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KNX - Dali Gateway
EK-BG1-TP
User manual

Summary

Revision	Changes	Date
1.0	First draft	04/09/2020
1.1	Configurator application update	13/11/2020
1.2	ETS DB v.2.0 update	15/01/2021
1.3	Minor changes	01/04/2021
1.4	Added note on Ethernet port usage (chapter 3)	03/12/2021
2.0	Update for DALI-2 standard (page 4)	21/04/2022
2.1	Input supply values updated to 90-260 Vac @50-60 Hz	12/06/2023

1 Product description

The ekinex® EK-BG1-TP gateway is a modular KNX device for panel mounting, which allows you to exchange information between a KNX system and a series of devices on the DALI bus.

The device manages a bidirectional data flow: the DALI registers are read cyclically and their value is sent on the KNX network. The updating of the data on the KNX network can occur cyclically and / or upon variation of the data acquired by the DALI network.

Similarly, the gateway can make requests for cyclic reading of KNX communication objects or acquire their value during the exchange of telegrams on the bus. Either cyclically or upon variation of the communication objects, the data are written on the DALI registers of the connected devices.

The configuration is carried out both through the ETS program (for the parametrization of the KNX bus) and through a specific application software for PC, which communicates through the Ethernet communication port integrated in the device. Both the ETS application and the PC application software are available for download on the website www.ekinex.com. Use ETS v.5.6.x or newer only.

Starting from version A2.5, the device is certified and compliant with the DALI-2 standard.

1.1 Main features

The main features of the Ekinex DALI gateway are:

- Control of up to 64 DALI devices with a maximum of 16 groups and 16 scenes
- Broadcast function
- Individual, group or centralized addressing
- Suitable for operation with different light sources (such as fluorescent lamps, high intensity discharge lamps and LEDs)
- Creation of light scenarios
- Possibility of reading the status of the DALI device via KNX (for example brightness or device error)
- Power supply for DALI bus incorporated
- Configurator application for programming

1.2 Technical data

Feature	Value
Power supply	90-260 Vac @50-60 Hz
Environmental conditions	Use in dry indoor environments Operating temperature: - 40 ... + 85 ° C Storage temperature: - 25 ... + 55 ° C Transport temperature: - 25 ... + 70 ° C Relative humidity: 93% non condensing
Display elements	Power supply LED DALI Failure LED DHCP ON LED
Operation elements	Membrane button Broadcast ON Membrane button Broadcast OFF
Safety class	II
Installation	On DIN 35 mm profile rail (according to EN 60529)
Degree of protection	IP20
Dimensions	4 modules
Ethernet interface (IEEE 802.3)	
Connector	RJ45 connector, cable category at least 5E
KNX TP interface	
Communication port	KNX TP (twisted pair), 9600 baud, galvanically isolated from the device power supply
Current draw from the KNX bus	< 13 mA

Feature	Value
DALI interface	
DALI communication port	Screw terminals (dual pass-through connection); galvanically isolated from the device power supply and from the KNX communication port
Baud rate	1200 bps
DALI voltage	9.5 V – 22.5 V (Nominale 14 V)
Lunghezza max cavo	300 m (Cavo 1.5 mm^2)
Numero max device DALI	64
Numero max gruppi DALI	16
Numero max scene DALI	16

1.3 Scope of supply

The supply includes the device and the terminal for connection to the KNX bus. The packaging also contains the instruction sheet of the device.

1.4 System requirements for the configuration software

Configuration and commissioning must be carried out using the CGEKBN1TP application program, available for download on the website www.ekinex.com .

The resources required for the PC on which the application software is installed are listed below:

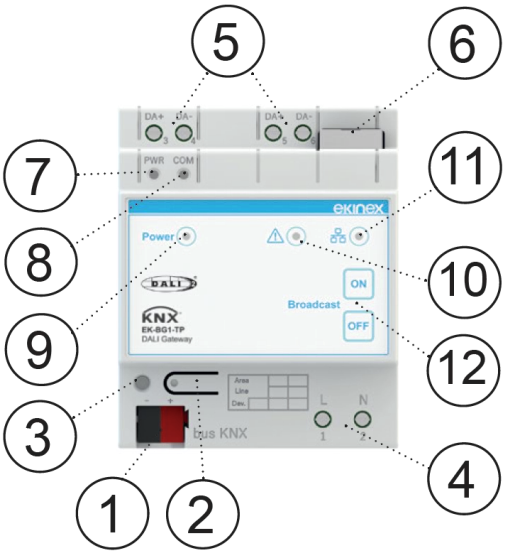
- Desktop or laptop PC with Ethernet port
- 32/64 bit Operating System, Microsoft Windows® 7 or higher

Installation of the .NET Framework 4.5 system libraries on the PC is required.

1.5 Certification and markings

Compliance with the applicable European directives is attested by the presence of the CE marking on the product label and documentation.

2 Switching, display and connection elements



No.	Description	Notes
1	KNX bus line connection terminal	
2	KNX programming button	
3	KNX programming LED	Indicates when the device is in programming mode (permanently on) or when the connection with the KNX bus is missing (flashing)
4	90-260 Vac power connection terminals	
5	Terminals for the DALI bus line	The two terminals are completely equivalent. The polarity indicated is relative to the internal power supply.
6	Ethernet port	
7	DALI bus power supply LED	Indicates the presence of the supply voltage on the DALI bus
8	DALI bus communication LED	Indicates communication activity in progress on the DALI bus
9	Logic power indicator LED	Indicates the presence of the power supply voltage for the internal logic of the device.
10	Error on DALI bus indicator LED	When steadiliy lit, indicates a communication fault or the presence of an error module on the DALI bus; when blinking, indicates that a scan for already assigned units on the bus is in progress.
11	DHCP indicator LED	Indicates a request for DHCP assignment in progress (flashing) or successful IP assignment (fixed)
12	Membrane keys	Send an On / Off broadcast command

3 Configuration and commissioning

Device configuration requires the following tools or files:

- PC with Ethernet / WiFi connection
- ETS software tool
- APEKBG1TP.knxprod application program for the ETS tool (can be downloaded directly in ETS via the ekinex product catalog)
- CGEKBG1TP application software to carry out the gateway configuration

It is also necessary to have the following information handy:

- [if DHCP mode is not used] Physical parameters of communication on the Ethernet network (IP address, subnet mask, gateway)
- Knowledge of the automation project configuration carried out with ETS, in particular the communication objects and the group addresses used to interface with the devices in the DALI subsystem.
-

The configuration and commissioning activities of the ekinex® gateway require specialist skills on the KNX network and knowledge of the specific automation project carried out with ETS. To acquire these skills it is essential to participate in courses organized at KNX certified training centers. For more information: www.knx.it.

The Ethernet port should only be used for service purposes by the installer for the configuration of the system, therefore its use is not intended for the end user.

4 Using the configuration software

The ekinex® CGEKBG1TP configuration software allows you to perform the following operations in a simple and intuitive way:

- choice of communication parameters on the Ethernet network;
- management and update of all gateway settings, in addition to the parameters of (maximum) 64 lamps, 16 groups and 16 complex scenes;
- download of updated firmware.

As a first step to perform the configuration, the device must be connected via an Ethernet cable to an existing LAN network or directly to a PC whose network parameters have been appropriately configured.

The initial default IP of the device, according to the factory configuration, is **192.168.1.99**.

This value can be changed:

- By setting a new IP via KNX via the ETS application

- By setting the IP assignment via DHCP[1] (as described below).

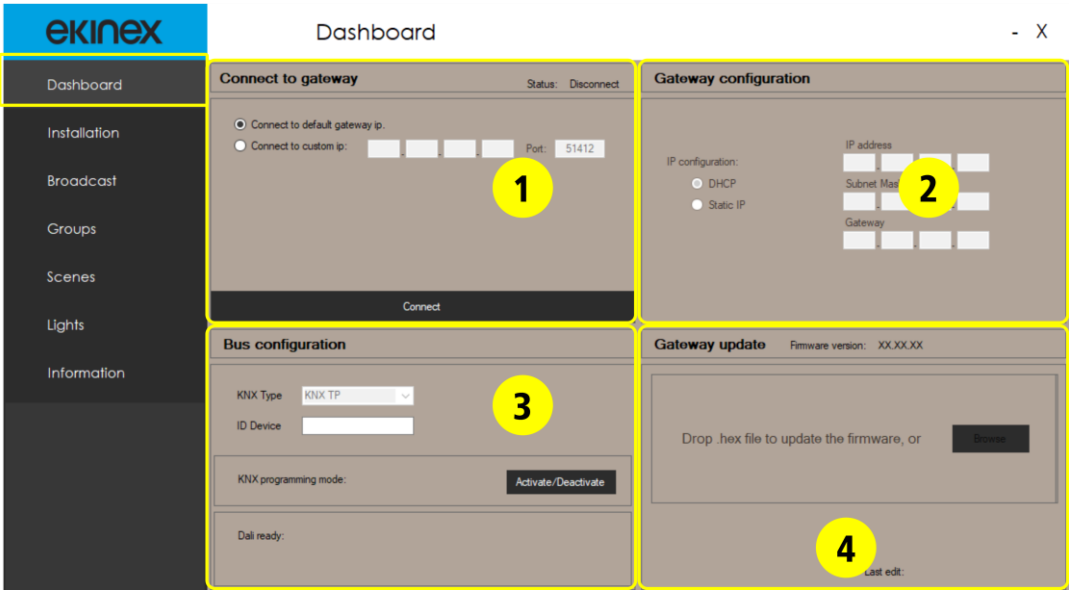
The variation of the IP address must obviously be made with the device already connected.

