

Gateways

DALIK

v1.4.3

Programming manual



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1 General description

The DALIK gateway (Ref. GW611100) is a device used for control interface between DALI protocol lights and KNX devices.

It allows to control up to 64 DALI lights or 16 DALI groups, including an integrated power supply for them.

It is possible to control configured DALI lights or groups through other KNX devices like touch panels, pushbuttons, etc. For each DALI light, this gateway has available the most common functions of dimming, switching, setting brightness values, light scenes and also feedbacks of DALI errors.



General characteristics:

- Control up to 64 DALI individual lights and 16 DALI groups.
- Possibility to control DALI standard ballasts or DALI emergencies (with extended parameters).
- Full functionalities for each light or group: dimming, switching on/off, setting brightness values, light scenes and DALI failure feedbacks.
- Extra functionalities for DALI emergencies: status check and alarms, battery percentage, functional tests, etc.
- DALI addressing and commissioning functions: off-line and on-line modes.
- No additional* DALI system devices required such as DALI controllers (*additional DALI power supply sources may be required depending on the number and model of the ballasts).
- On-line test functionalities for individual light localization and check.

2 Technical information

Main power supply	230Vac
Max. power consumption	0,5W @ 230Vac
KNX Supply	29V _{DC} from KNX BUS
KNX current consumption	5mA from KNX BUS
Mounting	DIN rail
Size	4 DIN modules
Connections	BUS connection terminal KNX Screw terminals for main power supply and DALI bus
Number of DALI devices	Up to 64 DALI lights individual control Up to 16 DALI groups control
DALI supported devices	DALI ballast – Standard functionalities DALI emergency – Fully extended parameters
DALI power supply	Integrated
DALI voltage	16Vdc
Environment temperature range	Operation: -10°C/55°C Storage: -30°C/60°C Transportation: -30°C/60°C
Regulation	According to the directives of electromagnetic compatibility and low voltage: EN 50090-2-2 / UNE-EN 61000-6-3:2007 / UNE-EN 61000-6-1:2007 / UNE-EN 61010-1.

3 Programming

This manual explains how to configure the gateway memory, using the two available methods of programming:

Off-line mode: When there is **no connection** between the ETS, the gateway and the DALI installation. The project design and any configuration are done manually. This mode is used when the DALI installation has been previously configured (nodes addressed, groups and scenes programmed, parameters configured, etc.)

On-line mode: When there is **connection** between the ETS, the gateway and the DALI installation. The project configuration is generated according to the connected DALI line: addressing nodes, creating groups, etc. directly through the DALI bus.

3.1 Application program information

Application program: Ingenium / DALIK

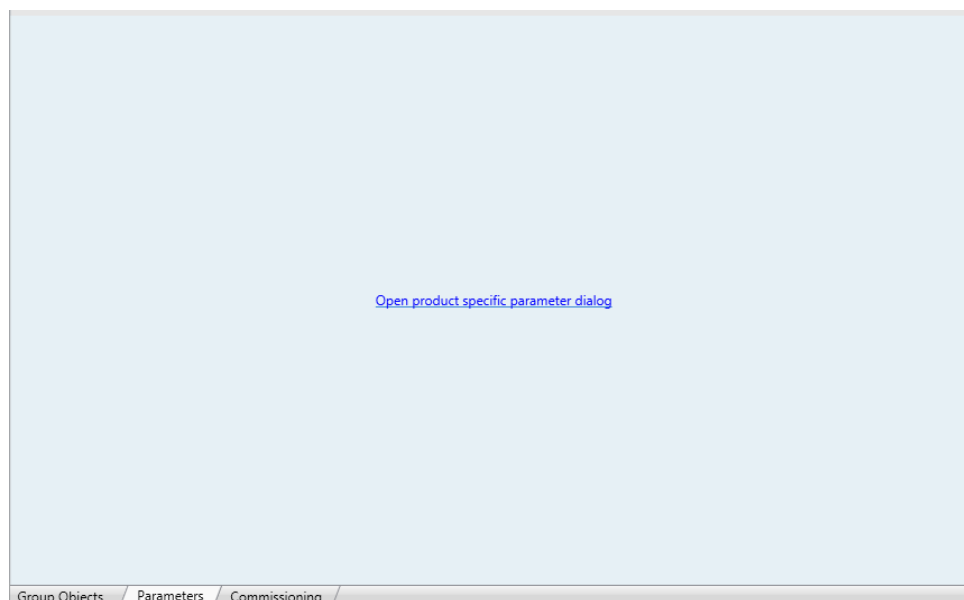
Plug-in version: v1.4.3

Maximum number of communication objects: 1208

Maximum number of assignments: 2048 (for versions after 04-Jun-14).

ETS minimum required version: 4.1.8

The parameters of the device are configured with a specific parameter dialog (plug-in); do click on “open” from the parameters menu in the ETS to run it:



3.2 Individual address assignment

The DALIK Gateway has a programming button for the KNX individual address assignment which is located on the front of the device.

A red led near the programming button lights up when it is pressed manually or if the device is set remotely to programming mode state.

The led is automatically turned off if the ETS has assigned an individual address correctly or if the programming button is pressed again manually.



To carry out an on-line configuration of the gateway a previous individual address assignment is required. If the DALIK gateway has a different individual address, has no address assigned or the ETS cannot connect to it due to any other reason, the plug-in application will show a failure and it will not change to on-line mode.

3.3 Communication objects tables

To show the DALIK gateway communication objects in the ETS project it is necessary to add to the gateway memory a number of DALI lights or groups.

The communication objects associated to each DALI individual ballast or DALI group will be shown or hidden according to the configuration that is done with the parameters plug-in. This DALI configuration can be done “on-line” or “off-line”.

3.3.1 DALI lighth objects

These are the objects that are available for each DALI individual light (standard ballast and emergency):

Objeto	Nombre Función	Longitud	DPT	Flags				
				C	R	W	T	U
0	DALI ballast X On/off	1 bit	1.001	•		•		•
1	DALI ballast X On/off status	1 bit	1.001	•	•		•	
2	DALI ballast X Value	1 byte	5.001	•		•		•
3	DALI ballast X Value status	1 byte	5.001	•	•		•	
4	DALI ballast X Dimming	4 bits	3.007	•		•		•
5	DALI ballast X Lamp failure	1 bit	1.001	•	•		•	
1129	DALI ballast X DALI individual scene	1 byte	18.001	•		•		•

3.3.2 DALI emergency specific objects

These are the objects that are available for each DALI individual emergency:

Objeto	Nombre Función	Longitud	DPT	Flags				
				C	R	W	T	U
489	DALI emergency X Maintained / non m. function	1 bit	1.001	•	•		•	
490	DALI emergency X Fluorescent tube alarm	1 bit	1.001	•	•		•	
491	DALI emergency X Battery alarm	1 bit	1.001	•	•		•	
492	DALI emergency X Status: test in progress	1 bit	1.001	•	•		•	
493	DALI emergency X Status: emergency	1 bit	1.001	•	•		•	
494	DALI emergency X Status: rest mode	1 bit	1.001	•	•		•	
495	DALI emergency X Status byte	1 byte	5.010	•	•		•	
496	DALI emergency X Battery charge: percentage	1 byte	5.001	•	•		•	
497	DALI emergency X Functional test: in progress	1 bit	1.001	•		•		•
498	DALI emergency X Battery test: in progress	1 bit	1.001	•		•		•

A DALI node which type is emergency has also available the previous ballast objects.

The DALI address that is controlled through these communication objects is indicated in the field X of the object name, being its possible value from 0 to 63.

3.3.3 DALI group objects

These are the objects that are available for each DALI group:

Objeto	Nombre Función	Longitud	DPT	Flags				
				C	R	W	T	U
384	DALI group X On/off	1 bit	1.001	•		•		•
385	DALI group X On/off status	1 bit	1.001	•	•		•	
386	DALI group X Value	1 byte	5.001	•		•		•
387	DALI group X Value status	1 byte	5.001	•	•		•	
388	DALI group X Dimming	4 bits	3.007	•		•		•
1193	DALI group X DALI group scene	1 byte	18.001	•		•		•

The DALI group that is controlled through these communication objects is indicated in the field X of the object name, being its possible value from 0 to 15.

