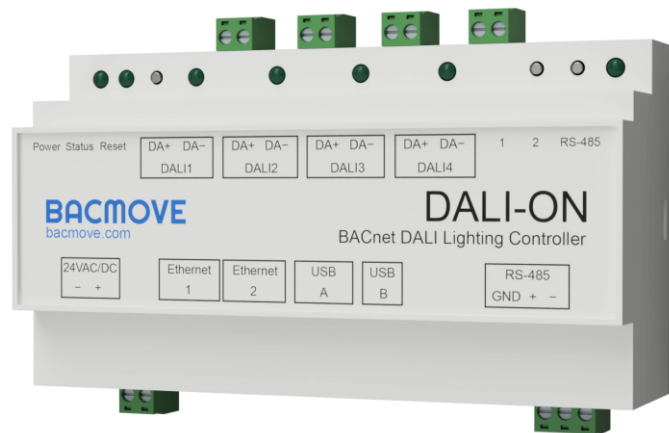


User Manual

Version 1.10.10



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This information can be modified without notice.

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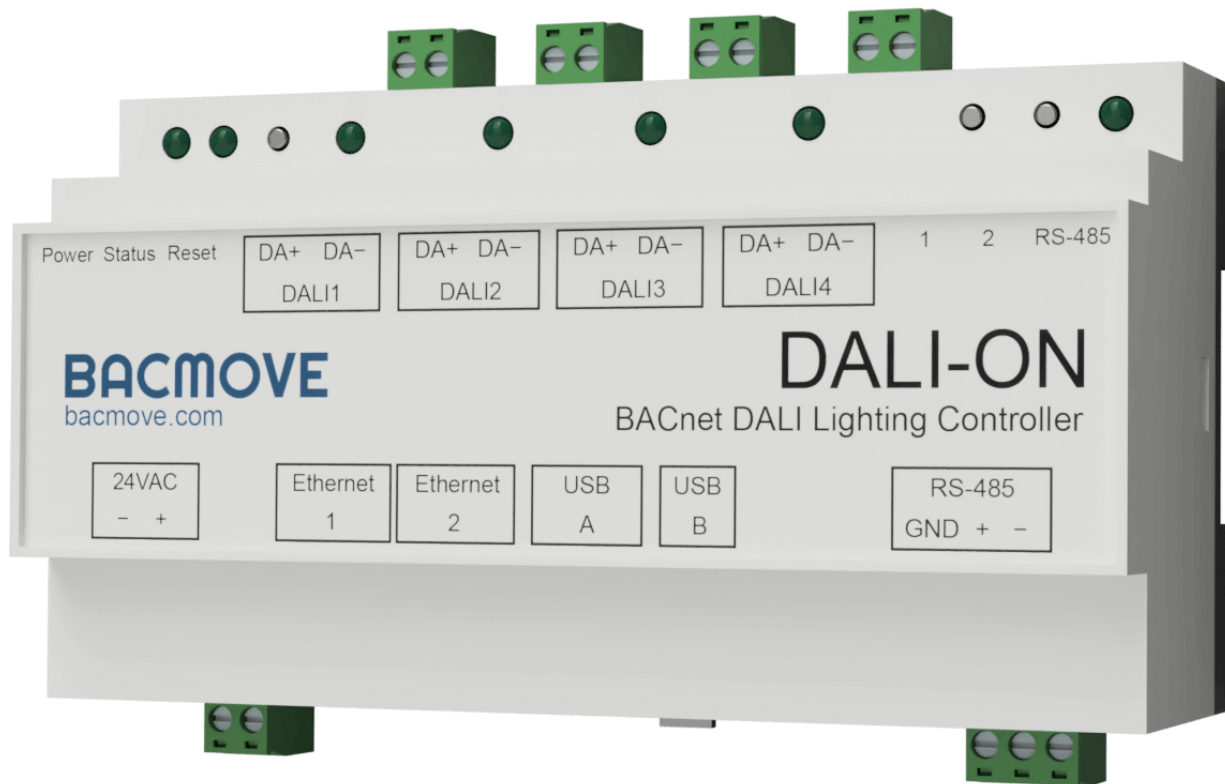
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1 DALION

The DALION controller allows bidirectional communication between DALI devices (Digital Addressable Lighting Interface, IEC 62386) and BACnet systems. It integrates many functionalities to ease the installation of DALI systems with BACnet networks.



2 Introduction

The DALION controller allows bidirectional communication between DALI devices (Digital Addressable Lighting Interface, IEC 62386) and BACnet systems. It integrates many functionalities to ease the installation of DALI systems with BACnet networks.

The DALION-4 gateway is equipped with four independent DALI channels. DALION can control up to 256 DALI devices. This is 64 devices with 16 groups and 16 scenes per channel. Each channel requires a separated DALI power supply.

It can also integrate up to 32 DALI-2 input devices (control devices) per DALI channel. Light sensors, occupancy sensors and buttons can be configured via the web interface and made accessible to BACnet.

The BACnet/IP protocol uses the Ethernet interface to communicate. DALI's channels, groups, lamps, and scenes are accessible through BACnet standard objects such as Analog Output, Analog Input, Multi-State Output, etc.

The DALION commissioning and configurations are performed via an integrated and responsive web interface. The user interface is accessible from a modern internet browser on several electronic devices such as computers, iPhone, Android and tablets. Therefore, no additional software installation is required.

2.1 Related documents

Available from the website:

- DALION datasheet
- PICS

2.2 List of abbreviations

Abbreviation	Description
100BASE-T	100 Mbps Ethernet with RJ-45 connector
BACnet	Building Automation and Control Network
BBMD	BACnet Broadcast Management Device
BDT	BACnet Broadcast Distribution Table
COV	BACnet Change of Value service
DALI	Digital Addressable Lighting Interface, IEC 62386
DHCP	Dynamic Host Configuration Protocol
DiiA	Digital Illumination Interface Alliance
DNS	Domain Name Server
IP	Internet Protocol
JSON	JavaScript Object Notation
LAN	Local Area Network
MAC	Medium Access Control
NaN	Not a Number
UI	User Interface

2.3 Specifications

Model	DALION-4
Power supply	24 VAC $\pm 10\%$, 50-60 Hz or 24 VDC $\pm 10\%$
Power consumption	200 mA typical, up to 700 mA with an USB accessory
DALI channels	4, low voltage DALI bus, external power supply
Ethernet interface	2, RJ45 Port, 100BASE-T, BACnet/IP, HTTP
RS-485	1, EIA-485, isolated
USB console port	Mini Type-B USB 2.0, isolated
USB accessory port	Type-A USB 2.0
Button	User button 1, user button 2, reset button
LED Indication	Power supply, system status, DALI channels, RS-485, Ethernet
Firmware	Upgradable firmware
Operating temperature	0 °C to 45 °C (32 °F to 113 °F)
Operating humidity	5 to 90%, no condensation
Dimension	157 x 86 x 59 mm, 6.181" x 3.386" x 2.323" (L x W x H)
Weight	• g
Fixation	DIN rail

Enclosure material	Light gray, UL 94 V-0
Protection	IP20

2.4 Software Specifications

Name	Description
Protocols	BACnet/IP, DALI, HTTP
DALI Lamps	64 per DALI channel
DALI-2 Inputs	32 per DALI channel (*)
Schedules	4 weekly schedules with 6 events per day

(*) For light sensors and occupancy sensors, only the first instance of a control device is available. For buttons all 32 possible instances of a control device are available.

2.5 DALI Types Supported

List of supported DALI (IEC 62386) device types.

Name	Type	Note
Fluorescent lamps – 201	device type 0	
Self-contained emergency lighting – 202	device type 1	
D.C. voltage – 206	device type 5	
LED modules – 207	device type 6	
Switching function – 208	device type 7	
Colour control – 209	device type 8	xy-coordinate, colour temperature Tc, primary N and RGBWAF
Input devices – Push buttons	301	
Input devices – Occupancy sensor	303	
Input devices – Light sensor	304	

2.6 BACnet Objects

List of available BACnet objects.

Name	Usage
Device	
Analog Input	Feedback for the lamps, groups and channels. Value of light sensors
Analog Output	Commands for the lamps, groups and channels
Multi-state Output	Scenes controllers
Multi-state Input	Scene feedback of group and channel
Binary Input	Occupancy sensors value
Notification Class	Alarms
Schedule	Schedules

2.7 BACnet Services

List of available BACnet services.

BACnet Service	Initiate	Execute
I-Am	x	
Who-Has	x	
Who-Is	x	
DeviceCommunicationControl		x
ReinitializeDevice		x
ReadProperty		x
ReadPropertyMultiple		x
WriteProperty		x
WritePropertyMultiple		x
SubscribeCOV		x
ConfirmedCOVNotification	x	
UnconfirmedCOVNotification	x	
TimeSynchronization		x
UTCTimeSynchronization		x
AcknowledgeAlarm		x
GetAlarmSummary		x
GetEventInformation		x
AtomicReadFile		x
AtomicWriteFile		x

2.8 Ordering information

Model Number	Model Description
DALION-4	BACnet/IP - DALI, DALION controller with 4 DALI channels

3 Hardware Installation

3.1 Warnings

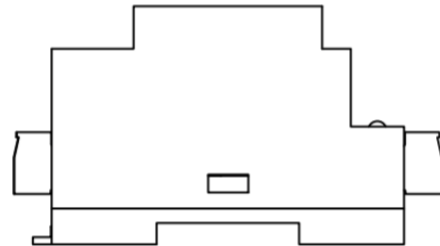
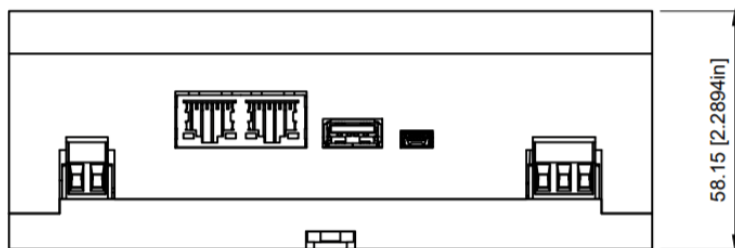
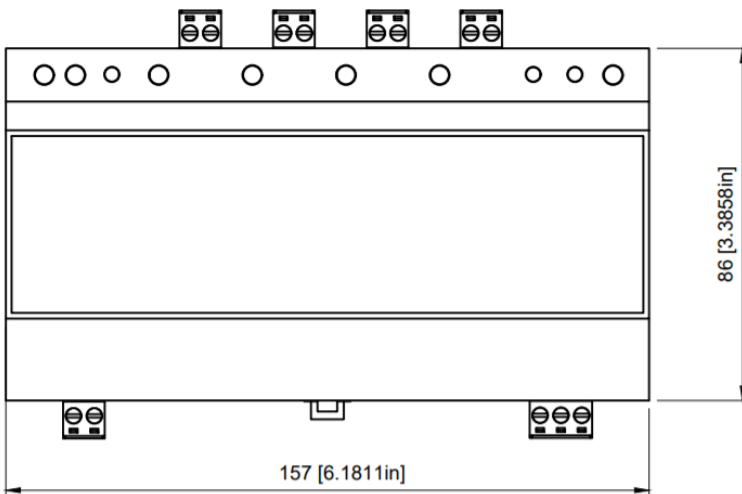
3.1.1 RISK OF ELECTRIC SHOCK



