrator's preference, as well as on the technical requirements of the project. In variant A, 'Normal Mode', the DALI configuration and commissioning must be carried out using the web page on the device. This is only possible if all gateways in the project are integrated in an IP network via the IP interface at least during the commissioning phase (the network can also be established by means of a simple crossover cable connection between the gateway and the configuration PC).

If no IP network is available, DALI commissioning can only be performed to a limited extent using the display and the buttons on the device. If using commissioning variant B, 'Extended Mode', the entire commissioning process can be completed using the ETS and the KNX bus. An IP network is not necessary in this case. What's more, in mode B the DALI configuration can also be set for the individual ECGs 'offline' in the ETS, i.e. prior to commissioning in the system. During this process, all objects and potential parameters are visible, i.e. it is not possible to synchronise and therefore simplify and adapt the ETS to the actual system here.

Answer the three questions below in order to select the correct mode for your particular requirements:

- Is the DALI gateway integrated in an IP network (at least temporarily during commissioning)?
  - Yes Mode A or mode B
  - No Mode B
- Is the DALI configuration to be set 'offline' in the ETS prior to commissioning at the installation site?
  - Yes Mode B
- Is the DALI configuration to be set at the installation site and the ETS to be synchronised with the actual system, and simplified as a result?
  - Yes Mode A

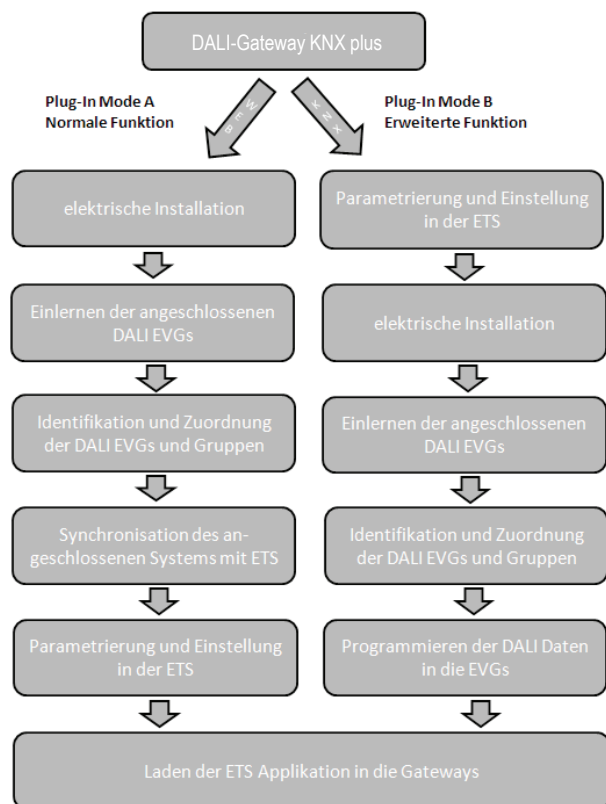
Mode A: 'Normal Mode' --- Mode B: 'Extended Mode'

If the necessary conditions are met, we recommend 'Normal Mode' for integrators who are not so familiar with the DALI system, since the large number of potential parameter settings and objects can be automatically reduced to only those elements that are required. For this reason, the default setting after first installing the plugin is mode A.

Please note that the operating modes are set simultaneously for all gateways within a project and within an ETS. Therefore, it is not possible to select variant A for some gateways and variant B for others without switching the mode altogether.

## 4. DALI commissioning

As has already been explained, the workflow for commissioning a DALI segment will differ, depending on the concept selected. The diagram below shows the general procedure:



### 4.1 The commissioning process with the DALI-Gateway KNX plus using the web page or buttons

If DALI commissioning is performed according to the mode A concept using the web page or buttons on the device, the commissioning process should follow this order.

Once the DALI ECGs and lamps have been physically installed and wired, and electrical commissioning has taken place, the connected ECGs first have to be taught in. During teaching in, all DALI ECGs are detected automatically and a short address of 0 to 63 is assigned to each ECG.

The teach-in procedure can either be started using the buttons and the menu on the device display (see 'Display and button operation' below) or via the corresponding button on the web page for commissioning (see 'Operation via a web browser' below).

The order of ECGs within the DALI segment is random. Once teaching in is complete, the process of identifying the ECGs and of assigning them to groups (if applicable) then follows. Identification and group assignment can be performed both on the device (buttons, display) or via the web page. If the web page is used for identification, an individual name (e.g. office-left) can be assigned to each ECG. If the relevant ECG is not to be controlled individually, but as part of a DALI group, it can also be assigned to a group directly at this point.

Once all the ECGs have been identified, designated with individual names and assigned to the correct groups, if applicable, then the ETS application can be synchronised. During synchronisation, the actual system properties of the connected DALI segment are transferred into the ETS and the parameters and communication objects are set accordingly, i.e. following synchronisation only those objects and parameters of ECGs that are actually present will be visible to the user. This enables the application to be adapted and simplified in the optimum way. Any names that have been assigned to the ECGs and groups can be transferred into the ETS too. The synchronisation can be started using the corresponding buttons on the ETS parameter page (see 'ETS application programme' below).

Once synchronisation is complete, the parameters for the individual ECGs or groups of the gateway can be set in the ETS and the communication objects can be linked to group addresses.

When this configuration work is done, the ETS application can be loaded into the device.

In principle, the system is then ready for operation and its function can be tested. If there are scenes or effects still to be programmed, this can be done in a final step using the buttons and display on the device (scenes only, limited functionality) or using the web page (scenes and effects, unrestricted).

You will find a full description of the display and button operations needed for commissioning in Chapter 5, plus a description of how the web page works in Chapter 6.



## 4.2 The commissioning process with the DALI-Gateway KNX plus using the ETS plugin

As an alternative to commissioning using a web browser or buttons, DALI commissioning can also be performed in full via KNX and the plugin. This mode B concept allows the DALI system to be largely configured 'offline'. Parameters for ECGs and groups, as well as communication objects, can be entirely set prior to electrical commissioning. All naming operations can also be executed here in advance. Finally, the scenes and effects are also set 'offline'.

This means that the system integrator can work in the ETS and the installer can work on the actual system independently of one another. Once the electrical installation is complete, DALI commissioning proper is carried out (including with the ETS).

You must first start the teach-in procedure. During teaching in, all connected DALI ECGs are detected automatically and a random short address of 0 to 63 is assigned to each ECG. The ECGs/lamps, which are currently in a random order, can be identified by selecting the corresponding operations (On/Off/Blink) in the ETS. You can drag-and-drop the ECGs to the ECG positions previously set in the ETS accordingly. This "cancels" the random order and the system gains a really good structure.

The configured data is then loaded into the ECGs when the DALI configuration is downloaded and the short addresses are adapted according to the pre-configuration, if applicable. Once the DALI data has been programmed, the ETS application itself finally has to be loaded into the gateway.

Please see Chapter 7 for a detailed description of the ETS commissioning interface.

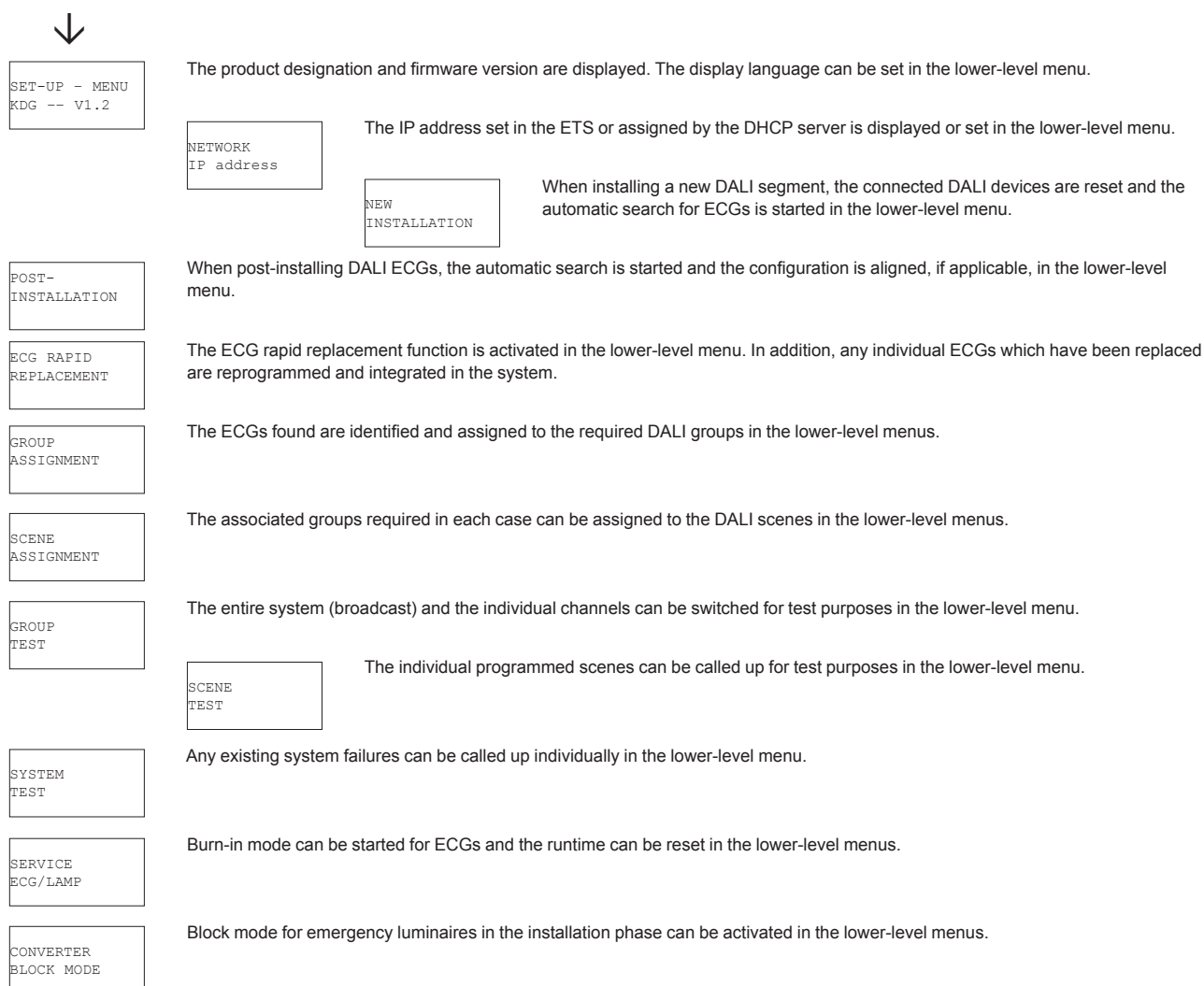
## 5. Display and button operation

The connected DALI segment can be commissioned and the DALI functions can be set and modified using the three operating buttons (MOVE, Set/Prg, ESC) and the 2 x 12-line display on the front of the device. The operating concept is based on menus. A maximum of two sub-levels can be selected, depending on the menu item. The relevant menu item is shown on the display. You navigate within the menu by briefly pressing the various buttons.

The Move button selects the next menu item within a level. Briefly press the Prg/Set button to go to the next level down. Pressing the ESC button exits the selected level and rebounds to the next level up.

### Main menu – level 1

The main menu level (level 1) has the following structure:





If a process is to be executed or a configuration modified in a lower level, you have to switch to programming mode at the required position. Do this by pressing and holding (> 2 s) the Prg/Set button. If the relevant function is in programming mode, a symbol appears on the display. If programming mode is active, a possible parameter or a setting can be modified by pressing the Move button. Press the Prg/Set button again briefly to complete the process. The set parameter is stored or the corresponding process is activated.

## SET-UP MENU sub-menu – level 2

SET-UP - MENU  
KDG -- V1.2

Briefly press the Prg/Set button in the DALI CONTROL main menu to jump to the LANGUAGE sub-menu.

LANGUAGE  
GERMAN

The display language currently set is shown in the sub-menu. Press and hold the Prg/Set button to switch to programming mode. You can then use the Move button to change between the possible language settings: GERMAN, ENGLISH, FRENCH, SPANISH, ITALIAN, DUTCH, SWEDISH AND DANISH. After pressing the Prg/Set button briefly to confirm, the set configuration is saved and the display uses the corresponding language.

## NETWORK IP ADDRESS sub-menu – level 2 and 3

NETWORK  
IP address

Briefly press the Prg/Set button in the IP address main menu to jump to the sub-menu.

DHCP: 192.  
168.004.101

The IP address currently set in the ETS or assigned by a DHCP server in the IP network is displayed in the sub-menu.

## NEW INSTALLATION sub-menu – level 2

NEW  
INSTALLATION

Briefly press the Prg/Set button in the NEW INSTALLATION main menu to jump to the FIND ECGs via PROG MODE sub-menu.

FIND ECGs  
via PROG MODE

Press and hold the Prg/Set button to switch to programming mode. Press the Prg/Set button again briefly to start the initialisation and search process. Firstly, all the ECGs connected to the DALI segment are reset automatically and any parameters and group assignments which may have been set previously are deleted. After that, the connected ECGs are searched for via their randomly generated long addresses and detected automatically in ascending order.

FOUND  
ECGs: 47

The search process may take a few minutes, depending on the number of ECGs that are connected. When the search process is complete, the number of ECGs found appears on the display. Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## POST-INSTALLATION sub-menu – level 2

POST-  
INSTALLATION

Briefly press the Prg/Set button in the POST-INSTALLATION main menu to jump to the FIND ECGs via PROG MODE sub-menu.

FIND ECGs  
via PROG MODE

Press and hold the Prg/Set button to switch to programming mode. Press the Prg/Set button again briefly to start the verification and search process. The connected ECGs are searched for via their long addresses and compared with the previous configuration automatically.

DELETED  
ECGs: 3

If ECGs have been removed from the DALI segment, the corresponding entries in the device are deleted automatically. The number of deleted devices is displayed during the verification process.

NEW  
ECGs: 1

The DALI segment is then searched for newly installed devices. Newly added ECGs are reset automatically and any parameters and group assignments which have already been set are deleted. The search process may take a few minutes, depending on the number of ECGs that are connected. During the search process, the number of new devices found appears on the display.

DEL./NEW  
ECGs: 3/1

Once the entire process (verification and search) is complete, both the number of deleted ECGs and the number of new ECGs found are shown on the display (deleted devices/new devices, from left to right, see image on left).

Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## ECG RAPID REPLACEMENT sub-menu – level 2

ECG RAPID  
REPLACEMENT

Briefly press the Prg/Set button in the ECG RAPID REPLACEMENT main menu to jump to the FIND ECGs via PROG MODE sub-menu.

FIND ECGs  
via PROG MODE

Press and hold the Prg/Set button to switch to programming mode. Press the Prg/Set button again briefly to start the rapid replacement. The device first checks whether one or more ECGs in the system were faulty. Then the segment is searched automatically for any newly connected ECGs. A rapid replacement is only possible if no more than one ECG in the segment was faulty and a new ECG is found. If the process can complete successfully, the number of the replaced ECG

ECG 04  
REPLACED

appears on the display. If the search process cannot complete because one of the conditions required for the rapid replacement is not met, an error code appears on the display. The meanings of the error codes are as follows:

FAILURE  
TYPE 07

Failure type 7: No faulty ECG

Failure type 8: More than one faulty ECG

Failure type 9: No new ECG found

Failure type 10: ECG has wrong device type

Failure type 11: More than one new ECG

Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## GROUP ASSIGNMENT sub-menu – level 2 and 3

GROUP  
ASSIGNMENT

Briefly press the Prg/Set button in the GROUP ASSIGNMENT main menu to jump to the sub-menu. The individual ECGs found during the search process can be assigned to the 16 DALI groups or any existing assignments can be modified in this menu.

ECG NO.: 12  
GROUP: --

You can scroll through the various ECGs that have been found by briefly pressing the Move button in the sub-menu. The number of the selected ECG appears in the first display line accordingly. For as long as an ECG is selected, the corresponding lamp flashes. This enables the programmer to see which lamp is assigned to the relevant number.

CONV NO.: 13  
GROUP: --

If the selected device is a non-switchable converter for emergency luminaires, it is set to functional test mode when selected and the text CONV appears on the display. The function LED on the converter will flash during the test, aiding identification (see the converter operating instructions).

ECG NO.: 12  
GROUP: 1

Press and hold the Prg/Set button to switch to programming mode. Briefly press the Move button to set

the group to which the ECG is to be assigned. Once the desired group has been selected, briefly press the Prg/Set button to confirm and store the setting. For a new installation, this procedure only has to be carried out once for all the ECGs that have been found.

**NOTE: Non-switchable converters for emergency lighting cannot be assigned to any group.**

Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## SCENE ASSIGNMENT sub-menu – level 2 and 3

SCENE  
ASSIGNMENT

Briefly press the Prg/Set button in the SCENE ASSIGNMENT main menu to jump to the sub-menu. The relevant DALI groups can be assigned to the individual scenes (up to 16 are possible) in this menu. ECGs that are controlled individually (single control) cannot be assigned on the display. This has to be done using the web page instead.

SCENE01 XXXX  
XXXXXXXXXXXX

You can scroll through the individual scenes by briefly pressing the Move button in the sub-menu. The number of the selected scene appears in the first display line accordingly. A symbol after the scene number indicates which of the 1 to 16 groups have been assigned to the corresponding scenes. An X in the relevant position means that group has been assigned to the scene. A – symbol means that group has not been assigned. The four characters after the scene number in the first display line correspond to groups 1 to 4 from left to right. The 12 characters in the second display line correspond to groups 5 to 12, in ascending order starting from the left.

SCENE03 ----  
XXXX-----XX

Press and hold the Prg/Set button to switch to programming mode. A flashing cursor on the first X indicates the selected group 1. Briefly press the Move button to choose whether the corresponding group is to be assigned to the selected scene (switch between X and – characters). Briefly press the Prg/Set button to move the cursor and, consequently, the setting option, to the next group. Once all 16 groups have been processed, the setting is stored and taken into account the next time scenes are programmed. The last time the Prg/Set button is pressed, the system rebounds to the next level up automatically. Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s with no buttons pressed); any changes that have been made will not be stored.

## GROUP TEST sub-menu – level 2 and 3

GROUP  
TEST

Briefly press the Prg/Set button in the GROUP TEST main menu to jump to the sub-menu. All groups can be switched individually or together (TEST ALL GROUPS), enabling the system to be tested, in this menu.

GROUP: 6  
TEST

You can scroll through the individual groups by briefly pressing the Move button in the sub-menu. The number of the selected group appears in the first display line accordingly.

GROUP: 6  
->off

Press and hold the Prg/Set button to switch to programming mode. Briefly press the Move button to choose whether the selected group is to be switched on or off. Briefly press the Prg/Set button to execute the selected operation. Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## SCENE TEST sub-menu – level 2 and 3

SCENE  
TEST

Briefly press the Prg/Set button in the SCENE TEST main menu to jump to the sub-menu. All scenes can be called up for test purposes or newly set lighting situations can be programmed into the scene in this menu.

