

User Manual

DALI-KNX Gateway



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About this document

This document provides detailed technical information about the function, installation, and programming of the OPT-DGx-yyy device.

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Please dispose of the old device at the designated collection point for electrical and electronic devices in accordance with local regulations. If you have any questions, please contact the relevant authorities.



1. Safety Information

This section contains the safety rules that must be followed during the installation, electrical connections, manual operation, commissioning, and maintenance of the KNX-DALI Gateway device.

Incorrect or improper use of the device may result in electric shock, equipment damage, system malfunctions, or data loss.

This section must be read carefully and all instructions must be followed before working on the device.

1.1 General Safety Warnings

- The device should only be installed and commissioned by personnel trained and authorized in KNX and DALI systems.
- Applications other than those specified in this manual may adversely affect the safe operation of the device.
- The manufacturer cannot be held responsible for any damage resulting from improper use or incorrect applications.
- Unauthorized hardware or software modifications to the device invalidate the warranty and compliance statements.
- This document should be considered an integral part of the device and kept accessible at all times.

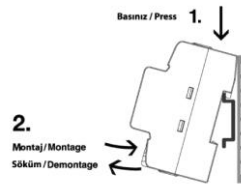
1.2 Electrical Safety

The KNX-DALI Gateway device contains circuits with different voltage and communication levels. Therefore, electrical safety rules must be strictly observed during installation, connection, and servicing.

- Before starting any installation, connection, or maintenance work, the power supply to the device must be disconnected. Interventions performed while the device is energized can cause serious injury and damage to the device.
- The KNX line, DALI line, and any external power supply circuits are electrically independent and must not be directly connected to each other.
- When connecting to KNX and DALI terminals, the correct terminal designations and polarity information must be observed.
- In cases of short circuit, overcurrent, or incorrect wiring:
 - Communication on the DALI line may be interrupted,
 - KNX communication may be disrupted,
 - Error messages and alarm conditions may occur on the device.
- Electrical connections must be made in accordance with applicable local electrical regulations and relevant standards.
- The cables used must be of the appropriate type and cross-section for KNX and DALI systems; damaged or insulated cables must not be used under any circumstances.
- High-current and low-current cables within the same panel must be routed separately. This reduces the risk of electromagnetic interference.
- The device should only be operated within the permitted voltage and current values specified in the technical specifications section.
- In case of suspected electrical malfunction, the device must be immediately de-energized and an authorized service technician must be contacted.

1.3 Installation and Commissioning Safety

- The device is designed for DIN rail mounting only and must be used inside a panel.
- Adequate ventilation must be provided within the panel, and the device's surroundings must not be enclosed.
- The device should not be operated in environments where excessive temperature, humidity, or condensation may occur.
- Addressing, deleting, or changing groups during commissioning may affect all connected DALI devices.
- Only authorized personnel should work on the system during commissioning procedures.



1.4 Safety Warnings Regarding Manual Operation via the Device

This device offers manual control and DALI commissioning via an LCD screen and buttons. While this feature is powerful, it must be used with caution.

- Manual operation is primarily intended for service and commissioning purposes; KNX communication should be used for continuous control.
- Broadcast, group, or individual commands sent manually are transmitted directly to the DALI bus, independent of KNX logic.
- Manual addressing, address changes, group changes, or "Clear All" operations may result in irreversible consequences.
- The compatibility of changes made during manual operation with the ETS configuration is the user's responsibility.
- Accidental manual operations may cause undesirable situations in the system.

1.5 Safety Warnings Regarding the DALI Bus

- A maximum of 64 addressable ECGs can be connected to a DALI line.
- Connecting more than 64 devices will cause the system to enter an error state.
- Broadcast commands affect all ECG's connected to the line.
- During addressing operations, all devices connected to the bus can be reconfigured.
- The DALI bus may be damaged in the event of a short circuit, overcurrent, or faulty wiring.

1.6 Safety Warnings Related to the KNX Bus

- The device's KNX physical address must be correctly assigned via ETS.
- Excessive telegram load on the KNX bus may cause system instability.
- Short circuits or overcurrent conditions on the KNX bus are displayed as errors on the device screen.
- When KNX communication is interrupted, the device's behavior depends on the ETS parameters.

1.7 Maintenance, Reset, and Service Safety

- "Clear All", address deletion, or reset operations affect the entire DALI configuration.
- These operations should only be performed during maintenance or reactivation.
- DALI devices whose addresses have been deleted must be re-addressed.
- There are no user-serviceable parts on the device.
- In case of malfunction, contact an authorized service provider only.

2 Product Description

OPT-DGx-yyy KNX-DALI Gateway is a control device that enables communication between the KNX building automation system and DALI lighting lines. The device transmits commands from the KNX line to the DALI line and allows the status information of lighting devices on the DALI line to be monitored via the KNX system. The gateway manages DALI lines using a channel-based architecture. Each DALI channel operates independently and can be configured separately. In accordance with the DALI standard, each channel supports a maximum of 64 short-address DALI control gear (ECG).

One of the key features of the OPT-DGx-yyy is that the DALI bus can be activated via the local user interface. Addressing, group configuration, and basic control operations can be performed directly on the device using its LCD screen and control buttons. This feature allows the DALI bus to be activated and service operations to be performed even if the KNX bus is not active. KNX integration is performed via ETS software. The device's KNX communication objects, channel functions, and operating behavior are configured using ETS parameters.

OPT-DGx-yyy; designed for use in professional lighting applications such as offices, commercial buildings, hotels, educational institutions, and public buildings. Thanks to channel-based DALI management, local commissioning capability, and KNX integration, it offers an effective solution for both new system installations and the integration of existing DALI systems with KNX.

2.1 Supported Applications, Functional Scope, and DALI Device Management

OPT-DGx-yyy is designed for addressing, grouping, monitoring, and operating control gear (ECG/ballast) located on the DALI bus. The functional scope of the device is determined by the ETS parameters and the operating logic defined in the LCD menus on the device. Each DALI channel operates independently. Addressing is performed on a channel basis, and addressed devices are recorded and monitored. A maximum of 64 short-addressed ECGs can be present on a channel. If this limit is exceeded or if unaddressed devices are present on the bus, the device reports this locally.

OPT-DGx-yyy accesses devices on the DALI bus at the operational level. The device's operating logic covers the following usage scenarios:

- General operation where all addressed devices on the channel are handled together
- ECG-based operation where individually selected devices with short addresses are processed
- Group-based operation performed through groups defined in the DALI standard

These operating modes are consistently applied both in the device's LCD menus and in the ETS configuration.

OPT-DGx-yyy supports the basic device management functions required for commissioning and operating the DALI bus. Via the device:

- The automatic addressing procedure can be initiated
- Existing short addresses can be changed
- Devices can be assigned to or removed from DALI groups
- Addressable devices on the channel can be registered by the gateway

If a registered device subsequently fails to respond to queries, this is considered an error condition monitored on a channel basis. OPT-DGx-yyy monitors the status of the DALI bus and connected devices using a local diagnostic approach. The following information can be displayed on an LCD screen on a channel basis:

- Previously registered but non-responsive devices
- Information related to lamp failure
- DALI line status
- Whether there are any non-addressable devices on the channel

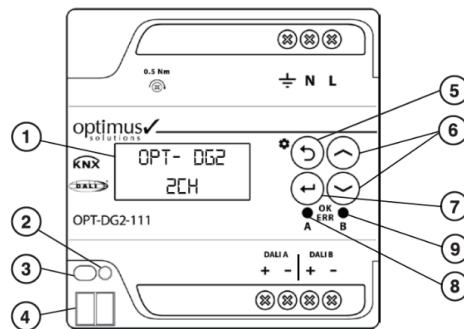
This information allows for direct evaluation of the device in the field, independent of the KNX system. In case of an error, the error indicators on the device (e.g., ERR LED) become active.

OPT-DGx-yyy is designed to work with dimmable electronic ballasts compliant with the DALI standard, DALI-compatible LED drivers, and DALI-controlled luminaires. The supported functional scope and parameter set may vary depending on the device's hardware and software version.

3 Technical Specifications

FEATURE	SPECIFICATION
Supply voltage	110...240 V AC 50/60 Hz
KNX	Current consumption: <10 mA Mode: S-Mode Supply: 30 V DC Connection: KNX connection terminal
Protection class	IP20
Mounting	DIN Rail
USB	USB Type-C
DALI	Line output: OPT-DG1-yyy: 1× DALI line (64 drivers) OPT-DG2-yyy: 2× DALI line (64 drivers per line) Standard: EN 62386 Connection: Screw terminals Terminals: For cables Ø 1 - 4 mm DALI bus voltage: 16 V DC DALI bus current: max 250 mA per line Integrated DALI power supply
Recommended cable length	1.5 mm ² , max. 300 m
Display	2 × 8 LCD Display Control and monitoring
Temperature ranges	Operating: -5 ... +45 °C Storage: -25 ... +55 °C
Dimensions	Unboxed (W × H × D): 92 × 90 × 64 mm With box (W × H × D): 105 × 102 × 70 mm
Weight	Net: 241 g Gross: 272 g
Storage	ABS V0

4 Front Panel and User Interface



The front panel of the OPT-DGx-yyy device is designed to enable local commissioning, servicing, and status monitoring to be performed quickly and in a controlled manner in the field. The LCD screen, control buttons, and status indicators on the front panel allow the DALI lines and the general operating status of the device to be monitored directly from the device. The elements on the front panel are described below according to the numbering in the image.

1. LCD Screen

Displays the device's overall operating status, DALI channel information, menu screens, and service messages. It is used as the primary monitoring interface during commissioning and maintenance.

2. Addressing Indicator

Indicates that the device is in physical addressing mode (by lighting up red). This LED lights up when the programming mode is activated to define the device's physical address via ETS. It automatically turns off when addressing is complete.

3. Addressing Button

Used to put the device into programming mode when assigning a physical address (e.g., 2.3.4) to the device via ETS. Pressing this button illuminates the Programming LED (2) and prepares the device to receive an address.

4. KNX Bus Connection (KNX Data Bus)

This is the terminal where the device connects to the KNX bus line. Control, monitoring, and parameterization information received via KNX is transmitted through this connection.

5. Back / Settings Button

Used to navigate back through menus or access the settings menu. The usage varies depending on whether the button is pressed briefly or held down.

6. Function Control Keys

Used to navigate menus, make selections, and move between parameters. Provides user interaction with the LCD screen.

7. Enter Key

Used to confirm the selected menu, setting, or function. Ensures that the actions taken become valid.

8. A Channel Status LED

Indicates the operating status of DALI Channel A. Normal operation, warning, or error conditions can be monitored channel-by-channel via this LED.

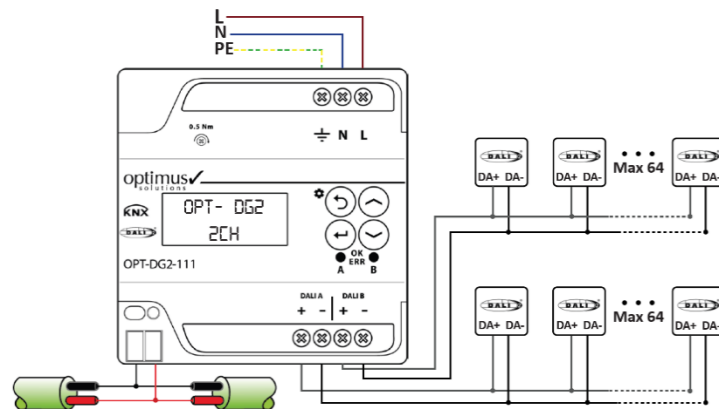
9. B Channel Status LED

Indicates the operating status of DALI Channel B. It operates on the same principle as Channel A and provides status information for the second DALI line.

5 Electrical Connections

This section explains how to correctly and safely connect the power supply, KNX, and DALI lines of the OPT-DGx-yyy KNX-DALI Gateway device. Electrical connections must only be made by authorized personnel and in accordance with the relevant standards.

Before starting any connection work, ensure that all power supplies to the device are disconnected.



5.1 General Connection Warnings

- The device must be de-energized before making any electrical connections.
- The KNX bus, DALI buses, and mains power supply are independent circuits and must be evaluated separately.
- When connecting to terminals, ensure that conductors are secure and of the correct cross-section.
- High-current and low-current cables within the same panel should be routed along separate paths as much as possible.

5.2 Power Supply Voltage Connection

The OPT-DGx-yyy device operates on 110...240 V AC, 50/60 Hz mains voltage. The power supply connection is made via the power supply terminals located on the top of the device.

- Phase (L), neutral (N), and protective earth connections must be connected to the correct terminals.
- The protective earth connection must be made.
- The power supply line must be protected by a fuse or circuit breaker that complies with the relevant electrical standards.

After the power supply voltage is applied, the device starts operating automatically and the initial information is displayed on the LCD screen on the front panel.

5.3 KNX Bus Connection

OPT-DGx-yyy supports KNX S-Mode communication and connects to the KNX bus line via a standard KNX connection terminal.

- Only cables compliant with the KNX standard should be used for the KNX connection.
- Pay attention to the polarity of the KNX line.
- The KNX bus line provides the necessary power supply for the device to operate (30 V DC).

Once the KNX connection is established, the device can be addressed and configured via ETS. Even if the KNX line is not connected, the device continues to offer limited local functions on the DALI side.

5.4 DALI Line Connections

The OPT-DGx-yyy device offers two independent DALI lines (Channel A and Channel B). Each DALI line is connected via screw terminals on the device.

- Up to 64 DALI control gear (ECG) units can be connected to each DALI bus.
- DALI lines are non-polarized; there is no need to pay attention to the + / - direction.
- Cables with a cross-section of Ø 1-4 mm can be used for DALI wiring.
- The recommended maximum DALI bus length is 300 m (Ø 1.5 mm).

Each DALI line is electrically independent and can be activated separately.

5.5 Wiring and Topology Notes

- DALI lines can be installed using star, tree, or line topology.
- Ring topology should be avoided in DALI lines.
- DALI cables should not be run parallel to high-voltage lines over long distances.
- Different power sources should not be connected to the same DALI line.

Failure to comply with these rules may result in instability in DALI communication or device malfunctions.

5.6 Post-Connection Checks

After all connections are complete, the following checks should be performed:

- Verify that the power supply, KNX, and DALI connections are made to the correct terminals.
- The terminal connections should be mechanically inspected.
- After power is supplied to the device, the LCD screen and status LEDs should be observed.

After the connection checks are complete, the device is ready for commissioning.

6 Initial Commissioning

This section describes the process that begins when power is supplied to the OPT-DGx-yyy device for the first time after its electrical connections have been completed. The purpose is to verify that the device is functioning correctly and to perform basic checks before proceeding to the manual operation or ETS commissioning stages.

6.1 Powering Up and Initial Behavior

After the device's power supply, KNX, and DALI connections are complete, mains voltage can be applied. The OPT-DGx-yyy automatically starts up when power is applied.

During startup:

- The device's startup information is displayed on the LCD screen.
- The status indicators on the front panel may be active for a short time,
- The device switches to normal operating mode after completing its internal checks.

Brief screen changes and LED statuses during the startup process are normal. Persistent error messages or unusual LED statuses require checking the connections.

6.2 Behavior Related to KNX Connection

The OPT-DGx-yyy is designed to operate whether or not the KNX bus line is connected.

- If the KNX line is not connected, the device continues to operate locally, and addressing, testing, and monitoring operations can be performed manually on the DALI side.
- If the KNX line is connected, the device can be addressed via ETS, and KNX-based control functions become active.

