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Application DALI Control IP1 7307/1.0

1. Application

Product family: Interfaces/Gateways
Product type: DALI-Gateway
Manufacturer: Merten GmbH

Name: KNX DALI gateway REG-K/
1/16(64)/64/IP1
Order number: MEG6725-0001

2. General product information

2.1. DALI Bus system properties

The cross-functional DALI-Bus (DALI = Digital Addressable Lighting Interface) is a system used to control electronic ballasts (ECGs) in lighting technology. The specifications of the DALI communications interface are set in the international norm IEC 60929.

The DALI Bus enables the receipt of switch and dim commands. In addition, the DALI can be used for the notification of a fault status such as light or ECG failure or for other light status information. In line with the latest DALI standard, devices with emergency light function (EN 62386-202) are also supported. Status and operating mode of emergency lights can be monitored and different testing procedures can be performed.

Via the connected control device / gateway (Master), up to 64 individual DALI ECGs (Slaves) can be connected in a DALI line. When the DALI is commissioned, the ECGs receive an automatically generated 3 byte long address. Based on the long address a short address between 0 and 63 is assigned during the further commissioning process. As the address assignment is automatic, the device order is random. The individual ECGs/lights therefore need to be identified during the further commissioning process (see below).

The addressing of individual ECGs in the system is either based upon the short address (individual addressing) or upon a DALI group address (group addressing). For this purpose, any number of ECGs within a line can be assigned into up to 16 groups. The group addressing in the DALI system guarantees that switch and dim processes of different lights within a system are performed simultaneously without imposition of time delays.

In addition to short and group addresses, the light values of individual DALI ECGs can also be merged into scenes and addressed via scene addresses.

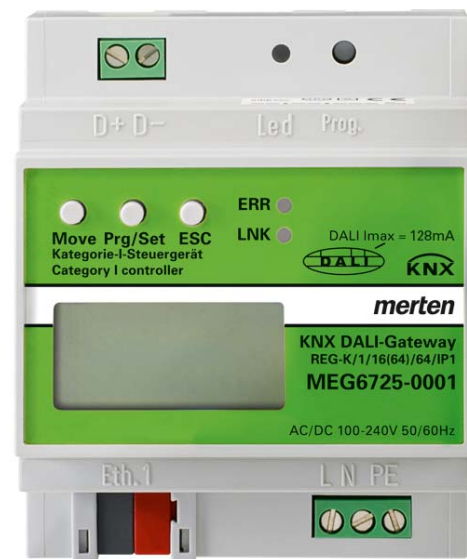
For a detailed description of the DALI system, please see the DALI handbook at www.dali-aq.org

2.2. DALI gateway REG-K/1/16(64)/64/IP1 product properties

The KNX DALI gateway REG-K/1/16(64)/64/IP1 (referred to below as the **gateway**) is a device used to control ECGs with a DALI interface via the KNX installation bus. The device transforms switch and dim commands from the connected KNX system into DALI telegrams and status information from the DALI bus into KNX telegrams. The gateway is a Category 1 device (in accordance with EN 62386-103). This means the device must only be used in DALI lines with connected ECGs and not with other DALI control devices within the line (No multi-master function).

Power supply for the up to 64 connected ECGs comes directly from the gateway. An additional DALI power supply is **not** required and **not** permitted.

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



In addition to the pure gateway functions, the gateway offers numerous additional features:

- Addressing of 16 DALI groups and/or individual addressing of up to 64 ECGs
- Flexible DALI commissioning concept: directly on the device or via the integrated web server
- Different operating modes for groups and ECGs such as permanent mode, night-time mode or staircase mode
- Burn-in mode for each individual light with specific burn-in time settings
- Integrated reader to count the operating hours of each light with an alarm to signify the end of its life span

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- Individual fault recognition with objects for each light/ECG
- Complex fault analysis at group and device level with number of faults and calculation of fault rates
- Fault threshold monitoring with individually adjustable threshold values
- Scene module for extensive scene programming of groups and individual ECGs
- Effect module for sequence control and light effects
- "Easy replacement function" for the quick and easy replacement of faulty ECGs
- Test mode for centrally powered emergency light systems
- Support of self-contained emergency ballasts
- Support of testing procedures for emergency lights with date and time stamp
- Integrated web server with extensive commissioning and maintenance possibilities
- Integrated "visualisation" via web-browser for direct control and display

3. DALI commissioning

3.1 Commissioning with the gateway

The gateway and the connected DALI line should be commissioned according to the following chart:

1.	Electrical installation	
2.	Tech-In of connected DALI ECGs	
	Option 1: via device New installation	Option 2: Web browser New installation
3.	Identification and if necessary Group Assignment of connected DALI ECGs	
	Option 1: via device	Option 2: Web browser
4.	Synchronisation of the system with ETS	
5.	Adjusting of ETS parameter and linking of KNX group addresses	
6.	Download of ETS application in the device	
7.	If required adjusting of scenes and effects via web browser	

Following the physical installation and wiring of the ECGs and lights and the electronic commissioning, the connected ECGs need to be taught. During the teach-in process, all DALI ECGs are automatically recognised and each ECG is assigned a short address between 0 and 63.

You can start this process either via the push buttons and menu on the device display (see below display and push button control) or via the commissioning website (see below control via web browser).

The order within a DALI line is completely random. You therefore need to identify the ECGs and - if required - assign them to groups. Identification and group assignment can also be performed via the device itself (push buttons, display) or via the website. If you use the website for identification, you can give each ECG an individual name (e.g. office-left). If you want to control the ECG within a DALI group rather than individually, you can at this point assign it to a group.

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Once you have identified all ECGs and, if required, named and assigned them, you need to synchronise the ETS application. During the synchronisation, the system properties of the connected DALI line are transferred to the ETS and the parameters and communication objects are configured accordingly. This means that after the synchronisation only objects and parameters of actually existing ECGs are visible to the user. The application is thereby optimised and simplified. ECG and group names are also transferred to the ETS. To start the synchronisation, press the respective button on the ETS parameter page (see below ETS application program).

Once the synchronisation is complete, you can configure the individual ECG or group parameters in the ETS and connect communication objects with group addresses.

When you have finished the configuration, simply load the ETS application onto the device.

In principle, the installation is now ready for operation and function testing. However, if you would like to also program scenes or effects, you can do so via the push buttons and display on the device (only scenes, limited functionality) or via the web site (scenes, effects without limitation).

3.2. Display and push button control

You can commission the connected DALI line and set and change DALI parameters via the three push buttons (MOVE, Set/Prg, ESC) and the 2x12 character display on the front of the device. The user concept is menu-based. Depending on the menu position, you can select two sub-levels. The current menu position is shown on the display. To navigate within the menu, press the push buttons briefly. Use the MOVE button to select the next menu item on the same level. Use the Prg/Set button to go to the next lower level. Press the ESC button to leave a level and return to the next higher level.

Main menu– Level 1

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



DALI GATEWAY
IP - V1.0

The product name and firmware version are displayed. The sub-menu can be used to set the display language.

NETWORK
IP ADDRESS

The sub-menu displays the IP address set in the ETS or assigned by the DHCP-Server

NEW
INSTALLATION

When a DALI line is newly installed, use the sub-menu to reset the connected DALI devices and automatically search for ECGs.

POST
INSTALLATION

Use the sub-menu to start the automatic search process and possibly adjust the configuration following a post-installation of DALI ECGs.

ECG EASY RE-
PLACEMENT

Use the sub-menu to activate the ECG easy replacement function and possibly program and integrate individually replaced ECGs into the system.

GROUP
ASSIGNMENT

Use the sub-menu to identify ECGs and assign them to DALI groups.

SCENE
ASSIGNMENT

Use the sub-menu to assign groups to DALI scenes

GROUP
TEST

Use the sub-menu to switch both the whole installation (broadcast) and individual channels for test purposes.

SCENE
TEST

Use the sub-menu to test individual scenes.

SYSTEM
TEST

Use the sub-menu to load any existing system faults.

MAINTANANCE
ECG/LAMP

Use the sub-menu to start the burn-in mode for ECGs and to re-set operating hours.

CONVERTER IN-
HIBIT MODE

Use the sub-menu to activate the converter inhibit mode in the installation phase.



To perform a function or change a configuration within a sub-menu, go to the respective position and change into programming mode. To change into programming mode, hold the Prg/Set button for more than 2 seconds. Once the function is in programming mode, a →symbol ap-

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pears in the display. If the programming mode is active, use the MOVE button to change a parameter or setting. Briefly press the Prg/Set button again to complete the process and save the set parameter or activate the function.

Sub-menu DALI GATEWAY – Level 2

DALI GATEWAY
IP – V1.0

Briefly press the Prg/Set button to change from the main menu DALI GATEWAY to the sub-menu LANGUAGE.

LANGUAGE
GERMAN

The currently set display language is shown. Hold the Prg/Set button to change into programming mode. Use the MOVE button to choose from one of the following languages: GERMAN, ENGLISH, FRENCH, SPANISH, ITALIAN, DUTCH, SWEDISH, DANISH. Briefly press the Prg/Set button again to save the configuration. The display now works in the selected language.

Sub-menu NETWORK IP ADDRESS – Level 2 and 3

NETWORK
IP ADDRESS

Briefly press the Prg/Set button to change from the main menu IP ADDRESS to the sub-menu.

DHCP: 192.
168.004.101

The sub-menu displays the IP address set in the ETS or assigned by the DHCP-Server. Hold the Set/Prg button to change the display into programming mode. You can now change the IP settings on the device.

Sub-menu NEW INSTALLATION – Level 2

NEW-
INSTALLATION

Briefly press the Prg/Set button to change from the main menu NEW INSTALLATION to the sub-menu SEARCH ECGs via PROG-MODE.

SEARCH ECGs
via PROG-MODE

FOUND
ECGs: 47

Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set-button again to start the initialisation and search process. First, all ECGs connected to the DALI line are automatically reset and any previously set parameters and group assignments are deleted. The device then searches for the connected ECGs via their random long address. The ECGs are automatically recognised in ascending order. Depending on the number of connected ECGs the search process may take a few minutes. Once the process is complete, the number of ECGs found is shown on the display. Press the ESC button (or wait for about 30 seconds) to return to the level above.

Sub-menu POST-INSTALLATION – Level 2

POST
INSTALLATION

Briefly press the Prg/Set button to change from the main menu POST- INSTALLATION to the sub-menu SEARCH ECGs via PROG-MODE.

SEARCH ECGs
via PROG-MODE

Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set-button again to start the verification and search process. The device searches for the connected ECGs via their long address and automatically compares them to the previous configuration. If ECGs have been removed from the DALI line, the entries are deleted from the device. The number of deleted devices is displayed during the verification process.

DELETED
ECGs: 3

After that, the DALI line is searched for newly installed devices. Newly added ECGs are automatically reset and any previously programmed parameters and group assignments are deleted. Depending on the number of connected ECGs the search process may take a few minutes. During the search process, the number of newly found devices is shown on the display.

NEW
ECGs: 1

DEL./NEW
ECGs: 3/1

Once the whole process (verification and search) is complete, the display shows both the deleted and the newly found ECGs (deleted devices / new devices from left to right, see picture on the left). Press the ESC button (or wait for about 30 seconds) to return to the level above.

Sub-menu ECG EASY REPLACEMENT – Level 2

ECG EASY
REPLACEMENT

Briefly press the Prg/Set button to change from the main menu ECG EASY REPLACEMENT to the sub-menu SEARCH ECGs via PROG-MODE.

SEARCH ECGs
via PROG-MODE

Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set-button again to start the easy replacement. The device first checks if one or several ECGs in the system were faulty. It then automatically looks for newly connected ECGs in the line. The easy replacement is only possible if just one ECG in the line was faulty and one new ECG is found. If the process is successful, the number of the replaced ECG is shown. If the search process cannot be completed because the required conditions are not met, an error code appears in the display. The error codes have the following meaning:

ECG 04
REPLACED

ERROR
TYPE 07

Error Type 7: No ECG failure
Error Type 8: More than one ECG failure
Error Type 9: No new ECG can be found
Error Type 10: ECG has wrong device type
Error Type 11: More than one new ECG

Press the ESC button (or wait for about 30 seconds) to return to the level above.

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Sub-menu GROUP ASSIGNMENT – Level 2 and 3

GROUP
ASSIGNMENT

Briefly press the Prg/Set button to change from the main menu GROUP ASSIGNMENT to the sub-menu.

Within this menu the individual ECGs that were found during the search process can be assigned to 16 DALI groups and previous assignments can be modified.

ECG No.: 12
GROUP: --

Briefly press the MOVE button to run through the different ECGs. The number of the selected ECG is shown in the first display line. As long as the ECG is selected, the connected lamp is flashing. The programmer can thereby determine which lamp is assigned to the number.

CONV. No.: 13
GROUP: --

If the selected device is a non-switchable converter for emergency lights, the selection sets the device into function test mode and the display shows the word CONV. For identification purposes, the function LED on the converter flashes during the test (see user manual for the converter).

ECG No.: 12
GROUP: 1

Hold the Prg/Set button to change into programming mode. Briefly press the MOVE button again to select the group that you want to assign the ECG to. If the group is selected, briefly press the Prg/Set button to confirm and save the setting. You must repeat this process once for every ECG during the initial installation. Attention: non-switchable converters for emergency lights cannot be assigned to a group.

Press the ESC button (or wait for about 30 seconds) to return to the level above.

