
01544

DALI Gateway 8 channels.

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For all the details about the Well-contact Plus system, refer to the installer manual that can be downloaded from the Software ➡ Product Software ➡ Well-contact Plus section on the website www.vimar.com.

General features and functionality

KNX DALI Gateway, 8 channels for 16 lamps per channel, installation on DIN rail (60715 TH35), occupies 6 modules size 17.5 mm

The gateway enables controlling DALI devices (eg electronic ballasts, transformers, etc.). It is equipped with 8 independent channels on which you can connect up to 16 DALI devices per channel; for individual channels or all the channels you can enable your choice of switching functions, dimming, fixed value, fault signalling, Lamp stabilization time, and functions relating to lighting scenarios.

There is no need for separate DALI start-ups or manually assigning addresses for DALI devices.

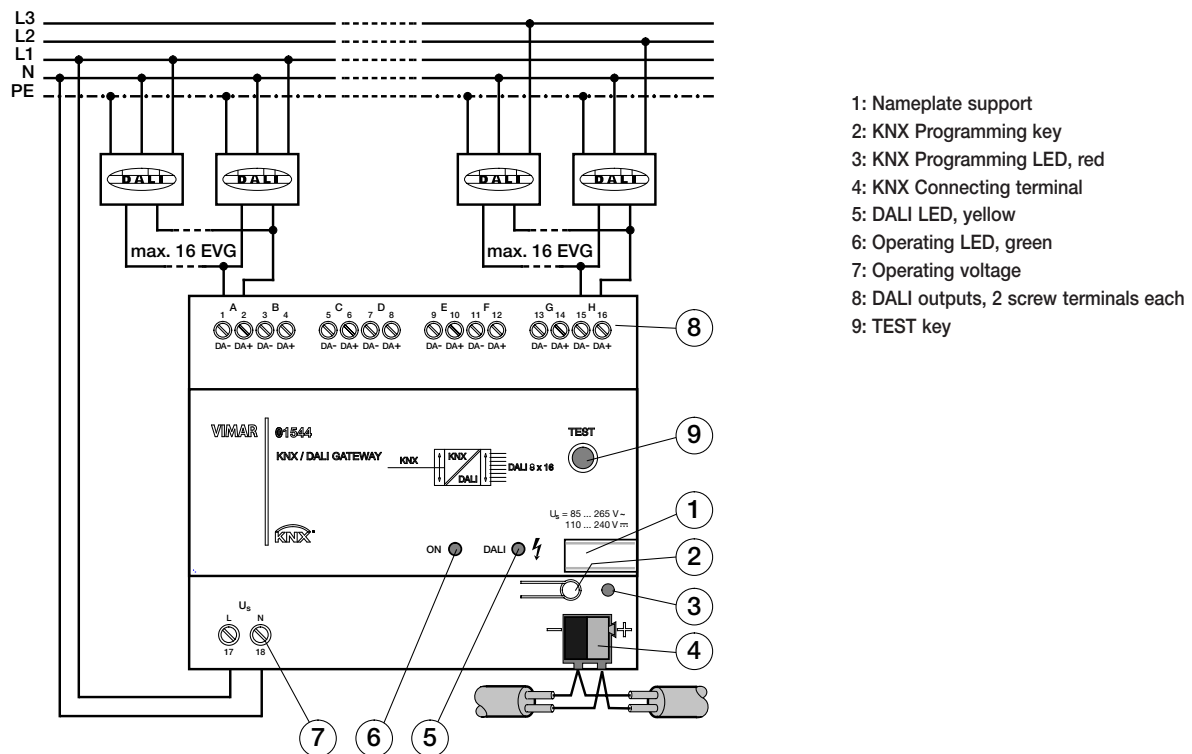
Features

- Operating voltage: 85-265 V ~ 50/60 Hz, 110-240 V d.c.
- Consumption on the bus: 10 mA
- DALI outputs: 8 in compliance with IEC 60929
- Number DALI devices: Max. 16 per output
- Line length: Max. 300 m (line cross-section 1.5 mm²)
- Operating temperature: -5 °C - +45 °C (inside)
- Protection rating: IP20
- 6 modules of 17.5 mm.

Connections

The connection is made directly from the terminals on the front of the gateway 01544.

FRONT VIEW AND CONNECTIONS



Operation

No special commissioning is necessary for the DALI devices. After connection of the operating voltage, the DALI Gateway automatically recognises the DALI operating devices connected.

The assignment of the physical address and the setting of the parameters are performed with the ETS. Programming LED Lights up red when the device is operated in programming mode (after pressing the Programming button).

LED indicators

- Configuration LED (3) steady red = gateway configuration phase
- DALI LED (5):
 - steady yellow = DALI error
 - blinking yellow = gateway in TEST mode
- ON operation LED (6) steady green = network power supply present and gateway working.

ETS parameters and communication objects

1. Functional descriptions

1.1 Manual operation / test function

The DALI Gateway is fitted with a test button. If the device is connected to the mains voltage, each DALI output can be switched on manually in sequence and then off again.

Once the DALI devices are connected, they can be checked through a manual test together with the wiring without bus voltage connected.

By pressing the test button (> 2 sec.), the green operating LED is extinguished and the test mode starts once the test button has been released. Channel A is switched on first - all the other channels are switched off.

By pressing the button again (< 2 sec.), the next channel is switched on and so on. The active channel is indicated by the yellow DALI LED (1 Hz) which flashes. If you press the test button > 2 sec., the green operating LED starts to light up and the test mode ends when the test button is released.

The device automatically exits the test mode after 5 minutes if no push button action is carried out. Once test mode has ended, the channels automatically revert to the state that existed prior to testing.

Any active scene control, automatic dimming processes as well as timed processes in dynamic mode continue to run in the background but are not switched through to the channels during test mode. The channels are enabled again after exiting the test mode.

1.2 Lightscene control

Up to 16 lightscenes can be set, stored and retrieved with the DALI-Gateway 01544. The lightscenes can be set and stored via the ETS or manually via push button. To prevent the manually adjusted lightscene being overwritten, each lightscene can be disabled from being overwritten in the event of an application download.

The lightscenes are composed of the 8 DALI outputs (channels). An individual brightness value can be assigned to each channel in a lightscene or be excluded from the lightscene by the parameter selection "unchanged".

Through setting a scene transitional period, the time can be set individually per lightscene, after which all the devices in the scene have reached their lightscene brightness value.

If a scene is dimmed up or down by the central command*, the relative brightness variations of the individual channels are also stored once the maximum or minimum brightness values are stored. That means that the relative brightness values of the lightscene are stored when dimming up or down.

* Caution: The central command influences all the DALI channels of the DALI Gateway, not just the channels which are compiled in a lightscene.

1.3 Dynamic mode

The dynamic mode can be set individually for each channel. Timed brightness characteristics can be set and retrieved when required.

If the operating mode is set to dynamic mode, the channel is able to implement a simple staircase lighting function as well as special lighting sequences for a daylight simulation. Only the communication object "Channel X On / Off" is available in this operating mode. The dimming characteristic can be set with the following parameters.

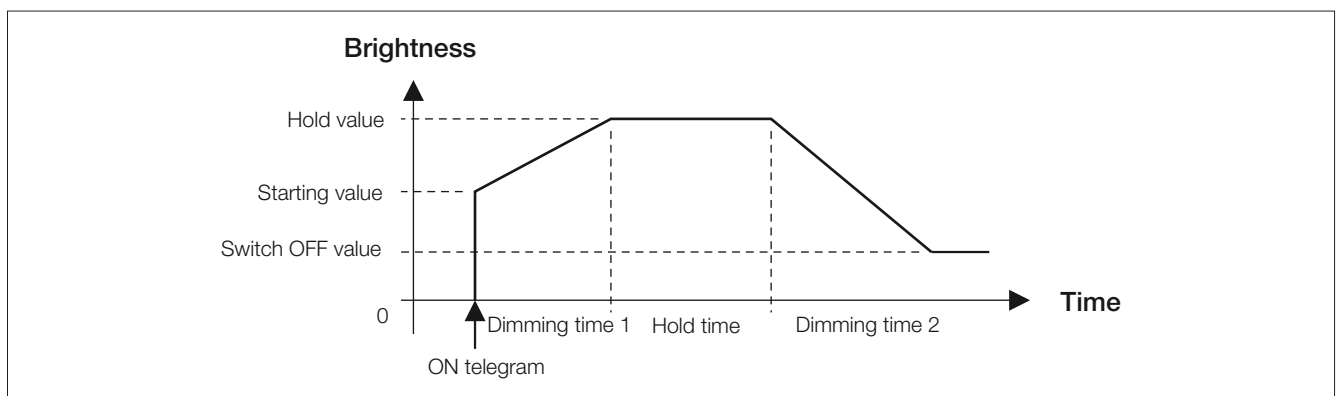


Fig. 1.3: Dynamic mode - Timed progression of the dimming range

Any values can be set for the starting, hold and switch OFF values in order to implement specific dimming sequences e.g. daylight imitation for a lighting sequence in a greenhouse or background lighting on the staircase.

This background lighting could look as follows: The corridor is always illuminated with the switch OFF value e.g. 10% (background lighting). If someone presses the light in the corridor, the lighting is dimmed to 80% for 8 minutes and then to 10% again.

The minimal and maximal threshold cannot be parameterised in the dynamic mode. The limitation is predefined by the start value and the turn-off value. This must be taken into consideration during the parameterisation of the dynamic course.

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1.4 Scene dimming

Scene dimming is possible with the DALI-Gateway 01544 and the central command "Relative dimming" are described as follows:

The set brightness values and the relative brightness differences of the individual channels are maintained during the central dimming process (object relative dimming, channels A... H). This information is also maintained when the maximal or minimal brightness value is reached and when all of the luminaries have reached the maximal or minimal dimming value. When the minimal or maximal brightness values are dimmed up or down, the original brightness conditions are restored.

The following illustrations explain the principles of scenic dimming.

To make it easier to understand, the minimal and maximal dimming values of the channels were set to 0% and 100% respectively.