The absence of a KNX line does not prevent the device from performing its basic functions on the DALI side. However, for KNX control and monitoring, the KNX connection must be established and the ETS configuration must be completed.

6.3 Initial State of DALI Lines

When power is applied, the device monitors DALI Channel A and Channel B separately and evaluates the current status of each channel.

- If no addressed device is detected on the DALI line, the system indicates no addressed devices on the channel.
- When a line with previously addressed DALI devices is connected, the device detects the existing addressed devices and displays the channel status accordingly.
- Channel-based status information can be monitored via the LEDs and LCD screen on the front panel.

At this stage, it should be verified that the DALI bus is correctly connected and that there are no basic faults such as short circuits.

6.4 Pre-Commissioning Checks

After the initial startup and basic checks are completed, it is recommended to verify the following points before proceeding with commissioning:

- The supply voltage is within the correct range
- The KNX bus line is correctly connected (if working with KNX)
- The DALI lines are connected to the correct channels
- There are no short circuits or overloads on the DALI lines

After these checks, commissioning can begin.

7 Manual Operation with the LCD Panel

The OPT-DGx-yyy device offers manual operation via an integrated LCD panel to support commissioning and service operations in the field. The LCD menus are designed for the basic configuration, testing, and display of diagnostic information for DALI lines. Manual operation functions work independently of KNX/ETS and enable quick intervention, especially during initial setup and maintenance processes.

Important:

Operations performed via the LCD panel do not automatically update the ETS configuration on the KNX side. The system integrator must verify consistency between manual operation and the ETS configuration.

7.1 Overview of the Menu Structure

The following main menus are available on the LCD panel:

- **SETUP** - Setup and service functions
- **TEST** - Quick function tests for DALI lines and devices
- **INFO** - Display of channel and device status information
- **LANGUAGE** - LCD language selection

All menus are designed to operate on a channel-based system (CH A / CH B).

7.2 SETUP Menu - Setup and Service Functions

The SETUP menu contains the main functions used for commissioning DALI lines and performing service operations. The operations performed in this menu are applied to the selected DALI channel.

CLEAR ALL - Deleting Channel Addresses

The short addresses of DALI devices marked as Monitored are not deleted. To perform this operation, the monitoring status of the devices must be disabled via the Salvador DALI service tool.

Purpose:

- Resetting the line before a new commissioning
- Reconfiguring a line previously addressed with a different gateway

Warning:

This operation cannot be undone. After CLEAR ALL, all devices on the DALI line must be re-addressed.

ADDRESSING - Automatic Addressing

The ADDRESSING function scans the devices on the DALI line and initiates the short address assignment procedure. During the process, unaddressed devices on the line automatically receive a short address.

Purpose:

- To address DALI devices during initial setup
- To address newly added devices on the bus

Note:

All DALI devices connected to the bus are affected during the addressing process. The process should be used with caution during live operation.

CHANGE ADDRESS - Address Change

This function is used to move or edit the current short address of a DALI device to another address.

Purpose:

- To match the physical fixture plan with the address list
- To correct address confusion during service

Note:

After changing the address, the group assignments of the relevant device must be checked.

CHANGE GROUP - Group Assignment / Removal from Group

The CHANGE GROUP function is used to assign a DALI device to the selected group or remove it from its current group.

Purpose:

- To organize zone-based groupings in the field
- Pre-configure the group structure before transferring to ETS

Note:

A device operates according to the defined group structure at any given time. Group changes must be reviewed again in ETS.

7.3 TEST Menu - Function Tests

The TEST menu is used to quickly test the DALI bus and connected devices. Test procedures are performed on the selected channel.

Broadcast Test (BC)

Sends an ON/OFF command to all DALI devices on the selected channel simultaneously.

Purpose:

- Quickly verify the overall operation of the bus
- Wiring and basic connection check

ECG Test (Individual Device Test)

Performs an ON/OFF test on a single DALI device with the selected short address.

Purpose:

- Individual luminaire control
- Identification of problematic devices during service

Group Test (Group-Based Test)

All devices in the selected DALI group are controlled together.

Purpose:

- Verifying that group assignments are working correctly
- Zone-based function tests

7.4 INFO Menu - Status and Diagnostic Information

The INFO menu is used to monitor the status of DALI channels and the device in general. This menu is for informational purposes only; no settings can be adjusted.

Channel Information (CH A / CH B)

The following information can be displayed on a channel basis:

- Status of unaddressed devices (present/absent)
- Registered but non-responsive devices
- Light/ECG malfunctions
- 64-device limit warnings

Purpose of use:

- Quick fault diagnosis during service
- Assessing the overall status of the DALI bus

Device Information (DEVICE)

The following information is displayed for the device:

- Power supply status
- DALI bus status
- KNX bus status
- KNX physical address information

7.5 LANGUAGE Menu - Language Selection

The LANGUAGE menu allows you to select the LCD screen language.

Purpose:

- Use in a language suitable for the user in the field

Changing the language does not affect the device's operating functions.

7.6 General Notes on Manual Use

- The LCD panel is intended for service and commissioning purposes.
- Manual operations do not replace ETS configuration.
- Operations such as addressing and CLEAR ALL must be performed with care in live systems.
- Manual operation saves time, especially during initial commissioning and troubleshooting.

7.7 Parameters

7.8 General Parameters

7.8.1 General

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > General > Settings

General	Model	☒ 1 - Channel ☐ 2 - Channel
Settings	Delay Time after Power ON	00:05 dd:ss
Display	Enable on Line Group Object	☒ No ☐ Yes

7.8.1.1 Model

This parameter defines the physical DALI channel configuration of the device. Options are 1-Channel and 2-Channel; the default value is 1-Channel. The parameter determines the internal application structure of the device and does not create any Communication Objects.

7.8.1.2 Delay Time after Power ON

This parameter defines the time the device will wait before sending its status information (status telegrams) to the KNX bus after the KNX supply or the device's 220 V supply is restored.

During this time, the device continues to receive and process telegrams from KNX. If the DALI scan is complete, commands from KNX are forwarded to the DALI bus. However, status telegrams are not sent to the KNX bus until the delay time has elapsed. The adjustable time range is 3...255 seconds; the default value is 5 seconds.

7.8.1.3 Enable On Line Group Object

This parameter enables the creation of a Communication Object that informs the KNX bus that the device is operational. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 1 - On Line
Function: Reports the device's operating status to the KNX bus.

Value

Sets the telegram value to be sent via the On Line Communication Object. Options are ON Telegram and OFF Telegram; the default value is OFF Telegram.

Interval

Defines the time interval at which the On Line telegram will be periodically sent to the KNX bus. The adjustable time interval is 1...60 minutes; the default value is 5 minutes.

7.8.1.4 Limit Number of Send Telegrams

This parameter enables time-based limiting of the number of telegrams sent by the device to the KNX bus and applies to all active Communication Objects.

Maximum Number of Telegrams

Specifies the maximum number of telegrams that can be sent within the defined time interval. The adjustable value range is 1...100; the default value is 20.

In Period

Defines the time interval during which the telegram count limit is valid. The adjustable time range is 100 ms to 1 minute; the default value is 1 second.

7.8.1.5 Request Status Values Group Object

This parameter enables the creation of a Communication Object that allows the device to send status and feedback information upon request. When the parameter is enabled, the following Communication Object becomes active:

Communication Object No. 5 - Request Status Values

Function: Triggers the transmission of the device's current status information to the KNX bus.

7.8.1.5.1 Request with 1-bit

Defines the telegram type to be used to trigger the status query. Options are ON Telegram, OFF Telegram, and Any Telegram; the default value is ON Telegram.

7.8.1.6 Gateway Supply Voltage Fault Group Object

This parameter enables the creation of a Communication Object that monitors the device's mains supply status. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 3 - Gateway Supply Voltage Fault
Function: Ensures that the mains supply fault is reported to the KNX bus.

7.8.1.6.1 Reset Supply Voltage Group Object

This parameter enables the mains supply fault alarm to be reset via KNX. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 4 - Reset Supply Voltage
Function: When the supply voltage returns to normal, the supply fault alarm is reset by sending a "1" value to this object. If the alarm condition persists, the reset does not occur.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
1	General	On Line	Out	C	R		T	1-bit	boolean
2	General	Manual Operation	Input/Output	C	R	W	T	1-bit	enable
3	General	Gateway Supply Voltage Fault	Out	C	R		T	1-bit	alarm
4	General	Reset GW Supply Fault	In	C		W		1-bit	reset
5	General	Request Status Values	In	C		W		1-bit	trigger

Table 1 : General Settings Communication Objects

7.8.2 Display Parameters

7.8.2.1 Enable Test Mode

This parameter enables the device's local test (manual operation) mode. When test mode is active, the device is not automatically controlled via KNX, and local operation takes precedence. When the parameter is enabled, the following Communication Object becomes active:

- **Communication Object No. 2 - Manual Operation**
Function: Enables control of the test mode via KNX.

Options are Yes and No; the default value is Yes.

7.8.2.1.1 Test Mode Timeout

Defines the time to wait after the test mode is activated for the device to automatically return to normal DALI control mode. When the time expires, the test mode is terminated and the device returns to KNX/DALI control. The adjustable time range is 0 ... 10 minutes; the default value is 2 minutes.

7.8.2.2 Setup Access

Defines the method for accessing the setup menu on the device.

Options are Ignore Password, Defined Password, and Block; the default value is Defined Password.

- **Ignore Password:** Access to the setup menu is granted without requiring a password.
- **Defined Password:** A user-defined password is required to access the setup menu.
- **Block:** Access to the setup menu is blocked.

When the Password parameter is selected as Defined Password, it defines the password to be used. The adjustable value range is 0000...9999.

7.8.2.3 Display Language

Defines the language to be used on the device screen. Options are Do not Change, English, Turkish, Reserved 1, Reserved 2, and Reserved 3; the default value is Do not Change.

- **Do not Change:** The currently set language on the device is not changed.
- **English:** The display language is set to English.
- **Turkish:** Sets the display language to Turkish.
- **Reserved 1 / Reserved 2 / Reserved 3:** Reserved for future use.

This parameter only affects the device's local user interface and is not related to KNX communication.

7.9 Channel A/B

7.9.1 DALI Configuration

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > DALI Configuration

+ General - Channel - A DALI Configuration + Channel Configuration + Templates for Groups & ECGs + Group Controls	Enable Automatic DALI Addressing ☒ No ☐ Yes Pause between Query Polls 20 x100 ms i Emergency lighting converters are polled every 64 seconds. Enable Group Controls ☐ No ☒ Yes Enable Individual Controls ☒ No ☐ Yes Enable Emergency Lighting Controls ☒ No ☐ Yes Enable DALI Scenes ☒ No ☐ Yes
---	--

7.9.1.1 Enable Automatic DALI Addressing

This parameter enables the device to perform the automatic addressing procedure for devices connected to the DALI bus. When enabled, the gateway can automatically initiate the DALI addressing process. Options are Yes and No; the default value is No.

7.9.1.2 Pause between Query Polls

This parameter defines the wait time between successive queries sent to the DALI bus. This time is used to control the communication load on the DALI bus. The adjustable time range is $0 \dots 200 \times 100 \text{ ms}$ ($0 \dots 20 \text{ seconds}$); the default value is $20 \times 100 \text{ ms}$ (2 seconds).

Note: Independent of this setting, emergency lighting converters are polled periodically. Emergency lighting converters are polled approximately every 64 seconds.

7.9.1.3 Enable Group Control

This parameter enables control functions via DALI group addresses. When enabled, multiple DALI devices can be controlled together using group commands. Options are Yes and No; the default value is No.

7.9.1.4 Enable Individual Control

This parameter enables individual control functions via DALI short addresses. When enabled, each DALI device can be controlled separately. Options are Yes and No; the default value is No.

7.9.1.5 Enable Emergency Lighting Control

This parameter enables DALI emergency lighting control functions. When the parameter is enabled, emergency lighting converters and their associated control, test, and status monitoring functions can be used. The options are Yes and No; the default value is No.

7.9.1.6 Enable DALI Scenes

This parameter enables DALI scene control functions. When the parameter is enabled, scene commands sent via KNX are matched with DALI scenes and applied. Options are Yes and No; the default value is No.

When the parameter is enabled, the following Communication Object is used:

Communication Object No. 38 - KNX Scene

Function: Enables the transfer of KNX scene commands to DALI scenes.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
10 / 2410	Output A/B Configuration	Trigger DALI Addressing	Out	C		W		1-bit	enable
11 / 2411	Output A / B Configuration	Monitor DALI Addressing	Out	C		W		1-bit	start/stop
12 / 2412	Output A / B Configuration	Feature Activate Turn Off brightness	On/Off	C	R	W	T	1-bit	enable

Table 2: Output Configuration Communication Objects

7.9.2 Channel Configuration (Output A/B)

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Channel Configuration

+ General
- Channel - A
DALI Configuration
+ Channel Configuration
+ Templates for Groups & ECGs
+ Group Controls

Dimming Curve ☒ Linear ☐ Logarithmic

Maximum Brightness Value %

Minimum Brightness Value %

Switching ON

Switching ON Brightness ☐ Last Value ☒ Selected Value

Value %

Dimming Time for Switching ON sec

Allow Switching ON with Brightness Value ☐ No ☒ Yes

Allow Switching ON with Relative Dimming ☐ No ☒ Yes

Switching OFF

Switching OFF Brightness

Dimming Time for Switching OFF sec

Allow Switching OFF with Brightness Value ☐ No Min Value ☒ Yes

Allow Switching OFF with Relative Dimming ☒ No Min Value ☐ Yes

Dimming

Dimming Time for Brightness Value sec

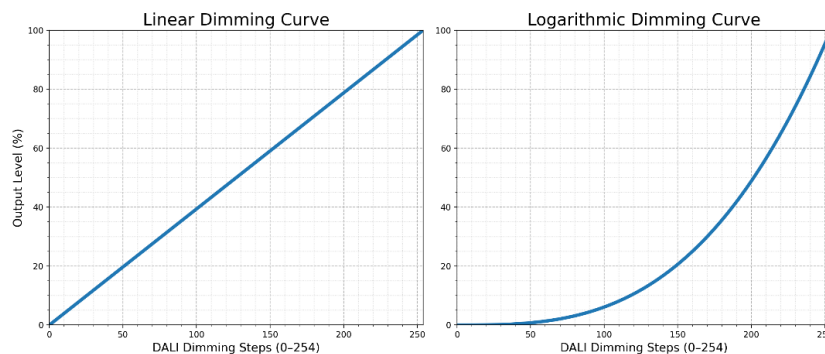
Dimming Time for Relative Dimming sec

7.9.2.1.1 Dimming Curve

This parameter defines the dimming characteristic used for the Output A channel and determines how brightness control values received via KNX are converted to DALI output levels. The selected dimming curve directly affects the behavior of both absolute and relative dimming commands.

When Linear is selected, a linear relationship is established between the dimming input value and the output brightness. Each dimming step corresponds to an equal increase or decrease in the output level. This mode provides predictable and repeatable behavior in technical and functional lighting applications.

When Logarithmic is selected, dimming steps are distributed to match the human eye's perception of light. More sensitive output changes are applied at low brightness levels, while larger output changes are applied at high brightness levels. This results in a more natural and fluid brightness transition perception during dimming.



7.9.2.1.2 Maximum Brightness Value

This parameter defines the maximum brightness level allowed for the Output A channel. Brightness values sent via KNX cannot exceed this limit. If the sent value is greater than the defined maximum level, the output level is limited to the maximum value. The adjustable value range is 1...100%; the default value is 100%.