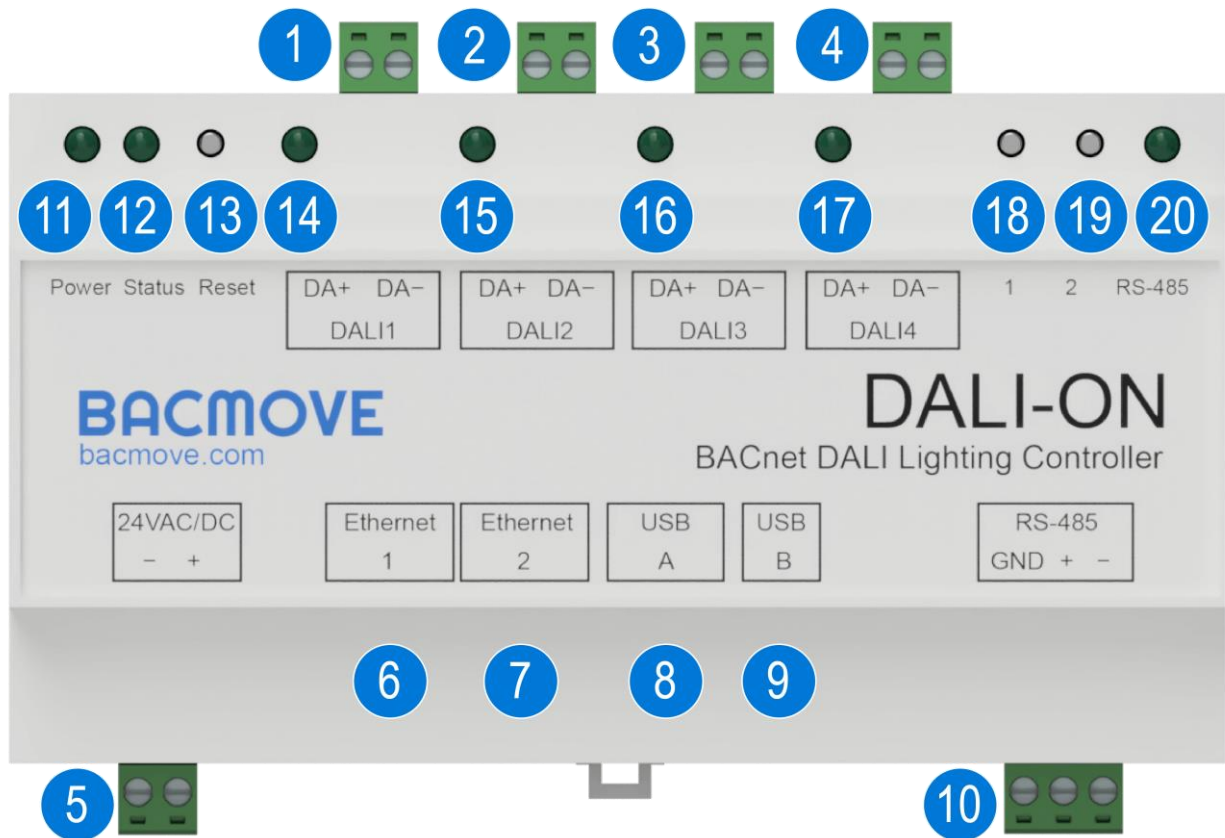
- THE CONTROLLER MUST ONLY BE INSTALLED BY QUALIFIED PROFESSIONALS IN ACCORDANCE WITH APPLICABLE NATIONAL AND LOCAL LAWS AND REGULATIONS.
- FOR INDOOR USE ONLY.
- DO NOT CONNECT THE MAINS/LINE VOLTAGE TO ANY CONNECTOR ON THE CONTROLLER.
- THE CONTROLLER IS INTENDED TO BE INSTALLED INSIDE A CONTROL PANEL OR A BOX AND MUST NOT BE ACCESSIBLE FROM THE OUTSIDE.
- DO NOT COVER THE CONTROLLER WITH OTHER MATERIALS DURING USE.
- KEEP WATER AND OTHER LIQUIDS AWAY FROM THE CONTROLLER.

3.2 Dimension

The dimensions are 157 x 86 x 59 mm, 6.181" x 3.386" x 2.323" (L x W x H).



3.3 Connectors



1. DALI Channel 1 connector
2 position pluggable terminal blocks header of 5.08 mm [0.200"].
2. DALI Channel 2 connector
2 position pluggable terminal blocks header of 5.08 mm [0.200"].
3. DALI Channel 3 connector
2 position pluggable terminal blocks header of 5.08 mm [0.200"].
4. DALI Channel 4 connector
2 position pluggable terminal blocks header of 5.08 mm [0.200"].
5. 24 VAC/DC power supply connector
2 position pluggable terminal blocks header of 5.08 mm [0.200"].
6. First Ethernet connector
RJ45 connector. Connect the LAN Ethernet network to this port.
7. Second Ethernet connector
RJ45 connector. Switch port with the first Ethernet connector.
8. USB host connector
USB 2.0 - A connector. For connecting a USB accessory.

9. USB device connector
USB 2.0 - Mini-B connector. For the USB console.
10. RS-485 connector
3 position pluggable terminal blocks header of 5.08 mm [0.200"].
11. Power LED indicator
This LED indicator is on when the DALION is powered.
12. Status LED indicator
This LED indicator blinks to indicate the status of the DALION.
13. Reset IP button
Operate only with electrically insulated tools. Pressing this button for four (4) seconds will reset the IP configurations to the factory default value.
14. DALI Channel 1 LED indicator
Activity LED indicator for the DALI channel 1.
15. DALI Channel 2 LED indicator Activity LED indicator for the DALI channel 2.
16. DALI Channel 3 LED indicator Activity LED indicator for the DALI channel 3.
17. DALI Channel 4 LED indicator Activity LED indicator for the DALI channel 4.
18. Button 1
Pressing this button sends 100% to all lamps on all DALI channels.
19. Button 2
Pressing this button sends 0% to all lamps on all DALI channels.
20. RS-485 LED indicator Activity LED indicator for the RS-485.

3.4 Power

The DALION must be powered by a 24 VAC or 24 DC power source. It consumes 5 VA when no USB accessory is connected. When a USB accessory is connected, it can consume up to 17 VA.

The supply circuit inside the DALION uses a half-wave rectifier. It can therefore be supplied with the same AC power supply as other devices using a half-wave rectifier. The power supply must be separated from devices using full-wave rectifiers. DC power supply can be shared with other devices.

3.5 LEDs Indicators

3.5.1 Power supply

On when the DALION is powered up.

3.5.2 System status

Blink at an interval of 500 milliseconds to indicate that the DALION is operating properly.

3.5.3 DALI channels

Off when there is no DALI power supply. Lit when there is a DALI power supply. Blinks when DALI packets are received.

3.5.4 RS-485

Blinks when transmitting packets.

3.5.5 Ethernet

3.5.5.1 *Green*

Indicates the Ethernet link and blink when there is network activity.

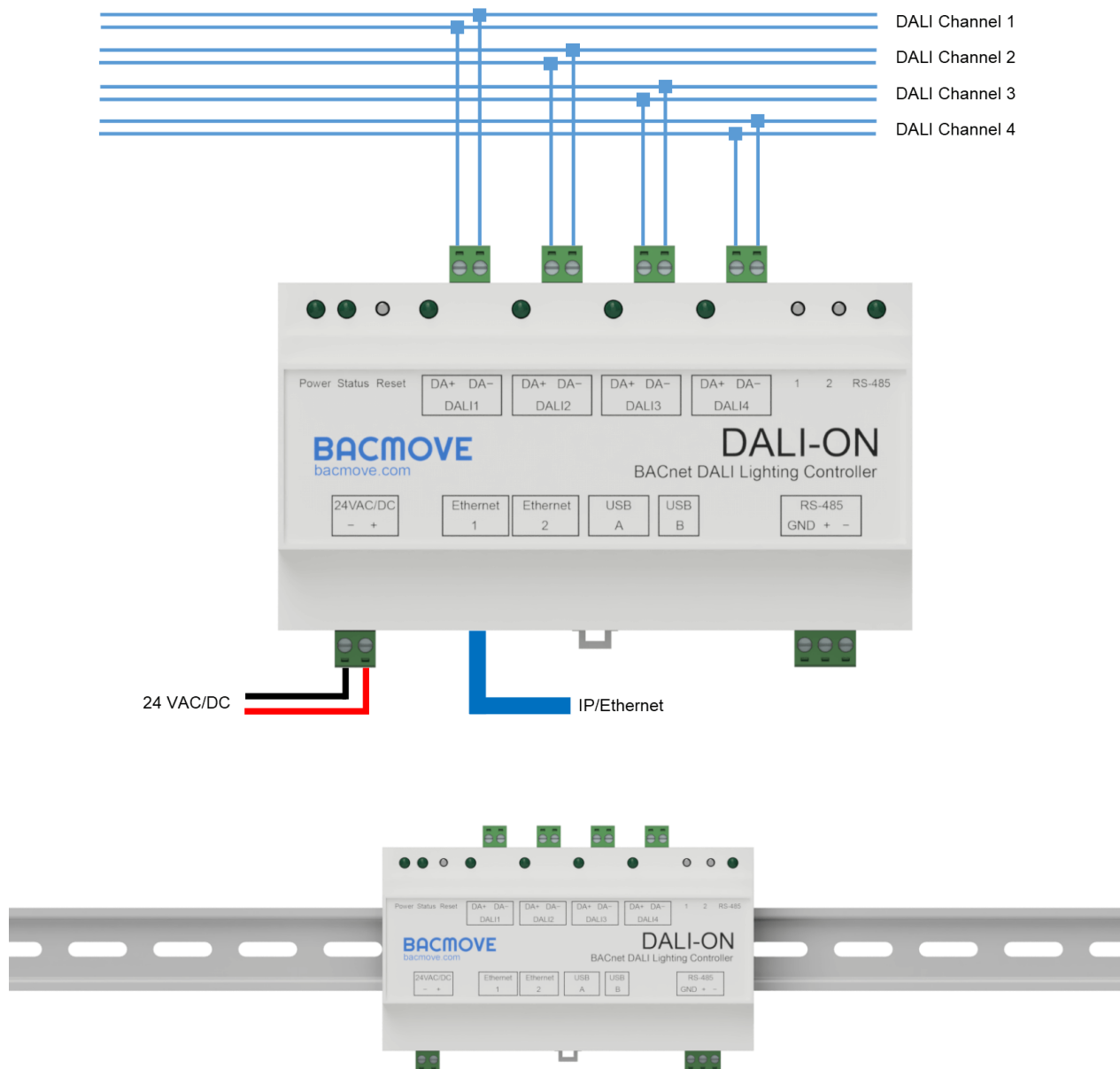
3.5.5.2 *Yellow*

Indicates the Ethernet speed. LED indicator is on for 100 Mbps, LED indicator is off for 10 Mbps.

3.6 Installation

Installation steps:

- Install the DALION with the DIN rail fixation.
- Connect the DALION to the DALI channel bus. An external DALI power supply must be present on the bus.
- Connect the DALION to the LAN Ethernet network.
- Connect the DALION to a 24 VAC transformer Class 2 or a 24 VDC power supply.



3.7 DALI wiring

The bus wiring must be connected in a star topology, a linear topology or a mixture of the two. Wiring must not be carried out in a ring structure. The two wires that serve as the bus must be located in the same cable or cable conduit. In the cable or cable conduit, the two wires must be side by side to avoid unintentional coupling to other signals.

It is recommended to test the integrity of the DALI wiring. With a multimeter verify that there is no main AC voltage on the DALI wires. DALI devices with no protection will normally be destroyed by the main AC voltage.

4 Web User Interface

The web user interface allows modifying system settings as well as performing the DALI devices commissioning.

4.1 Responsive Web Interface

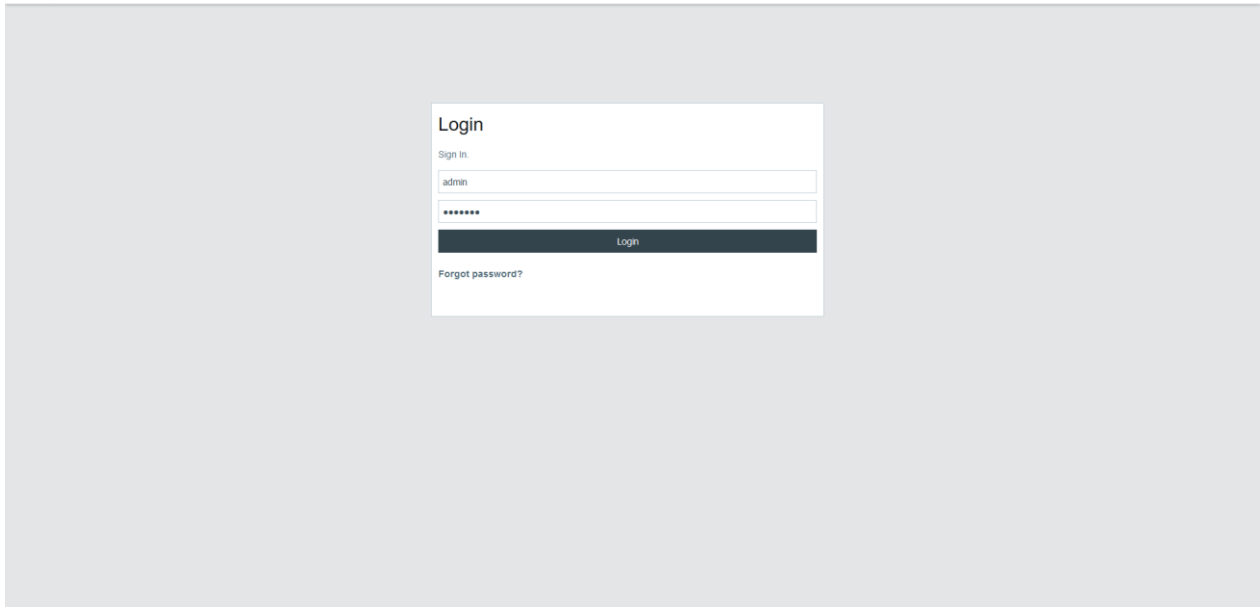
The web user interface adapts to all screen sizes.