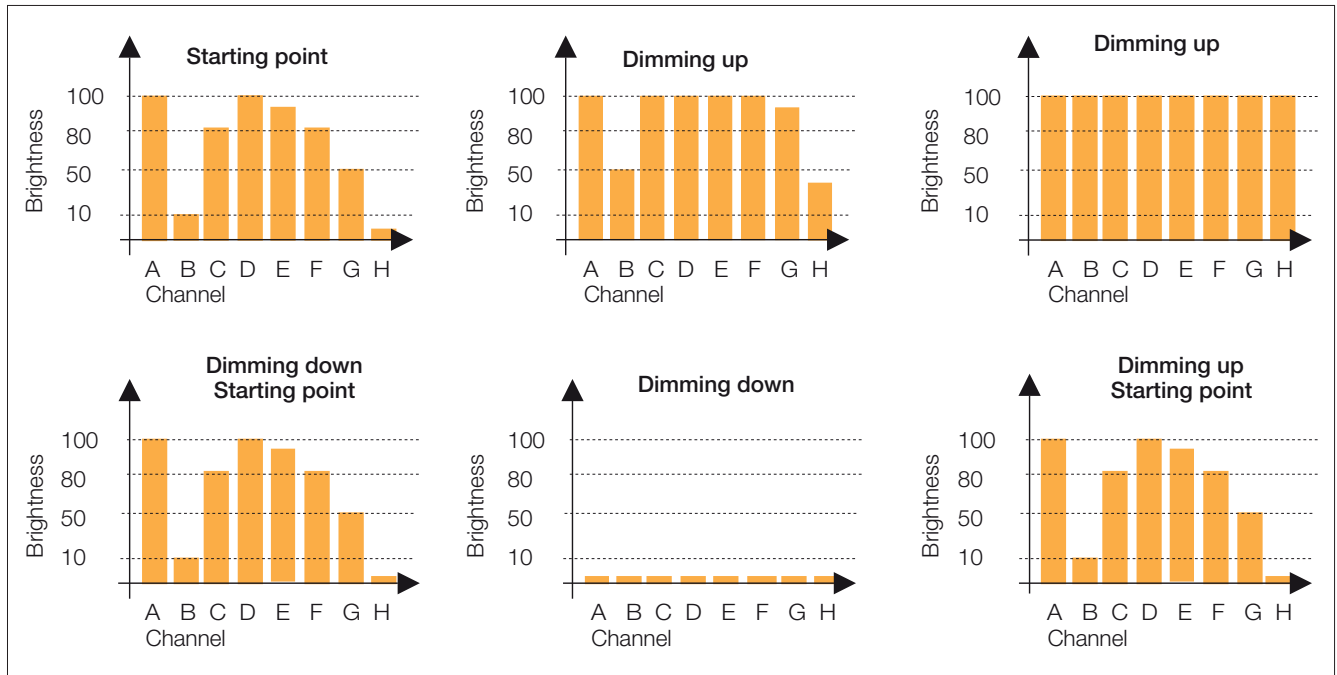


Fig. 1.4: Scene dimming with central command

In detail, scenic dimming via the central dimming object (relative dimming, channels A... H) differs slightly from relative dimming in a channel. This is necessary, since all channels are regarded as a group of luminaries. At the beginning of scenic dimming, the current brightness values of each individual channel are determined as the starting point for dimming. Every dimming value can be dimmed up by + 50 % or down by - 50 %. This is mapped onto the actual brightness range. This means that a brightness value of 20 % can be dimmed by + 50 % (which corresponds to a range of 20 – 100 %) or by - 50 % (which corresponds to a range of 0 – 20%).

Depending on the dimming intervals defined in the KNX, the ranges are split up and dimmed.

With an initial brightness of 50 %, this leads exactly to the dimming behaviour used for relative dimming in the individual channels.

If at the beginning of scenic dimming all channels (A to H) are OFF (0 % brightness) or ON (100 % brightness), the possible dimming range will be set only unilaterally. This leads to a full utilisation of the dimming range without allowing dimming into the OFF or ON direction.

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1.5 Burn-in times

In the case of lamps filled with gas, a burn-in time is recommended as solid or fluid additives in them must be evaporated before optimum operation can be achieved and an optimum internal pressure in the lamp is enabled. This burn-in process is only necessary once before the start of the commissioning process.

Only after this burn-in time do fluorescent lamps have a stable operating value which ensures the best possible dimming behaviour and an optimum service life. An optimum pressure level is created in the fluorescent tube.

For installations with dimmable ballasts, many lamp manufacturers give the recommendation that a burn-in time of 20 – 100 hours must be observed. The recommended values are 20 hours for T8 lamps and 100 hours for T5 lamps. During the burn-in time, the lamps are only switched on at maximum capacity. Dimming is not possible.

The information about burn-in times can often not be found in the catalogue of the lamp manufacturer but in the descriptions of the electronic ballasts.

The reason for this is that the burn-in time is only relevant for dimmable installations. Stable operating values and reproducible brightness values are a prerequisite in these installations. Moreover, only poor evaporation of the solid or fluid additives is possible for dimmed lamps due to the reduced capacity so that in certain circumstances the maximum light yield is only achieved at a later date or not at all.

This can lead to the complete replacement of the lamps.

According to statements of lighting planners, if fluorescent lamps (particularly T5 lamps) are not burned in, they can even be damaged which causes them to fail earlier.

1.6 Constant lighting control

Each DALI output (channel) of the DALI-Gateway 01544 can be priority controlled in slave mode via a 1-byte brightness value (communication object: "Channel X - Set Brightness Value"). The "slave mode" is activated and deactivated via the 1-bit communication object "Channel X - Slave Operation On / Off". Constant lighting control is possible with an appropriate KNX device, which as master supplies a 1-byte brightness value as a control value.



The application data of the master device and the KNX bus load must be taken into account.

1.7 Monitoring of lamps and ballasts

With DALI, it is possible to monitor the DALI devices of a channel together (in broadcast). With the DALI Gateway, it is possible to distinguish between a lamp and a ballast fault. A fault is detected directly and displayed on the gateway by the yellow LED. The information is simultaneously made available via the KNX through a channel-related communication object and can be sent to a control unit or visualisation program for display purposes. From there, the necessary repair measures or corresponding maintenance cycles can be initiated. The current status of the lighting installation in the building is always available or can be retrieved on request. It is thus possible to integrate the lighting in a higher-order Facility Management system.

Equipment with a DALI interface can send a DALI telegram which displays a lamp fault. This information is queried by the DALI Gateway. The corresponding data sheets of the device manufacturer state whether the DALI equipment in use reports a lamp fault.



With the DALI-Gateway 01544, it is possible to detect lamp faults per channel. It is not possible to detect how many or which of the max. 16 devices in the channel have a lamp fault.

Note: You can assume that in general all DALI ballasts support the reporting of a lamp fault. DALI dimmers and DALI switch actuators often do not have this characteristic.

To guarantee correct operation, the gateway must know how many ballasts must be monitored. This is carried out by activating the object "Detect Ballasts". With this function, the DALI Gateway establishes automatically how many ballasts are connected and uses this number as a reference value. If the installation should be extended or reduced, the option "Detect Ballasts" must be activated again. This process is only necessary if the number of ballasts per channel has changed and not when replacing a ballast in the same channel.

The duration of the ballast detection is dependent on the number of connected DALI devices and can take approx. 1 minute with the maximum number of devices.

ETS parameters and communication objects

2. Project design and programming

The project design and programming of the DALI-Gateway 01544 are described in this section.

2.1 Starting the application

Once the application has been imported in ETS, the communication objects described in this section are available, depending on the parameter setting. The channel-related objects are available immediately for each DALI output with its connected DALI devices. No addressing or commissioning of the DALI devices is required. The parameters can be modified directly and the objects can be assigned to any KNX groups.

Many communication objects are dynamic and are only visible if the corresponding parameters are activated in the application software. These communication objects are not visible when starting the project design of the DALI Gateway.





	Number ^	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
	0	Channel A	On / Off			1 bit	C	-	W	-	-		Low
	1	Channel A	Relative Dimming			4 bit	C	-	W	-	-		Low
	2	Channel A	Set Brightness Value			1 Byte	C	-	W	-	-		Low
	3	Channel A	Slave Operation On / Off			1 bit	C	R	W	-	U		Low

Fig. 2.1: Device view of ETS after importing the application (Channel A only)

2.2 Overview of the communication objects

The application program controls all the functions of the DALI Gateway. The programming and parameterisation is carried out via the Engineering Tool Software.

Number of communication objects	Max. number of group addresses	Max. number of associations
104	254	255

Table 2.2: Number of communication objects

2.2.1 DALI output (Channel X) communication objects

The general communication objects which are available for each DALI output are described in the following section. Many communication objects are dynamic and are only visible if the corresponding parameters are activated in the application software. These communication objects are not visible when starting the project design of the DALI Gateway. In the following description, Channel X represents a DALI output (channel) between A and H. The same communication objects are available for all other channels.











	Number ^	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
	0	Channel A	On / Off			1 bit	C	-	W	-	-		Low
	1	Channel A	Relative Dimming			4 bit	C	-	W	-	-		Low
	2	Channel A	Set Brightness Value			1 Byte	C	-	W	-	-		Low
	3	Channel A	Slave Operation On / Off			1 bit	C	R	W	-	U		Low
	4	Channel A	Burn in Lamps			1 bit	C	R	W	-	U		Low
	5	Channel A	Teleg. Status On / Off			1 bit	C	R	-	T	-		Low
	6	Channel A	Teleg. Status Brightness Valu			1 Byte	C	R	-	T	-		Low
	7	Channel A	Teleg. Fault Ballast			1 bit	C	R	-	T	-		Low
	8	Channel A	Teleg. Fault Lamp			1 bit	C	R	-	T	-		Low
	9	Channel A	Teleg. Fault DALI			1 bit	C	R	-	T	-		Low


Fig. 2.2.1: Communication objects "Channel X"

The corresponding communication objects 10 to 79 apply for the DALI outputs (channels) B to H.

