KNX/DALI gateway 2 channels

Cat. No(s): 0 026 98

1. USE

The KNX/DALI gateway ref. 0 026 98 is a DIN modular device equipped with 2 fully addressable DALI (Digital Addressable Lighting Interface) channels able to control up to 64 DALI ECGs each.
DALI protocol allows not only to send switching/dimming commands but also to receive status informations, lamps failure informations and other error signals coming from DALI bus.
Both KNX and DALI configuration is made with ETS and through its application program main possible functions are:
- Switching, dimming or dimming value send
- Operating sequence selection: normal, night, timer, constant light mode
- Configure scene control (up to 32 scenes)
- Configure power failure ballasts behaviour
- Select error messages to report from DALI BUS (e.g. DALI device failure, DALI short circuit…)

The KNX/DALI gateway ref. 0 026 98 is powered by main at 230V a.c.

2. TECHNICAL FEATURES

■ 2.1 Climatic features
• Ambient operating temperature : -5°C to +45°C
• Storage temperature : -25°C to +70°C
• Relative humidity (non-condensing): 5% to 93%

■ 2.2 Electrical features
• KNX BUS power supply: 29 V ⎓
• KNX BUS absorption: 5 mA
• Electronics and DALI interface:
  - Integrated power supply for
    • AC 110-240V, 50-60 Hz
    • DC 120-240V
  - Power consumption: max. 11 W

Inputs/outputs
• Main connection: 3-poles (L, N, ground)
• DALI interface (according to IEC 60929):
  - Max. 64 DALI devices per channel (each max. 2 mA) with ≥ 8 KOhm input impedance
  - Max. amount of sensors per channel depends on current consumption of sensors (typ. 10 with 6 mA each)
  - DALI power supply per channel:
    - approx. DC 19V, floating, short-circuit-proof
    - max. current I_{max} = 250 mA
    - max. guaranteed current: In_{max} = 190 mA

Connections
• Plug-in terminals for mains voltage and DALI interface, insulation strip length 10…11 mm
• The following conductor cross-sections are permitted:
  - 0.5 … 2.5 mm^2 single-core
  - 0.5 … 2.5 mm^2 stranded multi-core
  - 0.5 … 2.5 mm^2 finely stranded, untreated
  - AWG 20 (0.75 mm^2) – AWG 12 (3.3 mm^2) solid, stranded

■ 2.3 Mechanical features
• Protection class (in accordance with standard EN 60529): IP 20
• Weight: 180 g

3. OVERALL DIMENSIONS
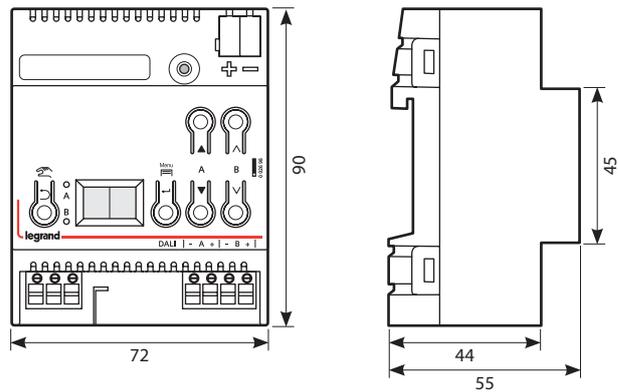
4. CONNECTION

D	
≤ 100 m	0,5 mm^2
≤ 150 m	0,75 mm^2
≤ 300 m	1,5 mm^2

4 x (Ø 0,6 mm < ⟍8 mm⟍ < Ø 0,8 mm)

Updated: Created: 04/11/2016

L legrand

CONTENTS
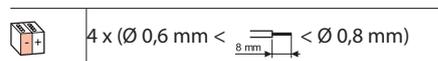
5. OPERATION

The device can be operated with ETS from Version 3 or higher can be accessed on the device's info display.

The type and number of communication objects are determined by the number of connected DALI devices (ECGs, sensors and functions), the configured groups and the functions and objects enabled via the parameter window.

The configuration steps are undertaken ideally as shown in Fig. 1. Parts of the configuration can be prepared "offline", without connection to the gateway. Configuration, storage and documentation are implemented within the ETS or the parameters (plug-in). No additional files should be backed up or archived.

> **Note:**
> The sequence of steps shown represents the ideal case and can be adapted to suit the planning progress.

Prog. button + LED
①

29 V⎓

Screen view

Manual mode button + LED
②

A/B channel button
④

"OK" or "Menu" push button
③

① Programming key with LED (red) for switching in programming mode to accept the physical adress and to display normal mode (LED Off) or programming mode (LED On).

② Operating key:
Tap: "back" ↰   Hold down: Direct mode ☞
Both these LEDs display information about the relevant channel.

③ Operating key:
"OK" ↵   and Menu ▤

④ Key pair ▲▼ for menu control and direct mode channel A
Key pair ∧∨ for sub-menu control and direct mode channel B.

5. OPERATION (cont.)

■ 5.1 Modes

The device can be operated in different modes. There is a distinction between device and channel modes.

5.1.1 Normal mode (BUS mode)

In normal mode, ECGs can be connected and dimmed in groups or individually without any restrictions. In this process three communication objects (switching, dimming and set value) control each group or ECG.

A group assignment can be made only to a maximum of one DALI group. Multi-group assignments are not supported as a DALI group, but must be implemented as required by assigning KNX communication objects.
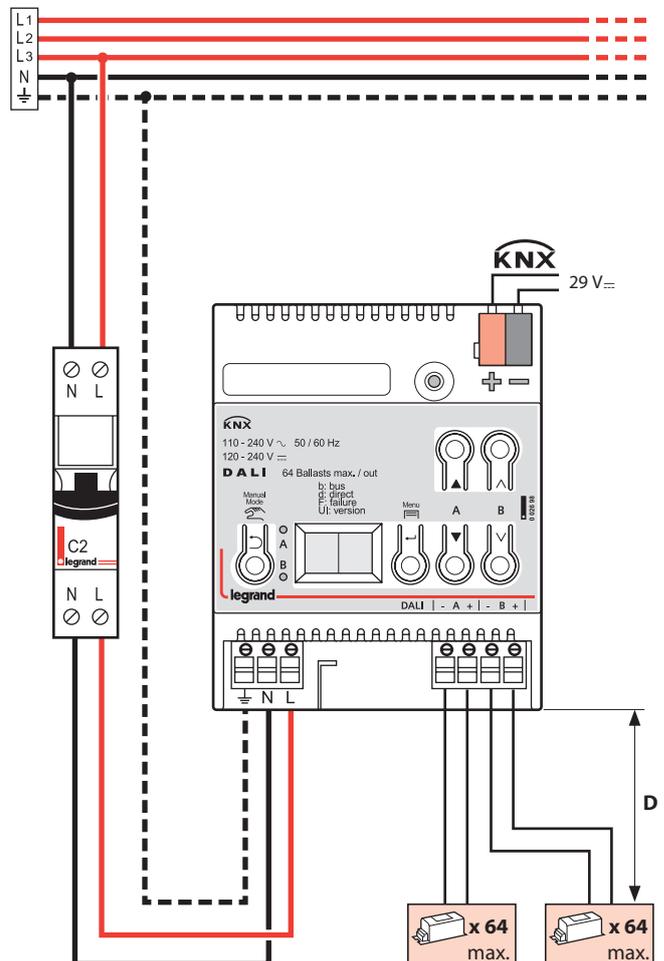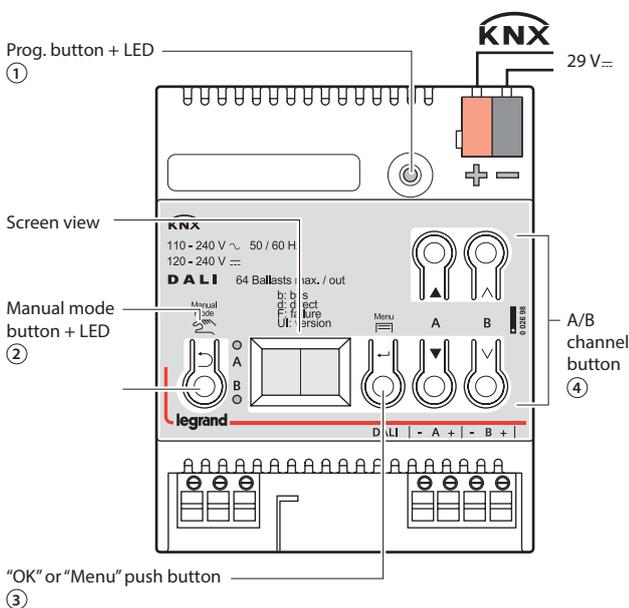
Isolated status objects provide information about the switching- and value status of the groups.

5.1.2 Central commands (Broadcast)

The DALI channel Broadcast mode controls all connected ECGs simultaneously via the Broadcast commands provided by DALI. Sensors are not included. (→ 8.1.2)

5.1.3 Direct mode

In direct mode, direct on/off switching and dimming are possible on the device. For this, the device has a key (②) on the front to disable or enable "Direct Mode". If the key is held down, then the display indicates direct mode by "ꝺ". This switches on (tap key) or dims (key held down) together all ECGs controlled via the relevant channel, by means of the key pair (④).

The LED indicates the switching status of the connected lights (flashing during undefined status). If the "Direct mode" key is held down again, the device reverts to normal mode or to standalone mode, if KNX is not available.

Any error is signaled in the display by a flashing "F".

In direct mode, switching, dimming value or scene callup commands received via bus or DALI sensors are not forwarded to the connected ECGs but are saved as desired target conditions or sent via the corresponding communication object. After reverting to normal mode, the dimming values that were valid before direct mode are restored, taking into account the target condition saved during direct mode. The function of the DALI sensors relative to the bus communication remains unaffected during direct mode. The dimming values valid for normal mode (before the change to direct mode + tracking control) are restored after quitting direct mode. Saved status values are sent during direct mode, but there is no check of actual ECG dimming values.

Scene commands with a save function, which were received during direct mode, are discarded. Scene callups without a save function are executed after quitting direct mode.

Direct mode is switched off after a mains power failure. The device enters normal mode or standalone mode when the mains power is restored. Dimming values are tracked automatically, as is also stipulated when switching back to the relevant mode.

5.1.3.1 Parameters

General	
System	
ON period during direct mode [minutes, 0 = unlimited]	0…60 **15**

This parameter is used to set the time elapsing before normal mode is automatically restored.
0 minutes corresponds to an unlimited direct mode.

5. OPERATION (cont.)

■ 5.1 Modes (*cont.*)

5.1.3 Direct mode (*cont.*)

5.1.3.2 Object

No.	Object name	Function	Type	Flag
2	Direct mode status	On/Off	1 bit 1.011	CRT

This object reports that the gateway was switched from normal mode to direct mode (direct mode = On) or was switched back from direct mode to normal mode (direct mode = Off).

5.1.4 Night mode

The Night mode is a mode in which all groups that are configured for night operation are controlled with the same functionality. The night mode is analogous to a stairwell operation.

5.1.4.1 Parameters

If the group is to be operated in "Normal/Night mode" and if the "Warn before switching off" setting is to be enabled, it must be configured in the group settings (→ 8.2.2).

If "Warn before switching off" is enabled, then the relevant channel will be reduced to half the former switching value (lamp output) at the end of the switchon time, to indicate in this way to the room user that the lighting will soon be switched off. Pressing the On switch again dims the lighting immediately to the switch-on value and the timer is restarted.

General	
Night mode	
Night mode	**Yes** No

This parameter enables Night mode with yes and fades in the parameters below.

On-time night mode [minutes]	5..60 **5**

This parameter sets how long the channel is to remain switched on in night mode. If a switching, dimming, dimming value or scene call-up command is received before this time has elapsed, then the on time is restarted, i.e. it is extended by the set time.

If groups that are configured for night mode are switched on when night mode is enabled, these remain switched on.

If groups that are configured for night mode are switched on when night mode is disabled, these switch off after the time has elapsed. If they are only switched on after this, they remain on constantly.

5.1.4.2 Object

This object is visible only if the parameter "Night mode" is set to "Yes".

No.	Object name	Function	Type	Flag
1	Night mode	On/Off	1 bit 1.003	CWTU

This object enables or disables "Night mode" via the bus. The object can also be sent by a button, a timer or an automatic building management system, for example. If a logical 1 is received, then the channel switches to night mode.

5. OPERATION (cont.)

■ 5.2 Modes

The gateway supports various modes, each of which is related to the device or to the group.

5.2.1 Normal mode

In normal mode, ECGs can be connected and dimmed in groups or individually without any restrictions. Three communication objects (switching, dimming and set value) also control each group or ECG

A group assignment can be made only to a maximum of one DALI group. Multi-group assignments are not supported as a DALI group, but must be implemented as required by assigning KNX communication objects or by ECG control.

Isolated status objects inform about the switching- and value status of the groups or ECG. (→ Section 8.2.2 and Section 8.3).

5.2.2 Direct mode

In direct mode, direct switching on and off and dimming are possible on the device. (→ Section 5.1.3)

5.2.3 Night mode (timed surface lighting)

Night mode can be enabled or disabled via an optionally selectable object (1-bit). If night mode is enabled for the group or ECG, then this channel can only be switched on at certain times (surface lighting). The switched on period during night mode is variable via a parameter (→ Section 5.1.4.2).