To simplify documentation, the following sections show only screenshots on a desktop computer.

4.2 Login

The first page visible when accessing the DALION is the login page.

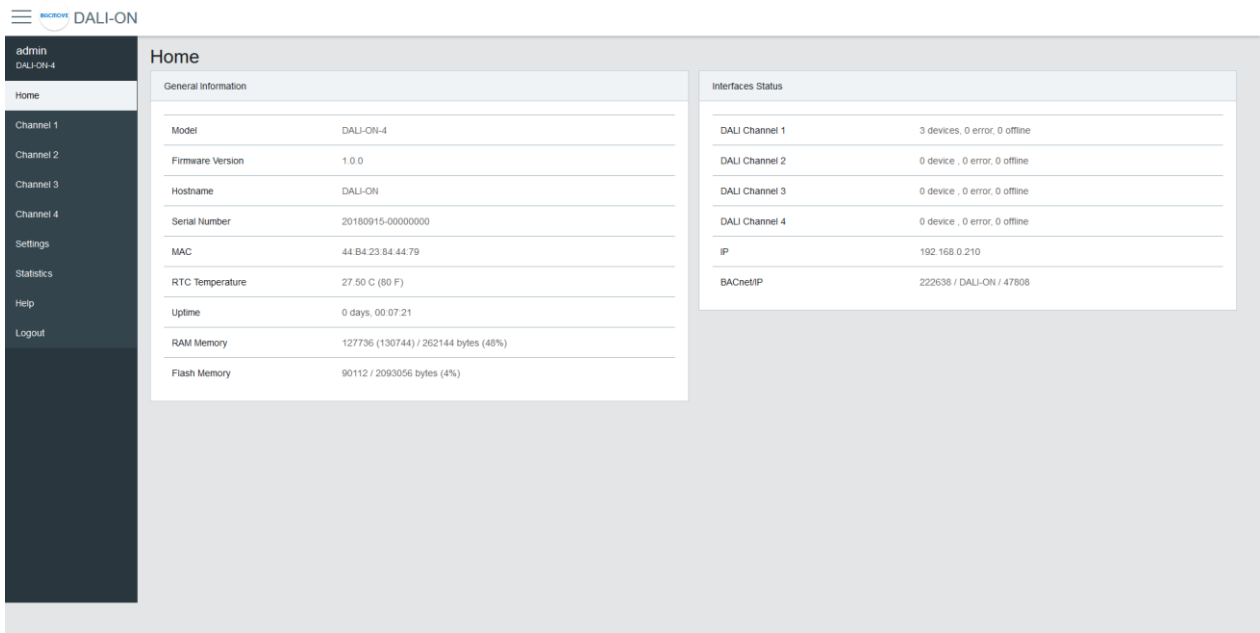


The default login details are as follows.

Username	Password
admin	DALION

If the password or username is lost, it can be recovered through the USB console.

4.3 Home



4.3.1 General Information

This section displays some general information about the system.

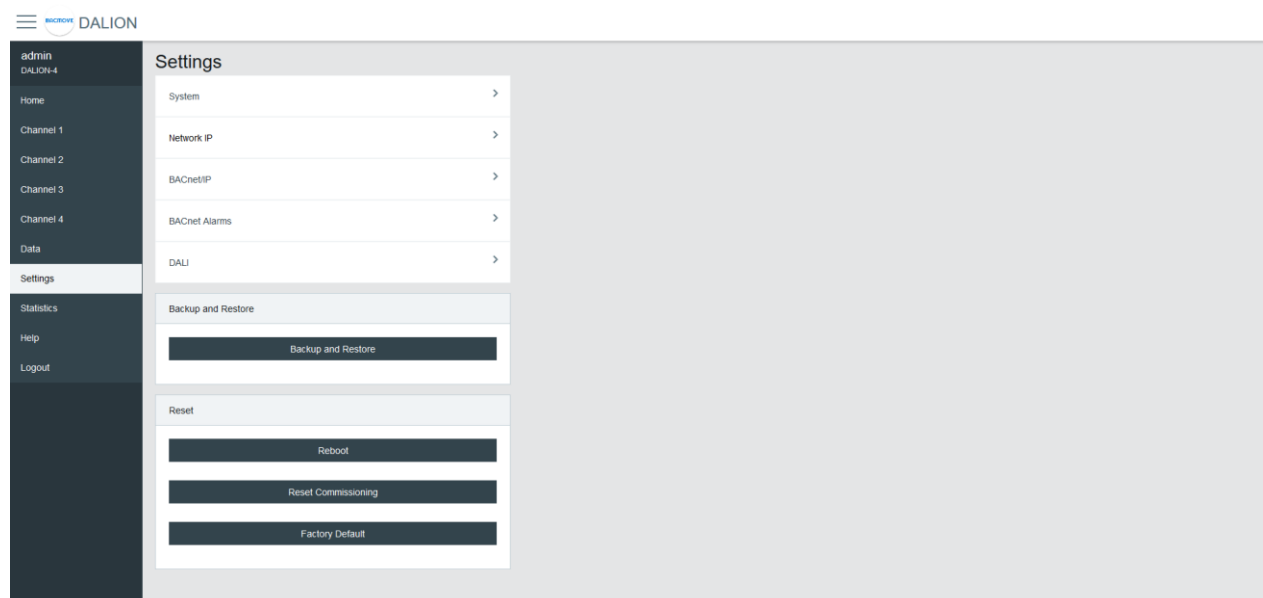
Name	Description
Model	Model name
Firmware Version	Firmware version
Build Date	Date of the firmware build
Hostname	Hostname of the controller
Serial Number	Serial Number
MAC	Ethernet MAC address
RTC Temperature	Current temperature of the controller
Uptime	Time since the last boot of the controller
RAM Memory	Usage of the volatile memory
Flash Memory	Usage of the non-volatile memory

4.3.2 Interfaces Status

This section displays the status of the network interfaces.

Name	Description
DALI Channel 1	Status of the DALI channel 1
DALI Channel 2	Status of the DALI channel 2
DALI Channel 3	Status of the DALI channel 3
DALI Channel 4	Status of the DALI channel 4
IP	Status of the IP network
BACnet/IP	Status of the BACnet/IP interface

4.4 Settings



4.4.1 System

The system settings allow changing the username and password.

The screenshot shows the DALI-ON web interface. On the left is a dark sidebar with a menu containing 'admin', 'DALI-ON-4', 'Home', 'Channel 1', 'Channel 2', 'Channel 3', 'Channel 4', 'Settings' (highlighted), 'Statistics', 'Help', and 'Logout'. The main area is titled 'Settings / System' and features a 'System' configuration box. This box contains three text input fields: 'Username' (pre-filled with 'admin'), 'Password' (with a placeholder 'Enter Password...'), and 'Re-enter password' (with a placeholder 'Re-enter password'). A dark 'Save' button is positioned below these fields.

4.4.2 Date Time

Configuration of the system date and time.

4.4.2.1 Time Source

Manual uses the configured date and time. **BACnet** allows setting the date and time with the BACnet TimeSynchronization and UTCTimeSynchronization services.

4.4.2.2 Local Date

The date to configure in 2021-MM-DD format. Where 2021 is the year, MM is the month, and DD is the day. MM and DD must be preceded by a 0 if they are less than 10.

4.4.2.3 Local Time

The time to configure in HH:MM:SS format. Where HH is hours, MM is minutes, and SS is seconds. They must be preceded by a 0 if they are less than 10.

4.4.2.4 Standard Time Zone Offset

The UTC time offset, for the period of the year when the Daylight Saving Time is not active. The format is [+|-]HH:MM. Where [+|-] indicates the sign of the offset, HH the hours and MM the minutes.

Example

For Eastern Time Zone (EST).

-05:00

4.4.2.5 DST Time Zone Offset

The UTC time offset, for the period of the year when the Daylight Saving Time is active. The format is [+|-]HH:MM. Where [+|-] indicates the sign of the offset, HH the hours and MM the minutes.

Example

For Eastern Daylight Time (EDT).

-04:00

4.4.2.6 DST Start - Week

The week of the month when the Daylight Saving Time period starts.

Example

For Eastern Daylight Time (EDT).

2nd

4.4.2.7 DST Start - Day of Week

The day of the week when the Daylight Saving Time period starts.

Example

For Eastern Daylight Time (EDT).

Sunday

4.4.2.8 DST Start - Month

The month when the Daylight Saving Time period starts.

Example

For Eastern Daylight Time (EDT).

March

4.4.2.9 DST End - Week

The week of the month when the Daylight Saving Time period ends.

Example

For Eastern Daylight Time (EDT).

1st

4.4.2.10 DST End - Day of Week

The day of the week when the Daylight Saving Time period ends.

Example

For Eastern Daylight Time (EDT).

Sunday

4.4.2.11 DST End - Month

The month when the Daylight Saving Time period ends.

Example

For Eastern Daylight Time (EDT).

November

4.4.2.12 Hardware UTC Date Time

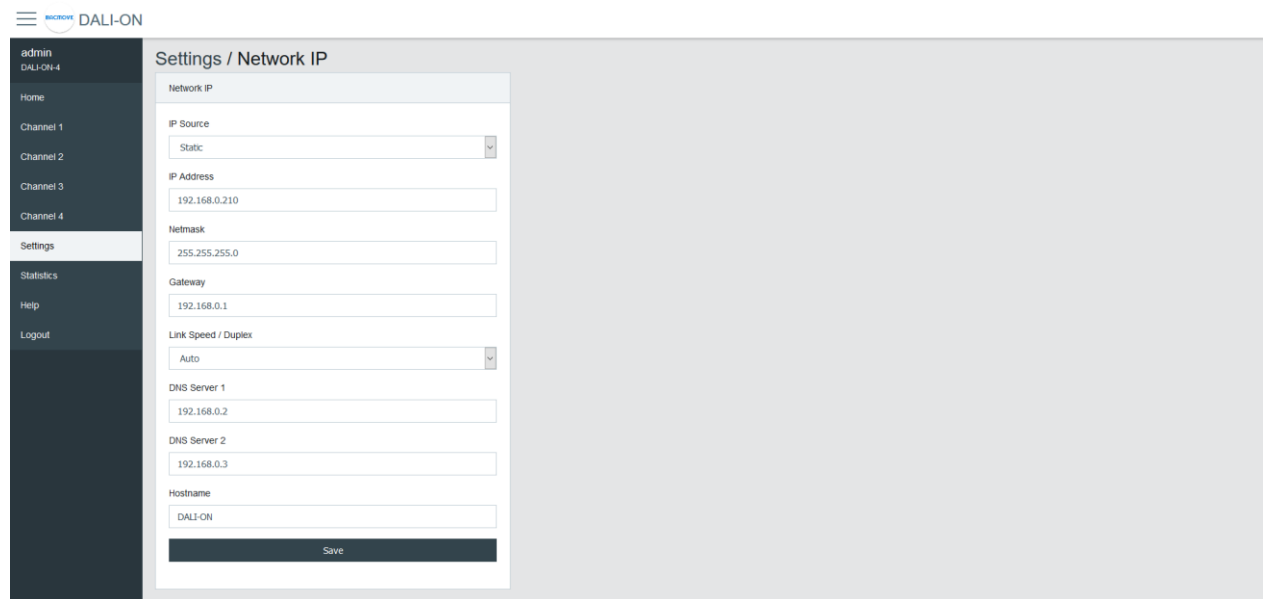
The currently configured UTC date and time.