Sub-menu SCENE ASSIGNMENT – Level 2 and 3

SCENE
ASSIGNMENT

Briefly press the Prg/Set button to change from the main menu SCENE ASSIGNMENT to the sub-menu. Within the menu the DALI groups can be assigned to up to 16 possible scenes. Individually controlled ECGs cannot be assigned via the display. To assign individual ECGs, you must use the website.

SCENE01 XXXX
XXXXXXXXXXXX

Briefly press the MOVE button to run through the individual scenes. The number of the selected scene is shown in the first display line. Behind the scene number, different characters show which of the 16 groups are assigned to the scene. An X means that a group is assigned to the scene. A – means the group is not assigned to the scene. The four characters directly behind the scene number in the first display line represent groups 1 - 4 (from left to right). The 12 characters in the second display line represent groups 5 - 16 (from left to right).

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

Hold the Prg/Set button to change into programming mode. A flashing cursor on the first X means that group 1 is selected. By briefly pressing the MOVE button you can toggle between X and – symbols to choose whether you would like to assign the group to the scene. Briefly press the Prg/Set-button to move the cursor to the next group. Once you have run through all 16 groups, the setting is saved and used during further scene programming. After you have pressed the Prg/Set button a final time, the display automatically returns to the level above. Press the ESC button to return to the level above without saving the changes you have made.

Sub-menu GROUP TEST – Level 2 and 3

GROUP
TEST

Briefly press the Prg/Set button to change from the main menu GROUP TEST to the sub-menu. Within the menu, groups can be switched either individually or all together (ALL GROUPS TEST) to test the installation.

GROUP: 6
TEST

Briefly press the MOVE button to run through the individual groups. The number of the selected group is shown in the first display line.

GROUP: 6
->ON

Hold the Prg/Set button to change into programming mode. Briefly press the MOVE button to select whether you would like to switch the group on or off. Briefly press the Prg/Set button to execute the selected command. Press the ESC button (or wait for about 30 seconds) to return to the level above.

Sub-menu SCENE TEST – Level 2 and 3

SCENE
TEST

Briefly press the Prg/Set button to change from the main menu SCENE TEST to the sub-menu. Within the menu you can invoke all scenes for test purposes or program newly set light scenarios into the scene.

SCENE: 2
TEST

Briefly press the MOVE button to run through the individual scenes. The number of the selected scene is shown in the first display line.

SCENE: 2
->invoke

Hold the Prg/Set button to change into programming mode. Briefly press the MOVE button to choose whether you would like to invoke or save a scene. Briefly press the Prg/Set-Taste button to execute the selected command and either invoke or save the scene. Press the ESC button (or wait for about 30 seconds) to return to the level above.

Sub-menu SYSTEM TEST – Level 2 and 3

SYSTEM
TEST

Briefly press the Prg/Set button to change from the main menu SYSTEM TEST to the sub-menu. Within the menu you can check for any potential faults.

DALI
No fault

If there is no fault, this is shown in the display. The following faults can be recognised by the system. They are shown in the display and also simultaneously set off the red error LED:

DALI
Fault

- DALI short-circuit
- Lamp fault with the lamp or ECG number being displayed
- ECG fault with the ECG number being displayed
- No KNX bus

LAMP 17
Fault

If there has been a DALI short-circuit, no further faults can be recognised. For all other fault types, several faults can be recognised at the same time. Within the menu you can toggle between the different faults by briefly pressing the MOVE button. The number of the ECG is displayed for both lamp and ECG faults. This means that a fault can be easily localised. Press the ESC button (or wait for about 30 seconds) to return to the level above.

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Sub-menu MAINTENANCE ECG/LAMP– Level 2 and 3

MAINTENANCE
ECG/LAMP

Briefly press the Prg/Set button to change from the main menu MAINTENANCE ECG/LAMP to the sub-menu. Within the menu you can start the burn-in of a lamp and re-set the reader for its operating hours.

ECG No.: 01
368 h

Briefly press the MOVE button to run through the individual ECGs. The number of the selected ECG is shown in the first display line. Line 2 shows the number of operating hours since the last reset / burn-in.

ECG No.: 01
BURNIN

Hold the Prg/Set button to change into programming mode. Briefly press the MOVE button to toggle between the functions BURN-IN, RESET, BURN-IN/RESET. Briefly press the Prg/Set button to execute the selected command. Press the ESC button (or wait for about 30 seconds) to return to the level above.

ECG No.: 01
BURNIN/RES.

Sub-menu CONVERTER INHIBIT MODE – Level 2

CONVERTER IN-
HIBIT MODE

Briefly press the Prg/Set button to change from the main menu CONVERTER INHIBIT MODE to the sub-menu. Within the menu you can turn on the Inhibit Mode for all connected self-contained battery emergency lamps. If the mains power supply is turned off within 15 minutes from activating the Inhibit Mode, the lights do not change into emergency mode but remain switched off. Particularly during the initialisation phase of a building this operating mode may be required to prevent the emergency lights from being turned on constantly.

INHIBIT
via PROG-MODE

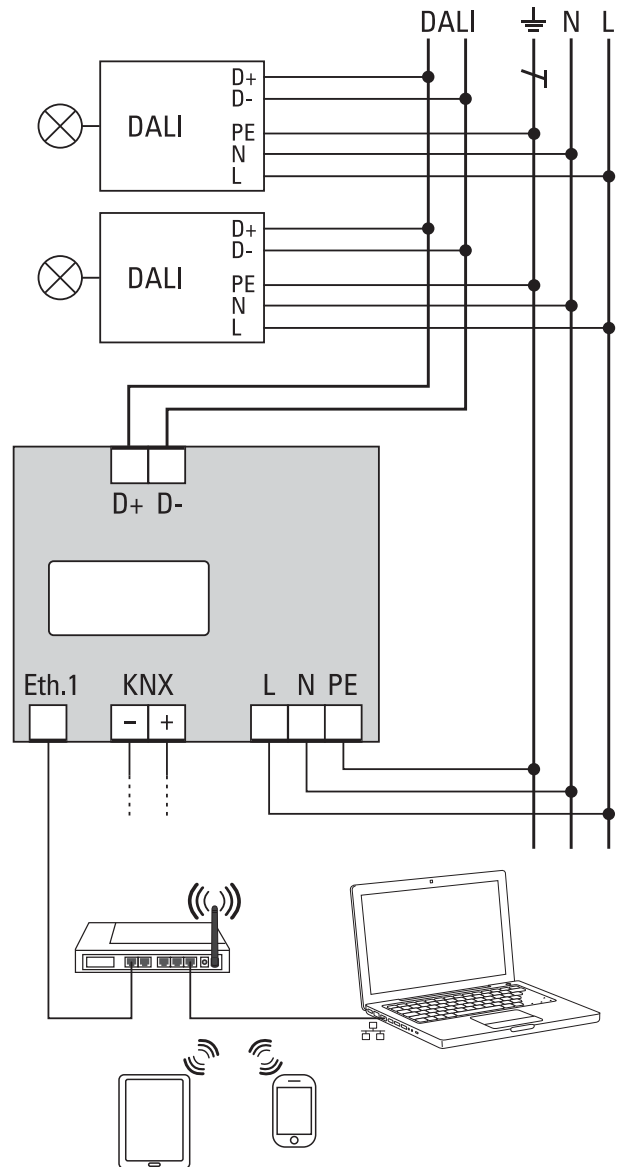
Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set button again to activate the Inhibit Mode.

CONVERTER
INHIBIT?

Press the ESC button (or wait for about 30 seconds) to return to the level above.

3.3. Control via web browser

In addition to the push buttons, you can also easily commission the DALI via the integrated web server. For this purpose connect the gateway directly to the IP network. An RJ-45 socket is located above the KNX bus connector at the bottom left-hand side of the device.



Use a standard patch cable to connect the device to a switch, hub or router of the IP network. You can also use a WLAN access point as network coupler. This means you can commission the DALI via a portable note book, tablet PC or mobile phone.

Once the network is physically connected, you need to assign an IP address to the gateway to enable access via the web browser. By default, all IPAS devices with an IP interface are set to DHCP address assignment. If there is a DHCP server in the network the device automatically

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receives an IP address after initialisation. This address is shown on the device display (see above). If no DHCP service is available or if you would rather use a fixed IP address, you must set the address either via ETS or the device display. You may also need to configure the subnet mask and standard gateway (for direct access via the Internet). Those two parameters can only be configured in the ETS.

Once the IP address has been assigned, load the device website via any web browser (e.g. Microsoft Internet Explorer, Mozilla Firefox, Apple Safari). Simply enter the correct IP address (URL) in the browser.



Please remember that the complete URL consists of the IP address and the prefix `http://`. To load a page enter, for example `http://192.168.10.71`

The following web site appears:



Use the log-in-page to assign either 'User' or 'Administrator' rights to a user. User rights mean that the website functions are restricted and configuration commands are disabled. Use this login if you would like to use the website only for visualisation and operational purposes. To commission the DALI via the website administrator rights are required. The images and descriptions below are all based on the administrator display. Different passwords for user and administrator can be set in the ETS. The default setting for both users is '0'.

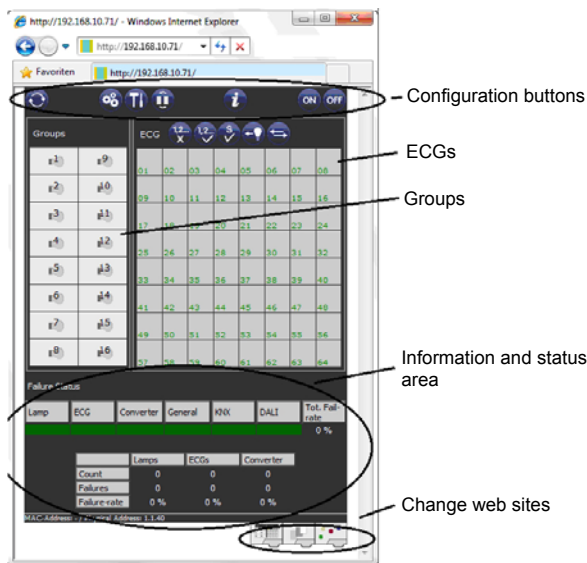
Log in as administrator to access the following configuration website:



The configuration page is divided into different sections. The section at the top of the page contains the configuration buttons that are required for the commissioning (some of these buttons are only visible if you log in as administrator). The fields underneath the configuration buttons are for the 16 group and 64 ECG functions. The bottom section contains the information and status area. The three tabs in the footer are used to change from general configuration to scene configuration and effect configuration.

All operable buttons work with tool tips. This means a function description appears if the cursor hovers over the button.

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3.3.1 Configuration buttons

The icons in the website header are used for the different commissioning functions. They have the following meaning:



Refresh

This function refreshes the website content. On principle, the website is static. This means that the details on the page are only updated when the site is first loaded. Any faults or changes that are not made on the website itself, such as a light status adjustment via a KNX telegram are not automatically displayed.



New Installation

Press this button to start a new installation (reset and teach-in process) of the connected DALI line.



During a new installation any previously existing configurations of the DALI line are deleted.



Post-installation

Press this button to start a post-installation within the DALI line. Any ECGs that no longer exist are deleted during the post-installation process. At the same time new devices are added.



ECG Easy replacement

Press this button to start an ECG easy replacement within the DALI line. The easy replacement is only possible when a single faulty ECG is replaced by a new one.



Device status

Press this button to display the device status of the gateway in the information and status area at the bottom of the page. Click on a group or ECG field to display the status information of the selected ECG or group.



Broadcast On



Broadcast Off

Use these functions to simultaneously switch all ECG lights/lamps in the DALI line off or on via a DALI Broadcast telegram.

3.3.2 Control buttons

There are further control buttons above the ECG field. These are used to perform ECG or group specific operations. To carry out one of the operations, you must select the operation first and then click on the group or ECG concerned. The selected function appears in a white frame. Press the button again to cancel the selection.



No selection



First button selected

The individual buttons have the following meaning:



Delete assignment

Use this button to delete the assignment of an ECG. Select the button first. Then click on the ECG. If the ECG was assigned to a group, the group assignment is deleted. If the ECG was marked for individual control, it is now marked as 'not in use'.



Assign a group

Use this button to assign an ECG to a group. First select the button. Then click on the group. To complete the process click on the ECG you want to assign to the group. If the ECG was previously assigned to a group, the previous assignment is automatically removed.



Select ECGs for individual control

Use this button to enable an ECG for individual control. ECGs that were found during the search process first appear with a question mark. This means that they are considered to be 'not in use'. If you want to enable an ECG for individual control, select the button and then click on the ECG concerned. The ECG is marked with the letter 'S' (Single) and is now in use.

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Toggle light value

Use this button to switch the value of a group on or off. First select the button. Then click on a group field to toggle between the light values of all lamps assigned to the group. The same process applies to ECGs.



Swap ECG short addresses

Use this button to swap the position and thereby the short address of two different ECGs. First select the button. Now click on two ECG fields one after the other to physically swap their short addresses and adjust their position in the list. This function is required to sort the random ECGs into a specific order after a new installation.



You should only use this function directly after a new installation. Later use should be avoided as the parameters set in the ETS are not swapped in line with the addresses.