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L1 **legrand**

CONTENTS

5/28

5. OPERATION (cont.)

■ 5.2 Modes (*cont.*)

5.2.4 Constant light

The group or ECG is switched on permanently at the set value. No other parameters, except for the behavior if a bus voltage failure occurs, can be adjusted. However, status objects are available (→ Section 8.2.2 and Section 8.3).
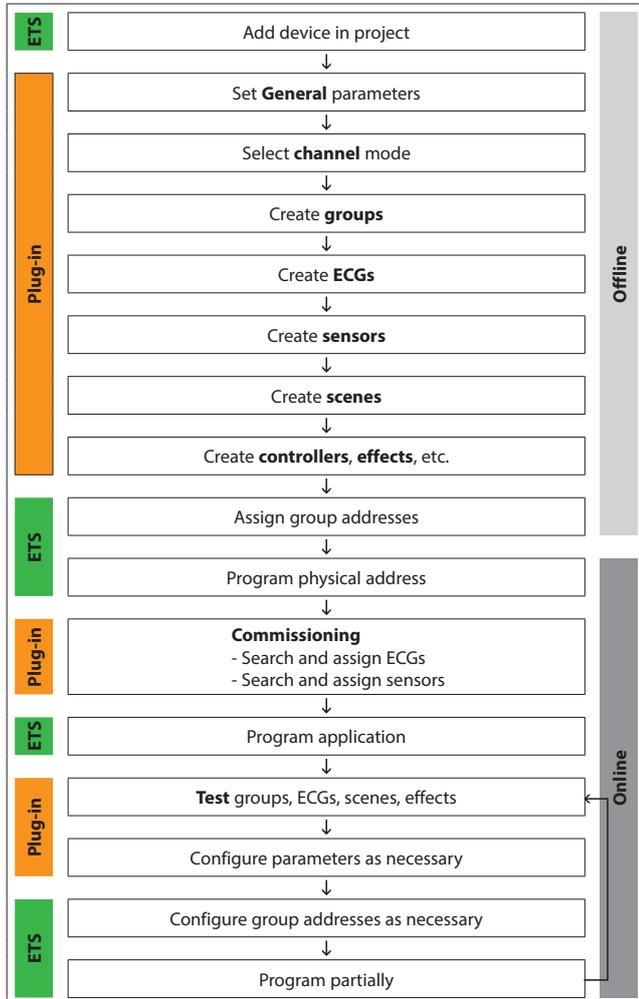

Fig. 1 Configuration steps

5.2.5 Timer mode

A timer mode can be started by an ON telegram, a dim telegram (brighter/darker) or a dimming value telegram. In "Time switch 1-level", dimming is switched on after the switched on time has elapsed. If "Time switch 2-level" is set, the interim value is dimmed (i.e. the dimming value after the dimming time set after the switched on time 1 has elapsed (→ Section 8.2.2).

5. OPERATION (cont.)

■ 5.3 Replace defective DALI-ECGs

Defective ECGs can be replaced without software (ETS). Once the automatic device exchange is started, the gateway is able to test the DALI system for the completeness of the ECGs already activated.

If, for example, a defective ECG was removed by the installer and replaced by a new one, then the gateway is able to program the new ECG with the configuration data of the failed ECG. This makes it possible to replace a failed ECG by simple operation on the device and without extensive configuration work in the ETS.

The following preconditions must be noted for this:
• ECG must not have a short address (delivery condition or restored)
• Same device type
• Minimum physical dimming value ≤ set minimum dimming value
• Gateway commissioning fully completed
• Bus and mains power connected to all ECGs
• Gateway is in normal mode, direct mode

If more than one ECG is defective, then the individual ECGs can be replaced consecutively, whereby the correct ECG number must be selected from the system documentation for each exchange.

All other gateway functions are stopped during the device replacement process.

The Gateway tracks all of the recommended bus states during the device replacement process and evaluates the most recently tracked values (switching, dimming, brightness, scenes, effects, central function (broadcast), forced position function, locking function) at the end of the automatic device replacement process. An active forced position or locking function is interrupted by the device replacement and reactivated at the end of the replacement process if the functions have not meanwhile been deactivated by the bus.

The behavior normally occurring at the start of the forced position or locking function is not repeated in this process.

Care must be given to ensure that only one ECG is replaced in the described manner. If multiple ECGs have failed (possibly no mains voltage connected) and been replaced, the ECGs cannot be clearly identified and automatically configured by the gateway. This case requires a new start-up by the ETS plug-in.

Button	Display	Description
		Replace defective ECG with a new ECG (delivery state).
A6 ▭		Switch to menu with A6
A7 ▲▼	○ ○	After multiple pressing of the A7 menu item "ECG replacement"
A6 (briefly) ↵	● ○	Pressing A6 causes the first ECG recognized as defective to be displayed with its configured ECG number (see system documentation, not short address).
A7 ▲▼	● ○	Pressing A7 causes the next / previous defective ECG to be displayed.
A6 (long) ↵	● ○ **48** (blink)	The ECG replacement process starts after A6 is pressed and held down.
	● ● **E0**	Result: E0 = no error E1 = short address already assigned E2 = device type not replaceable E3 = device type incorrect E4 = new ECG not found E5 = too many ECGs found E6 = unknown errors have occurred
A3 ⊃		"Back" A3 is pressed to return to the menu; the menu is exited by pressing A3 again.

5. OPERATION (cont.)

■ 5.4 Error messages

Information can be accessed by pressing A6 "Menu" ▭ . The selection is made by A7 ▲▼ .

Pressing A6 ↵ "OK" takes you further, pressing A3 ⊃ takes your "back". After around 5 minutes, the display returns automatically to the status display. The A7 buttons ▲▼ in the first menu level and A8 ⋀⋁ in the second menu level can be used to browse forward or backward through the information.

Button	Display	Description
A6 ▭	○ ○	Error display menu
A6 ↵	● ●	first error device, channel or DALI subscriber (e.g. device)
A8 ⋀⋁	● ●	with A8 to the next / prior error detail in the case of channel errors: E7 = threshold of the available memory for test results reached
A7 ▲▼	● ○	Channel or DALI subscriber (e.g. Channel A)
A8 ⋀⋁	○ ○	with A8 to the next / prior error detail in the case of channel errors: F4 = DALI device failure F5 = DALI short circuit F6 = no ECG found
A7 ▲▼	● ○	with A7 to the next/previous error, e.g. channel A, DALI subscriber 36
A8 ⋁	○ ○	with A8 to the next/previous ECG error F0 = lamp defective F1 = ECG defective
	○ ○	If all of the errors were corrected during the error display, then "All errors corrected" appears in the error code when you switch forward or back.
A3 ⊃		You exit the display and return to the menu by pressing "back".

5.4.1 DALI device failure

The 1-bit object "[Channel], DALI device failure" reports that the power supply to DALI devices must have failed.

If more than the number configured with the parameter "Channel [A|B], failure >= DALI device(s)" are no longer responding to queries, a failure of the power supply for the DALI devices is assumed. If the object value = "0", then the power supply is present. If the object value = "1", then the power supply for the DALI devices has failed (→ Section 8.6.3).

5.4.2 Power failure

The 1-bit status object "Power failure" reports the status of the common power supply for the gateway and the DALI line. If the object value = "0", then the power supply is present. If the object value = "1", then the power supply has failed. With this, the gateway is no longer functional and all ECGs go to the configured dimming condition for a failure of the DALI voltage.

A short-term buffer power supply for the gateway electronics integrated with the device ensures that a mains power failure is detected and the power supply status telegram can still be transferred. These status objects are sent only if KNX communication is available (→ Section 8.6.2).

5.4.3 DALI short circuit

The object "[Channel], DALI short circuit" reports a short circuit of the DALI line. If the object value = "0", then there is no short circuit. If the object value = "1", then the DALI line has short-circuited. The DALI gateway can no longer control the DALI devices and all ECGs go to the dimming condition configured for a DALI voltage failure (→ Section 8.6.4).

5. OPERATION (cont.)

■ 5.5 Groups

When controlling ECGs via groups, these objects are relevant for groups. (→ Section 8.2.3)

5.5.1 Switching on/off (1-bit)

ECGs connected to the gateway can be assigned to up to 32 groups.

A switching telegram to a group determines the configuration - whether the configured dimming value or the value before switching off is set. Whether the newly set value is dimmed or skipped is variable by means of a parameter. Switch-off telegrams always switch off. In timer mode, the delay time is (re)started if it has not been switched off. According to the configuration, switching telegrams enable delay times.

5.5.2 Dimming brighter/darker (4-bit)

The "Dimming time" property is variable. After receiving the start command, the gateway begins communication with the ECG to change the dimming value in the given direction with the configured speed. If a stop command is received before the dimming process has ended, the dimming process is interrupted and the dimming value reached is held. In timer mode, the delay time is (re)started if it has not been switched off. A parameter determines whether you can switch on and off via dimming.

5.5.3 Dimming value 8-bit value (1 byte)

The communication object with the description "[Channel], [Group], Dimming value", sets all ECGs in this group to the transferred dimming value. Whether this value is skipped or dimmed is configurable. Depending on the configuration, say this object receives the value 0, the corresponding group is switched off. Values less than the minimum value (with the exception of the value 0) and values greater than the maximum value are limited to the minimum and maximum dimming values respectively. A parameter determines whether a switched off ECG assumes the received value immediately and switches on or assumes the received value only with an ON command. The configured switching value is then invalid. Depending on the configuration, dimming value telegrams also enable delay times. A communication object (3 bytes) can also control the group via a dimming value with a dimming time.

5.5.4 Dimming value limits

Limiting is used to configure maximum and minimum dimming values. With all switching/dimming processes, the dimming value can only be changed within the configured limits. (→ Section 8.2.4)

5.5.5 Switching status (1-bit)

The on/off status of any group can be sent via a communication object "[Channel], [Group], Switching status" on a read demand or automatically on an object value change.

5.5.6 Dimming value status (8-bit)

The object "[Channel], [Group], Dimming value status" is an 8-bit status object. It contains the current dimming value for the relevant group. It can be sent and/or read independently.

5.5.7 Error status (1-bit)

The 1-bit object "[Channel], [Group], Error status" can, for each group, report a detected lighting failure or ECG or converter failure for a subscriber in this group, or also poll the status at any time.

5.5.8 Error status per channel (2-Byte)

The 2-byte status object "[Channel], Error status" can poll the error status of a group at any time.
Depending on the configuration, error messages are sent for each ECG or only after polling has ended.

5. OPERATION (cont.)

■ 5.6 Scene control (8-bit)

The application program can configure up to 16 scenes per channel, each of which can contain up to 16 groups per channel. Scenes are saved and called up via the 8-bit object "8-bit scene, Recall/Save". Timer functions cannot be executed within a scene. (→ Section 8.4)

■ 5.7 2-point lighting control

Up to sixteen independent switching brightness controllers (2-point controllers) are provided. These are independent of all other functions and can be used via objects. (→ Section 8.5)

■ 5.8 Disable error messages

ECGs are disconnected from DALI in connection with the emergency lighting test. The gateway evaluates this disconnection as an ECG error and thus also sends error telegrams via KNX. The sending of error messages can be disabled to prevent this unnecessary information. → Section 8.2.7
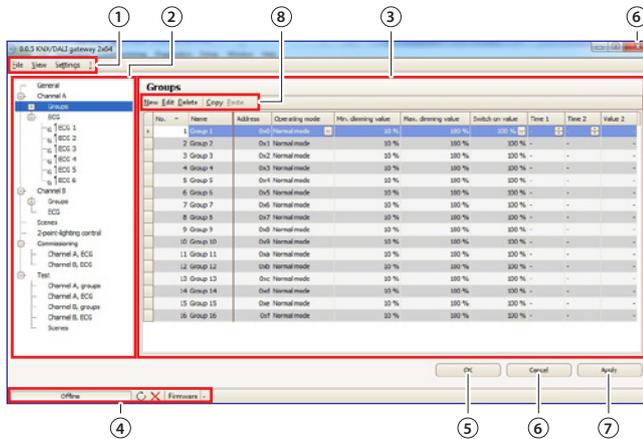
■ 5.9 ETS application program

The application for the KNX/DALI gateway is designed as a plug-in for the ETS (from versions 3.0f or 4.15 or higher). All necessary program files are created automatically when the corresponding ETS product database (vd5/knxprod) is imported. The product can be added as usual to the ETS after import. When the product is called up for the first time in the ETS, the installation of the necessary plug-in files is started.

You must accept the license conditions before installation.

5.9.1 Parameter windows

The plug-in is opened when the parameters are called up.

① Menu bar → see 5.9.2
② Overview → see 5.9.3
③ Parameters window → see 5.9.4
④ Status line → see 8.8.2
⑤ OK (Save and close)
⑥ Cancel (Close without saving)
⑦ Accept (Save)
⑧ Parameters window menu

5. OPERATION (cont.)

■ 5.9 ETS application program (*cont.*)

5.9.2 Menu bar

File	
Save	Saves the current settings, corresponds to the "Accept" key. This saves all changes inside the ETS. Saving within the gateway is effected only by programming (download) in the gateway. In this way, setting can be prepared without connecting to the gateway.
Import/Export	The complete configuration of the device can be exported and imported via a XML file. On import, XML configuration files from other Siemens gateways are converted automatically. (→ Section 8.7).
End	End the plug-in. Before closing the plug-in, you are prompted to save the changes, if relevant.

View	
Reset all views	All user settings relating to column width, sorting, etc. are reset in all work areas.
Reset current view	All user settings relating to column width, sorting, etc. are reset in the current work area.