7.9.2.1.3 Minimum Brightness Value

This parameter defines the minimum brightness level allowed for the Output A channel. Brightness values sent via KNX cannot be reduced below this level. If the sent value is below the minimum level, the output level is limited to the minimum value. The adjustable value range is 0...100%; the default value is 1%.

7.9.2.1.4 Switching On Brightness Value

This parameter defines the brightness behavior to be applied when the channel transitions from the OFF state to the ON state.

When Last Value is selected, the last active brightness value before the channel was turned off is saved and the same value is reapplied when an ON command is received.

When Selected Value is selected, the channel opens with a fixed brightness value on each ON command. This behavior is suitable for automation scenarios where a standard startup brightness is desired.

7.9.2.1.4.1 Value

This parameter defines the fixed brightness level to be applied when the Switching On Brightness Value setting is selected as Selected Value. The adjustable value range is 1...100%.

7.9.2.1.5 Dimming Time for Switching ON

This parameter determines the dimming time required for the output to reach the target brightness level during switch-on. When the device receives a Switch ON or Brightness Value command, the output brightness gradually increases over the selected time to reach the target value.

If the parameter is set to jump, dimming is not applied and the output instantly switches to the target brightness value.

7.9.2.1.6 Allow Switching on with Brightness Value

This parameter determines whether KNX telegrams containing an absolute brightness value will also trigger the channel to switch to the ON state.

When Yes is selected, the received brightness value is evaluated as an ON command and the channel is turned on, even if the channel is currently off. When No is selected, brightness values are only applied when the channel is open.

7.9.2.1.7 Allow Switching on with Relative Dimming

This parameter determines whether relative dimming telegrams trigger the channel to switch to the ON state when it is closed.

When Yes is selected, relative dimming commands cause the channel to turn on and initiate the dimming process.

When No is selected, relative dimming commands are ignored when the channel is closed.

7.9.2.1.8 Switching OFF Brightness

This parameter determines which brightness behavior the output will apply when the Switch OFF command is received. When OFF is selected, the output closes immediately. When Selected Value is selected, the device first dims to the specified brightness value and then closes. When Keep Current Value is selected, the current brightness value is maintained and the closing process is performed accordingly.

7.9.2.1.8.1 Value

This parameter specifies the brightness value to be used when Selected Value is selected for Switching OFF Brightness. The output is first dimmed to this value during the shutdown process.

7.9.2.1.8.2 Actual Switch Off after

This parameter determines the brightness value to be used when "Selected Value" is selected for Switching OFF Brightness. During the output shutdown process, the brightness is first dimmed to this value.

7.9.2.1.9 Dimming Time for Switching OFF

This parameter determines the dimming time used to reach the target brightness level during the output Switch OFF process. When the device receives the shutdown command, the brightness is gradually reduced over the selected time. If the parameter is set to jump, dimming is not applied, and the output goes directly to the target value.

7.9.2.1.10 Allow Switching Off with Brightness Value

This parameter determines whether the channel can be switched to the OFF state using absolute brightness values.

When Yes is selected, values equal to or below the minimum brightness level are considered as the OFF command.

When No is selected, brightness values do not trigger the OFF state.

7.9.2.1.11 Allow Switching off with Relative Dimming

This parameter determines whether the channel can be switched off using relative dimming telegrams.

When Yes is selected, relative dimming commands can cause the channel to turn off.

When No is selected, relative dimming commands do not trigger the OFF state.

7.9.2.1.12 Dimming Time for Brightness Value

This parameter defines the time period within which transitions between absolute brightness values are applied. The brightness value is gradually changed over the defined period. The adjustable time range is 0.7 to 45 seconds.

7.9.2.1.13 Dimming Time for Relative Dimming

This parameter defines the time period over which brightness changes performed with relative dimming telegrams are applied. This setting determines the dimming speed and perceived transition quality, especially in push-button and continuous dimming control interfaces. The adjustable time range is 0.7...45 seconds.

7.9.2.2 Status

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Channel Configuration > Status

+ General
- Channel - A
DALI Configuration
- Channel Configuration
Status
Fault
Functions
Color Functions
+ Templates for Groups & ECGs
+ Group Controls

Enable Group Objects

Status Switch Group Object ☒ No ☐ Yes
Status Brightness Value Group Object ☒ No ☐ Yes

7.9.2.2.1 Enable Group Objects

This parameter group enables the creation of status group objects that transmit status information for the Output A channel to the KNX bus. When the relevant sub-parameters are enabled, the channel's current operating status and brightness information can be monitored via KNX.

7.9.2.2.1.1 Status Switch Group Object

This parameter enables the creation of a status group object that indicates the open/closed status of the Output A channel. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 15 - Status Switch
Function: Reports the current open/closed status of the channel to the KNX bus.

This object is updated when the channel status changes and can be used in visualization, monitoring, or logic functions.

7.9.2.2.1.2 Status Brightness Value Group Object

This parameter enables the creation of a status group object that reports the current brightness level of Output A channel. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 18 - Brightness Status
Function: Reports the channel's instantaneous brightness level to the KNX bus.

This object is updated during dimming operations and provides continuous feedback on the channel's actual output level. It can be used in visualization, monitoring, and energy analysis applications.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
14 / 2414	Output A / B	Switch	In	C		W		1-bit	switch
15 / 2415	Output A / B	Status Switch	Out	C	R		T	1-bit	switch
16 / 2416	Output A / B	Relative Dimming	In	C		W		4-bit	dimming control
17 / 2417	Output A / B	Brightness Value	Out	C		W	T	1-byte	percent
18 / 2418	Output A / B	Brightness Status	Out	C	R		T	1-byte	percent

Table 3: DALI Channel Configuration and Status Communication Objects

7.9.2.3 Fault

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Channel Configuration > Fault

+ General - Channel - A + DALI Configuration - Channel Configuration + Status + Fault + Functions + Color Functions + Templates for Groups & ECGs + Group Controls	Enable Group Objects Block Fault Indicator ☒ No ☐ Yes Lamp Fault ☒ No ☐ Yes Device Internal Fault (ECG Fault) ☒ No ☐ Yes Missing Device ☒ No ☐ Yes More than 64 Device ☒ No ☐ Yes Duplicate Address Fault ☒ No ☐ Yes Unaddressed Device Fault ☒ No ☐ Yes ECG Fault Statistics ☒ No ☐ Yes Group Fault Statistics ☒ No ☐ Yes Fault Addressed ☒ No ☐ Yes
---	--

7.9.2.3.1 Enable Group Objects

This parameter group enables the creation of group objects that transmit fault and error conditions for Output A channel to the KNX bus. When the sub-parameters are enabled, fault conditions detected on the DALI bus can be monitored via KNX.

7.9.2.3.1.1 DALI Overcurrent Fault

- Communication Object No. 21 - DALI Overcurrent Fault (1 Bit)

Function: Reports an overcurrent condition detected on the DALI bus to the KNX bus. This condition is typically caused by a short circuit, faulty connection, or excessive current draw from one of the connected devices on the DALI bus. Since this communication object is automatically activated by the system, there is no parametric selection.

7.9.2.3.1.2 DALI Overvoltage Fault

- Communication Object No. 22 - DALI Overvoltage Fault (1 Bit)

Function: Reports to the KNX bus that a voltage above the permitted level has been detected on the DALI bus. This situation may occur due to an incorrect connection or an electrical fault on the bus. Since this communication object is automatically activated by the system, there is no parametric selection.

7.9.2.3.1.3 Block Fault Indicator

This parameter enables the creation of a group object that allows error and fault conditions to be acknowledged via KNX. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 20 - Block Fault Indicator
Function: Allows active fault conditions to be acknowledged via KNX. When the fault is acknowledged, the device status LED returns to its normal state. This function indicates that the user is aware of the fault.

This object is used to manually reset fault conditions.

7.9.2.3.1.4 Lamp Fault

This parameter enables the creation of the relevant fault group object when a lamp fault is detected in luminaires connected to the DALI bus. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 23 - Lamp Fault
Function: Reports the lamp fault status to the KNX bus.

This fault occurs in case of hardware problems related to the lamp or light source.

7.9.2.3.1.5 Device Internal Fault (ECG Fault)

This parameter enables monitoring of internal device faults reported by the DALI ballast or driver. When this parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 24 - DALI Converter Fault
Function: Reports the internal fault status of the ballast or driver to the KNX bus.

This fault typically occurs due to electronic component faults or ballast internal protection conditions.

7.9.2.3.1.6 Missing Device

This parameter enables the creation of an error group object when a pre-addressed and monitored DALI device becomes inaccessible via the bus. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 25 - Missing Device
Function: Notifies the KNX bus that a previously available DALI device is no longer accessible.

This situation can occur in cases such as cable breakage, device removal, or power supply interruption.

7.9.2.3.1.7 More than 64 Devices

This parameter enables the creation of an error group object when the maximum number of devices allowed on the DALI bus is exceeded. When this parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 26 - More than 64 Devices
Function: Reports to the KNX bus that more than 64 devices have been detected on the DALI bus.

This fault indicates DALI addressing and bus topology errors.

7.9.2.3.1.8 Duplicate Address Fault

This parameter ensures that an error group object is created if the same short address is assigned to more than one device on the DALI bus. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 27 - Duplicate Address Fault
Function: Notifies the KNX bus that multiple devices with the same DALI address have been detected.

This fault is usually caused by errors occurring during the addressing process.

7.9.2.3.1.9 Unaddressed Device Fault

This parameter ensures that an error group object is created when unaddressed devices are detected on the DALI bus. When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 28 - Unaddressed Device Fault
Function: Notifies the KNX bus that unaddressed DALI devices are present.

This situation is typically observed in newly added devices or devices where the addressing process has not been completed.

7.9.2.3.1.10 ECG Fault Statistics

This parameter enables the creation of communication objects that transmit statistical information about ballast (ECG) faults detected on the DALI bus to the KNX bus. When the parameter is enabled, the following communication objects become active and provide information about faulty devices on the DALI bus.

- Communication Objects No. 29-31 - ECG Fault Statistics
Function: Reports the number of ballasts in fault status to the KNX bus. This information can be used for maintenance and service planning.

7.9.2.3.1.11 Group Fault Statistics

This parameter enables the creation of group objects that report the number of faults detected in DALI groups to the KNX bus. When the parameter is enabled, the following Communication Objects become active:

- Communication Object No. 32 - Number of Group Faults (1 Byte)
Function: Reports the total number of faulty ballasts detected on the DALI bus to the KNX bus.
- Communication Object No. 33 - Faulted Ballast Number (1 Byte)
Function: Reports the short address of the currently displayed faulty ballast.
- Communication Object No. 34 - Next Faulted Ballast (1 Bit)
Function: When the value "1" is written to this object, Object No. 33 is updated and the short address of the next faulty ballast in the list is displayed. This allows all faults to be displayed sequentially when multiple faulty devices are present.

This information can be used for system monitoring, maintenance, and service planning.

7.9.2.3.1.12 Fault Addressed

This parameter enables the creation of group objects that indicate which DALI address the fault condition belongs to. When the parameter is enabled, the following Communication Objects become active:

- Communication Objects No. 35-36 - Fault Addressed
Function: Reports the DALI short address associated with the fault to the KNX bus.

This information enables the rapid identification of the faulty device.

General note:

All group objects in the fault group are for monitoring and diagnostic purposes only. They are not used to control the channel and reflect the actual fault conditions coming from the DALI bus.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
20 / 2420	Output A / B Faults	Block Fault Indicator	Input/Output	C	R	W	T	1-bit	reset
21 / 2421	Output A / B Faults	DALI Overcurrent Fault	Out	C	R		T	1-bit	alarm
22 / 2422	Output A / B Faults	DALI Overvoltage Fault	Out	C	R		T	1-bit	alarm
23 / 2423	Output A / B Faults	Lamp Fault	Out	C	R		T	1-bit	alarm
24 / 2424	Output A/B Faults	ECG Fault	Out	C	R		T	1-bit	alarm
25 / 2425	Output A / B Faults	Missing Device	Out	C	R		T	1-bit	alarm
26 / 2426	Output A/B Faults	More than 64 Devices	Out	C	R		T	1-bit	alarm
27 / 2427	Output A / B Faults	Duplicate Address Fault	Out	C	R		T	1-bit	alarm
28 / 2428	Output A / B Faults	Unaddressed Device Fault	Out	C	R		T	1-bit	alarm
29 / 2429	Output A / B Faults	ECG Fault Statistics	Out	C	R		T	1-byte	counter pulses
30 / 2430	Output A / B Faults	Faulted ECG Number	Out	C	R		T	1-byte	counter pulses
31 / 2431	Output A / B Faults	Next Faulted ECG	Input	C		W		1-bit	up/down
32 / 2432	Output A / B Faults	Number of Group Faults	Out	C	R		T	1-byte	counter pulses
33 / 2433	Output A / B Faults	Faulted Group Number	Out	C	R		T	1-byte	counter pulses
34 / 2434	Output A / B Faults	Next Faulted Group	Input	C		W		1-bit	up/down
35 / 2435	Output A / B Faults	Fault Addressed	Out	C	R	W	T	2-byte	237,600 diagnostic value

Table 4: Faults Communication Objects

7.9.2.4 Functions

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Channel Configuration > Functions

+ General - Channel - A DALI Configuration - Channel Configuration Status Fault Functions Color Functions + Templates for Groups & ECGs + Group Controls	Enable Group Objects Flexible Dimming/Fade Time ☒ No ☐ Yes Operating Duration Addressed ☒ No ☐ Yes
---	---

7.9.2.4.1 Enable Group Objects

This parameter group enables the creation of functional group objects for Output A channel on the KNX bus. When the sub-parameters are enabled, the channel's dimming behavior and operating time information becomes accessible via KNX.

7.9.2.4.1.1 Flexible Dimming/Fade Time

This parameter enables the function that allows dimming and fade times to be dynamically adjusted via KNX. When the parameter is enabled, the relevant group object is created, and the dimming times become independent of the fixed values defined in ETS.

When this parameter is active, the Flexible Dimming/Fade Time setting is created not only at the Channel A level, but also within DALI group configurations and individual ballast configurations. This allows different dimming and fade times to be defined across the channel, for specific DALI groups, or on a per-ballast basis.

Time values sent via KNX are applied to the relevant channel, group, or ballast depending on the target control level. When the parameter is disabled, Flexible Dimming/Fade Time parameters are not created at the group and ballast levels, and all dimming operations are performed using the fixed times defined in the ETS parameters.

When the parameter is enabled, the following Communication Object becomes active:

- Communication Object No. 40 - Flexible dimming/fade time
Function: Enables the adjustment of dimming and fade times for the channel via KNX.

7.9.2.4.1.2 Operating Duration Addressed

This parameter enables the creation of communication objects that transmit the operating duration information of addressed DALI devices to the KNX bus. When the parameter is enabled, the operating duration information for individual DALI short addresses can be read and monitored via KNX. This information can be used, in particular, for maintenance planning, monitoring device service life, and optimizing service processes.

When the parameter is enabled, the following communication objects become active:

- Communication Object No. 41 - Read Operating Duration Addressed (3 Byte)

Function: Reports the total operating time value of the DALI device with the selected short address to the KNX bus.

- Communication Object No. 42 - Write Operating Duration Addressed Time (3 Byte)

Function: Transmits the time unit or time information associated with the sent operating time value to the KNX bus. This object provides the time information necessary for the correct interpretation of the operating time value.