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No.	Function	Object name	Data type	Flags
0	On / Off	Channel A	1 bit DPT 1.001	C, W
<p>Channel X On / Off [1-bit switching]: The DALI devices of the channel are switched on or off via this object according to the predefined brightness values (parameter window <i>Channel X</i>).</p> <p>Telegram value "1": On "0": Off</p> <p>On receipt of an ON telegram, the parameter settings determine whether a predefined brightness value is set or the value that was selected before the channel was switched off. If the channel is switched on with any brightness value and receives an ON telegram "1", the parameterised brightness value is set as the starting value.</p> <p>Starting values which lie above or below the maximum or minimum value are not set.</p> <p>The parameterised minimum or maximum value is set instead. It can be set via parameters whether to dim or jump to the brightness value.</p>				
1	Relative Dimming	Channel A	4 bit DPT 3.007	C, W
<p>Channel X Relative Dimming [4-bit dimming]: The relative dimming telegram for the corresponding channel is received via this object. On receipt of a starting command, the brightness is modified in the given direction and at the parameterised speed. If a stop command should be received before the end of the dimming process, the dimming process is interrupted and the achieved brightness value is retained.</p> <p>Dimming values which lie above or below the predefined maximum or minimum value are not set. The parameterised maximum or minimum value is retained for further dimming.</p>				
2	Set Brightness Value	Channel A	8 bit DPT 5.001	C, W
<p>Channel X Set Brightness Value [1-byte value]: The defined brightness value for the corresponding channel is received via this object. It can be set whether the channel jumps or dims to this value. A telegram with the value "0" switches the channel off. Brightness values which lie above or below the predefined maximum or minimum value are not set. The respective maximum or minimum value is set instead. It can further be set whether a ballast which is switched off immediately adopts a received brightness value and then switches on or only after an ON command.</p> <p>Telegram value "0": Off "1": Background brightness "255" = 100%</p>				
3	Slave Operation On / Off	Channel A	1 bit DPT 1.010	C, R, W, U
<p>Channel X Slave Operation On / Off [1-bit switching]: The slave mode enables a channel to work together with a central lighting controller using the "Set Brightness Value" object. This function can be switched on or off via the bus using the communication object "Slave Operation On / Off".</p> <p>Telegram value "1": Switch on slave operation "0": Switch off slave operation</p> <p>If the slave mode is active, the telegrams on the objects (channel X) "<i>switching</i>" and "<i>dimming</i>" will be ignored. Telegrams on the object "<i>set brightness value</i>" are always executed regardless of whether the slave mode is active or not.</p> <p>See section 2.3.2.3 "Slave mode" for a description of the slave operating mode.</p>				
4	Burn in Lamps	Channel A	1 bit DPT 1.010	C, R, W, U
<p>Channel X Burn in Lamps [1-bit switching]: The function "Burn in lamps" (see General parameter window) for protecting the ballasts and the lamp during the initial operation is activated or deactivated via this object. After receipt of a telegram (value "1"), the lamps of the channel can only be operated at 0% (Off) or 100% brightness for the parameterised period. Afterwards, the channel can be dimmed as usual and the programmed lightscenes can be retrieved. If another telegram (value "1") should be received during the burn-in time, the period restarts from the beginning. A telegram with the value "0" deactivates the function and enables normal operation. The communication object is only visible if the parameter "Burn in lamps" has been activated in the General parameter window. The burn-in time is only counted if a DALI device is connected to the channel and is supplied with voltage.</p> <p>Telegram value "1": Activate the function "0": Deactivate the function</p>				
5	Telegr. Status On / Off	Channel A	1 bit DPT 1.001	C, R, T
<p>Channel X Telegr. Status On / Off [1-bit switching]: The current switching state of the channel is sent or queried via this object (e.g. for visualisation purposes), depending on the parameter setting (<i>Status</i> parameter window). The communication object is only visible if the parameter option "Send telegram 'Status On/Off'" has been activated in the <i>Status</i> parameter window.</p> <p>Telegram value "1": On "0": Off</p>				

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No.	Function	Object name	Data type	Flags
6	Telegr. Status Brightness Value	Channel A	8 bit DPT 5.001	C, R, T
<p>Channel X Telegr. Status Brightness Value [1-byte value]: The current brightness state of the channel is sent or read out via this object (e.g. for visualisation purposes), depending on the parameter setting (<i>Status</i> parameter window). The communication object is only visible if the parameter option "Send telegram Status Brightness Value" has been activated in the <i>Status</i> parameter window.</p> <p>Note: The DALI brightness value 255 means that there is no brightness change of the DALI unit. For this reason, the KNX command 255 (100 %) will be transformed into the maximum DALI brightness value 254. Vice versa, the maximum DALI brightness value 254 will be transformed to 255 (100%) at the KNX end.</p>				
7	Telegr. Fault Ballast	Channel A	1 bit DPT 1.005	C, R, T
<p>Channel X Telegr. Fault Ballast [1-bit switching]: A fault signal which originates from one or more ballasts of the channel can be sent or read out via this object (e.g. for maintenance purposes), depending on the parameter setting (<i>Status</i> parameter window). The communication object is only visible if the parameter option "Send telegram 'Fault Ballast'" has been activated in the <i>Status</i> parameter window.</p> <p>Telegram value "1": Fault of one or more ballasts of the channel "0": No fault</p> <p> To guarantee correct operation, the gateway must know how many ballasts need to be monitored. This is carried out by activating the object "Detect Ballasts". With this function, the DALI Gateway establishes automatically how many ballasts are connected and uses this number as a reference value. If the installation should be extended or reduced, the option "Detect Ballasts" must be activated again. This process is necessary if the number of ballasts per channel has changed and not when replacing a ballast in the same channel.</p>				
8	Telegr. Fault Lamp	Channel A	1 bit DPT 1.005	C, R, T
<p>Channel X Telegr. Fault Lamp [1-bit switching]: A lamp fault (e.g. failure) which has been caused by one or more ballasts of the channel can be sent or read out via this object (e.g. for maintenance purposes), depending on the parameter setting (<i>Status</i> parameter window). The communication object is only visible if the parameter option "Send telegram 'Fault Lamp'" has been activated in the <i>Status</i> parameter window.</p> <p>Telegram value "1": Fault with one or more lamps of the channel "0": No fault</p>				
9	Telegr. Fault DALI	Channel A	1 bit DPT 1.005	C, R, T
<p>Channel X Telegr. Fault DALI [1-bit switching]: A fault in the DALI communication of the channel (i.e. short circuit) can be sent or read out (e.g. for maintenance purposes) via this object, depending on the parameter setting (<i>Status</i> parameter window). The communication object is only visible if the parameter option "Send telegram 'Fault DALI'" is activated in the <i>Status</i> parameter window.</p> <p>Telegram value "1": Fault in the DALI communication of the channel "0": No fault</p>				

2.2.2 Central communication objects (Channels A...H)

The following communication objects enable the central control of all DALI outputs (channels) A...H i.e. all outputs are controlled together.





	Number	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
	80	Channels A...H	On / Off			1 bit	C	-	W	-	-		Low
	81	Channels A...H	Relative Dimming			4 bit	C	-	W	-	-		Low
	82	Channels A...H	Set Brightness Value			1 Byte	C	-	W	-	-		Low
	83	Channels A...H	Central Control On / Off			1 bit	C	R	W	-	U		Low

Fig. 2.2.2: Communication objects "Channels A...H"

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No.	Function	Object name	Data type	Flags
80	On / Off	Channels A ... H	1 bit DPT 1.001	C, W
<p>Channels A ... H On / Off [1-bit switching]: All the channels are switched on or off simultaneously (central control) via this object according to the preset brightness values (<i>Central function</i> parameter window). Telegrams which are received via this communication object (CO) have priority over commands which are received by the specific channel objects. If the central control is switched off via the CO "Central Control On / Off" (Off), this setting has temporary priority i.e. the central control can be ended by an individual object at any time.</p> <p>If the central control is switched on (On) via the CO "Central Control On / Off", the priority of the central control is retained until the central control is set to "Off" again. This means that the communication for the individual control of the channels is inactive and any received telegrams do not have a function.</p> <p>Telegram value "1": On "0": Off</p> <p>The minimum and maximum dimming values set per channel in the "Channel X" parameter window retain their validity. Starting values which lie above or below the maximum or minimum values selected for the channel are not set. The parameterised maximum or minimum value is set instead. Different maximum or minimum brightness values can thus be set in the different channels when dimming centrally.</p>				
81	Relative Dimming	Channels A ... H	4 bit DPT 3.007	C, W
<p>Channels A ... H Relative Dimming [4-bit dimming]: The relative dimming telegram for all the channels is received via this object (central control). Telegrams which are received via this communication object (CO) have priority over commands which are received by the specific channel objects. If the central control is switched off via the CO "Central Control On / Off" (Off), this setting has temporary priority i.e. the central control can be ended by an individual object at any time. If the central control is switched on (On) via the CO "Central Control On / Off", the priority of the central control is retained until the central control is set to "Off" again. This means that the communication for the individual control of the channels is inactive and any received telegrams do not have a function.</p> <p>The information about the relative brightness differences of the individual channels is retained during a dimming process, even if the maximum or minimum brightness is reached and all the lamps have achieved the maximum or minimum dimming value. When dimming up or down, the selected brightness differences are reset.</p>				
82	Set Brightness Value	Channels A ... H	8 bit DPT 5.001	C, W
<p>Channels A ... H Set Brightness Value [1-byte value]: The brightness value for all the channels is received via this object (central control). Telegrams which are received via this communication object (CO) take priority over commands which are received by the specific channel objects. If the central control is switched off via the CO "Central Control On / Off" (Off), this setting has temporary priority i.e. the central control can be ended by an individual object at any time. If the central control is switched on (On) via the CO "Central Control On/Off", the priority of the central control is retained until the central control is set to "Off" again. This means that the communication for the individual control of the channels is inactive and any received telegrams do not have a function. If the object "Burn in Lamps" is set to "1", the lamps of the channel can only be operated at 0% or 100% during the burn-in time.</p> <p>The minimum and maximum dimming values set per channel in the "Channel X" parameter window retain their validity. Brightness values which lie above or below the maximum or minimum values selected for the channel are not set. The parameterised maximum or minimum value is set instead. Different maximum or minimum brightness values can thus be set in the different channels when dimming centrally.</p>				
83	Central Control On / Off	Channels A...H	1 bit DPT 1.010	C, R, W, U
<p>Channels A...H Central Control On / Off [1-bit switching]: The central control is switched on or off via this object. If the object "Central Control On / Off" equals "1" (On), the other channel objects for object control are inactive i.e. individual telegrams which are received have no function. The central control remains switched on until the object "Central Control On / OFF" is reset to "0" (Off). All the channels are thereby enabled. The channel values set through the central control (brightness/switching states) are retained and can be modified individually at any time by telegrams of any of the objects. If the object "Burn in Lamps" (see Channel X objects) is set to "1", the lamps of the channel can only be operated at 0% or 100% during the burn-in time.</p> <p>Telegram value "1": On "0": Off</p> <p>Note: If the central control is active, channel-dependent commands (channel X, object no. 0 to 9) will be ignored. This also includes the burn-in function, i.e. if the central control is active, the burn-in function cannot be activated or deactivated for a channel with the object "channel x lamps burn-in". The burn-in time and the function, however, remain active in the case of the central commands.</p>				

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2.2.3 Lightscene communication objects

16 lightscenes can be activated via the parameter setting. The scenes can be defined by the ETS entries or set individually by the user according to personal requirements via the individual object. It is possible for each scene to disable the overwriting of the brightness values during an ETS download. The individually set brightness values of the lightscene are hereby retained during an ETS download.

There are separate communication objects for recall or store the 16 lightscenes. There is a further 8-bit communication object available, with which each one of the 16 lightscenes can be stored or retrieved via an 8-bit code.