3.3.3 ECG fields

The ECG and group entries on the website mean that the user can see the complete function and failure status of a connected DALI line at a glance. The ECG fields are numbered from 1 – 64. The number is shown in the bottom left-hand corner of the field and corresponds to the ECG short address within the DALI line. If an ECG is found during the search process (new and post-installation), a lamp or battery icon is inserted in the field. The battery icon symbolises an ECG for self-contained battery emergency lights (device type 1). All other device types (without battery) are shown with a lamp symbol. If in the ETS an ECG is configured as emergency luminaire with central battery, a separate icon is displayed. The following icons are available:



ECG



ECG for self-contained battery emergency lamp non-switchable



ECG for self-contained battery emergency lamp switchable



ECG with central battery supply

The value and failure status of an ECG is symbolised by different icon and background colours.



ICON light grey => Lamp switched off



ICON yellow => Lamp switched on



ICON red => Lamp failure



Red background => ECG failure

The assignment of an ECG is also shown in the field. Newly found devices are marked as 'not assigned' via a '?' symbol above the icon. When an ECG is assigned to a group, the group number replaces the '?' symbol. If an ECG is used for individual control, it is marked with the letter 'S' (Single).



ECG not in use



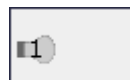
ECG in use for individual control



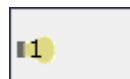
ECG with group assignment (e.g. group 3)

3.3.4 Group fields

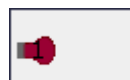
As for the ECG fields, the group fields show the status of a group. The value and failure status of all 16 groups is thereby immediately visible.



ICON light grey => group switched off



ICON yellow => group switched on



ICON red => Lamp failure in group



Red background => ECG failure in group

If a group or ECG is switched via the website, its status is automatically updated and displayed on the site. However, if the switch command was initiated externally via a KNX telegram, the status is not automatically updated. To display the correct status, press the refresh button or re-load the web page.

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3.3.5 Information and status fields

The bottom section of the configuration website shows status information for the device as a whole or for a selected group or ECG.

Failure Status						
Lamp	ECG	Converter	General	KNX	DALI	Tot. Fail-rate
						0 %


	Lamps	ECGs	Converter
Count	23	23	2
Failures	0	0	0
Failure-rate	0 %	0 %	0 %

When the website is first loaded, the status information always applies to the whole device giving you the opportunity to see the number of connected lamps, ECGs and converters, as well as failures and failure rate at a glance. The green colour means that no fault has occurred. Otherwise the colour changes to red.



This information can be displayed at any time by pressing the device status button in the configuration bar at the top of the site.


To display the status information of a group, click on one of the 16 group fields.

	<u>General</u>		Run Hours		Burnin		Test
					Number of ECG	2	
Group No.	1				Number of Converter	0	
Name	Group 1				Lamp Failures	0	
Value	9%				ECG Failures	0	
					Converter Failures	0	
					Failure rate	0%	

In addition to the number of devices and converters and the individual failure types, the total failure rate is shown. Please remember that the rate is calculated as a percentage of the total number of ECGs and converters in the group. Use the Name field to enter a user-friendly name for the group. The maximum number of characters is 10. Press the -button to confirm your entry. The name is now saved on the gateway and loaded into the ETS during the next synchronisation.

To display the status information of an ECG, click on one of the 64 ECG fields. Choose from one of the following options: General, Run Hours, Burn-in and Test

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

Use the name field on the General page to enter a user-friendly name for the ECG. The maximum number of characters is again 10. Press the -button to confirm your entry. The name is now saved on the gateway and loaded into the ETS during the next synchronisation.

An ICON appears behind the word Alarm if a fault or alarm has occurred. The meaning of the icons is as follows:



Lamp failure



ECG failure



Converter failure



Life cycle exceeded

An ICON appears behind the word Mode if the ECG is not in normal mode. The meaning of the icons is as follows:



Permanent mode



Panic mode



Central battery test mode



Burn-in mode

General

Run Hours


Burnin

Test

ECG No. 1

Runtime: 11 h

Lifetime: 2400 h



Click on the Run Hours tab in the header to see the accumulated operating hours of a lamp since its last reset as well as the maximum life span that was configured in the ETS. Use the button on the right to reset the counter to 0.


Click on the Burn-in tab in the header to start and stop the burn-in mode for the selected ECG.

General | Run Hours | Burnin | Test

ECG No. 1

Burnin Time: 3 h

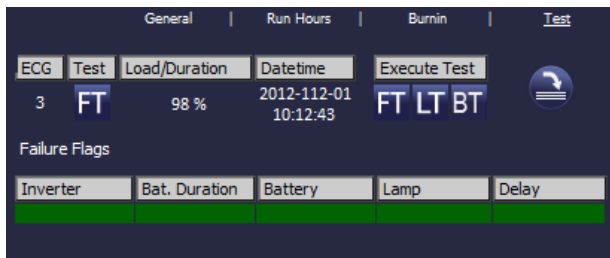
Max. Burnin Time: 16 h

A horizontal bar with a dark blue background. On the right side, there are two circular buttons: a play button (triangle pointing right) and a stop button (square).

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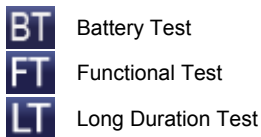
The maximum burn-in time that was configured in the ETS and the already completed burn-in time are also displayed.

If the selected ECG is a device for self-contained battery emergency lights, you can also click on the Test tab.



This display shows the type of test, test result and date and time of the last test. The status bar shows the failure flags. A green bar means that the test was positive. A red bar signals a negative test result.

You can use the buttons on this page to manually start a test (Execute Test). The icons underneath have the following meaning:



Update test result

Please remember that the website is static and is not automatically updated after the test has finished. If you would like to display the result of a manually activated test, please press the 'Update test result' button first.

3.4. Easy replacement of individual ECGs

When a DALI line is commissioned, the short address, group assignment (if applicable) and other configuration data are programmed onto the ECG's internal memory. If you had to replace an ECG because of a fault, you would normally need to program this data onto the new device.

The gateway, however, offers a function that makes it possible to quickly and easily replace individual ECGs. You can start the "ECG easy replacement" function either on the device itself (push buttons, display) or via the web browser if you log in as administrator (see above). The gateway first checks if any of the configured ECGs that are known to it have been reported as faulty. Then the line is searched for new, unknown devices. If a new device is found, all configuration details of the old ECG are automatically programmed onto the new one and the installation is immediately ready for operation.

However, the ECG easy replacement only works if just one ECG within a line is faulty and replaced by a new one. If several devices are faulty, the ECGs have to be identified and you must use the post-installation function. Please also remember that the easy replacement is only possible for devices of the same type. You cannot, for example, replace an ECG for self-contained battery emergency lamps with a device for LEDs.

If a quick replacement is not possible, the gateway terminates the process with an error code. The different error codes have the following meaning:

- Error type 7: No ECG failure
- Error type 8: More than one ECG failure
- Error type 9: No new ECG can be found
- Error type 10: ECG has wrong device type
- Error type 11: More than one new ECG

3.5. Enlargement of the existing system – post-installation

If you would like to enlarge an already commissioned DALI line with new ECGs or would like to replace several faulty ones, please use the „post-installation“ function. You can carry out the post-installation both on the device (push buttons, display) and via the web browser if you log in as administrator (see above).

When you start the installation, the gateway first checks if all previously configured ECGs are still available in the line. ECGs that no longer exist or cannot be found are deleted from the gateway's internal memory. Then the line is searched for new ECGs. Newly found devices are inserted into any existing gaps or added on at the end. (Attention: Please remember that the maximum number of ECGs within a line is 64!)

As the position (short address) of a newly found device is allocated randomly, you need to identify the lights and assign them to groups (if required).

If the structure of a line has changed after the post-installation (enlargement of the system or different device types) you need to re-synchronise the ETS. If the purpose of the post-installation was merely re-configuration after an ECG replacement, synchronisation is not required.

4. Different operating modes

4.1 Normal mode

In normal mode, ECGs can be dimmed and switched without restrictions both via individual and group control. The control of each ECG and each group is based on three communication objects (switching, dimming, value setting).

Please remember that ECGs, once they have been assigned to a group, are no longer available for individual control. An ECG can only be assigned to a single DALI group. The gateway does not support multi-group assignments on DALI level. If such assignment is required, please use KNX communication objects for this purpose.

At group level, an additional enable/disable object is available to disable the control via the three communication objects.

Separate status objects inform about the switch and value status both at group and individual ECG level.

4.2 Permanent mode

If you would like to run an individual ECG or a whole group permanently with a certain light value, (e.g. a permanently lit corridor or workshop) you can choose the permanent mode option. The ECG or group are automatically set to the required value after you program or switch on the gateway. Switch and dim objects remain hidden. Light status, error and service functions, however, are also available in permanent mode.



Should a device in this mode not be running at the pre-set light level because of a special operation (e.g. identification process on the device display) or fault (e.g. ECG was without power when the gateway was started) the light level is automatically corrected after 60 seconds.

4.3 Staircase mode

The staircase mode is only available for groups. In this mode, the value set via a switch, dim or value telegram is automatically changed to the switch off value after a programmable time. The lights can be switched off immediately or in 2 steps (within a minute) or through dim-down (within a minute).

In staircase mode, each additionally received telegram re-starts the internal timer. The lights switch off when the timer runs out after the most recently received telegram.

The staircase mode can be disabled or enabled via an additional object. If the staircase mode is disabled, the group behaves like in normal mode and does not automatically switch off. If the mode is disabled whilst the switch-off timer is already running, the timer stops and

the group remains at the currently set value. If the mode is enabled again, the timer starts again from the beginning.

4.4 Night Mode

Night mode is available both at group and ECG level. The night-time mode corresponds largely to the staircase mode. The only difference is that the automatic switch-off is dependent on the central night object of the gateway. If the night object is not set (day), the group behaves as in normal mode. If the object is set (night), the ECG or group either switches off after a programmable time or it goes into permanent mode.

4.5 Panic / Emergency mode

The panic or emergency mode can be activated via a central object for the whole gateway. All ECGs/ groups that have been enabled for panic mode, permanently switch to a programmable panic light value on receipt of the object. They can no longer be controlled individually. When the panic mode is switched off, the devices return to the previous light value or the switch on / switch off value and can again be controlled individually.

4.6 Test mode for central battery emergency luminaires

Through its internal function the gateway supports installations with central battery emergency luminaires. Any ECG (except for those of the self-contained battery type) can be configured as an emergency light. You can choose a test time between 15 minutes and 4 hours. If the gateway receives the central battery test object, the respective lights change to a programmable value for this time period. They can no longer be switched or dimmed via the corresponding objects. The discharge time and capacity of the central battery can thereby be tested under pre-defined conditions.

So that individual ECGs within a group can no longer be switched via group telegrams or scenes, the group assignment is dissolved for the duration of the test mode. When the test has finished, groups and scenes are automatically re-programmed onto the ECGs. Should the gateway lose power during the test mode, the unprogrammed devices are marked and automatically programmed on return of the power supply. The test mode, however, does not continue. It has to be re-started.

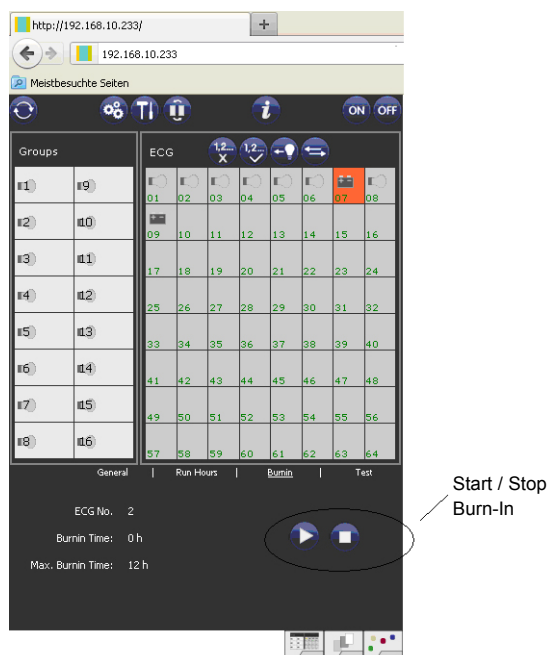
When the test mode terminates normally, the devices return to the previous light value or the switch on / switch off value and can again be controlled individually.

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4.7 Burn-in mode

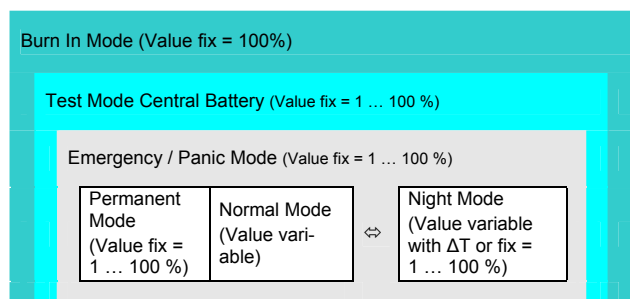
For optimum operation and to achieve the quoted life span, many lights require that a specific burn-in time be adhered to during their first use. During the burn-in phase lights must not be switched or dimmed but need to run continually at 100% capacity. This burn-in phase can be carried out automatically with the gateway. Each ECG can be individually set to the burn-in mode via a further object. During the burn-in, switch and dim telegrams for the device are ignored. This also applies when the ECG is assigned to a group. So that individual ECGs within a group can no longer be switched via group telegrams or scenes, the group assignment is dissolved for the duration of the burn-in mode. When the burn-in has finished, groups and scenes are automatically re-programmed onto the ECGs. Should the gateway lose power during burn-in mode, the un-programmed devices are marked and automatically programmed on return of the power supply. The burn-in mode, however, does not continue. It has to be re-started. When the burn-in mode finishes normally, the devices return to the previous light value or the switch on / switch off value and can again be controlled individually.