SCENE: 2  
TEST

You can scroll through the individual scenes by briefly pressing the Move button. The number of the selected scene appears in the first display line accordingly.

SCENE: 2  
->call up

Press and hold the Prg/Set button to switch to programming mode. Briefly press the Move button to toggle between the 'Call up scene' and 'Save scene' functions. Briefly press the Prg/Set button again to execute the selected operation and call up or save the set scene. Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## SYSTEM TEST sub-menu – level 2 and 3

SYSTEM  
TEST

Briefly press the Prg/Set button in the SYSTEM TEST main menu to jump to the sub-menu. Any failure statuses can be called up in this menu.

DALI  
No failure

If there are no failures, this is indicated on the display. The failures below, which cause the red failure LED to light up at the same time, can be detected by the system and shown on the display:

DALI  
failure

- DALI short circuit
- Lamp failure with display of lamp or ECG number
- ECG failure with display of ECG number
- No KNX bus

LAMP 17  
failure

If there is a DALI short circuit, no other failures can be detected. For all other types of failure, several failures can be detected simultaneously. Briefly press the Move button to change over between the various failures that are present in this menu item. In the case of lamp and ECG failures, the number of the associated ECG is displayed, so the failure can be located directly. Press the ESC button to rebound to the next level up (alternatively,

ECG 34  
failure

this will happen automatically after approx. 30 s).

KNX  
No failure

## SERVICE ECG/LAMP sub-menu – level 2 and 3

SERVICE  
ECG/LAMP

Briefly press the Prg/Set button in the SERVICE ECG/LAMP main menu to jump to the sub-menu. A lamp's burn-in function can be started and the hour counter for the lamp can be reset in this menu.

ECG NO.: 01  
368 h

You can scroll through the individual ECGs by briefly pressing the Move button. The number of the selected ECG appears in the first display line accordingly. Line 2 shows the runtime that has elapsed since the last reset/burn-in.

ECG NO.: 01  
BURN-IN

Press and hold the Prg/Set button to switch to programming mode. Briefly press the Move button to toggle between the BURN-IN, RESET and BURN-IN/RESET functions. Briefly press the Prg/Set button again to execute the selected operation. Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

ECG NO.: 01  
BURN-IN/RESET

## CONVERTER BLOCK MODE sub-menu – level 2

CONVERTER  
BLOCK MODE

Briefly press the Prg/Set button in the CONVERTER BLOCK MODE main menu to jump to the sub-menu. Block mode can be set for all connected individual-battery emergency luminaires in this menu.

BLOCK MODE  
via PROG MODE

If the mains voltage for the individual-battery emergency luminaires is disconnected within 15 minutes after block mode has been activated, the lamps will not enter emergency lighting mode; rather, they will remain off. This operating mode may be required during a building's commissioning phase in particular, in order to prevent the corresponding lamps being switched on constantly.

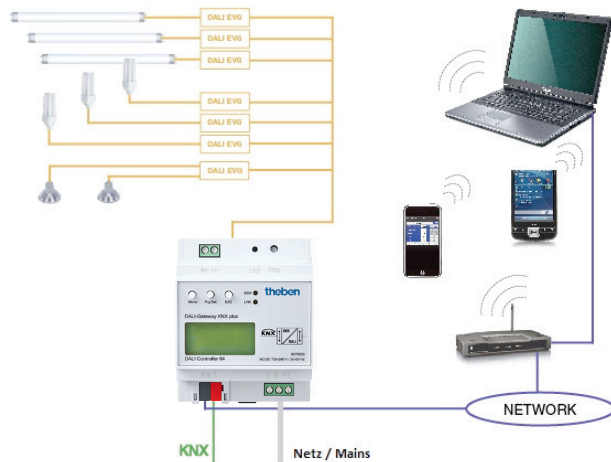
Press and hold the Prg/Set button to switch to programming mode. Press the Prg/Set button again briefly to activate block mode.

CONVERTER  
BLOCK?

Press the ESC button to rebound to the next level up (alternatively, this will happen automatically after approx. 30 s).

## 6. Operation via a web browser

Alongside commissioning using buttons, DALI commissioning can also be performed very easily via the web server integrated in the device. To this end, the DALI-Gateway KNX plus can be connected to the IP network directly. You will find an RJ45 socket at the bottom left edge of the housing, above the KNX bus terminal.



The device can be connected to a switch, hub or router on the IP network using a standard patch cable. Of course, a WLAN access point can be used as a network coupler too. In this case, commissioning can also be performed easily via a laptop, tablet PC or smartphone.

Once the physical network connection has been established, the gateway's IP address must be assigned so that access via a web browser is possible. When delivered, all Theben devices with an IP interface are set to DHCP address assignment. This means that, if the network contains a DHCP server, the device will receive a permissible IP address automatically after initialisation. The address thus obtained can be read from the corresponding menu item (see above) on the device display. If no DHCP service is available or if it is essential for a fixed IP address to be used, it has to be set first via the ETS or using the display and buttons on the device. If applicable, the subnet mask and standard gateway (in the event of direct access via the Internet) will have to be set too. These two parameters can only be set via the ETS.

If the IP address has been assigned correctly, the device web page can be called up via a web browser (e.g. Microsoft Internet Explorer, Mozilla Firefox, Apple Safari). Only the set IP address (URL) or that automatically assigned by the DHCP server has to be called in the browser for this purpose.

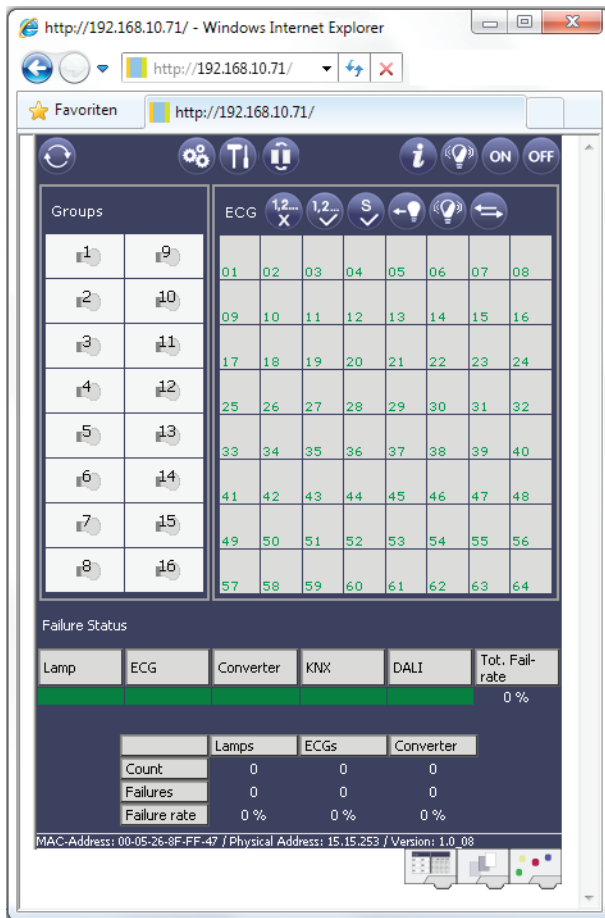
**Please note that the full URL consists of the IP address and the prefix `http://`. So, `http://192.168.10.71`, for example, must be entered in the browser in order to launch the page.**

Once called, the web page appears in the browser:



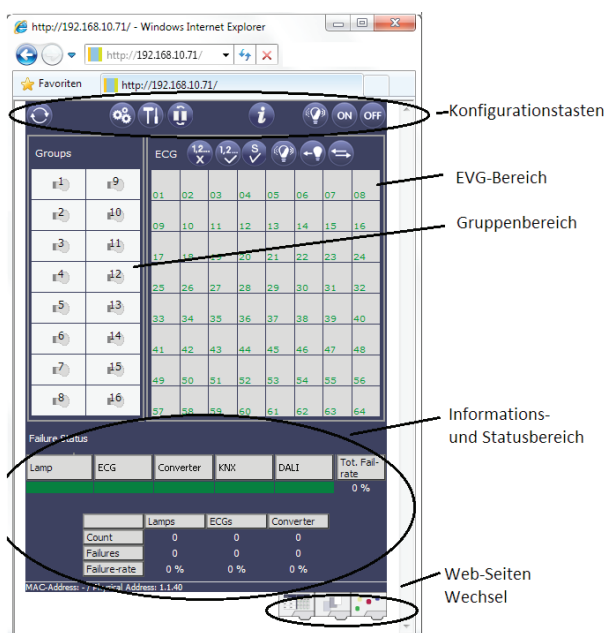
On the login page, you can first select whether the operator is to have 'User' or 'Administrator' rights. Logging in as a User will mean the function of the web page is restricted and configuration commands are blocked. This type of login should be used if the web page is to be used for visualisation and operation; DALI commissioning is to be carried out via the web page too, then you must log in as an Administrator. All the web page screenshots and descriptions that follow relate to the Administrator view. Passwords for Users and Administrators can be set in the ETS independently of one another. The default password setting when the product is delivered is '0' for both types of user.

Once logged in as an Administrator, you will have access to the configuration web page.



The configuration web page is divided into various areas. The top area contains a section with the configuration buttons needed for commissioning (some of these buttons are only visible when logged in as an Administrator). Below the configuration buttons are two fields, one for the 16 groups and one for the 64 ECG functions. The bottom third of the web page contains the information and status area. Three buttons at the bottom right edge allow you to toggle between the different tabs General Configuration, Scene Configuration and Effect Configuration.

All operable buttons on the page work with tool tips, i.e. when the cursor moves over the button, a function designation appears in plain text.



## 6.1 Function of the configuration buttons

The higher-level commissioning functions can be executed via the header in the web page. The various icons shown in the header have the following meanings and functions:



### Update

This function updates the content shown on the web page. The web page is basically static, i.e. data is only loaded in its up-to-date status the first time the page is called. Any changes that are not made through the web page, such as a change to a light status via a KNX telegram or a failure that has occurred in the meantime, will not be updated automatically.



### New installation

Use this button to start a new installation (reset and teach-in procedure) for the connected DALI segment.

**NOTE: When a new installation is performed, any existing configuration for the DALI segment is deleted in full.**



### Post-installation

Use this button to start a post-installation within the DALI segment. When a post-installation is performed, any ballasts that are no longer available are deleted and new devices added.



### ECG rapid replacement

Use this button to start an ECG rapid replacement within the DALI segment. A rapid replacement can only be performed successfully if a faulty ECG has been replaced by a new one.



### Device status

Press this button to show the device status of the gateway in the information and status area of the web page. However, if a group or ECG field is clicked, the area shows status information relating to the selected ECG or group instead.



### Broadcast On



### Broadcast Off



### Broadcast Blink

These functions can be used via a DALI broadcast telegram to switch all ECGs/lamps in the DALI segment on or off together, or to set them to blinking mode.

## 6.2 Function of the operating buttons

Above the ECG field are more operating buttons that can be used to execute operations specific to particular ECGs or groups. In order to do this, the required operation must be selected, then the group or ECG concerned must be clicked. If a function has been selected, the corresponding button appears in a white border. If a button that has been selected is then clicked again, the selection is revoked.



No selection



First button selected



The buttons have the following meanings:



#### Delete affiliation

This button cancels the affiliation of an ECG. First select the button, then click an ECG field of an ECG whose assignment you want to delete. If the ECG was previously assigned to a group, this will be deleted; if the ECG was previously designated as an ECG for single control, it will be designated once again as 'not commissioned'.



#### Assign group affiliation

This button controls the group affiliation of an ECG. First select the button. Then click and select the group field of the required group. Finally, click the ECG field to be assigned to this group in order to complete the assignment process. If the selected ECG was already assigned to a group, the old assignment is cancelled automatically.



#### Mark ECG for single control

This button designates the ECG as being for single control. Any ECGs found during the search process first appear labelled with a question mark, meaning they are 'not commissioned'. If the ECG is to be operated in single control, you have to select the button first, then click the required ECG field. The corresponding ECG is then designated with an 'S' (single) and is classed as commissioned.



#### Blink ECG/group

This button sets an individual ECG or a group to blinking mode. To perform this step, first select the button. If an ECG or group field is then clicked, the associated ECGs/lamps will flash. Blinking mode is used for identification purposes during DALI commissioning. Clicking the same ECG or group field again will stop the flashing. If you click another ECG or group field whilst the button is selected, blinking mode starts for this last element selected and the lamp that was flashing previously switches off.



#### Toggle light level value

This button switches the value for a group on or off. To perform switching, first select the button. If you then click a group field, this toggles the light level value for the lamps assigned to the group. The same applies on clicking an ECG field.



#### Swap ECG short address

This button can be used to swap the position and, consequently, the short address of two ECGs. To perform the swap, first select the button. If two ECG fields are clicked one after the other, the short address is physically swapped and the position within the list is adjusted accordingly. This function is needed if the randomly arranged ECGs have to be put into a defined order following a new installation. **The function should only be used immediately after a new installation. Later use in a fully configured DALI system should be avoided, as any parameters set in the ETS may not be swapped too.**

### 6.3 Function of the ECG fields

The ECG and group fields on the web page give the user a complete overview of the functional and failure status of the connected DALI segment at a glance. The ECG fields are numbered consecutively from 1 to 64 at the bottom left-hand corner of each field. The numbers correspond to the possible short address of an ECG within the DALI segment. If ECGs are found during the search process (new or post-installation), a lamp or a battery icon is added to the relevant field. The battery icon with a round battery symbolises an ECG for individual-battery emergency luminaires (device type 1). ECGs of all other device types (without battery) are indicated by a lamp symbol. If a device is configured as an emergency luminaire with central battery during ETS programming, this is also indicated by a separate icon. The following icons are possible:



ECG



ECG for individual-battery emergency luminaire, non-switchable



ECG for individual-battery emergency luminaire, switchable



ECG with central battery power supply

The value and failure status of the respective ECG is indicated by the colour of the icon or the background colour of the field:



Light grey icon => lamp switched off



Yellow icon => lamp switched on



Red icon => lamp failure in the device



Red background => ECG failure

Another item of information that can be read from the ECG fields directly is the ECG assignment. Any ECGs found during the search process are initially designated as 'not assigned'. This designation takes the form of a ? symbol over the icon. If ECGs are assigned to a group, the '?' is replaced by the group number. If the ECG is designated as an ECG for single control, then this is indicated by the letter 'S' (single).



ECG has not been commissioned



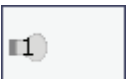
ECG commissioned for single control



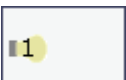
ECG with group affiliation (e.g. group 3)

## 6.4 Function of the group fields

Just as for ECG fields, group fields also indicate the status of the corresponding groups directly. However, for group fields the depiction is restricted to the switching status only. Failure statuses are not graphically displayed.



Light grey icon => group switched off



Yellow icon => group switched on

If a group or an ECG is switched via the web page, the status on the web page is updated and displayed automatically. If the switch command was initiated externally via a KNX telegram, there is no automatic update. The correct status will not be displayed until the web page is called up again or until the update button is clicked.

## 6.5 Function of the information and status fields

The bottom area of the configuration web page is able to display status information on the complete device, status information on the selected groups or status information on the selected ECGs.

The first time the web page is called up, status information relating to the complete device is always shown.

Failure Status					
Lamp	ECG	Converter	KNX	DALI	Tot. Fail-rate
					0 %
	Lamps	ECGs	Converter		
Count	23	23	2		
Failures	0	0	0		
Failure-rate	0 %	0 %	0 %		

This enables the user to find out about failure statuses, the number of connected lamps, ECGs and converters, and failure rates. A green bar indicates that there are no failures. If a failure occurs, the corresponding field changes to red.

The illustration of the total failure information can be called up again at any time by pressing the device status button in the configuration area of the web page.

Clicking one of the 16 group fields displays the status information for the selected group.

General	Run Hours	Burnin	Test
Group No. 1 Name <input type="text" value="Group 1"/> ✓ Value 9%			
		Number of ECG 2 Number of Converter 0 Lamp Failures 0 ECG Failures 0 Converter Failures 0 Failure rate 0%	

As well as information on the total number of devices and converters, plus the number of individual failures, the total failure rate within the group is shown too. Please note that the total failure rate is calculated from the sum of all failures in the group, based on the number of all ECGs and converters in the group. A user-friendly name with a maximum of 10 characters can be assigned to the group in the 'Name' field. After entering the name on the keyboard, the entry has to be confirmed by pressing the ✓ button. The name is then saved in the gateway and can be transferred into the ETS during synchronisation.

Clicking one of the 64 ECG fields displays the status information for the selected ECG. In this window, you can choose from four different tabs: General, Run Hours, Burnin and Test.

General	Run Hours	Burnin	Test
ECG No. 1 Name <input type="text" value="ECG No. 1"/> ✓ Value 40%			
		Alarm: Mode:	

On the General tab, as in the group view, a user-friendly name with a maximum of 10 characters can be assigned in the 'Name' field. After entering the name on the keyboard, the entry has to be confirmed by pressing the ✓ button. The name is then saved in the gateway and can be transferred into the ETS during synchronisation.

An icon appears in the Alarm line if a failure or an alarm is present. The individual icons have the following meanings:



Lamp failure



ECG failure



Converter failure



Service life exceeded

An icon appears in the Mode line if an operating mode other than normal is being used. The individual icons have the following meanings:



Continuous mode



Panic mode

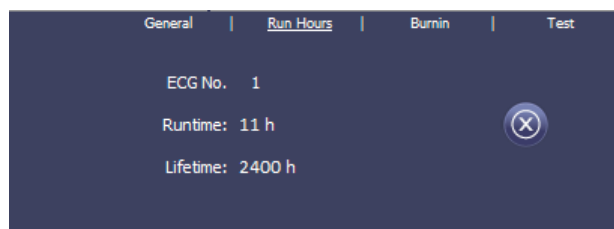


Central battery test mode



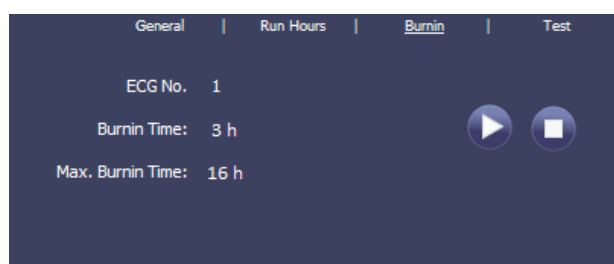
Burn-in mode

You can switch to the Run Hours tab in the header.