Thanks to these objects, the operating times of addressed DALI devices can be monitored via the KNX system and used as a reference in maintenance processes.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
38 / 2438	Output A / B Function	KNX Scene	In	C		W		1-byte	scene control
40 / 2440	Output A / B Function	Flexible dimming/fade time	In/Out	C	R	W		1-byte	20.602 dali fade time
41 / 2441	Output A/B Function	Read Operation Duration Addressed	In/Out	C	R	W	T	3-byte	
42 / 2442	Output A / B Function	Write Operation Duration Addressed	Input/Output	C	R	W	T	3-byte	
43 / 2443	Output A / B Function	Synchronize automatic emission. Li tests	In	C		W	T	1-bit	start stop

Table 5: Function Communication Object

7.9.2.5 Channel A - Color Functions

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Channel Configuration > Color Functions

+ General
- Channel - A
DALI Configuration
- Channel Configuration
Status
Fault
Functions
Color Functions
+ Templates for Groups & ECGs
+ Group Controls

HCL Function

HCL Color Temperature Source ☒ 16-bit (DPT 7.600) ☐ 8-bit (DPT 5.001)
Transition Time ss:dd:ss
Enable Group Object "Activate Automatic HCL Color Function" ☒ No ☐ Yes
Set Color Temperature
Dim Color Temperature
Change Color by Scene

Dim2Warm Function

Additional Brightness Limit ☒ No ☐ Yes
Additional Color Limit ☒ No ☐ Yes
Enable Group Object "Activate Dim2Warm Color Function" ☒ No ☐ Yes
Set Color Temperature
Dim Color Temperature
Change Color by Scene

Broadcast Commands

Enable Group Object "Set Color Temperature" ☒ No ☐ Yes
Transition Time
Period of Value Feedback ss:dd:ss
0 = send feedback when value reached.

7.9.2.5.1 Background Information - Color Functions

The Color Functions section covers the advanced control functions of DALI luminaires with adjustable color temperature. These functions are used not only to create visual effects but also to manage user comfort, biological rhythms, and spatial perception.

Human Centric Lighting (HCL)

A lighting control function that automatically adjusts lighting throughout the day to align with the human biological rhythm (circadian rhythm). With this function, color temperature (Kelvin) and brightness levels are dynamically adjusted according to the time of day.

In the morning hours, cooler white light (higher Kelvin value) is used to increase alertness and concentration, while in the evening hours, warmer white light (lower Kelvin value) is used to create a relaxing and restful environment.

Within the KNX system, the HCL function is typically implemented through the combined operation of the following components:

- KNX time or logic functions
- DALI (DT8) lighting devices with Tunable White support

- Brightness and color temperature commands sent via KNX

This allows the lighting system to automatically create a light scenario that changes throughout the day. The HCL function is used specifically in offices, educational facilities, healthcare facilities, and long-term work environments to increase user comfort and productivity.

Dim-to-Warm

This is a lighting control function that automatically shifts the color temperature to warmer tones as the brightness level decreases during dimming.

This behavior mimics the natural dimming characteristics of traditional halogen or incandescent lamps. When brightness is at a high level, the light appears more neutral or cool white, while as dimming occurs, the light changes to warmer and more yellow tones.

In the Dim-to-Warm function:

- Brightness and color temperature change together with a single dimming command
- Color temperature control is not separately adjustable by the user
- As the dimming level decreases, the color temperature automatically drops

This function is particularly preferred in the following applications:

- Hotel rooms
- Restaurant and bar lighting
- Residential projects
- Atmosphere-focused decorative lighting applications

For the Dim-to-Warm function, Tunable White-supported DALI (DT8) luminaires are used, and the color temperature change is automatically performed according to the characteristic defined within the device.

Broadcast commands ensure that color temperature settings are applied to all devices on the DALI bus simultaneously. This method is used in scene and group-based applications where synchronized color transitions are required.

7.9.2.5.2 HCL Function

7.9.2.5.2.1 HCL Color Temperature Source

The HCL Color Temperature Source defines the data type used for color temperature control within the HCL function.

When 16-bit (DPT 7.600) is selected, the color temperature is transmitted as an absolute value in Kelvin. This configuration is suitable for HCL applications requiring high resolution and precise color temperature control.

When 8-bit (DPT 5.001) is selected, color temperature is controlled on a relative scale. This approach is preferred for simple user interfaces and scene-based control scenarios.

The selected data type applies to all color temperature control mechanisms used within the HCL function.

7.9.2.5.2.1.1 Transition Time

Transition Time defines the duration within which color temperature changes are performed within the scope of the HCL function. During the defined period, the color temperature is gradually changed from the current value to the target value.

This setting is used to prevent sudden color temperature changes and provide a more natural transition.

For example, when the Transition Time value is set to 10 minutes, a transition from 3000 K to 5000 K is completed smoothly within 10 minutes. The minimum time is 10 minutes.

7.9.2.5.2.2 Enable Group Object "Activate Automatic HCL Color Function"

Enable Group Object "Activate Automatic HCL Color Function" creates a group object that enables the automatic HCL function via KNX.

When this setting is enabled, the following communication object becomes active:

- Communication Object No. 52 - Activate automatic HCL Color Function
Function: Enables or disables automatic HCL color temperature control.

When this object is active, the color temperature is automatically adjusted according to predefined HCL curves.

7.9.2.5.2.3 Set Color Temperature

This parameter determines how the incoming Color Set command is processed **when the HCL function is active**.

- **Ignore** - The incoming Color Set command is ignored. The channel continues to operate according to the HCL function.
- **Deactivate Function** - The HCL function is deactivated and the Off value is sent via the "Active HCL Function" object. The incoming Color Set value is applied.
- **Accept Value** - The HCL function remains active. The incoming Color Set value is **accepted as the instantaneous value**, and HCL continues to operate. If the duration is active, the time calculation is redone based on the new value.

7.9.2.5.2.4 Dim Color Temperature

This parameter determines how the incoming color temperature dimming command is processed **while the HCL function is active**.

- **Ignore** - The incoming dimming command is ignored, and the HCL function continues to operate.
- **Deactivate Function** - The HCL function is deactivated and the incoming dimming command is applied.
- **Accept Value** - The HCL function remains active and the incoming dimming command is applied to the current value.

7.9.2.5.2.5 Change Color by Scene

This section provides information about the system behavior when a scene is recalled while the HCL function is active.

When a scene is recalled, the HCL function is automatically deactivated and the color temperature defined in the scene is applied. Therefore, the HCL function is not active while the scene is applied.

7.9.2.5.3 Dim2Warm Function

7.9.2.5.3.1 Additional Brightness Limit

Additional Brightness Limit ensures that the Dim2Warm function is only active within a specific brightness range.

7.9.2.5.3.1.1 Lower Brightness Limit

Lower Brightness Limit defines the minimum brightness level where the Dim2Warm function operates. When the brightness reaches this value, the color temperature reaches its **warmest value**. Below this level, the color temperature no longer changes.

7.9.2.5.3.1.2 Upper Brightness Limit

Upper Brightness Limit defines the maximum brightness level where the Dim2Warm function operates. When the brightness reaches this value, the color temperature reaches its **coolest value**. Above this level, the color temperature no longer changes.

7.9.2.5.3.2 Additional Color Limit

Additional Color Limit determines whether additional restrictions will be applied to the color temperature during the Dim2Warm function.

7.9.2.5.3.2.1 Minimum Color Temperature Limit

Minimum Color Temperature Limit defines the minimum color temperature value that can be reached during the Dim2Warm function.

7.9.2.5.3.2.2 Maximum Color Temperature Limit

Maximum Color Temperature Limit defines the maximum color temperature value that can be reached during the Dim2Warm function.

7.9.2.5.3.3 Enable Group Object "Activate Dim2Warm Color Function"

This parameter enables the creation of a group object that allows the Dim2Warm function to be centrally activated or deactivated via KNX.

When this setting is enabled, the following communication object becomes active:

- Communication Object No. 53 - Activate Dim2Warm Color Function
Function: Allows the Dim2Warm function for all channels to be enabled or disabled via a single KNX group object.

7.9.2.5.3.4 Set Color Temperature

This parameter determines how the incoming *Color Set* command is processed when the Dim2Warm function is active.

- **Ignore** - The incoming Color Set command is ignored. The channel continues to operate according to the Dim2Warm function.
- **Deactivate Function** - Deactivates the Dim2Warm function. The incoming Color Set value is applied.
- **Accept Value** - The Dim2Warm function remains active. The incoming Color Set value is accepted as the instantaneous value, and Dim2Warm continues to operate.

7.9.2.5.3.5 Dim Color Temperature

This parameter determines how the incoming color temperature dimming command is processed when the Dim2Warm function is active.

- **Ignore** - The dimming command is ignored, and the Dim2Warm function continues to operate.
- **Deactivate Function** - The Dim2Warm function is deactivated and the dimming command is applied.
- **Accept Value** - The dimming command is applied and the Dim2Warm function continues to operate.

7.9.2.5.3.6 Change Color by Scene

This section provides information about the system behavior when a scene is recalled while the Dim2Warm function is active.

When a scene is recalled, the Dim2Warm function is automatically deactivated and the color temperature defined in the scene is applied. Therefore, the Dim2Warm function is not active while the scene is applied.

7.9.2.5.4 Broadcast Commands

7.9.2.5.4.1 Enable Group Object "Set Color Temperature"

Enable Group Object "Set Color Temperature" enables the creation of a group object that allows the color temperature to be adjusted using broadcast commands.

When this setting is enabled, the following communication object becomes active:

- Communication Object No. 47 - Set Color Temperature
Function: Enables the color temperature to be broadcast to the DALI bus.

7.9.2.5.4.2 Transition Time

Transition Time defines the transition period to be applied for broadcast color temperature commands.

7.9.2.5.4.3 Period of Value Feedback

Period of Value Feedback defines the period at which color temperature feedback information is sent to the KNX bus. When the value is set to 0, feedback is sent only when the target color temperature is reached.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
51a / 2451a	Output A / B Color	HCL color temperature (K)	In	C		W		2-byte	7,600 absolute color temperature
51b / 2451b	Output A / B Color	HCL Ramp up/down	In	C		W		1-bit	switch
52 / 2452	Output A / B Color	Activate automatic HCL color function	In	C		W		1-bit	switch
53 / 2453	Output A / B Color	Activate Dim2Warm color function	In	C		W		1-bit	switch
54 / 2454	Output A / B Color	Set color temperature	In	C		W		2-byte	absolute color temp

Table 6: Color Communication Objects

7.9.3 Templates for Groups and ECGs

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Templates for Groups & ECGs

+ General - Channel - A - DALI Configuration + Channel Configuration - Templates for Groups & ECGs - Status - Fault - Functions - Staircase Lighting - Color Temperature - RGB(W) Color Control + Group Controls	Dimming Curve ☒ Linear ☐ Logarithmic Maximum Brightness Value 100 % Minimum Brightness Value 1 % Switching ON Switching ON Brightness ☐ Last Value ☒ Selected Value Value 100 % Dimming Time for Switching ON 1 sec Allow Switching ON with Brightness Value ☐ No ☒ Yes Allow Switching ON with Relative Dimming ☐ No ☒ Yes Switching OFF Switching OFF Brightness OFF Dimming Time for Switching OFF 1 sec Allow Switching OFF with Brightness Value ☐ No Min Value ☒ Yes Allow Switching OFF with Relative Dimming ☒ No Min Value ☐ Yes Dimming Dimming Time for Brightness Value 5.7 sec Dimming Time for Relative Dimming 5.7 sec
--	---

7.9.3.1 General Structure

The Templates for Groups and ECGs section enables the definition of common initial configurations to be used for DALI groups and individual ballasts. This structure is designed to prevent the same behaviors from having to be repeatedly configured for multiple groups or ballasts.

The template approach ensures consistent and predictable behavior when the system is commissioned and significantly reduces configuration time, especially in medium and large-scale DALI projects.

7.9.3.1.1 Template Working Logic

Template settings are referenced when the relevant DALI group or ballast is created and determine the initial behavior. After this stage, manual changes made to the group or ballast can be applied independently of the template settings.

Thus, templates function like a copy or starting profile; they do not create a permanently bound and restrictive structure.

7.9.3.1.1.1 Group Template

Group Template represents the common configuration used for DALI group addresses. When a group is created, the settings defined under this template are automatically applied to the relevant group.

The Group Template approach ensures that all ballasts connected to the same group behave in a synchronized manner. Group-based scene control, central dimming, and automation scenarios are implemented through this structure.

Settings made at the group level affect all ballasts connected to the group.

7.9.3.1.1.2 ECG Template

The ECG Template defines the initial configuration used for individual DALI ballasts. When a new ballast is addressed or added to the system, the settings defined under this template are applied to the relevant ballast.

Ballast templates enable the definition of individual device behavior independently of group membership. This structure is particularly important in applications where ballasts with different behaviors are used within the same group.

Settings made at the ballast level can override group template settings when necessary.

7.9.3.1.2 Application Approach

The template structure is used to provide a quick and consistent initial configuration during commissioning. After commissioning is complete, specific settings made at the group or ballast level can be optimized independently of the template structure.

7.9.3.2 Status

The communication objects under the Status section cover status feedback commonly used for both DALI groups and individual ballasts. These objects serve the same function in Group and ECG configurations and provide a consistent status monitoring mechanism across the system. The settings described below only determine whether the relevant communication objects are created or not.

...

OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Templates for Groups & ECGs > Status

+

General

-

Channel - A

DALI Configuration

+

Channel Configuration

-

Templates for Groups & ECGs

Status

Fault

Functions

Staircase Lighting

Color Temperature

RGB(W) Color Control

+

Group Controls

Enable Group Objects

Status Byte Group Object

☒ No
 ☐ Yes

Status Switch Group Object

☒ No
 ☐ Yes

Status Brightness Value Group Object

☒ No
 ☐ Yes

7.9.3.2.1.1 Status Byte Group Object

The Status Byte Group Object enables the transmission of status information summarizing the overall status of the output to the KNX bus within a single data field. This object provides compact feedback by combining multiple status information items at the bit level. It is used, in particular, in visualization systems and central monitoring applications to enable quick and comprehensive evaluation of the output's status.

Bit	Status	Description
Bit 0	Switch Status	0 = Light off, 1 = Light on. For the group: If at least one device in the group is on, the value is 1.
Bit 1	Ballast Monitored	0 = Ballast not monitored, 1 = Ballast monitored.
Bit 2	Ballast Available	0 = Ballast is available and responds to DALI queries, 1 = Ballast is not available or does not respond to DALI queries.
Bit 3	Block Status	0 = Ballast/group blocked, 1 = Ballast/group not blocked.
Bit 4	Forced Operation	0 = Forced operation inactive, 1 = Forced operation active.
Bit 5	Additional Function Active	0 = Additional function is inactive, 1 = Additional function is active.
Bit 6	Additional Function Running	0 = Additional function not running, 1 = Additional function active and running.
Bit 7	Burn-in Active	0 = Burn-in function is inactive, 1 = Burn-in function is active.
Bit 8	Lamp Fault	0 = No lamp fault, 1 = Lamp fault present.
Bit 9	Ballast Fault	0 = No ballast fault, 1 = Ballast fault present.
Bit 10	Turn-off Brightness Active	0 = Turn-off brightness is not active, 1 = Turn-off brightness is active.
Bits 11-15	Reserved	Not used.

Table 7: Status Byte Object Status Information

Note:

In group objects, the status information is created by combining the statuses of the devices in the group using the OR operator. When the status changes, the relevant status telegram is sent to the KNX bus.

7.9.3.2.1.2 Status Switch Group/ECG Object

The Status Switch Group Object provides feedback on the open or closed status of the output to the KNX bus. The switching status is updated when it changes as a result of manual control, scene calls, or automatic functions. This feedback is used to ensure that the actual switching status is displayed correctly on user interfaces.