The burn-in mode is usually started manually after each light change. This useful maintenance function can be operated via the device display to ensure that it can be performed by maintenance personnel independent of the ETS or KNX. Alternatively a burn-in start is also possible via the integrated web server.



4.8 Operating mode hierarchy

Some of the individual operating modes described above have higher functions and roles for the operation of the system as a whole. A prioritisation or hierarchy of operating modes is therefore required. The burn-in mode has the highest priority. If an ECG is in burn-in mode, it cannot be changed into any other mode. The next hierarchy level is the central battery test mode. If the device is in this mode, it can only go into burn-in mode but not into any subordinate operating modes. Below the test mode is the panic/emergency mode. From this mode the device can change to both the burn-in mode and the test mode. The permanent, normal and night-time modes have the same priority level at the bottom of the hierarchy.



5. Analysis and service functions

5.1 Recording operating hours

The gateway allows for the operating hours (burning time) of each lamp to be internally recorded to the second. The value is available externally (communication objects, web site, display on the device) in hours with the internal value in seconds always being rounded. (e.g. 7199 seconds → 1 h, 7201 seconds → 2h) The recording of operating hours is independent of the dim value. This means any light value > 0% contributes to an increase in the operating hours. The counter can be re-set (when the light is changed). To reset the counter, the value 0 is written on the communication object or alternatively use the website or the display and push buttons on the device.

A maximum value can be configured for each ECG (light life span), which activates an alarm object on the KNX bus or an entry on the website. This information can be used for maintenance purposes.

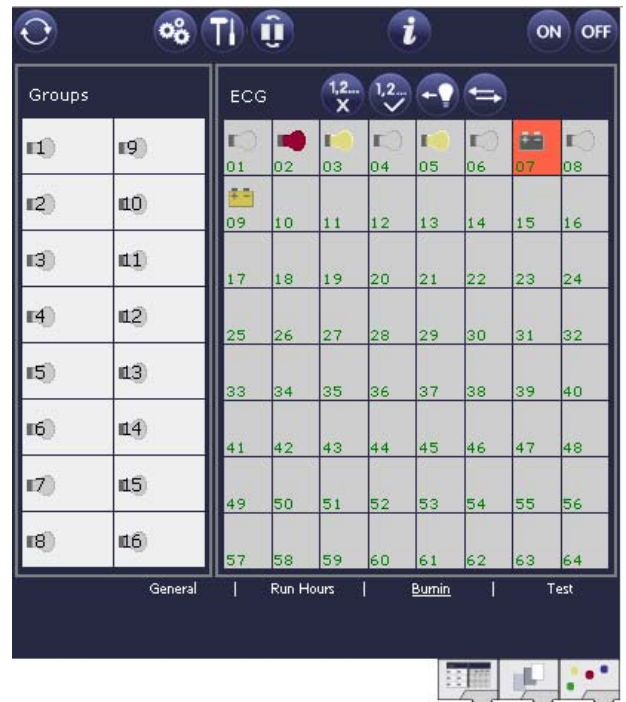
5.2 Individual fault recognition at ECG level

A major advantage of DALI technology is the individual recognition of light failure or ECG failure. The gateway supports this function completely and also offers numerous analytical possibilities.

For the analysis, the DaliGateway scans all connected ECGs periodically for ECG, light and (in the case of self-contained battery lamps) converter failures. The scanning time can be configured. If the time is 1 second (standard setting), and 64 ECGs are connected, the complete process of scanning for ECG and light failure takes 128 seconds (1 second per ECG and type of failure). It can therefore take up to about 2 minutes before a fault that has occurred is recognised. For each ECG a communication object is available to send the information to the KNX bus (1Bit or 1 Byte object).

In addition, the failure status of all ECGs is displayed clearly on the gateway's website.

An ECG field with a red background on the website indicates an ECG (or converter) failure. A red lamp symbol indicates a light failure. If you select the respective ECG, the individual failure status is available in the status and information section at the bottom of the website.



You can also request the failure status of all individual ECGs, converters and lamps via a special failure status object (object number 20, see communication object description below).

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5.3 Fault analysis at group level

If ECGs and / or converters are merged into groups, numerous group-specific fault data is available in addition to the (also still available) individual ECG data. For this purpose three different communication objects are available for each group. In addition to general information such as whether there is a failure within a group and of what type, the complete number of faulty devices within the group and the failure rate can be listed via a communication object. An alarm object is sent when a certain failure rate is exceeded. A complex object with a summary of the data further adds to the analysis options.

For details of group-specific communication objects, please see the communication objects description below.

The group information is also displayed on the web site of the integrated web server:

Groups

Group No.	Group Name
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16

ECG

ECG No.	ECG Name
01	02
03	04
05	06
07	08
09	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64

Failure Status

Lamp	ECG	Converter	General	KNX	DALI	Tot. Fail-rate
						21 %

Group 1 Details

Count	Lamps	ECGs	Converter
8	7	2	
1	0	1	
12 %	0 %	49 %	

MAC-Address: - / Physical Address: 15.15.255

5.4 Fault analysis at device level

Fault analysis objects similar to those at group level are also available at device level (i.e. for all ECGs connected to the gateway). The failure rate or number of ECG failures in the whole DALI line can be made available via communication objects. Unlike at group level, at device level the percentage and number of failures can be broken down further according to type of failure. The alarm threshold for the failure rate can be individually set for ECG, light and converter failure. For further details regarding the communication objects, please see the communication objects description below.

As before, the fault information for the entire gateway is displayed on the web site:

ECG

ECG No.	ECG Name
01	02
03	04
05	06
07	08
09	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64

Failure Status

Lamp	ECG	Converter	General	KNX	DALI	Tot. Fail-rate
						21 %

Group 1 Details

Count	Lamps	ECGs	Converter
8	7	2	
1	0	1	
12 %	0 %	49 %	

MAC-Address: - / Physical Address: 15.15.255

6. Scenes and effects

6.1 The scenes module

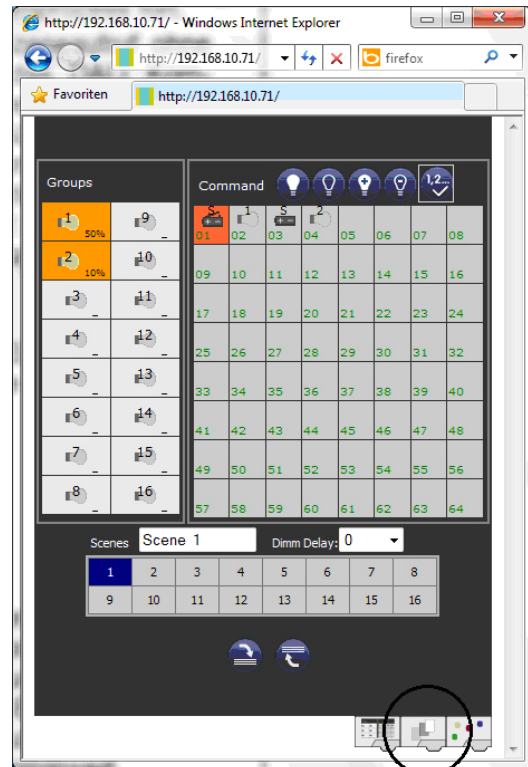
The gateway enables the programming and invoking of up to 16 internal light scenes. A scene is invoked via a 1Byte scene object. This object can also be used to save scenes (Bit 7 set). The currently set value is saved as scene value.

In principle, a scene can consist of group and individual ECGs (as long as these have not been assigned to a group). To assign a group to a scene or to delete a group from a scene, use the push buttons and display on the device or the website. To assign and delete individual ECGs, you can **only** use the website. By default, the programmed scene is started immediately without dim time. If you want to dim into a scene, you can set a dim time for each scene. The time can only be set on the website. Please remember that the entry refers to the dim time from 0 to 100%. If recalling a scene leads to a change from 50% to 100% with a set time of 20 seconds, the dimming process takes only 10 seconds.

Switching an individual group (or ECG) from the scene whilst a scene is already in the dimming process, only affects the particular group. The other groups continue the dimming process.

Please remember to use the DALI command for scene addressing **only** when you invoke a scene without dimming. Dimmed scenes must be started at DALI level via short or group addresses. Scenes that have been assigned a large number of groups or ECGs should therefore be used without dim time to prevent irregular dimming.

For full and easy scene programming, use the website of the server which can be accessed via the scene tab at the bottom:



Scene Tab

To program a scene, select it first from the scene block at the bottom of the page. (If the scene has been previously programmed, the corresponding light value appears).

Once you have selected a scene, you can use the assignment button to add or remove groups or individual ECGs to and from the scene. Click on the button first and then on the group or ECG. For already assigned groups or ECGs, the fields are highlighted in yellow and the dim value is displayed in percentages.

You can only use individual ECGs in scenes if they have not been assigned to a group.

Use the programming buttons to change the light value. The buttons have the following meaning:



On switching



Off switching



Up dimming



Down dimming

As before, select the required programming button first and then the group or ECG. The dim values can only be changed in increments. The increment size varies according to the logarithmic dimming curve of the DALI ECG.

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You may also set the dim time and program a specific name for the selected scene. Use the programming button to save the set values on the gateway and ECG.



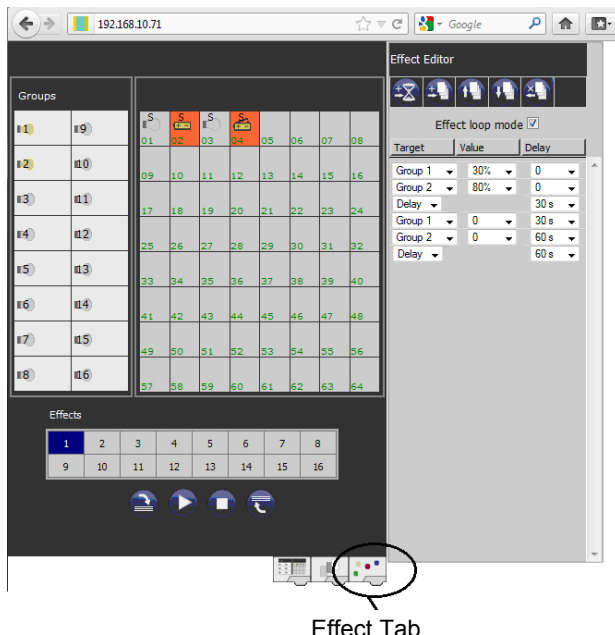
Scene programming

Please remember that the set values are only saved if you press the button. If you change to another scene without saving, any changes you made are lost.

6.2 The effect module

In addition to light scenes, the gateway also allows for the use of effects. An effect is a sequence control of light values in different groups or ECGs. The individual light values can be triggered immediately or dimmed via a dim value. Please remember that the entry relates to a dim time from 0 to 100% (see scene module above). With the gateway you can create 16 independent effects. A 1 Byte object is used to start and stop an effect. To start an effect, set Bit 7 in the object. If the object is received with Bit 7 being deleted, the effect stops. Altogether 500 effect steps can be programmed. They can be distributed arbitrarily across the 16 effects. A delay can also be programmed as an effect step.

You can only program effects via the server website which can be accessed via the effect tab at the bottom of the site:



To program an effect, select it first from the effect block at the bottom of the page. (If the effect has been previously programmed, the corresponding effect steps are displayed in the Effect Editor on the right hand side of the page.)

Use the function buttons in the Effect Editor to add or remove steps or delays. You can select the target group or individual ECG for each step as well as the final dim value and delay from the drop down menus. If you insert a delay as an effect step, the effect control will pause until the next step is executed. You can thereby create a list with the entire sequence control for each effect. Each step can also be repeated in a continuous loop. To do so, please tick the Effect loop mode box above the list. If an effect runs in continuous mode, it is repeated until it is stopped either via the communication object or by pressing a button on the website.

The individual buttons have the following functions:



Add delay



Add effect step



Move effect step up



Move effect step down



Delete effect step

When the list is complete, load it onto the device.



Effect programming

Please remember that the set values are only saved if you press the button. If you change to another effect without saving, any changes you made are lost.

Use the Start and Stop buttons to activate and test the selected effect directly from the page.



Export effect list



Start effect



Stop effect



Program effect

7. Self-contained battery emergency lamps

The gateway supports control gears used to run self-contained battery emergency lights (device type 1 in accordance with EN 62386-202). Such devices contain a battery which can supply the light with power in case of a general power failure.

7.1 Features

Principally a distinction is made between switchable and non-switchable devices for self-contained battery lamps. A switchable device can be directly connected to a lamp just like a 'normal' ECG. In normal mode the light (usually an LED) can be switched and dimmed via DALI. Emergency lights with switchable ECGs therefore require only 1 DALI device. They can be assigned to groups and the standard switch parameters are available.

In contrast to the 'switchable' device, a 'non-switchable' device (converter) can only control the connected lamp in an emergency. To use the same lamp in normal mode (switching, dimming), a second, 'normal' ECG is required. These lights are therefore called emergency lights with 2 DALI devices. The two ECGs make a device pair. 'Non-switchable' devices use the DALI communication to query the device status and to initiate mandatory test phases. As these devices cannot switch or dim themselves, they cannot be assigned to groups. If you would like to assign the connected light to a group when it runs in normal mode, you need to assign the 'normal' ECG to the group.