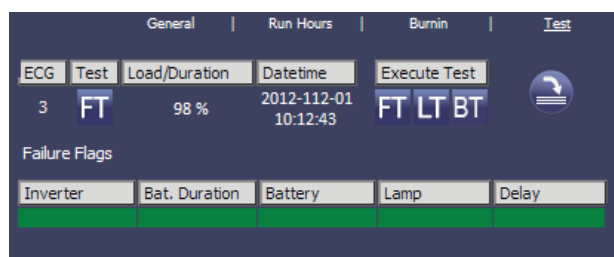
In this view, the accumulated runtime since the last reset is displayed, along with the maximum lamp service life set in the ETS. The button on the page allows you to reset the internal hour counter to 0.

You can switch to the Burnin tab in the header.



In this view, burn-in mode can be started and stopped for the selected ECG. The burn-in time set via the ETS (Max. Burnin Time) and the burn-in time which has already elapsed are shown.

If the selected ECG is a device for individual-battery emergency luminaires, you can also switch to the Test tab.



In this view, the test type, test result and test time of the last test performed are shown. The failure flags for the test are displayed in the status line. A green bar means the failure flag was not set and the corresponding test result is positive. A red bar indicates a negative test result.

The required test can be started manually from the web page too, using the buttons (Execute Test). The icons have the following meanings:



Battery test



Functional test



Long duration test

Please note that the web page is static and is not updated automatically once the test is complete. If the test result is to be shown on the page after activating and terminating a test manually, you first need to press the 'Update test result' button:



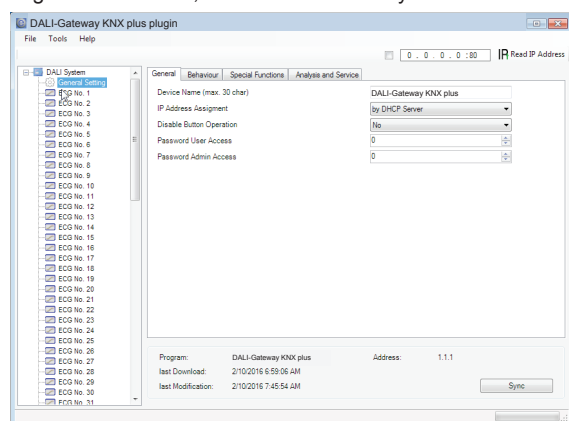
## 7. ETS special and commissioning functions

As has already been described in Chapter 4, different concepts can be selected for DALI commissioning, type A 'Normal Mode' and type B 'Extended Mode'. Different special functions and pages are available in the ETS, depending on the commissioning concept selected.

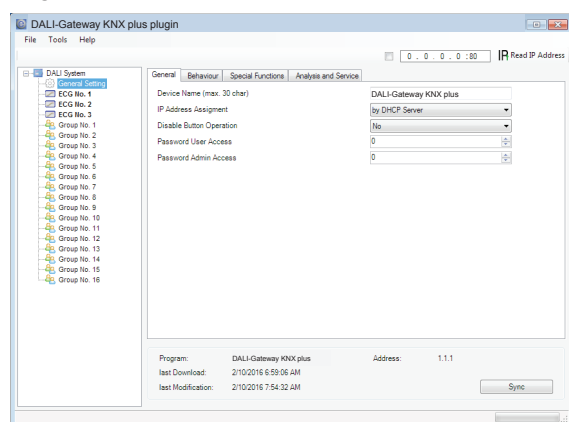
### 7.1 Special functions in 'Normal Mode'

#### 7.1.1 Synchronisation with the connected DALI segment

The first time the parameter page is called, the parameters and groups for all 64 possible ECGs and all 16 possible groups are displayed. In ETS mode A, commissioning can be simplified and the application can be adapted to the actual conditions of the connected DALI segment. To do this, the device must be synchronised with the system.

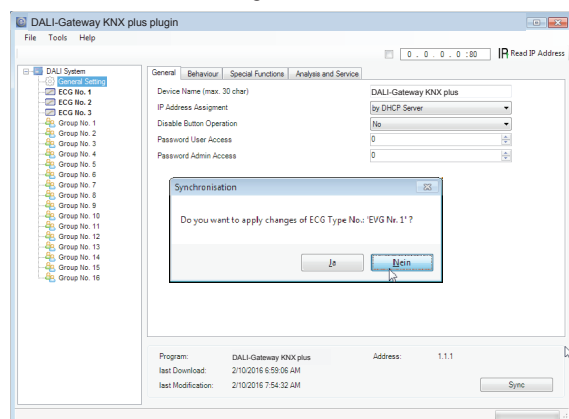


Synchronisation can be started using the Sync button at the bottom right-hand edge of the main window and may take a few seconds, depending on the size of the system. The progress of the synchronisation operation is shown in a bar at the bottom right-hand side. Once synchronisation is complete, only objects and parameters of ECGs that are physically connected to the device are shown in the ETS.

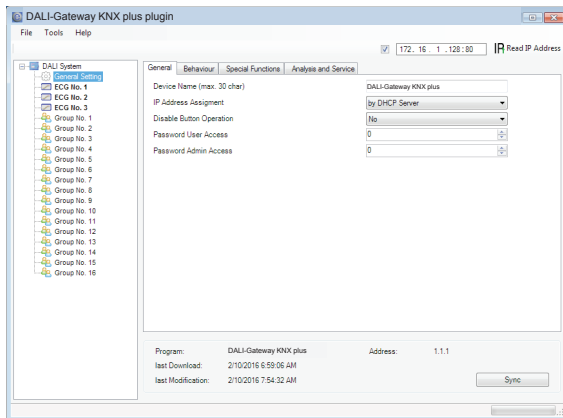


Furthermore, the device types and, if applicable, group assignments are set automatically.

During synchronisation, should a device type be discovered that does not match the current setting in the ETS, a pop-up window appears which must be acknowledged.



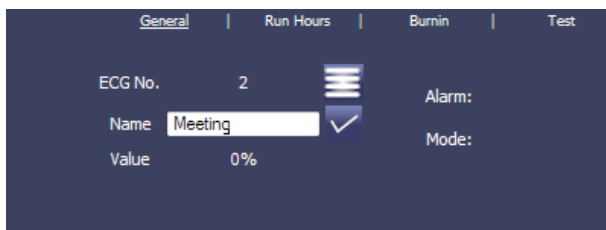
The ETS is synchronised by default via the KNX network. If the gateway has already been correctly integrated in the IP network and received a corresponding IP address, synchronisation can also be performed over Ethernet. To this end, enter the correct IP address for the device in the window's command bar and check the box to the left of the command line. Alternatively, you can press the Read IP Address button to set the IP address for the selected device without entering it manually.



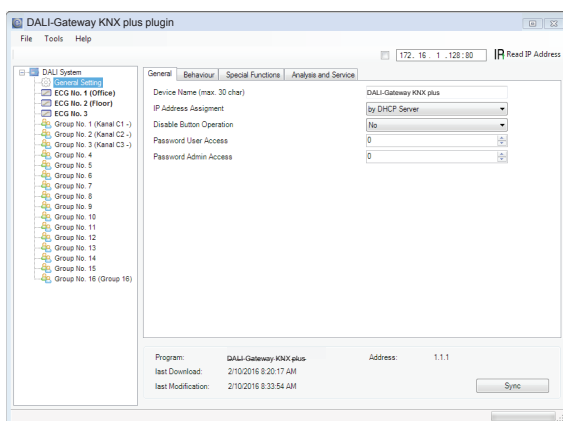
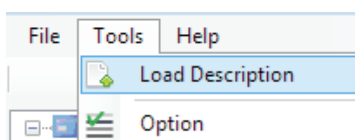
The synchronisation process aligns the application with the data of the connected DALI segment. **A synchronisation always needs to be performed whenever the system structure has been modified or expanded.**

### 7.1.2 User-friendly naming of ECGs and groups

To make configuration in the ETS easy for the user, it makes sense to employ user-friendly names for ECGs and groups. If names are to be changed, this must be done in ETS mode A directly during identification on the web page. Please note that, once the name has been entered in the relevant window, the confirmation button to the right of the input window must be pressed.



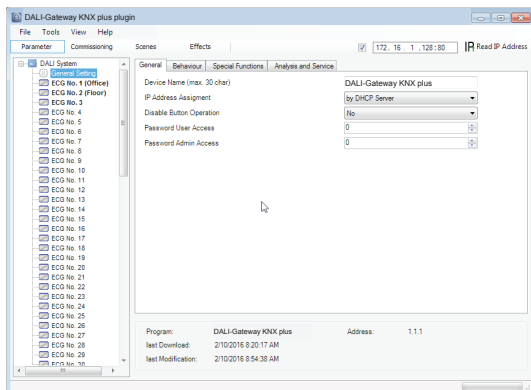
Names can be loaded into the ETS directly using the Load Description command in the Tools menu. The names appear in brackets after the respective nodes.



Since it can take some time to download names via the KNX bus, it makes sense to carry out this procedure via the Ethernet connection. Before executing the command, the correct IP address must be set and the box to the left of the IP address must be checked.

## 7.2 Special functions in 'Extended Mode'

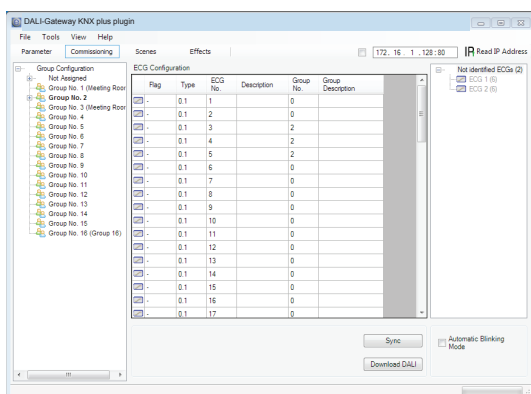
If 'Extended Mode' (mode B) is set for DALI commissioning (see Chapter 4), an additional menu with the items 'Parameter', 'Commissioning', 'Scenes' and 'Effects' appears below the main menu line.



In the first menu item, 'Parameter', the required ETS parameters can be set in the same way as in mode A. Please note that all parameters are visible in mode B, since here the settings can be made independently of the system to be connected subsequently. It is not possible to simplify the parameters and objects in this operating mode by synchronising with the system. The function of the 'Commissioning' menu item is described in detail in the next chapter. Please see Chapter 11 for information on the 'Scenes' and 'Effects' menu items.

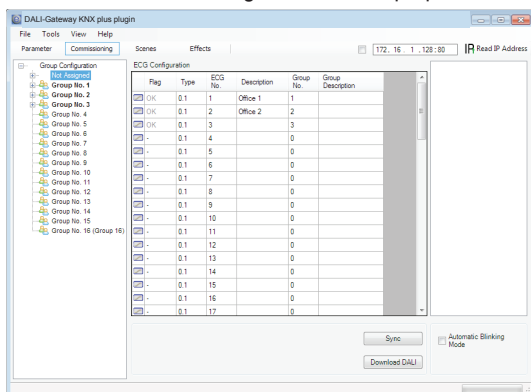
### 7.2.1 Preparation and planning of DALI commissioning in 'Extended Mode'

In mode B, the 'Commissioning' menu is used to open an additional page that is not available in 'Normal Mode'. You use this page to plan the system in advance of commissioning on site, as well as to perform the actual DALI commissioning (identification and assignment of ECGs) in the system at a later time.



The commissioning page is structured as follows: on the left is a tree structure, which shows the group configuration; in the centre is a table view for ECG configuration and naming; and on the right is a list of devices actually found in the system, which have not yet been identified. During the planning phase, this is initially empty, since the ETS is not connected to the system.

To start with, the ECGs need to be planned and named. A name (lamp number, room number or similar) can be entered in the 'Description' field of the ECG Configuration for this purpose.



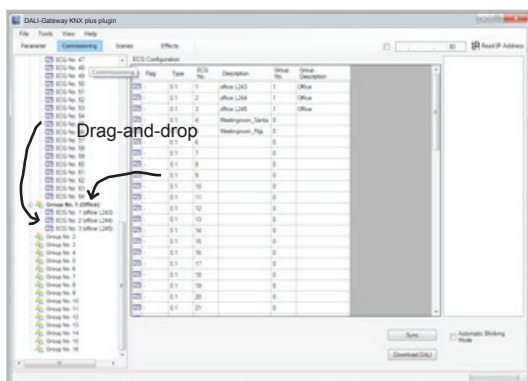


A maximum of 30 characters are available in the ETS plugin when entering names. In principle, the names will be transferred onto the web page too. Please note that, on the device's web page, only a maximum of the first 10 characters of the name entered in the plugin will be displayed.

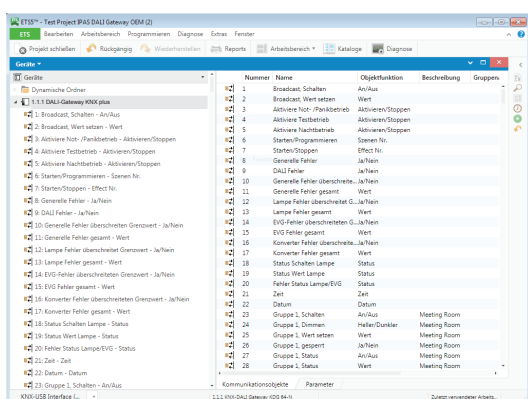
If the text entered in the 'Description' field is confirmed with the Return button, the input cursor jumps to the next ECG field automatically. This enables names to be entered quickly and reliably.

Once the ECGs have been planned, any required group assignment should be carried out. The group assignment can be executed in two different ways using drag-and-drop:

1. You can click to select an ECG in the middle configuration field, drag it to the left and release it on the corresponding group in the group tree.
2. You can click to select an ECG in the top 'Not Assigned' node of the group tree, drag it down and release it on the corresponding group.



If an ECG has been assigned to a group using drag-and-drop, the corresponding group number is displayed in the 'Group No.' field of the ECG configuration table automatically. A user-friendly name can then be entered for the group in the adjacent field 'Group Description'. The ECG and group names are automatically transferred to both the group configuration tree (shown in brackets) and to the descriptions of the ETS communication objects. Having meaningful names makes it much easier for the system integrator to link the group addresses to the communication objects.

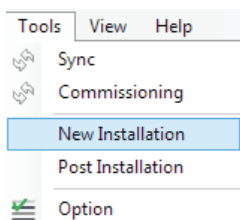


As soon as an ECG is assigned to a group, it is no longer available for single control. The group assignment adapts the parameters and communication objects. ECGs that are not assigned to groups are considered to be ECGs for single control. Please see Chapter 11 for information on planning and setting scenes and effects.

## 7.2.2 DALI commissioning in 'Extended Mode'

Once the parameters have been planned and set, and the group addresses linked, the DALI segment is actually commissioned. To do this, the commissioning PC has to be connected to the ETS via an interface (RS-232, USB or IP) with the KNX system. Once a connection has been established, the physical address of the corresponding gateway has to be programmed first. Communication between the plugin and the gateway is based on the physical address (if applicable, via the IP address too, see below).

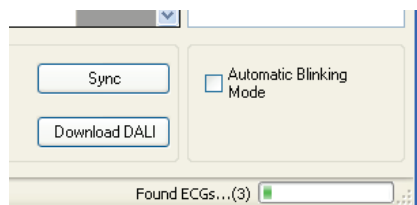
The teach-in procedure for the connected DALI segment can then be started via the 'Commissioning' page and the 'Tools' menu.



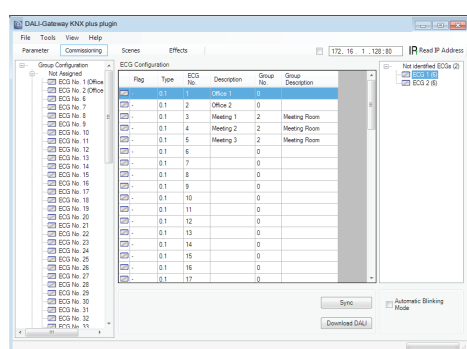
Please note that the options shown above in the 'Tools' menu are only visible if 'Commissioning' has been selected from the additional menu. The elements shown will depend on the setting previously selected in the additional menu.

During teaching in, all ECGs are detected automatically and a short address of 0 to 63 is assigned to each ECG. The teach-in process can take up to 3 minutes, depending on the size of the connected DALI segment.

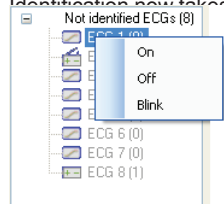
Progress is shown in the progress bar at the bottom right-hand edge of the window. At the same time, a display shows the number of ECGs found thus far or provides information about the procedure that is currently ongoing.



Once the teach-in procedure is complete, all found ECGs are entered in the list of devices which are yet to be identified on the right-hand side.

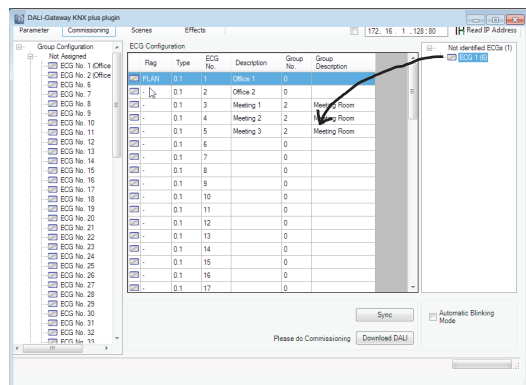


Identification now takes place by switching the relevant lamp on and off. If an ECG has been selected and the right mouse button is then appears and the required function can be selected.



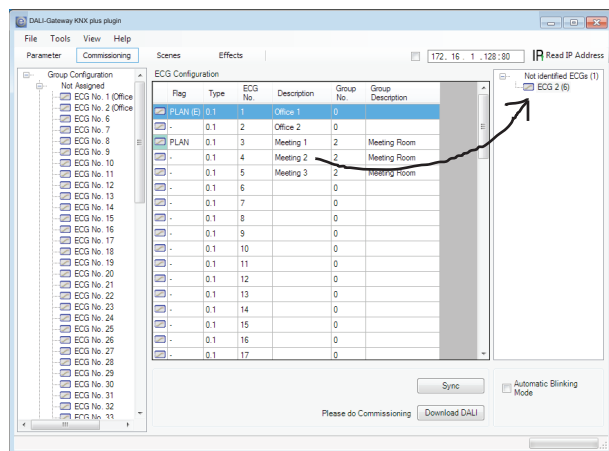
Alternatively, the 'Automatic Blinking Mode' box can be checked. In this case, blinking mode starts automatically for the corresponding ECG when the device is selected. The context menu is available at the groups and gateway level too. During the identification process, it may make sense to switch particular groups or all connected lamps on or off. If the 'Group Configuration' main node is selected, broadcast commands for On, Off and Blink can also be sent by right-clicking.

If an ECG has been identified, it can be dragged-and-dropped to the previously planned element in the ECG configuration table.



As soon as an ECG has been dragged to the ECG configuration table, it disappears from the list of not identified ECGs. At the same time, a 'PLAN' flag in the configuration table indicates that the ECG has been assigned to the planned element.