Settings	
Restore all settings	All settings are restored to the default values.
Restore current settings	Only the settings for the current work area are restored

?	
License	You can view the license agreement here
OSS license	You can view free licenses used here
Info	Version information

> **Note:**
>
> If the communication object is shown in the wrong language, simply open the plug-in and close it again with OK after changing the system language.

5.9.3 Overview

The overview shows the different parameter pages as nodes in a tree structure, which is tailored to the commissioning steps in the sequence from top to bottom. A parameter page for configuring settings is assigned to each node.

Some assignments (e.g. assign an ECG to a group) can be made within the overview using drag and drop.

A context menu that can be called up by right-clicking on the mouse is offered to nodes within the overview.

5.9.4 Parameter windows

The parameters page is shown differently, adapted to the parameter requirements: table, parameters page, etc.

A tabular representation in the parameters page can be customized via a context menu by right-clicking on the column heading. The settings are kept until the view is reset via the menu bar.
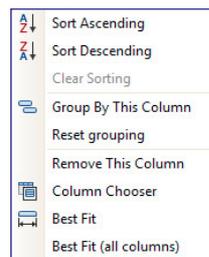

Fig. 2 Columns context menu

5. OPERATION (cont.)

■ 5.9 ETS application program (*cont.*)

5.9.5 Transferring parameters

Parameters can be transferred to other lines in the tabular representation of groups and ECGs.

Procedure:
• Mark the relevant lines (Left-click together with CTRL for single lines or the first and last with SHIFT)
• Hold down the CTRL key and right-click on the line with the settings to be transferred
• Left-click on "Transfer parameters"
• All marked lines have identical settings

6. STANDARDS AND APPROVALS

• Electrical safety
• Electrical safety and EMC according to EN 50428
• Marking: KNX, CE

> **Note:**
>
> All technical information is available at
>
> **ⓘ www.legrandoc.com**

7. MAINTENANCE

Clean the surface with a cloth.
Do not use acetone, tar-removing cleaning agents or trichloroethylene.

> **Caution:**
>
> Always test before using other special cleaning products.

8. COMMUNICATION OBJECTS

The gateway has a large number of communication objects, which are broken down into the following blocks:

From	To	Description
1		Night mode
2		Direct mode status
3	4	Scene
30	35	Error status
37		A, error status
38	149	A, groups
736		B, error status
737	847	B, groups
2761	2936	2-point lighting control

8. COMMUNICATION OBJECTS (cont.)

■ 8.1 Channel

The overview offers a separate and independent working area for each DALI line (channel) for channel A and channel B.

8.1.1 Channel mode

The DALI channel can be operated in different modes.

> **Note:**
>
> When changing the DALI channel mode, all settings (ECG, groups, sensors) for the relevant channel are deleted without prior polling!

Parameters	Settings
Channel A or B	
DALI channel mode (When changed….	Disabled **Normal mode (bus mode)** Broadcast

Normal mode: All available features can be used.
Disabled: The DALI channel is switched off, e.g. if only one channel is in use.
Broadcast: All connected ECGs are controlled as a group. → Section 8.1.2

8.1.2 Broadcast (Central function)

The DALI channel Broadcast mode controls all connected ECGs simultaneously via the Broadcast commands provided by DALI. Sensors are not included.
All settings for ECGs, groups and sensors, commissioning and testing functionality lapse in this way for this channel.
Parameters are available for configuration as in a group (→ 8.2.2) (Rise time 0.7s)..
All connected ECGs can be contacted via the communication objects below:

Object name	Function	Type	Flags
[Channel], broadcast, switching	**On/Off**	**1 bit** **1.001**	**CW**

This object switches the DALI channel.

Object name	Function	Type	Flags
[Channel], broadcast, dimming	**brighter/darker**	**4 bit** **3.007**	**CW**

This object receives DALI channel dimming commands.

Object name	Function	Type	Flags
[Channel], broadcast, dimming value	**8-bit value**	**1 byte** **5.001**	**CW**

This object receives a DALI channel dimming value.

Object name	Function	Type	Flags
[Channel], broadcast, dimming value/time	**Dimming time + dimming value**	**3 byte** **225.001**	**CW**

This object receives a DALI channel dimming value with dimming time.

Bit 23	22	21	20	19	18	17	16
Dimming time (DPT_TimePeriod100MSec, high byte)							

Bit 15	14	13	12	11	10	9	8
Dimming time (DPT_ TimePeriod100MSec, low byte)							

Bit 7	6	5	4	3	2	1	0
Dimming value (DPT_Scaling)							

8. COMMUNICATION OBJECTS (cont.)

■ 8.1 Channel (*cont.*)

8.1.2 Broadcast (Central function) (*cont.*)

The parameters "Group, switching status ", "Group, dimming value status" and "Group, error status" listed in section 8.2.4 are used to decide on automatic sending of status messages. The following communication objects are available.

Object name	Function	Size	Flags
[Channel], broadcast, Switch status	**On/Off**	**1 bit** 1.001	**CRT**

This object sends the current DALI channel switching status.

Object name	Function	Size	Flags
[Channel], broadcast, dimming value status	**8-bit value**	**1 byte** 5.001	**CRT**

This object acts as the sending object for the current channel status (dimming value).

Object name	Function	Size	Flags
[Channel], broadcast, Error status	**1 = error**	**1 bit** 1.005	**CRT**

This object sends the DALI channel error status (0 = no error, 1 = error). Only lamp errors are detected.

■ 8.2 Groups

8.2.1 Parameter windows

All available groups are shown in a table for improved visibility. Initially, the table is blank and all necessary groups must be created. Values that are enabled for editing can be edited directly in the table. The usual table editing tools are available (→ 5.9.4). In addition, parameter settings can be transferred between groups; the group name is retained in this process (→ 5.9.5).

Fig. 3 Group parameters window

Parameters window menu	
New	A new group is added.
Edit	A group's parameters can be edited.
Delete	The marked group(s) is/are deleted.
Copy	The marked group is copied to the clipboard.
Paste	The group from the clipboard is added as a new group. The group name is copied. The group is added at the next free number after the current item.

In addition to parameter editing in the tabular presentation, all parameters in a parameter presentation are also editable.

■ 8.2 Groups (*cont.*)

8.2.1 Parameter windows (*cont.*)
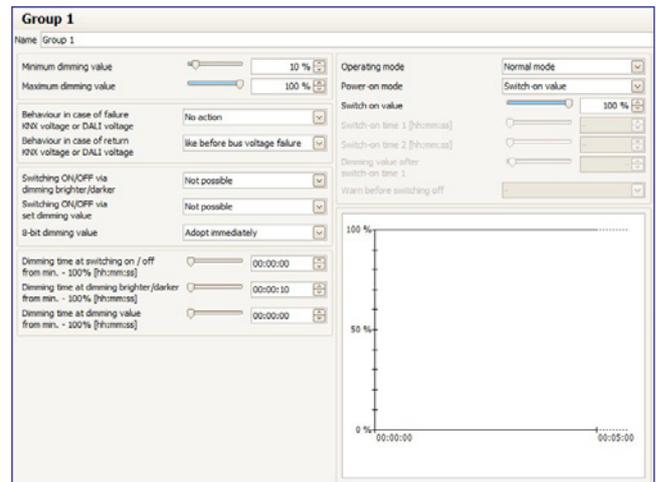
Fig. 4 Group parameters window

8.2.2 Parameters for group

Parameters	Settings
Groups	
Name (max. 25 characters)	

This parameter assigns a group name with a maximum of 25 characters. This name is used for the communication objects belonging to this group.

The following parameters govern the mode and dimming pattern of the group.

Parameters	Settings
Mode	**Normal mode** Normal- / night-mode

"Normal- / night-mode": Group is integrated in night mode (→ 5.1.3.2).

"Constant light": The group is switched on permanently at the set switching value. No other parameters can be set. However, status objects are available.

"1-level timer mode" or "2-level timer mode": A timer mode can be started by an ON telegram, a dim telegram (brighter/darker) or a dimming value telegram. After switching time 1 or switching time 2 has elapsed, the lights will be dimmed with the dim time configured for switching on via the parameter " Dimming time at switching on/off from min. - 100% [hh:mm:ss]". With the setting " Time switch 2-level ", the lighting is dimmed to the interim value (i.e. the dimming value after the switching time 1) has elapsed with the dim time set via the parameter " Dimming time at switching on / off from min. - 100% [hh:mm:ss]".
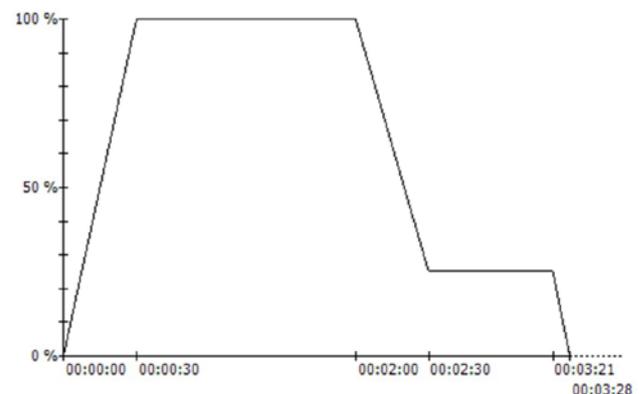
Each group control resets the timer.
Scene commands end each timer mode. The new value is kept with no time limit.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L7 legrand

8. COMMUNICATION OBJECTS (cont.)

■ 8.2 Groups (*cont.*)

8.2.2 Parameters for group (*cont.*)

Parameters	Settings
Diagram	

The diagram shows the dimming value over time. Right clicking on the diagram copies it to the clipboard.

Parameters	Settings
Switch-on time 1 [hh:mm:ss]	00:00:00 – 15:00:00 **12:02:00 AM**

hh= for hours; mm= for minutes; ss= for seconds.
Enter the time here after which (with 1-step timer mode), the lighting is switched off or after which the interim dim value should be applied (with 2-step timer mode).
After starting timer mode through an on/dim/value telegram, the set switching time 1 begins only after reaching the switch-on dim value.

Parameters	Settings
Switch-on time 2 [hh:mm:ss]	00:00:00 (= continuous), 00:00:01 – 15:00:00 **12:00:30 AM**

hh= for hours; mm= for minutes; ss= for seconds.
The time is entered here for a 2-step timer mode, which begins after dimming to the dimming value after switching time 1. The group/ECG is then switched off when the time has elapsed.

Parameters	Settings
Dimming value after switch-on time 1	0%-100% **5%**

This parameter determines the interim value that is set after the first step has elapsed. The set value is restricted by the program to the range between the minimum and maximum dimming values. Percentages are rounded values for technical reasons and have an accuracy of approximately ± 1%. A set dimming value of 0% means that the smallest possible KNX dimming value (~0,4%) is used.

Parameters	Settings
Warn before switching off	Yes **No**

This parameter sets whether the group is to signal that it is to be switched off shortly in night mode or 1-step timer mode approximately 30 seconds before switching off by dimming to 50% of the former dimming value or at least 50% of the minimum dimming value.

Parameters	Settings
Behavior in case of KNX voltage or DALI voltage failure	No action Switch on value Maximum dimming value Minimum dimming value Dimming value for emergency lighting Switch off

This parameter specifies which dimming value the group should assume after both the KNX bus voltage and the mains power supply at the gateway fail. Also refer to the table on behavior upon recovery → 8.11.3.

Parameters	Settings
Behavior in case of KNX voltage or DALI voltage recovery	No action **As before bus voltage failure** Switch on value Maximum dimming value Minimum dimming value Switch off Last received dimming value

This parameter determines which dimming value the group should assume after both the KNX bus voltage and the mains power supply at the gateway are again present. Also refer to the table on behavior upon recovery → 8.11.3.1.

8. COMMUNICATION OBJECTS (cont.)

■ 8.2 Groups (*cont.*)

8.2.2 Parameters for group (*cont.*)

Parameters	Settings
Switching ON/OFF via dimming brighter/darker	**Not possible** Switching on possible Switching off possible Switching off / on possible

If a switched off group is to be switched on by receiving a relative dimming value "brighter", this parameter must be set to "Switch-on possible". In this case, the group is always switched on first, the minimum dimming value skipped and then brightened by the received relative dimming value with the set dimming time for dimming brighter/darker.
Switch-off via darker dimming is not possible with this setting. If this is to switch off a switched-on group where the brightness is dimmed to a value below the minimum dimming value by dimming, then this parameter must be set to "Switch off possible". Switch-on via brighter dimming is not possible with this setting.
If both switching on and off of the group/ECG is to be possible under the above boundary conditions, then this parameter must be set to "Switch on and off possible".

Parameters	Settings
Switching On/Off via set dimming value	**Not possible** On if dimming value ≥ minimum dimming value Off if dimming value < minimum dimming value Switching off/on possible On if dimming value > 0% and off if dimming value = 0%

If it is to be possible in the switched off state to switch the group on by receiving a dimming value that is greater than or equal to the minimum dimming value, then this parameter must be set to "On if dimming value >= minimum dimming value". The group is then switched on and the dimming value, depending on the dimming value configured for dimming value setting, is either skipped or dimmed. If the received dimming value is below the minimum dimming value, then the group remains switched off. Switching off the group via dimming value set is not possible with this setting.
If the group is switched on and this parameter is set to "Off for dimming value < min. dimming value", then receiving a telegram with a dimming value < min. dimming value leads to dimming down (with the dimming time configured for dim value setting) to the minimum dimming value and then to switching off of the group. Switching on the group via dimming value set is not possible with this setting. If this parameter is set to "Switch On and Off possible", then the group is switched on if the received dimming value is ≥ min. dimming value and switched off if the received dimming value is < min. dimming value.
If this parameter is set to "On for dimming value > 0% and off for dim value = 0 %", then any dim value > 0% leads to switching on of the group. If the dim value is < min. dim value, then the group is dimmed to the minimum dim value. Only after receiving a dim value = 0% is the group switched off.