In any case, at any time it is possible to read the IP currently assigned to the device (and the other network parameters) via ETS or via KNX, reading the following communication objects:

IP Address	C.O. #5
Subnet mask	C.O. #6
Gateway address	C.O. #7

4.1 Dashboard

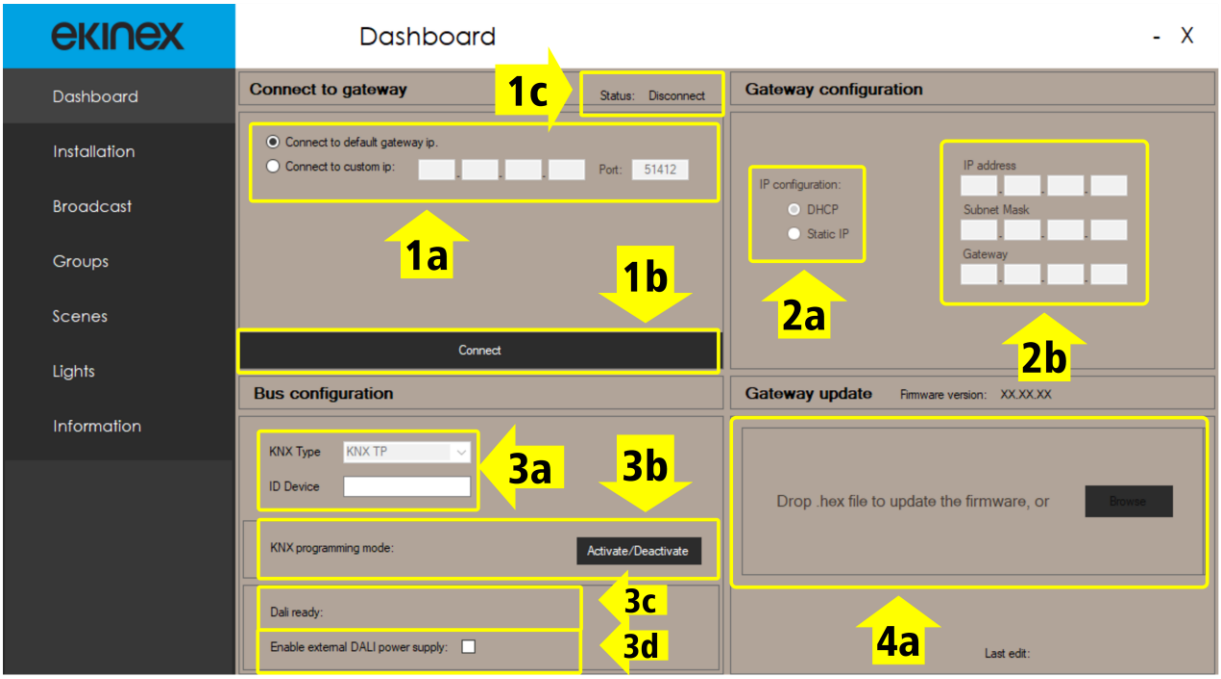
When the configurator starts, the first page shown is the dashboard. The screen is divided into 4 sections marked by numbers in the figure below.



1. The part regarding the IP connection. You can select whether to use the default IP or any IP specified by the user via ETS or assigned via DHCP, if known (1a). Once the IP to be used has been chosen, the connection can be attempted using the button (1b); if the IP is correct, the connection indication will appear in (1c) after a few seconds.
2. The section where you can specify whether to use an IP from DHCP or fixed (2a). In both cases, the current address data is displayed in (2b)
   If the gateway fails to find a dynamic IP via DHCP, the default IP is assigned.
3. The section showing some information relating to the KNX (3a / 3b) and DALI (3c / 3d) buses, as well as the device status. Using the button (3b) it is possible to activate the programming status for ETS; if the "DALI ready" status (3c) is active (green) it is possible to access the remaining pages of the configurator.

[1] Note: to prevent the device from being assigned a new IP with each new reconnection to the LAN, it is advisable to set (if the router or DHCP server allows it) the IP reservation based on the MAC address of the devices.

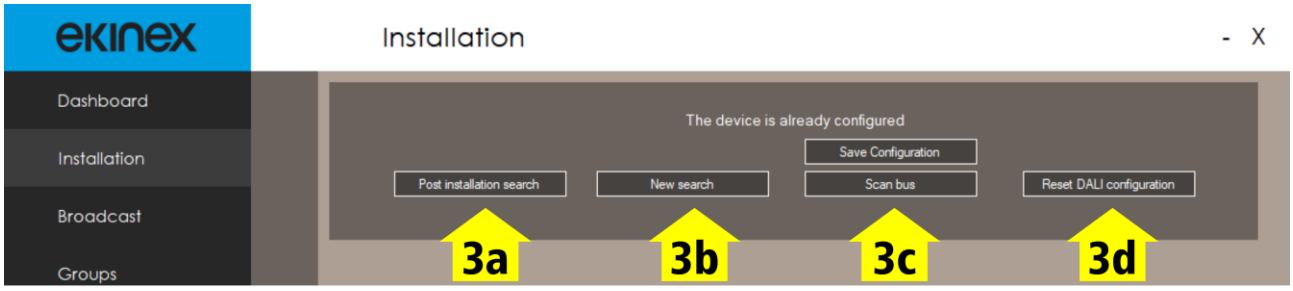
4. The section dedicated to updating the device firmware online; by selecting an update file (with the button (4a) or via *drag & drop*), provided by ekinex, it is possible to update the firmware following improvements or troubleshooting. Once the firmware has been updated, in the event of malfunctions, it is possible to return to the previous version using the button (4b).



4.2 Installation

The "Installation" page is used for the configuration of the system on the DALI side, ie for the addressing and setting of all the connected DALI units.

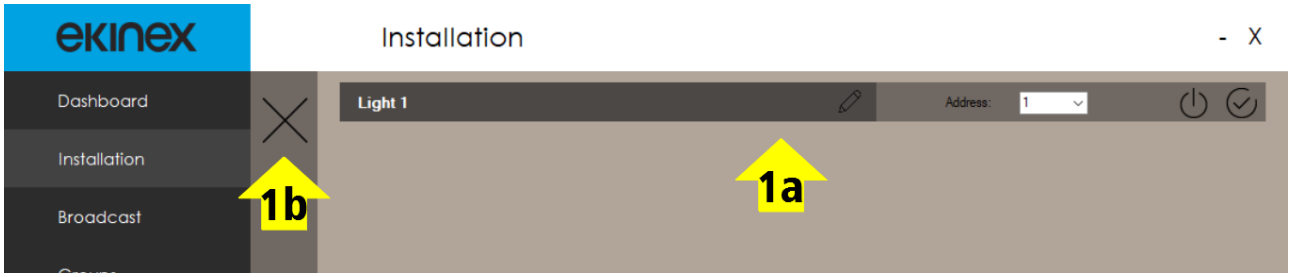
The page is shown as in the following image:



These are the available choices:

- *Post-installation search* (3a) - look for any new devices added since the last configuration and assign them an address;
- *New search* (3b) - clears the current list of devices and starts a new search and address scan from scratch;
- *Scan bus* (3c) - search for any new, previously addressed devices which were offline and then returned online;
- *Reset DALI configuration* (3d) - clears the current list of devices without performing a new scan.

By pressing the "New search" button, all the units connected on the DALI bus (1a) will appear as shown in the figure. To stop the search, click on the "X" button on the left (1b):



At the end of the search, you can start a new search (2a).

For each unit found, from this screen you can:

- Assign an identification name (2c)
- Assign the DALI address (2d), then confirm it with (2e)
- Activate an intermittent flashing, lasting a few seconds, which allows you to physically locate the lamp (2f), provided that it supports the identification feature.