	Number	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
	84	Light Scene 1/2	Recall Scene			1 bit	C	-	W	-	-		Low
	85	Light Scene 3/4	Recall Scene			1 bit	C	-	W	-	-		Low
	86	Light Scene 5/6	Recall Scene			1 bit	C	-	W	-	-		Low
	87	Light Scene 7/8	Recall Scene			1 bit	C	-	W	-	-		Low
	88	Light Scene 9/10	Recall Scene			1 bit	C	-	W	-	-		Low
	89	Light Scene 11/12	Recall Scene			1 bit	C	-	W	-	-		Low
	90	Light Scene 13/14	Recall Scene			1 bit	C	-	W	-	-		Low
	91	Light Scene 15/16	Recall Scene			1 bit	C	-	W	-	-		Low

Fig. 2.2.3A: Communication objects "Recall Lightscene x/y"

No.	Function	Object name	Data type	Flags
84	Recall Scene	Lightscene 1/2	1 bit DPT 1.006	C, W
85	Recall Scene	Lightscene 3/4	1 bit DPT 1.006	C, W
86	Recall Scene	Lightscene 5/6	1 bit DPT 1.006	C, W
87	Recall Scene	Lightscene 7/8	1 bit DPT 1.006	C, W
88	Recall Scene	Lightscene 9/10	1 bit DPT 1.006	C, W
89	Recall Scene	Lightscene 11/12	1 bit DPT 1.006	C, W
90	Recall Scene	Lightscene 13/14	1 bit DPT 1.006	C, W
91	Recall Scene	Lightscene 15/16	1 bit DPT 1.006	C, W

Lightscene X/Y Store Scene [1-bit switching]: The scenes are stored via this object. On receipt of a telegram, the current brightness values of all the channels which are assigned to the scene are stored. The next time the scene is recalled, all the channels which are assigned to the scene are set to these stored brightness values. The communication objects are only visible if the scenes have been activated in the Scenes parameter window and the parameter option "Permit storing of lightscenes" has been set to "yes".

Telegram value "0": Recall scene X
 "1": Recall scene Y

ETS parameters and communication objects

With these communication objects, lightscenes can be stored individual e.g. with a push button or another operating device.









	Number	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
	92	Light Scene 1/2	Store Scene			1 bit	C	-	W	-	-		Low
	93	Light Scene 3/4	Store Scene			1 bit	C	-	W	-	-		Low
	94	Light Scene 5/6	Store Scene			1 bit	C	-	W	-	-		Low
	95	Light Scene 7/8	Store Scene			1 bit	C	-	W	-	-		Low
	96	Light Scene 9/10	Store Scene			1 bit	C	-	W	-	-		Low
	97	Light Scene 11/12	Store Scene			1 bit	C	-	W	-	-		Low
	98	Light Scene 13/14	Store Scene			1 bit	C	-	W	-	-		Low
	99	Light Scene 15/16	Store Scene			1 bit	C	-	W	-	-		Low

Fig. 2.2.3B: Communication objects "Store Lightscene x/y"

No.	Function	Object name	Data type	Flags
92	Store Scene	Lightscene 1/2	1 bit DPT 1.006	C, W
93	Store Scene	Lightscene 3/4	1 bit DPT 1.006	C, W
94	Store Scene	Lightscene 5/6	1 bit DPT 1.006	C, W
95	Store Scene	Lightscene 7/8	1 bit DPT 1.006	C, W
96	Store Scene	Lightscene 9/10	1 bit DPT 1.006	C, W
97	Store Scene	Lightscene 11/12	1 bit DPT 1.006	C, W
98	Store Scene	Lightscene 13/14	1 bit DPT 1.006	C, W
99	Store Scene	Lightscene 15/16	1 bit DPT 1.006	C, W

Lightscene X/Y Store Scene [1-bit switching]: The scenes are stored via this object. On receipt of a telegram, the current brightness values of all the channels which are assigned to the scene are stored. The next time the scene is recalled, all the channels which are assigned to the scene are set to these stored brightness values. The communication objects are only visible if the scenes have been activated in the Scenes parameter window and the parameter option "Permit storing of lightscenes" has been set to "yes".

Telegram value "0": Store scene X
 "1": Store scene Y

ETS parameters and communication objects

With these 1-byte communication objects, the 16 lightscenes are stored and recalled via a special code.

Number	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
104	Light Scenes 1...16	Control Scenes			1 Byte	C	-	W	-	-		Low

Fig. 2.2.3C: Communication objects "Lightscenes 1...16"

No.	Function	Object name	Data type	Flags
100 ... 103	Communication objects not assigned			
104	Control Scenes	Lightscenes 1 ... 16	1 byte DPT 18.001	C, W

Lightscenes 1 ... 16 Control Scenes [8-bit coded]: All 16 scenes can be controlled via this 1-byte communication object using a coded telegram. The number of the addressed scene is received via a telegram together with the recall or store information. The communication object is only visible if the scenes have been activated in the Scenes parameter window and the parameter option "Control scenes via" has been set to "1-byte telegrams" or "1-bit and 1-byte telegrams".

Telegram format (1-byte):

- MOSS SSSS
- (MSB) (LSB)
- M: 0 – Scene is retrieved
- 1 – Scene is stored (if permitted)
- X: Not used
- S: Number of the scene (1 ... 16)

KNX 1 byte-telegram value		Meaning
decimal	exadecimal	
00	00h	Recall scene 1
01	01h	Recall scene 2
02	02h	Recall scene 3
...
15	0Eh	Recall scene 16
128	80h	Store scene 1
129	81h	Store scene 2
130	82h	Store scene 3
...
142	8EH	Store scene 16

Other values will ignored by the scene. A recall or storage of the scenes is not possible.

ETS parameters and communication objects

2.2.4 General communication objects

The following communication objects are only activated and visible if the corresponding parameter setting has been carried out. The KNX can be monitored with these communication objects. The number of DALI devices can be fixed for continuous monitoring.






	Number ▲	Name	Object Function	...	...	Length	C	R	W	T	U	...	Priority
	106	General	Telegr. Fault 230 VAC			1 bit	C	R	-	T	-		Low
	107	General	Fault Acknowledgement			1 bit	C	-	W	-	-		Low
	108	General	Telegr. Communication send			1 bit	C	R	-	T	-		Low
	109	General	Telegr. Communication receive			1 bit	C	-	W	-	-		Low
	110	General	Detect Ballasts			1 bit	C	-	W	-	-		Low

Fig. 2.2.4: "General" communication objects

No.	Function	Object name	Data type	Flags
105	Communication object not assigned			
106	Telegr. Fault 230 VAC	General	1 bit DPT 1.006	C, R, T
General Fault 230 VAC [1-bit switching]: If the 230 VAC supply voltage of the DALI Gateway should fail for more than 5 seconds, a fault telegram is sent immediately. The communication object is only visible if the parameter "Send telegram 'Fault 230 VAC'" is set to "yes" in the Status parameter window. Telegram value "1": Fault "0": No fault				
107	Fault Acknowledgement	General	1 bit DPT 1.003	C, W
General Fault Acknowledgement [1-bit switching]: The 1-bit input communication object enables both the reset of the 230 V AC fault signal and the ballast, lamp and DALI fault signals of the individual channels. The communication object is only visible if the parameter "Acknowledge faults" is activated in the Status parameter window. The fault(s) is (are) only reset after an acknowledgement if the corresponding fault(s) has (have) been rectified. Telegram value "1": Reset fault(s) "0": No function				
108	Telegr. Communication send	General	1 bit DPT 1.002	C, R, T
General Telegr. Communication send [1-bit switching]: To regularly check the presence of the DALI Gateway on the KNX, a monitoring telegram can be sent cyclically on the bus. The communication object is only visible if the parameter "Send/receive communication telegram cyclically" has been set to "send telegram" or "send/receive telegram" in the <i>Status</i> parameter window. Telegram value "1": Status				
109	Telegr. Communication receive	General	1 bit DPT 1.002	C, W
General Telegr. Communication receive [1-bit switching]: The DALI Gateway can receive a "1" telegram via this communication object which another KNX device (e.g. diagnostics module) sends cyclically. On receipt of the telegram, the communication capability of the bus can be monitored. If the DALI Gateway does not receive a "1" telegram at the communication object "Telegr. Communication receive" within a specific time interval, a fault in the KNX communication path is assumed and the response defined in the General parameter window is carried out. The DALI Gateway goes into a safety state and does not process any telegrams. Incoming telegrams are only processed again when a "1" is received again at the communication object "Telegr. Communication receive". The time span of the receiving interval can be set in the <i>Status</i> parameter window under "Transmission / receive period".				
110	Detect Ballasts	General	1 bit DPT 1.010	C, W
General Detect Ballasts [1-bit switching]: To be able to correctly detect a fault in a ballast, the DALI Gateway must identify all the connected DALI devices and thereby know the number of DALI devices per channel that need to be monitored. This identification process runs independently and fully automatically in the background if it has been initiated by this communication object. An automatic detection e.g. after a bus or mains voltage recovery does not take place. After approx. 60 seconds, all the DALI devices are detected and the failure of a ballast can be correctly established. The activation should be carried out directly after commissioning or when extending or reducing the DALI devices. The DALI devices are continually monitored, independence the lamp is activated or deactivated. The DALI devices must be installed properly and supplied with operating voltage if necessary. Telegram value "1": Start ballast detection process "0": No function				

ETS parameters and communication objects

2.3 Description of the parameters

The parameters and parameter windows for the operation and programming of the application are described in more detail in the following section. The number of parameter windows can vary depending on the parameter setting. The first parameter window that is shown when the “Parameters” dialog is retrieved appears as follows:

General	Channel setting	global
Channels	Reaction on DALI or EIB/KNX bus voltage failure	no change
Central Function	Reaction on DALI or EIB/KNX bus voltage recovery	no change
Scenes	Reaction on EIB/KNX communication fault	no change
Status	Channel reaction on ballast or lamp failure	no change
	Burn-in lamps	No

Fig. 2.3: First parameter window when “Parameters” dialog is retrieved (default setting)

ETS parameters and communication objects

2.3.1 Parameter window: *General*

The general behaviour and the behaviour in the event of a fault are defined in the *General* parameter window.