3.3.4 General objects

The following is a general object that it is always available:

Objeto	Nombre Función	Longitud	DPT	Flags				
				C	R	W	T	U
480	Scene DALI general scene execution	1 byte	17.001	•		•		•

3.4 Objects description

3.4.1 DALI light objects

Name	Object 0: DALI node X on/off
Function	1-bit communication object to switch on and off the DALI light.
Description	<p>When a "1" is received through this object the light is switched on and the brightness level goes up to the last one memorized.</p> <p>When a "0" is received through this object the light is switched off.</p> <p>By default, the behaviour of the light when it is switched on/off through this object is: dimming to last value or a fixed percentage.</p>
Name	Object 1: DALI node X on/off status
Function	1-bit communication object for feedback signalling of the on / off state of the DALI light.
Description	<p>When the light is off and receives a switch on telegram or a brightness value, a "1" is sent through this object.</p> <p>When the light is on and it receives a switch off telegram or a brightness value of 0% a "0" is sent through this object.</p>
Name	Object 2: DALI node X value
Function	1-byte communication object for precise control by setting a new brightness level directly.
Description	<p>The brightness level will go up or down slowly according to the fade time (DALI parameter) configured.</p> <p>By default, the behaviour of the light when it is switched off and it receives a value different from 0% through this object is: dimming to receive value.</p> <p>The individual value of each light is memorized (every 10 seconds) and sent automatically (after 3 seconds) when the DALIK gateway recovers its power supply. If the light is not included in the project (gateway memory) it will not be sent. If there is a power supply failure of the DALI ballast, the value set after it is the individual power on level parameter (see paragraph 3.6.6 DALI parameters in page 25).</p>

Name	Object 3: DALI node X value status
Function	1-byte communication object for feedback signalling of the current brightness level of the dimmer.
Description	When it receives a new brightness value or an increase/decrease dimming telegram the final brightness value is sent through this object.
Name	Object 4: DALI node X dimming
Function	4 bits communication object for dimming control with pushbuttons.
Description	Depending on the dimming steps set in the pushbutton, telegrams will make the brightness level go up or down according to the fade time (DALI parameter) configured. Break telegrams to this object will stop the brightness at the current level.
Name	Object 5: DALI node X lamp failure
Function	1-bit communication object to feedback notification of any internal DALI ballast error through the KNX BUS.
Description	A "1" is sent automatically through this object when a DALI light detects a failure. Then, if the DALI failure is corrected, a "0" is sent again through this object. In general, all DALI ballasts support the lamp failure notification functionality.
Name	Object 1129: DALI node X DALI individual scene
Function	1-byte communication object for individual DALI scenes save and recall.
Description	When a value from 1 to 16 (0x00 to 0x0F) is sent to this object the corresponding DALI ballast will recall its internal scene which number corresponds to the value. Scenes can be programmed in the parameters window of the specific DALI ballast (The DALI protocol scenes number limitation is 16). When a value from 128 to 143 (0x80 to 0x8F) is sent to this object the corresponding DALI ballast will save its current brightness in the scene which number corresponds to the value. The scenes can be executed for a DALI individual light or a DALI group. After a group scene execution, the gateway will feedback the status of the first light that belongs to the group.

3.4.2 DALI emergency specific objects

Name	Object 489: DALI emergency X Maintained / non maintained function
Function	1-bit communication object to read the maintained (continuous) mode of the emergency.
Description	The maintained mode of the emergency can be read by this communication object. When a "1" is read through this object it indicates that the emergency is working in maintained mode. When a "0" is read through this object the emergency is working in normal mode. The maintained mode (continuous working mode) is configured by the manufacturer.

Name	Object 490: DALI emergency X Fluorescent tube alarm
Function	1-bit communication object for feedback signalling of the emergency lamp alarm.
Description	<p>A “1” is sent automatically through this object when a DALI emergency detects a lamp failure. Then, if the DALI failure is corrected, a “0” is sent again through this object.</p> <p>Only available if the DALI emergency supports the extended lamp failure notification functionality.</p>
Name	Object 491: DALI emergency X Battery alarm
Function	1-bit communication object for feedback signalling of the battery alarm.
Description	<p>A “1” is sent automatically through this object when a DALI emergency detects battery failure. Then, if the DALI failure is corrected, a “0” is sent again through this object.</p>
Name	Object 492: DALI emergency X Status: test in progress
Function	1-bit communication object for feedback signalling of the test progress status.
Description	<p>A “1” is sent automatically through this object when the DALI emergency status changes to test in progress. A “0” is sent through the other status objects too (emergency and rest mode).</p>
Name	Object 493: DALI emergency X Status: emergency
Function	1-bit communication object for feedback signalling of the emergency status.
Description	<p>A “1” is sent automatically through this object when the DALI emergency status changes to emergency. A “0” is sent through the other status objects too (test in progress and rest mode).</p>
Name	Object 494: DALI emergency X Status: rest mode
Function	1-bit communication object for feedback signalling of the rest mode status (normal mode).
Description	<p>A “1” is sent automatically through this object when the DALI emergency status changes to rest. A “0” is sent through the other status objects too (emergency and test in progress mode).</p>
Name	Object 495: DALI emergency X Status byte
Function	1-byte communication object for reading the status.
Description	<p>The status of the emergency can be read from this communication object.</p> <p>1 = Rest mode 2 = Normal mode 4 = Emergency mode 8 = Extended emergency mode 16 = Functional test in progress 32 = Battery test in progress</p>
Name	Object 496: DALI emergency X Battery charge percentage
Function	1-byte communication object for read the current battery charge percentage of the emergency.

Description	<p>The current battery charge level of the emergency can be read from this communication object being the answer a value from 0 to 254.</p> <p>Only available if the DALI emergency supports this feature. If the gateway answers the value 255 means that it is not supported.</p>
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Name	Object 497: DALI emergency X Functional test: in progress
Function	1-bit communication object to start and stop an internal functional test.
Description	<p>When a "1" is sent to this object the emergency starts a functional test that takes 5 seconds approximately.</p> <p>During this test the correct function is checked: the emergency changes from rest mode to test mode and the light is switched on. After the test, the light goes back to the last value and the emergency changes to rest mode again.</p> <p>When a "0" is sent to this object the emergency stops the current test.</p>
Name	Object 498: DALI emergency X Battery test: in progress
Function	1-bit communication object to start and stop an internal battery test.
Description	<p>When a "1" is sent to this object the emergency starts a battery test that takes 1 hour approximately. The battery test can only be executed when the battery is fully charged.</p> <p>During this test the battery autonomy is checked: the emergency changes from rest mode to test mode and the light is switched on. After the test, the light goes back to the last value and the emergency changes to rest mode again.</p> <p>When a "0" is sent to this object the emergency stops the current test.</p>

3.4.3 DALI group objects

The working and behaviour description of the DALI group objects is similar to DALI individual lights, except for the "lamp fail" object that it is not available for groups.

3.4.4 General objects

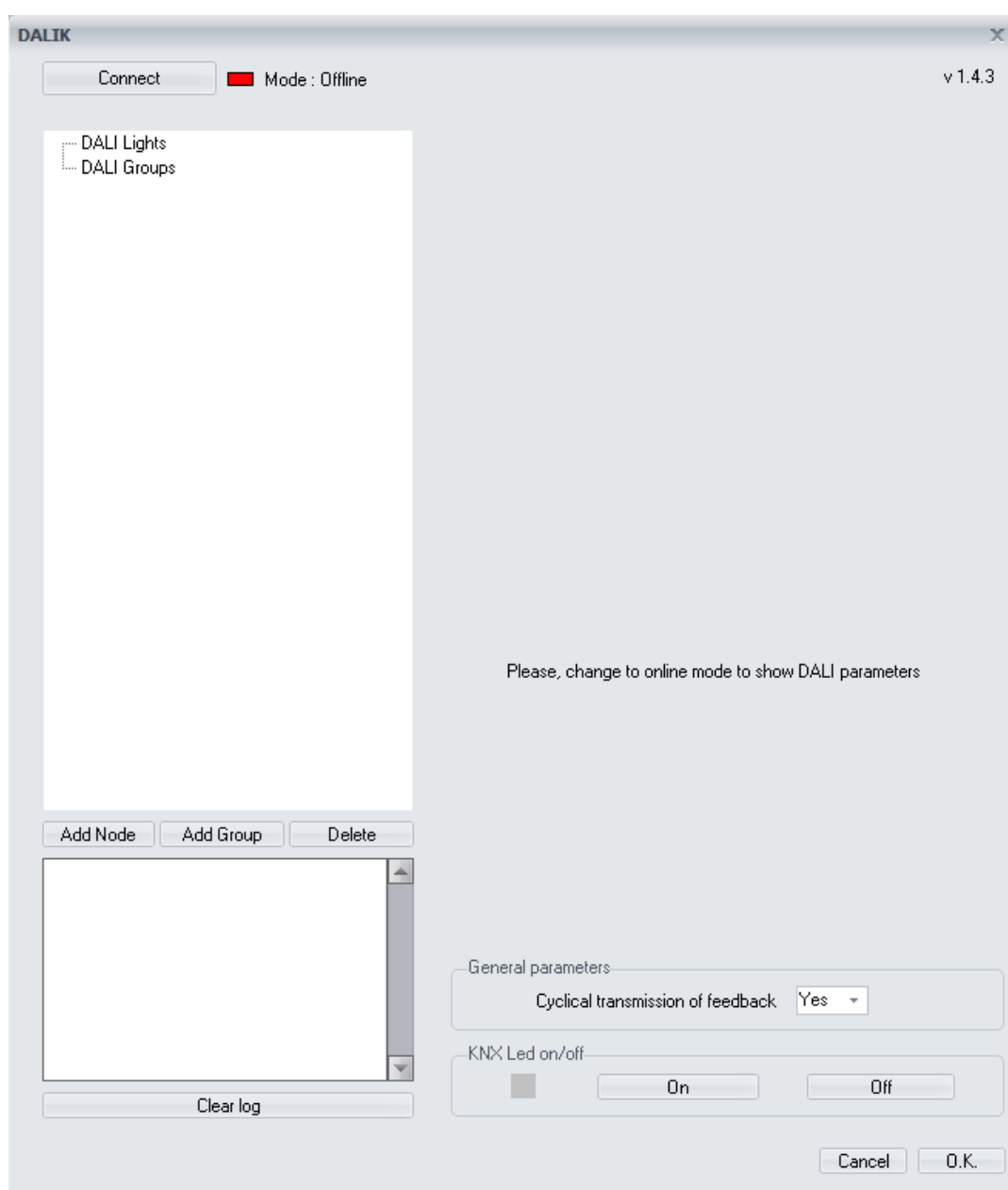
Name	Object 480: Scene DALI general scene execution
Function	1-byte communication object for general DALI scenes save and recall.
Description	<p>When a value from 1 to 16 (0x00 to 0x0F) is sent to this object every DALI ballast programmed in the gateway memory will recall its internal scene which number corresponds to the value.</p> <p>Scenes can be programmed in the parameters window of the specific DALI ballast (The DALI protocol scenes number limitation is 16).</p> <p>When a value from 128 to 143 (0x80 to 0x8F) is sent to this object every DALI ballast programmed in the gateway memory will save its current value in the scene which number corresponds to the value.</p>