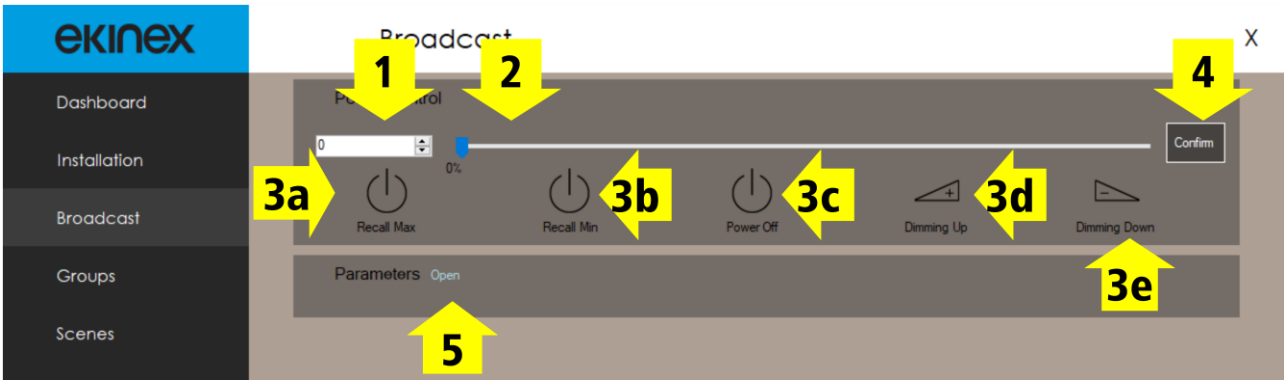
The detailed configuration of the detected units is carried out on the "Lights" page (see below).

4.3 Broadcast

The "Broadcast" page is used to send commands to all connected DALI units.

On the Broadcast page there is a single panel with the controls illustrated below; the controls refer to the entire set of connected lamps.

Since the description of these commands (with the same graphic setting) also applies exactly to the case of individual units, the available commands are listed below in detail.



With reference to the figure above, the commands that can be used for the individual lights, groups, and scenes are as follows.

Note: the following refers to a set of lamps (group or broadcast), but the description is also applicable to the case of a single lamp.

- **Power control**: the selector (1) and the slider (2) allow you to select a value between 0 and 254, or 0% -100%, and send it to all the lights involved.

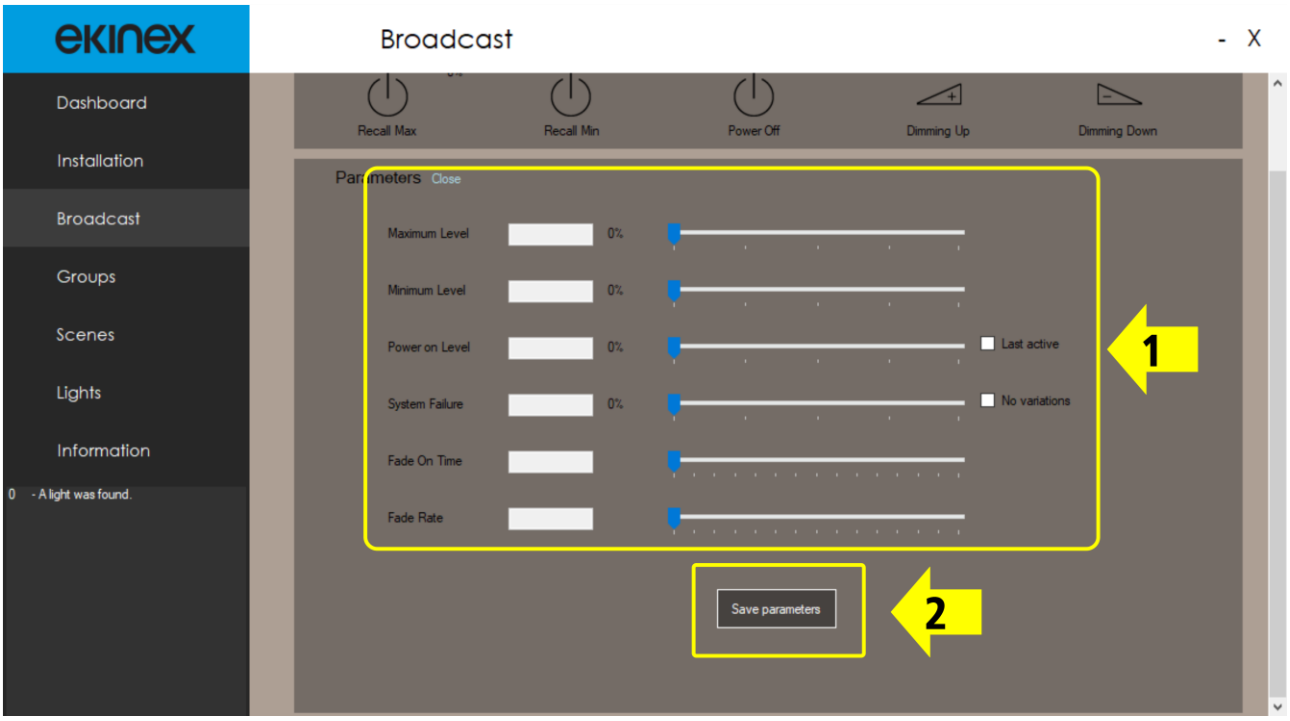
  In this case the lamps will follow the *fade time* set on the "Lights" page (see).

  In the case of groups and broadcast it will be necessary to press the "Confirm" button (4) to validate the change, while in the case of a single lamp the transmission will be immediate.
- The **Recall Max** (3a) and **Recall Min** (3b) buttons will bring each lamp to its maximum / minimum brightness value; in this case the fade time will be the minimum allowed (200 ms) and will be the same for all, but the level for each lamp will be the one set in the "Lights" page (see).
- The **Power Off** button (3c) will bring all the lamps to the brightness value 0; also in this case the fade time will be the minimum allowed (200 ms).
- The **Dimming Up** (3d) and **Dimming Down** (3e) buttons will vary the brightness of the lamps by a step as set on the "Lights" page (see) via the "*fade rate*" parameter. The fade time for the step is always the fixed time of 200 ms.

Button (2) opens a panel for the setting of lamp paramenters, described below.

4.3.1 Lamp parameters

This panel allows to set the parameters related to the brightness levels and dimming times of the lamps.



The parameters that can be set are:

- The maximum brightness value
- The minimum brightness value

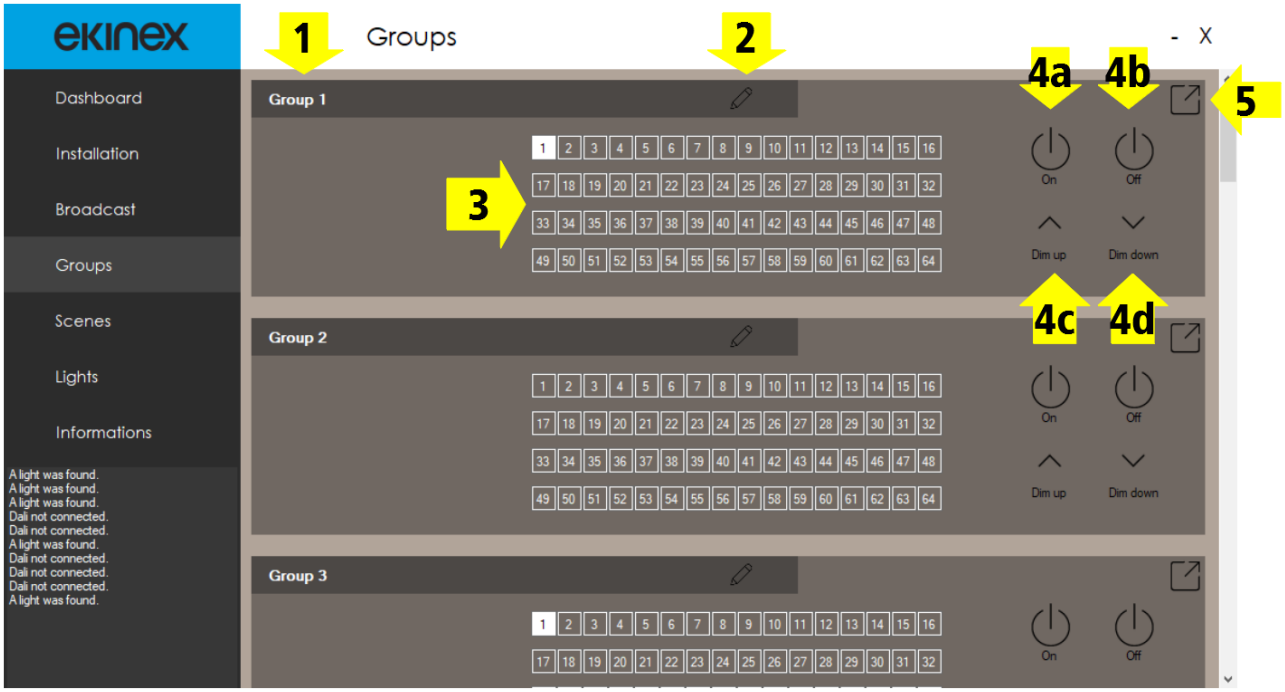
- The **Power on** value, which is the value used when the DALI bus connection is reestablished. If "Power on" is 255, in the event of a reset the lamp will revert to the last valid brightness value received previously.
- The **System failure** value, ie the value used in the event of a DALI bus failure. If "system fail" is 255, the lamp will have no reaction in the event of a bus failure
- The **Fade on time**. This time is used for dimming commands (both relative and absolute) given via KNX and for the dimming command given by the configurator via slider or absolute value
- The **Fade rate**, ie the frequency of the steps with which the dimming ramps are generated