7.9.3.2.1.3 Status Brightness Value Group Object

The Status Brightness Value Group Object ensures that the current brightness value of the output is transmitted to the KNX bus. The brightness value is updated when it changes as a result of dimming commands, scenes, or automatic control functions. This object is used to monitor instantaneous brightness information in visualization and logic-based control scenarios.

7.9.3.3 Fault

The Fault section defines the behavior and error feedback to be applied in error conditions for DALI groups and individual ballasts. The settings in this section are used in both Group and ECG configurations and ensure that error detection and post-error behavior are consistent across the system.

The settings described below determine the brightness level the output will switch to during fault conditions and how the fault information will be transmitted to the KNX bus.

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Templates for Groups & ECGs > Fault

+	General	Brightness on ECG Voltage Recovery	Last Value Before Failure
-	Channel - A	Brightness on DALI Voltage Failure	No Change
	DALI Configuration	Brightness on ECG Recovery in Operation	Momentary KNX Target State
+	Channel Configuration	Brightness on KNX Bus Voltage Recovery and Download	Last Value Before Failure
-	Templates for Groups & ECGs	Lamp/ECG Fault Group Object	☒ No ☐ Yes
	Status		
	Fault		
	Functions		
	Staircase Lighting		
	Color Temperature		
	RGB(W) Color Control		
+	Group Controls		

7.9.3.3.1 Brightness on ECG Voltage Recovery

Brightness on ECG Voltage Recovery defines the brightness behavior to be applied when the ballast supply voltage returns. This setting applies when the ballast loses and then regains its own supply voltage.

Depending on the selected behavior, the output can return to the last brightness value before the fault, switch to a fixed brightness level, or remain off. This structure ensures that lighting returns in a controlled manner after a fault.

7.9.3.3.2 Brightness on DALI Voltage Failure

Brightness on DALI Voltage Failure defines the brightness behavior of the output when a power supply voltage loss is detected on the DALI bus.

This setting is used to determine whether the output will maintain its current state or switch to a specific brightness value during voltage interruptions on the KNX/DALI bus. It is used to maintain system stability and prevent unwanted light changes.

7.9.3.3.3 Brightness on ECG Recovery in Operation

Brightness on ECG Recovery in Operation defines the brightness behavior to be applied after a ballast failure is resolved during operation.

This setting determines whether the output will instantly follow the KNX target state or exhibit different behavior when the ballast is reactivated. It is particularly important in automation scenarios for synchronization with the system's current target state.

7.9.3.3.4 Brightness on KNX Bus Voltage Recovery and Download

Brightness on KNX Bus Voltage Recovery and Download defines the brightness behavior the output will adopt when the KNX bus power supply returns or the application is reloaded.

This setting is used to determine the state in which the system will start after a power failure and provides predictable behavior during commissioning and maintenance processes.

7.9.3.3.5 Lamp/ECG Fault Group Object

The Lamp/ECG Fault Group Object enables the creation of a communication object that transmits faults originating from lamps or ballasts to the KNX bus.

When this setting is enabled, the relevant fault conditions can be monitored via KNX and used by building management systems, visualization, or alarm logic.

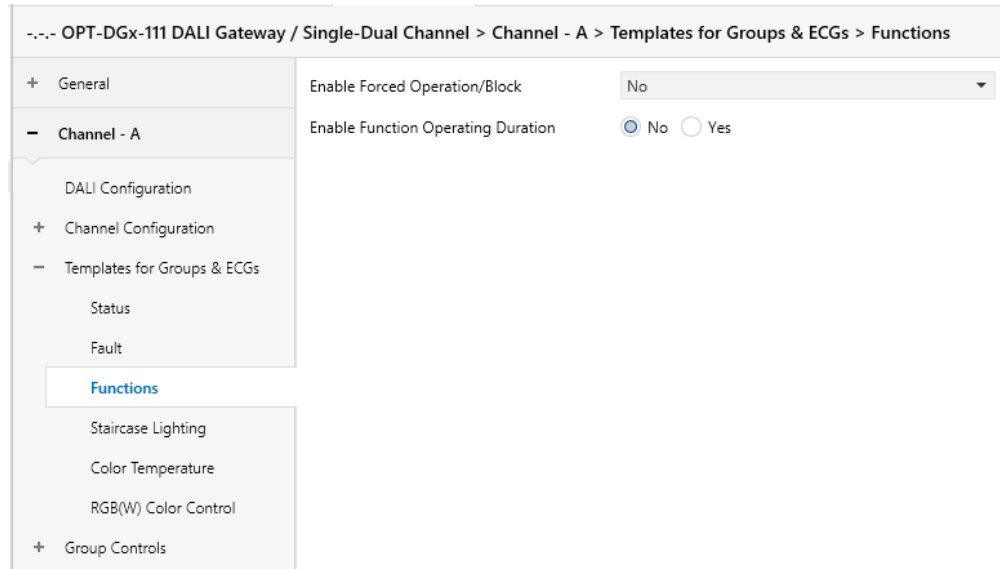
7.9.3.3.5.1 Content of Fault

Content of Fault defines the scope of fault information to be transmitted via the fault communication object. This setting determines whether the fault information will include a lamp fault, a ballast fault, or both.

This structure allows fault management to be configured in a detailed or simplified manner according to application requirements.

7.9.3.4 Functions

The Functions section covers special operating and service functions for DALI groups and individual ballasts. The settings defined in this section are used in both Group and ECG configurations and allow the normal operating behavior to be temporarily changed.



7.9.3.4.1 Enable forced operation/block

Enable forced operation/block allows the output to be set to a forced operating mode independent of the normal KNX control mechanism or to be completely blocked. This setting can be applied on a template basis or individually.

When No is selected, the output operates in normal operating mode and accepts all KNX control commands.

When Forced Operation is selected, the output is fixed at a defined brightness value and other control commands are ignored.

When Block is selected, the output is completely blocked, and no switching or dimming commands are applied.

7.9.3.4.1.1 Brightness Value during Forced Operation

Brightness Value during Forced Operation defines the fixed brightness level at which the output will operate while Forced Operation mode is active. The defined value is maintained throughout the forced operation period and is independent of other brightness commands received via KNX.

This setting is only valid when Forced Operation mode is selected.

7.9.3.4.1.2 Forced Operation after Gateway Reset

This parameter determines how the forced operation function will behave when the gateway is restarted.

- **Not Active** - Forced operation does not activate when the gateway is restarted. The output starts in normal operating mode.
- **Forced Value** - When the gateway is restarted, the output is set to the defined forced value.
- **Last State before reset** - The gateway restores the forced operation state from before the reset and continues operating in the same state.

7.9.3.4.1.3 Blocking Status after Gateway Reset

This parameter determines how the **blocking status** of the relevant output will be set when the gateway is restarted.

- **Not Blocked** - When the gateway restarts, the output is not blocked and starts in normal operating mode.
- **Blocked** - When the gateway restarts, the output starts in a blocked state and control commands are not applied.
- **Last State before reset** - Gateway restores the blocking state before reset and continues to operate in the same state.

7.9.3.4.2 Enable Function Operating Duration

This parameter enables the **Operating Hour Counter** function for the relevant group or ballast. When the parameter is enabled, the device begins to cumulatively count the time the lamp has been on, and this operating time information becomes monitorable via KNX. This function is used to track the usage time of lighting equipment, monitor lamp life, and facilitate maintenance planning. It helps plan maintenance or lamp replacement when specific operating times (e.g., 50,000 hours) are reached.

7.9.3.5 Staircase Lighting

The Staircase Lighting section allows you to configure a time-limited lighting function for DALI groups and individual ballasts. This function aims to keep the lighting active for a specific period of time when an ON command is received and to automatically switch it off at the end of the period. The settings are applied uniformly in Group and ECG configurations.

The screenshot shows the configuration page for Staircase Lighting. The breadcrumb trail at the top reads: -- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Templates for Groups & ECGs > Staircase Lighting. On the left is a sidebar menu with expandable sections: General, Channel - A, DALI Configuration, Channel Configuration, Templates for Groups & ECGs (which is expanded to show Status, Fault, Functions, and Staircase Lighting), Color Temperature, RGB(W) Color Control, and Group Controls. The Staircase Lighting section is highlighted in blue. The main configuration area contains two settings: 'Staircase Lighting Time Duration' with a text input field showing '00:05:00' and a unit selector 'ss:dd:ss'; and 'Repeated Switch ON Action' with two radio button options: 'No function' (which is selected) and 'Retrigger the function'.

7.9.3.5.1 Staircase Lighting Time Duration

Staircase Lighting Time Duration defines the total duration for which the staircase lighting function will remain active. When the function is triggered by an ON command, the output remains active for the defined duration and automatically turns off or returns to normal operating mode at the end of the period.

This setting is used in applications where lighting needs to be limited to a specific duration, such as staircases, corridors, and temporary use areas.

7.9.3.5.2 Repeated Switch ON Action

Repeated Switch ON Action defines how the system will behave when another ON command is received while the staircase lighting function is active.

When No function is selected, additional ON commands received while the function is active are ignored, and the current timer continues to run.

When Retrigger the function is selected, each new ON command retriggers the staircase lighting function and restarts the timer. This behavior allows for extended lighting duration in heavily used areas.

7.9.3.6 Color Temperature

The Color Temperature section defines the limits of Kelvin control, the start-up behavior, and the control methods via KNX for DALI luminaires with adjustable color temperature (Tunable White). These settings create a common start-up behavior for both Group and ECG using template logic; differentiation can then be made on the group or individual ballast. Color temperature control is handled using two basic methods: setting the target value directly (Set Color Temperature) or increasing or decreasing it relatively (Dim Color Temperature).

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Templates for Groups & ECGs > Color Temperature

+	General	Minimum Color Temperature (T)	2700	K
-	Channel - A	Maximum Color Temperature (T)	6000	K
	DALI Configuration	Color Temperature at Switch ON	Last Value	
+	Channel Configuration	Set Color Temperature		
-	Templates for Groups & ECGs	Group Object Format	☒ 16-bit (DPT 7.600) ☐ 8-bit (DPT 5.001)	
	Status	Transition Time	5.7	sec
	Fault	Allow Switch ON via Color Set	☒ No ☐ Yes	
	Functions	Dim Color Temperature		
	Staircase Lighting	Transition Time	5.7	sec
	Color Temperature	Allow Switch ON via Color Dimming	☒ No ☐ Yes	
	RGB(W) Color Control	Enable Color Temperature Status Group Object	☒ No ☐ Yes	
+	Group Controls	Enable 1-bit Preset	☒ No ☐ Yes	
		Use Color Function	No	

7.9.3.6.1 Minimum Color Temperature (T)

Minimum Color Temperature (T) defines the lowest applicable color temperature limit. If a lower value is requested from KNX or internal functions, the device trims the request to this limit. This limit is used to prevent the luminaire from being forced into unsupported warm tones and to prevent situations such as "color shift/instability at extreme values" in the field.

Example: If the minimum is defined as 2700 K and KNX sends 2200 K, the output is set to 2700 K.

7.9.3.6.2 Maximum Color Temperature (T)

Maximum Color Temperature (T) defines the highest color temperature limit that can be applied. If a higher value is requested, the request is clipped to this limit. Together, Minimum/Maximum define the effective operating range of the system and are particularly important for creating a standard range in projects where luminaires of different brands are used on the same line.

Example: If Maximum 6000 K is defined and KNX sends 6500 K, the output is set to 6000 K.

7.9.3.6.3 Color Temperature at Switch ON

Color Temperature at Switch ON defines which color temperature will be applied when the output switches from OFF to ON. This setting directly impacts the user experience; because even when switching on at the same brightness, an unexpected change in color temperature creates the perception of "malfunctioning" in the field.

When Last Value is selected, the output turns on with the last color temperature before it turned off. This approach is suitable for restoring the same environment if the user has made manual adjustments.

When Refreshed KNX Value is selected, the color temperature value last accepted as valid on the KNX bus is used as a reference. This approach is preferred in projects where the central controller (BMS/visualization) continuously maintains the target setpoint.

When Fixed Value is selected, a fixed Kelvin value is used for each ON transition. This behavior is used in standard applications where a specific setting is desired, such as "always turn on at 4000 K" in offices.

The Fixed Switch On Value in the table defines the Kelvin value to be applied when Fixed Value is selected.

Example: If Fixed Value + 4000 K is selected, the light switches to 4000 K at every switch-on; even if the user left it at 3000 K the previous time.

7.9.3.6.4 Set Color Temperature

The Set Color Temperature section covers rules for adjusting color temperature by sending the target Kelvin value (or a relative scale) directly via KNX. The "Set" approach means the desired target value is clear, and the device transitions to the target in a controlled manner.

7.9.3.6.4.1 Group Object Format

Group Object Format determines the format in which the color temperature set command is transmitted over KNX.

When 16-bit (DPT 7.600) is selected, control is performed using the absolute Kelvin value. This mode is the most deterministic method in terms of integration and commissioning; the value sent from KNX is the direct answer to the question "how many Kelvin" in the field.

When 8-bit (DPT 5.001) is selected, control is performed using a relative format, such as a 0...100% scale. This approach is more practical in some user interfaces; however, since the percentage → Kelvin conversion depends on the device's Min/Max range, consistent setting of Min/Max limits is required to guarantee the same perception between luminaires.

Example: When Min is 2700 K and Max is 6000 K, 50% corresponds to approximately the midpoint; however, if the range changes, the Kelvin equivalent of 50% also changes.

7.9.3.6.4.2 Transition Time

Transition Time defines how long it takes to reach the target value with the Set Color Temperature command. This time acts like a "ramp" time; it provides a smooth transition instead of an abrupt one. It is important for user comfort and especially to avoid "color jumps" in work areas.

Example: When Transition Time is 5.7 s, the transition from 3000 K to 5000 K is completed in 5.7 seconds.

7.9.3.6.4.3 Allow Switch ON via Color Set

Allow Switch ON via Color Set determines whether the color temperature set command also turns the output ON. This setting distinguishes between two different usage styles in the field:

When Yes is selected, the user can turn on the light simply by sending the color temperature. This treats the color temperature as an "active control."

When No is selected, the color temperature set command only applies if the light is already on. This approach is preferred in projects that want to clearly separate the "color adjustment" and "on/off" functions.

7.9.3.6.5 Dim Color Temperature

The Dim Color Temperature section contains settings for relatively adjusting the color temperature using the "increase/decrease" logic. This method is suitable for potentiometer-like interfaces or two-button "warmer/cooler" control elements.

7.9.3.6.5.1 Transition Time

Transition Time determines the speed of the change made with Dim Color Temperature commands. This duration is one of the basic parameters that determines how quickly the color temperature will change when the user holds down a button or sends a continuous dim command.

Example: A short Transition Time provides faster color change; a longer time provides a smoother and slower change.

7.9.3.6.5.2 Allow Switch ON via Color Dimming

Allow Switch ON via Color Dimming determines whether relative dimming commands turn the light on when it is off. This setting answers the question, "Should the light turn on when I press the 'warmer' button?" in practical use.

When Yes is selected, the dimming command turns the light on and simultaneously initiates the color temperature change.

When No is selected, dimming commands are ignored when the light is off.

7.9.3.6.6 Enable Color Temperature Status Group Object

Enable Color Temperature Status Group Object ensures that the current color temperature information is fed back to the KNX bus. This feedback is used in visualization systems to display the information "What is the current Kelvin value?" and in control loops (e.g., to verify whether the BMS has reached its target). Feedback significantly reduces field diagnosis time, especially in projects with multiple control sources.