3.5 Off-line mode

This programming mode is thought for project design and configuration without any connection to the DALI installation. In this case, the parameterization of the DALI ballasts it is supposed to be already done: addressing, groups assignment, parameters definition like maximum and minimum values, dimming fade time, power on levels, etc. or any setting of the internal DALI scenes.

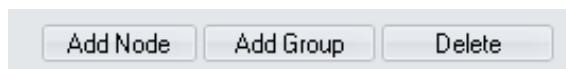
The programmer has been provided of all this information and only needs to configure the gateway, setting how many DALI lights or groups exist, and what addresses do they have. After that, the programmer work is only the assignment of the communication objects to KNX group addresses.

The first time that the specific parameter dialog (plug-in) is executed it is started in off-line mode.



3.5.1 Adding lights or groups

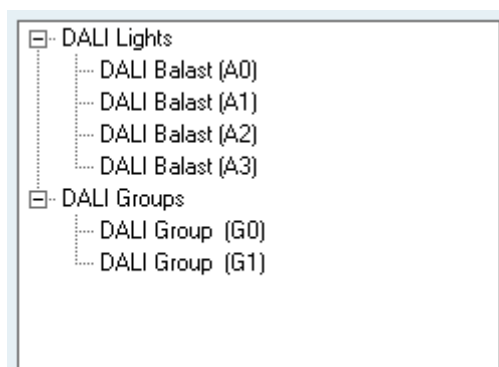
Do click on add node or add group buttons in the lower left corner to include DALI ballasts, emergencies or groups to the gateway memory.



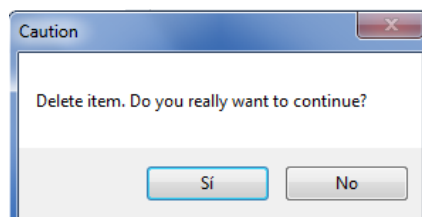
Notice that it is not possible to add lights or groups that have been already included. If a node (EVG) is added it must be selected the type of node that can be a standard DALI ballast or a DALI intelligent emergency.

A dialog box titled 'Add Node'. It has two dropdown menus: 'Address' with the value '0' and 'Type' with the value 'Balast'. At the bottom are 'OK' and 'Cancel' buttons.A dialog box titled 'Add Group'. It has a dropdown menu with the value '0'. At the bottom are 'OK' and 'Cancel' buttons.

The DALI lights (EVGs) and groups included are shown in the DALI project tree above.



To delete a light or group that has been already added to the DALI tree just select it and do click on the delete button and the do click on the ok option to confirm.



Once the DALI lights (EVGs) and groups have been added to the DALI tree, press OK at the lower right corner of the plug-in to go back to the ETS and see the communications objects that have been added to the DALIK gateway.



When controlling groups of lights, the only way to obtain a simultaneous behaviour is using DALI group objects of the gateway. It is not recommended to share group addresses for individual lights objects in order manage a group because the telegrams sent to the DALI bus are not simultaneous. The same happens when using scenes.

3.5.2 Groups and scenes

3.5.2.1 Groups

A DALI light (EVG) can be a member of up to 16 different DALI groups. When a light is included in a group it can be controlled individually or by group at any time. The DALI protocol also gives the possibility to save up to 16 different scenes or pre-sets that can be memorized individually for each DALI light.

The information of group members and scenes is saved in each DALI ballast. It can be read and edited from the application and it is automatically downloaded after downloading the application to the DALIK.



The DALI groups and scenes settings are sent automatically after programming the DALIK gateway. This operation may take a few seconds depending on the size of the installation.

Member of Group(s)	Scene
<input type="checkbox"/> Group 0	0 Scene 0
<input type="checkbox"/> Group 1	0 Scene 1
<input type="checkbox"/> Group 2	0 Scene 2
<input type="checkbox"/> Group 3	0 Scene 3
<input type="checkbox"/> Group 4	0 Scene 4
<input type="checkbox"/> Group 5	0 Scene 5
<input type="checkbox"/> Group 6	0 Scene 6
<input type="checkbox"/> Group 7	0 Scene 7
<input type="checkbox"/> Group 8	0 Scene 8
<input type="checkbox"/> Group 9	0 Scene 9
<input type="checkbox"/> Group 10	0 Scene 10
<input type="checkbox"/> Group 11	0 Scene 11
<input type="checkbox"/> Group 12	0 Scene 12
<input type="checkbox"/> Group 13	0 Scene 13
<input type="checkbox"/> Group 14	0 Scene 14
<input type="checkbox"/> Group 15	0 Scene 15

In the case of groups, the programmer can easily decide whether a ballast is member of a DALI group or not just by clicking on the corresponding checkbox. If the group already exists, the DALI light will be included on it. If the group has not been created yet the application will add it to the DALI tree automatically.

The DALIK programming application allows setting the groups configuration visually in an easy way with a lights-groups matrix. Do click on DALI groups in the project tree to show it.

	G0	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15
Node 0																
Node 1																
Node 2																
Node 3																
Node 4																
Node 5																
Node 6																
Node 7																
Node 8																
Node 9																

The horizontal axis of the matrix are the 16 DALI groups (from 0 to 15), and the vertical axis are each of the 64 DALI lights (from 0 to 63).

First of all, individual lights must be added to the project tree as explained before. If not, the matrix appears in blank.

	G0	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15
Node 0																
Node 1																
Node 2																
Node 3																
Node 4																
Node 5																
Node 6																
Node 7																
Node 8																
Node 9																
Node 10																
Node 11																
Node 12																
Node 13																
Node 14																
Node 15																

Then, by clicking on the boxes of the matrix, the lights are included in the corresponding groups.

	G0	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	G13	G14	G15
Node 0	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 1	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 2	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 3	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 4	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 5	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 6	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 7	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 8	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 9	Green	Green	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Node 10																
Node 11																
Node 12																
Node 13																
Node 14																
Node 15																
Node 16																

If the group has been already created, the light is just included in it. If the group has not been created yet it will appear in the project tree automatically. On the other side, if every light is deleted from a group, the application asks whether to delete it or not.

In the previous example picture, there are 10 DALI lights added to the project tree (from 0 to 9) and every of them are included in the group 0. The group 1 includes lights from 0 to 4 and the group 2 includes lights from 5 to 9.

3.5.2.2 Scenes

In the case of the scenes, the programmer can set the specific regulation value (0-255, from 0=0% to 255=100%) for each DALI scene (from 0-15).



The scenes can be executed for a DALI individual light or a DALI group. After a group scene execution, the gateway will feedback the status of the first light that belongs to the group.