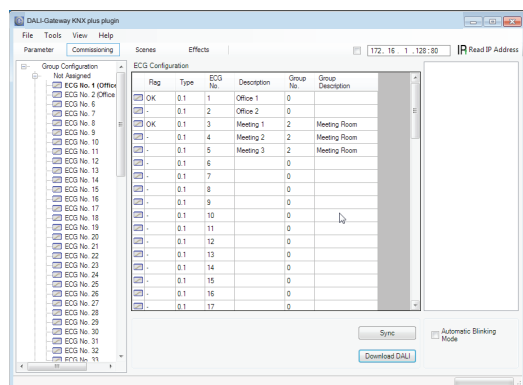
Should an ECG have been assigned incorrectly during this procedure, it can also be returned to the list of not identified devices using drag-and-drop.



The element in the configuration table then becomes available again (flag: 'PLAN (E)' empty). At the same time, the ECG reappears in the list of not identified devices and can be dragged to a different element, if applicable.

Please note that all operations performed are only displayed on the interface, but not loaded directly into the DALI gateway. To start loading the settings into the gateway and the ECGs, press the 'Download DALI' button. The download procedure can take up to 2 minutes. The progress bar provides information on the current status.

Once loading is complete, all the previously planned ECGs in the actual system are programmed with the DALI configuration. The corresponding devices are identified with the flag 'OK' in the ECG configuration table.

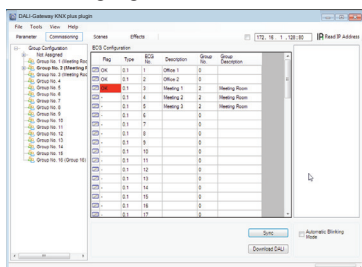


Not identified devices stay in the list on the right-hand side.

Note: Please note that the download on the 'Commissioning' page only programs the DALI configuration data in the gateway and ECGs. In addition, following DALI identification and commissioning, the ETS application itself has to be loaded into the device, along with the parameter settings and group addresses. This is done in the familiar way, i.e. using the normal loading procedure in the ETS after exiting the parameter page.

### 7.2.3 ECG and lamp failures during DALI commissioning in 'Extended Mode'

The lamps/ECGs are identified during commissioning on a visual basis (switch on, switch off, flashing), so this is only possible if the lamps and ECGs are working perfectly. Should the gateway identify a lamp or an ECG fault during the installation process, the relevant ECG is highlighted in colour. A red mark indicates an ECG failure, whereas yellow indicates a lamp failure.



Failures are displayed both for not identified devices (right-hand table) and for ECGs that have already been assigned (table in centre).

Since the view within the window is not updated automatically and it may take a few minutes for the DALI gateway to detect a failure, we recommend pressing the 'Sync' button a short while after performing a new installation. This updates the status displayed with the actual status in the device, plus any failures detected in the meantime are also shown.

**NOTE: If an ECG failure is already present during the search process for a new installation, the device will not usually be found.**

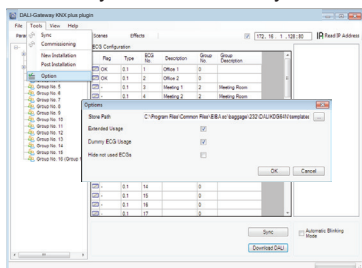
The number of ECGs found does not then match the number expected. ECG faults are only displayed in the manner described above if the ECG concerned has already been taught in and is known to the gateway.

### 7.2.4 Use of dummy ECGs in 'Extended Mode'

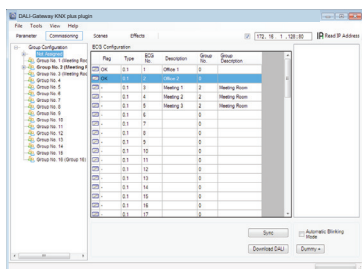
In practice, there are certain applications where a DALI system or a DALI segment has to be commissioned even though all the planned lamps are not yet physically available (e.g. if a room is not yet finished or a type of lamp has not been delivered). During the teach-in procedure, only the available devices are found and entered in the list of not identified devices. As such, only these devices can be dragged to the configuration table and commissioned as actual devices too. Devices that are planned but not yet available stay as an empty entry in the configuration table. Once the system has been completed, they can be taught in, identified and assigned at a later date by means of a post-installation (see below).

As long as an entry is empty, the gateway assumes that no ECG is available here and does not generate an error notification. However, sometimes you may want a planned device to be reported as an ECG failure, even though it is not yet available (for visualising an incomplete installation, for example).


The plugin offers the option to add placeholder (dummy) ECGs to the list of not identified devices. This additional option is not set by default. If you want to use it, you will first need to enable the option under 'Tools' 'Option'.

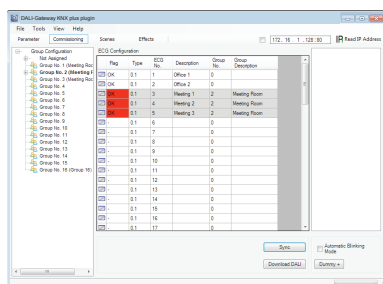


Once enabled, a new button named 'Dummy+' appears in the parameter window.



You can use this button to add placeholders (dummy ECGs) to the list of not identified ECGs.

The dummy ECGs are identified by  and can be dragged onto planned ECGs in the ECG configuration just like normal ECGs. After the DALI data has been downloaded, the gateway assumes that an ECG is available here and an ECG failure is issued at the corresponding communication object and in a visualisation.



In the ECG configuration list, ECGs generated by means of a dummy ECG entry have a grey background (see above).

The dummy ECGs are only used as a temporary solution in a system which is yet to be completed. A 'post-installation', which is necessary once the system is complete, deletes all dummy entries from both the ECG configuration table and the list of not identified devices.

## 7.3 Universal ETS special functions

The functions described in the following chapters can be used in both 'Normal Mode' and 'Extended Mode'.

### 7.3.1 Use of IP for plugin communication

The plugin communicates with the DALI gateway via the KNX bus by default. If the DALI gateway is integrated in an IP network and a correct IP address has been assigned (DHCP or fixed setting in the ETS), IP communication can be used as well. This makes loading and communication procedures considerably faster. To do this, you have to enter the correct IP for the DALI gateway concerned in the IP field at the top edge and check the box.



The IP address can also be downloaded using the 'Read IP Address' button. Press the button and the correct IP address for the current device will be entered in the address field automatically.

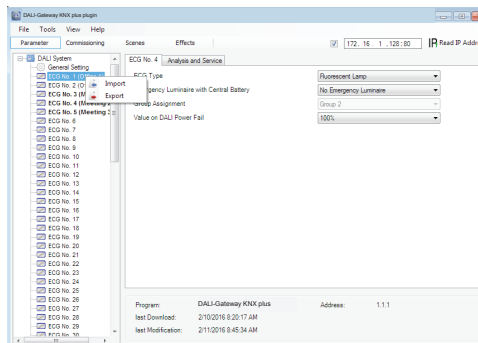
**Please note that if IP communication has been enabled (check mark), the plugin will always communicate with the gateway via the specified address. Manually entering incorrect information could result in the wrong gateway being addressed. Therefore, you MUST check that the IP address is correct.**

Should the box for IP communication be checked, but no IP connection is possible (wrong IP address, no network connection), the plugin will try to establish a connection over IP. It will detect automatically that it is not possible to create a connection and will switch to KNX communication automatically too.

IP communication can be used in both 'Normal Mode' and 'Extended Mode'.

### 7.3.2 Parameters – templates

The DALI-Gateway KNX plus gives you the option to create your own parameter templates. This makes the laborious process of setting the parameters for individual groups or ECGs much easier. Parameter templates can be generated and loaded either for all parameters of the entire gateway or for individual ECGs and groups. If the parameters have been set in full for a standard ECG, they can be exported as an xml file via the 'Export' function in the 'File' menu or by right-clicking.



Now, if another ECG that is to have the same parameter properties is selected, the exported file can be imported into the new ECG. The file can therefore be used as a template for other ECGs. Templates can be created at group level or for the 'General Setting'. In large projects in particular, configuration can be greatly simplified if templates are created for all ECG and group types that will appear and this library of templates is then used for the project.

If individual ECG or group parameters or, if applicable, even an entire gateway is to be reset to the delivery condition, the files supplied can be used for import:

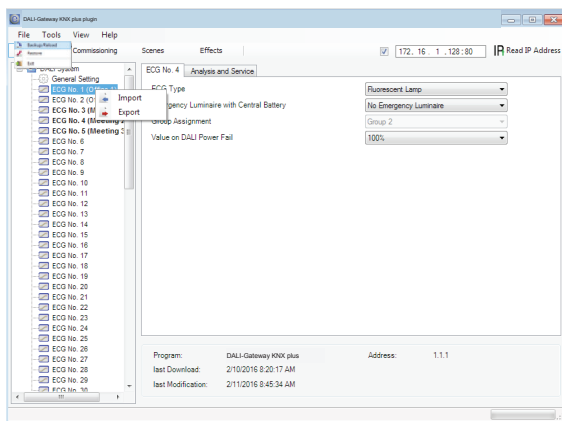
- default\_device.xml
- default\_ecg.xml
- default\_group.xml

### 7.3.3 Data back-up of the DALI configuration

The configuration data and parameters set in the ETS are saved to the ETS database each time a change is made and can be downloaded again into a new device at any time. However, the DALI configuration data, such as the DALI long address, is not part of the standard ETS application. If this data needs to be backed up too, you can do this with the 'Backup' function in the 'File' menu.

The 'Backup' function reads the current actual configuration from the gateway and saves it to an xml file.

**NOTE: The DALI configuration data in the ETS is also updated when a back-up is performed. Should changes have been made in the ETS in the meantime, which have not yet been loaded into the gateway (planning only), these will be overwritten by the back-up.**



If a gateway needs to be replaced, the data saved during the back-up can be loaded into a new device using the 'Restore' function. Back-up – Restore thus makes it easy to replace the gateway device without performing a laborious new installation. Therefore, we strongly recommend creating a back-up of devices once all configuration work is complete and backing up the relevant data.

## 8. DALI service and extension

### 8.1 Rapid replacement of one individual ECG

When commissioning a DALI segment, the short address, any group affiliation and other configuration data is programmed in the internal memory of the relevant ECGs. If an ECG has to be replaced due to a fault, this data needs to be programmed in the new device after the replacement has been carried out.

The DALI-Gateway KNX plus offers a function that enables individual ECGs to be replaced quickly and easily. The 'ECG rapid replacement' can be started both on the device (buttons, display) and in the web browser, if you are logged in as an Administrator (see above). On executing this function, the gateway checks whether one of the configured ECGs known to the gateway has been reported as faulty. After that, the segment is searched for new, unknown devices. If a new device is found, all configuration data from the old ECG is programmed into the new one and the system is then ready for operation again straightaway.

The ECG rapid replacement can only be performed successfully if an individual ECG within the segment was faulty and has been replaced by an individual new one. If multiple devices are faulty, the post-installation function must be used, as the ECGs will need to be identified. Please note that a rapid replacement is only possible if both devices are of the same device type. So it is not possible to replace an ECG for individual-battery emergency luminaires, for example, with a device for LEDs using the rapid replacement function.

Should a rapid replacement not be permitted due to the prevailing conditions, the gateway ends the process with an error code. The individual error codes have the following meanings:

Failure type 7: No faulty ECG

Failure type 8: More than one faulty ECG

Failure type 9: No new ECG found

Failure type 10: ECG has wrong device type

Failure type 11: More than one new ECG

### 8.2 Extension of an existing system – post-installation

If a DALI segment that has already been commissioned is to be extended with additional ECGs or if several faulty ECGs in the segment are to be replaced, the "post-installation" function must be used. The "post-installation" can be started both on the device (buttons, display) and in the web browser, if you are logged in as an Administrator (see above).

If the ETS is being used in 'Extended Mode' (mode B), the post-installation can also be called in the ETS via the menu 'Tools' 'Post Installation'.

When a post-installation is started, the gateway first checks whether all previously configured ECGs are still available in the segment (based on the DALI long address). Any ECGs that are no longer available or cannot be found are deleted from the gateway's internal memory. In the second step, the segment is searched for new ECGs. New devices found are inserted into any gaps or appended to the end of the list. **NOTE: Please note the maximum number of ECGs in a segment is 64!**

Since the position (short address) of the new devices found has been assigned randomly, once the post-installation is complete, the lamps and, if applicable, a group assignment will have to be identified just as for a new installation.

If you are using the ETS in 'Normal Mode', it will need to be synchronised again so that communication objects and parameters for the newly added ECGs will be displayed and the configuration can be completed. Should the post-installation only have been carried out for re-configuration purposes after ECGs have been replaced, this step can be omitted. The ETS only needs to be synchronised if the post-installation has changed the structure of the segment (system extension or modified device types).

All parameters and objects are always visible if the ETS is set to 'Extended Mode'. This means that the new devices found during the post-installation just need to be identified and assigned, then a DALI download and, if applicable, an ETS application download have to be performed.

## 9. Operating modes

### 9.1 Normal Mode

In normal mode, ECGs can be switched and dimmed without restriction, either under single control or in groups. Each ECG and group is controlled by three communication objects (switch, dim, set value).

Please note that ECGs are no longer available for single control as soon as they are assigned to a group. A group assignment can only be made to a maximum of one DALI group. The DALI-Gateway KNX plus does not support multi-group assignments at DALI level; instead, this has to be done by assigning the KNX communication objects.

At group level, control via the three communication objects can be blocked by a further block/enable object.

Separate status objects provide information on the switching and value status, as well as on groups and the ECG level.



## 9.2 Continuous Mode

If an individual ECG or an entire group is to be operated at a particular light level value on a permanent basis (e.g. a corridor that is constantly lit or a factory building), you can select continuous mode. The ECG or the group is then set to the required value automatically once the gateway has been programmed or switched on and the switching or dimming objects stay hidden. The lighting status, plus the failure and service functions, are also available in continuous mode.

**Should a special operation (e.g. identification process on the device display) or a malfunction (e.g. ECG was de-energised when the gateway started up) mean that a device in continuous mode is not set to the defined lighting strength temporarily, this condition will be corrected automatically after 60 seconds at the latest.**

## 9.3 Staircase mode

Staircase mode is only available for groups. In staircase mode, the value set by a switching/dimming or value telegram is switched to the switch-off value automatically after a programmable time. Switch-off is either achieved via an immediate switch-off, a switch-off in two stages (within a minute) or dimming (within a minute).

During staircase mode, every additional telegram received restarts the internal timer. Switch-off is performed once the timer has elapsed after the last telegram is received.

Staircase mode can be revoked by an additional block/enable object. If staircase mode has been blocked by the object, the group behaves like a group in normal mode and does not switch off automatically. If a block object is received whilst the switch-off timer is already running, the timer is stopped and the group remains at the value that has just been set. If the block object is then re-enabled, the timer starts running down again from the start.

## 9.4 Night mode

Night mode is possible both for groups and at ECG level. The function of night mode largely corresponds to staircase mode, but here the automatic switch-off depends on the central night object of the gateway. If the night object is not set (day), the group behaves as if it is in normal mode. If the object is set (night), the group or ECG switches off automatically after a programmable time or enters continuous mode.

## 9.5 Panic/emergency mode

Panic or emergency mode can be activated for the entire gateway via a central object. If this object is received, all ECGs/groups enabled for panic mode switch permanently to an adjustable panic light level value and can no longer be set individually. Once panic mode has been switched off, the devices switch back to the light level value that applied before the mode was entered, or to the switch-on or switch-off value, and can be operated individually once more.

## 9.6 Test mode for emergency luminaires with central battery

The internal function of the DALI-Gateway KNX plus supports systems for emergency lighting with a central battery. Each ECG (with the exception of an ECG of the individual-battery emergency luminaire type) can be designated as an emergency luminaire during configuration (even if it is assigned to a group) and an individual test duration of 15 minutes to 4 hours can be set. If the gateway receives the central emergency lighting test object, the corresponding lamps are set to another value, again which is freely selectable, for the set duration; the lamps can then no longer be switched/dimmed by the associated objects. This enables the discharge time or battery capacity of the central battery to be tested under defined conditions.

To ensure that individual ECGs within a group can no longer be switched by group telegrams or scenes either, the group affiliation is cancelled for the duration of test mode. Once the test is complete, groups and scenes are programmed into the ECGs again automatically. Should the gateway suffer a power failure during test mode, the unprogrammed devices will be marked and programmed automatically once power is restored. Test mode will not resume once the power is restored; rather, it can only be started again.

If test mode ends normally, the devices switch back to the light level value that applied before the mode was entered, or to the switch-on or switch-off value, and can be operated individually once more.

## 9.7 Burn-in mode

For many lamps, a specific burn-in phase has to be observed following initial operation to ensure that optimum operation and the specified service life are achieved. During burn-in, the lamps must not be switched or dimmed; rather, they must be operated continuously at 100% power. The DALI-Gateway KNX plus is able to perform this burn-in phase automatically. For this purpose, each ECG can be set to burn-in operating mode individually via another object. During burn-in, switching and dimming telegrams for the device are ignored. This applies even if the ECG was assigned to a group. To ensure that individual ECGs within a group can no longer be switched by group telegrams or scenes either, the group affiliation is cancelled for the duration of burn-in mode. Once burn-in is complete, groups and scenes are programmed into the ECGs again automatically. Should the gateway suffer a power failure during burn-in mode, the unprogrammed devices will be marked and programmed automatically once power is restored. Burn-in mode will not resume once the power is restored; rather, it can only be started again.

If burn-in mode ends normally, the devices switch back to the light level value that applied before the mode was entered, or to the switch-on or switch-off value, and can be operated individually once more.

Burn-in mode is usually started manually once each time a lamp is replaced. To ensure that this typical service function can also be

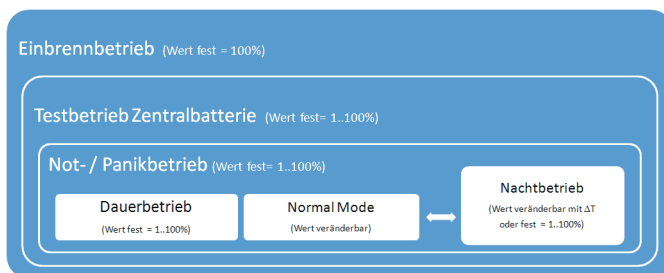


performed by service personnel independently of the ETS or KNX, it can be executed directly in the relevant menu item on the device display. Alternatively, you can start burn-in via the web page of the internal web server.



## 9.8 Operating mode hierarchy

Some of the individual operating modes described above have a higher-level function and significance for the operation of the overall system. Therefore, it is necessary to prioritise the operating modes and put them into a hierarchy. Burn-in mode has the highest priority. If an ECG has been switched to burn-in mode, it cannot change to any other operating mode. The next level down in the hierarchy is test mode for emergency luminaires. If a device is in this condition, it can only switch to burn-in mode but not to a lower-level operating mode. Panic/emergency mode comes next; from this operating mode, a device can switch to both test mode and burn-in mode. The continuous, normal and night operating modes all have the same priority at the lowest level of the hierarchy.