7.9.3.6.7 Enable 1-bit Preset

Enable 1-bit Preset allows switching to color temperature preset values with single-bit commands. This structure is used for quick selection with simple buttons; for example, it is possible to define two presets and operate them as "Day mode / Night mode". Preset values are entered in Kelvin according to the table, and an optional transition time is applied.

Example: If Preset 1 = 3000 K and Preset 2 = 5000 K, the fixture switches directly to the selected preset with a 1-bit command.

7.9.3.6.8 Use Color Function

Use Color Function determines whether color temperature control will operate solely with the basic set/dim mechanism or be linked to an advanced color function such as Dim2Warm or Central Color Temp (HCL).

When No is selected, Color Temperature control operates solely on the manual set/dim principle.

When Dim2Warm is selected, color temperature behavior becomes brightness-dependent; as brightness decreases, color temperature shifts toward warmer values. In this case, how manual set commands and presets are prioritized according to project requirements must be carefully planned during commissioning.

When Central Color Temp (HCL) is selected, the color temperature is managed according to a central HCL logic. This structure is used in time/scenario-based automatic color temperature profiles, and the system design must be clear to prevent manual intervention from conflicting with automatic control.

7.9.3.7 RGB(W) Color Control

The RGB(W) Color Control section defines how color information is represented via KNX in colored luminaires, which color behavior is applied at startup, the transition characteristics of color set/dim commands, and the color feedback format. This section creates the initial behavior using a common template logic for Group and ECG; it can be customized at the group or individual ballast level according to project requirements.

Color control is evaluated on two axes:

- Color Format determines how color is expressed on the KNX side (RGB, RGB w/o Dim, HSV).
- Color Channels determines how many channels the luminaire is driven by (3-channel RGB or 4-channel RGBW).

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Templates for Groups & ECGs > RGB(W) Color Control

+	General	Color Format	RGB
-	Channel - A	Color Channels	☒ 3 (RGB) ☐ 4 (RGBW)
	DALI Configuration	Color Value after Switch ON	Last Value
+	Channel Configuration	Set Color Value	
-	Templates for Groups & ECGs	Transition Time	2.8 sec
	Status	Allow Switch ON via Color Set	☒ No ☐ Yes
	Fault	Use Combined Group Objects	No
	Functions	Dim Color Value	
	Staircase Lighting	Transition Time	5.7 sec
	Color Temperature	Allow Switch ON via Color Dim	☒ No ☐ Yes
	RGB(W) Color Control	Color Value Status	No
+	Group Controls		

7.9.3.7.1 Color Format

The Color Format parameter determines how color commands sent to the gateway via KNX are interpreted according to which color model. The selected format defines how color information is transmitted to DALI DT8 ballasts and how it is applied in the luminaire. The system supports three different color control methods: **RGB**, **RGB w/o Dim**, and **HSV**.

RGB

In RGB format, color is created by adjusting the intensity of the three primary color components: **Red (R)**, **Green (G)**, and **Blue (B)** channels. In this method, the value of each channel is controlled separately, and the desired color is obtained by mixing these three channels.

In RGB control, color information usually works in conjunction with the **overall brightness** value. The brightness value affects all color channels collectively and determines the total light level of the fixture. Thus, the light level can be increased or decreased while maintaining the selected color tone.

This structure facilitates the simultaneous control of color and brightness in applications such as architectural lighting and stage control.

Example application - Purple color production:

- Red = 70%
- Green = 0%
- Blue = 60%
- Brightness = 80%

In this case, the fixture produces purple light, and the brightness value affects all color channels together.

RGB w/o Dim

The RGB w/o Dim (RGB without Dimming) option still transmits color information via the RGB components, but **separates color control from brightness control**. In this case, RGB commands only change the color components, and the fixture's overall brightness level is not affected by these commands.

Brightness control is performed through a separate dimming object. This allows color selection and overall light level to be controlled independently of each other.

This method is particularly used in the following situations:

- Applications where the color atmosphere is changed but the ambient brightness must be kept constant
- Hotel, restaurant, and lounge lighting
- Projects where RGB effect lights operate independently of the main lighting

Example application - Ambient lighting:

Suppose the general light level in a restaurant is set to 60%. When the user changes the color atmosphere:

- Red = 40%
- Green = 10%
- Blue = 5%

are sent.

In this case, the color tone changes but the brightness level **remains fixed at 60%**. This prevents sudden changes in light level during color transitions.

HSV

The HSV format expresses color information using the components **Hue (color tone)**, **Saturation (saturation)**, and **Value (brightness)**. This model is widely used in visualization systems and user interfaces because it offers color control that is closer to human perception.

In the HSV model:

- **Hue** determines the color tone and is typically expressed in the 0-360° range.
- **Saturation** determines the richness of the color. As the value increases, the color becomes more vivid.
- **Value**, on the other hand, indicates the brightness level of the color.

This structure allows users to select colors much more easily using the color wheel.

Example application - Blue color selection:

- Hue = 240°
- Saturation = 100%
- Value = 80%

In this case, the fixture produces a bright blue color.

However, since the Value parameter in the HSV model also contains brightness information, if general dimming control is also used in the project, careful system design is recommended to avoid control logic conflicts. The default value is set to **RGB** according to the ETS screen.

7.9.3.7.2 Color Channels

The Color Channels parameter determines the color channel structure to be used in the luminaire. The selected structure defines how many color channels the gateway will use to transmit color information to the luminaire.

Selecting 3 (RGB / HSV) indicates that the luminaire operates with three color channels. In RGB format, the channels are used as Red (R), Green (G), and Blue (B). In HSV format, color information is defined by the Hue, Saturation, and Value components and is converted to RGB color channels in the luminaire for application.

The 4 (RGBW / HSVW) selection enables the use of an independent White (W) channel in addition to the RGB channels. This structure helps achieve higher efficiency and more stable colors, especially in white light production. When the HSV format is used, the HSV color information is converted to suit the RGBW channel structure and applied.

The default value is set to 3 (RGB / HSV) according to the ETS screen.

7.9.3.7.3 Color Value after Switch ON

Color Value after Switch ON defines the color behavior to be applied when the output transitions from the OFF state to the ON state.

The Last Value selection recalls the last color value before the light turned off. It is preferred in areas where the user expects to return to the "last atmosphere left."

The Refreshed KNX Value selection applies the last target color accepted as valid on the KNX bus. It is suitable for projects where the central controller continuously maintains the target color.

The Fixed Value selection ensures that a fixed color value is applied at every startup. It is used in projects where a standard startup color is desired.

The default value is Fixed Value according to the ETS screen.

7.9.3.7.3.1 Color Value

Color Value defines the fixed color to be applied when Fixed Value is selected. Hex color selection is used on the ETS screen. For example, #FF0000 is red, #00FF00 is green, and #0000FF is blue.

The default value is #7F7F7F according to the ETS screen.

7.9.3.7.3.1.1 White Value

White Value defines the fixed value of the W channel when 4 (RGBW) is used. As the white value increases, the color appears more pastel and softer; as it decreases, the color becomes more saturated. The range is 0...255.

The default value is 127 according to the ETS screen.

7.9.3.7.4 Set Color Value

The Set Color Value section defines the transition behavior and light-on effect of the color adjustment made by sending the target color via KNX.

7.9.3.7.4.1 Transition Time

Transition Time defines the duration within which the target color is reached using the set command. The jump option makes the color change instantaneous; the duration option applies a gradual (ramp) transition. The adjustable range is 0.5...65535 seconds.

Example:

When jump is selected, the transition from red to blue is instantaneous. When 5.7 seconds is selected, the same transition is completed smoothly over 5.7 seconds.

The default value is 5.7 seconds according to the ETS screen.

7.9.3.7.4.2 Allow Switch ON via Color Set

Allow Switch ON via Color Set defines whether the color set command turns the light ON when it is OFF.

The Yes selection allows the light to be turned on by sending only the color. The No selection ensures that the set command is only applied when the light is ON.

The default value is Yes according to the ETS screen.

7.9.3.7.4.3 Use Combined Group Objects

Use Combined Group Objects defines whether color information is transferred via a single combined group object or via separate set objects.

The No selection indicates that control will be executed through separate objects.

The Yes 3-bytes and Yes 6-bytes selections determine the data scope/resolution carried by the combined object and are selected based on visualization/BMS integration requirements.

The default value is No, according to the ETS screen.

7.9.3.7.5 Dim Color Value

The Dim Color Value section defines the transition behaviors to be applied when changing the color using relative commands (increase/decrease logic).

7.9.3.7.5.1 Transition Time

Transition Time determines the speed of color change with color dim commands. Selectable values in ETS are step-based; no list is provided in this section, the selection logic applies.

The default value is 5.7 seconds according to the ETS screen.

7.9.3.7.5.2 Allow Switch ON via Color Dim

Allow Switch ON via Color Dim defines whether relative color dim commands can turn the light ON when it is OFF.

The default value is No, according to the ETS screen.

7.9.3.7.6 Color Value Status

Color Value Status defines whether the current color information is sent back to the KNX bus as feedback and its format.

Selecting No indicates that color feedback is not provided.

The Yes from set objects selection enables feedback to be derived from set objects.

The Yes 3-bytes and Yes 6-bytes selections determine the data scope/resolution of the feedback.

Feedback is used to display the actual color in visualization and to verify synchronization across multiple control sources.

The default value is No, according to the ETS screen.

No	Name	Function	Direction	C	R	W	T	Length	Data Type
500 / 2900	Output A/B ECG/Group 1	Switch	In	C		W		1-bit	DPT 1.001 switch
501 / 2901	Output A/B ECG/Group 1	Status Switch	Out	C	R		T	1-bit	DPT 1.001 switch
502 / 2902	Output A/B ECG/Group 1	Relative Dimming	In	C		W		4-bit	DPT 3.007 dimming control
503 / 2903	Output A/B ECG/Group 1	Brightness Value	In	C		W		1-byte	DPT 5.001 percentage
504 / 2904	Output A/B ECG/Group 1	Brightness Value Status	Out	C	R		T	1-byte	DPT 5.001 percentage
505 / 2905	Output A/B ECG/Group 1	Operating Duration	In/Out	C	R	W	T	2-byte	DPT 7.007 time period (hours)
506 / 2906	Output A/B ECG/Group 1	Lamp/ECG Fault	Out	C	R		T	1-bit	alarm
507 / 2907	Output A/B ECG/Group 1	Dim Color Temperature	In	C		W		4-bit	DPT 3.007 dimming control
508 / 2908	Output A/B ECG/Group 1	Set Color Temperature (%)	In	C		W		1-byte	DPT 5.001 percentage
509 / 2909	Output A/B ECG/Group 1	Set Color Temperature (K)	In	C		W		3-byte	DPT 7,600 absolute color temperature
510 / 2910	Output A/B ECG/Group 1	Color Temperature Status	Out	C	R		T	2-byte	DPT 7,600 absolute color temperature*
511 / 2911	Output A/B ECG/Group 1	Status Byte	Out	C	R		T	2-byte	Non-DPT
512 / 2912	Output A/B ECG/Group 1	Forced Operation	In	C	R	W		1-bit	DPT 1.003 Enable
513 / 2913	Output A/B ECG/Group 1	Activate Color Temp Preset 1-bit	In	C		W		1-bit	scene

514 / 2914	Output A/B ECG/Group 1	Activate Automatic HCL Function/Status	Input/Output	C	R	W	T	1-bit	DPT 1.010 start/stop
515 / 2915	Output A/B ECG/Group 1	Activate Dim2Warm Function/Status	In/Out	C	R	W	T	1-bit	DPT 1.010 start/stop
516 / 2916	Output A/B ECG/Group 1	RGB(W) Relative Dimming R / HSV(W) Relative Dimming H	In	C		W		4-bit	DPT 3.007 dimming control
517 / 2917	Output A/B ECG/Group 1	RGB(W) Relative Dimming G / HSV(W) Relative Dimming S	In	C		W		4-bit	DPT 3.007 dimming control
518 / 2918	Output A/B ECG/Group 1	RGB(W) Relative Dimming B / HSV(W) Relative Dimming V	In	C		W		4-bit	DPT 3.007 dimming control
519 / 2919	Output A/B ECG/Group 1	RGB(W) Relative Dimming W / HSV(W) Relative Dimming W	In	C		W		4-bit	DPT 3.007 dimming control
520 / 2920	Output A/B ECG/Group 1	Set RGB Value Combined	In	C		W		3-byte	DPT 232.600 RGB
521 / 2921	Output A/B ECG/Group 1	Set RGB(W) Value Combined	In	C		W		6-byte	DPT 251,600 RGBW
522 / 2922	Output A/B ECG/Group 1	Set HSV Value Combined	In	C		W		3-byte	DPT 232.600 RGB
523 / 2923	Output A/B ECG/Group 1	Set HSVW Value Combined	In	C		W		6-byte	DPT 251,600 RGBW
524 / 2924	Output A/B ECG/Group 1	Set RGB(W) Value R	In	C		W		1-byte	DPT 5.001 percentage
525 / 2925	Output A/B ECG/Group 1	Set RGB(W) Value G	In	C		W		1-byte	DPT 5.001 percentage
526 / 2926	Output A/B ECG/Group 1	Set RGB(W) Value B	In	C		W		1-byte	DPT 5.001 percentage
527 / 2927	Output A/B ECG/Group 1	Set RGB(W) Value W	In	C		W		1-byte	DPT 5.001 percentage
528 / 2928	Output A/B ECG/Group 1	Set HSV(W) Value H	In	C		W		1-byte	Non-DPT
529 / 2929	Output A/B ECG/Group 1	Set HSV(W) Value S	In	C		W		1-byte	DPT 5.001 percentage
530 / 2930	Output A/B ECG/Group 1	Set HSV(W) Value V	In	C		W		1-byte	DPT 5.001 percentage
531 / 2931	Output A/B ECG/Group 1	Set HSV(W) Value W	In	C		W		1-byte	DPT 5.001 percentage

Table 8: Templates for Groups & ECG Communication Objects

7.9.4 Emergency Lighting Converters

The DALI standard defines specific device types that support the centralized monitoring and testing of emergency lighting systems. These devices are called Emergency Lighting Converters and are used to monitor the battery, test, and operating status of emergency lighting fixtures. Emergency converters control self-contained emergency lighting fixtures that operate with an internal battery and ensure that emergency functions operate reliably.

According to the DALI standard, emergency converters are defined under IEC 62386-202. These devices can monitor the operating status of emergency lighting fixtures, perform automatic or manual tests, and transmit test results to the control system. This information is transferred to the KNX bus via a gateway and can be monitored centrally via the building automation system.

Converters used in emergency lighting systems may have different control capabilities. Emergency lighting devices are defined in four different types under the DALI standard:

- **Type A** - Dimmable and controllable emergency converter
- **Type B** - Emergency converter with on/off control capability
- **Type C** - Emergency converter that does not respond to commands but can be monitored
- **Type D** - Emergency converter that cannot be controlled or dimmed

The gateway can query the status of emergency converters connected to the DALI bus, trigger test functions, and transmit test results via the KNX system. This allows emergency lighting systems to be monitored centrally and maintenance processes to be managed more efficiently.

The functions supported by emergency converters may vary depending on the device type and manufacturer. Therefore, it must be verified in advance that the device used supports DALI emergency lighting functions.