*IMPORTANT: Remember that any changes do not take effect until they are confirmed with the "**Save**" button (2)!*

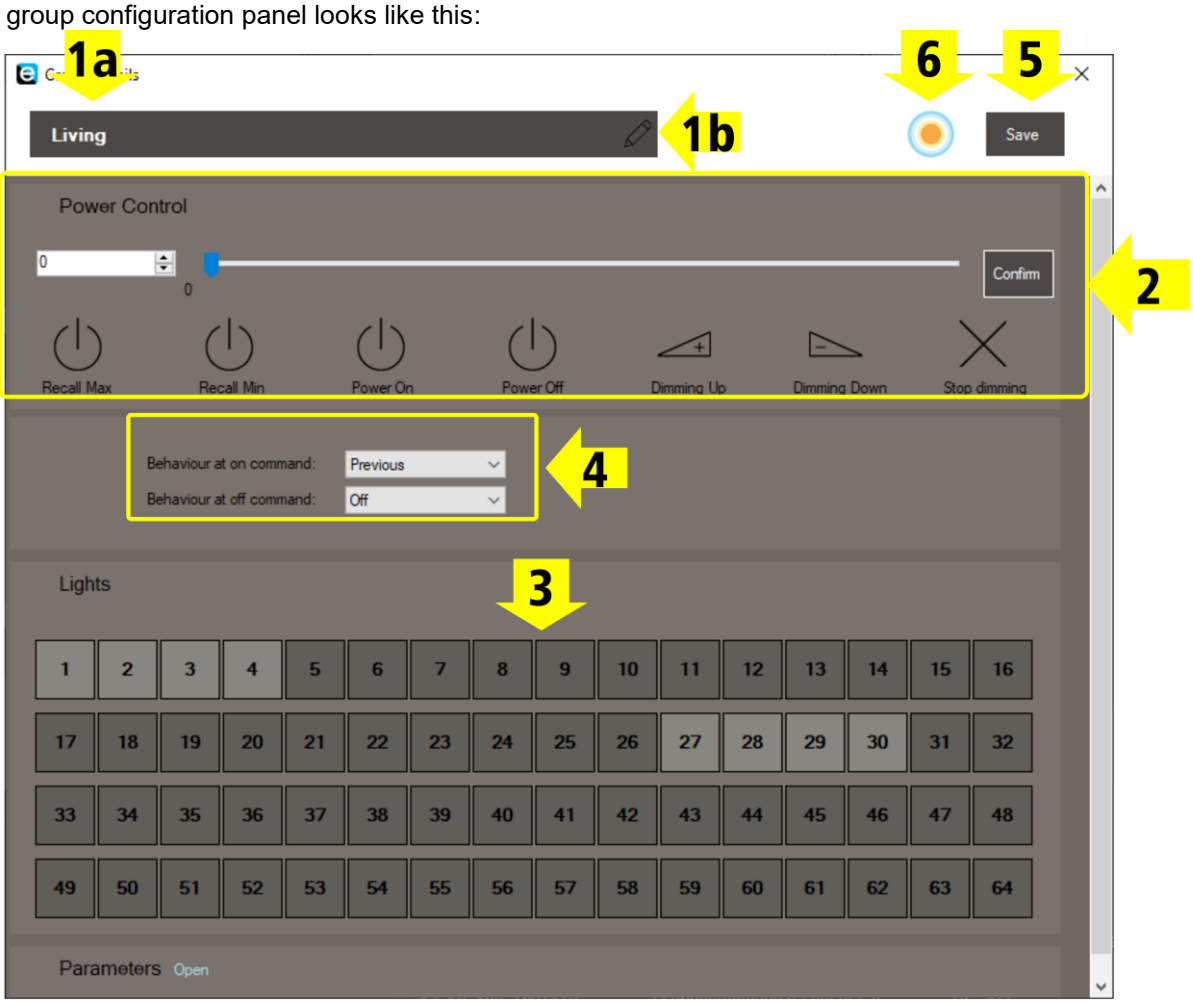
4.4 Groups

The groups page contains 16 panels (one for each of the configurable groups), through which it is possible to:

- Assign a name to the group (2);
- Display a synoptic of the lamps assigned to the group (3);
- Send commands to all the lamps belonging to the group (4); the commands are those previously described. Both the “On” and “Off” commands will behave in the fashion set in the group configuration panel.
- Access the group configuration panel (5).



The group configuration panel looks like this:



Through this panel following operations are possible:

- Change the name of the group (1b);
- Send commands to all the lamps belonging to the group (2);
- Assign each of the 64 available lamps to the group (3).
  The assignment does not take into account the actual presence of the assigned lamps among those detected;
- Configure the behavior when receiving the **On** / **Off** commands via the KNX bus (4); the choices are **Previous** / **Max** for “On” and **Min** / **Off** for “Off”.
  These commands can also be issued through the corresponding buttons on panel (2).
- Open the Group Color Details panel (6).

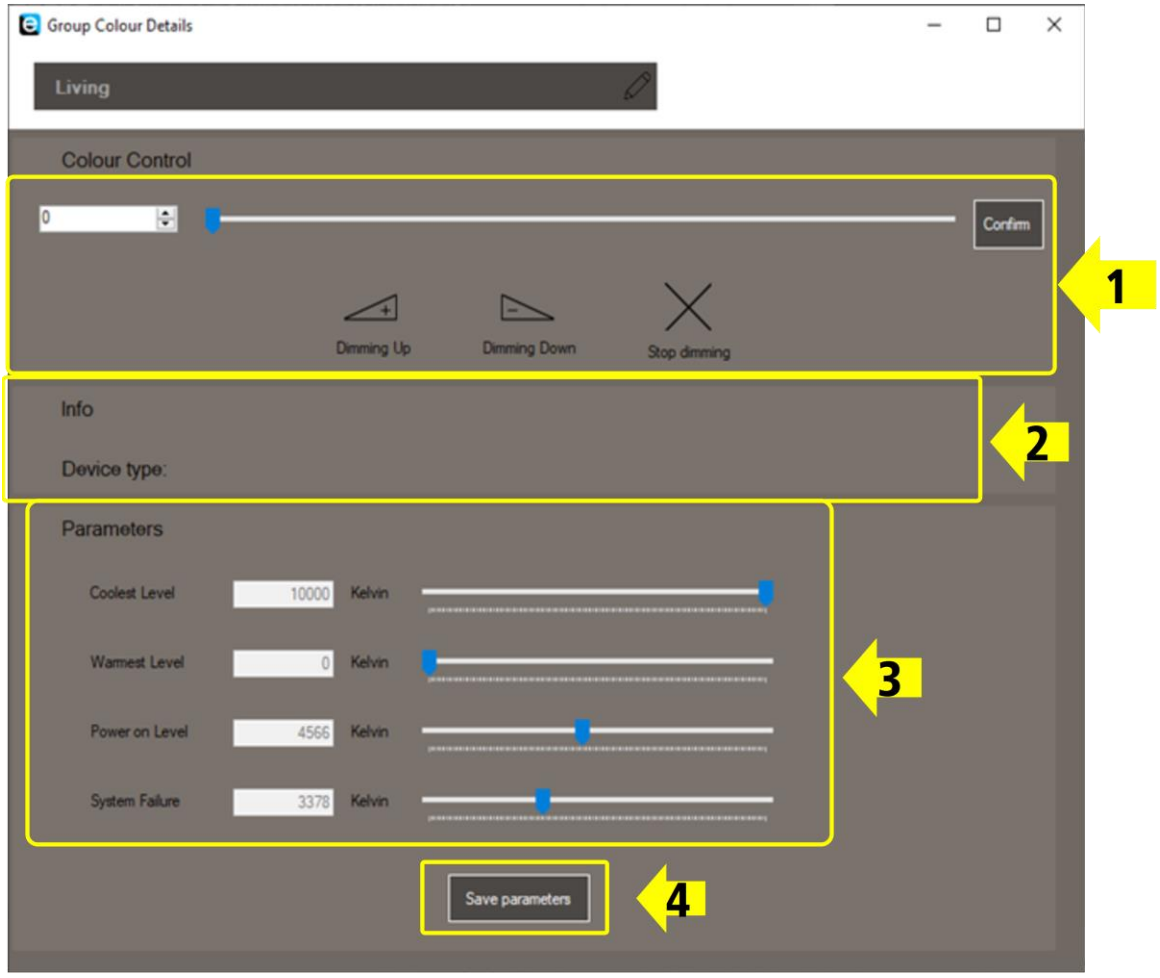
The control panels are those previously described.

Once any group setting has been changed, the "*Save*" key (5) will be enabled; pressing it, the new parameters will be sent on the DALI bus to the lamps involved.