During both new and post-installation the gateway recognises automatically, whether the connected device is a 'switchable' or 'non-switchable' ECG. However, because of the DALI structure with its random assignment of short addresses, the pairing of a 'normal' device with a 'non-switchable' device does not occur automatically. It has to be performed manually on the parameter page in the ETS.

The assignment is crucial for fault analysis purposes as 'non-switchable' devices usually share the connected lamp with a 'normal' device. Without the assignment, a lamp failure may be double-counted. In addition, the 'normal' ECG in a pair is usually automatically disconnected from the power supply when the emergency light is tested. This loss of function generates an ECG failure. However, by making a pair, the gateway recognises automatically, whether a real ECG failure has occurred or whether the corresponding converter has simply been tested. Only real ECG failures are taken into consideration for alarm and analysis purposes.

To identify the converters after installation, a function test starts for 'non-switchable' ECGs. The process takes a few seconds. During this process the status LED on the

converter flashes (see function description of the respective converter). As these devices cannot switch the connected lamp themselves, the normal identification process through switch on/ switch off is not possible. The identification therefore needs to occur via the LED.

7.2 Converter inhibit mode

Self-contained battery emergency lamps always change into emergency mode if there is a power supply failure. The lamp is now operated by the internal battery. However, it may become necessary at times to cut off the power supply, for example during maintenance work or the initialisation phase of a building. To prevent the lights from switching into emergency mode, the converters can be disabled via the push buttons and display on the device (see above). This converter inhibit mode is only available for all connected devices at the same time. If the power supply is turned off within 15 minutes after activating the mode, the connected lights do not change into emergency mode and the lights remain switched off. When the power resumes, the lights return to normal. If the 15 minutes run out without a power loss, all converters are automatically re-set to normal mode.

7.3 Test mode

The gateway supports mandatory tests for self-contained battery emergency lamps.

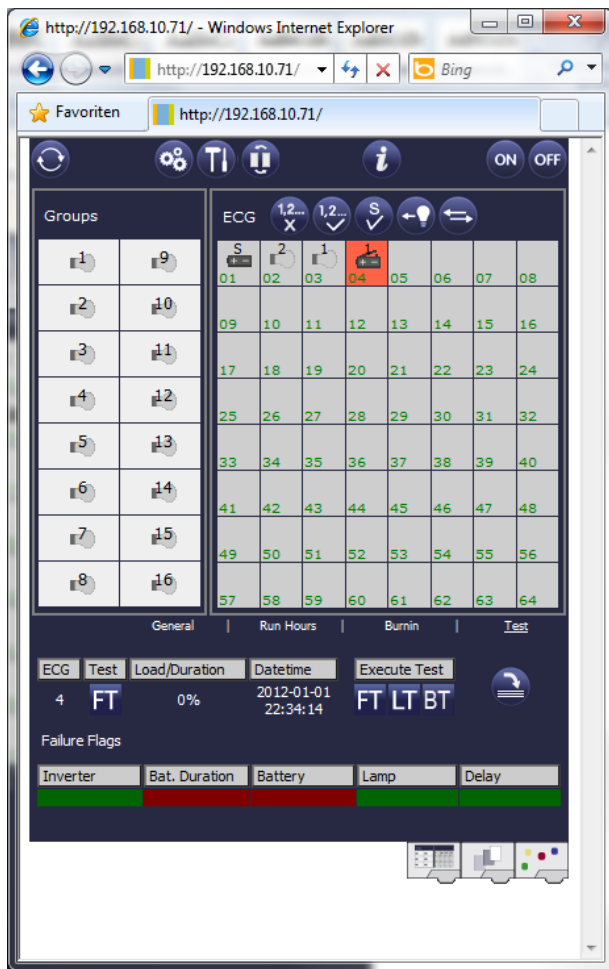


The legal regulations and norms vary in different countries. Please make sure that you comply with all country-specific requirements.

The gateway supports functional tests, long duration tests and battery tests. Functional and long duration tests can be started externally via KNX telegrams or via the device website. Alternatively you may choose to set automatic test intervals. This means tests are performed automatically via the connected converters. (Please check the converter description for the exact function.) Battery tests can be performed individually at any time. However, they are also part of a functional or long duration test.

Test results are available on the KNX bus via communication objects and they may be recorded in the visualisation. Alternatively, test results can be displayed on the website if you select the respective converter.

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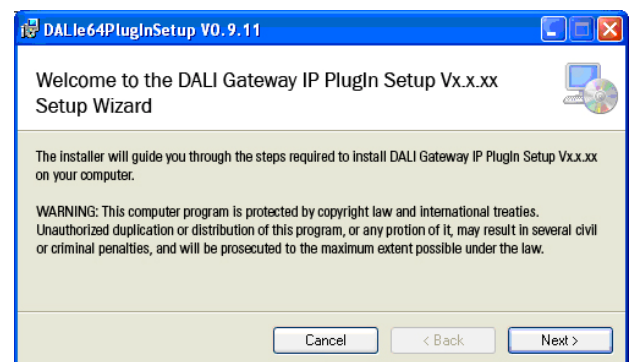
The website displays the most recently executed test with results and date/time of the test.

8. ETS application program properties

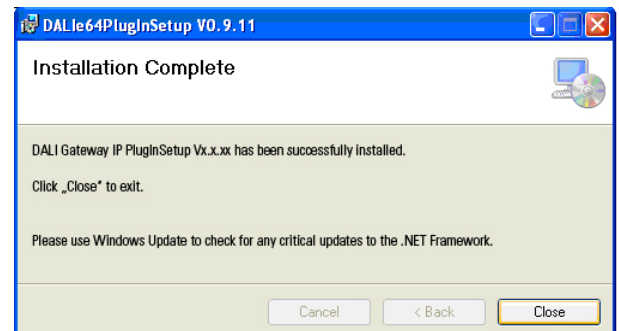
8.1 General properties

The gateway application is based on a powerful KNX System-B communication stack. It is designed as a plug-in for ETS-3 and ETS-4. All required program files are automatically generated when the corresponding ETS product file (vdx-file) is imported. After the import the product can be integrated into the ETS as usual.

When the product is first loaded in the ETS, press the 'Next' button to install the required plug-in files



If the installation is successful, a confirmation window appears.



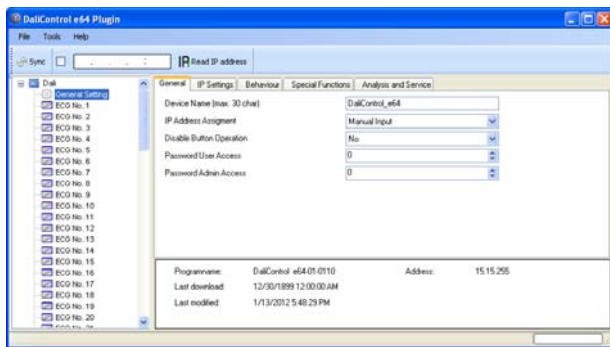
For the installation to be successful, .NET Version 4.0 is required. The framework is usually installed on any modern PC. Should an older version of .NET be installed or none at all, you need to update .NET first. Please check the Microsoft website for the required setup.

Once the installation is complete, the plug-in is ready to use and you can load the required, physical address onto the device.

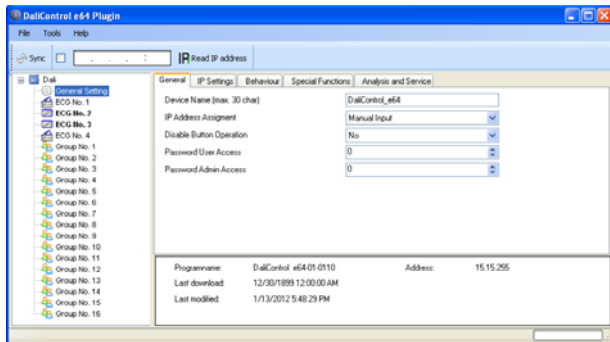
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8.2 Synchronising the connected DALI line

When you first load the parameter page, the parameters and groups for all possible 64 ECGs and 16 groups are shown. To make the commissioning easier and to align the application with the actual conditions of the connected DALI line, you need to synchronise the installation first.

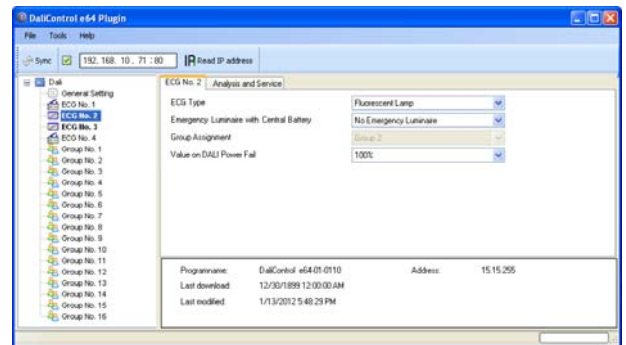


Start the synchronisation via the Sync-Button in the tool bar or via the 'Tools' menu. Depending on the size of the installation, the synchronisation may take a few seconds. A bar in the bottom right-hand corner of the page shows how far the synchronisation has progressed. Once the synchronisation is complete, the ETS only shows objects and parameters of those ECGs that are physically connected to the device.



Device types and group assignments (if applicable) are also set automatically.

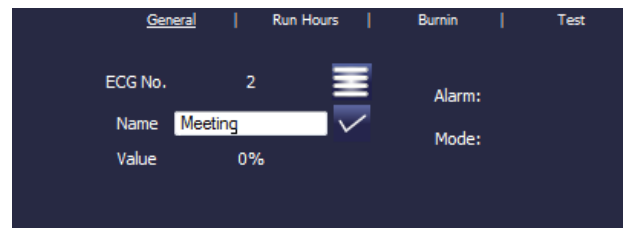
By default, the ETS is synchronised via the KNX network. You can also perform the synchronisation via Ethernet if the gateway is already correctly integrated into the IP network and has received an IP address. In this case, simply enter the IP address into the tool bar and tick the check box in front. Alternatively press the Read-IP address button to set the IP address of the device without entering it manually.



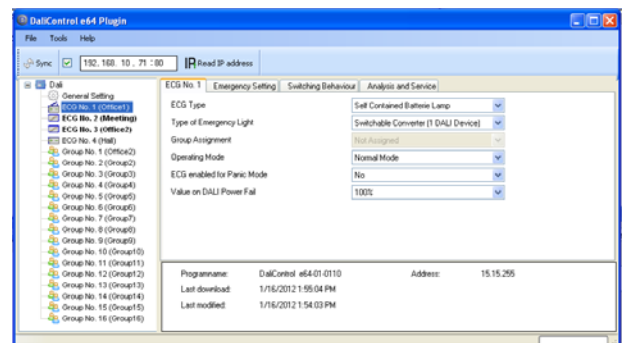
The synchronisation compares the application to the data of the connected DALI line. You should therefore always perform a synchronisation if the system structure has been modified or enlarged.

8.3 User-friendly names for ECGs and groups

To simplify the configuration, you can rename the ECGs during the identification process.



The names can be loaded directly into the ETS via the Read Description – command in the Tools menu.

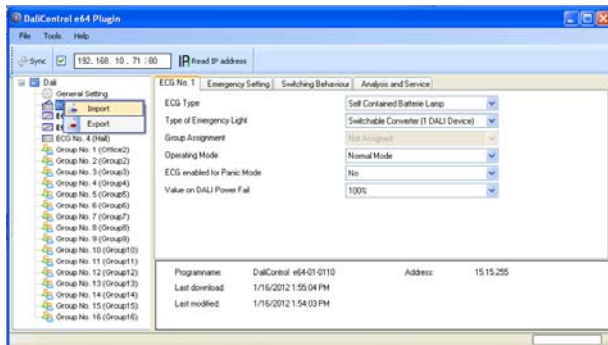


As the names export via KNX takes some time, it makes sense to use the Ethernet connection for this process. You should therefore enter the correct IP address and tick the check box in front before starting the process.

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8.4 Parameter templates

The gateway offers the possibility to create your own parameter templates. This makes the complex parameter setting significantly easier. Parameter templates can be generated and imported for all parameters of the gateway and for individual ECGs and groups. Once the parameters are all configured, you can export them as an xml file via the export function in the files menu or by clicking the right mouse button.



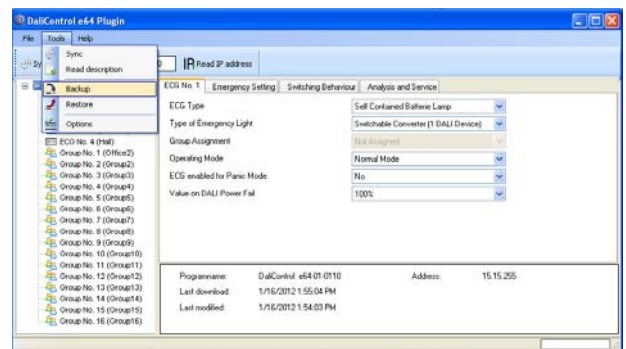
If you want to configure another ECG with the same parameter properties, you can import the exported file into the new ECG. The file thereby becomes a template. Templates can also be created at group level or for 'general properties'. Particularly in large projects creating and using templates makes the configuration much easier.