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Emergency Lighting Controls

+ General	Allow Emergency Lighting Test	☒ No ☐ Yes
- Channel - A	Enable Inhibit/Rest Mode Function	☒ No ☐ Yes
DALI Configuration		
+ Channel Configuration	Addressed Group Object	
+ Templates for Groups & ECGs	Trigger Emergency Lighting Test	☒ No ☐ Yes DPT_CTC format
+ Emergency Lighting Controls	Emergency Light Test Status	☒ No ☐ Yes
	Emergency Light Test Result	☒ No ☐ Yes
	Stop All Emergency Lighting Tests	☒ No ☐ Yes
	Use Emergency Lighting Converter - 1	☒ No ☐ Yes

Output A/B Emergency Common Objects

44	Synchronize auto emergency lighting tests	in	C		W	T	1-bit	Start stop
45	Stop All em. Li test	in	C		W		1-bit	Start stop
46	Addressable Trigger Em lighting test (CTC)	In	C		W		2-byte	non dpt
47	Addressable Lighting Test Results	Out	C	R	W	T	4-byte	non dpt
48	Addressed Em. Lighting converter status	Out	C	R	W	T	2-byte	non dpt
49	Activate emergency lighting inhibit/rest mode/status	Out	C	R	W	T	1-bit	Start/stop

Table 9: Output A/B Emergency Common Communication Objects

7.9.4.1.1 Allow Emergency Lighting Test

This parameter determines whether **Emergency Lighting Converter (Emergency ECG)** devices connected to the DALI bus are allowed to perform automatic emergency lighting tests. When the parameter is enabled, emergency converters can perform the **automatic emergency lighting test (test sequence)** function if they support it.

The automatic emergency lighting test is an optional DALI function defined according to the **IEC / EN 62386-202** standard and performed by the emergency converter. The test process is performed directly by the converter, and the test results are read by the gateway and transmitted to the KNX bus.

Since emergency converters may have different timing tolerances depending on the manufacturer, managing automatic emergency lighting tests through a central **emergency lighting control system** may be preferable in some applications.

- **No** - The automatic emergency lighting test function is not enabled for emergency converters.
- **Yes** - Emergency converters can perform automatic emergency lighting tests.

7.9.4.1.1.1 Offset Time Between Two Converters

This parameter determines the time difference between the test starts of two consecutive emergency lighting converters in automatic emergency lighting tests. The purpose is to prevent all emergency luminaires in the system from entering test mode or being in the charging cycle at the same time.

The parameter value can be set in the range **0...255**, with each step representing a **15-minute** time interval.

The test start time is calculated according to the following principle:

Offset time = DALI short address × selected offset value

For example:

- If the offset value is set to **1 (15 minutes)**
- The converter test with short address **1** will start after **15 minutes**
- The converter test with short address **2** will start **30 minutes** later

The gateway transmits this time parameter to the converter. However, the implementation of the test timing depends on the converter's own internal timing tolerances. Additionally, if the emergency fixture is in the **charging cycle** after the test, the test process may not start immediately.

7.9.4.1.1.2 Automatic Emergency Light Test Group Object

This parameter determines the creation of a communication object that enables the synchronization of automatic emergency lighting tests via KNX. When the parameter is enabled, the gateway can send an automatic test start request to the emergency converters, and the test process can be triggered via the KNX system.

- **No** - The communication object for the automatic emergency lighting test function is not created.
- **Yes** - The relevant communication object is activated to trigger the automatic emergency lighting test function.

When the parameter is enabled, the following communication object becomes available:

- **Communication Object No. 44 - Synchronize automatic emergency lighting tests**

Function: Enables automatic emergency lighting tests to be initiated via KNX. With the command sent to this object, the gateway sends a test initiation request to the emergency lighting converters included in the automatic test function. The test process is executed by the converter according to its own internal timing, and the test results are read by the gateway and transmitted to the KNX bus.

7.9.4.1.2 Enable Inhibit/Rest Mode Function

This parameter enables control of the **Inhibit Mode** and **Rest Mode** functions found in DALI emergency lighting converters via KNX. When the parameter is enabled, the gateway can send inhibit or rest mode commands to emergency converters via the relevant communication object.

When the parameter is enabled, the following communication object becomes active:

- **Communication Object No. 49 - Activate emergency lighting inhibit/rest mode/status**

Function: Enables or disables inhibit or rest mode for the emergency lighting converter. The telegram value sent to this object is evaluated by the converter, and the relevant mode is activated.

Telegram values:

- **1 = Inhibit/Rest mode active.** In this case, when the mains voltage is interrupted, the emergency lighting fixture does not switch to emergency mode. If the fixture is already in emergency mode, it exits this mode and remains off.
- **0 = Inhibit/Rest mode disabled.** The emergency converter is in normal operating mode, and the emergency lighting function activates when the mains voltage is interrupted.

Note:

When Inhibit or Rest mode is active, the emergency lighting function is temporarily disabled. Therefore, when the mains voltage is interrupted, the fixture does not operate in emergency mode and remains off.

Rest Mode:

Rest mode allows the luminaire to be temporarily turned off during emergency lighting operation. When the mains voltage returns, the system automatically exits rest mode and the luminaire returns to normal operating mode.

Inhibit Mode:

Inhibit mode prevents the emergency lighting mode from activating when the mains voltage is interrupted. This mode remains active for a specific period and ends under the following conditions:

- If the inhibit command is not repeated, after approximately 15 minutes,
- When the mains voltage is interrupted and then restored,
- When the DALI command 226 (RE-LIGHT / RESET INHIBIT) is sent.

7.9.4.1.2.1 Automatically Exit to Mode

This parameter determines the time it takes for the emergency converter to automatically return to normal mode after inhibit or rest mode is activated. At the end of the selected time, the gateway sends a command to the emergency converters to return to normal operating mode.

7.9.4.1.2.2 Send Mode Status

When this parameter is enabled, the current mode status is sent back to the KNX bus as feedback via the inhibit/rest mode communication object. This allows the system to monitor whether inhibit or rest mode is active. In this case, the R (Read) and T (Transmit) flags are added to the relevant communication object.

7.9.4.1.3 Addressed Group Object

The settings under Addressed Group Object determine the creation of group objects required to manage the emergency lighting test process via KNX. When the relevant options are enabled, the device starts/stops the test or updates the test status/result information when a telegram is received.

7.9.4.1.3.1 Trigger Emergency Lighting Test

This parameter enables the emergency lighting test for a specific DALI emergency lighting converter to be triggered via KNX. When the parameter is enabled, the gateway can send a command to the relevant converter to start a test or stop an ongoing test.

When the parameter is enabled, the following communication object becomes active:

- Communication Object No. 46 - Trigger Emergency Lighting Test Addressed

Function: Initiates or stops the emergency lighting test for a specific emergency lighting converter.

This communication object uses 2 bytes of data. The High Byte part of the telegram specifies which test type to start, while the Low Byte part contains the DALI short address of the emergency lighting converter to which the command is sent. This object only sends the test start command. The test status or result is not communicated via this object; this information is read via the relevant test status and test result communication objects. When the Trigger Emergency Lighting Test option is No, test triggering is disabled; when Yes DPT_CTC format is selected, the test triggering telegram is accepted in the relevant format. When a telegram arrives at this object, the device initiates the test process for the selected emergency lighting converter(s). In the example flow, the automation sends a "Trigger" telegram at a specific time, the device starts the test, and status/result feedback is updated throughout the process. The command list is shown in the table below.

Byte	Bit	Field	Description
Low Byte	0-5	DALI Address	The DALI short address (0-63) of the emergency lighting converter to which the test command will be sent.
Low Byte	6	-	Not used (0).
Low Byte	7	-	Fixed value (1).
High Byte	0	Reserved	Not used.
High Byte	1	Function Test	Function test is initiated (DALI Cmd 227).
High Byte	2	Duration Test	Duration test is initiated (DALI Cmd 228).
High Byte	3	Partial Duration Test	The partial duration test is initiated.
High Byte	4	Stop Test	The running test is stopped (DALI Cmd 229).
High Byte	5	Function Test Flag Reset	Function test wait flag is reset (DALI Cmd 230).
High Byte	6	Duration Test Flag Reset	Duration test wait flag is reset (DALI Cmd 231).
High Byte	7-255	Reserved	Not used.

Table 10: Trigger Emergency Lighting Test Command Table

7.9.4.1.3.2 Emergency Light Test Status

This parameter determines the creation of a communication object that transmits the test status information of emergency lighting converters to the KNX bus. When the parameter is enabled, the gateway reads the test status from the emergency converter and transmits it to the KNX system.

- **No** - The communication object for the emergency lighting test status is not created.
- **Yes** - The relevant communication object is created to transmit the emergency lighting test status information.

When the parameter is enabled, the following communication object becomes active:

- **Communication Object No. 48 - Addressed Emergency Lighting Converter Status Function:** Transmits the test status information for a specific emergency lighting converter to the KNX bus. The gateway queries the converter for the test status and sends the obtained information as a telegram to the KNX system.

This object uses 2 bytes of data. One part of the telegram contains the address information of the relevant converter, while the other part contains the converter's current test status and operating status information.

Bit	Field	Number of Bits	Description
0-5	DALI Address	6	Emergency converter's DALI short address
6	-	1	Not in use
7	Status Request	1	0 = Reset value sent 1 = Status queried
8-10	Test Type	3	0 = No test 1 = Function test 2 = Duration test 3 = Partial duration test 4 = Battery query 7 = ECG is not DT1
11-12	Test Status	2	0 = Test completed 1 = Test pending 2 = Test running 3 = Test interrupted
13	Manual Start	1	Test started manually
14	Lamp Fault	1	Lamp fault
15	Device Fault	1	Device Fault

Table 11: Emergency Light Test Status Command Table

7.9.4.1.3.3 Emergency Light Test Result

This parameter determines the creation of a communication object that transmits the result information of tests performed by the emergency lighting converter to the KNX bus. When the parameter is enabled, the gateway reads the test result from the relevant emergency lighting converter and transmits this information via the KNX system. This allows the results of the function test, duration test, or partial duration test to be monitored centrally.

- **No** - The communication object for the test result is not created.
- **Yes** - The relevant communication object is activated to transmit the test result information.

When the parameter is enabled, the following communication object becomes available:

- **Communication Object No. 47 - Addressed Emergency Lighting Test Results Function:** Transmits the result information of tests performed for a specific emergency lighting converter to the KNX bus. The gateway reads the test result, error information, and relevant status data received from the converter and sends it as a KNX telegram.

This communication object uses 4 bytes of data. The first byte of the telegram contains the DALI short address of the relevant emergency lighting converter, while the other bytes contain information about the test result and converter status.

Bit	Area	Number of Bits	Description
0-5	DALI Address	6	Emergency converter's DALI short address
6	DT1 Information	1	Indicates that the information belongs to the DT1 emergency converter
7	Status Request	1	0 = Reset value sent1 = Status queried
8	Last Test - Function Test	1	Last test performed: Function test
9	Last Test - Duration Test	1	Last test performed Duration test
10	Last Test - Partial Duration Test	1	Last test Partial duration test
11	Query Failure Status	1	At least one failure exists
12	Battery Full	1	Battery level 254 (fully charged)
13-14	Reserved	1	Not in use
15	ECG Type	1	Indicates whether the device is a DT1 emergency converter
16	Emergency Control Gear Failure	1	Emergency converter did not respond during testing
17	Battery Duration Failure	1	Battery operating time error
18	Battery Failure	1	Battery failure
19	Emergency Lamp Failure	1	Emergency lighting failure
20	Function Test Delay Exceeded	1	The function test could not be started within the specified time
21	Duration Test Delay Exceeded	1	Duration test could not be started within the specified time
22	Function Test Failed	1	Function test failed
23	Duration Test Failed	1	Duration test failed
24-31	Battery / Test Value	8	Battery charge status (%0-100) depending on the test performed or battery discharge time measured during the duration test (2 min resolution)

Table 12: Emergency Light Test Result Status Table

7.9.4.1.3.4 Stop All Emergency Lighting Tests

This parameter determines the creation of a communication object that enables the collective stopping of all ongoing tests in all emergency lighting converters via KNX. When the parameter is enabled, the gateway can send a test stop command to all DALI addresses recognized as emergency drivers (monitored).

When the parameter is enabled, the following communication object becomes available:

- **Communication Object No. 45 - Stop All Emergency Lighting Tests**
Function: Stops ongoing tests on all emergency lighting converters monitored by the gateway with a 1-bit ON command sent via KNX. When the command is sent, the gateway transmits the necessary DALI commands to the relevant DALI- d emergency drivers to terminate the test. This allows function tests, duration tests, or other active test processes to be stopped centrally.

7.9.4.1.4 Use Emergency Lighting Converter - n (1...64)

The Use Emergency Lighting Converter - n options determine whether the relevant converter will be used within this channel. If No is selected, the converter is not included in the test and monitoring setup; if Yes is selected, the converter is included in the emergency lighting test flow. In projects with multiple converters, setting only the available/active converters to Yes prevents unnecessary expansion of the Trigger/Status/Result flow and reduces monitoring traffic.

7.9.4.2 Emergency Lighting Template

The Emergency Lighting Template section ensures consistent implementation of emergency lighting operation in the field by defining the lighting behavior to be applied in emergency mode, test triggering constraints, and automatic test coverage. When the necessary options are enabled under Enable Group Objects, the emergency lighting test process can be triggered via KNX and the results/status feedback can be monitored.

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Emergency Lighting Controls > Emergency Lighting Template

+	General	Brightness Value in Emergency Mode	1	%
-	Channel - A	Prolong Time at end of Emergency Lighting Action	00:00	ss:dd
	DALI Configuration	Time Limit for Triggering Emergency Lighting Test	7	day
+	Channel Configuration	Automatically Calculate Period of Partial Duration Test with Rated Time	☐ No ☒ Yes	
+	Templates for Groups & ECGs	Apply "Inhibit/Rest mode"	☒ No ☐ Yes	
-	Emergency Lighting Controls	Include Automatic Function Test	☒ No ☐ Yes	
	Emergency Lighting Tem...	Include Automatic Duration Test	☒ No ☐ Yes	
	Emergency Light - 1	Enable Group Objects Trigger Emergency Lighting Test ☒ No ☐ Yes DPT_CTC format Emergency Lighting Test Result ☒ No ☐ Yes Emergency Light Converter Status ☒ No ☐ Yes Emergency Light Battery Status ☒ No ☐ Yes		

7.9.4.2.1 Brightness Value in Emergency Mode

This parameter determines the brightness level that the emergency lighting converter will use when emergency mode is active. The value is defined as a percentage (%) and is applied during emergency operation for supporting emergency converters.

In some manufacturers, this value may be fixed and cannot be changed by the converter. However, the brightness value can be sent via the gateway.

7.9.4.2.2 Prolong Time at end of Emergency Lighting Action

This parameter defines how long the emergency lighting will remain on at the specified brightness level after the emergency mode ends.

During the defined period, the luminaire continues to operate at the current emergency brightness value. At the end of this period, the device returns to normal operating mode and begins to process control telegrams received via KNX. The duration is defined in minutes and seconds.

7.9.4.2.3 Time Limit for Triggering Emergency Lighting Test

The emergency lighting converter may not always be able to immediately execute the sent test command. For example, the battery level may be low, or the converter may be in a charging cycle after the test.

This parameter determines the maximum time within which the sent test command must be initiated. The defined time is stored in the converter and the test is automatically initiated when the appropriate conditions are met.

If the value 0 is selected, the test must be initiated within 15 minutes. Other values define the time allowed for initiating the test in days.

The status of the test (pending, running, or completed) can be monitored via the relevant emergency lighting status communication objects.

7.9.4.2.4 Automatically Calculate Period of Partial Duration Test with Rated Time

This parameter determines **whether** the partial duration test period is **calculated automatically**.

- **No** - The partial duration test time is set manually.
- **Yes** - Gateway reads the battery's nominal operating time (DALI Cmd 249) from the emergency converter and automatically calculates the partial duration test time.