4.4.3 Network IP

Configuration of the IP interface.

By default, the controller uses the IP address **192.168.0.210**. To access the controller:

- Configure the computer on the same subnetwork.
- Open the DALION web interface with a web browser.



The screenshot displays the DALION web interface. On the left is a dark sidebar with a menu containing 'admin DALION-4', 'Home', 'Channel 1', 'Channel 2', 'Channel 3', 'Channel 4', 'Settings' (highlighted), 'Statistics', 'Help', and 'Logout'. The main content area is titled 'Settings / Network IP'. It contains a form with the following fields: 'IP Source' (a dropdown menu set to 'Static'), 'IP Address' (a text box containing '192.168.0.210'), 'Netmask' (a text box containing '255.255.255.0'), 'Gateway' (a text box containing '192.168.0.1'), 'Link Speed / Duplex' (a dropdown menu set to 'Auto'), 'DNS Server 1' (a text box containing '192.168.0.2'), 'DNS Server 2' (a text box containing '192.168.0.3'), and 'Hostname' (a text box containing 'DALION'). A 'Save' button is located at the bottom of the form.

Name	Unit	Limit	Default	Description
IP Source	Choice	Static, DHCP	Static	Choice of the IP address source
IP Address	IPv4 Address		192.168.0.210	Static IP address
Netmask	IPv4 Address		255.255.255.0	IP network netmask
Gateway	IPv4 Address		192.168.0.1	IP address of the default gateway
Link Speed / Duplex	Choice	Auto, 100F (100 Mbps Full Duplex), 100H (100 Mbps Half Duplex), 10F (10 Mbps Full Duplex), 10H (10 Mbps Half Duplex)	Auto	Ethernet link speed
DNS Server 1	IPv4 Address		192.168.0.2	IP address of the first DNS server
DNS Server 2	IPv4 Address		192.168.0.3	IP address of the second DNS server
Hostname	String	32 characters	DALION	Network hostname

4.4.4 BACnet/IP

Configuration of the BACnet/IP network interface.

admin

DALI-ON 4

Home

Channel 1

Channel 2

Channel 3

Channel 4

Settings

Statistics

Help

Logout

Settings / BACnet/IP

BACnet/IP

Device Instance

222638

Name

DALI-ON

Description

DALI-ON

Location

Enter Location...

APDU Timeout

3000

APDU Retries

3

UDP Port

47808

Network Mode

Device

BBMD IP

0.0.0.0

BBMD Port

47808

BBMD Registration Delay

1800

Save

Name	Unit	Limit	Default	Description
Device Instance	Number	0-4194302	222638	BACnet device object instance number
Device Name	String	32 characters	DALI-ON	BACnet device object name
Device Description	String	32 characters	DALI-ON	BACnet device object description
Device Location	String	32 characters		BACnet device object location
APDU Timeout	Number	0-65535	3000	BACnet APDU timeout
APDU Retry Count	Number	0-65535	3	BACnet APDU Retry Count
UDP Port	Number	0-65535	47808	BACnet/IP UDP Port
BBMD IP	IPv4 Address			IP address of the BBMD server
BBMD Port	Number	0-65535	47808	Port of the BBMD server
BBMD Registration Delay	Seconds	0-65535	300	BBMD Registration Delay

4.4.5 BACnet Alarms

Configuration of the BACnet alarms notifications.

4.4.6 DALI

Configuration of the DALI channels.

4.4.6.1 Mode

- **Normal:** The controller is operating normally.
- **Disable:** The controller is not authorized to communicate on the DALI channel. When the mode is **Disable**, gray bands appear in the background of the associated DALI channel pages.

4.4.6.2 Lamp Command Repeat Count

The commands that affect the light intensity of the lamps can be repeated.

4.4.7 BAS Communication Timeout

In the event of loss of communication between the DALION and another BACnet device such as a BAS (Building Automation System), the DALI channels and groups can reach a specified light brightness. The commands executed when the timeout is reached are configured through the pages of each group and channels.

The screenshot displays the DALION web interface. On the left is a dark sidebar with a menu containing 'admin DALION-4', 'Home', 'Channel 1', 'Channel 2', 'Channel 3', 'Channel 4', 'Data', 'Settings' (highlighted), 'Statistics', 'Help', and 'Logout'. The main content area is titled 'Settings / BAS Communication Timeout'. It features a form for configuring the 'BAS (Building Automation System) Communication Timeout'. The form includes a dropdown menu for 'Enable' (set to 'Enable'), a text input for 'BACnet Device Id' (10100), a text input for 'Initial Delay (seconds)' (60), a text input for 'Delay (seconds)' (900), and a text input for 'Timeout Level (DALI Level 0-255)' (100). A 'Save' button is located at the bottom of the form.

Name	Unit	Limit	Default	Description
Enable	Choice	Enable / Disable	Disable	Enable or disable the communication timeout
BACnet Device Id	Number	0-4194302	0	BACnet device id of the other device (BAS)
Initial Delay	Number	0-4194302	0	Initial Delay in seconds. Used to let time to the other device (BAS) to boot-up
Delay	Number	0-65535	0	Delay in seconds before the communication timeout
Timeout Level	Number	0-255	0	Default light intensity level

4.4.8 Backup / Restore

This page allows to backup and restore the configuration and the commissioning data.

The “**Backup**” section allows downloading configuration files from the controller. The “**Restore**” section allows going back to a previous configuration, with a configuration file downloaded to the controller.

4.4.9 Reboot

This page allows the system to restart. Some configurations, such as network settings, require a system reboot.

4.4.10 Reset Commissioning

This page removes the commissioning data by deleting all lamps, groups, and scenes from the configuration. The commissioning data can be reset for each channel individually.

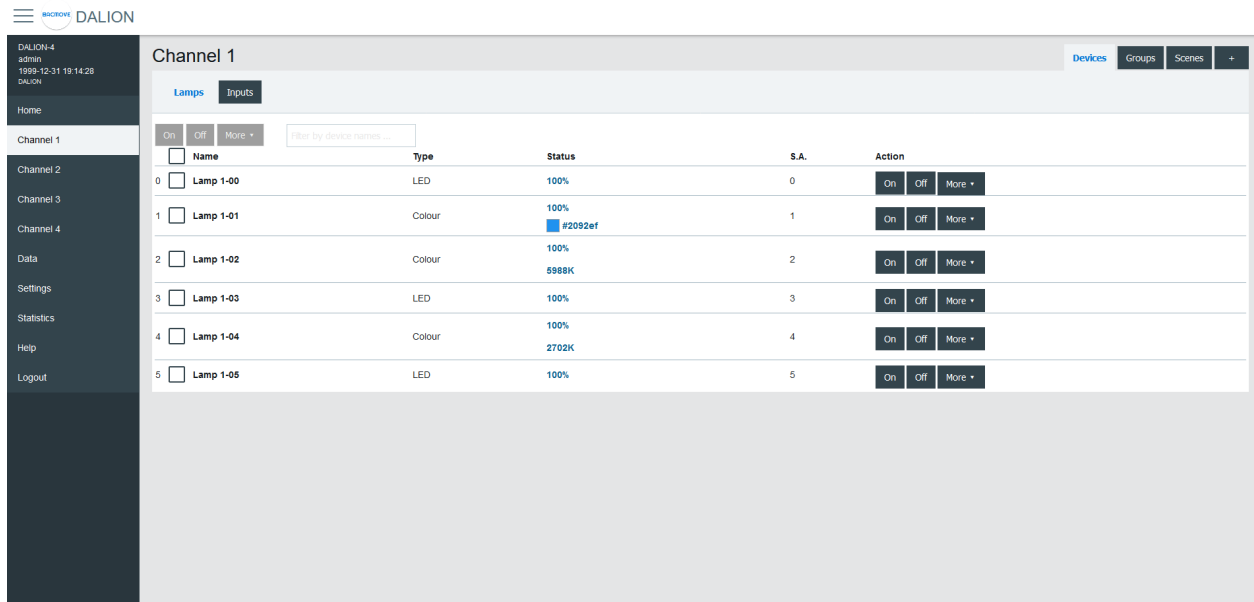
4.4.11 Factory Default

This page allows resetting all settings and commissioning data to their factory default values.

4.5 DALI Commissioning

4.5.1 Lamps

This page displays the list of commissioned lamps. The list provides a descriptive **Name** of each lamp as well as other information like **Actual Level**, **Type** and short address **S.A.**.



Lamps can be turned **On**, **Off** or we can **Set Level** in a percentage of its light intensity. **Notify** helps to identify a lamp by dimming it in a loop between its minimum and maximum light intensity. **Unassign** removes the lamp from the list of lamps while **Delete** also removes the lamp from the list, but also resets its DALI parameters to the default values.

For the lamps with colour control, available with DALI Type 8 (DT8) lamps, the current colour can be modified with **Set Colour**.

By clicking on a lamp row, the Lamp Parameters page opens.

4.5.2 Lamp Parameters

This page allows the configuration of lamp parameters.

admin

DALI-ON 4

Home

Channel 1

Channel 2

Channel 3

Channel 4

Settings

Statistics

Help

Logout

Channel 1 / Lamp 1-01 / Main Office

Parameters

Actual Level %

100

SET

Name

Lamp 1-01 / Main Office

SET

Power On Level %

100

SET

System Failure Level %

100

SET

Minimum Level %

0.1

SET

Maximum Level %

100

SET

Fade Rate steps/s

44.7

SET

Fade Time seconds

4.0

SET

Short Address

11

SET

Run Hours (seconds)

870

SET

Burn-In (seconds)

0

SET

BACnet Object: Analog Output/Input 0

Reliability: 0 (no-fault-detected)

Name	Unit	Minimum	Maximum	Default	Description
Actual Level	Percent	0%	100%		Actual light intensity
Name	String		32 characters		Name of the lamp
Power On Level	Percent	0%	100%	100%	Level of intensity after a power on
System Failure Level	Percent	0%	100%	100%	Level of intensity when system failure
Minimum Level	Percent	0.1%	100%	100%	Minimum level of intensity
Maximum level	Percent	0.1%	100%	100%	Maximum level of intensity
Fade Rate	Choice	2.8	358	44.7	Fade rate in steps per second
Fade Time	Choice	No Fade	90.5	No Fade	Fade time in seconds
Short Address	Number	0	63		The short address
Run Hours	0	65535	1	0	Number of seconds where the lamp was on
Burn-In	0	65535	1	0	Number of seconds remaining to the burn-in
BACnet Object					The BACnet object associated with the lamp
Reliability					Reliability of the lamp

4.5.3 Emergency Parameters

For the lamps of the type “Self-contained emergency lighting (device type 1)”, other parameters are available. When emergency parameters are available, a tab **Emergency** is added.

The screenshot shows the DALION web interface. The top header includes the DALION logo and a user session bar. The left sidebar contains navigation links: Home, Channel 1, Channel 2, Channel 3, Channel 4, Data, Settings, Statistics, Help, and Logout. The main content area is titled 'Channel 1 / Lamp 1-03 / Emergency'. Below this title is a 'Parameters' section with a button labeled 'Identify emergency'. Further down are two settings sections: 'Function Test Settings' and 'Duration Test Settings'. Each section contains input fields for the date and time of the next test, and a dropdown menu for the interval. The 'Function Test Settings' interval is set to 7 days, and the 'Duration Test Settings' interval is set to 2 weeks. Both sections have an 'Apply' button at the bottom.

4.5.3.1 *Identify emergency*

Allows for the identification of the emergency lamp.

4.5.3.2 *Function Test Settings*

Allows the configuration of the interval for the function test.

4.5.3.3 *Duration Test Settings*

Allows the configuration of the interval for the duration test.

4.5.3.4 *Prolong*

Allows for the configuration of the prolong time.

4.5.3.5 *Features*

Show the features bits values.

4.5.3.6 *Emergency Mode*

Show the emergency mode bits value.

4.5.3.7 *Emergency Status*

Show the emergency status bits value.

4.5.3.8 *Failure Status*

Show the failure status bits value.