## 10. Analysis and service functions

### 10.1 Runtime recording

The gateway enables the runtime (burn time) for each individual lamp to be recorded separately. The internal records are to the nearest second. This value is available externally (communication objects, web page, display on the device) in the unit of hours, with the internal second value being rounded down or up in each case (e.g. 7199 s → 1 h, 7201 s → 2 h). The burn time is recorded independently of the dimming value, i.e. every light level value > 0% contributes to increasing a lamp's runtime. The hour counter can be reset (when a lamp is replaced). The reset is performed either by writing the value 0 to the communication object for the runtime or using the web page or the display and buttons on the device.

A maximum value can be set individually for each ECG (lamp service life); when this value is reached, an alarm object on the KNX bus or a field on the web page will be activated. This information can be used for preventative maintenance.

### 10.2 Individual failure detection at ECG level

A great advantage of DALI technology is the ability to individually detect lamp failures or faulty ECGs. The gateway fully supports this function and offers a range of additional failure analysis options too.

For the purpose of failure analysis, the gateway cyclically checks all the connected ECGs for ECG, lamp and (in the case of individual-battery emergency luminaires) converter failures. The cycle time for the check is adjustable. At a cycle time of 1 second (default setting) and 64 connected ECGs, a full check cycle of all ECGs for ECG and lamp failures will take 128 seconds (1 second per ECG and failure type). Therefore, it can take up to approx. 2 minutes until a failure is detected. The failure information can be reported on the KNX bus via a communication object, a different one of which is available for each ECG (1-bit or 1-byte object).

Furthermore, the failure status of all ECGs is clearly shown on the gateway's web page when it is called up.

If an ECG field on the web page has a red background, this indicates that the corresponding ECG (or the converter) is faulty. A red lamp symbol indicates a lamp failure. If the corresponding ECG field is selected, the individual failure status will also appear in the status and information area of the web page.



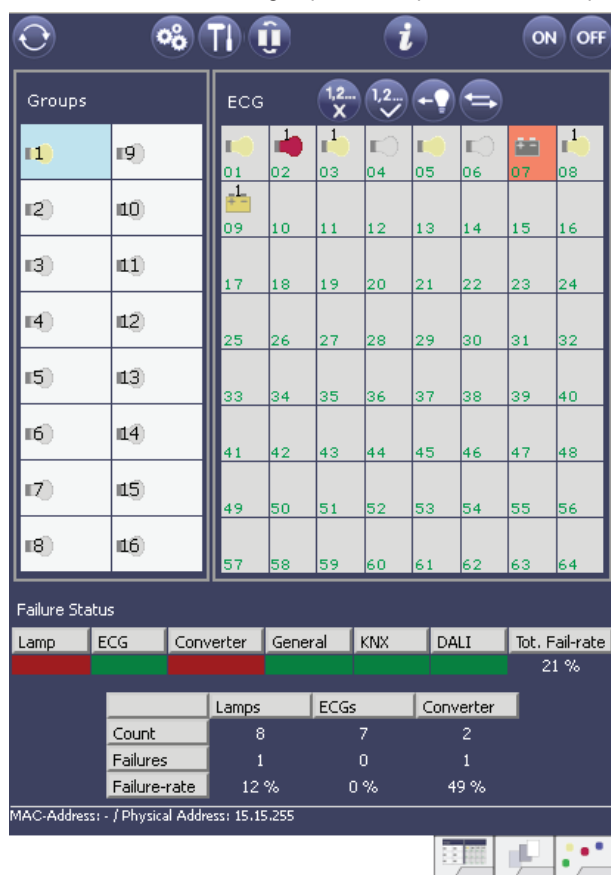
A special failure status object (object no. 20, see description of communication objects below) can also be used to check the failure status of all the individual ECGs, converters and lamps.

## 10.3 Failure analysis at group level

If ECGs and/or converters have been combined into groups, a great deal of group-specific failure data is provided in addition to the information relating to individual failures per ECG. Three different communication objects are available for each group for this purpose. Alongside general information on whether a failure is present within the group and what type of failure it is, a communication object can also tell you the total number of faulty devices within the group or a failure rate for the group. An alarm object, which is sent if a particular failure rate is exceeded, and a complex object with summarised information complete the various analysis options on offer.

Please see the description of communication objects below for a detailed explanation of the group-specific communication objects.

Failure information within a group is also depicted on the web page of the web server in a very clear format:



## 10.4 Failure analysis at device level

Similar failure analysis objects to those at group level are also available on an overall basis (related to all the ECGs connected to the gateway). The failure rate or number of faulty ECGs in the entire DALI segment can therefore also be made available via communication objects. Unlike at group level, at gateway level a failure rate or quantity can even be specified according to failure type. The threshold for an alarm at a particular failure rate can also be set individually for lamp failures, ECG failures and converter failures.

Please see the chapter describing communication objects for a full explanation of the communication objects.

Failure information relating to the entire gateway is displayed on the device web page too:



## 11. Scenes and effects

### 11.1 The scene module

The gateway allows up to 16 internal lighting scenarios to be programmed and called up. The scenes are called up via a 1-byte scene object. Scenes can also be saved via the object (bit 7 set). On saving, the currently set value is adopted as the scene value.

A scene can basically consist of groups and individual ECGs (provided that the latter are not assigned to a group).

A group can be assigned to a scene or deleted from a scene using the buttons and display on the device or via the web page. If you are using the ETS in 'Extended Mode', scene assignment and settings can be performed via the ETS too. It is not possible to assign and delete individual ECGs to/from scenes using buttons and the display alone.

When a scene is called, the programmed scene is set directly, with no dimming time, by default. If a scene is to be dimmed, a dimming time can be set for each scene too. A dimming time can only be set on the web page. Please note that the setting relates to the dimming time of 0 to 100 %. If calling up a scene initiates a change from 50 % to 100 %, for example, with a set dimming time of 20 seconds, in this case the dimming process will take 10 seconds.

If a scene is in the process of being dimmed, switching an individual group (or an ECG) of the scene does not cause the entire scene to stop; rather, this only affects the particular group addressed. All other groups continue with the dimming process started when the scene was called up.

Please note that **only** when a scene is called without a dimming time (value is being set) is the DALI command used for scene addressing. Dimmed scenes are realised at DALI level by addressing using short and group addresses. Scenes to which many groups or individual ECGs are assigned should therefore be used without a dimming time, in order to prevent irregular dimming.

#### 11.1.1 Scene programming using the scene web page

Scenes can be fully set and programmed very easily using the corresponding web page of the web server, which can be accessed via the Scenes tab button:

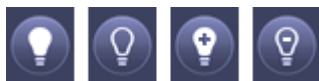


For programming, the required scene must be selected from the scene block in the bottom third of the page (should the scene have already been programmed in advance, the corresponding light level value is called directly on selection).

Once a scene has been selected, the groups or individual ECGs belonging to the scene can be added or removed with the assignment button. To do this, select the assignment button, then click the required group or ECG. The fields for assigned groups or ECGs have a yellow background or the associated dimming value in % is given in the field.

Individual ECGs can only be used in scenes if they are not assigned to any group.

You can now use the setting buttons to adjust the light level value. The buttons have the following meanings:



Switch on Switch off Dim up Dim down

The setting buttons work on the principle of pre-selection too, i.e. the required button must be selected first, before the group or ECG to be adjusted is clicked. Dimming values can only be set in increments, with the discrete increment size varying according to the logarithmic dimming curve of a DALI ECG.

If applicable, the soft-on time can still be set and a specific name can be programmed for the selected scene. To now save the set values in the gateway and the ECGs, press the programming button.

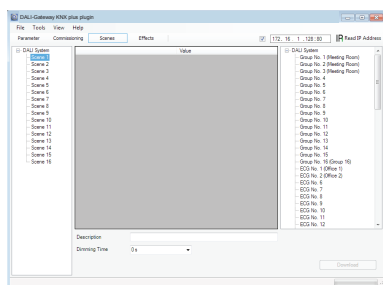


Program scene

Please note that the set values are only adopted when the corresponding button has been pressed. If the user switches to a different scene without previously saving, any changes made will be rejected.

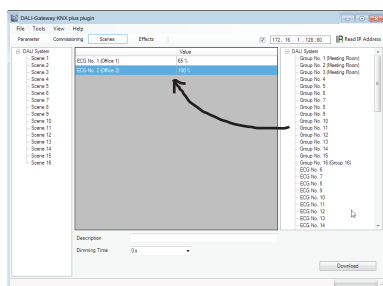
### 11.1.2 Scene programming using the ETS in 'Extended Mode'

If the ETS is being used in 'Extended Mode' (mode B), scenes can be programmed and their assignment settings made in the ETS too.



On the scene page, you can first select the required scene in the scene tree on the left-hand side. You can then drag-and-drop the groups and individual ECGs influenced by this scene from the tree on the right-hand side into the central scene field; the light level values required for this scene can then be entered individually.

You can assign a user-friendly name to the scene concerned in the 'Description' field underneath the scenes. If the scenes are not to be started immediately when called, but are to be dimmed to the final value (see above), a dimming time can also be set individually for each scene.



Once all scene values have been assigned and set, the scene has to be loaded into the DALI ECGs. To do this, press the Download button at the bottom right-hand side.

In principle, the individual scenes can also be planned 'offline' in the ETS, independently of the DALI system. The plugin just has to be connected to the gateway for the download to take place.

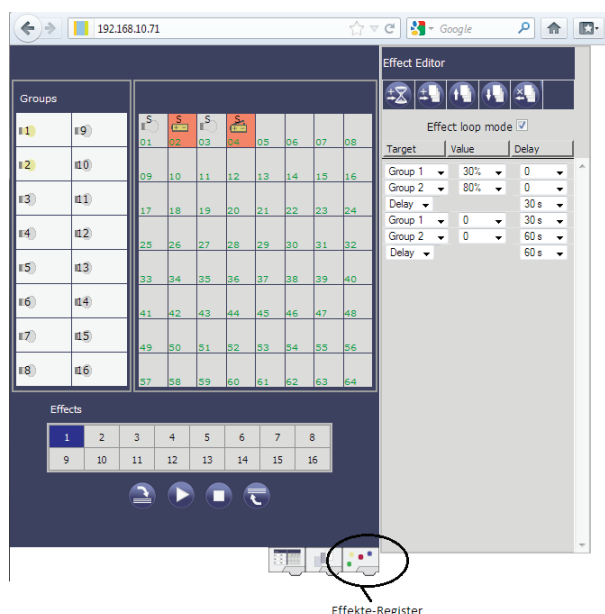
## 11.2 The effect module

The gateway not only allows lighting scenarios to be used, but also effects. An effect is a sequential control of light level values for various groups and/or individual ECGs. The individual light level values can either be controlled directly or dimmed by means of a dimming value. Please note that the setting relates to the dimming time of 0 to 100% (see also the chapter on the scene module). The gateway is capable of realising 16 independent effects. An effect is started and stopped via a 1-byte object. If bit 7 in an object is set, this starts the relevant effect. If an object with a deleted bit 7 is received, this stops the effect.

A total of 500 effect steps can be programmed, distributed across the 16 effects as desired. A delay can also be programmed as an effect step.

### 11.2.1 Effect programming using the effect web page

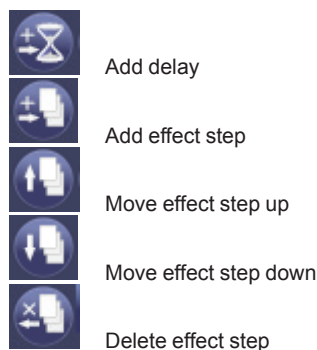
Effects can be set and programmed using the corresponding web page of the web server, which can be accessed via the Effects tab button:



For programming, the required effect must be selected from the effect block in the bottom third of the page (should the effect have already been programmed in advance, the associated effect steps are displayed in the effect step block on the right-hand side directly on selection).

The function buttons above the effect steps can now be used to add or delete steps or delays. The required group or ECG, as well as the final dimming value and dimming time can be defined for each individual effect step in the associated drop-down menu. If a delay is inserted as an effect step, the effect control pauses until the next step is executed. In this way, a list can be generated with a full sequential control for each effect. Every effect can also be repeated in an endless loop. If this is required, the 'Effect loop mode' flag above the list must be checked. If an effect is running in loop mode, it will be repeated until it is stopped via the communication object or by a button being pressed on the web page.

The individual buttons in the effect steps block have the following functions:



Once the list has been completed with the effect steps, it must be loaded into the device.



Program effect

Please note that the set values are only adopted when the corresponding button has been pressed. If the user switches to a different effect without previously saving, any changes made will be rejected.

The selected effect can be activated and tested from the page directly using the start and stop buttons.



Download effect list



Start effect



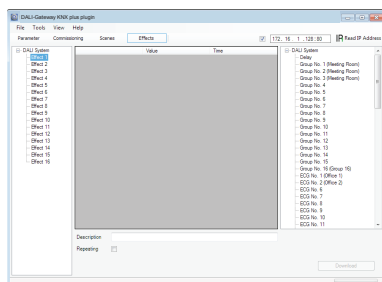
Stop effect



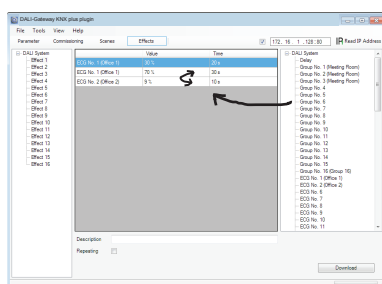
Program effect

## 11.2.2 Effect programming using the ETS in 'Extended Mode'

If the ETS is being used in 'Extended Mode' (mode B), effects can be programmed in the ETS too.



On the effect page, you can first select the required effect in the tree on the left-hand side. You can then drag-and-drop the groups and individual ECGs needed in this effect from the tree on the right-hand side into the central effect steps field. The order of the entries in the list corresponds to the order of the individual effect steps. Delay times can also be dragged-and-dropped into the table. If the order within the list is to be changed, you can do this by clicking with the mouse and dragging.



The final value to which the corresponding group or the ECG is to be dimmed and, if applicable, the dimming time for each effect step, can then be set in the 'Value' and 'Time' fields. In the case of delays, the entry in the 'Time' column specifies the duration of the delay time. You can assign a user-friendly name to the effect concerned in the 'Description' field underneath the effect steps. If the selected effect is to run in an endless loop, you can set the 'Repeating' flag.

Once the effect step table is complete, the effect must be loaded into the DALI gateways. To do this, press the Download button at the bottom right-hand side.

In principle, the individual effects can also be planned 'offline' in the ETS, independently of the DALI system. The plugin just has to be connected to the gateway for the download to take place.



## 12. Individual-battery emergency luminaires

The gateway also supports ballasts for operating individual-battery emergency luminaires (device type 1 in accordance with EN 62386-202). Such devices contain a battery inside the lamp, which acts as a decentralised power supply for a certain period in the event of a mains power failure and allows the lamp to continue operating.

### 12.1 Properties of individual-battery emergency luminaires

When it comes to operating devices for individual-battery emergency luminaires, we make a basic distinction between 'switchable' and 'non-switchable' devices. A lamp can be directly connected to a switchable device, as to a 'normal' ECG. The lamp (usually an LED) can be switched and, if applicable, dimmed via DALI in normal mode. Emergency luminaires with switchable ECGs, therefore, only need one DALI device. Standard parameters and objects relating to switching behaviour are available for these devices.

Unlike 'switchable' devices, 'non-switchable' operating devices (converters) are only able to control the connected lamps in an emergency lighting situation. If the corresponding lamps are to be used in normal mode too (switching, dimming), a second 'normal' ECG is required. As a result, we also refer to emergency luminaires with two DALI devices. The two ECGs form a device pair. DALI communication is employed with 'non-switchable' devices to check the device status and initiate prescribed test phases. Since these devices cannot switch or dim, no parameters or objects relating to switching behaviour are available for them. During a new/post-installation, the DALI-Gateway KNX plus automatically detects whether the connected device is a 'switchable' or a 'non-switchable' ECG. Due to the DALI structure, with its random assignment of short addresses, a 'normal device' cannot be assigned to the associated 'non-switchable' emergency luminaire (pairing) automatically; rather, this setting must be made manually. The setting is made on the parameter page for the emergency luminaire in the ETS.

The assignment is necessary for failure analysis purposes, since 'non-switchable' operating devices usually share the connected lamp with a 'normal' operating device. If the assignment is not carried out, any lamp failure can therefore be counted twice. Furthermore, the 'normal' ECG in an ECG pair is de-energised automatically when the emergency luminaire is being subjected to functional testing. This malfunction generates an ECG failure. Thanks to pairing, the gateway detects whether a real ECG failure is present or whether the associated converter is just undergoing a functional test. Only real ECG failures are taken into account during failure analysis and output. Please note that pairing and disconnection of the power to the 'normal ECG' during testing of emergency lighting ECGs may interrupt burn-in mode if that is the mode this normal ECG is in.

For identification purposes, a functional test is started for 'non-switchable' ECGs after the new/post-installation has been performed. During this procedure, the status LED on the converter flashes for a few seconds (see also the function description for the corresponding converter). Since such devices cannot switch the connected lamp independently and the standard identification process of switching the lamp on/off is therefore not possible, identification must be based on the LED.

### 12.2 Block mode for individual-battery emergency luminaires

Individual-battery emergency luminaires always switch to emergency mode following a mains power failure and the lamps are supplied with power by the internal battery. As it is sometimes necessary to disconnect the power when performing maintenance and servicing, or particularly during a building's commissioning phase, without switching the corresponding lamps to emergency mode, there is an option to set the converters connected to the gateway to block mode. Block mode can be switched on using the buttons and display on the device (see above). Block mode can only be set simultaneously for all emergency luminaires connected to the gateway. If the connected emergency luminaires are de-energised within 15 minutes of block mode being activated, the lamps are not set to emergency mode and the lamps stay off. Once the power is reconnected, the lamps work as normal again.

If 15 minutes pass without a power failure, all converters are reset to their normal behaviour automatically.

### 12.3 Test mode for individual-battery emergency luminaires

The gateway supports the performance and logging of prescribed functional tests on connected individual-battery emergency luminaires.