3.5.3 Behaviour parameters

The behaviour of each DALI light and groups can be configured by clicking on them in the DALI tree. This parameterization is set individually for every light and every group and it is memorized in the gateway memory. The available behaviour parameters are explained next:

3.5.3.1 Behaviour when switching on

This parameter defines the ballast behaviour when receiving a switch on telegram (object 0: on/off for DALI light and object 384: on/off for DALI group). The ballast will dim the light to the last value (different from 0%) or to defined and fixed value in % from the list:

The time that the light takes to change from 0% to the switch on value is set in the following parameter: switch on time.

3.5.3.2 Allow switching on with brightness value

This parameter defines if the ballast can be switched on when receiving a new brightness value telegram (object 2: value for DALI light and object 386: value for DALI group).

When this parameter is set to “No”, if the light (or group) has been switched off by sending a switch off telegram or a 0% value, it cannot be switched on again by a new % value, it can only be switched on by switch on or dimming telegrams.

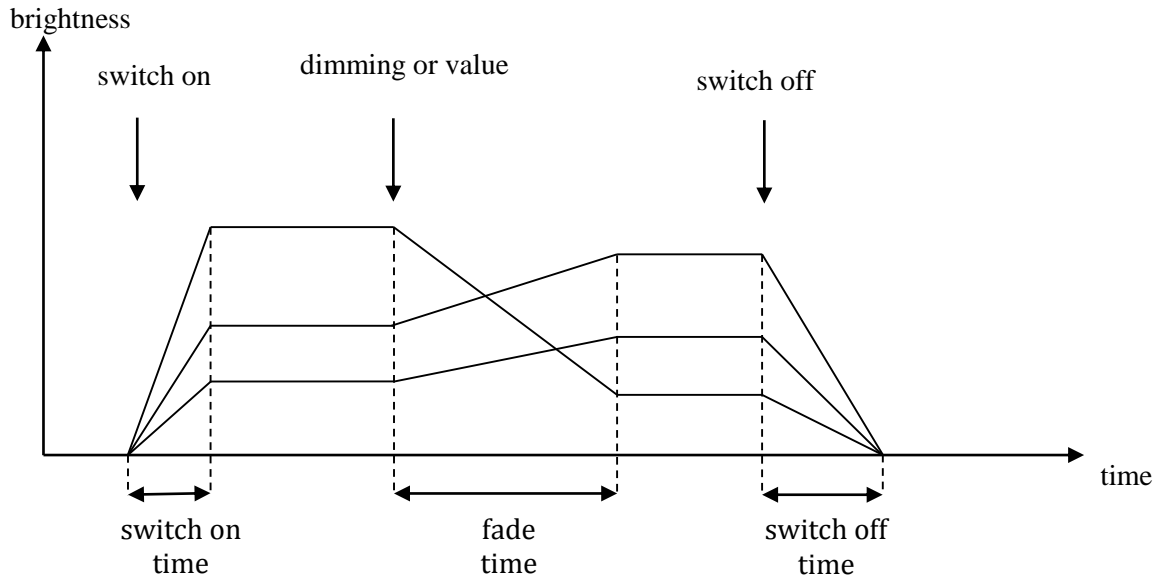
3.5.3.3 Switch on/off time

Switch on time: This parameter defines the time (measured in seconds) that the light takes to change from 0% to the switch on value when receiving a switch on telegram. The value of this parameter can be set from 0 to 15 seconds. The final brightness value depends on the previous parameter “behaviour when switching on” and the time is independent from the value (see figure).

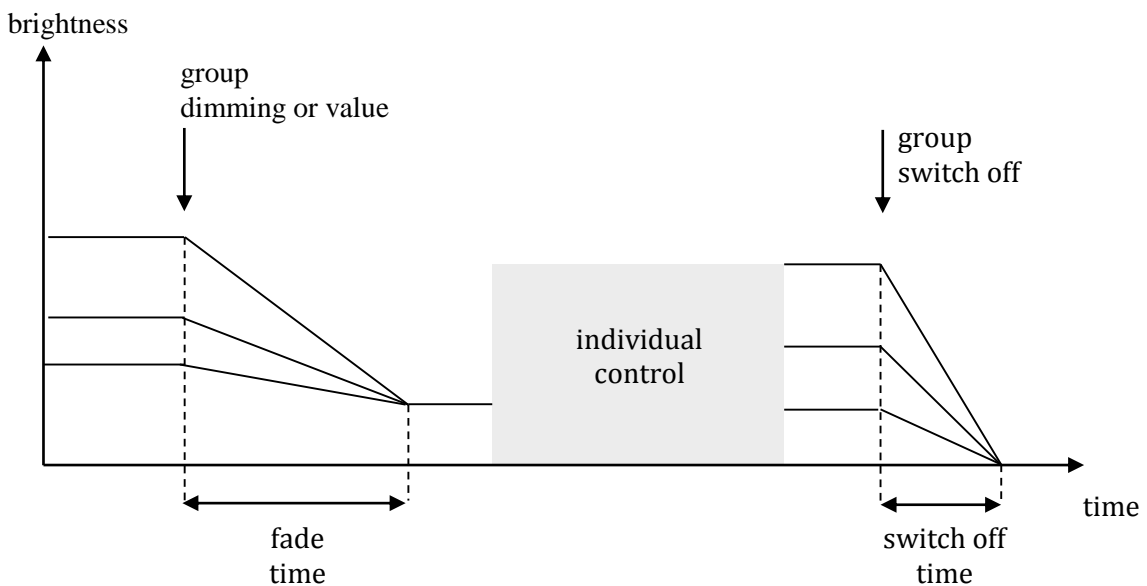
Switch off time: This parameter defines the time (measured in seconds) that the light takes to change from its current brightness value to 0% when receiving a switch off telegram. The value of this parameter can be set from 0 to 15 seconds. This time is independent from the initial value.

3.5.3.4 Fade time

It is the time (measured in seconds) that the light takes to change from its current brightness value to any other new value when receiving a value telegram. This time is independent from the initial and final value (see figure).



Thanks to this it is possible to dim a group of lights simultaneously obtaining a simultaneous effect even if the initial brightness values are not the same. When controlling DALI lights by groups, the effect is the same according to the behaviour parameters of the group (see next figure):



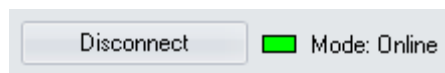
3.6 On-line mode

This programming mode is thought for project design and configuration when the DALIK gateway is connected both to KNX and DALI installations. This is the case where the parameterization of the DALI ballasts have not been done yet and it must be carried out by the ETS programmer.

The DALIK program application on-line mode provides all DALI commissioning functionalities that can be needed by the programmer: DALI addressing function, individual light localization and checking, DALI groups and scenes editing, individual ballast internal parameterization, etc.

During the on-line programming, the GE611100 gateway must be fully connected to KNX and main voltage power supply. Also every DALI device must be connected to the DALI line and main voltage supply too; otherwise it will not be detected correctly during the searching process and other functions.

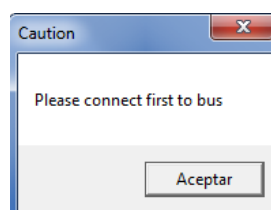
First, open the specific parameter dialog (plug-in) from the ETS parameters window and do click on connect button from above.



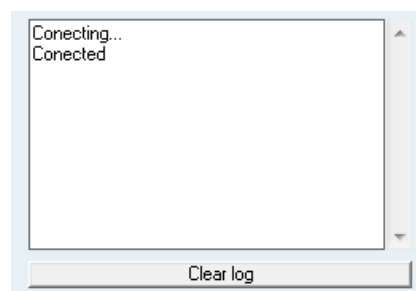
Remember that any on-line configuration of the DALIK gateway requires a previous individual address assignment to the device. If the gateway has a different individual address, has no address assigned or the ETS cannot connect to it due to any other reason, the plug-in application will show a failure and it will not change to on-line mode.



If the connection it is not ok and the plug-in is still in off-line mode, any on-line function is not available and the following message is shown.



If the connection is OK the plug-in shows a connected message in the log and the mode changes to on-line.