4.5.3.9 *Timings*

Show to values of the timings.

4.5.3.10 *Other modes*

Allows modifying the inhibit and rest modes.

4.5.4 Colour Parameters

For the lamps with colour control, available with DALI Type 8 (DT8) lamps, other parameters are available. When colour parameters are available, a tab **Colour** is added.

Channel 1 / Lamp 1-01

Parameters

Actual Colour

Level: ☒ 100

Red	Green	Blue
0	127	191

Pick Colour SET

Power On Colour

Level: ☒ 100

Red	Green	Blue
22	142	251

Pick Colour SET

System Failure Colour

Level: ☒ 100

Red	Green	Blue
N/A	N/A	N/A

Pick Colour SET

Gear Features/Status: 255

Name	Description
Actual Colour	Actual colour
Power On Colour	Colour after a power on
System Failure Colour	Colour when system failure
Gear Features/Status	DALI features of the lamp
Colour Type Features	DALI colour features of the lamp
Scenes 1-16	Colour for the scenes 1 to 16
Tc Warmest Kelvin (1)	Warmest colour temperature in Kelvin
Tc Coolest Kelvin (1)	Coolest colour temperature in Kelvin
Tc Physical Warmest (1)	Physical warmest colour temperature in Kelvin
Tc Physical Coolest (1)	Physical coolest colour temperature in Kelvin
RGBWAF Control (2)	RGBWAF Control
RGBWAF Assigned Colour (2)	RGBWAF Assigned Colour

(1) Only available for lamps with the colour type; colour temperature Tc.

(2) Only available for lamps with the colour type; RGBWAF.

4.5.5 Colour Picker

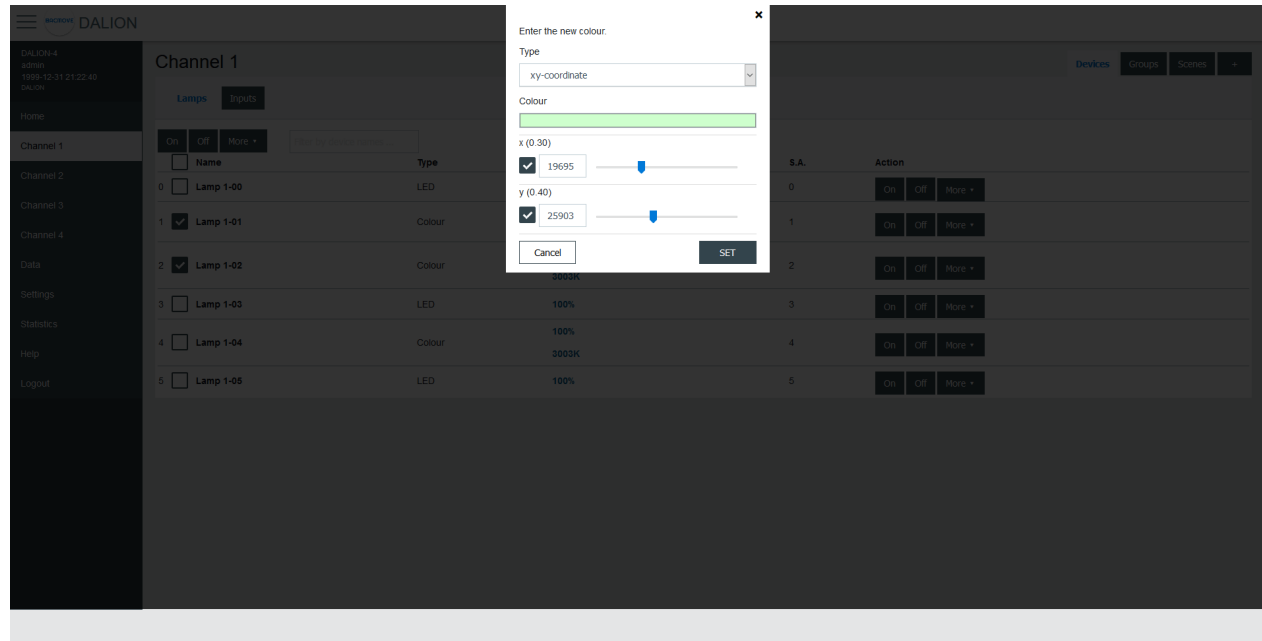
When using **Set Colour** menu or the **Pick Colour** button a window appear to allow choosing the desired colour.

The window allows defining the colour according to the types of colours available for the selected lamp.

When a value is **MASK**, this value is not modified.

For example, it is possible to set only the green colour, without affecting the red and blue colour.

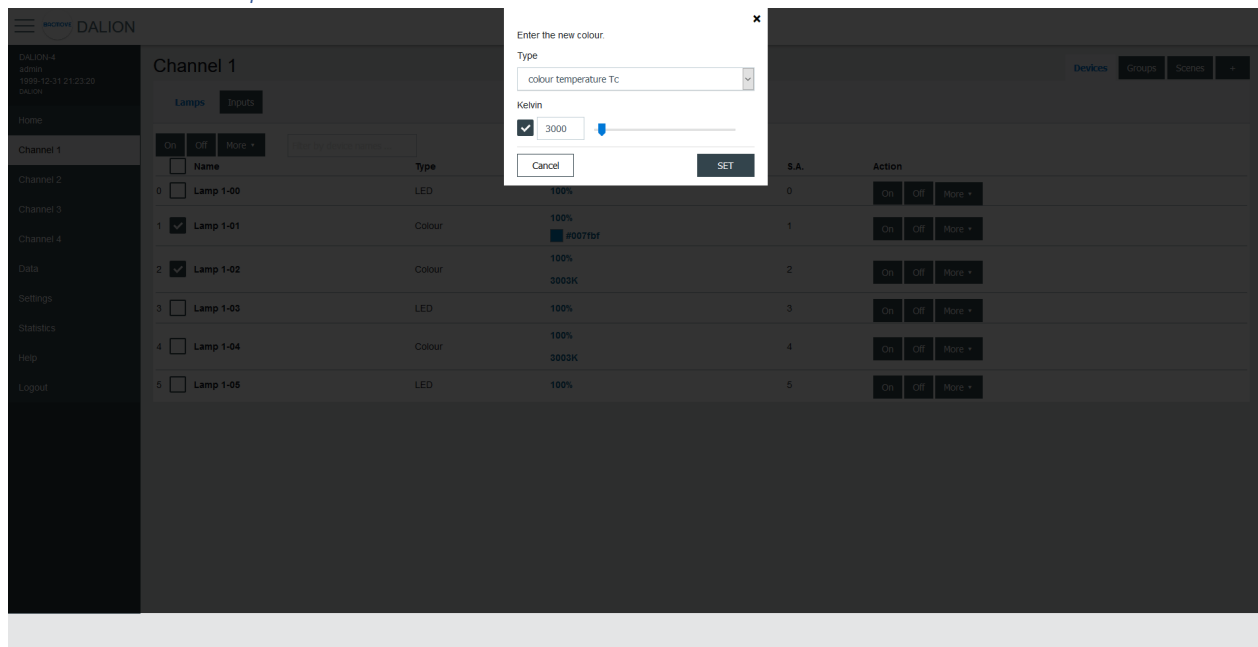
4.5.5.1 xy-Coordinate



Name	Unit	Minimum	Maximum	Default	Description
Colour Preview (1)	RGB				Clicking on the colour will open the browser colour picker.
x	1 / 65536	0	65534		
y	1 / 65536	0	65534		

(1) Colour is for demonstration purposes only, the resulting lamp colour may be different.

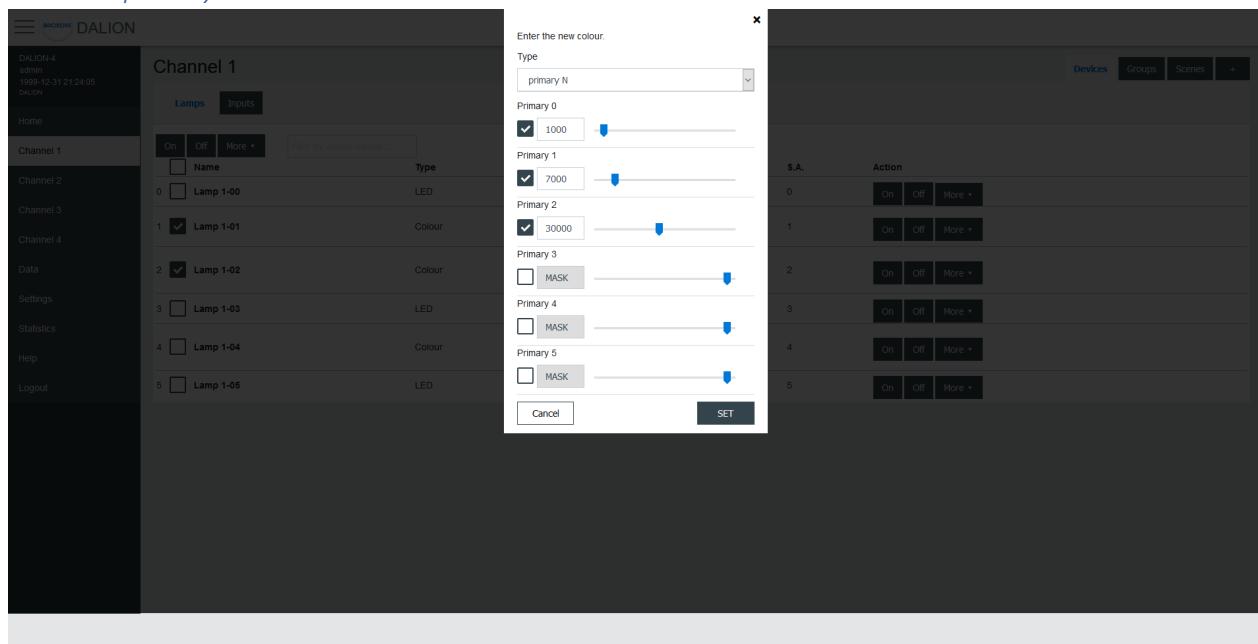
4.5.5.2 colour temperature T_c



Name	Unit	Minimum	Maximum	Default	Description
Kelvin	Kelvin	16 (1)	1 000 000 (1)		Colour temperature in Kelvin

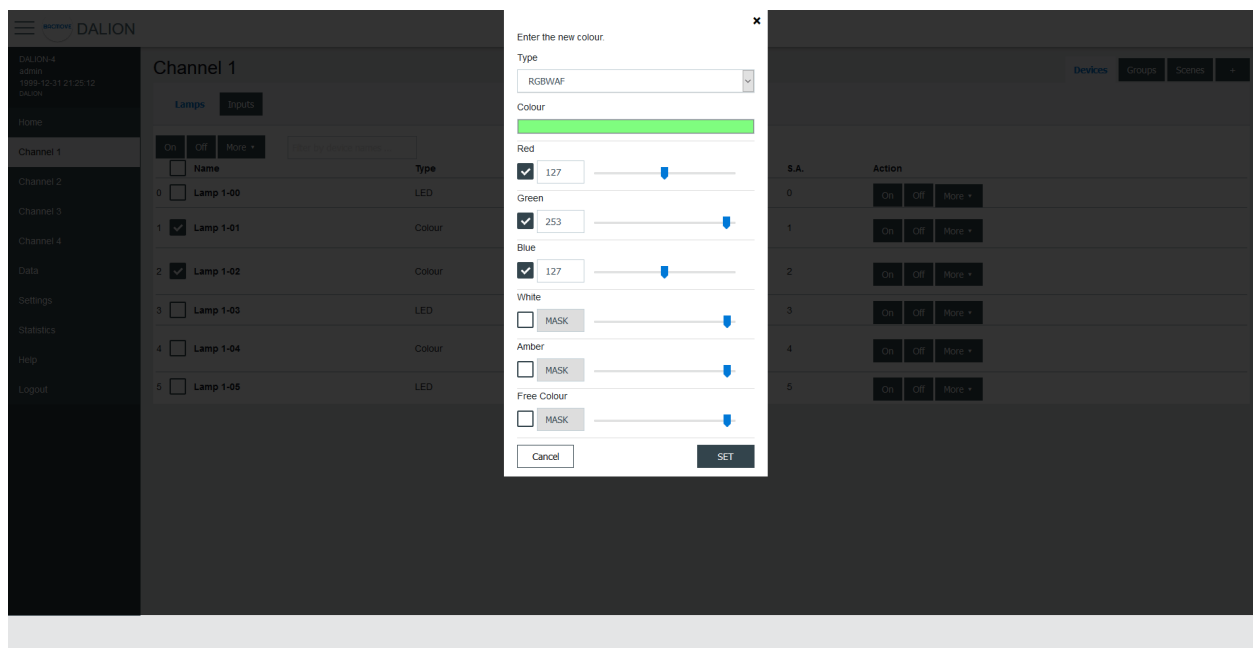
(1) The minimum and maximum Kelvin are also limited by the warmest and coolest parameters.