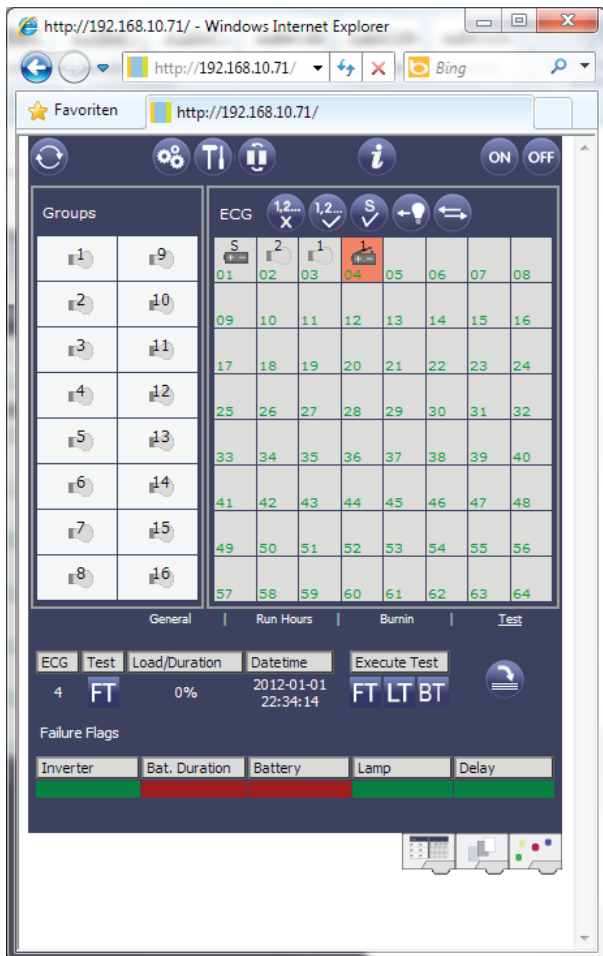
**NOTE: The requirements laid down by legislation and standards vary by country. --> Comply with the specific applicable requirements.**

The gateway supports functional tests, long duration tests and battery status tests on ECGs. Functional and long duration tests can be started externally by KNX telegrams (1-byte telegram, see below) or via the device web page. Alternatively, automatic test intervals can be set instead. The connected converters then carry out automatic tests independently. (Please refer to the description of the converters for information on their exact function.) Battery status tests can be executed individually at any time. However, they also always form part of a functional or long duration test.

Once a test is complete, its result is available on the KNX bus via communication objects and can be logged in a display, if applicable. After every new test, the corresponding 3-byte object is updated with the test result and sent automatically. The object can be checked at any time and will then provide the result of the last test. Alongside the last test result, the object will display the current status too (test pending, test running).

**Note: Please note that the object is not updated with the new test result until the test is complete. If a test is started and the object is checked before it ends (identifiable from the 'test running' or 'test pending' status flag), the test result returned in the object will be that of the last completed test.**

As an alternative or supplement to the test result being reported to the KNX bus via communication objects, it is also displayed on the web page when the corresponding converter is selected.






The web page shows the last test performed, along with the result and the time when the test was carried out.

### 13. Overview of ETS communication objects

The gateway communicates via the KNX bus based on powerful protocol stacks. A total of 871 communication objects are available.

#### 13.1 General communication objects

The general communication objects no. 1 to no. 22 are available once and relate to the entire gateway in terms of function.

	Nummer	Name	Objektfunktion	Beschreibung
	1	Broadcast, Schalten	An/Aus	
	2	Broadcast, Wert setzen	Wert	
	3	Aktiviere Not- /Panikbetrieb	Aktivieren/Stoppen	
	4	Aktiviere Testbetrieb	Aktivieren/Stoppen	
	5	Aktiviere Nachtbetrieb	Aktivieren/Stoppen	
	6	Starten/Programmieren	Szenen Nr.	
	7	Starten/Stoppen	Effect Nr.	
	8	Generelle Fehler	Ja/Nein	
	9	DALI Fehler	Ja/Nein	
	10	Generelle Fehler überschreite...	Ja/Nein	
	11	Generelle Fehler gesamt	Wert	
	12	Lampe Fehler überschreitet G...	Ja/Nein	
	13	Lampe Fehler gesamt	Wert	
	14	EVG-Fehler überschreiteten G...	Ja/Nein	
	15	EVG Fehler gesamt	Wert	
	16	Konverter Fehler überschreite...	Ja/Nein	
	17	Konverter Fehler gesamt	Wert	
	18	Status Schalten Lampe	Status	
	19	Status Wert Lampe	Status	
	21	Zeit	Zeit	
	22	Datum	Datum	

Obj.	Object name	Function	Type	Flags
1	Broadcast, switch	On/Off	1 bit DPT:	CW
All connected lamps can be switched on and off simultaneously via this object. If connected ECGs are in a special condition (burn-in, emergency test, panic mode), they are not switched with the rest. In this case, switching is performed by sequential addressing to the DALI bus and, if applicable, there is a tangible delay between the first and last lamp. If no special condition is present, switching is carried out by DALI broadcast telegrams at the same time. The broadcast switch function always switches to 0 or 100%. The 'switch-on and switch-off value' parameters for groups and ECGs are not taken into account.				
2	Broadcast, set value	Value	1 byte	CW
All connected lamps can be switched to a value simultaneously via this object. If connected ECGs are in a special condition (burn-in, emergency test, panic mode), they are not changed. In this case, switching is performed by sequential addressing to the DALI bus and, if applicable, there is a tangible delay between the first and last lamp. If no special condition is present, value setting is carried out by DALI broadcast telegrams at the same time.				
3	Activate emergency/panic	Activation/stopping	1 bit	CW
Emergency mode can be activated or deactivated via the bus with this object.				
4	Activate test mode	Activation/stopping	1 bit	CW
Test mode for emergency luminaires with a central battery can be activated or deactivated via the bus with this object. Individual-battery emergency luminaires are controlled individually.				
5	Activate night mode	Activation/stopping	1 bit	CW
Night mode can be activated or deactivated via the bus with this object.				
6	Start/program scene	Scene no.	8 Bit	CW
Scenes can be called up or programmed via this object. Up to 16 scenes are available in the gateway. The highest bit must be set in order to program a set scene, i.e.:				
	Start	Program		
Scene 1	0	128		
Scene 2	1	129		
.....				
Scene 15	14	142		
Scene 16	15	143		
7	Start/stop effects	Effect no.	8 Bit	CW

Effects can be started or stopped via this object. Up to 16 effects are available in the gateway. The highest bit must be set in order to start an effect. Deleting bit 7 stops the effect. Therefore:

	Effect Off	Effect On
Effect 1	0	128
Effect 2	1	129
.....		
Effect 15	14	142
Effect 16	15	143

8	General failure	Yes/No	1 bit	CRT
This object reports that the gateway has detected a failure, irrespective of type, in the connected DALI segment.				
9	DALI failure	Yes/No	1 bit	CRT
This object reports that the gateway has detected a DALI short circuit in the connected DALI segment.				
10	General failures exceeded limit value	Yes/No	1 bit	CRT
This object reports that the sum of lamp, ECG and converter failures detected by the gateway has exceeded a threshold set via a parameter.				
11a	General failures, total	Value	1 byte	CRT
This object reports the sum of all lamp, ECG and converter failures detected by the gateway. Please note that each failure is only counted once for each connected device. If an ECG or converter failure is present, a simultaneous lamp failure is no longer detected or counted.				
11b	General failures in %	Value	1 byte	CRT
Alternatively, this object reports the failure rate based on the total number of devices in the DALI segment. All types of failure (lamp, ECG and converter) are taken into account. Please note that each failure is only counted once for each connected device. If an ECG or converter failure is present, a simultaneous lamp failure is no longer detected or counted.				
12	Lamp failures exceeded limit value	Yes/No	1 bit	CRT
This object reports that the sum of lamp failures detected by the gateway has exceeded a threshold set via a parameter.				
13a	Lamp failures, total	Value	1 byte	CRT
This object reports the sum of all lamp failures detected by the gateway.				
13b	Lamp failures in %	Value	1 byte	CRT
This object reports the failure rate based on the total number of lamps in the DALI segment.				
14	ECG failures exceeded limit value	Yes/No	1 bit	CRT
This object reports that the sum of ECG failures detected by the gateway has exceeded a threshold set via a parameter.				
15a	ECG failures, total	Value	1 byte	CRT
This object reports the sum of all ECG failures detected by the gateway.				
15b	ECG failures in %	Value	1 byte	CRT
Alternatively, this object reports the failure rate based on the total number of ECGs in the DALI segment.				
16	Converter failures exceeded limit value	Yes/No	1 bit	CRT
This object reports that the sum of converter failures detected by the gateway has exceeded a threshold set via a parameter.				
17a	Converter failures, total	Value	1 byte	CRT
This object reports the sum of all converter failures detected by the gateway.				
17b	Converter failures in %	Value	1 byte	CRT
Alternatively, this object reports the failure rate based on the total number of converters in the DALI segment.				
18	Switch status, lamp	Status	8 Bit	CWT

Switching statuses of the individual lamps in the DALI segment can be sent when a change is made or the system starts via this object. Bits 0 to 5 indicate the corresponding ECG number. Bit 6 indicates the relevant On/Off status, e.g.:

```

          Bit 7 6 5 4 3 2 1 0
ECG 5/On      0 1 0 0 0 1 0 0
ECG 6/Off     0 0 0 0 0 1 0 1

```

If a value with bit 6 and bit 7 set is received via the object, this is interpreted as a status check, e.g.:

```

          Bit 7 6 5 4 3 2 1 0
ECG 5/Check   1 1 0 0 0 1 0 0

```

The gateway then responds with the current status of the ECG that was checked.

```

          Bit 7 6 5 4 3 2 1 0
ECG 5/On      0 1 0 0 0 1 0 0

```

19	Value status, lamp	Status	16 bit	CWT
<p>Value statuses of the individual lamps in the DALI segment can be sent when a change is made or the system starts via this object. Bits 8 to 13 indicate the corresponding ECG number, bit 14 indicates the switching status. Bits 0 to 7 represent the relevant status 0 to 100%, e.g.:</p> <pre> ECG 5/On  0 1 0 0 0 1 0 0  Bit 15..8 Value 50%  1 0 0 0 0 1 0 0  Bit 7..0 </pre> <p>If a value with bit 14 and bit 15 set is received via the object, this is interpreted as a status check, e.g.:</p> <pre> ECG 5/Check  1 1 0 0 0 1 0 0  Bit 15..8               0 0 0 0 0 0 0 0  Bit 7..0 </pre> <p>The gateway then responds with the current status of the ECG that was checked.</p> <pre> ECG 5/On  0 1 0 0 0 1 0 0  Bit 15..8 Value 50%  1 0 0 0 0 1 0 0  Bit 7..0 </pre>				
20	Failure status, lamp/ECG	Status	8 Bit	CWT
<p>Failure statuses of lamp and ECG failures in the DALI segment can be sent when a change is made or the system starts via this object. Bits 0 to 5 indicate the corresponding ECG number. Bit 7 represents an ECG failure, bit 6 a lamp failure, e.g.:</p> <pre>           Bit 7 6 5 4 3 2 1 0 ECG 5/ECG failure  1 0 0 0 0 1 0 0 ECG 6/Lamp failure  0 1 0 0 0 1 0 1 </pre> <p>If a value with bit 6 and bit 7 set is received via the object, this is interpreted as a status check, e.g.:</p> <pre>           Bit 7 6 5 4 3 2 1 0 ECG 5/Check   1 1 0 0 0 1 0 0 </pre> <p>The gateway then responds with the current failure status of the ECG that was checked.</p> <pre>           Bit 7 6 5 4 3 2 1 0 ECG 5/ECG failure 1 0 0 0 0 1 0 0 </pre>				

The current date and time are needed for the time stamp when analysing failures for individual-battery emergency luminaires. These have to be provided via the bus. Two objects are available for this purpose.

Obj.	Object name	Function	Type	Flags
21	Time	Time	3 byte	CWT
The time is set via this object. It must be provided by a central clock and updated at least twice a day.				
22	Date	Date	3 byte	CWT
The date is set via this object. It must be provided by a central clock and updated at least twice a day. When the time and date are calculated internally, leap years and the summer/winter time changeover are not taken into account. Please note that if a special event like this does occur, the clock will send the correct date.				

## 13.2 ECG-specific communication objects

A set of 11 communication objects is available for each of the up to 64 connected ECGs or converters and associated lamps. The communication objects are only shown if the corresponding ECG/converter has been found during the system installation. Furthermore, objects are sometimes hidden if ECGs are assigned to a group. **Single control of lights is only possible if they are not assigned to a group.**

The following individual objects are available (example: ECG 1):

167	EVG 1, Schalten	An/Aus
168	EVG 1, Dimmen	Heller/Dunkler
169	EVG 1, Wert setzen	Wert
170	EVG 1, Einbrennbetrieb	An/Aus
171	EVG 1, Status	An/Aus
172	EVG 1, Status	Wert
173	EVG 1, Fehler Status	Status
174	EVG 1, Betriebsstunden	Wert
175	EVG 1, Lebensdauer überschre...	Ja/Nein
176	Konverter 1, Test Start	Start
177	Konverter 1, Test Ergebnis	Test

Obj.	Object name	Function	Type	Flags
167	ECG1, switch	On/Off	1 bit	CW
An ECG can be switched on and off via this object, provided that it is not in a special operating mode (burn-in, test mode for emergency luminaires, panic/emergency mode).				
168	ECG1, dim	Brighter/darker	4 bit	CW
An ECG can be relatively dimmed via this object, provided that it is not in a special operating mode (burn-in, test mode for emergency luminaires, panic/emergency mode). Dimming up takes place if bit 4 is set, dimming down if bit 4 is deleted. Bits 0 to 3 indicate the corresponding increment size. If bits 0 to 3 are deleted, this is interpreted as a stop telegram.				
169	ECG 1, set value	Value	1 byte	CW
ECG1 can be set to the corresponding value via this object, provided that it is not in a special operating mode (burn-in, test mode for emergency luminaires, panic/emergency mode).				
170	ECG1, burn-in mode	On/Off	1 bit	CWT
Automatic burn-in for ECG 1 can be started or stopped via this object. If an ECG is in the burn-in process, all other switching, dimming or value telegrams are ignored and the lamp burns constantly at full luminous intensity. Usually, the process stops automatically when the configured burn-in time has elapsed. If it is terminated via the object, the burn-in timer stops and automatic burn-in can only be started again from the very beginning.				
171	ECG1, status	On/Off	1 bit	CRT
The switching status of the ECG is sent via this object. Every value > 0% is interpreted as ON.				
172	ECG1, status	Value	8 Bit	CRT
The value status of the ECG is sent via this object.				
173a	ECG1, failure status	On/Off	1 bit	CRT
The failure status for lamp, ECG or converter failures is sent via this object.				
173b	Failure status, ECG1	Status	1 byte	CRT
Alternatively, the failure status for lamp, ECG or converter failures is sent via this object as a 1-byte object.				
The following applies: Bit 0 → Lamp failure Bit 1 → ECG failure Bit 2 → Converter failure				
174	ECG1, runtime	Value	4 byte	CRT
The lamp runtime is sent via this object. The internal hour counter can also be reset to 0 or set to another value via the object.				
<b>Please note:</b> <b>The 'write' flag is switched off in the presetting.</b>				
175	ECG1, service life exceeded	Yes/No	1 bit	CRT
A status message is sent via this object if the hour counter exceeds the set service life for the lamp.				

If the connected DALI device is a converter for controlling individual-battery emergency luminaires, two more objects are shown:

Obj.	Object name	Function	Type	Flags
176	Converter 1, test start	Start	1 byte	CW
<p>Long duration tests, functional tests and a battery status check can be started for the converter via this object. The individual bits of the object have the following meanings:</p> <p>Bit 0 → Start functional test            Bit 1 → Functional test pending            Bit 2 → Start long duration test            Bit 3 → Long duration test pending            Bit 4 → Check battery status            Bit 5 → Battery status test pending            Bit 6 → Functional test running            Bit 7 → Long duration test running</p>				
177	Converter 1, test result	Test	3 byte	CRT
<p>The results of functional tests, long duration tests and the battery status test are evaluated via this object. The individual bits of the object have the following meanings:</p> <p>Bit 23..16 → For functional and battery test: battery charge status 0 to 100%            → For long duration test: period of the long duration test in 2-minute increments            Bit 15 → Failure during long duration test            Bit 14 → Failure during functional test            Bit 13 → Max. time for long duration test exceeded            Bit 12 → Max. time for functional test exceeded            Bit 11 → Emergency luminaire faulty            Bit 10 → Battery faulty            Bit 9 → Battery operating time too short            Bit 8 → Converter faulty            Bit 7 → Long duration test pending            Bit 6 → Functional test pending            Bit 5 → Long duration test running            Bit 4 → Functional test running            Bit 3 → Test failure during last test            Bit 2 → Last test was battery check            Bit 1 → Last test was long duration test            Bit 0 → Last test was functional test</p>				

The objects described in detail above for ECG 1 or converter 1 are available in the same form for ECGs/converters 2 to 64 too. The corresponding object number increases by 11 objects each time, e.g. ECG 2, dim → object 179 and so on.

### 13.3 Group-specific communication objects

A set of 9 communication objects is available for each of the up to 16 possible groups. The communication objects are only shown if the corresponding group has been used during group assignment.