Parameters	Settings
8 bit dimming value	**Adopt immediately** Adopt at ON only

This parameter determines whether the group, if it is in the OFF state, executes (accepts immediately) a dim value telegram received via the bus or saves the dim value and only dims to this value with the next switch-on telegram. The dim value is always accepted immediately if the group is already switched on.

8. COMMUNICATION OBJECTS (cont.)

■ **8.2 Groups (*cont.*)**

8.2.2 Parameters for group (*cont.*)

Parameters	Settings
Minimum dimming value	0…100% **10%**

This parameter determines the minimum dim value. With darker dimming, you can only dim to this value. Percentages are rounded values for technical reasons and have an accuracy of approximately ± 1%. A set dimming value of 0% means that the smallest possible KNX dimming value (~0,4%) is used.

Parameters	Settings
Maximum dimming value	0…100% **100%**

This parameter determines the maximum dim value. With brighter dimming, you can only dim to this value. The percentages are rounded values for technical reasons and are accurate to approximately ± 1%. A set dimming value of 0% means that the smallest possible KNX dimming value (~0,4%) is used.

Parameters	Settings
Power-on mode	**Off if dimming value < minimum dimming value** Last dimming value Dimming value at switch off

This parameter sets the switch on value when receiving an ON telegram.

Note on setting "last dimming value":
When switching off, even if the dim value received earlier is < min. dim value (applies also for the value 0), the lighting always switches to minimum dim value. This applies even if there is no "last received dim value".

Note on "Dimming value at switch off" setting:
When switching on, if there has not yet been a switch on, the lighting is always switched to the minimum dim value.

Parameters	Settings
Switch on value	0 - 100%

In the case of "Switch on value" switching mode, the value is set here. The configured switch-on value (dim value) is restricted to the range between the minimum and maximum dimming values. Percentages are rounded values for technical reasons and have an accuracy of approximately ± 1%. A set dimming value of 0% means that the smallest possible KNX dimming value (~0,4%) is used.

Parameters	Settings
Dimming time for switching on/off from min. -100% [hh:mm:ss]	00:00:00 – 15:00:00 **12:00:00 AM**

hh= for hours; mm= for minutes; ss= for seconds.
This parameter determines the dim time in which the group dims to the switch-on value after an ON or after an OFF telegram to the switch-off value, for which the set dim time applies for a dimming from minimum dim value to 100%. If the setting is 00:00:00, switching on or off is skipped.

Parameters	Settings
Dimming time for dimming brighter/darker from min. - 100% [hh:mm:ss]	12:00:01 AM – 15:00:00 **12:00:10 AM**

hh= for hours; mm= for minutes; ss= for seconds.
This parameter determines the time in when dimming brighter/darker is dimmed from minimum dim value to 100%.

Parameters	Settings
Dimming time at dimming value from min. - 100% [hh:mm:ss]	00:00:00 – 15:00:00 **12:00:00 AM**

hh= for hours; mm= for minutes; ss= for seconds.
This parameter determines the time in which the new value is dimmed after receiving an 8-bit dim value. The set time applies for a dimming process from minimum dim value to 100%. If the setting is 00:00:00, the new dim value is skipped.

8. COMMUNICATION OBJECTS (cont.)

■ **8.2 Groups (*cont.*)**

8.2.3 Objects per group

The maximum of 64 ECGs per DALI channel can be assigned to one of a maximum of 16 groups per channel and controlled, or distributed at random to the maximum 16 groups.

[Channel] replaced by A or B, [Group] by the group description.

Object name	Function	Type	Flags
[Channel], [Group], switching	**On/Off**	**1 bit** **1.001**	**CW**

This object switches the channel's group.

Object name	Function	Type	Flags
[Channel], [Group], dimming	**brighter/darker**	**4 bit** **3.007**	**CW**

This object receives the dimming telegrams of the channel's group.

Object name	Function	Type	Flags
[Channel], [Group], dimming value	**8-bit value**	**1 byte** **5.001**	**CW**

This object receives a channel group dimming value.

Object name	Function	Type	Flags
[Channel], [Group], dimming value/time	**Dimming time + dimming value**	**3 byte** **225.001**	**CW**

This object receives a channel group dimming value with dimming time.

Bit 23	22	21	20	19	18	17	16
Dimming time (DPT_TimePeriod100MSec, high byte)							

Bit 15	14	13	12	11	10	9	8
Dimming time (DPT_ TimePeriod100MSec, low byte)							

Bit 7	6	5	4	3	2	1	0
Dimming value (DPT_Scaling)							

8.2.4 Parameter Status

Parameters	Settings
Group, Switching status	**No** Send only on read request Send on status change Send on status change/bus voltage recovery

This parameter sets whether a "switching status" communication object should be added for each group and when these objects should be sent.
Sending is not automatic if the setting is "send only on read request". Sending of the status on a read request is possible with any parameter setting except the parameter "no".
"Send on status change" sends the current status independently via the communication object after a change. The status is not sent automatically when the bus voltage is restored, even if it is changed in accordance with the setting.
The setting "Send on status change/bus voltage recovery" automatically sends the current status after a change, as well as independently upon the bus voltage recovery.

Parameters	Settings
Group, Dimming value status	**No** Send only on read request Send on status change Send on status change/bus voltage recovery

This parameter sets whether a "Dimming value status" communication object per group should be added and when these objects should be sent.
Sending is not automatic if the setting is "send only on read request". Sending the dimming value on a read request is possible with any parameter setting except the parameter "no".
"Send on status change" sends the current dimming value status for its change independently via the communication object. The dimming value is not sent automatically when the bus voltage returns, even if it is changed in accordance with the setting.
The "send on status change/bus voltage recovery" setting sends the current dimming status for its change, as well as independently upon bus voltage recovery.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L1 legrand

CONTENTS

12/28

8. COMMUNICATION OBJECTS (cont.)

■ **8.2 Groups (*cont.*)**

8.2.4 Parameter Status (*cont.*)

Parameters	Settings
Group, Error status	**No** Send only on read request Send on status change Send on status change/bus voltage recovery

This parameter sets whether an "Error status" communication object should be added for each group, via which a light failure or a general error for the group is to be reported and when these objects should be sent.
Sending is not automatic if the setting is "send only on read request". Sending of the status on a read request is possible with any parameter setting except the parameter "no".
"Send on status change" sends the current status independently via the communication object after a change. The status is not sent automatically when the bus voltage is restored, even if it is changed in accordance with the setting. The setting "Send on status change/bus voltage recovery" automatically sends the current status after a change, as well as independently upon the bus voltage recovery.

Parameters	Settings
Channel, Error status	**No** Send only on read request Send on status change Send on status change/bus voltage recovery

This parameter sets whether an "Error status" communication object should be added for each channel, via which an ECG or communication object is to be reported and when the object value should be sent.
Sending is not automatic if the setting is "send only on read request". Sending of the status on a read request is possible with any parameter setting except the parameter "no".
"Send on status change" sends the current status independently via the communication object after a change. The status is not sent automatically when the bus voltage is restored, even if it is changed in accordance with the setting. The setting "Send on status change/bus voltage recovery" automatically sends the current status after a change, as well as independently upon the bus voltage recovery.
Fundamentally, only if there is a status change at ECG level is a telegram sent independently. Changes to a group's status are sent only on a query command.

Parameters	Settings
Transmission period after state change value [seconds]	1-60 **15**

"Transmission period after state change value" ensures that, when dimming, a high bus loading is not generated through dimming value status telegrams following shortly behind one another. After a dimming value status telegram has been sent for a group, the next one for this group is sent only after the transmission period has elapsed. Also, a final status telegram is sent if necessary after the dimming process is complete.

8. COMMUNICATION OBJECTS (cont.)

■ **8.2 Groups (*cont.*)**

8.2.5 Objects for channel

The following object exists for each channel:

[Channel] replaced by A or B.

No.	Object name	Function	Type	Flags
36	**A, error status**	**send/request**	**2 byte**	**CWT**
735	**B, error status**	**send/request**	**2 byte**	**CWT**

This object polls the error status for all connected ECGs or sends it automatically. The "Channel, status failure" parameter in the "General" parameters window is variable regarding whether and when this object should be sent on detection of an error.
The following bit assignment is also used:

Bit 15 ... 11	10	9	8
not used	Converter defective	ECG defective	Lamp defective

Bit 7	6	5 4 3 2 1 0	
Command	Address indicator	Address indicator	

"Command" is to be set to 1 to poll the error status and to 0 for the response or if the error status should be sent automatically.
"Address indicator" 0 = ECG address, 1 = Group address.
"Address" contains the number of the DALI ECG as a binary count in the range 0...63, in which the binary count 0 equates to ECG number 1, etc. or the groups with addresses 0...15. Depending on the ECG count, detecting an error can take up to 96 seconds.
"not used": 0 must always be reserved.
"Lamp defective": The light is defective.
ECG defective: The ballast is defective.
Example: Send error query from ECG no. 1 : 0080(hex)
2 : 0081(hex)
…
64 : 00BF(hex)
Response telegram for lamp error on ECG no. 2: 0101(hex)

The following objects exist for each group:

[Channel] replaced by A or B, [Group] by the group description.

Object name	Function	Type	Flags
[Channel], [Group], status switching	**On/Off**	**1 bit 1.001**	**CRT**

This object sends the current channel switching status.
With the configuration "send on status change" or "send on status change/bus voltage recovery":
The switching status is sent at the start (when OFF → ON) or at the end (when On → OFF) of the dimming process.

Object name	Function	Type	Flags
[Channel], [Group], dimming value status	**8-bit value**	**1 byte 5.001**	**CRT**

This object acts as the sending object for the current status (dimming value) of the group of channels.
With the configuration "send on status change" or "send on status change/bus voltage recovery": 700ms. The current status is sent after starting a dimming process.
Each further dimming status telegram is sent after the "Transmission period after state change" has elapsed. If the current value has not been sent when the dimming process has ended, this is sent immediately.

Object name	Function	Type	Flags
[Channel], [Group], error status	**1 = error**	**1 bit 1.005**	**CRT**

This object sends the group status (0 = no error/1 = error).

8.2.6 Status/error message

All of the current lighting group brightness states are saved in the device. These should be interpreted as target values for the ECG at the current point in time. This value is forced on the ECG and must therefore be its current status after the dimming time has elapsed (0.7 seconds in the normal dimming process). If it is established that the ECG has not assumed the value after multiple transmissions, an ECG error is reported.

Errors are detected by cyclical polling of the ECG status.

8. COMMUNICATION OBJECTS (cont.)

■ 8.2 Groups (*cont.*)

8.2.7 Disable error status messages

ECGs are disconnected from DALI in connection with the emergency lighting test. The gateway evaluates this disconnection as an ECG error and thus also sends error telegrams via KNX. The sending of error messages can be Disabled to prevent this unnecessary information.

Object name	Function	Type	Flags
Disable error status messages	**1 = disable, 0 = Enable**	**1 bit 1.003**	**CW**

Setting this object to the value "1" suppresses the sending of the following objects:
"[Channel], DALI device failure"
"[Channel]. [ECG], Error status"
"[Channel]. [Group], Error status"
"[Channel], Error status"
The error evaluation continues to be performed. After "0" is received, the status messages are sent based on the current status and the last status sent. (i.e. no telegram is sent if an error was present during the block).
The current error status can be queried by the object "[Channel], Error Status" during the block.
When queried, the other three objects supply the last sent value before the block.
The object value is set to "0 = enabled" following a mains power failure.

General	
Status messages	
Parameters	**Settings**
Switch-on time of the blocking of error status messages [mm:ss] (0 = indefinite)	00:00 – 59:59 **00:00**

mm= for minutes; ss= for seconds.
The time period, after which the block of the error status messages is automatically withdrawn.

■ 8.3 ECG

The ECGs for the relevant channel are managed in this parameter window. Both a tabular view and a detailed view of each individual ECG are available.

The maximum number of ECGs is dependent on the number of all DALI devices per channel.

All ECGs for direct selection are listed in the parameter pages overview. Each ECG is also shown in the assigned group with a group symbol G1 - G16 (e.g. G4 = G4).
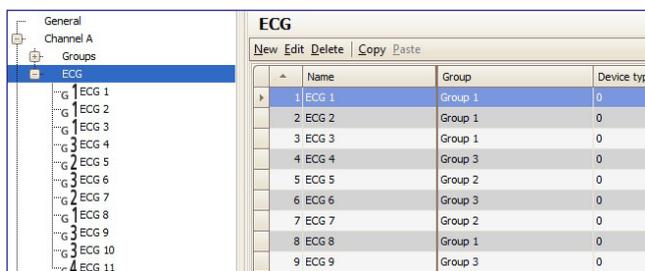

Fig. 5 ECG parameters window

Parameters window menu	
New	A new ECG is added.
Edit	The parameters of an ECG can be edited.
Delete	The marked ECG(s) is/are deleted.
Copy	The marked ECG is copied to the clipboard.
Paste	The ECG from the clipboard is added as a new ECG.

8. COMMUNICATION OBJECTS (cont.)

■ 8.3 ECG (*cont.*)

These parameters are available for ECGs.