To reset individual ECG or group parameters or a whole gateway to their condition at delivery, use the following supplied files:

- default_device.xml
- default_ecg.xml
- default_group.xml

8.5 DALI configuration data back-up

After every modification the configuration data and parameters set in the ETS are automatically saved in the ETS data base. They can be loaded onto a new device at any time. The DALI configuration data, such as the DALI long address, however, are not part of the normal ETS application. To back-up this data, use the back-up function in the Tools menu.



If you need to replace a gateway, load the data onto the new device via Restore. Backup – Restore makes it easy to replace a gateway without a time-consuming new installation. We therefore strongly recommend that you backup the devices once the configuration is complete.

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9. ETS communication objects overview

The gateway communicates via the KNX bus based on powerful communication stacks. Altogether 871 communication objects are available for the communication.

9.1 General communication objects

The general communication objects 1 to 22 only exist once and apply to the gateway as a whole.

Number	Name	Object Function
1	Broadcast, Switching	On/Off
2	Broadcast, Set Value	Value
3	Activate Emergency Mode	Activate/Stop
4	Activate Test Mode	Activate/Stop
5	Activate Night Mode	Activate/Stop
6	Scene invoke / program	Scene No.
7	Effects start / stop	Effect No.
8	General Failure	Yes/No
9	DALI Failure	Yes/No
10	General Failure Exceeds Threshold	Yes/No
11	General Failure in Total	Value
12	Lamp Failure Exceeds Threshold	Yes/No
13	Lamp Failure in Total	Value
14	ECG Failure Exceeds Threshold	Yes/No
15	ECG Failure in Total	Value
16	Converter Failure Exceeds Threshold	Yes/No
17	Converter Failure in Total	Value
18	Status Switching Lamp	Status
19	Status Value Lamp	Status
20	Failure Status Lamp/ECG	Status
21	Time	Time
22	Date	Date

Obj	Object name	Function	Type	Flags
1	Broadcast, Switching	On/Off	1 Bit DPT:	CW

This object is used to switch all connected lights on or off. However, any connected ECGs that are in special mode (Burn-In, Emergency Test, Panic Mode) are not switched and the DALI bus is addressed sequentially. A delay between the switching off the first and last light may hence be visible. If none of the ECGs is in special mode, the switching is performed simultaneously via DALI Broadcast telegrams. The Broadcast function always switches to 0 or 100%. The 'switch-off value' and 'switch-on value' parameters are not considered.

Obj	Object name	Function	Type	Flags
2	Broadcast, Set Value	Value	1 Byte	CW

This object is used to set all connected lights to a certain value. However, any connected ECGs that are in special mode (Burn-In, Emergency Test, Panic Mode) are excluded and the DALI bus is addressed sequentially. A delay between the value setting of the first and last light may hence be visible. If none of the ECGs is in special mode, the value setting is performed simultaneously via DALI Broadcast telegrams.

3	Activate Emergency Mode	Activate / Stop	1 Bit	CW
---	-------------------------	-----------------	-------	----

This object is used to activate or stop the emergency mode via the bus.

4	Activate Test Mode	Activate / Stop	1 Bit	CW
---	--------------------	-----------------	-------	----

This object is used to activate or stop the test mode for emergency lights with central battery via the bus. Self-contained battery lamps are controlled individually.

5	Activate Night Mode	Activate / Stop	1 Bit	CW
---	---------------------	-----------------	-------	----

This object is used to activate or stop the night-time mode via the bus.

6	Scene invoke / program	Scene No.	8 Bit	CW
---	------------------------	-----------	-------	----

This object is used to invoke or program scenes. Up to 16 scenes are available on the DALI gateway. To program a scene, you must set the top bit:

	Start	Program
Scene 1	0	128
Scene 2	1	129
.....		
Scene 15	14	142
Scene 16	15	143

7	Effects start / stop	Effect No.	8 Bit	CW
---	----------------------	------------	-------	----

This object is used to start or stop effects. Up to 16 effects are available on the DALI gateway. To start an effect, set the top Bit. The effect stops when Bit 7 is deleted. This means:

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

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Obj	Object name	Function	Type	Flags
8	General Failure	Yes/No	1 Bit	CRT

This object is used to report the presence of a general failure in the connected DALI line independent of its type.

9	DALI Failure	Yes/No	1 Bit	CRT
---	--------------	--------	-------	-----

This object is used to report the presence of a DALI short-circuit in the connected DALI line.

10	General Failure Exceeds Theshold	Yes/No	1 Bit	CRT
----	----------------------------------	--------	-------	-----

This object is used to report that the total of all lamp, ECG and converter failures exceeds the set threshold.

11a	General Failure in Total	Value	1 Byte	CRT
-----	--------------------------	-------	--------	-----

This object is used to report the total number of all lamp, ECG and converter failures recognised by the gateway. Please remember that for each connected device a fault is counted just once. A simultaneous lamp failure in case of an ECG or converter failure cannot be recognised or counted.

11b	General Failure in %	Value	1 Byte	CRT
-----	----------------------	-------	--------	-----

Alternatively, this object is used to report the failure rate as a percentage of the total number of devices in the DALI line. All lamp, ECG and converter failures are hereby taken into consideration. Please remember that for each connected device a fault is counted just once. A simultaneous lamp failure in case of an ECG or converter failure cannot be recognised or counted.

12	Lamp Failure Exceeds Theshold	Ja / Nein	1 Bit	CRT
----	-------------------------------	-----------	-------	-----

This object is used to report that the total of all lamp failures recognised by the gateway exceeds the set threshold.

13a	Lamp Failure in Total	Value	1 Byte	CRT
-----	-----------------------	-------	--------	-----

This object is used to report the total amount of lamp failures recognised by the gateway.

13b	Lamp Failure in %	Value	1 Byte	CRT
-----	-------------------	-------	--------	-----

This object is used to report the failure rate as a percentage of the total number of lamps in the DALI line.

Obj	Object name	Function	Type	Flags
14	ECG Failure Exceeds Theshold	Ja / Nein	1 Bit	CRT

This object is used to report that the total of all ECG failures recognised by the gateway exceeds the set threshold.

15a	ECG Failure in Total	Value	1 Byte	CRT
-----	----------------------	-------	--------	-----

This object is used to report the total amount of ECG failures recognised by the gateway.

15b	ECG Failure in %	Value	1 Byte	CRT
-----	------------------	-------	--------	-----

Alternatively, this object is used to report the failure rate as a percentage of the total number of ECGs in the DALI line.

16	Converter Failure Exceeds Threshold	Yes/No	1 Bit	CRT
----	-------------------------------------	--------	-------	-----

This object is used to report that the sum of converter failures recognised by the gateway exceeds the set threshold.

17a	Converter Failure in Total	Value	1 Byte	CRT
-----	----------------------------	-------	--------	-----

This object is used to report the total amount of all converter failures recognised by the gateway.

17b	Converter Failure in %	Value	1 Byte	CRT
-----	------------------------	-------	--------	-----

Alternatively, this object is used to report the failure rate as a percentage of the total number of converters in the DALI line.

18	Status Switching Lamp	Status	8 Bit	CWT
----	-----------------------	--------	-------	-----

This object is used to send the switch status of individual lamps in the DALI line when the system is started or when a change has taken place. Bit 0 - 5 refer to the number of the ECG. Bit 6 shows the corresponding status on/off. For example:

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

If a value is received where Bit 7 and Bit 6 are set, it is interpreted as a status query. For example:

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

The gateway responds with the current status of the queried ECG.

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

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Obj	Object name	Function	Type	Flags
19	Status Value Lamp	Status	16 Bit	CWT

This object is used to send the value status of individual lamps in the DALI line when the system is started or when a change has taken place. Bit 8 to 13 refer to the number of the ECG. Bit 14 shows the switch status. Bit 0 to 7 represent the corresponding status 0..100%. For example:

```
ECG 4 / 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
```

If a value is received where Bit 14 and Bit 15 are set, it is interpreted as a status query. For example:

```
ECG 4 / Query 1 1 0 0 0 1 0 0   Bit 15..8
              0 0 0 0 0 0 0 0   Bit 7..0
```

The gateway responds with the current status of the queried ECG.

```
ECG 4 / 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
```

20	Failure Status Lamp/ECG	Status	8 Bit	CWT
----	-------------------------	--------	-------	-----

This object is used to send the failure status of lamp or ECG failures in the DALI line when the system is started or when a change has taken place. Bit 0 to 5 refer to the number of the ECG. Bit 7 represents an ECG failure, Bit 6 a lamp failure. For example:

```
Bit 7 6 5 4 3 2 1 0
ECG 4 / ECG failure 1 0 0 0 0 1 0 0
ECG 5 / Lamp failure 0 1 0 0 0 1 0 1
```

If a value is received where Bit 6 and Bit 7 are set, it is interpreted as a status query. For example:

```
Bit 7 6 5 4 3 2 1 0
ECG 4 / Query 1 1 0 0 0 1 0 0
```

The gateway responds with the current failure status of the queried ECG.

```
Bit 7 6 5 4 3 2 1 0
EVG 4 / ECG failure 1 0 0 0 0 1 0 0
```

Time and Date

Time stamps are used for the analysis of self-contained emergency ballast faults. This requires the current date and time which are made available via the Bus. Two objects are used for this purpose.

Obj	Object name	Function	Type	Flags
21	Time	Time	3 Byte	CWT

This object is used to set the time. The time must be provided by a central timer and updated at least twice a day.

22	Date	Date	3 Byte	CWT
----	------	------	--------	-----

This object is used to set the date. The date must be provided by a central timer and updated at least twice a day. Leap years and change-over to and from daylight saving time are not taken into consideration during internal calculations of time and date. Therefore please pay attention that the timer sends the correct date on these occasions.

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9.2 ECG-related communication objects

A set of 11 communication objects is available for each one of the up to 64 connected ECGs / converters and corresponding lamps. The communication objects are only shown for those ECGs / converters that were found during system installation. The objects are also partly hidden when ECGs have been assigned to a group. **Lamps can only be controlled individually if they have not been assigned to a group.**

The following objects are available (Example ECG 1):

Number	Name	Object Function
167	ECG 1, Switching	On/Off
168	ECG 1, Dimming	Brighter/Darker
169	ECG 1, Set Value	Value
170	ECG 1, Burn In	On/Off
171	ECG 1, Status	On/Off
172	ECG 1, Status	Value
173	ECG 1, Failure Status	Status
174	ECG 1, Operating Hours	Value
175	ECG 1, Life Time Exceeded	Yes/No
176	Converter 1, Test Start	Start
177	Converter 1, Test Result	Test

Obj	Object name	Function	Type	Flags
167	ECG1, Switching	On/Off	1 Bit	CW

This object is used to switch an ECG on or off if it is not in special mode (burn-in, test mode emergency lights, panic/emergency mode).

168	ECG1, Dimming	Brighter / Darker	4 Bit	CW
-----	---------------	-------------------	-------	----

This object is used for the relative dimming of an ECG that is not in special mode (burn-in, test mode emergency lights, panic/emergency mode). Bit 4 is set to dim up and deleted to dim down. Bits 0..3 refer to the increment size. Bit 0..3 deleted is interpreted as a stop telegram.

169	ECG 1, Set Value	Value	1 Byte	CW
-----	------------------	-------	--------	----

This object is used to set the value of ECG1 unless it is in special mode (burn-in, test mode emergency lights, panic/emergency mode).

170	ECG1, Burn In	On/Off	1 Bit	CWT
-----	---------------	--------	-------	-----

This object is used to start or finish the automatic burn-in of ECG1. During the burn-in process all other switch, dim or value telegrams are ignored and the lamp runs at full light level. The burn-in period normally finishes automatically after the configured burn-in time. If you switch the burn-in period off via this object, the timer stops and you need to re-start the automatic burn-in.

Obj	Object name	Function	Type	Flags
171	ECG1, Status	On/Off	1 Bit	CRT

This object is used to send the ECG switch status. Any value >0% is interpreted as ON.

172	ECG1, Status	Value	8 Bit	CRT
-----	--------------	-------	-------	-----

This object is used to send the ECG value status.

173 a	ECG1, Failure Status	On/Off	1 Bit	CRT
-------	----------------------	--------	-------	-----

This object is used to send the failure status of lamp, ECG and converter failures.

173 b	Failure Status, ECG1	Status	1 Byte	CRT
-------	----------------------	--------	--------	-----

Alternatively this object is used to send the failure status for lamp, ECG and converter failures as a 1Byte object.

Bit 0 → Lamp failure
Bit 1 → ECG failure
Bit 2 → Converter failure

174	ECG1, Operating Hours	Value	4 Byte	CRT
-----	-----------------------	-------	--------	-----

The operating hours of a lamp are sent via this object. The internal counter can be set to 0 (Reset) or another value via this object.

Please remember: The "Write" flag is switched off in the presetting.

175	ECG1, Life Time Exceeded	Yes/No	1 Bit	CRT
-----	--------------------------	--------	-------	-----

This object is used to send a status message when the configured life time of a lamp is exceeded.