**ECGs/lamps that have been assigned to groups can no longer be controlled individually.**

The following individual objects are available (example: group 1):

23	Gruppe 1, Schalten	An/Aus
24	Gruppe 1, Dimmen	Heller/Dunkler
25	Gruppe 1, Wert setzen	Wert
26	Gruppe 1, gesperrt	Ja/Nein
27	Gruppe 1, Status	An/Aus
28	Gruppe 1, Status	Wert
29	Gruppe 1, Fehler Status	Ja/Nein
30	Gruppe 1, Fehler Status	Status
31	Gruppe 1, Fehler überschreit...	Ja/Nein

Obj.	Object name	Function	Type	Flags
23	Group 1, switch	On/Off	1 bit	CW
Group 1 can be switched on and off via this object.				
24	Group 1, dim	Dimming	4 bit	CW
Group 1 can be relatively dimmed via this object. Dimming up takes place if bit 4 is set, dimming down if bit 4 is deleted. Bits 0 to 3 indicate the corresponding increment size. If bits 0 to 3 are deleted, this is interpreted as a stop telegram.				
25	Group 1, set value	Value	1 byte	CW

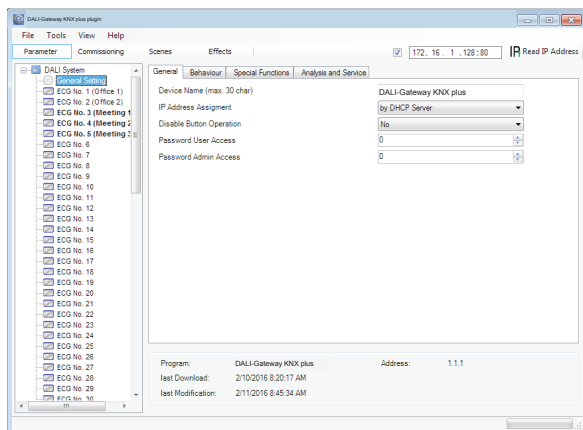
Group 1 can be set to the corresponding value via this object.				
26a	Group 1, enabled	Yes/No	1 bit	CW
Operation of group 1 can be enabled via this object: Object = 0 → Operation blocked Object = 1 → Operation enabled				
26b	Group 1, blocked	Yes/No	1 bit	CW
Operation of group 1 can be blocked via this object: Object = 0 → Operation enabled Object = 1 → Operation blocked				
26C	Group 1, block staircase function	Yes/No	1 bit	CW
The staircase function of group 1 can be blocked via this object: Object = 0 → Staircase function enabled Object = 1 → Staircase function blocked				
27	Group 1, status	On/Off	1 bit	CRT
The switching status of the group is sent via this object. Every value > 0% is interpreted as ON.				
28	Group 1, status	Value	8 Bit	CRT
The value status of the group is sent via this object.				
29a	Group 1, failure status	Yes/No	1 bit	CRT
The failure status for a lamp, ECG or converter failure in the group is sent via this object.				
29b	Group 1, failure status	Status	1 byte	CRT
The failure status for a lamp, ECG or converter failure in the group is sent via this object as a 1-byte object. The following applies: Bit 0 → Lamp failure Bit 1 → ECG failure Bit 2 → Converter failure				
30	Group 1, failure status	Status	4 byte	CRT
The total number of devices within the group, as well as a failure status for the individual failure types, is reported via this object. The individual bits within the object have the following meanings:				
<div> <div>Bit 31</div> <div>Bit 30</div> <div>Bit 29..24</div> </div> <div> <div>Norm. ECG</div> <div>Emg. l. ECG</div> <div>No. of ECGs+converters faulty</div> </div>				
<div> <div>Bit 23</div> <div>Bit 22</div> <div>Bit 21..16</div> </div> <div> <div>Norm. lamp</div> <div>Emg. l. lamp</div> <div>No. of lamps faulty</div> </div>				
<div> <div>Bit 15</div> <div>Bit 14</div> <div>Bit 13..8</div> </div> <div> <div>Fault. conv.</div> <div>n.a.</div> <div>No. of converters</div> </div>				
<div> <div>Bit 7</div> <div>Bit 6</div> <div>Bit 5..0</div> </div> <div> <div>n.a.</div> <div>n.a.</div> <div>No. of ECGs</div> </div>				
31a	Group 1, failure status	Failure	1 bit	CRT
This object reports that the sum of lamp, ECG and converter failures detected in the group has exceeded a threshold set via a parameter.				
31b	Group 1, failure	Value	1 byte	CRT
This object reports the sum of lamp, ECG and converter failures within the group.				
31c	Group 1, failure rate	Value	1 byte	CRT
This object reports the failure rate based on the total number of devices within the group.				



## 14. Overview of ETS parameters

The ETS parameters of the device are split across various parameter pages. In the interests of clarity, only the parameter pages of the node actually selected in the function tree are displayed.

### 14.1 Node: General Setting



There are five parameter pages below the "General Setting" node. The parameters available on these pages are described below.

#### 14.1.1 Parameter page: General

Parameter	Settings
Device Name (max. 30 char)	<DALI-Gateway KNX plus>
You can set a user-friendly device name for the gateway via this parameter.	
IP Address Assignment	Manual Input by DHCP Server
Either a fixed IP address or an address allocated dynamically by a DHCP server can be assigned to the DALI-Gateway KNX plus. The parameters for setting a fixed IP address are only visible if 'manual input' has been selected.	
Disable Button Operation	No Yes
This enables you to block the option of operating and configuring the device directly via its buttons and display. Manipulation of an operational system can therefore be prevented.	
Password User Access	0
You can define a password for the user area of the web page here. Numerical passwords from 0 to 9999 are possible.	
Password Admin Access	0
You can define a password for the configuration area of the web page here. Numerical passwords from 0 to 9999 are possible.	

#### 14.1.2 Parameter page: IP Settings

Parameter	Settings
IP Address (Byte 1)	0
IP Address (Byte 2)	0
IP Address (Byte 3)	0
IP Address (Byte 4)	0
The fixed IP address for the gateway is specified here, if DHCP mode has not been set.	

Subnet Mask (Byte 1)	<b>255</b>
Subnet Mask (Byte 2)	<b>255</b>
Subnet Mask (Byte 3)	<b>255</b>
Subnet Mask (Byte 4)	<b>0</b>
The subnet mask for the gateway is specified here, if DHCP mode has not been set.	
Gateway Address (Byte 1)	<b>0</b>
Gateway Address (Byte 2)	<b>0</b>
Gateway Address (Byte 3)	<b>0</b>
Gateway Address (Byte 4)	<b>0</b>
The address of a default gateway is specified here for direct access via the Internet. This setting can only be made if DHCP mode has not been set.	

### 14.1.3 Parameter page: Behaviour

Parameter	Settings
Behaviour on KNX Failure	<b>No Action</b> Switch to Switch-on Value Switch to Switch-off Value Switch to Emergency/Panic Value
You can set how the connected ECGs/lamps should behave in the event of a KNX failure via this parameter.	
Behaviour on Restoration of KNX Power	<b>No Action</b> Switch to Last Value Switch to Switch-on Value Switch to Switch-off Value
You can set how the connected ECGs/lamps should behave when KNX is restored or in the event of a bus reset via this parameter.	
Send Condition Light Status	Send on Request <b>Send in the Event of a Change</b> Send in the Event of a Change and Bus Reset
You can set under which condition the light status (switching status and value status) of the connected ECGs and groups is to be sent via this parameter.	
Send Delay Between the Status Objects	No Delay <b>1 Second</b> 2 Seconds 3 Seconds 4 Seconds 5 Seconds 10 Seconds
You can set a delay time between the individual status telegrams via this parameter. This enables you to prevent an excessively high bus load during broadcast switching, for example.	
Send Delay on KNX Restoration	Immediate 5 Seconds <b>10 Seconds</b> 15 Seconds 20 Seconds 30 Seconds 40 Seconds 50 Seconds
You can set a delay time for sending status objects following restoration of the KNX bus voltage or a bus reset via this parameter. In systems with more than one gateway, you can prevent all devices from starting to send at the same time by making different settings for this parameter.	

Send Value Statuses During Dimming	if Change > 2% if Change > 5% if Change > 10% if Change > 20% <b>inactive</b>
You can set whether and when value statuses are to be sent during dimming by a 4-bit dimming telegram (relative dimming) via this parameter. If the 'inactive' setting is specified, the value status will only be sent after the dimming process has ended.	
Behaviour After Burn-in Time	<b>Switch to Switch-off Value</b> Switch to Switch-on Value Switch to Last Value
You can set which light level value is set in the corresponding ECGs/lamps after a burn-in process has ended via this parameter. If the 'Switch to Last Value' setting is specified, the value prior to when the burn-in process started will be saved and subsequently set again.	
Behaviour After Test Mode for Emergency Luminaires	Switch to Switch-off Value Switch to Switch-on Value <b>Switch to Last Value</b>
You can set which light level value is set in the corresponding ECGs/lamps after the test mode for emergency luminaires with a central battery has ended via this parameter. If the 'Switch to Last Value' setting is specified, the value prior to when test mode started will be saved and subsequently set again.	
Behaviour After Panic/Emergency Mode	Switch to Switch-off Value Switch to Switch-on Value <b>Switch to Last Value</b>
You can set which light level value is set in the corresponding ECGs/lamps after panic/emergency mode has ended via this parameter. If the 'Switch to Last Value' setting is specified, the value prior to when panic mode started will be saved and subsequently set again.	

#### 14.1.4 Parameter page: Special Functions

Parameter	Settings
General Status Object (1 byte) for Switching Status	<b>No</b> Yes
You can set whether the general status object for the switching status (object no. 18) will be used via this parameter.	
General Status Object (2 byte) for Value Status	<b>No</b> Yes
You can set whether the general status object for the value status (object no. 19) will be used via this parameter.	
Enable Broadcast	<b>No</b> Yes
You can set whether broadcast functions are to be used via this parameter.	

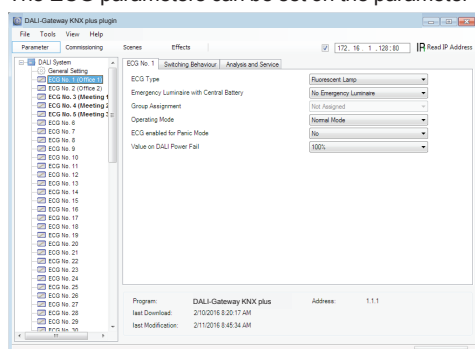
#### 14.1.5 Parameter page: Analysis and Service

Parameter	Settings
Send Condition for Failure Objects	Send on Request <b>Send in the Event of a Change</b> Send in the Event of a Change and Bus Reset
You can set under which condition the failure object of the connected ECGs and groups is to be sent via this parameter.	
Send Delay Between the Failure Objects	No Delay <b>1 Second</b> 2 Seconds 3 Seconds 4 Seconds 5 Seconds 10 Seconds
You can set a delay time between the individual failure telegrams via this parameter. This enables you to prevent an excessively high bus load when the supply voltage of a DALI segment fails, for example.	

Cycle Time for Failure Checks	No Checks <b>0.5 Seconds</b> 1 Second 2 Seconds 3 Seconds 4 Seconds 5 Seconds 6 Seconds
In order to analyse ECG and lamp failures, ECGs have to be checked cyclically via DALI telegrams. The cycle time for the checks can be set on the DALI bus with this parameter. <b>NOTE: If the 'No Checks' setting is specified, ECG and lamp failures can no longer be detected. This setting should only be made for service and special cases.</b>	
Central Failure Object 1 Byte Present	No Yes
You can set whether the central failure object for ECG and lamp failures (object no. 20) will be used via this parameter.	
Function of the Failure Analysis Objects	<b>Number of Total Failures</b> Failure Rate 0..100%
You can set whether the failure analysis objects (object no. 11, 13, 15 and 17) will output the total number of respective failures or the failure rate in % via this parameter.	
Limit Value for Total Failures	<b>1%</b> 2% 3% ..... 100%
You can set a limit value for outputting the alarm object for general failures (object 10) via this parameter. The limit value takes the sum of all failures into account, irrespective of failure type (lamp, ECG or converter failure), based on the total number of connected ECGs and converters.	
Limit Value for Lamp Failures	<b>1%</b> 2% 3% ..... 100%
You can set a limit value for outputting the alarm object for lamp failures (object 12) via this parameter. The limit value takes the sum of all lamp failures into account based on the total number of connected lamps in the DALI segment.	
Limit Value for ECG Failures	<b>1%</b> 2% 3% ..... 100%
You can set a limit value for outputting the alarm object for ECG failures (object 14) via this parameter. The limit value takes the sum of all ECG failures into account based on the total number of connected ECGs in the DALI segment.	
Limit Value for Converter Failures	<b>1%</b> 2% 3% ..... 100%
You can set a limit value for outputting the alarm object for converter failures (object 16) via this parameter. The limit value takes the sum of all converter failures into account based on the total number of connected converters in the DALI segment.	

## 14.2 Node: ECG No. xx

The ECG parameters can be set on the parameter pages, which are ordered under nodes ECG No. 1 to ECG No. 64.



Please note that, following synchronisation, the only nodes displayed are those for ECGs that the device has detected during the new installation. The number of entries in the function tree decreases accordingly, with the number of parameters and objects falling too.

The settings for the ECGs are made on four parameter pages. The parameters available on these pages are described below.

### 14.2.1 Parameter page: ECG No. xx

Parameter	Settings
ECG Type	<b>Fluorescent Lamp</b> Individual-battery Emergency Luminaire Discharge Lamp Low-voltage Lamp Incandescent Lamp 0..10 V Converter LED Module Relay Module
You can set the ECG type used via this parameter. The ECG type is usually detected automatically during the new installation and set accordingly during synchronisation. Some ECG manufacturers do not support this function. If this is the case, the type can be modified here manually. During synchronisation, the ETS compares the value that has been found with that set. If the preset type and the value found do not match, a warning message appears, which must be confirmed.	
Emergency Luminaire with Central Battery	<b>No Emergency Luminaire</b> Emergency Luminaire with Central Battery
You can set whether the respective ECG controls an emergency luminaire supplied with power by a central battery via this parameter. Devices designated as emergency luminaires are identified separately in status messages and a special test mode can be activated via an object for emergency luminaires. This parameter is only visible if the type 'Individual-battery Emergency Luminaire' has been selected.	
Value in Test Mode	1..100% <b>[30]</b>
You can set the value to which the corresponding lamp will be permanently set in 'Test mode' operating mode via this parameter. In 'Test mode' operating mode, the lamp cannot be switched or modified; rather, it is always illuminated at the set value. This parameter is only visible if 'Emergency Luminaire with Central Battery' has been selected.	
Duration of Test Mode (Minutes)	5 Minutes 10 Minutes <b>15 Minutes</b> .... 4 Hours
You can set for how long after test mode has been started the corresponding lamp will be constantly operated via this parameter. In 'Test mode' operating mode, the lamp cannot be switched or modified; rather, it is always illuminated at the set value. This parameter is only visible if 'Emergency Luminaire with Central Battery' has been selected.	
Type of Emergency Power Lighting	Switchable Converter (1 DALI Device) Non-switchable Converter (2 DALI Devices)
You set whether an emergency luminaire is used with a switchable or non-switchable converter via this parameter. This parameter is only visible if 'Individual-battery Emergency Luminaire' has been selected as the ECG type. The type is usually detected automatically during the new installation and set accordingly during synchronisation. Some ECG manufacturers do not support this function. If this is the case, the type can be modified here manually. During synchronisation, the ETS compares the value that has been found with that set. If the preset type and the value found do not match, a warning message appears, which must be confirmed.	
Converter Controls	ECG 1 ECG 2 ... ECG 64 Not Assigned
This parameter is only visible if a non-switchable converter has been selected as the type of emergency lighting. Such devices are usually used in an emergency luminaire with two DALI devices. You can use the parameter to manually set which 'normal' ECG is assigned to this converter. The assignment causes error notifications generated by converter test mode to be suppressed and ensures that lamp failures are not counted twice, if applicable.	
Operating Mode	<b>Normal Mode</b> Continuous Mode Normal/Night Mode
You can set the operating mode in which the ECG is to be used via this parameter.	
Value for Continuous Mode	1..100% <b>[50%]</b>
You can set the value to which the corresponding lamp will be permanently set in 'Continuous mode' operating mode via this parameter. In 'Continuous mode' operating mode, the lamp cannot be switched or modified; rather, it is always illuminated at the set value. This parameter is only visible if the ECG has been set to 'Continuous Mode'.	

Behaviour in Night Mode	<b>Delayed Switch-off</b> Delayed Switch-off in 2 Steps Delayed Dimming Down Activate Continuous Mode and Ignore Telegrams
You can use this parameter to set how the corresponding ECG will behave if night mode has been activated via the night object. This parameter is only visible if the ECG has been set to 'Normal/Night Mode'.	
Automatic Switch-off after (Minutes)	1 Minute 2 Minutes 3 Minutes 4 Minutes 5 Minutes 10 Minutes 15 Minutes 20 Minutes
You can set after how long the ECG is to be shut down automatically in night mode via this parameter. This parameter is only visible if the ECG has been set to 'Normal/Night Mode'.	
ECG enabled for Panic Mode	<b>No</b> Yes
You can set whether the ECG is to be taken into account in emergency/panic mode via this parameter.	
Value on DALI Power Fail	1..100% <b>[100]</b>
You can set the value to which the lamp will be set if the DALI power fails via this parameter. The corresponding value is saved in the ECG and the ECG sets itself automatically if there is a power failure.	

## 14.2.2 Parameter page: Emergency Mode Settings

This page is only visible if 'Individual-battery Emergency Luminaire' has been set as the ECG type.

Parameter	Settings
Value in Emergency Mode	1..100% <b>[50]</b>
You can set the light level value that the corresponding individual-battery emergency luminaire will adopt if there is a mains power failure and during the long duration test via this parameter.	
Delay on Restoration of Power	<b>No Delay</b> 30 Seconds 1 Minute 2 Minutes 3 Minutes 4 Minutes 5 Minutes 10 Minutes
You can set a delay time after which the individual-battery emergency luminaire will switch back to normal mode once mains power is restored via this parameter.	
Long Duration Test Interval	No Automatic Test 1 Week 2 Weeks .... <b>52 Weeks</b>
You can set the intervals at which the converter will perform the automatic long duration test via this parameter.	
Functional Test Interval	No Automatic Test 1 Day 2 Days .... <b>28 Days</b>
You can set the intervals at which the converter will perform the automatic functional test via this parameter.	
Timeout after Test Start (Days)	0..255 <b>[10]</b>

If a functional or long duration test cannot be started immediately (e.g. because the battery is not fully charged), the converter will attempt to perform the test later. You can set for how long the converter will attempt to start the test or when a timeout window will appear via this parameter. A setting of 0 will lead to a timeout after 15 minutes.

### 14.2.3 Parameter page: Switching Behaviour

Parameter	Settings
Switch-on Value	5% 10% ... 95% <b>100%</b> Last Value
You can set the value for switch-on via this parameter. If the 'Last Value' setting is specified, the last dimming value applicable prior to the last switch-off will be set on switch-on.	
Switch-on Behaviour	Adopt Value Immediately Dim to Value in 10 s Dim to Value in 20 s Dim to Value in 30 s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
You can set the switch-on behaviour via this parameter.	
Switch-off Value	<b>0%</b> 5% 10% ... 45% 50%
You can set the value for switch-off via this parameter.	
Switch-off Behaviour	Adopt Value Immediately Dim to Value in 10 s Dim to Value in 20 s Dim to Value in 30 s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
You can set the switch-off behaviour via this parameter.	
Behaviour on Value Setting	Adopt Value Immediately Dim to Value in 10 s Dim to Value in 20 s Dim to Value in 30 s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
You can set the behaviour when a new dimming value is received by means of value setting via this parameter.	
Time for Dimming 0..100%	3 Seconds 4 Seconds 5 Seconds 6 Seconds <b>10 Seconds</b> 20 Seconds 30 Seconds 60 Seconds
You can set the dimming time for relative dimming via this parameter.	

Max. Value for Dimming	50% 55% .... <b>100%</b>
You can configure the maximum dimming time that can be set by means of relative dimming via this parameter.	
Min. Value for Dimming	<b>0%</b> 5% .... 50%
You can configure the minimum dimming time that can be set by means of relative dimming via this parameter.	
Switch-on via Dimming	<b>No</b> Yes
You can set whether a switched-off device can be switched on when a relative 4-bit 'dim up' dimming command is received via this parameter.	