4.5.5.3 primary N



Name	Unit	Minimum	Maximum	Default	Description
Primary 0-5		0	65534		Primay value

4.5.5.4 RGBWAF



Name	Unit	Minimum	Maximum	Default	Description
Colour Preview (1)	RGB				Clicking on the colour will open the browser colour picker.
Red		0	254		Red colour value
Green		0	254		Green colour value
Blue		0	254		Blue colour value
White		0	254		White colour value
Amber		0	254		Amber colour value
Freecolour		0	254		Freecolour colour value

(1) Colour is for demonstration purposes only, the resulting lamp colour may be different.

4.5.6 Groups

There are 16 groups for the lamps and each lamp can be part of any combination of the 16 groups. This page allows visualization and control of the groups.

The first line is indicated by a * and is the channel. The underlying lines are numbered for the 16 groups.

It is possible to:

- turn **On** or **Off** the group

- **Set Level** of the group intensity
 - **Recall, Store** and **Delete** the group scenes
- By clicking on a group row, the Group Parameters page opens.

Channel 1 / Groups

Groups 1-8 9-16

On	Off	More	Name	Status	Number of devices	Action
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Channel 1	100%	3	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_01 / Offices	100%	3	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_02 / Offices Sales	100%	2	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_03	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_04	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_05	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_06	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_07	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_08	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_09	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_10	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_11	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_12	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_13	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_14	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_15	0%	0	On Off More
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Group 1_16	0%	0	On Off More

4.5.7 Group Parameters

This page allows the configuration of group parameters.

admin
DALION-4
Home
Channel 1
Channel 2
Channel 3
Channel 4
Data
Settings
Statistics
Help
Logout

Channel 1 / Groups / Group 1_00

Parameters

Actual Level %
100
SET

Name
Group 1_00
SET

Power On Level %
MASK
SET

System Failure Level %
MASK
SET

Minimum Level %
Enter Minimum Level %...
SET

Maximum Level %
Enter Maximum Level %...
SET

Fade Rate steps/s
358
SET

Fade Time seconds
No fade
SET

BACnet Object: Analog Output/Input 1000
Reliability: 0 (no-fault-detected)

Name	Unit	Minimum	Maximum	Default	Description
Actual Level	Percent	0%	100%		Actual group intensity
Name	String		32 characters		Name of the group
BACnet Object	String				BACnet object identifier of the group
Reliability	String				BACnet reliability of the group object
BAS Timeout Command	Choice			No Command	The command executed when communication is lost with another BACnet device (BAS). No Command, Off, On or Timeout Level.

Group names provide textual identification for each group. The intensity level of the groups can be changed. Once it is modified, all lamps in the group must reach the same brightness level.

Certain parameters of the DALI lamps can be sent to all the lamps which are part of the group.

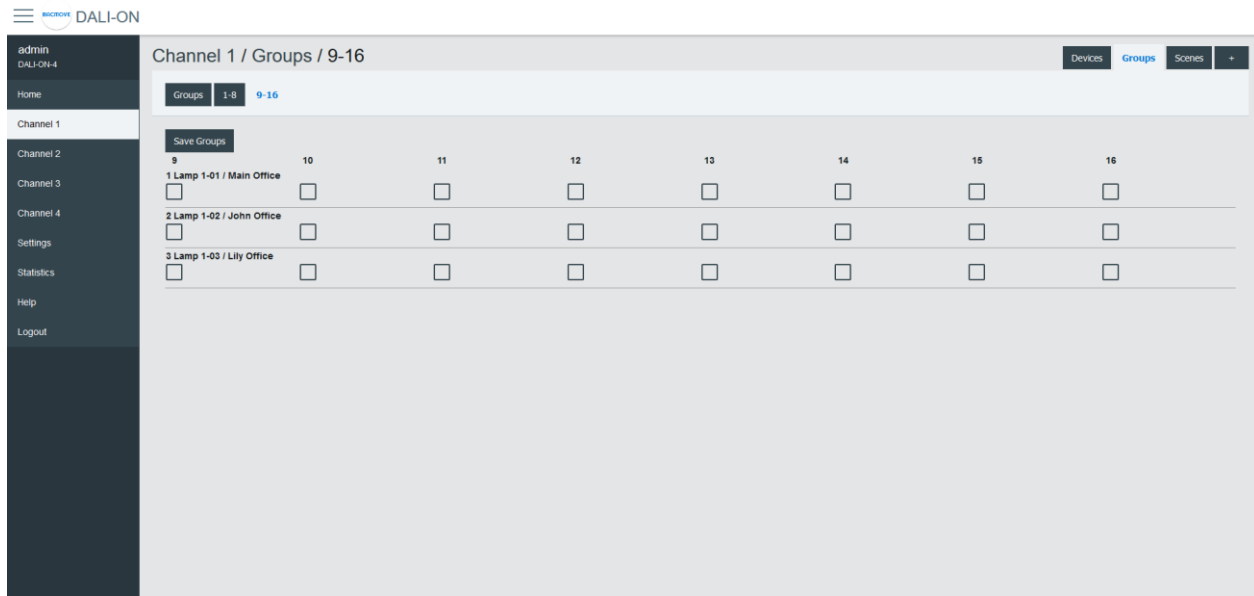
Name	Unit	Minimum	Maximum	Default	Description
Power On Level	Percent	0%	100%	100%	Level of intensity after a power on
System Failure Level	Percent	0%	100%	100%	Level of intensity when system failure
Minimum Level	Percent	0.1%	100%	100%	Minimum level of intensity
Maximum level	Percent	0.1%	100%	100%	Maximum level of intensity
Fade Rate	Choice	2.8	358	44.7	Fade rate in steps per second
Fade Time	Choice	No Fade	90.5	No Fade	Fade time in seconds

4.5.8 Groups 0-7 / 8-15

For easy visualization and assignment of the 16 groups, they are separated in views of eight groups (i.e., Groups 0-7 and Groups 8-15).

The screenshot shows the DALI-ON web interface. On the left is a sidebar with the following menu items: admin, DALI-ON 4, Home, Channel 1, Channel 2, Channel 3, Channel 4, Settings, Statistics, Help, and Logout. The main area is titled 'Channel 1 / Groups / 1-8'. At the top right of this area are tabs for 'Devices', 'Groups' (which is active), 'Scenes', and a '+' icon. Below the tabs, there's a 'Save Groups' button and a table. The table has 8 columns labeled 1 through 8. There are three rows of data, each representing a lamp group. Each row starts with a checkbox (all are checked) and a name, followed by checkboxes for each of the 8 groups.

	1	2	3	4	5	6	7	8
1 Lamp 1-01 / Main Office	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Lamp 1-02 / John Office	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Lamp 1-03 / Lily Office	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



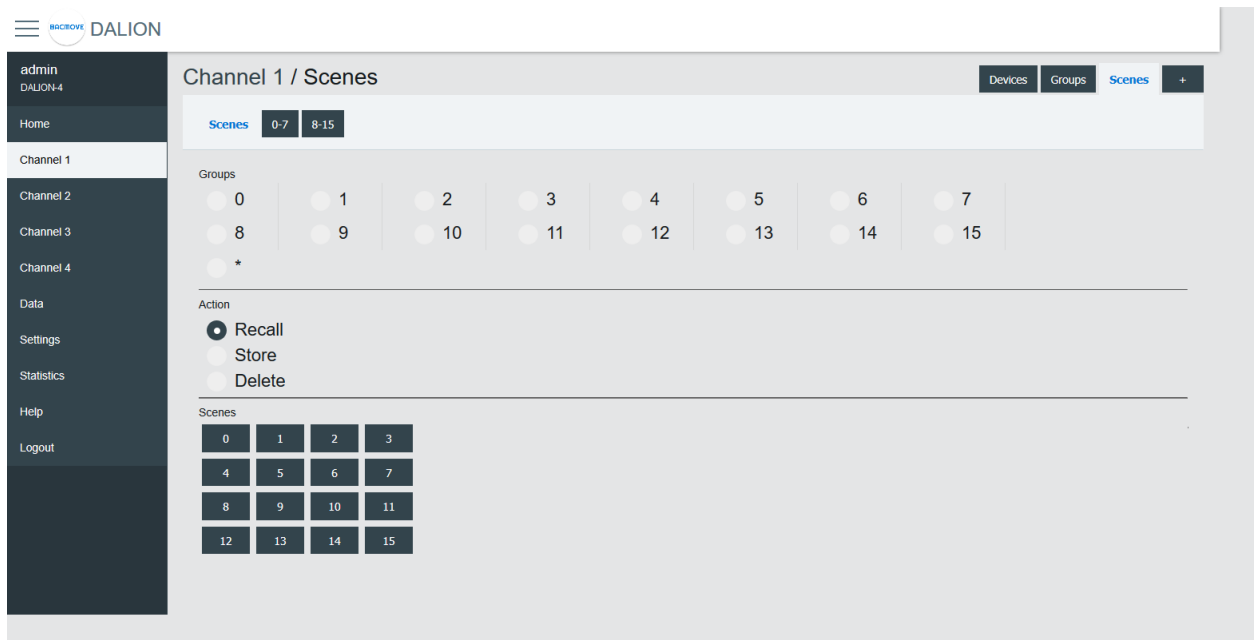
4.5.9 Scenes

Each lamp has 16 scenes. A scene is a level of light intensity in percentages. The value of a scene can also be left empty. Scenes control can be sent to a single lamp, a group of lamps, or the entire DALI channel. When a scene is recalled, all the addressed lamps are invited to dim their brightness at the same brightness level.

For lamps with colour control (i.e., DT8), the 16 scenes can also recall the colour levels. The configuration of the scene colour levels should be performed in the Colour page of each lamp.