For the DALI installation on-line commissioning there are available three main functions that are explained next. These functions are focused to add all present DALI lights or groups to the gateway ETS project in several circumstances

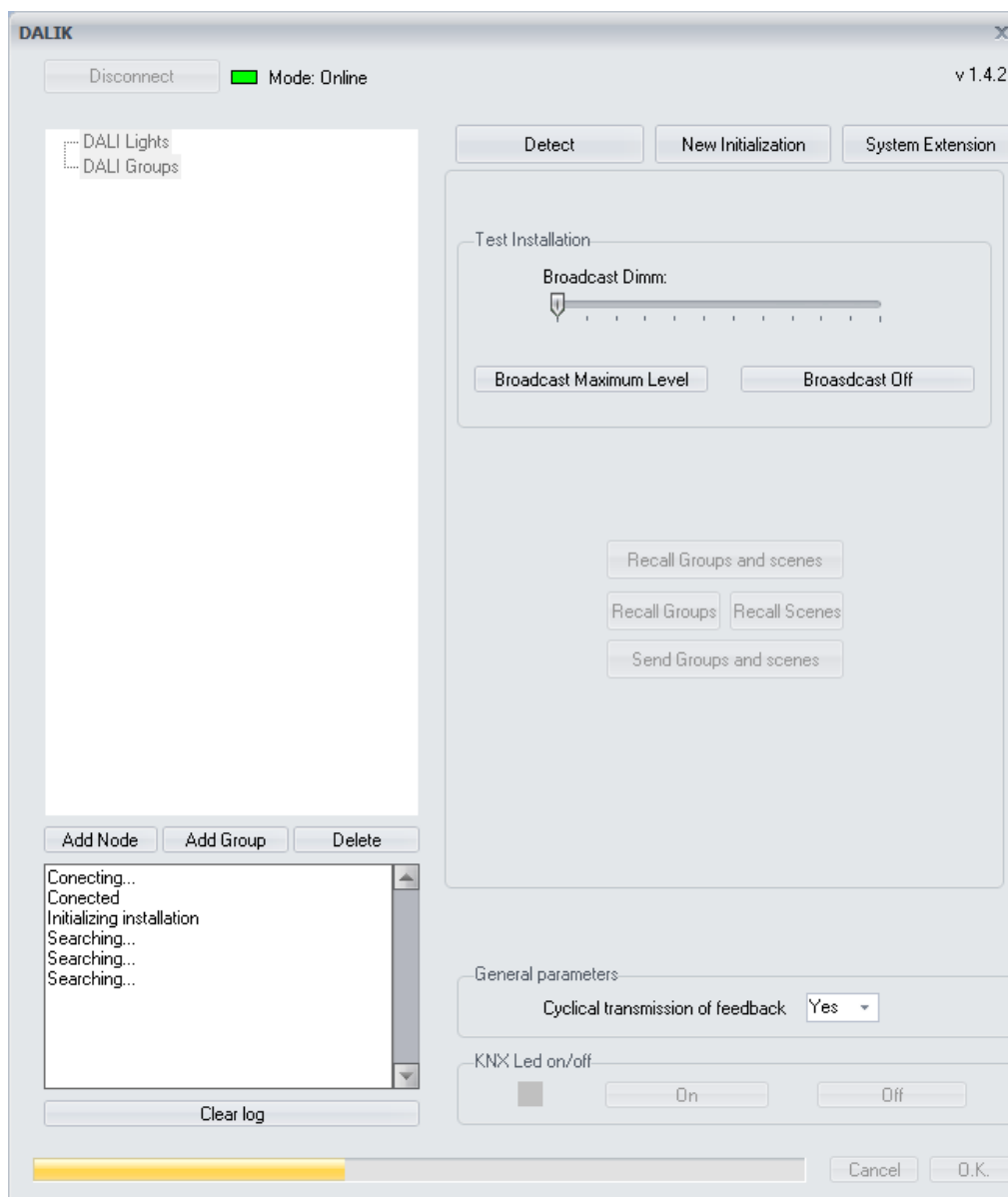
3.6.1 DALI commissioning

3.6.1.1 New initialization

The “New initialization” function is used the first time with no commissioned or addressed DALI installations.

The DALIK gateway will search for every connected DALI ballast by carrying out a progressive scan of the DALI line, identifying all the devices and assigning a DALI address to each of them. The time taken for the whole search can vary depending on the amount of DALI devices connected.

The devices detected and addressed by the gateway will be included in its DALI lights/groups tree automatically.



By pressing OK, the corresponding objects of each detected and addressed DALI node (EVG) will be shown in the ETS objects table.

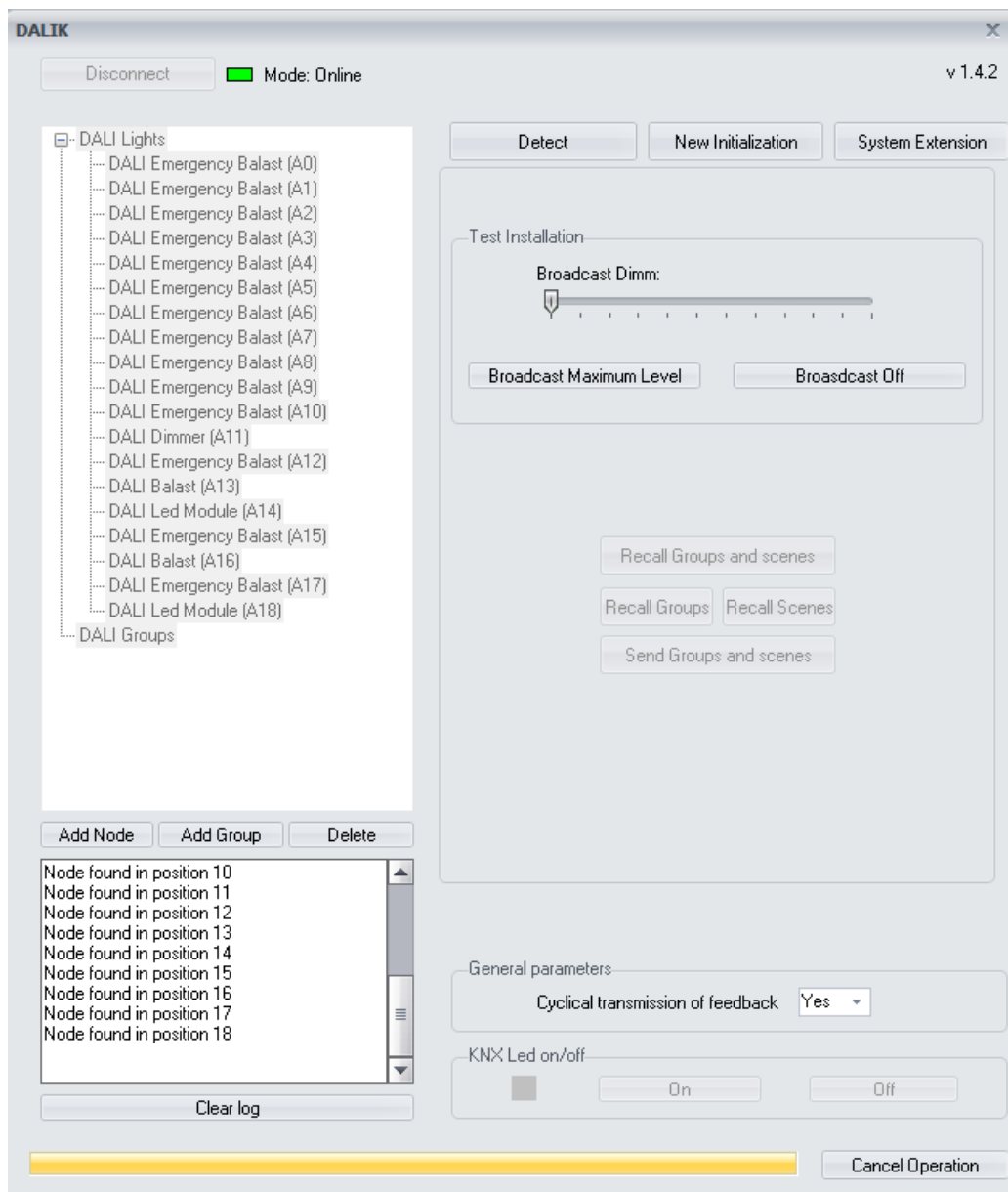


By using this function, the current configuration of the gateway will be lost and every DALI address may change.

3.6.1.2 Detection

The detection function can be used with already addressed DALI installations in order to include installed DALI lights into the DALIK memory. Use this function if the DALI line has been already addressed and it is only necessary to find every DALI device to add them to the project.

The DALIK gateway will search for every connected DALI ballast by carrying out a progressive scan of the DALI line, identifying all the devices and adding them to its memory. In this case the DALI address of each node (EVG) it is not changed.



By using this function, the current configuration of the gateway will be lost but the DALI addresses of the ballasts do not change.