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DALI device as converter

If the connected DALI device is a converter for the control of self-contained battery emergency lights, two further objects are shown:

Obj	Object name	Function	Type	Flags
176	Converter 1, Test Start	Start	1 Byte	CW

This object is used to start a long duration test, functional test and battery test of the converter. The individual Bits have the following meaning:

Bit 0	Start functional test
Bit 1	Functional test pending
Bit 2	Start long duration test
Bit 3	Long duration test pending
Bit 4	Query battery status
Bit 5	Battery status query pending
Bit 6	
Bit 7	

177	Converter 1, Test Result	Test	3 Byte	CRT
-----	--------------------------	------	--------	-----

This object is used to analyse the results of functional tests, long duration tests and battery tests. The individual Bits have the following meaning:

Bit 23..16	Battery status 0..100%
Bit 15	Fault during long duration test
Bit 14	Fault during functional test
Bit 13	Maximum time for long duration test exceeded
Bit 12	Maximum time for functional test exceeded
Bit 11	Emergency light faulty
Bit 10	Battery faulty
Bit 9	Battery operating hours too short
Bit 8	Converter faulty
Bit 7	Idle
Bit 6	Idle
Bit 5	Idle
Bit 4	End of battery test
Bit 3	Test error
Bit 2	End of long duration test
Bit 1	Idle
Bit 0	End of functional test

The objects described above for ECG 1 / converter 1 are available in the same format for the ECGs / converters 2 to 64. The object number always increases by 11 objects. For example, ECG 2: dimming → object 179, etc.

9.3 Group-related communication objects

A set of 8 communication objects is available for each one of the up to 16 possible groups. The communication objects are only shown for those groups that are in use.

ECGs / that have been assigned to a group can no longer be controlled individually.

The following objects are available (Example group 1):

Number	Name	Object Function
23	Group 1, Switching	On/Off
24	Group 1, Dimming	Brighter/Darker
25	Group 1, Set Value	Value
26	Group 1, Disable	Yes/No
27	Group 1, Status	On/Off
28	Group 1, Status	Value
29	Group 1, Failure Status	Yes/No
30	Group 1, Failure Status	Status
31	Group 1, Failure Exceeds Threshold	Yes/No

Obj	Object name	Function	Type	Flags
23	Group 1, Switching	On/Off	1 Bit	CW

This object is used to switch group 1 on or off.

24	Group 1, Dimming	Dimmen	4 Bit	CW
----	------------------	--------	-------	----

This object is used for the relative dimming of group 1. Bit 4 is set to dim up and deleted to dim down. Bits 0..3 refer to the increment size. Bit 0..3 deleted is interpreted as a stop telegram.

25	Group 1, Set Value	Value	1 Byte	CW
----	--------------------	-------	--------	----

This object is used to set the value of group 1.

26a	Group 1, Enabled	Yes/No	1 Bit	CW
-----	------------------	--------	-------	----

This object is used to enable the operation of group 1:

Object = 0 → Disabled

Object = 1 → Enabled

26b	Group 1, Disabled	Yes/No	1 Bit	CW
-----	-------------------	--------	-------	----

This object is used to disable the operation of group 1:

Object = 0 → Enabled

Object = 1 → Disabled

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Obj	Object name	Function	Type	Flags
26c	Group 1, Disable Stair- case Function	Yes/No	1 Bit	CW

This object is used to disable the staircase mode:

Object = 0 → Staircase mode enabled

Object = 1 → Staircase mode disabled

27	Group 1, Status	On/Off	1 Bit	CRT
----	-----------------	--------	-------	-----

This object is used to send the switch status of the group.
Any value >0% is interpreted as ON.

28	Group 1, Status	Value	8 Bit	CRT
----	-----------------	-------	-------	-----

This object is used to send the value status of the group.

29a	Group 1, Failure Status	Yes/No	1 Bit	CRT
-----	----------------------------	--------	-------	-----

This object is used to send the failure status of a lamp, ECG or converter failure within the group.

29b	Group 1, Failure Status	Status	1 Byte	CRT
-----	----------------------------	--------	--------	-----

This object is used to send the failure status for lamp, ECG and converter failures within the group as a 1Byte object.

Bit 0 → Lamp failure

Bit 1 → ECG failure

Bit 2 → Converter failure

30	Group 1, Failure Status	Status	4 Byte	CRT
----	----------------------------	--------	--------	-----

This object is used to report the total number of devices within the group and the failure status according to type of failure. The different Bits within the object have the following meaning:

Bit 31	Norm. ECG
Bit 30	Emerg. ECG
Bit 29..24	Number of ECG failures
Bit 23	Norm. Lamp
Bit 22	Emerg. Lamp
Bit 21..16	Number of lamp failures
Bit 15	Def. Conv.
Bit 14	idle
Bit 13..8	Number of converters
Bit 7	idle
Bit 6	idle
Bit 5..0	Number of ECGs

Obj	Object name	Function	Type	Flags
31a	Group 1, Failure Status	Failure Status	1 Bit	CRT

This object is used to send a message when the total of all lamp, ECG and converter failures found within the group exceeds the threshold set by parameters.

31b	Group 1, Failure	Value	1 Byte	CRT
-----	---------------------	-------	--------	-----

This object is used to send the total of all lamp, ECG and converter failures within the group.

31c	Group 1, Failure Rate	Value	1 Byte	CRT
-----	--------------------------	-------	--------	-----

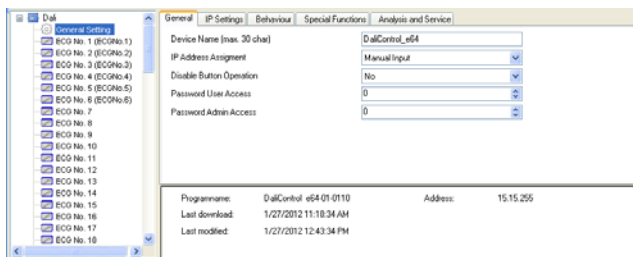
This object is used to report the failure rate as a percentage of the total number of devices within the group.

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10. ETS parameter settings

The ETS parameters of the device are distributed across different parameter pages. To simplify the overview, only the parameter pages of the device selected in the function tree are displayed.

10.1 Device: General Settings



The "General Settings" item has 5 parameter pages. The parameters are described below:

10.1.1 Parameter page: General

Parameter	Settings
Device Name (max. 30 char.)	<Dali gateway IP>

Use this parameter to enter a user-friendly name for the DALI Gateway.

IP Address Assignment	Manual Input via DHCP
-----------------------	--------------------------

The gateway can either be assigned a fixed IP address or a dynamic address assigned by a DHCP server. The parameters for the fixed IP address are only visible if you select "Manual Input".

Disable Button Operation	No Yes
--------------------------	-----------

Use this parameter if you would like to disable the control and configuration of the device via its display and push buttons. This option is to prevent manipulation of a running installation.

Password User Access	0
----------------------	---

You can configure a password for the user area of the website. Passwords consist of numbers between 0 and 9999.

Parameter	Settings
Password Admin Access	0

You can configure a password for the configuration area of the website. Passwords consist of numbers between 0 and 9999.

10.1.2 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

This sets the fixed IP address of the gateway if you do not select the DHCP mode.

Subnet Mask (byte 1)	255
Subnet Mask (byte 2)	255
Subnet Mask (byte 3)	255
Subnet Mask (byte 4)	0

This sets the subnet mask of the gateway if you do not select the DHCP mode.

Gateway Address (byte 1)	255
Gateway Address (byte 2)	255
Gateway Address (byte 3)	255
Gateway Address (byte 4)	0

This sets the address of a standard gateway for direct access via the Internet. The setting is only possible if you do not select the DHCP.

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10.1.3 Parameter page: Behaviour

Parameter	Settings
Behaviour on KNX Failure	No Action Switch to On-Value Switch to Off-Value Switch to Emergency Value

Use this parameter to set the behaviour of the connected ECGs/lamps on KNX failure.

Behaviour on KNX Voltage Recovery	No Action Switch to Last Value Switch to On-Value Switch to Off-Value
-----------------------------------	---

Use this parameter to set the behaviour of the connected ECGs/lamps on KNX voltage recovery or bus reset.

Light Status Send Condition	Send on Request Send on Change Send on Change and after Busreset
-----------------------------	---

Use this parameter to determine the light status send conditions (switch status and value status) of the connected ECGs and groups.

Delay between Status Objects	No Delay 1 Second 2 Seconds 3 Seconds 4 Seconds 5 Seconds 10 Seconds
------------------------------	---

Use this parameter to set a delay between individual status telegrams. This can help to prevent a large bus load, for example for broadcast switching.

Delay for Sending on KNX Recovery	immediately 5 Seconds 10 Seconds 15 Seconds 20 Seconds 30 Seconds 40 Seconds 50 Seconds
-----------------------------------	---

Use this parameter to set a delay for sending status objects after KNX voltage recovery or a bus reset. In installations with more than one gateway different settings for this parameter can prevent all devices from sending at the same time.

Parameter	Settings
Send Status Value During Dimming	If Change > 2% If Change > 5% If Change > 10% If Change > 20% inactive

Use this parameter to set whether and when you would like a status value to be sent via a 4 bit dim telegram during dimming (relative dimming). If you use the setting **inactive** the value is only sent after the dimming process is complete.

Behaviour after Burn In	Switch to Off-Value Switch to On-Value Switch to Last Value
-------------------------	--

Use this parameter to set the light value of ECGs / lamps after their burn-in period. If you use 'Switch to Last Value' the value prior to the burn-in is saved and the lamp returns to this value afterwards.

Behaviour after Emergency Test	Switch to Off-Value Switch to On-Value Switch to Last Value
--------------------------------	--

Use this parameter to set the light value of ECGs / lamps after a central battery emergency luminaire test. If you use 'Switch to Last Value', the value prior to the test mode is saved and the lamp returns to this value afterwards.

Behaviour after Panic / Emergency Mode	Switch to Off-Value Switch to On-Value Switch to Last Value
--	--

Use this parameter to set the light value of ECGs / lamps after the panic/emergency mode has finished. If you use 'Switch to Last Value', the value prior to the panic mode is saved and the lamp returns to this value afterwards.

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10.1.4 Parameter page: Special Functions

Parameter	Settings
General Status Object (1 Byte) for Switching Status	No Yes

Use this parameter to select whether you would like to use the general status object for switch status (object number 18).

General Status Object (2 Byte) for Value	No Yes
--	------------------

Use this parameter to select whether you would like to use the general status object for value status (object number 19).

Broadcast enabled	No Yes
-------------------	------------------

Use this parameter to select whether you would like to use Broadcast functions.

10.1.5 Parameter page: Analysis and Service

Parameter	Settings
Failure Status Send Condition	Send on Request Send on Change Send on Change and after Bus reset

Use this parameter to set the conditions under which you want the failure status of the connected ECGs and groups to be sent.

Delay between Sending of Failure Objects	No Delay 1 Second 2 Seconds 3 Seconds 4 Seconds 5 Seconds 10 Seconds
--	---

Use this parameter to set a delay between individual failure objects. This can help to prevent a large bus load, for example when a DALI line loses power.

Parameter	Settings
Cycle Time for DALI Failure request	No Delay 0,5 Seconds 1 Second 2 Seconds 3 Seconds 4 Seconds 5 Seconds 6 Seconds

To analyse ECG and lamp failures, a periodic request has to be sent to the ECGs via DALI telegrams. Use this parameter to set the time for these periodic requests.

Attention: If you set 'No request' ECG and lamp failures can no longer be recognised. You should therefore use this setting only for service or in special cases.

Central Failure Object 1 Byte existing	No Yes
--	------------------

Use this parameter to select whether you want to use the central failure object for ECG and lamp failures (object number 20).

Function of Failure Objects	Total Number of Failures Failure Rate 0..100%
-----------------------------	---

Use this parameter to select whether you want to use the failure analysis objects (objects number 11, 13, 15 and 17) to report the total amount of failures or the failure rate in %.

Threshold for Total Failures	1% 2% 3% 100%
------------------------------	--

Use this parameter to configure a threshold value for the general failure alarm object (object 10). The threshold value takes all failures (ECG, lamp and converter failure) into consideration and relates them to the total number of connected ECGs and converters.

Threshold for Lamp Failures	1% 2% 3% 100%
-----------------------------	--

Use this parameter to set a threshold value for the lamp failure alarm object (object 12). The threshold value takes all lamp failures into consideration and relates them to the total number of connected lamps in the DALI line.

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Parameter	Settings
Threshold for ECG Failures	1%
	2%
	3%

	100%

Use this parameter to set a threshold value for the ECG failure alarm object (object 14). The threshold value takes all ECG failures into consideration and relates them to the total number of connected ECGs in the DALI line.

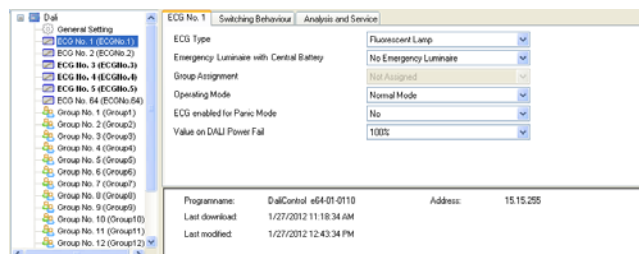
Threshold for Converter Failures	1%
	2%
	3%

	100%

Use this parameter to set a threshold value for the converter failure alarm object (object 16). The threshold value takes all converter failures into consideration and relates them to the total number of connected converters in the DALI line.

10.2 ECG No. xx

To set the ECG parameters, use the parameter pages listed under the devices ECG 1 to ECG 64.



Please remember that after the synchronisation only those ECGs are displayed that were recognised during the installation. Accordingly there are fewer entries in the function tree and fewer parameters and objects.

There are 4 parameter pages for ECG settings. The parameters are described below.