Important notice: if group dimming is used from KNX, it is very highly recommended to set the same *fade time* value for all units belonging to the same group!

4.4.1 Group Colour Details panel

This panel contains the settings for "*Tunable White*" devices (Cold plus Warm white tones)



The "*Colour Control*" section (1) allows direct control of the color temperature of the light source; the "*Info*" section lists the information returned by the device.

The "*Parameters*" section (3) allows the setting of the color temperature parameters of the lamp.

- **Coolest Level** sets the lowest allowable value for the color temperature
- **Warmest Level** sets the highest allowable value for the color temperature
- **Power on level** sets the value for the color temperature at start-up
- **System Failure** sets the color temperature value to be set when the bus is not present.

After any variation, the parameters are saved through button (4).

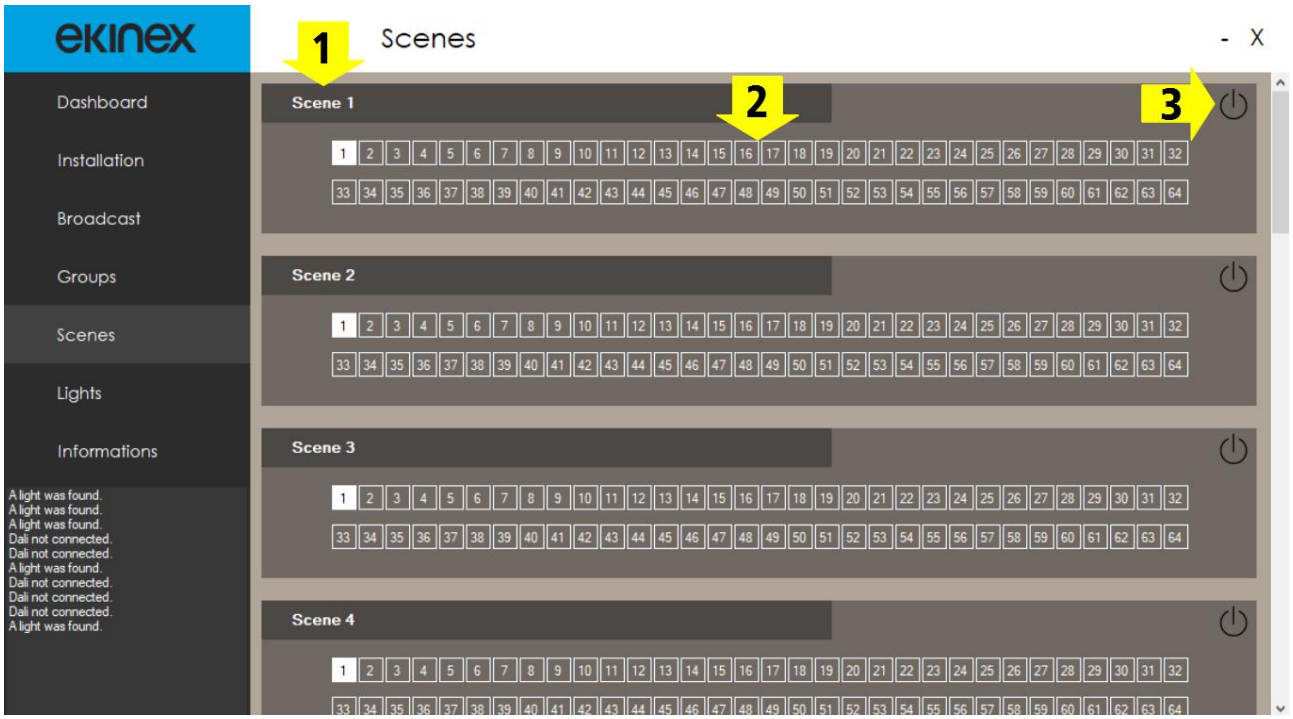
4.5 Scenes

The "Scenes" page contains 16 panels (one for each of the configurable scenes), through which it is possible to:

- Display an overview of the lamps involved in the scene (2);
- Command the activation of the scene (3).

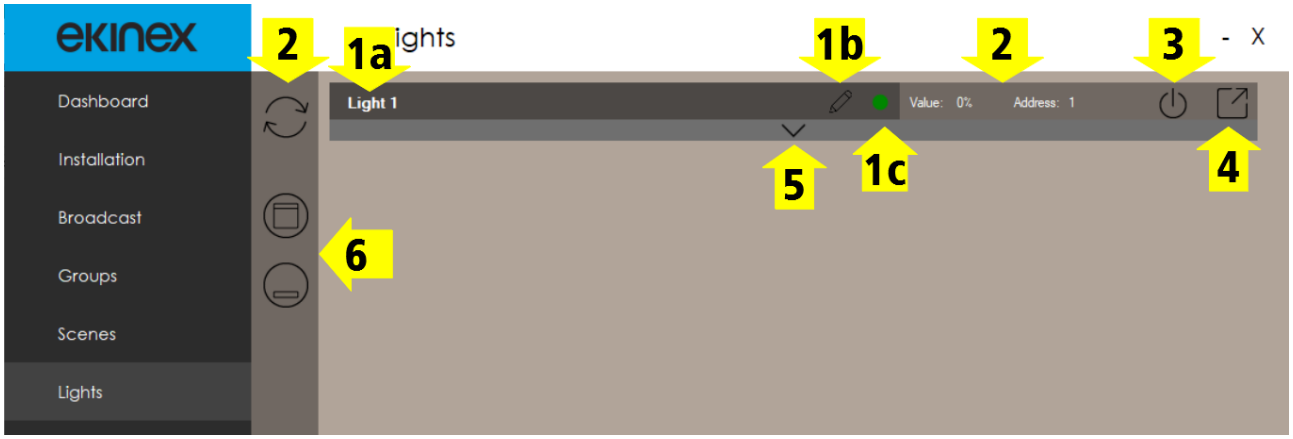
The overview (2) is only for display: the lamp / scene combination is not set on this page but rather on the pages of the individual lamps (where the relative brightness value is also set).

Scene names are not customizable.



4.6 Lights

The "Lights" page displays a series of subpanels corresponding to each of the lamps identified and addressed on the DALI bus.

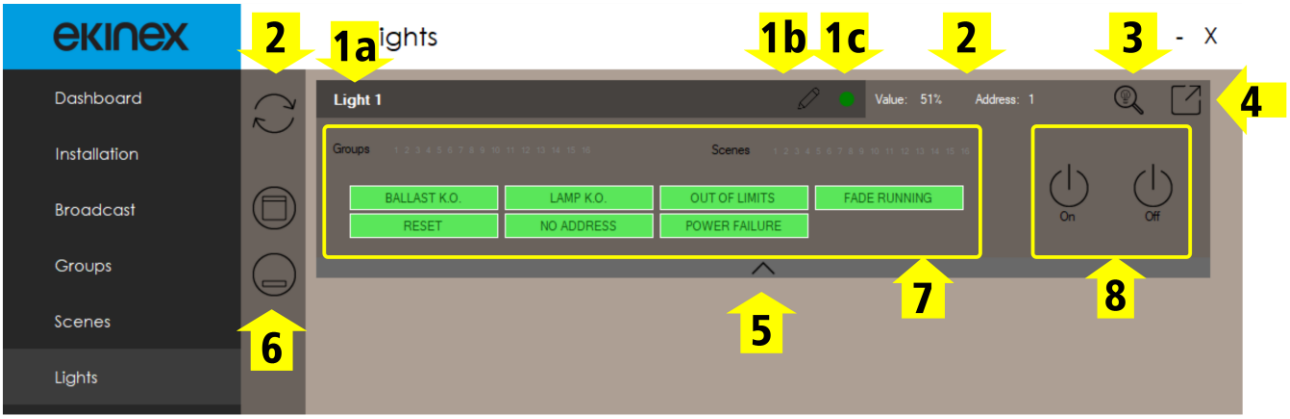


The main information and operations relating to each lamp are shown on each of the subpanels:

- The name of the unit (1a), which can be modified using the specific button (1b);
- The "*online*" status of the lamp (1c);
- The DALI address and the current brightness value (2);
- The “Lamp seek” button (3).