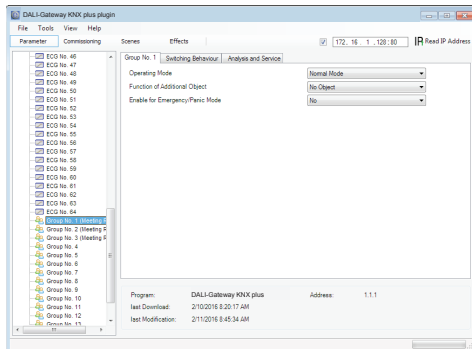
#### 14.2.4 Parameter page: Analysis and Service

Parameter	Settings
Runtime Calculation	Yes <b>No</b>
You can set whether an individual runtime count is required for the ECG via this parameter.	
Runtime Limit Value (Hours)	10..120,000 h <b>[4000 h]</b>
You can set the lamp service life at which an individual warning will be sent via this parameter.	
Burn-in Function	Yes <b>No</b>
You can enable automatic burn-in via this parameter.	
Burn-in Time (Hours)	1..100 h <b>[24 h]</b>
You can set the duration of the burn-in phase, during which the lamp can be neither switched off nor dimmed, via this parameter.	
Type of Failure Object	<b>1 Bit</b> 8 Bit
You can use this parameter to set whether the failure object belonging to the ECG is to be output as a 1-bit object not differentiated by the detected failure type or as an 8-bit object with failure differentiation.	



### 14.3 Node: Group No. xx

The group parameters can be set on the parameter pages, which are ordered under nodes Group No. 1 to Group No. 16.



The settings for the groups are made on three parameter pages. The parameters available on these pages are described below.

#### 14.3.1 Parameter page: Group No. xx

Parameter	Settings
Operating Mode	<b>Normal Mode</b> Continuous Mode Normal/Night Mode Staircase Function
You can set the operating mode in which the group is to be used via this parameter.	
Value for Continuous Mode	0..100% <b>[100]</b>
You can set the value to which the lamps in the group will be permanently set in 'Continuous mode' operating mode via this parameter. In 'Continuous mode' operating mode, the lamps cannot be switched or modified; rather, they are always illuminated at the set value.	
Behaviour in Night Mode	<b>Delayed Switch-off</b> Delayed Switch-off in 2 Steps Delayed Dimming Down Activate Continuous Mode and Ignore Telegrams
You can use this parameter to set how the corresponding group will behave if night mode has been activated via the night object. This parameter is only visible if the group has been set to 'Normal/Night Mode'.	
Automatic Switch-off after (Minutes)	1 Minute 2 Minutes 3 Minutes 4 Minutes 5 Minutes 10 Minutes 15 Minutes 20 Minutes
You can set after how long the group is to be shut down automatically in night mode via this parameter. This parameter is only visible if the group has been set to 'Normal/Night Mode'.	
Function of Additional Object	<b>No Object</b> Block Object Enable Object Staircase Function Block Object
You can set the function of an additional object via this parameter.	
Enable for Emergency/Panic Mode	<b>No</b> Yes
You can set whether the group is to be taken into account in emergency/panic mode via this parameter.	

### 14.3.2 Parameter page: Switching Behaviour

Parameter	Settings
Switch-on Value	1% 10% ... 95% <b>100%</b> Last Value
You can set the value for switch-on via this parameter. If the 'Last Value' setting is specified, the last dimming value applicable prior to the last switch-off will be set on switch-on.	
Switch-on Behaviour	Adopt Value Immediately Dim to Value in 10 s Dim to Value in 20 s Dim to Value in 30 s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
You can set the switch-on behaviour via this parameter.	
Switch-off Value	<b>0%</b> 5% 10% ... 45% 50%
You can set the value for switch-off via this parameter.	
Switch-off Behaviour	Adopt Value Immediately Dim to Value in 10 s Dim to Value in 20 s Dim to Value in 30 s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
You can set the switch-off behaviour via this parameter.	
Behaviour on Value Setting	Adopt Value Immediately Dim to Value in 10 s Dim to Value in 20 s Dim to Value in 30 s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
You can set the behaviour when a new dimming value is received by means of value setting via this parameter.	
Time for Dimming 0..100%	3 Seconds 4 Seconds 5 Seconds 6 Seconds <b>10 Seconds</b> 20 Seconds 30 Seconds 60 Seconds
You can set the dimming time for relative dimming via this parameter.	
Max. Value for Dimming	50% 55% .... <b>100%</b>

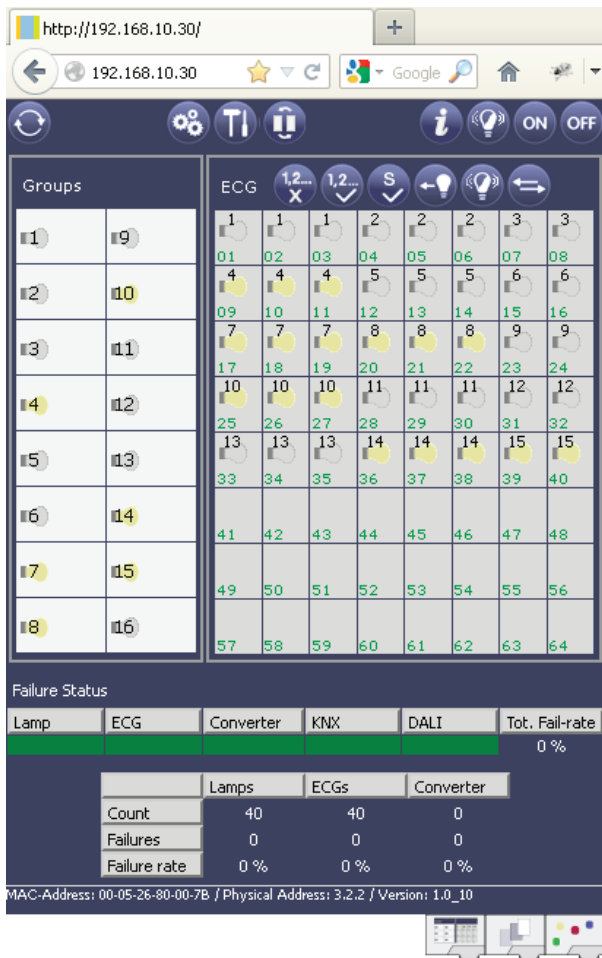
You can configure the maximum dimming time that can be set by means of relative dimming via this parameter.	
Min. Value for Dimming	<b>0%</b> 5% .... 50%
You can configure the minimum dimming time that can be set by means of relative dimming via this parameter.	
Switch-on via Dimming	<b>No</b> Yes
You can set whether a switched-off group can be switched on when a relative 4-bit 'dim up' dimming command is received via this parameter.	

### 14.3.3 Parameter page: Analysis and Service

Parameter	Settings
Type of Failure Status Object	<b>1 Bit</b> 8 Bit
You can use this parameter to set whether the failure object belonging to the group is to be output as a 1-bit object not differentiated by the detected failure type or as an 8-bit object with failure differentiation.	
Additional Failure Object for	Number of Failures/Failure Rate <b>Failure Limit Value Exceeded</b>
You can use this parameter to set whether the additional failure status object is to be used as a 1-byte object for the number of failures/failure rate or as a 1-bit object when a failure limit value is exceeded.	
Failure Limit Value for Failure Alarm Object	1%...100% <b>[1%]</b>
You can enter the limit value in % at which, if exceeded, the failure alarm object will be sent via this parameter. This parameter is only visible if 'Failure Limit Value Exceeded' has been selected as the additional failure object.	
Function of Additional Failure Object	<b>Number of Total Failures</b> Failure Rate 0..100%
You can set whether the number of failures within the group or the failure rate in % will be output via this parameter. This parameter is only visible if 'Number of Failures/Failure Rate' has been selected as the additional failure object.	

## 15. Firmware version and update

The firmware version of the gateway is divided into a main number, sub-number and revision number (e.g., 1.0\_10). Just the main number and sub-number are shown on the display on the front of the device (Vers. 1.0). You can call up the device web page for full information on the current firmware (version and revision). This data can be seen at the bottom edge of the information window (1.0\_10).



The gateway features a user-friendly option for upgrading its firmware without having to uninstall the device.

Future developments or any adaptations that may become necessary can therefore be imported via the IP connection without a great deal of effort.

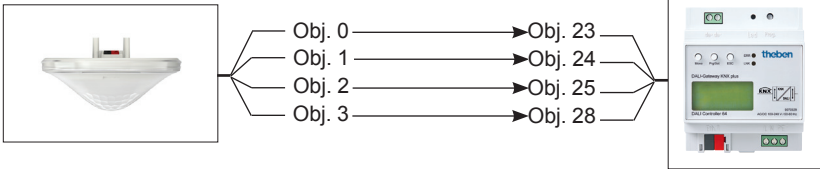
Should an update be available, a corresponding update file will be provided in an update tool. The update file can be loaded into the device directly via this tool. Please see the Application Note provided as a PDF document with the update for a detailed description of how to do this.

## 16. Typical applications

### 16.1 Constant light control for a lighting group

Description	Presence detectors with constant light control control lighting dependent on natural daylight if the room is occupied. Artificial light is automatically dimmed up with a reducing amount of daylight; with an increasing amount of daylight, the artificial light automatically dims down and finally switches off. The lighting is automatically switched off if the room is vacated.
-------------	---

Devices	thePrema P360 KNX (Item No. 2079000) DALI-Gateway KNX plus (Item No. 9070929)
---------	--

Overview	
----------	--

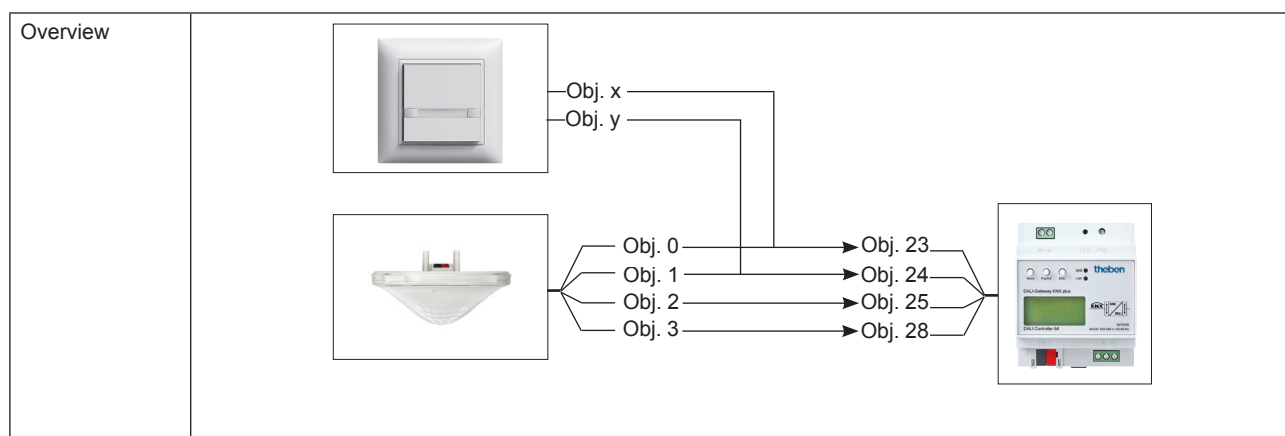
Links	thePrema P360 KNX		DALI-Gateway KNX plus		Comment
	No.	Object name / function	No.	Object name / function	
	0	Lighting channel C1 / switch	23	Group 1 / switch	
	1	Lighting channel C1 / brighter/darker	24	Group 1 / dim	
	2	Lighting channel C1 / send value	25	Group 1 / set value	
	3	Lighting channel C1 / feedback value	28	Group 1 / status value	

Parameter	thePrema P360 KNX		
	Parameter page	Parameter	Setting
	General	Operating Mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Constant light control..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office applications)
		Lighting time delay	10 min (as per customer specification)
	Lighting channel C1 / Detail settings	Start of control with	Value
	DALI-Gateway KNX plus		
	Parameter page	Parameter	Setting
	Group No. 1	Operating Mode	Normal Mode
		Function of Additional Object	No Object
		Enable for Emergency/Panic Mode	No
	Switching Behaviour	Switch-on Value	100%
		Switch-on Behaviour	Dim to Value in 10 s
		Switch-off Value	0%
		Switch-off Behaviour	Adopt Value Immediately
		Behaviour on Value Setting	Dim to Value in 10 s
		Time for Dimming	10 s
		Max. Value for Dimming	100%
		Min. Value for Dimming	0%
		Switch-on via Dimming	No
	Standard or customer-defined parameter settings apply to unlisted parameters.		

## 16.2 Constant light control, additional manual override via push button

Description	<p>The presence detector controls the lighting (see example application on page 61, Section 16.1). The lighting can also be switched and dimmed manually.</p> <p>Dimming via push button ends the control. The presence detector remains at the set dimming value while the room is occupied. When the light is switched off via a push button, the lighting remains switched off as long as the presence detector detects that the room is occupied. The presence detector takes control only after the time delay has elapsed.</p> <p>It is also possible to operate the presence detector in semi-automatic mode. In this case, the lighting must always be switched on by hand, the detector does not switch on the lighting automatically.</p>
-------------	---

Devices	<p>thePrema P360 KNX (Item No. 2079000)</p> <p>DALI-Gateway KNX plus (Item No. 9070929)</p>
---------	---



Links	thePrema P360 KNX		DALI-Gateway KNX plus		Comment
	No.	Object name	No.	Object name	
	0	Lighting channel C1 / switch	23	Group 1 / switch	
	1	Lighting channel C1 / brighter / darker	24	Group 1 / dim	
	2	Lighting channel C1 / send value	25	Group 1 / set value	
	3	Lighting channel C1 / feedback value	28	Group 1 / status value	
	Any KNX push button		DALI-Gateway KNX plus		Comment
	No.	Object name	No.	Object name	
	x	E.g. button 1: switch	23	Group 1 / switch	Switching on and off via push button
	y	e.g. button 1: brighter / darker	24	Group 1 / dim	Dimming via push button

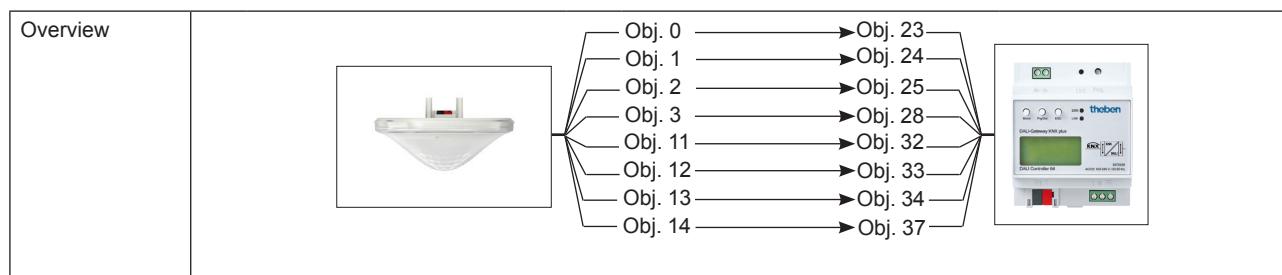
Parameter	thePrema P360 KNX		
	Parameter page	Parameter	Setting
General		Operating Mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Constant light control..
Lighting channel C1		Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office applications)
		Lighting time delay	10 min (as per customer specification)
Lighting channel C1 / Detail settings		Start of control with	Value
DALI-Gateway KNX plus			
	Parameter page	Parameter	Setting
Group No. 1		Operating Mode	Normal Mode
		Function of Additional Object	No Object
		Enable for Emergency/Panic Mode	No
Switching Behaviour		Switch-on Value	100%
		Switch-on Behaviour	Dim to Value in 10 s
		Switch-off Value	0%
		Switch-off Behaviour	Adopt Value Immediately
		Behaviour on Value Setting	Dim to Value in 10 s
		Time for Dimming	10 s
		Max. Value for Dimming	100%
		Min. Value for Dimming	0%
		Switch-on via Dimming	No
KNX push button (example)			
	Parameter page	Parameter	Setting
Rocker 1 left		Telegram on pressing the button	On
		Telegram when released	no telegram
Rocker 1 right		Telegram on pressing the button	Off
		Telegram when released	no telegram
Standard or customer-defined parameter settings apply to unlisted parameters.			



## 16.3 Constant light control with two lighting groups

Description	The constant light control controls the lighting dependent on natural daylight (see example in 16.1). The lighting is divided into two lighting groups to make maximum use of the daylight near the window. The two lighting groups can be switched separately and are controlled independently.
-------------	---

Devices	thePrema P360 KNX (Item No. 2079000) DALI-Gateway KNX plus (Item No. 9070929)
---------	--



Links	thePrema P360 KNX		DALI-Gateway KNX plus		Comment
	No.	Object name / function	No.	Object name / function	
	0	Lighting channel C1 / switch	23	Group 1 / switch	
	1	Lighting channel C1 / brighter/darker	24	Group 1 / dim	
	2	Lighting channel C1 / send value	25	Group 1 / set value	
	3	Lighting channel C1 / feedback value	28	Group 1 / status value	
	11	Lighting channel C2 / switch	32	Group 2 / switch	
	12	Lighting channel C2 / brighter/darker	33	Group 2 / dim	
	13	Lighting channel C2 / send value	34	Group 2 / set value	
	14	Lighting channel C2 / feedback value	37	Group 2 / status value	

Parameter	thePrema P360 KNX		
	Parameter page	Parameter	Setting
General		Operating Mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Constant light control..
Lighting channel C1		Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office applications)
		Lighting time delay	10 min (as per customer specification)
Lighting channel C1 / Detail settings		Start of control with	Value
Lighting channel C2		Brightness setpoint value	500 lx (e.g. for office applications)
DALI-Gateway KNX plus			
	Parameter page	Parameter	Setting
Group No. 1		Operating Mode	Normal Mode
		Function of Additional Object	No Object
		Enable for Emergency/Panic Mode	No
Switching Behaviour		Switch-on Value	100%
		Switch-on Behaviour	Dim to Value in 10 s
		Switch-off Value	0%
		Switch-off Behaviour	Adopt Value Immediately
		Behaviour on Value Setting	Dim to Value in 10 s
		Time for Dimming	10 s
		Max. Value for Dimming	100%
		Min. Value for Dimming	0%
		Switch-on via Dimming	No
Group No. 2		Operating Mode	Normal Mode
		Function of Additional Object	No Object
		Enable for Emergency/Panic Mode	No
Switching Behaviour		Switch-on Value	100%
		Switch-on Behaviour	Dim to Value in 10 s
		Switch-off Value	0%
		Switch-off Behaviour	Adopt Value Immediately
		Behaviour on Value Setting	Dim to Value in 10 s
		Time for Dimming	10 s
		Max. Value for Dimming	100%
		Min. Value for Dimming	0%
		Switch-on via Dimming	No
Standard or customer-defined parameter settings apply to unlisted parameters.			