10.2.1 Parameter page: ECG No. xx

Parameter	Settings
ECG Type	Fluorescent Lamp
	Self Contained Battery Lamp
	Discharge Lamp
	Low Voltage Halogen Lamp
	Incandescent Lamp
	0..10V Converter
	LED Module
	Relais Module

Use this parameter to set the type of ECG used. Normally the ECG type is recognised automatically during installation and set accordingly in the synchronisation. Some ECG manufacturers, however, do not support this function. In this case, you can set the ECG type manually. During the synchronisation process, the ETS compares the found value to the pre-set value. If the two do not match, an alarm message appears that has to be acknowledged.

Emergency Luminaire with Central Battery	No Emergency Luminaire
	Central Battery Emergency Luminaire

Use this parameter to set whether the ECG controls an emergency luminaire with central battery. Devices registered as emergency luminaires are specifically marked during status reports. A special test mode for such devices can also be activated via an object. This parameter is not visible if you select the type "self-contained battery lamp".

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Parameter	Settings
Value in Test Mode	1..100% [50]

Use this parameter to select the value of a lamp in 'test mode'. A lamp in this mode cannot be switched or changed. It remains at the set level.

This parameter is only visible if you select 'Central Battery Emergency Luminaire'.

Duration in Test Mode	5 Minutes
	10 Minutes
	15 Minutes

	4 Hours

Use this parameter to set the duration of the test mode. A lamp in this mode cannot be switched or changed. It remains at the set level.

This parameter is only visible if you select 'Central Battery Emergency Luminaire'.

Type of Emergency Light	Switchable Converter (1 DALI Device)
	Non Switchable Converter (2 DALI Devices)

Use this parameter to select whether an emergency light is used with a switchable or non-switchable converter. This parameter is only visible if you select "self-contained battery lamp" as ECG type.

Normally the ECG type is recognised automatically during installation and set accordingly in the synchronisation. Some ECG manufacturers, however, do not support this function. In this case, you can set the ECG type manually. During the synchronisation process, the ETS compares the found value to the pre-set value. If the two do not match, an alarm message appears that has to be acknowledged.

Converter controls	ECG 1
	ECG 2
	...
	ECG 64
	not assigned

This parameter is only visible if you select a non-switchable converter as type of emergency light. Non-switchable converters are normally used for an emergency lamp with two DALI devices. Use the parameter to manually select the "normal ECG" that is assigned to the converter. The assignment means that error messages that were caused by the converter test mode are suppressed and a lamp failure is not counted twice.

Parameter	Settings
Operating Mode	Normal Mode
	Permanent Mode
	Normal / Night Mode

Use this parameter to select the operating mode of the ECG.

Value in Permanent Mode	1..100% [50%]
-------------------------	----------------------

Use this parameter to select the value of a lamp in 'permanent mode'. A lamp in this mode cannot be switched or changed. It remains at the set value.

This parameter is only visible if you select 'permanent mode'.

Behaviour in Night Mode	Delayed Switch-Off
	Delayed Switch-Off in 2 Steps
	Delayed Dimm-Off
	Activate Permanent Mode and ignore Telegrams

Use this parameter to set the behaviour of the ECG in night-time mode. This parameter is only visible if you select 'normal / night mode'.

Automatic Switch-Off after	1 Minute
	2 Minutes
	3 Minutes
	4 Minutes
	5 Minutes
	10 Minutes
	15 Minutes
	20 Minutes

Use this parameter to set the time after which an ECG in night time mode automatically switches off. This parameter is only visible if you select 'normal / night mode'.

ECGs enabled for Panic Mode	No
	Yes

Use this parameter to enable an ECG for panic mode.

Value on DALI Power Fail	1..100% [100]
--------------------------	----------------------

Use this parameter to set the value of a lamp after a loss of DALI power. The value is saved on the ECG and the device automatically changes to the value when a power loss occurs.

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10.2.2 Parameter page: Emergency Settings

This page is only visible if you select 'self-contained battery lamp' as ECG type.

Parameter	Settings
Value in Emergency Mode	1..100% [50]

Use this parameter to select the light value of a self contained battery lamp in case of a mains supply failure or during a long duration test.

Delay on Mains Recovery	No Delay
	30 Seconds
	1 Minute
	2 Minutes
	3 Minutes
	4 Minutes
	5 Minutes
	10 Minutes

Use this parameter to set the delay till a self contained battery lamp returns to normal mode following mains recovery.

Interval of Long Duration Test	No automatic testing
	1 Week
	2 Weeks

	52 Weeks

Use this parameter to set the intervals at which the converter is to perform automatic long duration tests.

Interval of Functional Test	No automatical Testing
	1 Week
	2 Weeks

	28 Weeks

Use this parameter to set the intervals at which the converter is to perform automatic functional tests.

Test Execution Timeout (Days)	0..255 [10]
-------------------------------	--------------------

If a functional or long duration test cannot be started immediately (for example because the battery was not full), the converter tries to execute the test later on. Use this parameter to set the length of time that the converter is to try to execute the test and after which a test execution timeout error is reported. If you select 0, the timeout occurs after 15 minutes.

10.2.3 Parameter page: Switching Behaviour

Parameter	Settings
Switch-On Value	5%
	10%
	...
	95%
	100%
	last Value

Use this parameter to set the switch-on value. If you select 'last value', the value is set to the dim value prior to the lamp being switched off.

Switch-On Behaviour	Set Value Immediately
	Dim to Value in 10s
	Dim to Value in 20s
	Dim to Value in 30s
	Dim to Value in 1 Minute
	Dim to Value in 2 Minutes
	Dim to Value in 5 Minutes
	Dim to Value in 10 Minutes

Use this parameter to set the switch-on behaviour.

Switch-Off Value	0%
	5%
	10%
	...
	45%
	50%

Use this parameter to set the switch-off value.

Switch-Off Behaviour	Set Value Immediately
	Dim to Value in 10s
	Dim to Value in 20s
	Dim to Value in 30s
	Dim to Value in 1 Minute
	Dim to Value in 2 Minutes
	Dim to Value in 5 Minutes
	Dim to Value in 10 Minutes

Use this parameter to set the switch-off behaviour.

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Parameter	Settings
Value-Set Behaviour	Set Value Immediately Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes

Use this parameter to value-set the behaviour on receipt of a new dim value.

Time for Dimming 0 ... 100 %	3 Seconds 4 Seconds 5 Seconds 6 Seconds 10 Seconds 20 Seconds 30 Seconds 60 Seconds
---------------------------------	---

Use this parameter to set the dim time for relative dimming.

Max. Value for Dimming	50% 55% 100%
------------------------	-----------------------------------

Use this parameter to configure the maximum dim value that can be set through relative dimming.

Min. Value for Dimming	0% 5% 50%
------------------------	--------------------------------

Use this parameter to configure the minimum dim value that can be set through relative dimming.

Switch-On via Dimming	No Yes
-----------------------	------------------

Use this parameter to select whether a switched off device can be switched on when receiving a relative 4 Bit dim command 'dimming up'.

10.2.4 Parameter page: Analysis and Service

Parameter	Einstellungen
Operating Hour Calculation	Yes No

Use this parameter if you would like to count the individual operating hours of an ECG.

Operating Hour Limit (hours)	10..120.000h [4000h]
---------------------------------	-------------------------------

Use this parameter to set the limit of a lamp's operating hours. An alarm is sent when the limit is reached.

Enable Burn In Feature	Yes No
------------------------	------------------

Use this parameter to enable the burn in feature.

Burn In Duration (hours)	1..100h [24h]
--------------------------	------------------------

Use this parameter to set the duration of the burn-in phase. During this phase the lamp cannot be switched off or dimmed.

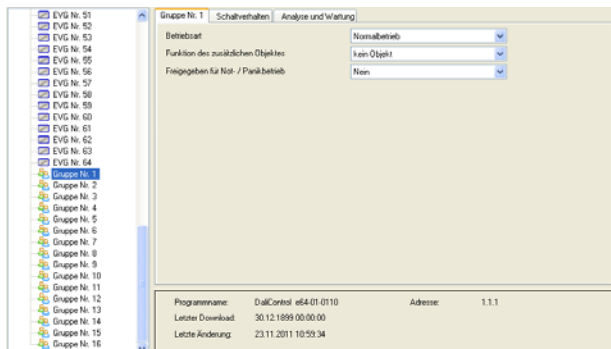
Type of Failure Object	1 Bit 8 Bit
------------------------	-----------------------

Use this parameter to select whether the failure object is to be sent as a 1 Bit object without differentiation according to type of failure or as an 8 Bit object with failure differentiation.

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10.3 Group Nr. xx

To set the group parameters, use the parameter pages listed under group1 to group 16.



There are 3 parameter pages for group settings. The parameters are described below.

10.3.1 Parameter page: Group number xx

Parameter	Settings
Operating Mode	Normal Mode Permanent Mode Normal / Night Mode Staircase Mode

Use this parameter to set the operating mode of the group.

Value in Permanent Mode	0..100% [100]
-------------------------	----------------------

Use this parameter to select the value of all lamps in a group in 'permanent mode'. Lamps in this mode cannot be switched or changed. They remain at the set value.

Behaviour in Night Mode	Delayed Switch-Off Delayed Switch-Off in 2 Steps Delayed Dim-Off Activate Permanent Mode and ignore telegrams
-------------------------	---

Use this parameter to set the behaviour of the group in night-time mode. This parameter is only visible if you select 'normal / night mode'.

Parameter	Settings
Automatic Switch-Off after	1 Minute 2 Minutes 3 Minutes 4 Minutes 5 Minutes 10 Minutes 15 Minutes 20 Minutes

Use this parameter to set the time after which a group in night time mode automatically switches off. This parameter is only visible if you select 'normal / night mode'.

Function of Additional Object	No Object Disable Object Release Object Disable Staircase Function Object
-------------------------------	---

Use this parameter to set the function of an additional object.

Enabled for Emergency / Panic Mode	No Yes
------------------------------------	------------------

Use this parameter to enable a group for panic/emergency mode.

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10.3.2 Parameter page: Switch behaviour

Parameter	Settings
Switch-On Value	1% 10% ... 95% 100% last Value

Use this parameter to set the switch-on value. If you select 'last value', the value is set to the dim value prior to the lamps being switched off.

Switch-On Behaviour	Set Value Immediately Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
---------------------	--

Use this parameter to set the switch-on behaviour.

Switch-Off Value	0% 5% 10% ... 45% 50%
------------------	---

Use this parameter to set the switch-off value.

Switch-Off Behaviour	Set Value Immediately Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
----------------------	--

Use this parameter to set the switch-off behavior.

Parameter	Settings
Value-Set Behaviour	Set Value Immediately Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes

Use this parameter to value-set the behaviour on receipt of a new dim value.

Time for Dimming	3 Seconds 4 Seconds 5 Seconds 6 Seconds 10 Seconds 20 Seconds 30 Seconds 60 Seconds
------------------	---

Use this parameter to set the dim time for relative dimming.

Max. Value for Dimming	50% 55% ... 100%
------------------------	----------------------------------

Use this parameter to configure the maximum dim value that can be set through relative dimming.

Min. Value for Dimming	0% 5% ... 50%
------------------------	------------------------

Use this parameter to configure the minimum dim value that can be set through relative dimming.

Switch-On via Dimming	No Yes
-----------------------	------------------

Use this parameter to select whether a switched off group can be switched on when receiving a relative 4 Bit dim command 'dimming up'.

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10.3.3 Parameter page: Analysis and Service

Parameter	Settings
Type of Failure Status Object	1 Bit 8 Bit

Use this parameter to select whether you want the failure status object of the group to be sent as a 1 Bit object without type of failure information or as an 8 Bit object with failure differentiation.

Additional Failure Object for	Failure Number / Rate Failure Threshold Exceeded
-------------------------------	--

Use this parameter to select whether you would like to use the additional failure object as a 1 Byte object for failure number /rate or as a 1 Bit object for when the failure threshold is exceeded.

Failure Threshold for Failure Alarm Output	1%...100% [1%]
--	-----------------------

Use this parameter to enter the threshold value in %. The alarm object is sent when the value is exceeded. This parameter is only visible if you select "Failure Threshold Exceeded" as additional failure object.

Function of Additional Failure Object	Total Number of Failures Failure Rate 0..100%
---------------------------------------	---

Use this parameter to select whether you want the additional failure object to send the total amount of failures within the group or the failure rate in %. This parameter is only visible if you select "Failure Number / Rate" as additional failure object.

11. Firmware update

The gateway offers you the possibility of an easy firmware upgrade without having to demount the device.

Future developments or any adjustments that may be required can be easily imported via the IP connection.

If there is an update, it will be made available to you. The update file can be loaded directly onto the device via FTP. For more details regarding this process, please see the release notes (pdf format) included with the update.

12. Reset to conditions at delivery

To reset the device to its original settings, press all three buttons on the front of the device and the programming button simultaneously whilst the power supply is connected.

This leads to a factory reset. All device settings return to their status at delivery and the device has the physical address 15.15.255.

Merten GmbH

Merten GmbH, Fritz-Kotz-Str. 8, D-51674 Wiehl
www.merten.com

Service Center:

Phone: +49 2261 702-204

Fax: +49 2261 702-136

E-Mail: servicecenter@merten.de

Technical support / InfoLine:

Phone: +49 2261 702-235

Fax: +49 2261 702-680

E-Mail: info@merten.schneider-electric.com