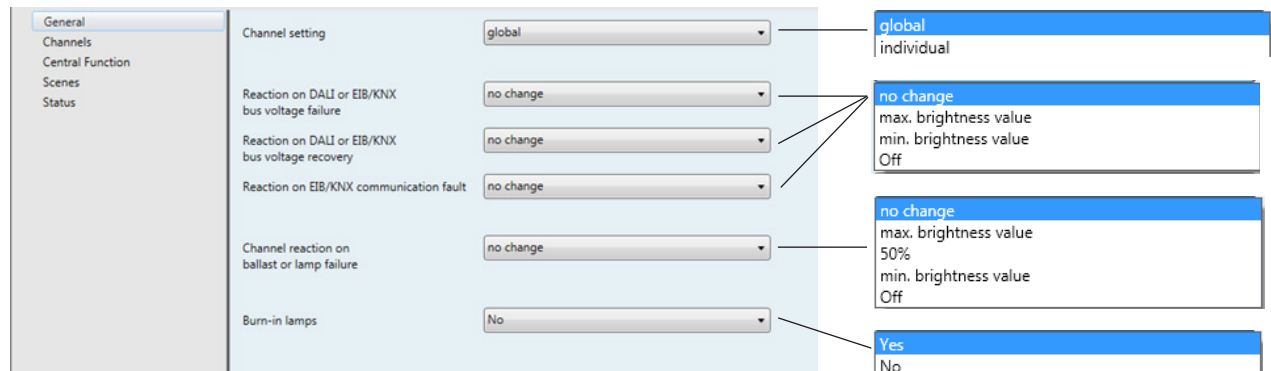


Fig. 2.3.1A: General parameter window

Channel setting: It is defined with this parameter whether the channels should be set individually or globally. By selecting the setting "global" for "Channel setting", all the other channels are automatically set with the same values. The parameter setting "individual" enables each channel to be set individually.



It should be noted that values which have been set under "global" are not transferred to all the individual channels by switching to "individual". The individual setting must be carried out separately for each channel.

In the setting "individual", the parameter windows for each channel are activated.

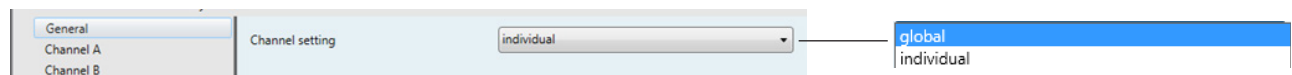


Fig. 2.3.1B: General parameter window - Individual channel setting

Reaction on DALI or EIB / KNX bus voltage failure: It is defined with this parameter how the output channels or the connected DALI devices react if communication with the DALI equipment is not possible due to failure of the KNX bus voltage, the AC/DC operating voltage or the DALI voltage.



A prerequisite for the correct response of the DALI devices is that they are supplied with power.

Note: If older ballasts are used and if a voltage failure occurs, a luminaire that is switched off may light up briefly although the option "no change" is set.

Please note that device 01544 does not allow the permanent modification of the default value set by the reactor's manufacturer for the behaviour of the reactor itself when the operating voltage returns (for instance following a general power outage). This has the advantage that without any DALI programming or commissioning requirement, the ballast is switched on and off normally via its ballast supply voltage. This can be especially helpful during the commissioning phase. If no DALI commissioning has been undertaken, the lighting can be switched on and off via the ballast supply voltage using a normal circuit-breaker. In "normal" operation, this reaction may not be desirable: If there is a ballast supply voltage failure and recovery, all the ballasts switch on at maximum brightness. This can lead to increased inrush currents and, in the worst case, can cause a circuit-breaker to trip. Moreover, the entire building is fully illuminated and must be switched off manually.

Reaction on DALI or EIB / KNX bus voltage recovery: It is defined with this parameter how the output channels or DALI devices react if the KNX supply voltage, the operating voltage and the DALI control voltage are restored. (The DALI equipment must be supplied with voltage).

If the supply voltage of the DALI devices should only be available at a later time, the current brightness of the associated channel is set within 1 second following recovery of the supply voltage.

The reset of the ballast fault is carried out after a maximum of 45 seconds. This time is dependent on the number of DALI devices that are connected to the channel.

Reaction on communication fault: It is defined with this parameter how the DALI output channels or DALI devices are set if voltage is present but no monitoring communication telegram with the value "1" has been received via the communication object "Telegr. Communication receive" within the defined receiving interval. The time span of the receiving interval can be set in the *Status* parameter window under "Transmission / receive period". If no "1" telegram is received during this period, the DALI Gateway adopts a safety state. The connected DALI devices can be parameterised in the following way:

- "no change" (channels retain their brightness value, any started timer operations are continued)
- "turn on value" (all channels are set to the starting value)
- "max. brightness value" (all channels are set to the maximum dimming value)
- "min. dimming value" (all channels are set to the minimum dimming value)
- "Off" (all channels are switched off)

ETS parameters and communication objects

The DALI Gateway does not process any telegrams until a “1” telegram is received again via the communication object “Telegr. Communication receive”.

Channel reaction on ballast or lamp failure: To enable the maintenance personnel to find the channel with the faulty lamp or ballast easily, the reaction of the output channel or electronic ballast in the event of a fault can be defined.



Note: The fault can also be an interruption in the supply voltage to the ballast.

Burn in lamps: Continuous dimming of lamps which are not burned in can lead to the maximum indicated brightness of the lamp not being reached and thus the required brightness level in the room cannot be set.

To guarantee the optimum life expectancy of the lamps and the correct function of the electronic ballasts and lamps in the dimming state, many lamps (filled with gas) when they are first used must be operated for a specific number of hours at 100% brightness before they can be dimmed continuously.

If the function “Burn in lamps” is activated and a “Burn in Lamps” telegram has been received, the lamps of the channel can only be operated at 0% (Off) or 100% brightness for the parameterised burn-in time. This applies regardless of the other dimming, ON/OFF and lightscene brightness values which have been set. The burn-in time take priority over all other settings. Once the burn-in time has elapsed or the function has been deactivated (communication object “Channel X Burn in Lamps” equals “0”), the channel can be dimmed as usual and the programmed lightscenes can be retrieved.

The burn-in time is only counted if a DALI device is connected to the channel and is ready for operation (supplied with power).

On KNX bus voltage failure, the burn-in time function remains activated and counts the operating time of the DALI device.

On failure of the 230 V AC/DC operating voltage, the information about the previously elapsed burn-in time is lost. After recovery of the operating voltage, the burn-in time function is deactivated again.

Lamp burn-in period in hours (1 – 255): The burn-in time can be set in hours with this parameter.

The recommended burn-in time of the lamp must be taken from the technical data of the appropriate lamp manufacturer.

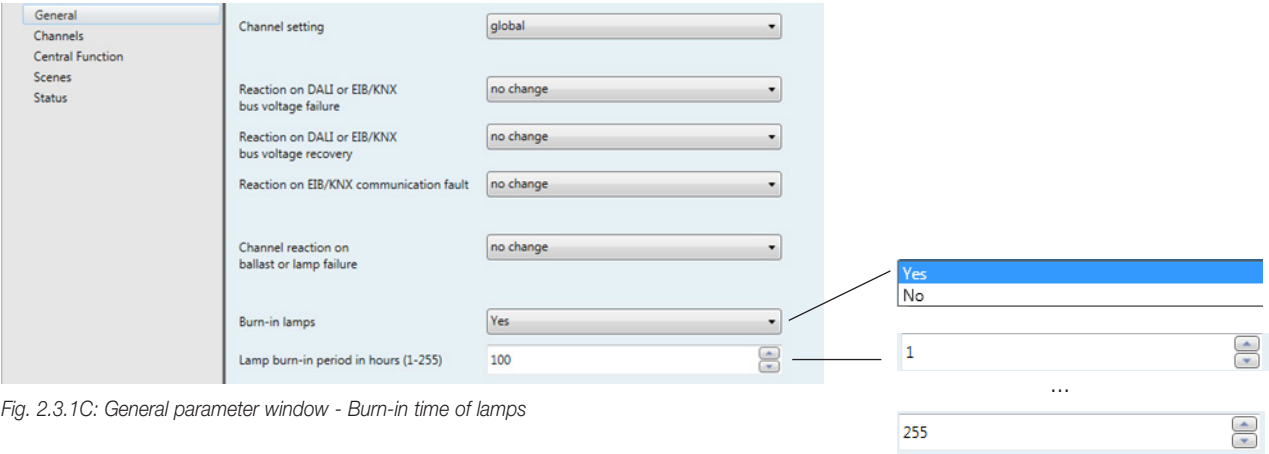


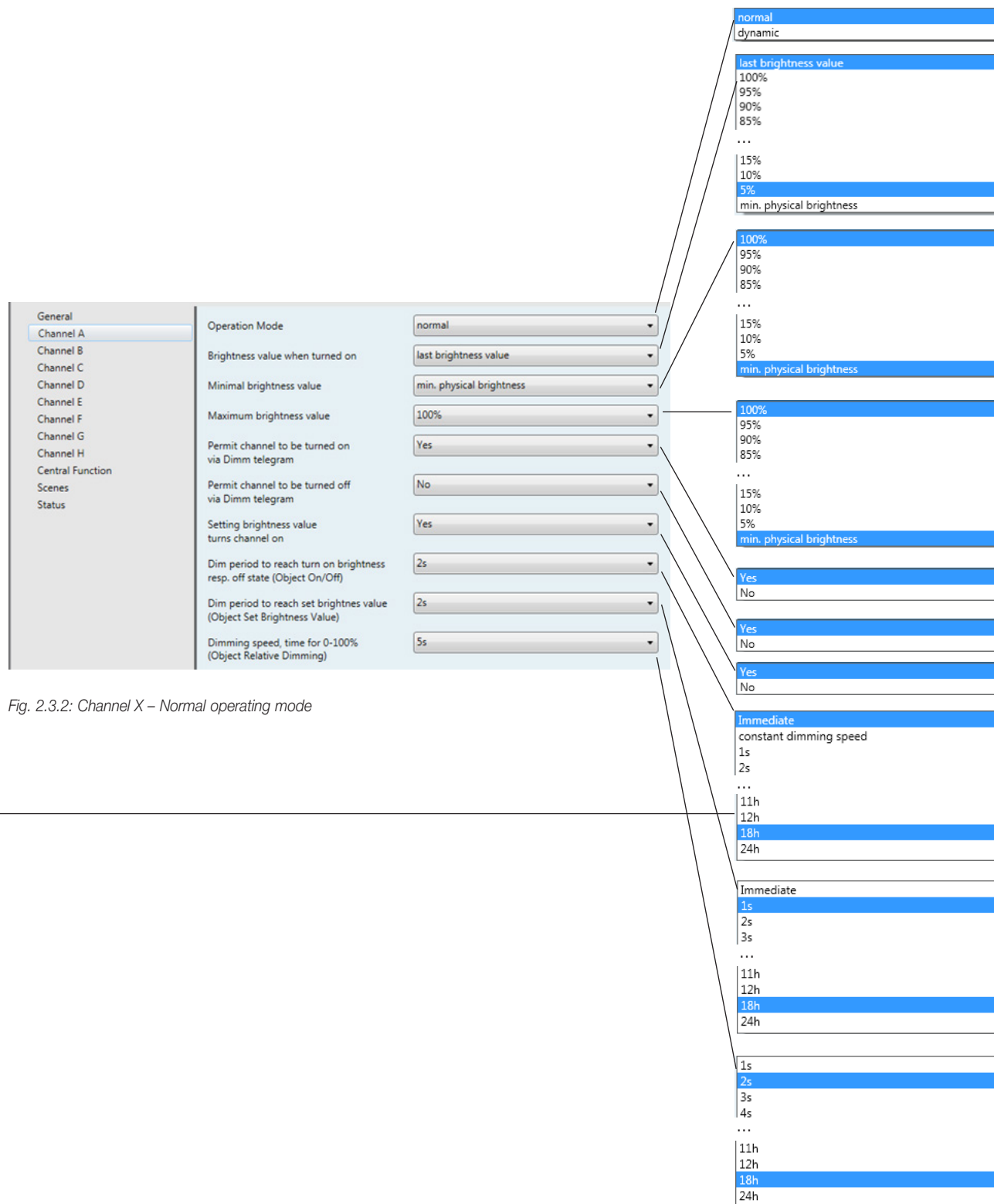
Fig. 2.3.1C: General parameter window - Burn-in time of lamps

ETS parameters and communication objects

2.3.2 Parameter window: *Channel X*

In the parameter window *Channel X* or *Channels* (for global channel configuration), the settings for the individual channels or for all the channels together are carried out.