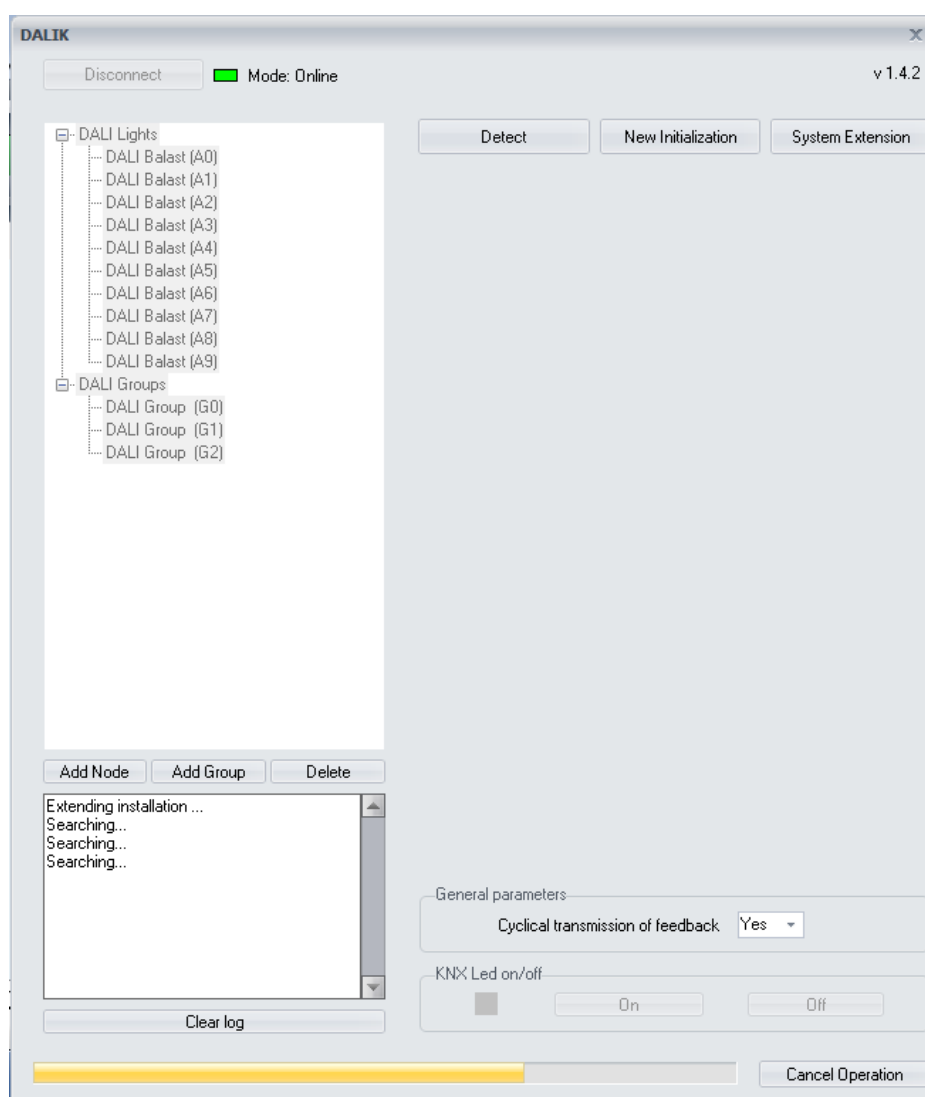
3.6.1.3 System extension

The system extension function can be used with already addressed DALI installations in order to include a new non-addressed DALI ballast. Use this function if the DALI line has been already addressed and commissioned and it is only necessary to find a new DALI device installed, assign it an address and add it to the project.



The system extension is a slow process. Do not use this function if the number of non-addressed nodes (EVGs) is very high. In this case it is better to run a new initialization.

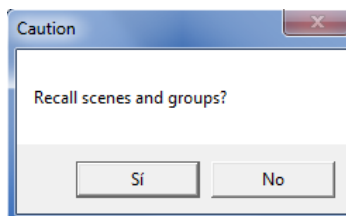
The gateway will search for the DALI ballast that does not have an address in its project tree and will assign it a free one, adding it to the project automatically. In this case the DALI addresses of other nodes do not change and the new DALI device will be available in the project.





By using the extension function, the current configuration of the DALIK gateway is saved and any new DALI ballast connected is addressed and added to the project. The other ballasts addresses do not change. The new ballast can be initialized if it is in initial state (from manufacturer); if the ballast has been addressed at least once then use the detect function to include it.

When detection, extension or initializing processes have finished, can be read the DALI groups and scenes of the detected ballasts.



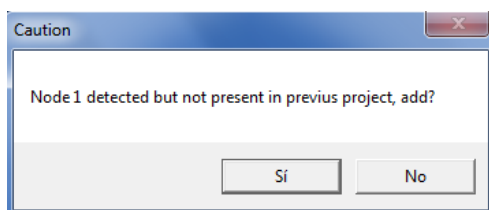
The groups and scenes are DALI specific parameters of the ballasts and can be read or written individually by clicking on each light or in general by clicking on the line in the project tree.

3.6.2 Off-line / on-line differences

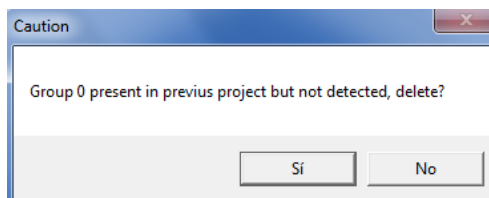
When the DALIK project has been already developed in off-line mode by adding manually the DALI lights and groups to the gateway, it can be checked the correspondence with the real installation by changing to on-line mode and the detection function.

Once the detection process has finished, the plug-in asks the programmer what to do with every difference that have been detected.

If a node has been detected and it was not included in the gateway memory, the plug-in asks whether to include it or not.



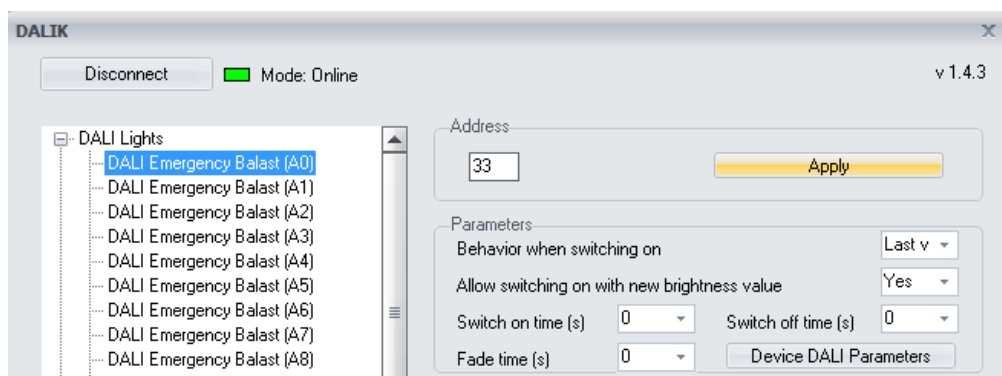
If a node was included in the gateway memory but it is not detected, the plug-in asks whether to delete it or not.



If the DALI groups have been read, the plugin will ask about the differences found with the previous project too. Then, the programmer can check if real installation detected by the gateway is according to his off-line configuration.

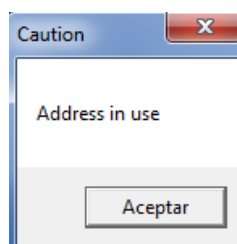
3.6.3 Address change

By this function, the programmer can edit the address of any DALI device (value from 0 to 63) and click on “apply” to send the new value in order to change it. The new DALI Address will be assigned to the previous addressed DALI ballast.



In the example picture, by pressing apply the current address of the DALI device 0 will be changed to 33. Remember that any on-line function of the DALIK gateway requires a previous individual address assignment.

If the address already exists in the DALI project (the current DALI tree) it cannot be changed.



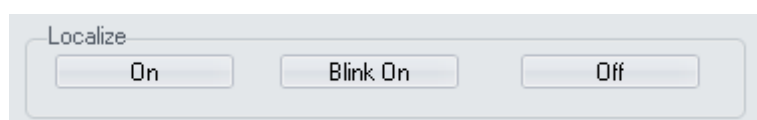
By using this function, the DALI address of the selected ballast will change. The plug-in shows an error if the address is already in use in the project but it could also exist in the DALI installation if the nodes were added manually, so in this case two DALI ballasts will take the same individual address.

3.6.4 Localization and check tools

3.6.4.1 Individual light or group

The DALIK application gives the on-line possibility of testing functionalities for individual DALI light or DALI groups localization and check.

Select the DALI light or group to be test in the project tree on the left and use the “maximum level” or “off” buttons.



On: To dim the DALI ballast to 100% brightness.

Off: To dim the DALI ballast to 0% brightness.