When automatic calculation is used, the test duration is set to approximately **10%** of the battery's nominal operating time.

7.9.4.2.5 Apply "Inhibit/Rest mode"

This parameter determines whether the emergency lighting converter complies with the **Inhibit/Rest Mode** function.

- **Yes** - The converter evaluates inhibit/rest mode commands and can switch to these modes based on commands sent via the gateway. This allows the emergency lighting function to be temporarily disabled.
- **No** - The converter ignores inhibit/rest mode commands.

This function can be used specifically during commissioning or construction phases to preserve battery life.

Note: To use this function, the **Activate emergency lighting Inhibit/Rest mode** communication object must be enabled on the relevant output.

7.9.4.2.6 Include Automatic Function Test

This parameter determines whether the emergency lighting converter will run an **automatic function test**.

- **Yes** - The emergency lighting converter runs the automatic function test. The test interval is determined by the relevant Test Cycle parameter.
- **No** - The converter does not run the automatic function test. The test can only be initiated via KNX using Trigger emergency lighting test communication objects.

7.9.4.2.7 Include Automatic Duration Test

This parameter determines whether the emergency lighting converter will run **automatic duration or partial duration tests**.

- **Yes** - The converter runs automatic duration tests, and the test cycle is determined by the relevant **Test Cycle** parameter.
- **No** - The converter does not run an automatic time test. The test can only be triggered manually via KNX.

7.9.4.2.8 Enable Group Objects

The options opened under Enable Group Objects enable the relevant group objects to manage the emergency lighting test via KNX. The typical flow is to trigger the process with a "start test" telegram and then have the automation monitor the status/result feedback. The following communication objects are available for each declared (from ETS) emergency lighting driver.

Trigger Emergency Lighting Test (CTC)	In	C		W		1-byte	converter test control DPT 20.611
Em. Lighting test results	Out	C	R		T	6-byte	DALI Converter Test results DPT 245.600
Em. Lighting converter status	Out	C	R		T	2-bytes	DALI Converter status DPT 244.600
Em. Lighting battery Info	Out	C	R		T	2-bytes	DALI Battery Info DPT.246.600

7.9.4.2.8.1 Trigger Emergency Lighting Test

This communication object enables the triggering of an emergency lighting test for a specific emergency lighting converter via KNX. The sent value determines which test procedure is to be initiated on the relevant converter or how the current test is to be managed.

Bit	Field	Number of Bits	Description
0-7	Test Control	8	Specifies the test command to be triggered on the emergency lighting converter
0	Reserved	1	Reserved, no action taken
1	Start Function Test	1	Function test is initiated (DALI Cmd 227)
2	Start Duration Test	1	Duration test is initiated (DALI Cmd 228)
3	Start Partial Duration Test	1	Partial duration test is started
4	Stop Test	1	Running test is stopped (DALI Cmd 229)
5	Reset Function Test Done Flag	1	Function test complete flag reset (DALI Cmd 230)
6	Reset Duration Test Complete Flag	1	Duration test completed flag is reset (DALI Cmd 231)
7-255	Reserved	—	Reserved, not used

Table 13: Trigger Emergency Lighting Test Command Table

7.9.4.2.8.2 Emergency Lighting Test Result

This communication object transmits the results of the last tests performed by the emergency lighting converter to the KNX bus. The transmitted data structure is 6 bytes long and contains additional status information regarding the results of the last function test, duration test, and partial duration test.

The telegram may also contain information about error conditions that occurred during the test, whether the test was successfully completed, and the battery status.

Bit No.	Features	Number of Bits	Description
0-3	0: Reserved 1: Function test completed successfully within the maximum delay time 2: Function test successful but maximum delay time exceeded 3: Function test failed 4: Function test failed and maximum delay time exceeded 5: Function test was terminated	4	LTRF (Last Function Test result)
4-7	0: Reserved 1: Duration test successfully completed within maximum delay time 2: Duration test successful but maximum delay time exceeded 3: Duration test failed 4: Duration test failed and the maximum delay time was exceeded 5: Duration test was terminated	4	LTRD (Last Duration Test result)
8-11	0: Reserve 1: Partial duration test successfully completed within the maximum delay time 2: Partial duration test successful but maximum delay time exceeded 3: Partial duration test failed 4: Partial duration test failed and maximum delay time exceeded 5: Partial duration test was terminated	4	LTRP (Last Partial Duration Test result)
12	Reserve	1	Reserve
13	Reserve	1	Reserve
14	Reserve	1	Reserve
15	Reserve	1	Reserve
16-17	0: Reserve 1: Automatically triggered 2: Manually triggered	2	SF (Function test trigger method)
18-19	0: Reserved 1: Automatically triggered 2: Manually triggered	2	SD (Duration test trigger method)

20-21	0: Reserved 1: Automatically triggered 2: Manually triggered	2	SP (Partial duration test triggering method)
22	Reserve	1	Reserve
23	Reserve	1	Reserve
24-39	Displays the measured battery discharge time after a successful duration test	16	LDTR (Last Duration Test result - discharge time)
40-47	0: Battery empty 254: Battery full 255: Battery level query not supported by emergency lighting converter	8	LPDTR (Last Partial Duration Test result - battery level)

Table 14: Emergency Lighting Test Results Status Table

7.9.4.2.8.3 Emergency Light Converter Status

When this parameter is enabled, the general status information of the emergency lighting converter is transmitted to the KNX bus. The gateway periodically polls the emergency lighting converter device on the DALI bus and sends the obtained status information to the KNX system via the relevant communication object.

- Communication Object - Emergency Light Converter Status

Function: Reports the operating and status information of the emergency lighting converter device to the KNX bus.

Bit	Field	Bit	Description
0-5	DALI Address	6	Emergency converter DALI short address
6	Reserved	1	Not used
7	Status Request	1	0 = Reset value sent 1 = Status queried
8-10	Test Type	3	0 = No test, 1 = Function test, 2 = Duration test, 3 = Partial duration test, 4 = Battery query, 7 = ECG is not DT1
11-12	Test Status	2	0 = Test completed, 1 = Test pending, 2 = Test running, 3 = Test interrupted
13	Manual Start	1	Test started manually
14	Lamp Fault	1	Lamp fault
15	Device Fault	1	Device Fault

Table 15: Emergency Light Converter Status Table

7.9.4.2.8.4 Emergency Light Battery Status

When this parameter is enabled, status and charge level information about the emergency lighting battery is sent to the KNX bus. The gateway periodically reads the battery information from the DALI bus and transmits it to KNX via the relevant communication object. The relevant communication object appears when the Emergency Light Battery Status parameter is active for each emergency ECG.

- Communication Object - Emergency Light Battery Status

Function: Reports the emergency converter battery status and battery charge level to the KNX bus.

7.9.4.2.8.5 Send Battery Level

Determines under which conditions the battery level is sent to the KNX bus.

- Read Only - The value is only read and sent.
- 2% change - Sent when the battery level changes by 2%.
- %5 change - Sent when the battery level changes by 5%.
- 10% change - Sent when the battery level changes by 10%.

Bit	Field	Number of Bits	Description
0-4	Reserved	5	Not used
5	Battery Failure	1	Battery failure
6	Battery Duration Failure	1	Battery duration error
7	Battery Fully Charged	1	Battery fully charged
8-15	Battery Charge Level	8	Battery charge level 0: deep discharge, 254: fully charged, 255: unknown/not supported

7.9.4.2.8.6 Emergency Lighting Converter Combined with Standard ECG ()

This parameter determines whether the emergency lighting converter also includes a standard DALI ECG (control gear).

Some emergency lighting converter devices only provide emergency lighting functions. However, some devices also include a DALI ECG that provides normal lighting control in addition to the emergency lighting module. This parameter determines whether the gateway will evaluate the device as only an emergency lighting device or also as a standard ECG.

- No The emergency lighting converter is evaluated only for emergency lighting functions. The device is not treated as a standard DALI ECG, and normal lighting control commands are not used.
- Yes The emergency lighting converter also includes a standard DALI ECG. In this case, the device also supports normal lighting control functions and is processed by the gateway as a standard DALI control gear.

7.9.5 Scenes

The Scenes section allows 16 DALI scenes per output/channel to be integrated into the KNX scene logic. Each scene is created with members (scene members) selected from the ECG and/or Group elements on the same channel/output, and each member can be part of multiple scenes. When a scene is called, the brightness and/or color values defined for the selected members are applied via the scene mechanism in the DALI standard. Even if both ECG and Group have different starting levels in the same scene, Transition Time ensures that they reach the target scene values simultaneously.

Note: Scene members must only be selected from the same channel/output. If a "single scene behavior" containing elements from different outputs is desired, a separate scene must be defined for each output and triggered together with a common KNX group address.

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Scenes

+ General	Use Scene - 1	☒ No ☐ Yes
- Channel - A	Use Scene - 2	☒ No ☐ Yes
DALI Configuration	Use Scene - 3	☒ No ☐ Yes
+ Channel Configuration	Use Scene - 4	☒ No ☐ Yes
+ Templates for Groups & ECGs	Use Scene - 5	☒ No ☐ Yes
Scenes	Use Scene - 6	☒ No ☐ Yes
	Use Scene - 7	☒ No ☐ Yes
	Use Scene - 8	☒ No ☐ Yes
	Use Scene - 9	☒ No ☐ Yes
	Use Scene - 10	☒ No ☐ Yes
	Use Scene - 11	☒ No ☐ Yes
	Use Scene - 12	☒ No ☐ Yes
	Use Scene - 13	☒ No ☐ Yes
	Use Scene - 14	☒ No ☐ Yes
	Use Scene - 15	☒ No ☐ Yes
	Use Scene - 16	☒ No ☐ Yes

7.9.5.1 Use Scene - n (1...16)

When the Use Scene - n option is Yes, the relevant scene is activated within the channel scope; when No is selected, the scene is not used. Activated scenes can be called/saved by KNX to match the 16 scenes on the DALI side.

7.9.5.2 Scene - n (1...16)

The Scene - n field defines the number under which the scene will be called/saved via KNX, the scene transition time, the savability behavior, and which ECG/Group elements in the scene member table will be controlled with which values.

--- OPT-DGx-111 DALI Gateway / Single-Dual Channel > Channel - A > Scenes > Scene - 1

+ General - Channel - A DALI Configuration + Channel Configuration + Templates for Groups & ECGs - Scenes Scene - 1	Name	Scene - 1								
	Scene Index	1								
	Transition Time	0.7 sec								
	Scene Can be Saved	☒								
	Overwrite Scene to Saved ECG on KNX Download	☒ No ☐ Yes								
	Scene Priority Over Blocked/Forced Operation	☒ Low ☐ High								
		Scene - 1	Name	Type	Particip...	Change Brightn...	Value	Change Color	Value	White Value

7.9.5.2.1 Name

Name defines the name of the scene as it appears in ETS and allows scenes to be separated according to their functional purposes (e.g., "Meeting," "Cleaning," "Presentation") during commissioning.

7.9.5.2.2 Scene Index

Scene Index specifies the KNX scene number of the scene and is assigned in the range 1...64. Scene call/save operations on the KNX side are performed using this number.

In the telegram flow, when the Scene Index value is retrieved via the group object, the scene is called and the values of the members in the scene are applied. To save the scene, the same number is sent with the 7th bit set to 1, triggering the "store" operation; if Scene Can be Saved is enabled, the device writes the current (instantaneous) values of the relevant members to the scene memory.

Example bit stream:

0b0000_0001 → Calls scene with Scene Index = 1.

0b1000_0001 → Records Scene Index = 1.

7.9.5.2.3 Transition Time

Transition Time defines how many seconds it takes for scene members to reach the scene values from their current levels after the scene is called. It is selected in seconds (sec) in ETS; in the screen example, the value is 0.7 sec and the default value is 0.7 sec.

In DALI scene behavior, transition time ensures that multiple members with different starting levels reach the target scene brightness simultaneously. For example, if one member dims from 10% to 100% while another dims from 90% to 100%, both will reach the scene value simultaneously when the same Transition Time is selected.

7.9.5.2.4 Scene Can be Saved

When Scene Can be Saved is checked, the scene becomes "savable," and when the store command is received, the instantaneous values of the scene members are saved to the scene; if unchecked, the store command is not processed. s allow the "current" values set by the user/automation in the field to be recalled later with the same scene number; non- s work with fixed (parameterized) values entered in ETS.

7.9.5.2.5 Overwrite Scene to Saved ECG on KNX Download

Overwrite Scene to Saved ECG on KNX Download determines whether the scene values defined parametrically in ETS will be transferred to the device after the KNX download (application/program download) and whether the scene values previously saved via KNX will be preserved.

- When No is selected, scene values previously saved via KNX are preserved after download and are not overwritten by scene values from ETS.
- When Yes is selected, after download, scene values defined in ETS are transferred to the device and can overwrite saved scene values.

If you want to preserve scenes created by users in the field using "store," select No.

7.9.5.2.6 Scene Priority Over Blocked/Forced Operation

Scene Priority Over Blocked/Forced Operation determines the priority of applying the scene call to the channel when the channel is under Blocked or Forced operation.

- When High is selected, the scene call can behave as a priority despite the block/forced status and transmit the scene values to the channel.
- When Low is selected, block/forced behavior remains the priority and scene calls can be suppressed.

If critical operating scenes (e.g., emergency usage scenarios) are required to activate under all conditions, the High option is used.

7.9.5.2.7 Scene Table

The Scene Table defines the scene's member list and the values to be applied in the scene call for each member. Rows without the Participate checkbox are not affected by the scene call; in checked rows, the brightness and/or color value fields become active.

7.9.5.2.7.1 Name

Name displays the ETS name information of the element listed in the scene.

7.9.5.2.7.2 Type

Type shows the device type of the element (e.g., DT6/DT8). Color-related fields are available for DT8 type; DT6 primarily works with brightness scene logic.

7.9.5.2.7.3 Participate

When Participate is checked, the element becomes a member of the relevant ECG/Group scene, and values are applied to this element when the scene is called. When unchecked, the element is not evaluated within the scene scope.

7.9.5.2.7.4 Change Brightness

When Change Brightness is set to Yes, the brightness value is changed in the scene call; when set to No, the element's brightness is not affected by the scene call. Scenes containing only color or only brightness are distinguished by this selection.

7.9.5.2.7.4.1 Value

Value defines the brightness value to be applied when Change Brightness is set to Yes. The brightness value is evaluated in the range 0...100% (including 0% OFF in DALI dimming). When the scene is called, the element reaches this target brightness with the Transition Time.

7.9.5.2.7.5 Change Color

When Change Color is set to Yes, the color value is changed in the scene call; when set to No, the element's color is not affected by the scene call. Color control is only meaningful depending on the color control type of the relevant element (e.g., DT8 TW, DT8 RGB/RGBW).

7.9.5.2.7.5.1 Value

Value defines the target color to be applied when Change Color is set to Yes.

- In a TW (tunable white) scenario, the target value is evaluated in the 1,000...20,000 range using Kelvin/CCT logic.
- In the RGB scenario, the target value is applied using the color selection logic (e.g., #000000...#FFFFFF).

7.9.5.2.7.5.2 White Value

White Value defines the target value of the white component in scene calls in structures where the white channel is managed separately, such as RGBW/HSVW; the value range is 0...255. To manage color saturation and perceived brightness more stably, it is preferable to include the white channel separately in the scene, especially in scenes requiring pastel tones or high lumens.

If you wish, as a next step, I can also format the documentation so that the same underlying text can be copied for "Scene - 2...16" (only the "n" indices change).



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