Through the button (5) it is possible to expand the panel and view the following additional information (7) and commands (8):

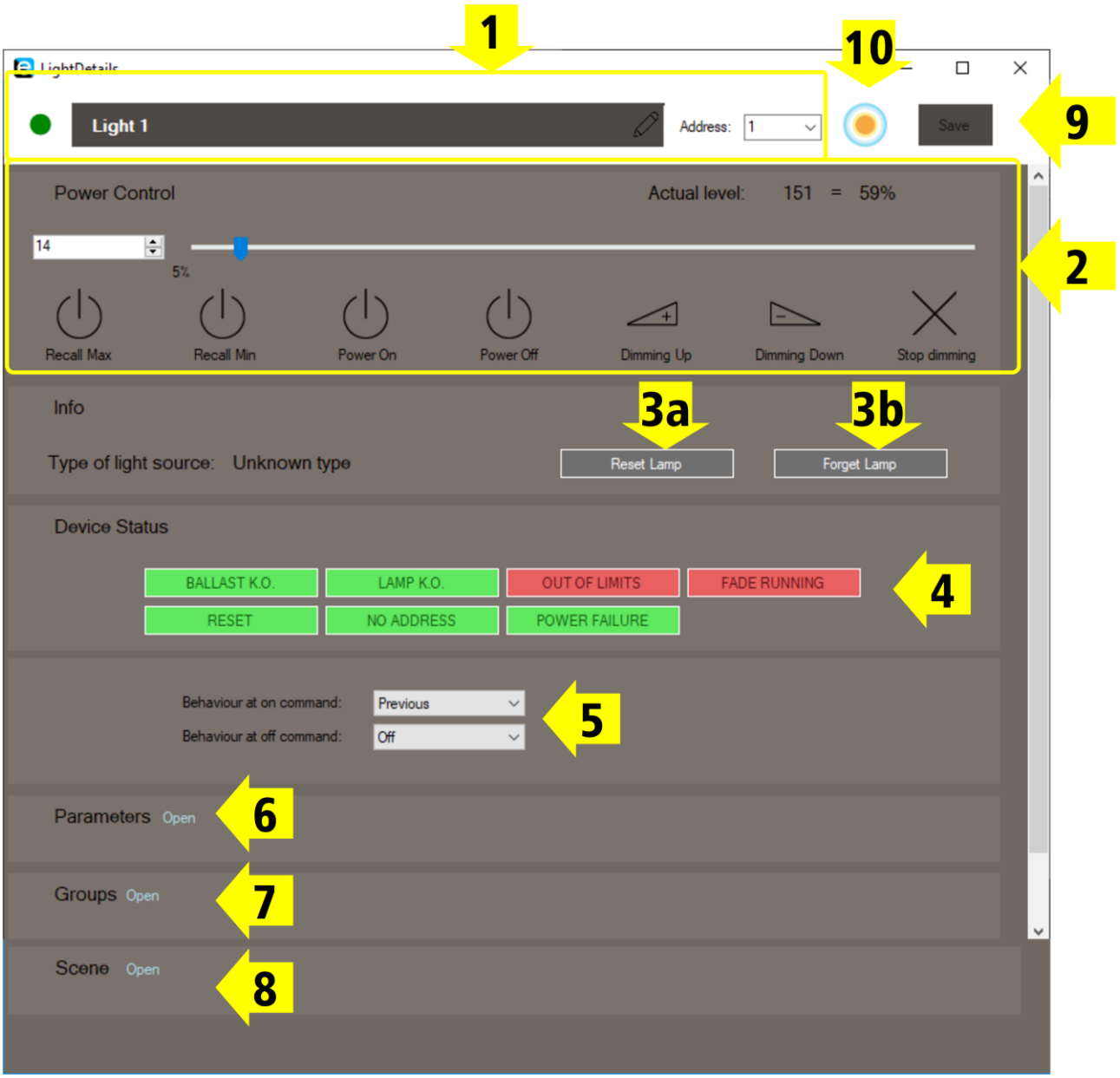
- The groups to which the lamp belongs;
- The scenes for which the lamp is configured;
- A series of annunciators which, if displayed in red, indicate any error conditions;
- The On/Off command buttons.



In particular, the meaning of the error states is as follows:

Ballast K.O.	Generic problem on the lamp driver
Lamp K.O.	Generic problem on the light source
Out of limits	A value above the maximum level or below the minimum level has been sent
Fade running	A lamp is being dimmed with commands that use a *fade time* value other than 200ms
Reset	The lamp is reset to the factory values
No address	The lamp is not addressed
Power Failure	Power supply problem

For each lamp, it is possible to access a detail page via the icon/button (4) at the top right.



This page contains further information and operations; some elements have already been illustrated, such as the control panel (2), the status panel (4), the On/Off values (5) and the lamp parameters (6).

In addition to these, others are available:

- The name panel (1), which, in addition to the description, also allows to change the assigned DALI address;
- The "Reset lamp" (3a) button, which allows to reset the lamp parameters to the default values
- The "Forget lamp" (3b) button, which allows to return the lamp to the unaddressed status;
- The button used to open the panel used to set the color temperature parameters for the lamp (10)
- The "Save" button (9), which allows all changes made to the parameters to be confirmed and saved.

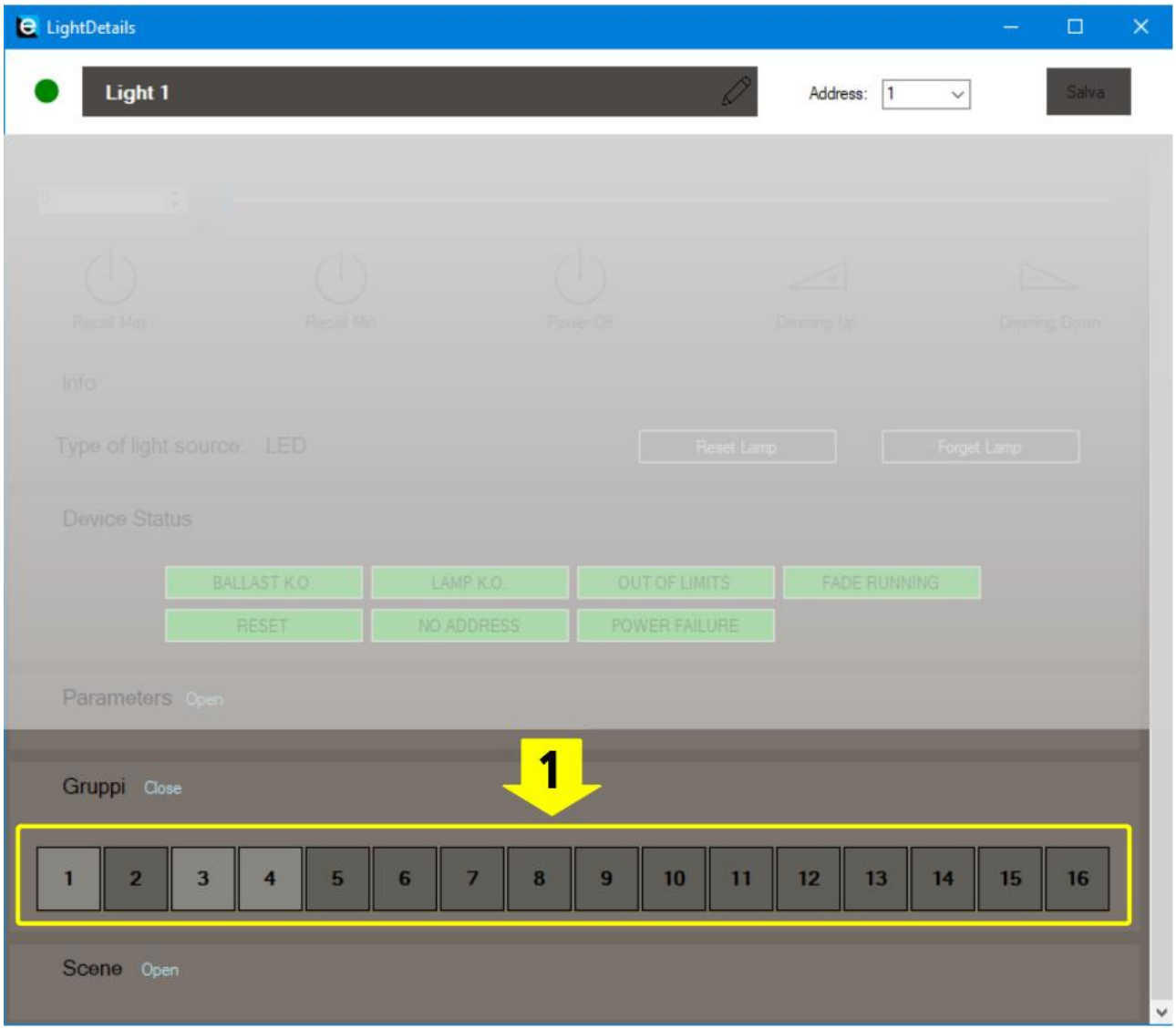
Panels (6), (7) and (8) are individually expandable and are described below.

4.6.1 Parameters

On this panel the lamp parameters can be set; the panel has exactly the same structure as the one described for *Broadcast* operations (refer to Section 4.3.1**Errore. L'origine riferimento non è stata trovata.**).