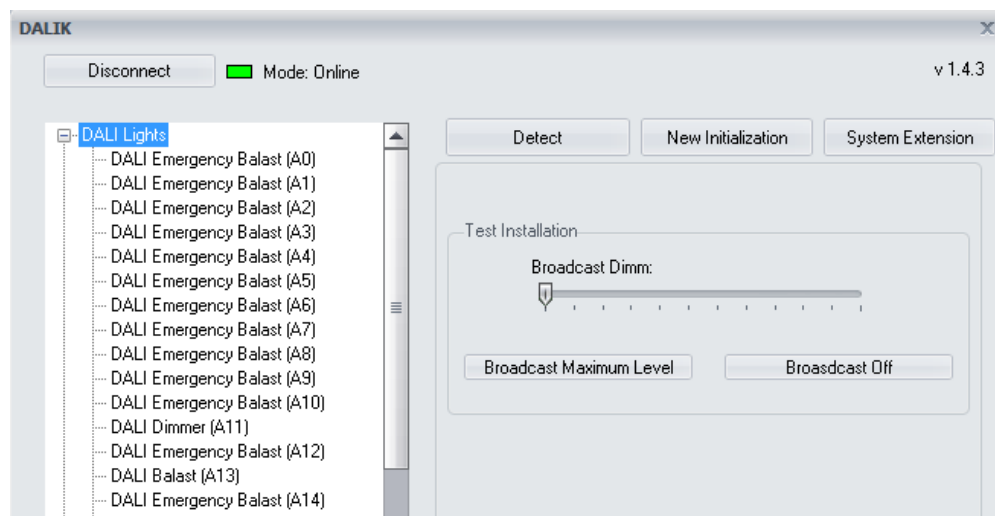
Blink: Make the DALI ballast start blinking. Do click again to stop.



The node selected can be changed by clicking on the project tree and the blinking mode remains activated until the button is pressed again.

3.6.4.2 Whole DALI installation

The whole DALI installation can be checked easily by doing click on the DALI lights tree. Do click on the broadcast buttons on the right or use the slider for dimming. Broadcast telegrams will be sent to check if every DALI light of the installation is ok.



3.6.5 Send/recall groups and scenes

When the plug-in application is in on-line mode, the programmer can click on the send/recall groups and scenes buttons to read or program the current configuration of the selected DALI device.

Member of Group(s)

<input checked="" type="checkbox"/> Group 0	0	Scene 0
<input type="checkbox"/> Group 1	127	Scene 1
<input checked="" type="checkbox"/> Group 2	255	Scene 2
<input type="checkbox"/> Group 3	0	Scene 3
<input type="checkbox"/> Group 4	0	Scene 4
<input type="checkbox"/> Group 5	0	Scene 5
<input type="checkbox"/> Group 6	0	Scene 6
<input type="checkbox"/> Group 7	0	Scene 7
<input type="checkbox"/> Group 8	0	Scene 8
<input type="checkbox"/> Group 9	0	Scene 9
<input type="checkbox"/> Group 10	0	Scene 10
<input type="checkbox"/> Group 11	0	Scene 11
<input type="checkbox"/> Group 12	0	Scene 12
<input type="checkbox"/> Group 13	0	Scene 13
<input type="checkbox"/> Group 14	0	Scene 14
<input type="checkbox"/> Group 15	0	Scene 15

La totalidad de grupos y escenas pueden ser leídos después de una detección y se pueden programar haciendo clic en la línea DALI.



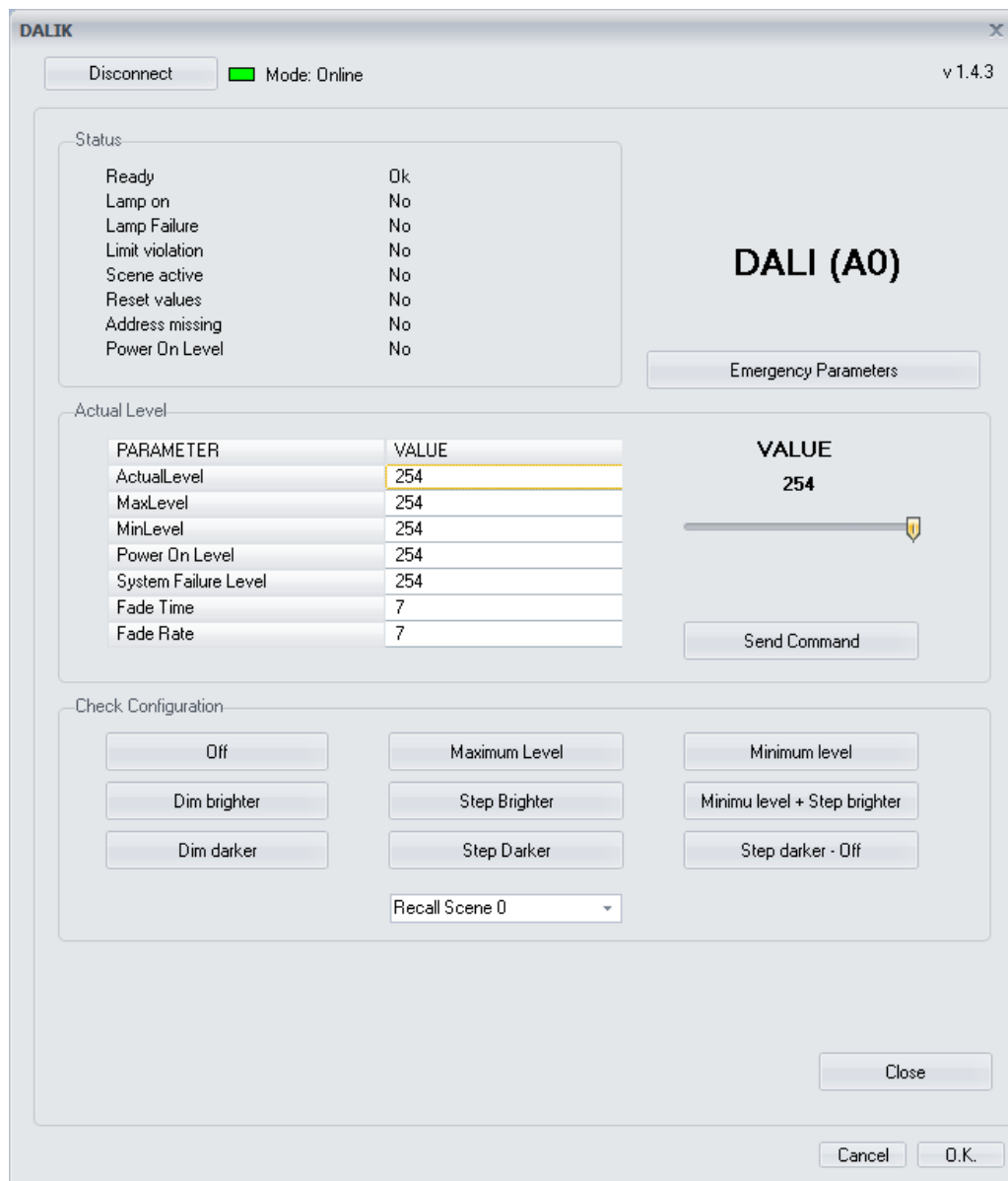
When the gateway application is programmed by the ETS, the groups and scenes are sent automatically to DALI devices (this process could take several minutes depending on the size of the installation). It is not necessary to program them individually by clicking on each light or in general by clicking on the DALI lights line in the project tree.

3.6.6 DALI parameters

3.6.6.1 Standard

By doing double click on each DALI individual light, the programmer is able to edit and configure several DALI internal parameters of each device. There are two general types of DALI devices supported: dimmers (ballasts) and emergencies. The emergencies support some more parameters as will be explained next.

When the DALI internal parameter window is shown by doing double click on the light, the DALIK reads every current value from the DALI line. Remember that this on-line tool requires a previous individual address assignment of the gateway and the ballast.



The new window shows for the indicated DALI ballast (upper right side) the current values of the following parameters.

Status flags: In this section are shown some DALI status flags of the ballasts.

Status	
Ready	Ok
Lamp on	No
Lamp Failure	No
Limit violation	No
Scene active	No
Reset values	No
Address missing	No
Power On Level	No

- Ready: Yes/no. Indicates if the DALI ballast has been initialized and it is ready for working or not.
- Lamp on: Yes/no. Indicates if the light is on or off (a minimum brightness value).
- Lamp failure: Yes/no. Indicates whether there is a lamp failure or not.

- Limit violation: Yes/no. Indicates if there has been any limit violation.
- Scene active: Yes/no. Indicates if any scene has been executed or not.
- Reset values: Yes/no. Indicates if the DALI ballast has been reset.
- Address missing: Yes/no. Indicates if the DALI ballast has missed or not the address.
- Power on level: Yes/no. Indicates if the DALI ballast brightness value is at power on level or not.