Parameters	Settings
No.	
ECG serial number from 1 - 64	
Name	
This parameter assigns an ECG a name with a maximum of 25 characters.	
Group	

This parameter assigns the ECG to a group. In this case, entry of all subsequent parameters (except device coding and device type) is disabled, because the group settings are then assigned to the ECG automatically.
ECGs are generally assigned to the group by default with number 1. If no group is created, "Group 1" will be generated automatically.
The group assignment can be made inside the overview. To do this, drag the ECG to the desired group.
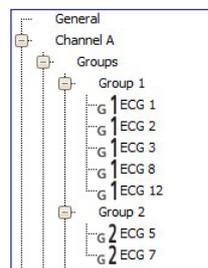

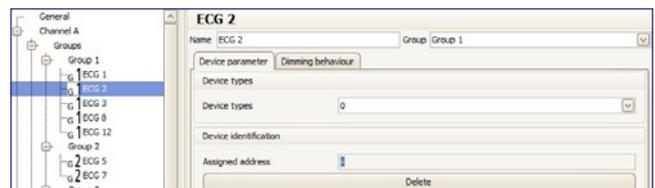Fig. 6 Group assignment overview

8.3.1 Device parameters

Fig. 7 Device parameters

Parameters	Settings
Devices	

ECGs are offered in various device types. When creating an ECG, you can select none, one or a number of types.
Type 0 is used as the standard.

Type	Device type	Ignition time
0	Fluorescent lamp	0.7 s
2	Discharge lamps	0 s
3	Low-voltage halogen lamps	0 s
4	Incandescent lamps (dimmer)	0 s
5	10V converter	0 s
6	LED modules	0 s
7	Switching function	0 s

The assignment is only possible when the device types are identical (see 8.8.4).
If an ECG has an "Assigned address", the device type cannot be changed.
An ECG that is not assigned a type (undefined) supports the basic features (switching, dimming, status).
An ECG can be assigned a number of types, which is how the type 0xff (generic) is supported.
The maximum ignition time for the implemented device types is used for ECGs of the device type 0xff. If there are ECGs of different types in a group, the maximum ignition time is used.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L1 legrand

CONTENTS

14/28

8. COMMUNICATION OBJECTS (cont.)

■ **8.3 ECG (cont.)**

8.3.1 Device parameters (cont.)

Parameters	Settings
Device assignment	

The ECG's "assigned address" is shown in this field if it is already associated with a commissioning. If the ECG includes an "Assigned address", the device type cannot be changed.
"Delete" is used to delete the assignment and restore the CIN.

Parameters	Settings
Assigned address	

This gives the DALI subscriber's currently assigned DALI short address.

8.3.2 Dimming behavior

The following parameters control the dimming behavior of the ECG and are described in detail in Section 8.2.2.

An ECG assigned to a group may only be edited in the group.

8.3.3 Device type 0 - Fluorescent lamp

The following parameters are additionally offered for device type 0:

Parameters	Settings
Fluorescent lamp	**without auxiliary function** with brightness controller

If a brightness sensor is directly connected to the ECG for local brightness control by the ECG, then brighter / darker dimming shifts the target value if this parameter is set to "with brightness control". This target value shift is only effective until the light is switched off. The target value set for the brightness control is used when the light is switched on again.

The following parameters are disabled if the local brightness controller is activated for a device type 0.

	without auxiliary function	with brightness controller
Minimum dimming value	—	
Maximum dimming value	—	
Mode	—	X
Switch-on time 1	—	X
Switch-on time 2	—	X
Dimming value after switch-on time 1	—	X
Warn before switching off	—	X
Behavior in case of KNX voltage or DALI voltage failure	—	X
Behavior in case of KNX voltage or DALI voltage recovery	—	X
Switching ON/OFF via dimming brighter/darker	—	X
Switching On/Off via set dimming value	—	X
8 bit dimming value	—	X
Switch on value	—	X
Dimming value during emergency mode	—	X
Dimming time when switching on/off from min. -100% [hh:mm:ss]	—	X
Dimming time for brighter/darker dimming from min. -100% [in seconds]	—	X
Dimming time for setting the dimming value from min. - 100% [hh:mm:ss]	—	X

— = no influence of the "Fluorescent lamp" parameter on the activation of the parameter given in the line.

X = the parameter given in the line is disabled when the "fluorescent lamp" parameter is set accordingly.

8. COMMUNICATION OBJECTS (cont.)

■ **8.3 ECG (cont.)**

8.3.4 Objects

The following objects exist for each ECG:

Object name	Function	Type	Flags
[Channel], [ECG], switching	**On/Off**	**1 bit 1.001**	**CW**

This object switches the channel's ECG.

Object name	Function	Type	Flags
[Channel], [ECG], dimming	**brighter/darker**	**4 bit 3.007**	**CW**

This object receives dimming telegrams of the Channel's ECG.

Object name	Function	Type	Flags
[Channel], [ECG], dimming value	**8-bit value**	**1 byte 5.001**	**CW**

This object receives a channel ECG dimming value.

Object name	Function	Type	Flags
[Channel], [ECG], dimming value/time	**Dimming time + dimming value**	**3 byte 225.001**	**CW**

This object receives a channel ECG dimming value with dimming time.

Bit 23	22	21	20	19	18	17	16
Dimming time (DPT_TimePeriod100MSec, high byte)							

Bit 15	14	13	12	11	10	9	8
Dimming time (DPT_ TimePeriod100MSec, low byte)							

Bit 7	6	5	4	3	2	1	0
Dimming value (DPT_Scaling)							

Object name	Function	Type	Flags
[Channel], [ECG], Switching status	**On/Off**	**1 bit 1.011**	**CRT**

This object sends the current switching status.

Object name	Function	Type	Flags
[Channel], [ECG], Dimming value status	**8-bit value**	**1 byte 5.001**	**CRT**

This object acts as the sending object for the current status (dimming value) of the ECGs.

Object name	Function	Type	Flags
[Channel], [ECG], Error status	**1 = error**	**1 bit 1.005**	**CRT**

This object sends the ECG status (0 = no error/1 = error).

8.3.5 Status/error messages

Parameters	Settings
ECG, Switching status	**No** **Send only on read request** Send on status change Send on status change/bus voltage recovery

This parameter sets whether a switching status communication object should be added for each ECG and when these objects should be sent.
Sending is not automatic if the setting is "send only on read request". Sending of the status on a read request is possible with any parameter setting except the parameter "not available".
"Send on status change" sends the current status independently via the communication object after a change. The status is not sent automatically when the bus voltage is restored, even if it is changed in accordance with the setting.
The setting "Send on status change/bus voltage recovery" automatically sends the current status after a change, as well as independently upon the bus voltage recovery.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L legrand

CONTENTS

15/28

8. COMMUNICATION OBJECTS (cont.)

■ 8.3 ECG (*cont.*)

8.3.5 Status/error messages (*cont.*)

Parameters	Settings
ECG, Dimming value status	**Not available** Send only on read request Send on status change Send on status change/bus voltage recovery

This parameter sets whether a "Dimming value status" communication object should be added for each ECG and when these objects should be sent.
Sending is not automatic if the setting is "send only on read request". Sending of the status on a read request is possible with any parameter setting except the parameter "not available".
"Send on status change" sends the current dimming value status for its change independently via the communication object. The dimming value is not sent automatically when the bus voltage returns, even if it is changed in accordance with the setting.
The "send on status change/bus voltage recovery" setting sends the current dimming status for its change, as well as independently upon bus voltage recovery.

Parameters	Settings
[ECG], Error status	**Not available** Send only on read request Send on status change Send on status change/bus voltage recovery

This parameter sets whether an "Error status" communication object should be added for each ECG, via which a light failure or a general error in the ECG is to be reported and when these objects should be sent.
Sending is not automatic if the setting is "send only on read request". Sending of the status on a read request is possible with any parameter setting except the parameter "not available".
"Send on status change" sends the current status independently via the communication object after a change. The status is not sent automatically when the bus voltage is restored, even if it is changed in accordance with the setting.
The setting "Send on status change/bus voltage recovery" automatically sends the current status after a change, as well as independently upon the bus voltage recovery.

■ 8.4 Scenes

The application program enables up to 32 scenes to be configured.

If every scene receives ECGs from both channels, a total of 16 scenes can be configured in this way. If every scene contains only ECGs from a channel, 16 scenes can be configured for each channel, i.e. a total of 32 scenes for two channels. The number of scenes used is shown in the status line. If the maximum number is reached, an error message is generated.

All scenes are represented line by line in the Scenes parameter window. All available groups from channels A and B are shown in the columns. Group dimming values for the scene can be stipulated in the cells. If the scene for the corresponding group is not relevant, this is indicated by a "-". Dimming values and "-" can be edited directly in the cell.

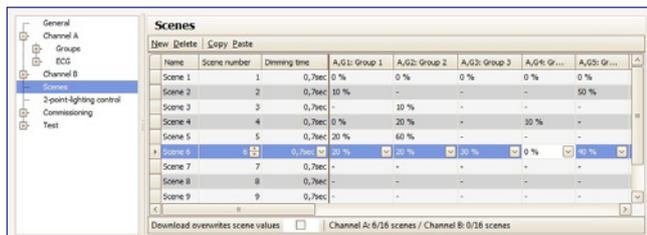The dimming value can also be edited in a dropdown menu.

Fig. 8 Scene parameters window

Parameters window menu	
New	A new scene is added.
Delete	The marked scene(s) is/are deleted.
Copy	The marked scene is copied to the clipboard
Paste	The scene from the clipboard is added as a new scene.

8. COMMUNICATION OBJECTS (cont.)

■ 8.4 Scenes (*cont.*)

The following parameters can be set for each scene:

Parameters	Settings
Name	(max. 25 characters)

This parameter assigns each scene a name with a maximum of 25 characters.

Parameters	Settings
Scene number	1 - 64

This parameter can assign a scene a number x in the range 1 to 64 (scene number).
The number of scenes used is shown in the status line. If the maximum number is reached, an error message is generated.

Parameters	Settings
Dimming time	Start-up **0.7 seconds** 1.0 seconds 1.4 seconds 2.0 seconds 2.8 seconds 4.0 seconds 5.7 seconds 8.0 seconds 11.3 seconds 16.0 seconds 22.6 seconds 32.0 seconds 45.3 seconds 64.0 seconds 90.5 seconds

The "Dimming time" parameter equals, on calling up a scene, that time in which the dimming process is concluded jointly for all lights.
For example, if the channel A lights are at 50% and should be dimmed in this scene to 90% and if the channel B lights should be dimmed from 100% to 20% , then the dimming process should be concluded simultaneously for both lights. Therefore, channel A will have a flatter dimming curve than channel B.
A scene's dimming time is independent of the dimming times set for groups.

Note:
Different dimming times (both while dimming a new value and during joint dimming of new values in scenes) lead when sending the dimming value or a scene call-up to a reprogramming of the internal dimming time for the relevant ECG, which can cause delays to the scene call-up. If dimming times are changed constantly through scene call-ups at very short intervals (this can, for example, happen with color light control over quickly changing scenes), then this can lead long term to damage to some manufacturers' ECGs. This problem does not arise if the same dimming times are used for all scene call-ups and, with this, as far as possible the standard dimming time of 0.7 seconds.

Each scene can be assigned a number of groups, with the dimming values also being determined for these with scene call-up.

Columns	Settings
[Channel], G[Group number]: **[Group name]** **Example: A, G1: Group 1**	
[Channel], E[Number ECG]: **[ECG name]** **Example: A, E1: ECG1**	

All configured groups or ECGs are listed in columns. Only planned groups and ECGs are set to the configured brightness for scene call-up. All unplanned groups and ECGs remain excluded when the scene is called up.

Parameters	Settings
Scene value (0% - 100%)	"-" 0%-100%

Call-up by drop-down menu R: This value gives the dimming value as a percentage, which the group assumes when calling up this scene. The value can be planned for each group for the first time here. On saving the scene later with a scene button, the data is overwritten. The application program automatically limits the entered value to the range between minimum and maximum dimming values.
The selection box in the status line determines whether the scene values should be overwritten during the download.
Overwrite should be activated for the first download.

CONTENTS

8. COMMUNICATION OBJECTS (cont.)

■ 8.4 Scenes (*cont.*)

Columns	Settings
Download overwrites scene values	☐ (disabled)

This parameter determines whether the dimming values saved in the gateway should be overwritten during the download by the dimming values set in the parameters window. Standard is not to overwrite. Overwrite should be activated for the first download.
When saving new scene values, the ECG value is not polled via DALI, but the internally computed value is used. This value is then written into the ECG.

Scenes are saved and called up via the 8-bit communication object "8-bit scene, Call up/Save".

Object name	Function	Type	Flags
8-bit scene	**Call up**	**1 byte 18.001**	**CW**

This object calls up or saves the 8-bit scene with the scene number x (i.e. recalled). Bits 0...5 include the scene number x-1 for this. If bit 7 = logical 1, then the scene is programmed and if bit 7 = logical 0, then it is called up. Bit 6 is currently spare and must be set to logical 0.

Bit 7 save	6 "0":	5…0 Scene number x -1			
Scene (DPT_SceneControl)					

Scene x	call-up	save
1	0	128
2	1	129
3	2	130
…	…	…
64	63	191

8-bit scene with dimming time	Call up	3 byte	CW

This object calls up the 8-bit scene with the number x (i.e. recalled). Bits 0…5 contain the scene number x for this. If Bit 7 = logical 1, then the object is ignored (i.e. no scene called up or saved). If Bit 7 = logical 0, then it is called up. Bit 6 is currently spare and must be set to logical 0.