The parameter windows *Channel B* to *H* are only visible if the setting “individual” has been selected for “Channel setting” in the *General* parameter window.



Parameter	Value
Operation Mode	normal
Brightness value when turned on	last brightness value
Minimal brightness value	min. physical brightness
Maximum brightness value	100%
Permit channel to be turned on via Dimm telegram	Yes
Permit channel to be turned off via Dimm telegram	No
Setting brightness value turns channel on	Yes
Dim period to reach turn on brightness resp. off state (Object On/Off)	2s
Dim period to reach set brightness value (Object Set Brightness Value)	2s
Dimming speed, time for 0-100% (Object Relative Dimming)	5s

Callout 1: Operation Mode

- normal
- dynamic

Callout 2: Brightness value when turned on

- last brightness value
- 100%
- 95%
- 90%
- 85%
- ...
- 15%
- 10%
- 5%
- min. physical brightness

Callout 3: Minimal brightness value

- 100%
- 95%
- 90%
- 85%
- ...
- 15%
- 10%
- 5%
- min. physical brightness

Callout 4: Maximum brightness value

- 100%
- 95%
- 90%
- 85%
- ...
- 15%
- 10%
- 5%
- min. physical brightness

Callout 5: Permit channel to be turned on via Dimm telegram

- Yes
- No

Callout 6: Permit channel to be turned off via Dimm telegram

- Yes
- No

Callout 7: Setting brightness value turns channel on

- Yes
- No

Callout 8: Dim period to reach turn on brightness resp. off state (Object On/Off)

- Immediate
- constant dimming speed
- 1s
- 2s
- ...
- 11h
- 12h
- 18h
- 24h

Callout 9: Dim period to reach set brightness value (Object Set Brightness Value)

- Immediate
- 1s
- 2s
- 3s
- ...
- 11h
- 12h
- 18h
- 24h

Callout 10: Dimming speed, time for 0-100% (Object Relative Dimming)

- 1s
- 2s
- 3s
- 4s
- ...
- 11h
- 12h
- 18h
- 24h

Fig. 2.3.2: *Channel X* – Normal operating mode

ETS parameters and communication objects

2.3.2.1 "Normal" operating mode

In normal mode, the channel functions as a standard DALI dimming output.

Brightness value when turned on: This parameter indicates the brightness value with which the DALI device switches on after receipt of an ON telegram "1". If a value should be set which lies outside the minimum or maximum dimming values, the brightness is restricted during operation to the minimum or maximum dimming limit values.

If the channel is already switched on at any brightness value and then receives an ON telegram "1", the parameterised starting value is set.

Minimal brightness value: The minimum brightness value which the DALI device should adopt when dimming darker or setting brightness values is defined via this parameter. The absolute minimal brightness value (background brightness) which the ballast/lamp combination can adopt is manufacturer-specific and typically lies between 1 % and 5% of luminous flux. This luminous flux corresponds with a digital DALI dimming value between 85 and 126 digits. On the other hand this corresponds with a Percentage brightness value between 33% and 50%.



This means that a DALI ballast with a luminous flux between 3...100% (see printing on ballast) will limited the brightness level to a minimal dimming level of 50% brightness, independent of the parameterization of the DALI-Gateway. To avoid such a limitation, suitable ballast with a dimming range of 1 %...100% or 0.1%...100% have to be used.

If a minimum dimming value is set which lies above the maximum dimming value, the following is set: minimum dimming value = maximum dimming value. If the function "Burn in lamps" is activated, the lamp is only operated at 0% (Off) or 100% brightness, regardless of this setting.

If a brightness value should be received via the communication object "Set Brightness Value" which lies below the preset minimum dimming value, the minimum dimming value is set.

The minimum dimming value set per channel continues to be valid for central commands.

Maximal brightness value: The maximum brightness value which the DALI device should adopt when dimming darker or setting brightness values is defined via this parameter. If a maximum dimming value is set which lies below the minimum dimming value, the following is set: maximum dimming value = minimum dimming value. If the function "Burn in lamps" is activated, the lamp is only operated at 0% (Off) or 100% brightness, regardless of this setting.

If a brightness value should be received via the communication object "Set Brightness Value" which lies above the preset maximum dimming value, the maximum dimming value is set.

The maximum dimming value set per channel continues to be valid for central commands.

Permit channel to be turned on via dimming telegram: The channel can be switched on via dimming if "yes" is selected.

Permit channel to be turned off via dimming telegram: The channel can be switched off via dimming if "yes" is selected.

Dimming period to reach turn on brightness resp. off state (Object: On/Off): This parameter determines the period which a dimming process requires from switching on at 0% brightness to the starting value. The same speed applies for switching off from the set brightness value to the OFF value. This dimming period only affects dimming commands which are received via ON/OFF telegrams. A soft start or soft stop can be set with this parameter. In the setting "constant dimming speed", the same speed is used (adjustable under "Dimming speed, time for 0-100%"), regardless of the set brightness value.

This means that the ON/OFF value is not achieved at the same time but there is no unnecessarily long delay until a lamp switches from e.g. 30% brightness to the OFF state.

Setting brightness value turns channel on: If it should be possible to switch on from the OFF state via a dimming command "Set Brightness Value", this must be enabled with the setting "yes".

Dimming period to reach set brightness value (Object: Set Brightness Value): This parameter indicates the period in which a dimming process is carried out from 0% to the starting value. This dimming period only affects dimming commands which are received via the communication object "Set Brightness Value".

Dimming speed, time for 0...100% (Object: Relative Dimming): This parameter indicates the time for carrying out a dimming process from 0...100%. This dimming time only affects dimming commands which are received via the communication object "Relative Dimming".



When selecting all the dimming periods, the following should be noted: depending on the lamp, stepwise dimming can occur when the dimming speeds are too fast or the dimming times are too short. The reason for this is that the dimming steps are defined in the norm in order to achieve a logarithmic dimming curve which appears as linear to the human eye.

ETS parameters and communication objects

2.3.2.2 “Dynamic” operating mode

General

Channel A

Channel B

Channel C

Channel D

Channel E

Channel F

Channel G

Channel H

Central Function

Scenes

Status

Operation Mode

Initial Brightness value when turned on

Dim period to reach hold brightness value

Hold brightness value

Hold time

Dim period to reach Brightness value before turned off

Brightness value when turned off

Minimal brightness value

Maximum brightness value

dynamic

50%

5s

100%

5min

30s

min. physical brightness

100%

100%

normal

dynamic

100%

95%

90%

85%

...

15%

10%

5%

min. physical brightness

Immediate

1s

2s

3s

...

11h

12h

18h

24h

100%

95%

90%

85%

...

15%

10%

5%

min. physical brightness

1s

2s

3s

4s

...

11h

12h

18h

24h

Immediate

1s

2s

3s

...

11h

12h

18h

24h

min. physical brightness

5%

10%

15%

...

85%

90%

95%

100%

100%

95%

90%

85%

...

15%

10%

5%

min. physical brightness

100%

95%

90%

85%

...

15%

10%

5%

min. physical brightness

Fig. 2.3.2.2A: Parameter window Channel X – Dynamic operating mode

ETS parameters and communication objects

If the operating mode is set to dynamic mode, the channel is able to implement e.g. staircase lighting functions or special lighting processes. Only the communication object "Channel X - On / Off" is available in this operating mode. The dimming progress can be set with the parameters described in the following section.

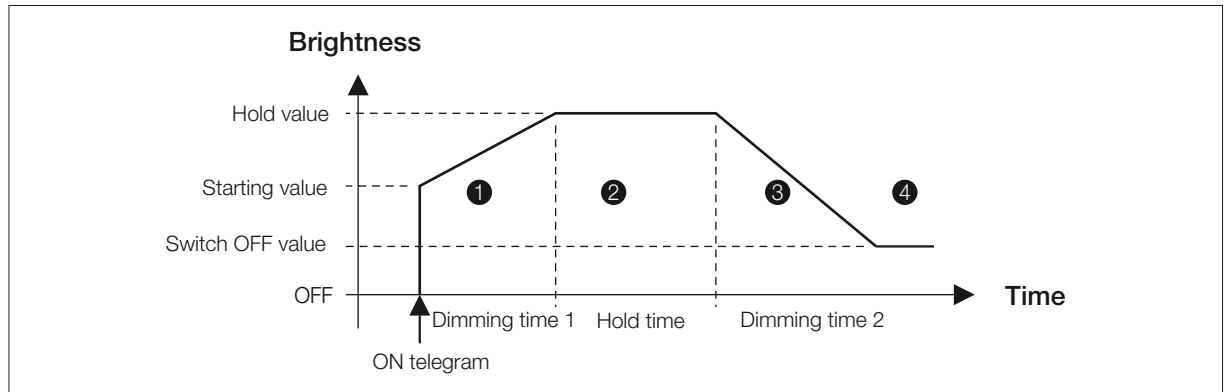


Fig. 2.3.2.2B: Graphical representation of dynamic mode.

Any values can be set for the starting, hold and switch OFF values. It is therefore possible to implement very specific or special dimming processes e.g. daylight simulation.

Initial brightness value when turned on: This parameter indicates the starting brightness value with which the DALI devices should switch on after receipt of an ON telegram.

Brightness value when turned off: This parameter indicates the final brightness value which the DALI devices should have when they are switched off i.e. at the end of the dimming progression.