Parameters: In this section are shown the current DALI parameters that have been read. They can be edited by clicking on them and using the scroll bar on the right. Take into account that the behaviour of some parameters depends on the DALI ballast and maybe cannot be edited through the whole range.

PARAMETER	VALUE
ActualLevel	254
MaxLevel	254
MinLevel	254
Power On Level	254
System Failure Level	254
Fade Time	7
Fade Rate	7

VALUE
254

Send Command

- Actual level: 0-255. It is the current brightness level of the light.
- Max level: 0-255. It is the maximum brightness level that the ballast can reach.
- Min level: 0-255. It is the minimum brightness level that the ballast can reach.
- Power on level: 0-255. It is the brightness level that it is set after a main power supply failure.
- System failure level: 0-255. It is the brightness level that it is set when there is a DALI cable failure.
- Fade time: 0-15. It is the time that the ballast takes to dim from any value to a new brightness value.
- Fade rate: 0-15. It is the rate that the ballast takes to dim from any value to a new brightness value.



The individual value of each light is memorized (every 10 seconds). When there is a power failure, the last value is sent automatically (after 3 seconds) when the gateway recovers its KNX power supply. If the light is not included in the project (gateway memory) it will not be sent. If there is a power supply failure of the DALI ballast (but not in the gateway), the value set after it is the individual power on level parameter.

Check configuration: In this section there are several on-line tools that give the programmer the possibility of testing functionalities for individual DALI light localization and check.

Check Configuration

Off Maximum Level Minimum level

Dim brighter Step Brighter Minimu level + Step brighter

Dim darker Step Darker Step darker - Off

Recall Scene 0

Do click on close to go back to the main view of the plug-in.

Close

3.6.6.2 Emergency extended parameters

In the case of being a DALI emergency, some extra parameters and functionalities are available by doing click on emergency parameters (check the manufacturer information).

Emergency Parameters

The following window shows the specific internal status of the emergency and allows to execute two different tests: battery autonomy and normal function test. The results of the tests and many other important indicators are shown if the DALI emergency supports them.

PARAMETER	VALUE
Battery state of charge	255
Time span duration test	0
Lamp burnign hours in emergency mode	3
Total Lamp burnign hours	127
Intensity in emergency mode	255
Minimum intensity in emergency mode	255
Maximum intensity in emergency mode	255
Rated duration	30
Next function test	unknown
Next duration test	unknown
Interval for function test	unknown
Interval for duration test	unknown
Maximum test delay	unknown
Prolong time emergency mode	unknown

Start Function Test

Start Duration Test

Stop Test

3.7 Summary: recommended procedure

The DALI installation on-line commissioning can be done by using all the functions that have been explained before. As summary, the recommended procedure of a DALI installation commissioning is the following:

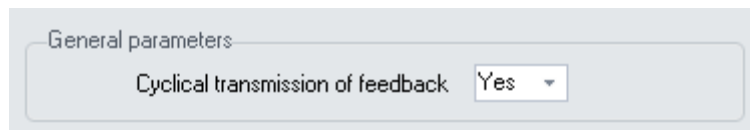
- Download the individual address to the gateway with the ETS.
- Open the plug-in application from the parameters window and change to on-line mode.
- Check that every DALI node (EVG) is correctly connected by sending a switch on telegram to broadcast
- If every DALI ballast is correctly connected, do click on New initialization. The DALIK gateway will carry out a progressive scan of the DALI line assigning an aleatory address to each non-addressed node (EVG).
- Use the System extension function if a new ballast has been connected.
- Set all the behaviour parameters, groups and scenes of each DALI node (EVG).
- Do click on the ok button to save the configuration. The communication objects of every DALI ballast and group will be shown now in the ETS.
- Do the assignment of the communication objects to KNX group addresses.

- Download the application to the DALIK gateway.
- Finally, wait a few minutes for the device to program all the groups, scenes and parameters to the DALI installation automatically.

3.8 Other functions

3.8.1.1 Cyclical transmission of feedback

There is a general parameter that allows to set the cyclical transmission of feedback while a DALI ballast is dimming. This parameter defines the general feedbacks behaviour of the gateway (it cannot be edited for each light or group individually).

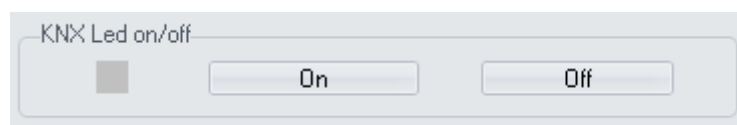


If this parameter is set to No, the brightness value feedbacks will only be sent at the end of the dimming, when the light reaches the final value, in other words, when the real DALI value is equal to the set point value. When it is sent a new brightness value lower than the minimum or higher than the maximum (DALI parameters) there will not be any feedback, except in the case of 0%. If this parameter is deactivated, when controlling groups, individual status feedbacks are disabled too.

If this parameter is set to Yes, the brightness value feedback is sent with every polling done to the DALI light (the frequency depends on the number of lights). This configuration ensures that there will be a status feedback with any brightness value. The amount of feedback notifications depends on the fade time of the light and the number of lights programmed in the gateway memory.

3.8.1.2 KNX Led on/Off

This function allows switching on and off the KNX led of the gateway without using the specific tool of the ETS. This is an on-line function that requires a previous individual address assignment to the device.



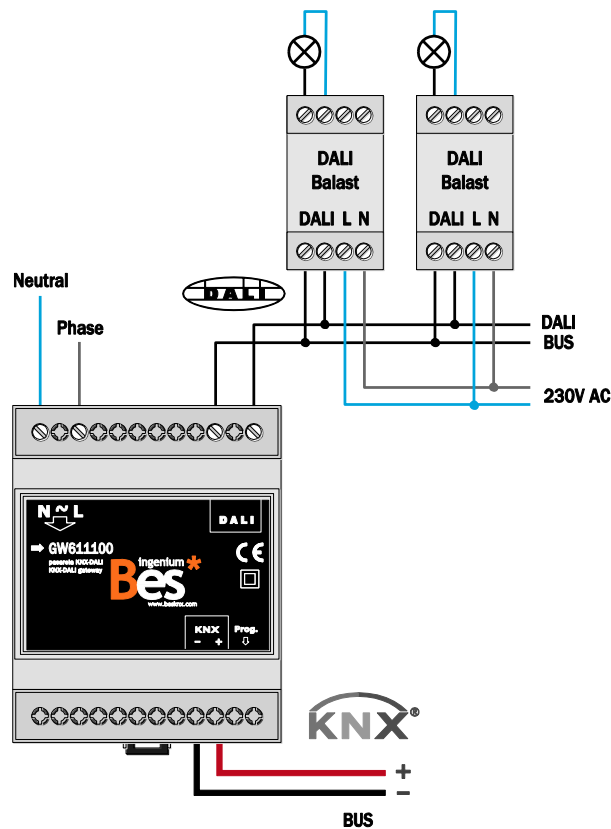
3.9 Restore factory settings

The DALIK allows to restore factory settings just using the KNX programming button.

This button for the KNX individual address assignment is located on the front of the device and a red led near the programming button lights up when it is pressed manually or if the device is set remotely to programming mode state.

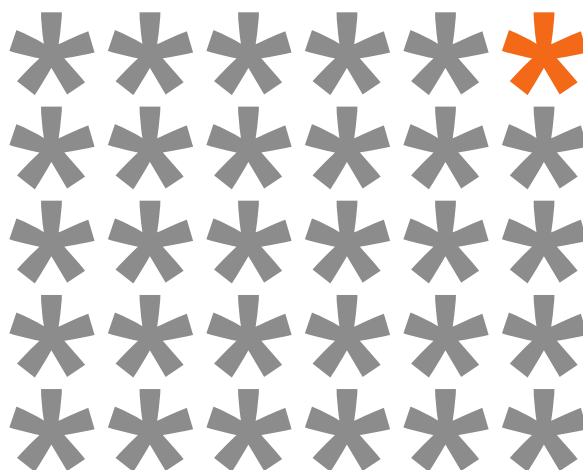
To restore the DALI to factory settings, it is necessary to remove the KNX BUS connector from the device, press the programming button and connect the KNX BUS again while holding the programming button for 5 seconds approximately. When the KNX red LED turns on, it indicates that the DALIK has been successfully restored, and it turns off instantly when release the programming button.

4 Installation



Feed low voltage lines (bus and inputs) in separate ducting to that of power (230V) and outputs to ensure there is enough insulation and avoid interferences.

Do not connect the main voltages (230V) or any other external voltages to any point of the bus or inputs.



KNX products by ingenium



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Manual version: v1.2