Bit 23	22	21	20	19	18	17	16
Dimming time (DPT_TimePeriod100MSec, high byte)							

Bit 15	14	13	12	11	10	9	8
Dimming time (DPT_ TimePeriod100MSec, low byte)							

Bit 7 save	6 "0":	5…0 Scene number x -1			
Scene (DPT_SceneControl)					

Only certain dimming times (see dimming time parameter) can be processed. The dimming times are therefore rounded down to the next possible value.

Calling up a scene interrupts the time functions currently running (timer mode/night mode) and the value reset by the call-up remains received indefinitely.

When saving new scene values, the ECG value is not polled via DALI, but the internally computed value is used. This value is then written into the ECG.

8. COMMUNICATION OBJECTS (cont.)

■ 8.5 2-point lighting control

8.5.1 Description

The controller works functionally as an independent function block. Up to sixteen (16) 2-point controllers can be created. If the controller is enabled, the lighting is switched on as soon as the lower brightness falls below the set threshold. The lighting is switched off if the set upper brightness threshold has been exceeded. Brightness thresholds can be varied using parameters or communication objects.

By means of isolation into two individual switching objects for breaching the upper and lower thresholds, the controller can also be operated as a "Semi-automat (only off)". It can therefore be switched to "Only On" or "Only Off". If the controller receives a switching, dimming, or dimming value command or one of the defined scene commands from the associated object, then this is assessed as an external override and the controller switches the controller off. The "Controller Status" object sends this status change simultaneously.

The controller input signals can originate both from the internal objects and from external bus subscribers. If the criterion meets a threshold value overshoot or shortfall, then this is not sent to the bus immediately. The analysis unit first forwards a signal, if it has not changed its value over a defined period. This measure has the effect that short term brightness fluctuations do not lead directly to switching of the lighting.
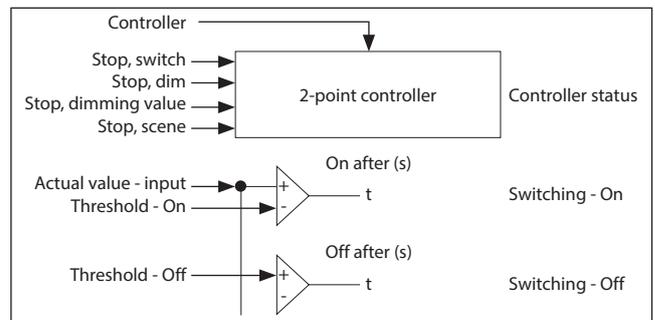

Fig. 9   2-point control function block

The controller internally knows two states: It is either On (= status controller) or Off.

The "Controller" object switches the controller on with (logical 1). If the controller is switched off manually via this object (logical 0), no value is sent to the start object.

The behavior without received brightness value for the two-point controller is described below:
While no brightness value has been received, neither is a switching command sent. The remaining behavior remains in existence. That a value has been received also remains saved after a partial download.
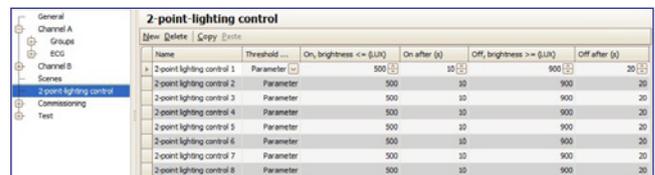

Fig. 10   2-point control parameters window

Parameters window menu	
New	A new controller is added.
Delete	The marked controller(s) is/are deleted.
Copy	The marked controller is copied into the clipboard.
Paste	The controller from the clipboard is added as a new controller.

CONTENTS

8. COMMUNICATION OBJECTS (cont.)

■ 8.5 2-point lighting control (*cont.*)
8.5.1 Description (*cont.*)

Columns	Settings
Name	**(max. 25 characters)**

This parameter assigns a 2-point controller a name with a maximum of 25 characters which is used again in the object description.

Threshold specification	**Parameter** Object

This parameter is used to set whether the threshold values with the controller as a parameter is set to a fixed value that can respectively only be changed with the help of the ETS (Engineering Tool Software) or whether the corresponding parameter set by the manufacturer should be changeable via two objects at any time. The values received via objects immediately overwrite the parameter value set by the manufacturer and are stored permanently.

Note: The controller's range can be extended via the objects. "On" Threshold < 250 Lux and "Off" threshold > 1500 Lux are possible. It is recommended that the variable control range be observed.

On, brightness ≤ (LUX)	250 - 1500 **500**

This parameter determines from which brightness value the "Switch on" telegram is sent. If the brightness threshold for switching on is > the brightness threshold for switching off, the value for switching on by the controller is set, to the value for switching off, i.e. both values are identical. This means that the controller still sends only one telegram to switch on. In this case, it has to be switched off manually.

ON after (s)	0 – 59 **10**

This parameter sets a delay only after which the ON telegram is sent.

OFF, brightness ≤ (LUX)	250 - 1500 **900**

This parameter sets which brightness reading has to be reached or exceeded so that the lighting is switched off by the controller.

OFF after (s)	0 – 59 **20**

This parameter sets a delay only after which the OFF telegram is sent.

Controller off for scenes	

A selection list can be used to select all scene numbers which shut off the controller when received via the "[Name], Stop Scene" object. The controller can be switched on again only by receiving "logical 1" on the "Controller" object.

8.5.2 Objects

Object name	Function	Type	Flags
[Name], Actual value input	**Brightness (Lux)**	**2 byte 9.004**	**CRW**

The brightness value that is used for the controller is received via this communication object.

| **[Name], controller** | **On/Off** | **1 bit 1.001** | **CWT** |

This "On" object can be used to switch the controller on or off. This information can, for example, come from a bus button or from a presence detector start object. If the controller is switched on by this object, then it is also used to reset the times in the delay times. If the controller is switched off manually, no value is sent on the start object.

| **[Name], controller status** | **On/Off** | **1 bit 1.001** | **CRT** |

The controller uses this object to report the status. This can have either the value "On", i.e. the controller is working in automatic mode, or the value "Off". Neither is there any distinction as to whether the controller was switched off manually or by override.

8. COMMUNICATION OBJECTS (cont.)

■ 8.5 2-point lighting control (*cont.*)
8.5.2 Objects (*cont.*)

Object name	Function	Type	Flags
[Name], On threshold	**Brightness (Lux)**	**2 byte 9.004**	**CRW**

This sets the threshold value externally for switching on the 2-point controller. Until the first incoming value, the value from the "Threshold value" parameter is used as the standard value.
This object is visible only if the "Threshold specification" parameter is set on the object.

| **[Name], Off threshold** | **Brightness (Lux)** | **2 byte 9.004** | **CRW** |

This sets the threshold value externally for switching off the 2-point controller. Until the first incoming value, the value from the "Threshold value" parameter is used as the standard value.
This object is visible only if the "Threshold specification" parameter is set on the object.

| **[Name], Stop** | **Switching** | **1 bit 1.001** | **CWT** |

If a value is received via this object (logical 0 or 1), the controller switches off, because it has been overwritten from outside. The controller can be switched on again only by receiving "logical 1" at the "Controller On/Off" object.

| **[Name], Stop** | **Dim** | **4 bit 3.007** | **CWT** |

If a value is received via this object, the controller is switched off, because it has been overwritten from outside. The controller can be switched on again only by receiving "logical 1" at the "Controller On/Off" object.

| **[Name], Stop** | **Off if dimming value < minimum dimming value** | **1 byte 5.001** | **CWT** |

If a value is received via this object (0...255), the controller is switched off, because it has been overwritten from outside. The controller can be switched on again only by receiving "logical 1" at the "Controller On/Off" object.

| **[Name], Stop** | **Scene** | **1 byte 17.001** | **CWT** |

If a scene value is received via this object (0...63), then the controller switches off if the associated scene number is selected in the "Controller off for scene" parameter field. The controller can be switched on again only by receiving "logical 1" at the "Controller On/Off" object.

| **[Name], Switching** | **On** | **1 bit 1.001** | **CWT** |

This object is one of the two outputs from the 2-point controller.
It sends a value (On), if the brightness is below the set brightness value in a given period.

| **[Name], Switching** | **Off** | **1 bit 1.001** | **CWT** |

This object is one of the two outputs from the 2-point controller.
It sends a value (Off), if the brightness is above the set brightness value in a given period.

8. COMMUNICATION OBJECTS (cont.)

■ 8.6 Error status devices

8.6.1 Parameter

Parameters	Settings
DALI, error status	Send only on read request Send on status change **Send on status change/bus voltage recovery**

This parameter sets whether the objects "[Channel], DALI device failure", "Voltage failure" and "[Channel], DALI short circuit" should be added.

If the parameter setting is "Send on status change", objects are sent automatically on each status change.

With "Send on status change/bus voltage recovery", objects are sent on bus voltage recovery and automatically on each status change.

Sending is not automatic with "send only on read request".

Sending the status via a read request is possible with any parameter setting.

8.6.2 Power failure

The 1-bit status object "Power failure" reports the status of the common power supply for the gateway and the DALI line. If the object value = "0", then the power supply is present. If the object value = "1", then the power supply has failed. With this, the gateway is no longer functional and all ECGs enter the configured dimming state for a failure of the DALI-voltage.

A short-term buffer power supply for the gateway -electronics integrated with the device ensures that a mains power failure is detected and the power supply status telegram can still be transferred.

No.	Object name	Function	Type	Flag
34	Power failure	1=mains failure	1 bit	CRT

The power supply status for the gateway N 141/31 and for the DALI -lines (0=no mains failure; 1=mains failure) is sent to this object via the group address.

8.6.3 DALI device failure

The 1-bit object "[Channel], DALI device failure" reports that the power supply to DALI devices must have failed.

If more than the number configured with the parameter "Channel [A|B], failure >= DALI device(s)" are no longer responding to queries, a failure of the power supply for the DALI devices is assumed. If the object value = "0", then the power supply is present. If the object value = "1", then the DALI device power supply has failed. A separate object and a separate parameter are available for each DALI channel:

No.	Object name	Function	Type	Flag
30	A, DALI device failure	1=failure	1 bit	CRT
32	B, DALI device failure	1=failure	1 bit	CRT

If polling the DALI devices establishes that the power supply to the DALI devices has failed, the status of the power supply for the DALI devices is sent via this object (0=no failure; 1=failure).

Parameters	Settings
Channel [A][B], failure ≥ DALI device(s)	1-64 1

If the number of DALI devices with a power failure is ≥ the configured value, the object "[Channel], DALI device failure" is set to 1 = "failure" or to 0 = "no failure".

8. COMMUNICATION OBJECTS (cont.)

■ 8.6 Error status devices (*cont.*)

8.6.4 DALI short circuit

The object "[Channel], DALI short circuit" reports a short circuit of the DALI- line. If the object value = "0", then there is no short circuit. If the object value = "1", then the DALI line has short-circuited. The DALI -gateway can no longer control the DALI -devices and all DALI -ECGs enter the dimming state configured for a DALI voltage failure.

No.	Object name	Function	Type	Flag
31	A, DALI short circuit	1=short circuit	1 bit	CRT
33	B, DALI short circuit	1=short circuit	1 bit	CRT

A short circuit of the DALI line is reported to this object via the group address (0=no short circuit; 1=short circuit).

■ 8.7 Export/Import/Convert

8.7.1 Overview

All plug-in settings and data can be saved via an XML file to another storage location (e.g. hard disk). This can be useful if a configuration is to be transferred to another device or provided as a template.

> **Note:**
> This XML file must not be changed manually; for this, the content is checked for data consistency with a checksum.

The XML file can be generated from the plug-in via "Export" and read in with "Import". All settings are overwritten on import.

8.7.2 Export

The export mechanism backs up a KNX/DALI gateway's settings in a file. In addition to all descriptions, settings, plug-in parameters, the DALI device numbers and names assigned on commissioning are also exported in this file. These exported numbers, names and group assignments, however, are valid only while no fresh ECGs are initialized and no other application have been loaded into the device from the associated gateway.

8.7.3 Import

This function imports exported configuration data (XML file) from other gateways. Files with identical version numbers can be imported directly.

■ 8.8 Commissioning

Commissioning assigns defined DALI subscribers to the actual DALI devices in the system. A unique abbreviated address is assigned to every DALI subscriber (ECG, sensor, etc.). This assignment is unnecessary in "Broadcast" channel mode.

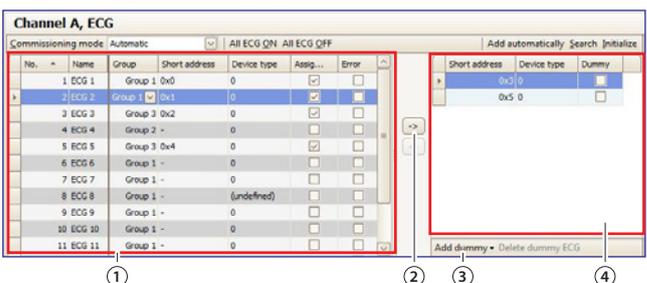The general features are described with the ECG, in which the commissioning functionality applies also for sensors.

Fig. 11 ECG start-up parameters window

① ECG list ③ Placeholder
② Assignment ④ Search result

8. COMMUNICATION OBJECTS (cont.)

■ **8.8 Commissioning (*cont.*)**

8.8.1 General

The following criteria are necessary for commissioning the gateway:
a) all DALI devices supplied with power: Gateway, ECG, etc.
b) All DALI subscribers (ECGs, sensors, etc.) are connected with the gateway
c) KNX connection via the interface guaranteed
d) Physical address of the gateway programmed

> **Note:**
> A download must generally be performed following adaptations during start-up.