Hold brightness value: This parameter indicates the brightness value which the DALI devices should adopt during the hold period.

Dimming period to reach hold brightness value: This parameter indicates the period during which the DALI devices should have modified their brightness from the starting value to the hold dimming value.

Hold time: This parameter indicates the period during which the DALI devices should retain a constant brightness level (= hold dimming value).

Dimming period to reach brightness value before turned off: This parameter indicates the period during which the DALI devices should have modified their brightness from the hold dimming value to the switch OFF value.

Behaviour on retriggering:

If a new trigger (telegram "Channel X - On / Off") is carried out during phase 1, the dynamic function proceeds unchanged. In the event of an ON telegram in phase 2, the hold time 2 is restarted. An ON telegram "1" in phase 3 or 4 causes phases 2 and 3 to restart.

In the event of an OFF telegram ("Channel X - On / Off" = "0") in phase 1 or 2, phase 3 is started immediately. If an OFF telegram is received in phase 3 or 4, the dynamic mode continues unchanged until the switch OFF value is reached or it is retained.

Minimal brightness value: The minimal brightness value which the DALI device should adopt when dimming darker or setting brightness values is defined via this parameter. The minimal brightness value is not considered during the dynamic mode (e.g. staircase function). However the minimal brightness value is almost active during the scene function. The technical features defined in the "normal" mode are further more admissible.

Maximal brightness value: The maximal brightness value which the DALI device should adopt when dimming higher or setting brightness values is defined via this parameter. The maximal brightness value is not considered during the dynamic mode (e.g. staircase function). However the maximal brightness value is almost active during the scene function. The technical features defined in the "normal" mode are further more admissible.

2.3.2.3 "Slave" mode

The DALI Gateway can also be operated as a slave. In **slave mode**, the channel is priority controlled via an 8-bit communication object. This operating mode is activated and deactivated per channel (DALI output) as required via a communication object "Channel X - Slave Operation On / Off". In slave mode, it is possible to implement central lighting control in addition to the standard dimming functionality. A master control unit sends brightness values in an 8-bit format which controls the DALI output via the DALI Gateway. The 1-byte control value is transferred to the DALI Gateway via the communication object "Channel X - Set Brightness Value".

After switching on slave mode (value "1" at the communication object "Channel X - Slave Operation On / Off"), the last brightness value received by the communication object "Channel X - Set Brightness Value" is set.

If slave mode is switched on, the brightness can only be controlled via the object "Channel X - Set Brightness Value". The communication objects "Channel X - On / Off" and "Channel X - Relative Dimming" are disabled i.e. telegrams received at this object are not executed.

After switching off slave mode (value "0" at the communication object "Channel X - Slave Operation On / Off"), the current brightness value is retained. The control of the channel via the objects "Channel X - On / Off" and "Channel X - Relative Dimming" is enabled again.

Central control has a higher priority than slave mode. After switching off the central control function, operation reverts to slave mode again.

ETS parameters and communication objects

2.3.3 Parameter window: *Central function*

The settings for the simultaneous control of all the channels (central control) are carried out in the parameter window *Central function*.

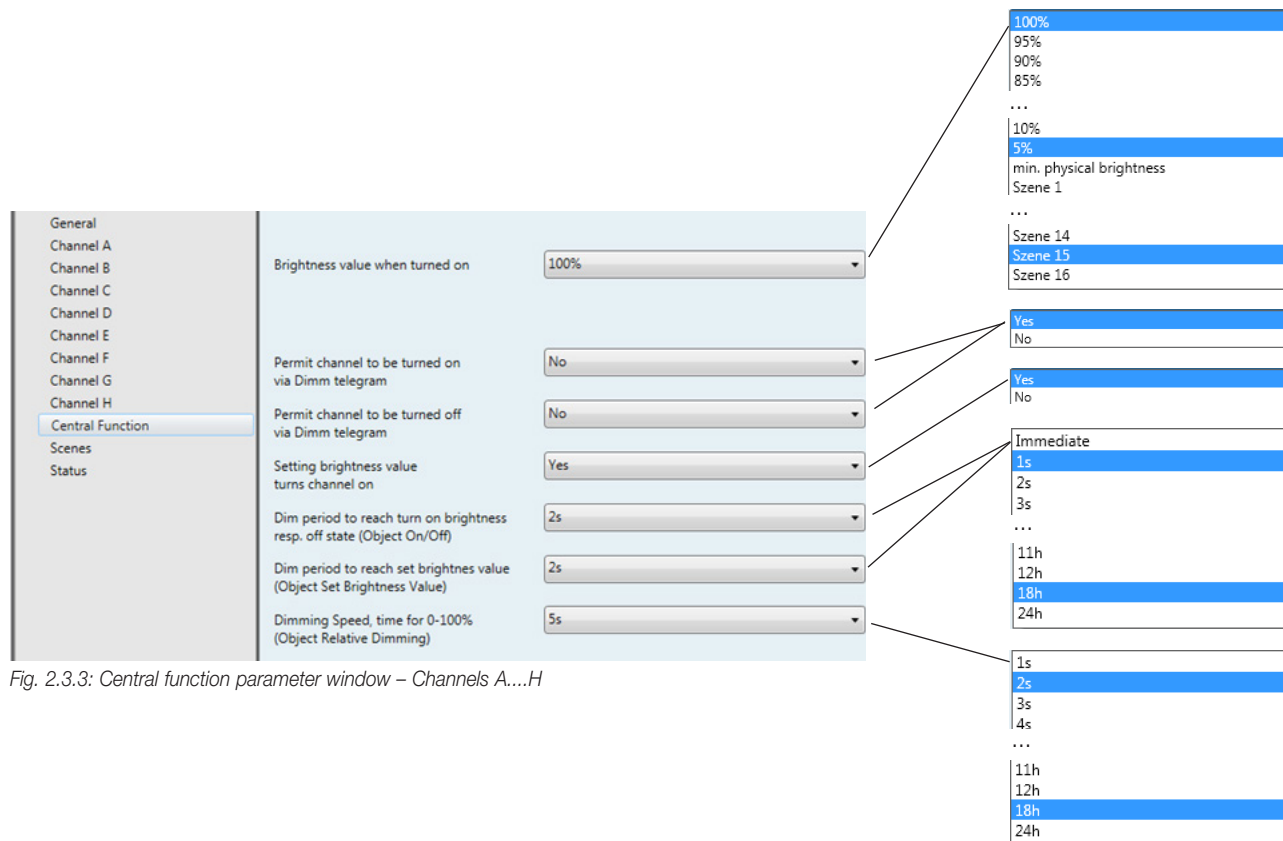


Fig. 2.3.3: Central function parameter window – Channels A....H

The functionality of the individual parameters in the central control function corresponds to the parameters in the *Channel X* parameter window in normal mode. The description of the parameters should be taken from section 2.3.2.1.

One exception is the parameter "Brightness value when turned on". In the central function, one of 16 scenes can be retrieved in addition to the values explained in the parameter window *Channel X*.

On receipt of an ON/OFF, dimming or brightness value setting telegram, all the channels react in the same way and execute the command, regardless of the previous state of the channel. This option enables the simple implementation of central control functions e.g. for security or maintenance applications. This means that during the dimming process, the brightness differences between the channels will remain even if the maximal or minimal brightness status is used as the starting point for dimming.

In the central function, the "minimum dimming value" and "maximum dimming value" defined in the parameter window *Channels* or *Channel X* exist as limit values for the channels. If the minimum dimming value should be smaller than a physically possible dimming value of a DALI device, this channel is automatically set to the minimum physically possible dimming value (background brightness).

Channels which have an active "Burn in lamps" function, continue to be operated only at 0% (Off) or 100%, regardless of the central dimming value commands.

These settings and telegrams which are received via the corresponding communication objects have priority over settings and commands which are assigned to the specific channels.

The minimum and maximum brightness values parameterised per channel in the "Channel X" parameter window are retained in the central function and can differ in the individual channel.

ETS parameters and communication objects

2.3.4 Parameter window: Scenes

The general settings for the lightscenes (maximum 16) are carried out in the Scenes parameter window..

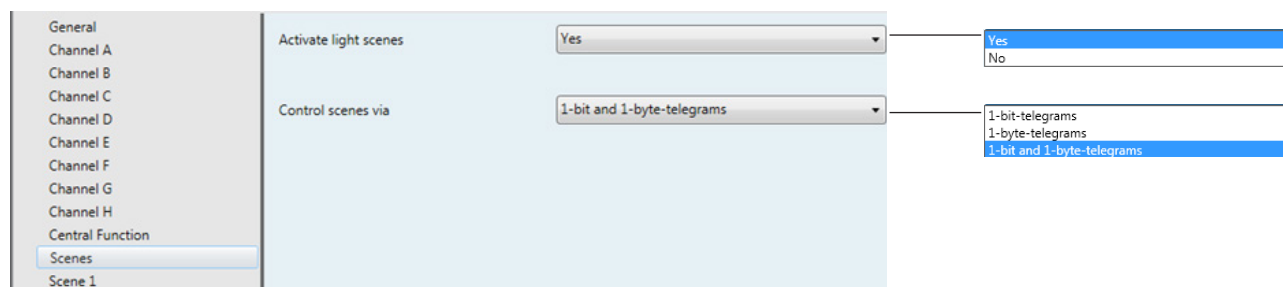


Fig. 2.3.4: Scenes parameter window - General scene parameters

Activate lightscenes: The lightscenes (max. 16) are activated with this parameter. The number of visible communication objects and parameter windows changes accordingly.

Control scenes via: Lightscenes can be retrieved and saved via 1-bit and/or 1-byte telegrams. The number and type of the visible communication objects changes according to the selected setting.

With 1-bit control, the telegram value has the following function:

Telegram value "0" = Recall scene 1

Telegram value "1" = Recall scene 2

With the 1-byte telegram value, the following applies:

KNX 1 byte-telegram value		Meaning
decimal	exadecimal	
00	00h	Recall scene 1
01	01h	Recall scene 2
...
15	0Eh	Recall scene 16
128	80h	Store scene 1
129	81h	Store scene 2
...
142	8EH	Store scene 16

Note: The lightscene settings are also stored in the DALI Gateway after a bus voltage or supply voltage failure. If a ballast should be replaced, the lightscenes are immediately available again without further commissioning.

ETS parameters and communication objects

2.3.5 Parameter window: *Scene X*

The settings for the individual scenes are carried out in the parameter window *Scene X* ($X = 1$ to 16). The parameter window is only visible if the parameter "Activate lightscenes" has been activated (yes) in the Scenes parameter window.