4.6.2 Groups

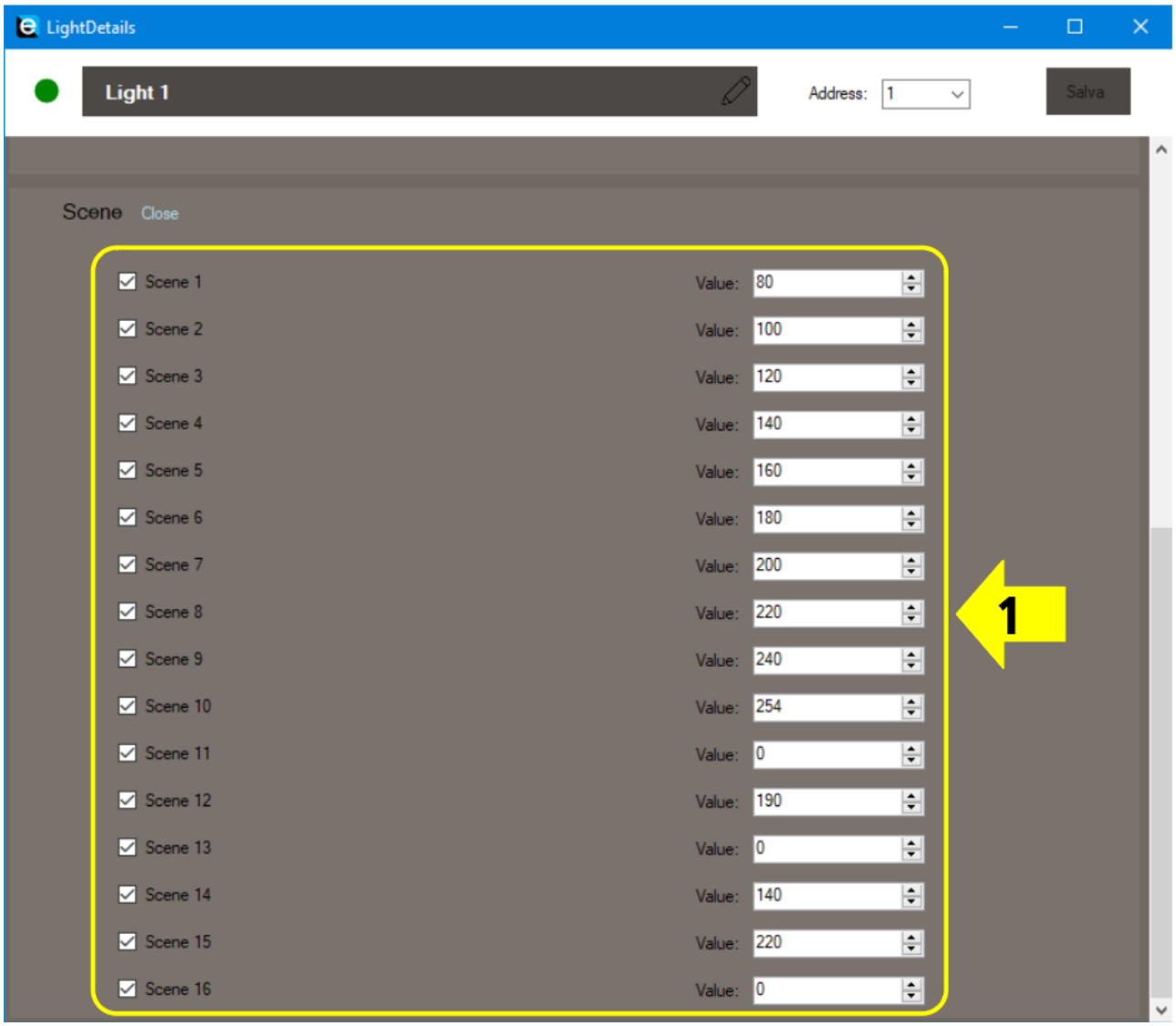
On this panel it is possible to define which groups every lamp is associated with, by selecting the respective boxes.



➔ *Remember that any changes do not take effect until they are confirmed with the "Save" button!*

4.6.3 Scenes

In this panel it is possible to define which of the 16 possible scenes the lamp in question is associated to and what value it correspondingly takes.



➔ *Remember that any changes do not take effect until they are confirmed with the "Save" button!*

4.6.4 Lamp colour details

On this panel the color temperature parameters for "*Tunable white*" type lamps can be set; the panel has exactly the same structure as the one described for lamp groups (refer to Section 4.4.1**Errore. L'origine iferimento non è stata trovata.**).

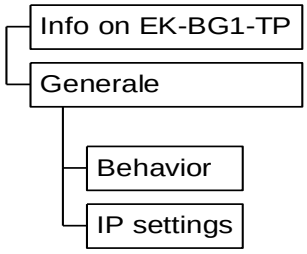
4.7 Information

This panel shows information on the configuration program, including the version and the link for downloading any more updated versions.

5 ETS application: Parameters

5.1 Application program structure

The tree structureof the application program includes the following items:



5.2 Tab: Info on EK-BG1-TP

This page is for information only and does not contain parameters to be set. The information shown is:

Application software for ETS5
Version 1.00 (*or later*)
DALI - KNX Gateway

ekinex S.p.A.
Via Novara 37
I-28010 Vaprio d'Agogna (NO)
www.ekinex.com
info@ekinex.com

5.3 Tab: General

Following settings are found in the **General** tab:

- Behavior
- IP settings

5.3.1 Tab: General - Behaviour and alarms

In the **Behavior** tab, all behaviors relating to bus events are configured and alarms are managed.

Parameter name	*Condition*	*Values*
Behavior at Power On		**No Change** Previous
	*When the gateway is not powered, all the lamps on the DALI bus set the brightness to the **system failure** value.* *This parameter tells the gateway what behavior to take on startup: whether to keep the lamps at the same value, or return them to the last active value before switching off.*	

Parameter name	*Condition*	*Values*
Behavior on KNX bus on		**No Change** DALI broadcast on DALI broadcast off DALI custom value
DALI custom value	Behavior on KNX bus on = DALI custom value	0%..100% [**100%**]
Behavior on KNX bus off		**No Change** DALI broadcast on DALI broadcast off DALI custom value
DALI custom value	Behavior on KNX bus off = DALI custom value	0%..100% [**100%**]
Delay after KNX bus on		00:00:00 … 18:12:15 [**00:00:04**] (hh:mm:ss)
	The parameter sets the delay between the moment in which the KNX bus line is powered and the moment in which the device starts transmitting data (sending status feedback, regulation output, etc.).	
Transmission of light status		**Send on Change** Send on Request Send on Change and after bus on
Transmission of dimming mode		**Disable** Change of value
Minimum value change for transmission	Transmission of dimming mode = Change of value	2%…100% [**100%**]
DALI bus alarm		**Disable** / Enable
	If there are problems with the power supply of the DALI bus, an alarm message is sent on the KNX bus	
DALI Diagnostic alarms		**Disable** / Enable
	The parameter enables a communication object in transmission mode which allows to diagnose if there are lamps on the DALI bus in an alarm state.	

5.3.2 Tab: General - IP settings

In the **IP settings** tab all rettings related to the Ethernet interface are managed.

Parameter name	*Condition*	*Values*
DHCP		**Yes** / No
IP Address	DHCP = No	IP values 0..255 **[0.0.0.0]**
	This data is composed of four numeric fields corresponding to the four parts of the IP address.	
Subnet Mask	DHCP = No	IP values 0..255 **[0.0.0.0]**
	This data is composed of four numeric fields corresponding to the four parts of the IP subnet mask.	
Gateway	DHCP = No	IP values 0..255 **[0.0.0.0]**
	This data is composed of four numeric fields corresponding to the four parts of the IP address.	

Parameter name	Condition	Values
Port address for DALI configuration		0..65535 [**51412**]

5.4 Tab: Groups

In the *Groups* tab, those groups are selected whose communication objects should be displayed.

Groups of interest are selected from a complete list; initially, all groups are disabled, therefore the Communication Object list will only contain those objects pertaining to Scenes and Broadcast.

Every line has a selector to enable the corresponding group; a second selector on each line identifies the corresponding group as being capable of *Tunable White* features.

5.5 Tab: ECG

In the ECG tab (*Electronic Control Gear*) the units are selected whose communication objects should be displayed.

Units of interest are selected from a complete list; initially, all units are disabled, therefore the Communication Object list will only contain those objects pertaining to Scenes and Broadcast.

Every line has a selector to enable the corresponding unit; a second selector on each line identifies the corresponding unit as being capable of *Tunable White* features.

6 ETS Application: Communication objects

6.1 Communication objects - General

Object name	Conditions	Dim.	Flags	DPT	C.O. #
FW version		2 Byte	CR-T-	[217.001] DPT_Version	1
DALI diagnostics alarm	DALI diagnostic alarm = Enabled	1 Byte	C--T-	[238.600] DPT_DALI_Diagnostic	3
	Transmitted when the alarm state of a DALI unit changes				
Testo allarmi		14 Bytes	CR-T-	[16.0] DPT_String_ASCII	4
	Text message for technical alarms. *Allowed values:* *"ALARM E00" → No units addressed on the bus* *"ALARM E01" → Group command failed (if a value is sent to a group of lights, check if the lamps belonging to that group have reacted correctly)* *"ALARM E02" → Error sending the message on the DALI bus*				

6.2 Communication objects - IP settings

Object name	Conditions	Dim.	Flags	DPT	C.O. #
IP Address		*(variable)*	CR-T-	[24.001] DPT_VarString_8859_1	5
Subnet mask		*(variable)*	CR-T-	[24.001] DPT_VarString_8859_1	6
Gateway address		*(variable)*	CR-T-	[24.001] DPT_VarString_8859_1	7

Object name	Conditions	Dim.	Flags	DPT	C.O. #

6.3 Communication objects - DALI groups

According to the DALI standard, units can be grouped into up to 16 groups.