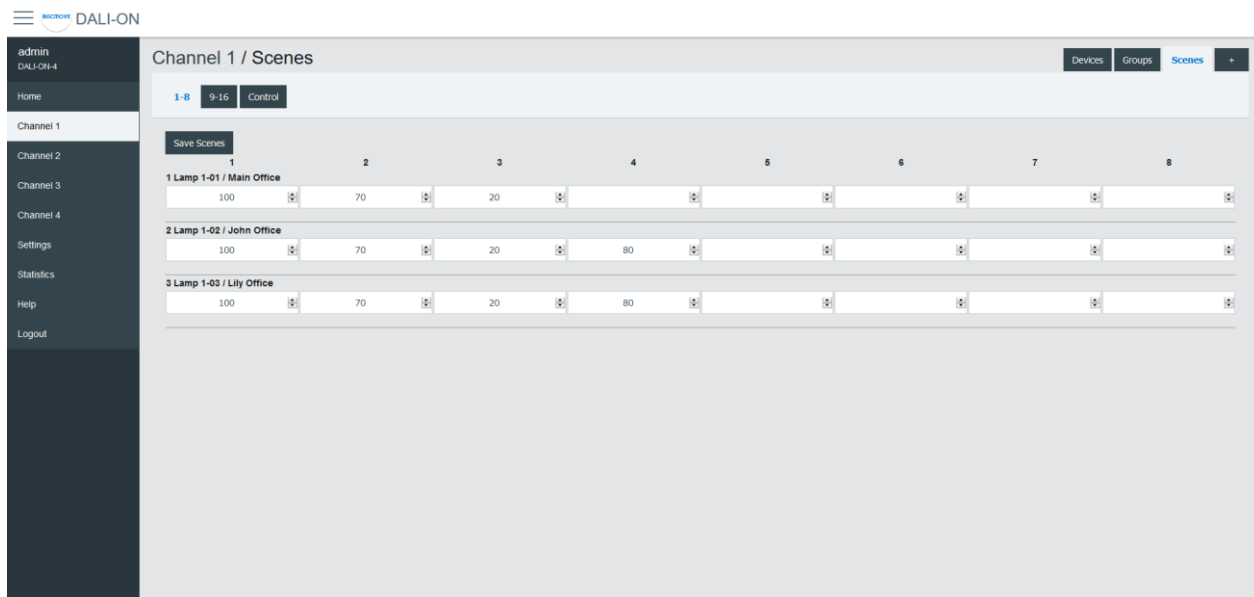
4.5.10 Scenes Control

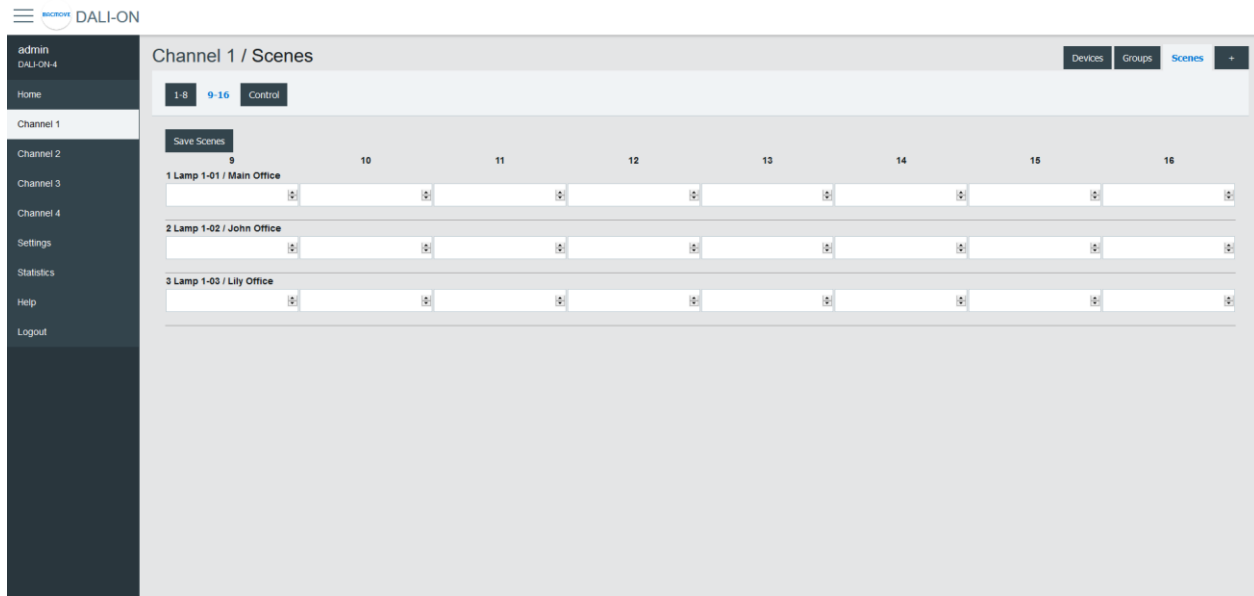
Scenes can be recalled, stored or deleted. Once the desired group or broadcast destination is selected and the **Recall**, **Store** or **Delete** action is also selected, one of the 16 scenes can be performed.



4.5.11 Scenes 0-7 / 8-15

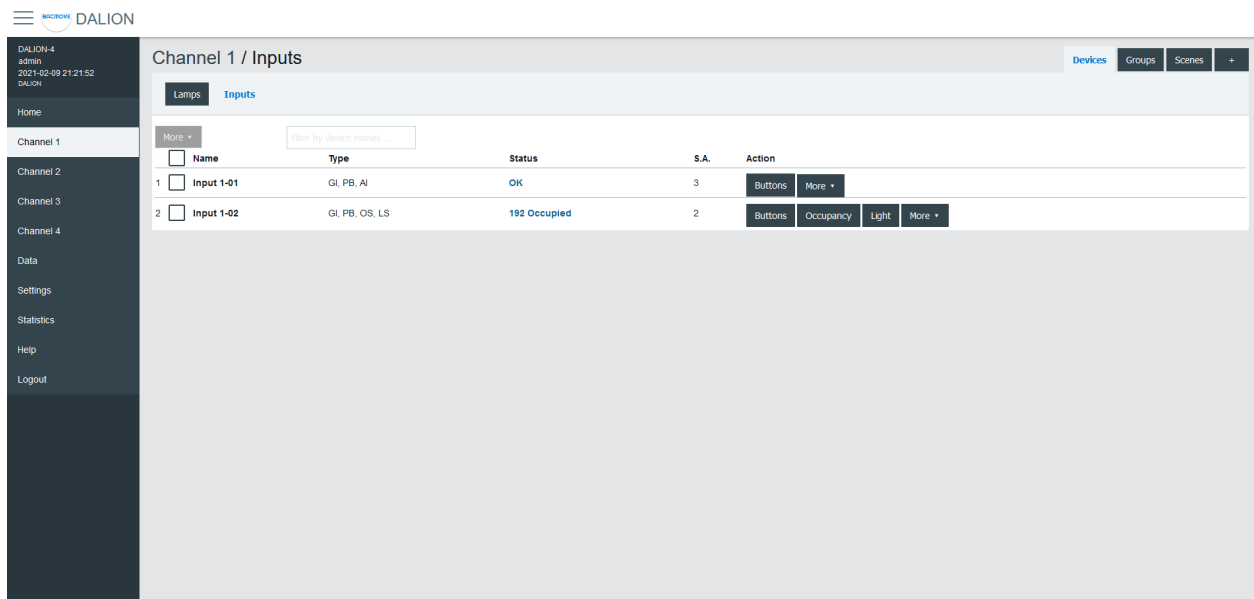
For easy visualization and configuration of the 16 scenes, they are separated in views of eight scenes (i.e., Scenes 0-7 and Scenes 8-15).





4.5.12 Inputs

This page displays the list of commissioned DALI light sensors, occupancy sensors and buttons. The list provides a descriptive **Name** of each input device as well as other information like occupancy state, light value, types and short address.



Inputs devices can identify themselves with the **Identify** button.

By clicking on an input row, the Input Parameters page opens.

4.5.12.1 Input Parameters

This page allows the configuration of input parameters.

DALION-4
admin
2021-02-09 07:04:22
DALION

Home
Channel 1
Channel 2
Channel 3
Channel 4
Data
Settings
Statistics
Help
Logout

Channel 1 / Inputs / Input 1-01

Parameters

Name

Short Address

Number of Instances: 8

Name	Unit	Minimum	Maximum	Default	Description
Name	String		32 characters		Name of the device
Short Address	Number	0	63		The short address
Number of instances	Number	1	32		Displays the number of instances

4.5.12.2 Buttons

Each input device support up to 32 button instances. The command and destination for each instance are configurable by clicking on an instance row.

DALION-4
admin
2021-02-09 21:25:19
DALION

Home
Channel 1
Channel 2
Channel 3
Channel 4
Data
Settings
Statistics
Help
Logout

Channel 1 / Inputs / Input 1-01 / Buttons

Button Instances

Instance	Function	Press Time (ms)	Command	Value 1	Value 2	Destination
0	Push-button	500	Max Level / Up	0	0	Group 1-00 (Channel 1 / Group 00)
3	Push-button	500	Off / Down	0	0	Group 1-00 (Channel 1 / Group 00)
6	Push-button	500	Recall Scene	1	0	Group 1-00 (Channel 1 / Group 00)
7	Push-button	500	Recall Scene	2	0	Group 1-00 (Channel 1 / Group 00)

4.5.12.3 Button Parameters

DALION-4
admin
2021-02-09 06:20:22
DALION

Home
Channel 1
Channel 2
Channel 3
Channel 4
Data
Settings
Statistics
Help
Logout

Channel 1 / Inputs / Input 1-01 / Buttons / 0

Button Parameters

Instance Values

Function
Push-button

Press Time (ms)
500

Destination
Group 1-00 (Channel 1 / Group 00)

Command
Max Level / Up

Value 1
0

Value 2
0

All Instances Values

Repeat Time (ms)
160

Save

Name	Description
Function	Push-button or Switch
Press Time	Press time in milliseconds
Destination	Destination of the command
Command	Choice of the button command
Value 1	First value of the command
Value 2	Second value of the command

4.5.12.3.1 Function

Name	Description
Push-button	Actuated when the button is temporarily pressed
Switch	Actuated when the button position is toggled

4.5.12.3.2 Press Time

The time in milliseconds before registering a button press.

4.5.12.3.3 Repeat Time (ms)

The time in milliseconds between repeated commands. This parameter is the same for all instances of the same device.

4.5.12.3.4 Destination

The destination of the command can be a DALI group or a DALI channel.

4.5.12.3.5 Command

4.5.12.3.5.1 Push-button

Name	Short Press	Long Press	Long Press Repeat
Disabled			
Direct Value	Direct Value Value 1 %		
Max Level	Recall Max Level		
Max Level / Up	Recall Max Level	On and Step Up	Up
Off	Off		
Off / Down	Off	Step Down and Off	Down
Min Level	Min Level		
Min Level / Down	Min Level	Step Down and Off	Down
Recall Scene	Recall Scene Value 1 0-15		
Recall Scene / Up	Recall Scene Value 1 0-15	On and Step Up	Up
Recall Scene / Down	Recall Scene Value 1 0-15	Step Down and Off	Down
On / Off	Recall Max Level		

4.5.12.3.5.2 Switch

Name	Open switch	Close switch
Disabled		
Direct Value	Direct Value Value 2 %	Direct Value Value 1 %
Max Level		Recall Max Level
Max Level / Up		Recall Max Level
Off		Off
Off / Down		Off
Min Level		Min Level
Min Level / Down	Min Level	Min Level
Recall Scene	Recall Scene Value 1 0-15	Recall Scene Value 2 0-15
Recall Scene / Up	Recall Scene Value 1 0-15	Recall Scene Value 2 0-15
Recall Scene / Down	Recall Scene Value 1 0-15	Recall Scene Value 2 0-15
On / Off	Off	On

4.5.12.3.6 Value 1

First value of the command.

4.5.12.3.7 Value 2

Second value of the command.

4.5.12.4 Occupancy Sensor

Each input device supports up to one occupancy sensor instance.

The screenshot shows the DALION web interface. On the left is a dark sidebar with a menu: Home, Channel 1, Channel 2, Channel 3, Channel 4, Data, Settings, Statistics, Help, and Logout. The top of the sidebar shows 'DALION-4', 'admin', and a timestamp '2021-02-09 06:26:53'. The main content area is titled 'Channel 1 / Inputs / Input 1-02 / Occupancy'. It contains a form titled 'Occupancy Parameters' with a single input field 'Hold Time (seconds)' containing the value '900'. Below the input field is a 'Save' button.