8.8.2 Status line

The plug-in distinguishes between two modes:
- offline: no connection to the gateway
- online: Connection established to the gateway

Certain functions (commissioning, testing, etc.) function only "online".

The current connection status is shown in the status line. A connection trial can be controlled accordingly through the two buttons - "Reconnect" and "Cancel". On successful setup of the connection, the current firmware versions are shown.

If the connection cannot be set up, this is indicated by "Error".

Fig. 12 Status line

8.8.3 Editing the ECG list

The following columns can be directly edited if no ECG is assigned.
• ECG name
• Group
• Device type

8.8.4 Assign

The assignment can take the following forms:
• Buttons: DALI devices can be assigned with both buttons between the ECG list and the search result. The type of assignment is shown by the direction of the arrow.
• Drag & Drop: Lines in either list can be assigned to the other list by means of "drag and drop".
• Double clicking: Double clicking on an unassigned ECG assigns the marked ECG from the search result.
• CIN: If at least one CIN is configured in the ECG parameter sets, then an attempt will be made to automatically assign all of the ECGs having a configured CIN before the user can make the assignments manually.

The assignment can only be completed if the following conditions apply:
• The configured device type and the device type of the found device must be the same. For devices with a number of device types, all device types known to the plug-in must be the same. If no device type is configured, then solely unknown device types can be assigned to the device: e.g. for device type 8. Without a device type, the basic switching and dimming functions are supported.
• The set minimum value must be ≥ the minimum physical dimming value. If this is not the case, this will be adjusted on demand automatically.

8. COMMUNICATION OBJECTS (cont.)

■ **8.8 Commissioning (*cont.*)**

8.8.5 Commissioning - ECG

Button	
Commissioning mode	**automatic** Flashing Shut-down Switch-on Function test

This parameter decides how an individual DALI device can be identified: "automatically" (by flashing or switching off, depending on the detected lighting type, which is connected to the DALI device; by switching off or on with HQL lamps), by "flashing", by "switching off" or by "switching on" the lighting connected to the DALI device.

All ECGs ON	

All ECGs connected to the gateway are switched on at maximum brightness.

All ECGs OFF	

All ECGs connected to the gateway are switched off.

← ECG - assign	

The configured and actual ECG is chosen by selecting the desired ECG on the left or right side and clicking on the ← button.

It is also possible to execute the assignment by double clicking on one of the two ECGs selected. This button is only released if compatible inputs are selected on both sides.

→ ECG - delete assignment	

This function transfers a previously assigned ECG again to the right field as an unassigned ECG. With a subsequent parameter download in the gateway, a real ECG is no longer assigned to this configured ECG. This process can also remove an ECG marked as defective. A new ECG can be assigned in this way (ECG exchange). This button is only released if an assigned ECG is selected on the left side.

8.8.5.1 ECG list

Button	
Edit (right click in the line)	

Right-clicking in an ECG table line switches you into the corresponding ECG parameter window. Name and group assignment can be edited and the device assignment deleted if need be. If the ECG is still unassigned, the device type can be edited.

Assigned	

This indicates a successful assignment. Use Edit to delete the assignment

Error	

If the assignment could not be completed successfully, an error is indicated here.

Note:
An error flag is only set if the data stored in the plug-in no longer correspond to the ECG data from a new search process.
This means that the ECG is no longer available or was replaced.

8. COMMUNICATION OBJECTS (cont.)

■ 8.8 Commissioning (*cont.*)

8.8.5 Commissioning - ECG (*cont.*)

8.8.5.2 Search ECG

Button	
Search	

Pressing this button searches for all serviceable DALI devices connected to the gateway. A search begins which lasts for a few minutes. The DALI devices that are found appear for the first time in the right-hand list with the headings "Short address" and "Device type". Previously assigned ECGs have the same value in the relevant "Short address" column. No short address "-" appears for a DALI device shown in the left-hand window to which no device found has been assigned. This search must also be performed whenever DALI devices are exchanged or added.

Further searches can follow the first if, say, further DALI devices are installed or exchanged. It may be that DALI devices found previously on commissioning are no longer connected to the power supply in a further search. This is indicated by ☑ in the "Error" column. The table can be sorted by any column, so that defective DALI devices can be checked very easily. In a fresh search, defective DALI devices, if they are again serviceable, are also indicated again as having no errors "☐".

Note:
Before searching for DALI devices, all installed DALI devices should be connected with the gateway and be ready for operation.

Note:
DALI devices that support a number of DALI device types appear in the search result with all types by which they are supported separated by a comma (e.g.: 0,2,3,4). The assignment is made only if the configured device types are the same.

Initialize (reset)	

Pressing the button resets the short address of the marked ECG in the search result. After the reset, a search process must be restarted.
Application 1:
During commissioning, the system dictates that two ECGs shall flash. "Initialize" resolves this conflict.
Application 2:
An ECG is reset after "Initializing" and can be connected in another DALI system without any problems. Only in this way is an address conflict avoided.

Create automatically	

When this function is selected, ECGs which have been found but not yet assigned are automatically created as ECGs, which when activated create a new parameter entry for unassigned ECGs and assign the ECG to this.
Pre-condition:
The user begins the start-up and looks for ECGs. Non-assigned ECGs are found. With at least one group must be free.
At least the number of non-assigned ECGs found must still be able to be added.

8.8.5.3 Placeholder

Placeholders are used to determine short addresses for DALI devices
• which cannot be assigned the short address via the plug-in (coding switch on the ECG) and
• for short address assignment via an external tool.

> **Note:**
>
> These ECGs must be connected to the DALI bus in a serviceable state in the event of a search.

The "New placeholder" button can add a placeholder (incl. device type) and assign it to an ECG. A search should always be made so that the updated information is available to the plug-in.

> **Note:**
>
> "Delete" deletes an ECG placeholder again.
>
> The "Placeholder" column shows whether an ECG has been added as a placeholder. If an ECG with the address of a placeholder is found in the search, then it is replaced by the ECG.

8. COMMUNICATION OBJECTS (cont.)

■ 8.9 Test

Individual ECGs and groups can be switched directly after commissioning for testing, or dimmed to a variable value without any need for this to be sent via group address telegrams.

8.9.1 Groups

Fig. 13 Group test parameters window

Individual groups are listed with their parameters.

Use the buttons to test the group function.

The behavior of the group for the functions specified above corresponds to a receipt on the corresponding communication objects: On/Off switching, brighter/darker dimming, set dimming value. Previously set dimming times are ignored. The time function is also disabled. Again, no group addresses should be assigned for the test.

Use the buttons to execute the following functions.

Button	
All groups ON	

This button switches on all groups.

All groups OFF	

This button switches off all groups.

[I] (On)	

(On)

[O] (Off)	

Use this button to switch off the group.

[+] / [−]	

Use these buttons to brighten/darken the group incrementally by approx. 1/20 (5%).

[✓] Set value	

Enter the value and click on the button to send the dimming value to the group.

[?] (Entry/display field)	

This field shows the current dimming value [%], after the "Read value" button was pressed. You can also enter a dimming value [%] here and send it with the "Set value" button.

[R] Read value	

This button forces reading of the current dimming value of the selected group.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L1 legrand

CONTENTS

21/28

8. COMMUNICATION OBJECTS (cont.)

■ 8.9 Test (*cont.*)

8.9.2 ECG

Fig. 14 ECG test parameters window

After selecting a list entry, the following functions can be executed via the buttons.

Button	
All ECGs ON	
This switches on all connected ECGs.	
All ECGs OFF	
This switches off all connected ECGs.	
`I` / `O` **(On / Off)**	
Both buttons can switch the ECG on or off, even if it is assigned to a group.	
`✓` **Set value**	
After entering the value, press this button to transfer the dimming value for the ECG.	
`+` / `−`	
Use these buttons to brighten/darken the selected ECG in each case incrementally by approx. 1/20 (5%).	
`?` **(Entry/display field)**	
This field shows the current dimming value [in percent] after the "Read value" button was pressed. A dimming value (in percent) can also be entered in this field. You then press the "Set value" button to accept the dimming value and send it to the selected device.	
`R` **Read value**	
This button triggers a readout of the ECG's current dimming value status and shows it here.	

Individual ECGs and groups can be switched directly after commissioning for testing or dimmed to a variable value without any need for bus telegrams to be sent via group addresses.

8. COMMUNICATION OBJECTS (cont.)

■ 8.9 Test (*cont.*)

8.9.3 Scenes

Fig. 15 Scene test parameters window

After selecting a list entry, the following functions can be executed via the buttons.

Button	
All ECGs ON	
This button switches on all ECGs ("Central On" for all ECGs).	
All ECGs OFF	
This button switches off all ECGs ("Central Off" for all ECGs).	
Read scene values	
This button reads off and shows the current dimming values for all groups and ECGs.	
`✓` **Set value (call up)**	
This button calls up the selected scene. The integrated groups set the dimming values stored in the gateway.	
`R` **Read value**	
This button reads off and shows the current dimming values for all groups and ECGs. This is how to set a scene on site using control elements and then read it back into the configuration. The values read can be changed in the configuration before saving or downloading them.	

Individual scenes can be tested directly after assigning the ECG and a download parameter, without any need to send bus telegrams via group addresses.

■ 8.10 Settings

8.10.1 Works function

The Works function is enabled ex works:
• Broadcast mode
• KNX buttons ex works control both channels and switch or dim all connected ECGs (switching, dimming).
• A DALI Button interface in the delivered state controls both channels.
• Other sensors are not included.

8.10.2 Acknowledge

All group telegrams, even those sent personally, are confirmed in the standard setting.

General	
System	
Optimized acknowledge	**Yes** No

Yes: Group telegram repetitions are avoided if group addresses are solely used to connect internal function blocks.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

Llegrand

CONTENTS

8. COMMUNICATION OBJECTS (cont.)

■ **8.9 Test (*cont.*)**

■ **8.10 Settings (*cont.*)**

8.10.3 Behavior during Download

On starting a download (programming) the following actions are executed:
• Stop of all light controllers
• Saving of the current statuses of all ECGs

No commands are processed during the download:
• Group telegrams are discarded
• Controllers are disabled

If there is a power failure during a download:
• DALI failure
• ECGs switch to "System Failure Level" if the supply is backed up
• The application is not started after the mains power is restored. The download process must be repeated in its entirety.

After a complete download, the behavior is as after a mains failure. In addition, all undefined ECG status values are 0.

Behavior after the partial download is variable:

General	
System	
Behavior after partial download	ECG off, controllers disabled
	ECG on, controllers enabled
	As before download

This parameter sets the behavior after a partial download:
"ECG off, controllers disabled": All groups are switched off and all controllers are disabled.
"ECG on, controllers enabled": All groups are switched on and all controllers are enabled.
"As before download": All groups that are unaffected by the parameters remain unchanged. In other words, these revert to their former values after the partial download. Groups that are affected by changes can change their dimming values. All controls are restored to reflect the enabling before the download.
Time functions continue to run in timer mode or in night mode.

The following actions are executed after the download:
• Set the dimming values in accordance with the parameter setting.
• Controllers are restarted in accordance with the parameter setting.
• The "Block error status messages" object is reset. The error messages are reactivated.

■ **8.11 Behavior during power failure/recovery**

Should there be a (mains) power failure, the device saves the current dimming values for all groups, so that these are available again when the power is restored.

Depending on the configuration, groups can assume different dimming values when there is a power failure.

> **Note:**
>
> The standard configuration for a power failure is "No action", for power recovery it is "As before bus voltage failure".

The dimming value which is set on power recovery, is variable by means of parameters.

To avoid high bus loads on the KNX bus (to transfer the current group status messages when the bus voltage recovers), you can set a delay time, with status messages being transferred only after this has elapsed (→ 8.11.1).

8. COMMUNICATION OBJECTS (cont.)

■ **8.11 Behavior during power failure/recovery (*cont.*)**

8.11.1 Parameter

General	
Behavior during ramp-up and failure	
Parameter	**Settings**
Delay after restart [mm:ss]	12:00 AM – 4:15 AM
	00:00 AM

If objects should be sent on the bus after bus voltage recovery, this can be delayed by means of this parameter. This avoids the occurrence of bus overloads if a number of gateways are in use. If several gateways are installed, these should be set to different delay values.
This parameter refers to the following communication objects (→ Sec. 8.6):
[Channel], Error status
[Channel], DALI device failure (minimum delay dependent on the number of DALI subscribers)
[Channel], [Group / ECG], Switching status
[Channel], [Group / ECG], Dimming value status
[Channel], [Group / ECG], Error status

Optimize DALI communication after return of power supply	**No**
	Yes

Some DALI ECGs need a pause in the DALI communication after the power supply is recovered. This is enabled by setting the parameter to "Yes".

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L1 legrand

CONTENTS

23/28

8. COMMUNICATION OBJECTS (cont.)

■ 8.11 Behavior during power failure/recovery (*cont.*)

8.11.2 Objects - Error status

Depending on the configuration and the type of event, the objects "Power failure", "[Channel], DALI device failure" and "[Channel], DALI short circuit" are sent on a corresponding failure.