Data in the table below are to be considered repeated for each of the 16 groups.

Object name	Conditions	Dim.	Flags	DPT	C.O. #
Gn - On/Off command		1 bit	C-W--	[1.001] DPT_Switch	8, 16,.. 128
	Recalls the maximum / minimum value of the group lights in the shortest possible time (normally 0.2 s).				
Gn – Relative Dimming		4 bit	C-W--	[3.007] DPT_Control_Dimming	9, 17 … 129
	Relative dimming command (increase / decrease) for the lights belonging to the group. *Relative dimming uses the value set as unit **fade time** to make the transition between the current value and the setpoint value.*				
Gn – Absolute Dimming		1 Byte	C-W--	[5.001] DPT_Scaling	10,18 … 130
	Absolute dimming command for the lights belonging to the group.. *Absolute dimming uses the value set as unit **fade time** to make the transition between the current value and the setpoint value.* *The absolute value sent as a percentage will be converted on a scale from 0 to 254.*				
Gn –On/Off Status		1 bit	CR-T-	[1.001] DPT_Switch	11, 19 … 131
	Group status feedback. *This object remains unchanged until all the lamps within this group have changed status.* *For instance, assuming that at start-up all the lamps are off, this object is sent to "Off"; it will then remain unchanged until all the lamps have changed state to On. At this point, this object will be sent with value "On".*				
G*n* – Status Alarm		1 bit	CR-T-	[1.005] DPT_Alarm	12,17…87
	Sent if at least one lamp within the group is in alarm				
G*n* – TW - Absolute dimming percentage	*Show Group x = true* *Tunable White = True*	1 Byte	-WC---	[5.001] DPT_ Scaling	13, 21 … 133
	Sets the color temperature from 0% to 100% with absolute value command. *The 0%-100% interval is automatically converted to the corresponding Kelvin value.*				
G*n* – TW - Relative dimming percentage	*Show Group x = true* *Tunable White = True*	4 bit	-WC---	[3.007] DPT_ Control_Dimming	14, 22,… 134
	Changes the color temperature of the group from 0% to 100% with relative command.				
G*n* – TW - Absolute dimming Kelvin	*Show Group x = true* *Tunable White = True*	2 Byte	-WC---	[7.600] DPT_temperature_Color_Kelvin	15, 23, …135
	Sets the color temperature of the group with absolute value command, directly specifying the Kelvin value.				

6.4 Communication objects - DALI unit

According to the DALI standard, up to 64 units can be connected on the same line;

data in the table below are to be considered repeated for each of the 64 units.

Object name	Conditions	Dim.	Flags	DPT	C.O. #
ECGx - On/Off command		1 bit	C-W--	[1.001] DPT_Switch	136, 146 …766
	Recalls the maximum / minimum value of the group lights in the shortest possible time (normally 0.2 s).				

Object name	Conditions	Dim.	Flags	DPT	C.O. #
ECGx – Relative Dimming		4 bit	C-W--	[3.007] DPT_Control_Dimming	137, 147 …767
	Relative dimming command (increase / decrease) for the unit. *Relative dimming uses the value set as unit **fade time** to make the transition between the current value and the setpoint value.*				
ECGx – Absolute Dimming		1 Byte	C-W--	[5.001] DPT_Scaling	138, 148 …768
	Absolute dimming command for the unit. *Absolute dimming uses the value set as unit **fade time** to make the transition between the current value and the setpoint value.* *The absolute value sent as a percentage will be converted on a scale from 0 to 254.*				
ECGx – Status On/Off		1 bit	C-W--	[1.001] DPT_Switch	139, 149 …769
	If the brightness value of the unit is different from zero, the "On" status will be sent on the KNX bus, otherwise the "Off" status will be sent.				
ECGx – Status of dimming value	Condizione di invio dimming mode = Enable	1 bit	C-W--	[1.001] DPT_Switch	140, 150 …770
	The brightness value is sent only if the dimming sending condition is respected. *At the time of reading, the dimming value between 0-254 will be converted into a percentage 0-100%*				
ECGx – Status Alarm		1 bit	CR-T-	[1.005] DPT_Alarm	141, 151 …771
	If the unit has one of the "BALLAST K.O." or "LAMP K.O." alarms active, an value = 1 is sent on the bus, otherwise = 0				
ECGx – TW - Absolute dimming percentage	*Show ECG x = true* *Tunable White = True*	1 Byte	-WC---	[5.001] DPT_ Scaling	142, 152 …772
	Sets the color temperature of the lamp from 0% to 100% with absolute value command. *The 0%-100% interval is automatically converted to the corresponding Kelvin value.*				
ECGx – TW - Relative dimming percentage	*Show ECG x = true* *Tunable White = True*	4 bit	-WC---	[3.007] DPT_ Control_Dimming	143, 153 …773
	Changes the color temperature of the lamp from 0% to 100% with relative command				
ECGx – TW - Absolute dimming Kelvin	*Show ECG x = true* *Tunable White = True*	2 Byte	-WC---	[7.600] DPT_temperature_Color_Kelvin	144, 154 …774
	Sets the color temperature of the lamp with absolute value command, directly specifying the Kelvin value.				
ECGx – Status of TW value	*Show ECG x = true* *Tunable White = True*	2 Byte	C-RT--	[7.600] DPT_temperature_Color_Kelvin	145, 155 …775
	Returns the color temperature value of the lamp in Kelvin units.				

6.5 Communication objects - DALI Scenes

According to the DALI standard, each of the units can be assigned to one of the maximum 16 scenes available. For compatibility with the KNX standard, we have chosen to be able to control these 16 scenes either with a DPT_SceneNumber object with values from 0 to 15, or with the single 1-bit communication objects.

In the table below, the 1-bit activation object is to be considered repeated for each of the 16 scenes.

The KNX "Scene learning" command is not implemented; the brightness values associated with the scene are to be programmed through the configurator.

Object name	Conditions	Dim.	Flags	DPT	C.O. #
DALI scene command		1 Byte	C-W--	[17.001] DPT_SceneNumber	776
	Value between 0 and 15 (included)				
Sn - Activation		1 bit	C-W--	[1.001] DPT_Switch	777...792

6.6 Communication objects - DALI Broadcast

The broadcast commands described below are used to control all the units present on the DALI bus.

Object name	Conditions	Dim.	Flags	DPT	C.O. #
Broadcast - On/Off command		1 bit	C-W--	[1.001] DPT_Switch	793
	Recalls the maximum / minimum value of all lights in the shortest possible time (normally 0.2 s).				
Broadcast – Absolute Dimming		1 Byte	C-W--	[5.001] DPT_Scaling	794
	Absolute dimming command for all connected units. *Absolute dimming uses the value set as unit **fade time** to make the transition between the current value and the setpoint value.* *The absolute value sent as a percentage will be converted on a scale from 0 to 254.*				
Broadcast – Relative Dimming		4 bit	C-W--	[3.007] DPT_Control_Dimming	795
	Relative dimming command (increase / decrease) for all connected units. *Relative dimming uses the value set as unit **fade time** to make the transition between the current value and the setpoint value.*				
Broadcast – TW - absolute dimming percentage		1 Byte	C-W--	[5.001] DPT_ Scaling	796
	Sets the color temperature of all lamps from 0% to 100% with absolute value command. *The 0%-100% interval is automatically converted to the corresponding Kelvin value.*				
Broadcast – TW - relative dimming percentage		4 bit	C-W--	[3.007] DPT_Control_Dimming	797
	Changes the color temperature of all lamps from 0% to 100% with relative command				
Broadcast – TW - Absolute dimming Kelvin		2 Byte	C-W--	[7.600] DPT_temperature_Color_Kelvin	798
	Sets the color temperature of the lamp with absolute value command, directly specifying the Kelvin value.				

7 Warnings

- Assembly, electrical connection, configuration and commissioning of the appliance can only be carried out by specialized personnel in compliance with the applicable technical standards and the laws in force in the respective countries
- The opening of the device housing determines the immediate interruption of the warranty period
- In the event of tampering, compliance with the essential requirements of the applicable directives for which the appliance has been certified is no longer guaranteed
- Faulty ekinex® KNX devices must be returned to the manufacturer at the following address: EKINEX S.p.A. - Via Novara 37, I-28010 Vaprio d'Agogna (NO)

8 Other information

- This application manual is intended for installers, system integrators and designers.
- For more information on the product, you can contact ekinex® technical support at the e-mail address:

  support@ekinex.com

  or consult the website www.ekinex.com .

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