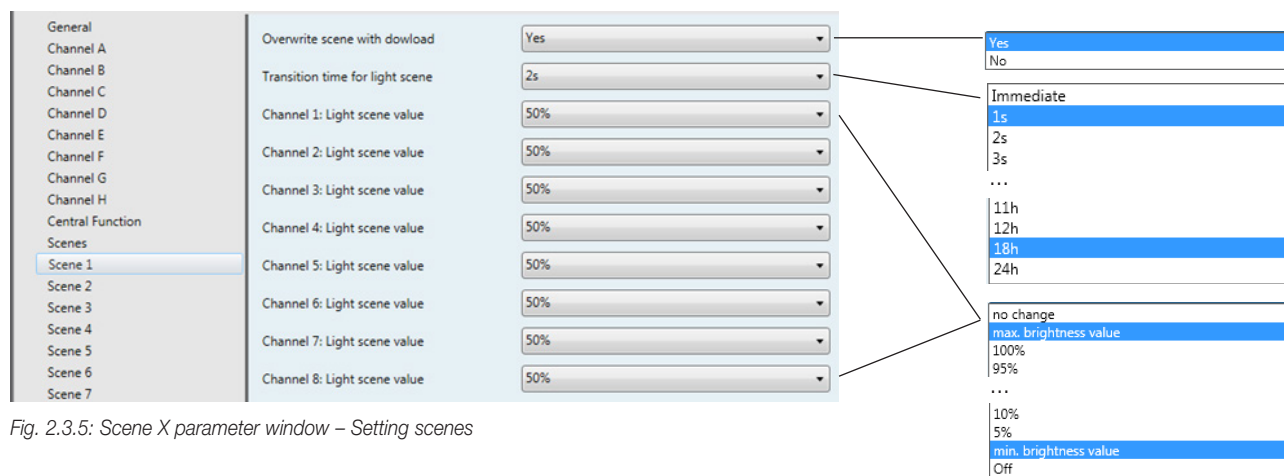


Fig. 2.3.5: *Scene X* parameter window – Setting scenes

Override scene at download:

With the setting "no", the current scene brightness values which are stored in the gateway and the DALI devices are not overwritten during an ETS download. The stored scene brightness values are retained.



Note: This can mean that the brightness values which are displayed in the *Scene X* parameter window do not match the scene brightness values that are actually stored in the gateway and in the DALI devices after an ETS download.

The setting "yes" mean that the scene brightness values which are stored in the DALI devices are overwritten during an ETS download by the brightness values set in ETS.

Transition time for lightscene: This parameter sets the period for the dimming process to be concluded for all the lamps when the scene is retrieved. This means e.g. Channel A which should dim from 10% to 100% and Channel B which should dim from 90% to 100% reach their final dimming values at the same time. This transition time is not dependent on the dimming speeds set for the channels.

Channel X: Lightscene value: This parameter indicates the brightness value as a percentage which is adopted by the DALI output and the connected DALI devices when the scene is retrieved. The lightscene value has the default setting of 50% brightness. In the setting "no change", the current brightness value of this channel is not influenced when the scene is retrieved i.e. the channel is not part of the scene. Even when a manual change is made to the channel brightness and the lightscenes are saved again, the channel remains unchanged.

If the set scene brightness value lies above or below the set minimum or maximum value of the corresponding channel (see parameter window *Channel X*), this value is stored in the scene but automatically set to the minimum or maximum brightness value of the corresponding channel when the scene is retrieved.

ETS parameters and communication objects

2.3.6 Parameter window: Status

The behaviour of the status and fault communication objects is defined in the **Status** parameter window. The detection of a fault can take up to 30 seconds depending on the number of electronic ballasts.

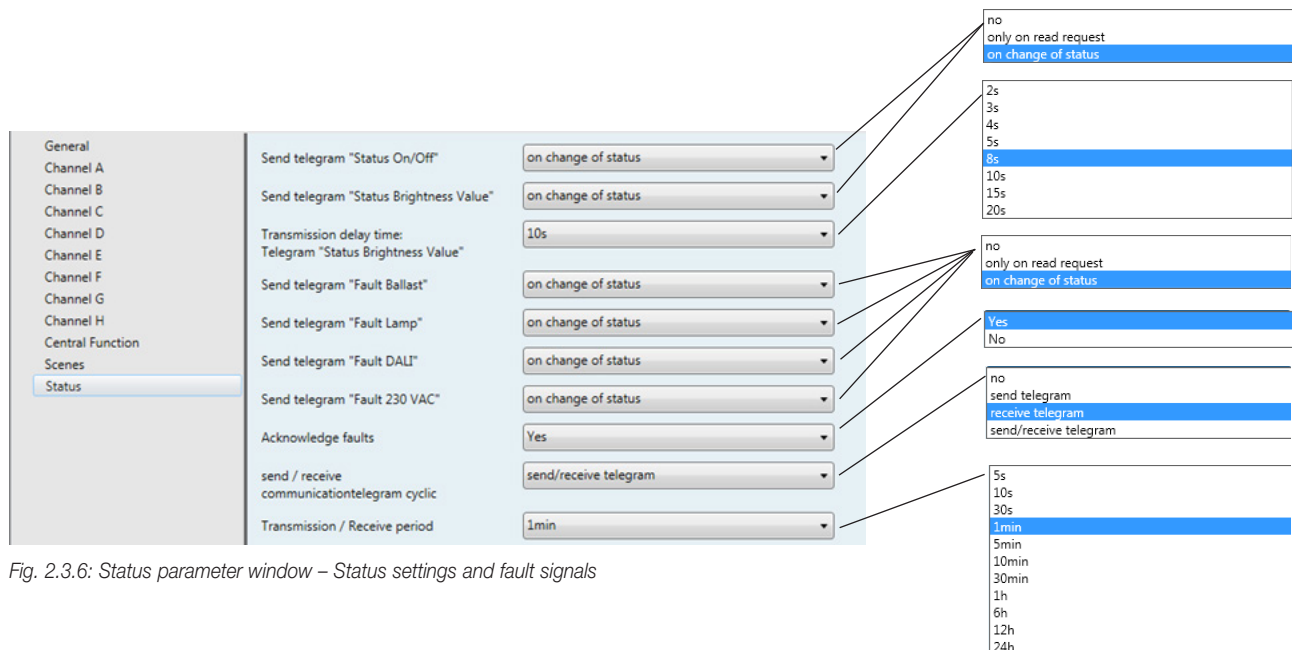


Fig. 2.3.6: Status parameter window – Status settings and fault signals

Send telegram “Status On/Off”: In the setting “no”, the function and the communication objects are not available. In the parameter setting “only on read request”, the object value “Channel X - Telegr. Status On / Off” can only be read out after a read request. In the parameter setting “on change of status”, the current switching state is sent on a change.

Send telegram “Status Brightness Value”: In the setting “no”, the function and the communication objects are not available. In the parameter setting “only on read request”, the object value “Channel X - Telegr. Status Brightness Value” can only be read out after a read request. In the parameter setting “on change of status”, the current value status is sent on a change. The first status value is reported back immediately after a change and not when the final value is reached. This applies to dimming processes as well as brightness transitions via the object “set brightness value”. As a result, long brightness transitions can be visualized particularly well.

Transmission delay time: Telegram “Status Brightness Value”: With this parameter, the sending of the brightness value telegram is delayed by the set period after a change, in order to avoid an unnecessary bus load.

In applications in which brightness control or lighting control is implemented or several channels are operated, it is advisable to set a longer transmission delay time so that the control speed is not influenced by an increased bus load. The period is dependent on the control speed. Once the final dimming value has been reached, there is a delay for the set period until the brightness value is sent

Send telegram “Fault Ballast”: In the setting “no”, the function and the communication objects are not available. In the parameter setting “only on read request”, the object value “Channel X - Telegr. Fault Ballast” can only be read out after a read request. In the setting “on change of status”, the current fault status is sent automatically via the communication object following a change.

Send telegram “Fault Lamp”: In the setting “no”, the function and the communication objects are not available. In the parameter setting “only on read request”, the object value “Channel X - Telegr. Fault Lamp” can only be read out after a read request. In the parameter setting “on change of status”, the current fault status is sent after a change.

Send telegram “Fault DALI”: In the setting “no”, the function and the communication objects are not available. In the parameter setting “only on read request”, the object value “Channel X - Telegr. Fault DALI” can only be read out after a read request. In the parameter setting “on change of status”, the current fault status is sent after a change.

Send telegram “Fault 230 VAC”: In the setting “no”, the function and the communication objects are not available. In the parameter setting “only on read request”, the object value “Channel X - Telegr. Fault 230 VAC” can only be read out after a read request. In the parameter setting “on change of status”, the current fault status is sent automatically after a change.

Note: This fault affects the operating voltage of the DALI Gateway and can also be DC operating voltage.

Acknowledge faults: In the setting “no”, a telegram is sent via the KNX via the corresponding communication object when a fault occurs (ballast, lamps, DALI, 230 VAC). As soon as the fault is rectified, a telegram is sent automatically with the value “0”. The change in the error state can last 45 seconds and is dependent on the number of DALI devices connected.

In the setting “yes”, a telegram is also sent when a fault occurs. This fault signal remains set however until the fault is rectified and the fault signal is reset via the communication object “Fault Acknowledgement”. Only then a telegram with the value “0” is sent via the corresponding communication object. This can be very helpful for the detection of sporadic faults or events which take place during unmanned monitoring periods.

ETS parameters and communication objects

Send / receive communication telegram cyclically:

In the setting “no”, the functions and the communication objects are not available. The DALI Gateway does not send a monitoring telegram and thus does not check the KNX bus in order to monitor the communication path.

In the setting “send telegram”, a telegram is sent cyclically via the KNX to signal the presence of the DALI Gateway.

In the setting “receive telegram”, the DALI Gateway expects a cyclically transmitted telegram which indicates the communication capability of the KNX. If the DALI Gateway does not receive a telegram within a specific time interval, a fault in the KNX communication path is assumed and a response defined in the **General** parameter window (section 2.3.1) is carried out.

The time span of the receiving interval can be set in the **Status** parameter window under “Transmission / receive period”.

In the setting “send/receive telegram”, the DALI Gateway sends and receives a monitoring telegram cyclically with which the communication via the KNX is monitored.

Transmission / receive period: The parameter is only visible if “Send / receive communication telegram cyclically” is not set to “no”.

The set period applies both to the time span between two telegrams which are sent by the DALI Gateway and to the time span in which a telegram should be received for bus monitoring.

It should be ensured that the transmission period of the KNX device which sends the KNX telegram is shorter than the selected receiving time in the DALI Gateway.

The time span selected for the transmission/receive period should be as long as possible, depending on the application, in order to keep the bus load as low as possible.



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