Event	"DALI, error status" parameter	Power failure	[Channel], DALI device failure	[Channel], DALI short circuit
Power supply, failure	Send only on read request	–	–	–
	Send on status change	x	–	–
	Send on status change/bus voltage recovery	x	–	–
Power, Recovery (= Ramp-up)	Send only on read request	–	–	–
	Send on status change	x	–	–
	Send on status change/bus voltage recovery	x	x	x
DALI short circuit, begin	Send only on read request	–	–	–
	Send on status change	–	–	x
	Send on status change/bus voltage recovery	–	–	x
DALI short circuit, end	Send only on read request	–	–	–
	Send on status change	–	–	x
	Send on status change/bus voltage recovery	–	–	x
DALI devices, failure	Send only on read request	–	–	–
	Send on status change	–	x	–
	Send on status change/bus voltage recovery	–	x	–
DALI devices, recovery	Send only on read request	–	–	–
	Send on status change	–	x	–
	Send on status change/bus voltage recovery	–	x	–
KNX bus voltage, failure	Send only on read request	–	–	–
	Send on status change	–	–	–
	Send on status change/bus voltage recovery	–	–	–
KNX bus voltage, recovery	Send only on read request	–	–	–
	Send on status change	–	–	–
	Send on status change/bus voltage recovery	x	x	x

X = Object is sent, – = Object is not sent

Updated:

Created: 04/11/2016

L1 legrand

CONTENTS

8. COMMUNICATION OBJECTS (cont.)

■ **8.11 Behavior during power failure/recovery (*cont.*)**

8.11.3 Group / ECG

8.11.3.1 Power failure

The description of the ECG's behavior without checking by the gateway is for information only. There may be deviations owing to incorrect or different implementation with individual ECGs.

Mode	Parameter setting	Switch on value	Power failure (gateway) DALI short circuit (gateway)	KNX bus voltage, failure
Normal mode	No action		No action	
	Switch on value	Dimming value at switch off	Set maximum dimming value (no time limit)	If the lamp was switched on, cancel dimming; otherwise set to the dimming value on switch off with no time limit, if there is no value, set to the minimum dimming value.
		Last received dimming value	Set maximum dimming value (no time limit)	Set to the last received dimming value with no time limit or, if there is no value or zero was the last value received, set to the minimum dimming value.
		x%	Set value to x% (no time limit)	
	Maximum dimming value		Set maximum dimming value (no time limit)	
	Minimum dimming value		Set minimum dimming value (no time limit)	
	Switch off		Switch off	
Night mode	No action		No action. Status as before power failure, time limiting remains enabled. If the time elapses during the failure or if the failure is the 230V AC supply, the lamp remains on with no time limit until the DALI short circuit has been cleared and the gateway sends the value no value to the ECG.	No action. Status as before power failure, time limiting remains enabled. If the time elapses during the failure, the lamp is switched accordingly.
	Switch on value	Dimming value at switch off	Set maximum dimming value (no time limit)	If the lamp was switched on during the failure, cancel dimming; otherwise set to the dimming value on switch off with no time limit or, if there is no value, set to the minimum dimming value.
		Last received dimming value	Set maximum dimming value (no time limit)	Set to the last received dimming value with no time limit or, if there is no value or zero was the last value received, set to the minimum dimming value.
		x%	Set value to x% (no time limit)	
	Maximum dimming value		Set maximum dimming value (no time limit)	
	Minimum dimming value		Set minimum dimming value (no time limit)	
	Switch off		Switch off	

Mode	Parameter setting	Switch on value	DALI failure (ECG) (System Failure Level)	ECG 230V (supply) failure
Normal mode/ Night mode	No action		No action	
	Switch on value	Dimming value at switch off	Set maximum dimming value (no time limit)	
		Last received dimming value	Set maximum dimming value (no time limit)	Light failure
		x%	Set value to x% (no time limit)	
	Maximum dimming value		Set maximum dimming value (no time limit)	
	Minimum dimming value		Set minimum dimming value (no time limit)	
	Switch off		Switch off	

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L] legrand

CONTENTS

25/28

8. COMMUNICATION OBJECTS (cont.)

■ **8.11 Behavior during power failure/recovery (*cont.*)**

8.11.3 Group / ECG (*cont.*)

8.11.3.2 Power recovery

The description of the ECG's behavior without checking by the gateway is for information only. There may be deviations owing to incorrect or different implementation with individual ECGs.

Mode	Parameter setting	Switch on value	Power, gateway recovery[*]	KNX bus voltage, recovery/DALI short circuit, End (gateway)
Normal mode	No action		No action	
	Switch on value	Dimming value at switch off	Set to maximum (no time limit)	If the lamp was switched on during the failure, recover the value; otherwise set to the dimming value on switch off with no time limit or, if there is no value, set to the minimum dimming value.
		Last received dimming value	Set to maximum (no time limit)	Set to the last received dimming value with no time limit or, if there is no value or zero was the last value received, set to the minimum dimming value.
		x%	Set value to x% (no limit)	
	Maximum dimming value		Set to maximum (time limit)	
	Minimum dimming value		Set to minimum (time limit)	
	As before the bus voltage failure		Value as before power failure	
	Last received dimming value		Set to maximum (no time limit)	Set to the last received dimming value with no time limit or, if there is no value or zero was the last value received, set to the minimum dimming value.
	Switch off		Switch off	
Night mode	No action		No action	
	Switch on value	Dimming value at switch off	Set to maximum (no time limit)	If the lamp was switched on during the failure, recover the value (time limit); otherwise set to the dimming value on switch off with no time limit or, if there is no value, set to the minimum dimming value (time limited).
		Last received dimming value	Set to maximum (no time limit)	Set to the last received dimming value, time limited or, if there is no value or zero was the last value received, set to the minimum dimming value (time limited).
		x%	Set to the configured switch on value (time limited)	
	Maximum dimming value		Set to maximum (time limit)	
	Minimum dimming value		Set to minimum (time limit)	
	As before the bus voltage failure		Status as before voltage failure (time limited if On)	
	Last received dimming value		Set to maximum (no time limit)	Set to the last received dimming value, time limited or, if there is no value or zero was the last value received, set to the minimum dimming value (time limited).
	Switch off		Switch off	

[*] on recovery of the 230V AC supply, ECGs are switched to night mode with no time limit

If the power supply for the ECGs is recovered before that for the gateway, the ECGs start with their own configuration. The current DALI standard does not record which value is used as the start value if no DALI power is available when starting the ECG.

The start value is therefore produced from the sequence in the ECG and the "DALI failure - ECG" and "Power Recovery (ECG)" table. If the gateway has concluded the start process, the ECG is controlled using the "Gateway Power Recovery" table. The description of the ECG's behavior without checking by the gateway is for information only. There may be deviations owing to different implementation of individual ECGs.

Mode	Parameter setting	Switch on value	Power, Recovery (ECG) (PowerOn Value)	DALI recovery (ECG)
ECG is in stand-by area	…	…	Switch off	
Normal mode/ Night mode	No action		No action	The gateway tracks the ECG using the current valid value.
	Switch on value	Dimming value at switch off	Set maximum dimming value (no time limit)	
		Last received dimming value	Set maximum dimming value (no time limit)	
		x%	Set value to x% (no time limit)	
	Maximum dimming value		Set maximum dimming value (no time limit)	
	Minimum dimming value		Set minimum dimming value (no time limit)	
	As before the bus voltage failure		No action	
	Last received dimming value		Set maximum dimming value (no time limit)	
	Switch off		Switch off	

If the connection to the ECG is broken, the ECG is reported as faulty. If the connection is recovered, the ECG is tracked with the currently valid value.

Technical data sheet: S000094171EN-1

Updated:

Created: 04/11/2016

L1 legrand

CONTENTS

8. COMMUNICATION OBJECTS (cont.)

■ **8.11 Behavior during power failure/recovery (*cont.*)**

8.11.4 2-point controller

If the mains power or the KNX bus voltage fails, the implementation of the light controllers is stopped. The status is Off following recovery; the controllers are thus deactivated. A DALI failure has no effect.

■ **8.12 Standard applications**

The device provides various standard applications which are functional without KNX connection. They are used as an "island solution" if no KNX communication is provided or is not supplemented until later. If the functionality of the standard applications does not suffice for the usage case, then the individual start-up with ETS is recommended.

The standard applications all operate with central commands (broadcast) so that no identification of the ECG is necessary.

If the mode is activated or changed, then the devices on the DALI bus will be partially reconfigured. This also means that an existing configuration by the bus is lost. The bus mode can only be reactivated by a new download.

ECG errors (lights or ECG defective) are recognized; they are displayed for each channel.

The prior status before the failure is restored when the power fails.

If a DALI device is added, the mode must be re-selected to configure the new device. The same applies if a defective ECG is repaired or replaced.

8.12.1 Configuration

The various standard applications are stored in the device as a configuration and can be called up and configured by the operating buttons and the device display. The device is restarted (reset) following the selection of the standard application whereby all of the settings in the device and in the ECGs are deleted. The selected standard application is read from the device memory searched for following the reset. The ECGs are controlled solely by central commands (broadcast). Depending on the mode selected, links are changed in the way described by the mode.

The behavior corresponds to a predefined ETS configuration without the need for a download. The required group addresses are assigned in the address area of the "construction site addresses" (31.7 x).
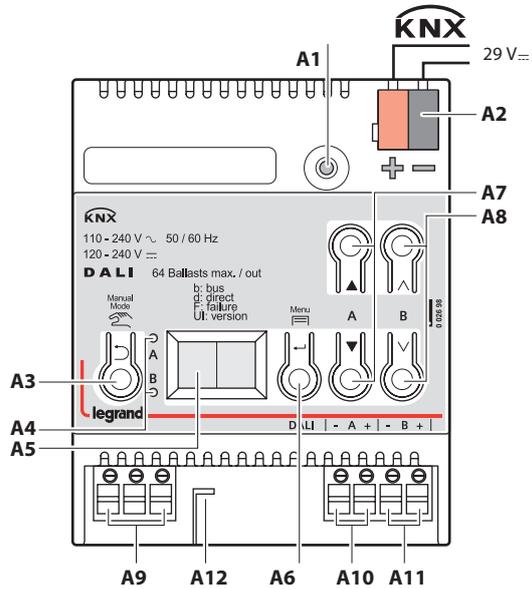
If a KNX link is connected in this mode, then the group addresses are also transferred by KNX. The KNX communication is not deactivated.

Function	Group address
A, Switchning	31/7/0
A, Dimming	31/7/1
A, Dimming value	31/7/2
A, Status for motion detectors	31/7/3
B, Switching	31/7/16
B, Dimming	31/7/17
D, Set dimming value	31/7/18
B, Status for motion detectors	31/7/19
Scene call-up	31/7/32
A, Brightness	31/7/48
B, Brightness	31/7/49
A, Save target value	31/7/50
B, Save target value	31/7/51
A, Dimming value status	31/7/52
B, Dimming value status	31/7/53

8. COMMUNICATION OBJECTS (cont.)

■ **8.12 Standard applications (*cont.*)**

8.12.2 Activate standard applications

Button	Display	Description
A6 ▭		Switch to menu with A6
A7 ▲▼	○ ○	After multiple pressing of the A7 menu item "Standard applications"
A6 (briefly) ↵	○ ○	The last mode selected is displayed when A6 is tapped.
A6 (long) ↵	○ ○ (blink)	The display switches to selection mode when A6 is held down.
A7 ▲▼	○ ○ (blink)	The mode can be selected when A7 is pressed. The display flashes during the mode configuration.
A6 ↵	○ ○	(flashes) The following parameters can be set in certain modes by holding down A6: T1 : Time delay t1 [min] (Standard value 15) T2 : Time delay t2 [min] (Standard value 1h = 60) D1 : Dimming value d1 [%] (Standard30) LL : Brightness threshold L1 - L5 (Standard L3) All of the parameters are confirmed by tapping A6.
A3 ⟲		Pressing A3 "back" restores the previous settings, if applicable.
A6 ↵	○ ○	(flashes) Holding down A6 confirms the selection and restarts the device.
A6 ↵	○ ○	The devices are configured after the device is restarted.
	○ ○	(flashes) Errors are displayed after the configuration as follows: E0 : DALI short circuit E1 : No sensors found E2 : No button interface found E3 : Not enough channels found for button interface (button interface defective) E4 : No presence sensor found E5 : Too many presence sensors found E6 : Not enough channels found for presence sensors (Combination sensor defective) E7 : Configuration error E8 – E9 : reserved for additional errors The LED thus shows whether the error occurred on Channel A and/or B. Errors can be confirmed by A6.
		The "A" display is shown when the standard application is active.

L1 legrand

CONTENTS

9. ANNEXES

■ **9.1 DALI dimming curve**

The adaptation of the DALI dimming curve to the sensitivity of the human eye results in a logarithmic characteristic curve for the luminous flux, which is detected by human perception as a linear light progression.

IEC 62386-102 describes the DALI values as "ARC Power across the light source", which in most cases forms a nearly linear correlation with the luminous flux.

The luminous flux describes the entire light output emitted from a light source in all room directions. This unit is Lumen (lm).

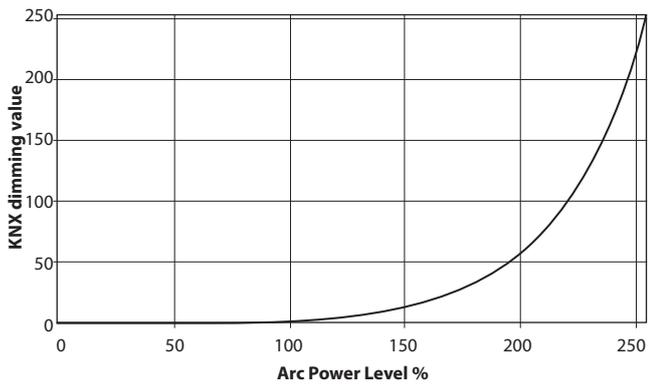The characteristic curve in the following illustration was determined for the DALI luminous flux.

Fig. 16 KNX - DALI - Dimming curve

CONTENTS