Name	Unit	Minimum	Maximum	Default	Description
Hold Time	Seconds				Hold time in seconds

4.5.12.5 Light Sensor

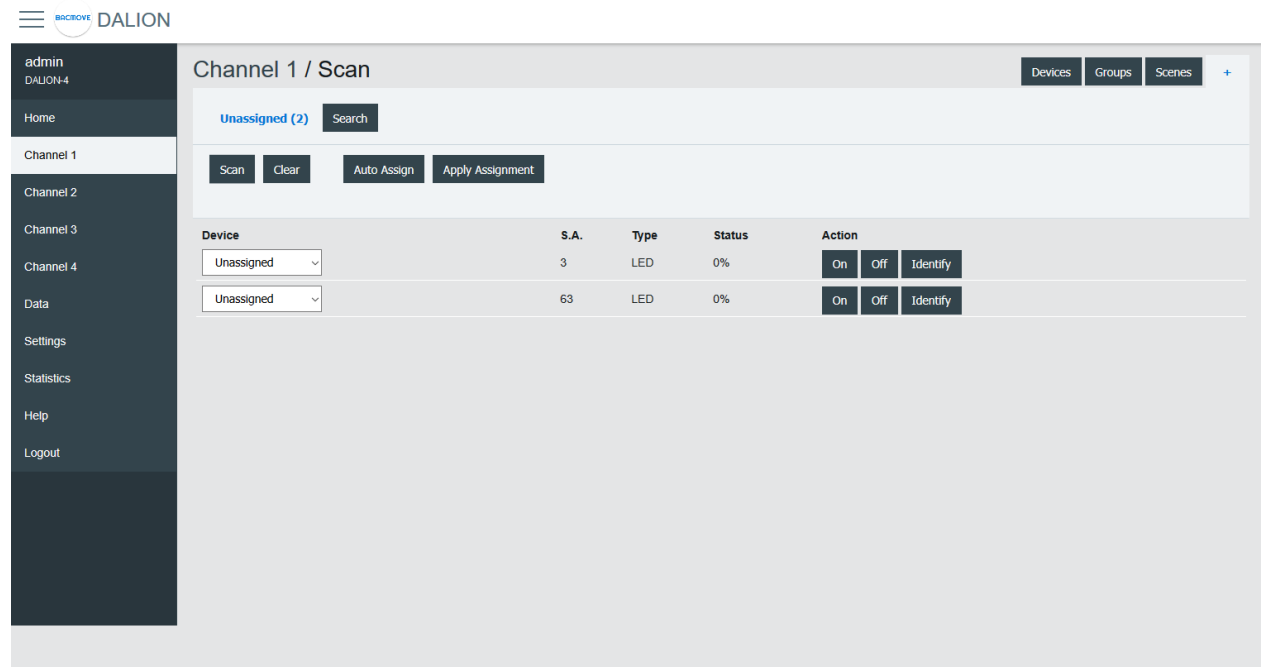
Each input device supports up to one light sensor instance.

The screenshot shows the DALION web interface. On the left is a dark sidebar with a menu: Home, Channel 1, Channel 2, Channel 3, Channel 4, Data, Settings, Statistics, Help, and Logout. The top of the sidebar shows 'DALION-4', 'admin', and a timestamp '2021-02-10 06:32:56'. The main content area is titled 'Channel 1 / Inputs / Input 1-02 / Light'. It contains a form titled 'Light Parameters' with two input fields: 'Hysteresis (%)' containing the value '5' and 'Hysteresis Minimum' containing the value '255'. Below the input fields is a 'Save' button.

Name	Unit	Minimum	Maximum	Default	Description
Hysteresis					Hysteresis in percentage
Hysteresis Minimum					Hysteresis minimum

4.5.13 Addition of DALI devices

The button “+” is used to search for non-commissioned devices.



4.5.14 Unassigned Devices

After scanning a channel, the page displays the non-commissioned devices found on the network. The buttons allow turning **On**, **Off** and to **Identify** the lamp by cycling it between its minimum and its maximum of intensity.

The **Scan** button allows starting a scan on the DALI channel for unassigned devices.

The **Clear** button allows clearing the list of unassigned devices.

The **Auto Assign** button automatically assigns lamps to a lamp index.

The **Apply Assignment** button assign lamps to a selected lamp index.

4.5.15 Assignment

There are three ways of assigning the DALI devices.

4.5.15.1 Auto Assign

The lamps are automatically assigned to a lamp index.

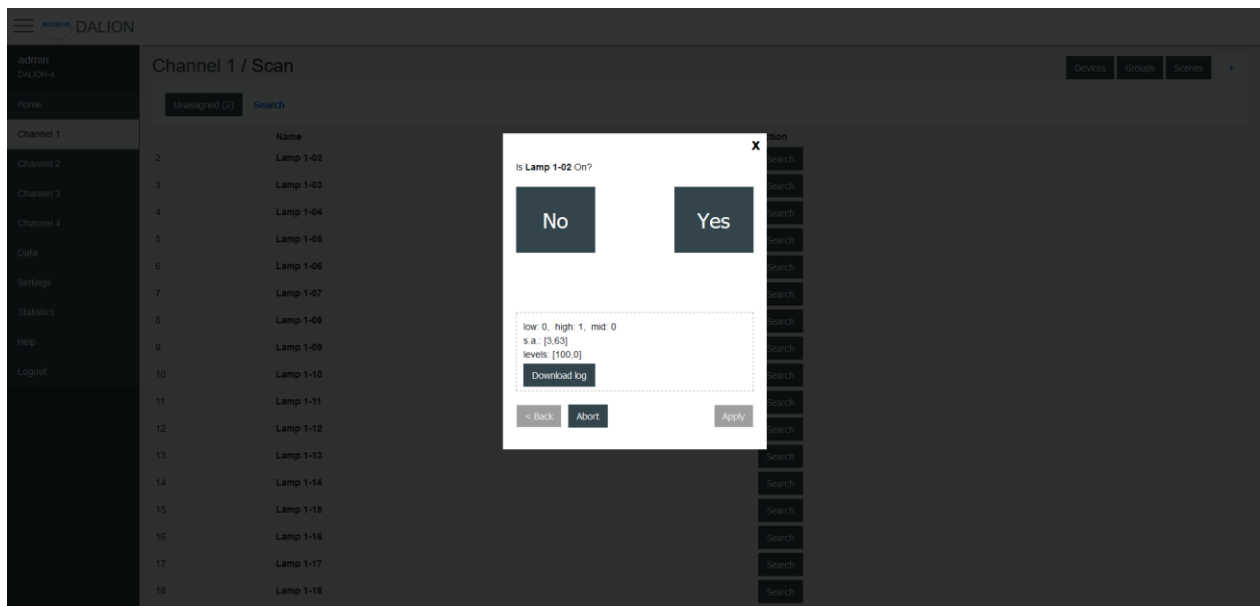
4.5.15.2 Apply Assignment

The selected assignment is applied.

4.5.15.3 Search

The available lamps can be searched. By pressing the **Search** button next to a lamp, a search by a half-interval search means is launched to find the lamp. Half of the lamps are turned Off, while the other half is turned On, the user must answer **No** or **Yes** if the desired lamp is On. This process is repeated until only the desired lamp is On.

Once the search is complete, the user can enter a name for the lamp and **Apply** the assignment.



4.6 Data

4.6.1 Data Points

The BACnet objects are listed.

4.6.2 Alarms

Displays and allows acknowledging the BACnet alarms of the controller.

4.6.2.1 Alarms Brief

Displays the controller alarms. By clicking on a channel, the detailed list of alarms is displayed.

admin

DALION-4

Home

Channel 1

Channel 2

Channel 3

Channel 4

Data

Settings

Statistics

Help

Logout

BACMOVE

DALION

Data / Alarms

Update

Alarms Brief

Alarms Brief

Name	Active Not Acked	Inactive Not Acked	Active Acked
Channel 1 Alarm	2	0	0
Channel 2 Alarm	0	0	0
Channel 3 Alarm	0	0	0
Channel 4 Alarm	0	0	0

Alarms Colors Legend

Alarms Colors

Active and not acknowledged alarms

Active and acknowledged alarms

Inactive and not acknowledged alarms

No alarms

4.6.2.2 Alarms List

Displays the detailed list of alarms and allows them to be acknowledged.

admin

DALION-4

Home

Channel 1

Channel 2

Channel 3

Channel 4

Data

Settings

Statistics

Help

Logout

BACMOVE

DALION

Data / Alarms / Channel 1

Update

Alarms List

Alarms List

Source	Message	Type	Action
Lamp 1-00	lamp offline	Fault	Ack
Lamp 1-01	lamp offline	Fault	Ack

Alarms Colors Legend

Alarms Colors

Active and not acknowledged alarms

Active and acknowledged alarms

Inactive and not acknowledged alarms

No alarms

4.6.3 Schedules

The schedules allow to automatically adjust the light intensity at a specific time for the groups, channels and scene controllers.

There are 4 schedules of 7 weekdays and each day can execute up to 6 different events. Each schedule can control up to four different data points.

4.6.3.1 Schedules Brief

Displays the current values of the schedules and allows to **Enable** or **Disable** them.

Clicking on a schedule row allows to modify its parameters and events.

The screenshot shows the DALION web application interface. On the left is a dark sidebar with navigation links: Home, Channel 1, Channel 2, Channel 3, Channel 4, Data (highlighted), Settings, Statistics, Help, and Logout. The top of the sidebar displays user information: DALION-4, admin, 2020-07-26 09:03:13, and DALION. The main content area is titled 'Data / Schedules' and features an 'Update' button. Below this is a 'Schedules Brief' section containing a table with the following data:

Name	Present Value	State	
Schedule 1-0	0	Enabled	<button>Disable</button>
Schedule 2-0	0	Enabled	<button>Disable</button>
Schedule 3-0	0	Enabled	<button>Disable</button>
Schedule 4-0	0	Enabled	<button>Disable</button>

At the top right of the table, there are two buttons: 'Enable All' and 'Disable All'.

4.6.3.2 Schedule Parameters

Allows to modify the parameters of a schedule such as its name and its output data point.


The screenshot shows the DALION web application interface for editing a schedule. The sidebar is identical to the previous screenshot, with 'Data' highlighted. The main content area is titled 'Data / Schedules / Schedule 1-0 / Parameters'. It contains a 'Parameters' section with the following fields:

- Name: A text input field containing 'Schedule 1-0'.
- Schedule Output - 0: A dropdown menu showing 'Channel 1 (Channel 1)'.
- Schedule Output - 1: A dropdown menu.
- Schedule Output - 2: A dropdown menu.
- Schedule Output - 3: A dropdown menu.
- Effective Period Start: A date input field showing '2000-01-01' with the format 'yyyy-mm-dd' below it.
- Effective Period End: A date input field showing '2037-12-31' with the format 'yyyy-mm-dd' below it.
- Priority For Writing: A dropdown menu showing '8'.

Name	Unit	Minimum	Maximum	Default	Description
Name	String		32 characters		Name of the schedule
Schedule Output 1	Data Point				Data point where the schedule writes
Schedule Output 2	Data Point				Data point where the schedule writes
Schedule Output 3	Data Point				Data point where the schedule writes
Schedule Output 4	Data Point				Data point where the schedule writes
Effective Period Start	Date				First date on which the schedule is in effect
Effective Period End	Date				Last date on which the schedule is in effect
Priority For Writing	Number	1	16	8	Priority used by the schedule when writing
Schedule Default	Number				Default value of the schedule
BACnet Object	String				BACnet object identifier of the schedule

4.6.3.3 Weekly Schedule

Displays the scheduled events of the schedule.



DALION-4
admin
2020-07-26 09:20:10
DALION

Home
Channel 1
Channel 2
Channel 3
Channel 4
Data
Settings
Statistics
Help
Logout

Data / Schedules / Schedule 1-0 / Weekly Schedule

Weekly Schedule Edit

	SU	MO	TU	WE	TH	FR	SA
1	08:30 100	07:00 100	07:00 100	07:00 100	07:00 100	07:00 100	08:30 100
2	18:00 0	20:00 0	20:00 0	20:00 0	20:00 0	20:00 0	18:00 0
3							
4							
5							
6							

4.6.3.4 Weekly Schedule Edit

Allows modifying the schedule events.

The screenshot shows the 'Weekly Schedule Edit' page in the DALION web application. The left sidebar contains navigation links: Home, Channel 1, Channel 2, Channel 3, Channel 4, Data (selected), Settings, Statistics, Help, and Logout. The main content area has a breadcrumb trail: Data / Schedules / Schedule 1-0 / Weekly Schedule / Edit. The 'Weekly Schedule' form includes three sections: 'Day of the Week' with checkboxes for SU, MO, TU, WE, TH, FR, and SA; 'Event Program' with checkboxes for 1, 2, 3, 4, 5, and 6; and 'Time' with a digital clock display set to 07:00. Below these is a 'Value' input field containing the number 100. At the bottom are three buttons: Cancel, Ok, and Apply.

4.6.3.4.1 Day of the Week

Allows selecting the days of the week to modify. Several days can be modified at the same time.

4.6.3.4.2 Event Program

Allows selecting the event program to modify.

4.6.3.4.3 Time

The time of the event.

By Selecting – : – the events corresponding to the selected **Day of the Week** and **Event Program** will be deleted.

4.6.3.4.4 Value

The value written by the schedule at the specified time.

4.6.3.4.5 Buttons

The **Ok** button applies the modification of the schedule events and returns to the Weekly Schedule page. The button **Apply** applies the modification but remains on the same page to allow the entry of more events. The button **Cancel** returns to the Weekly Schedule page without modifying the events.

4.7 Statistics

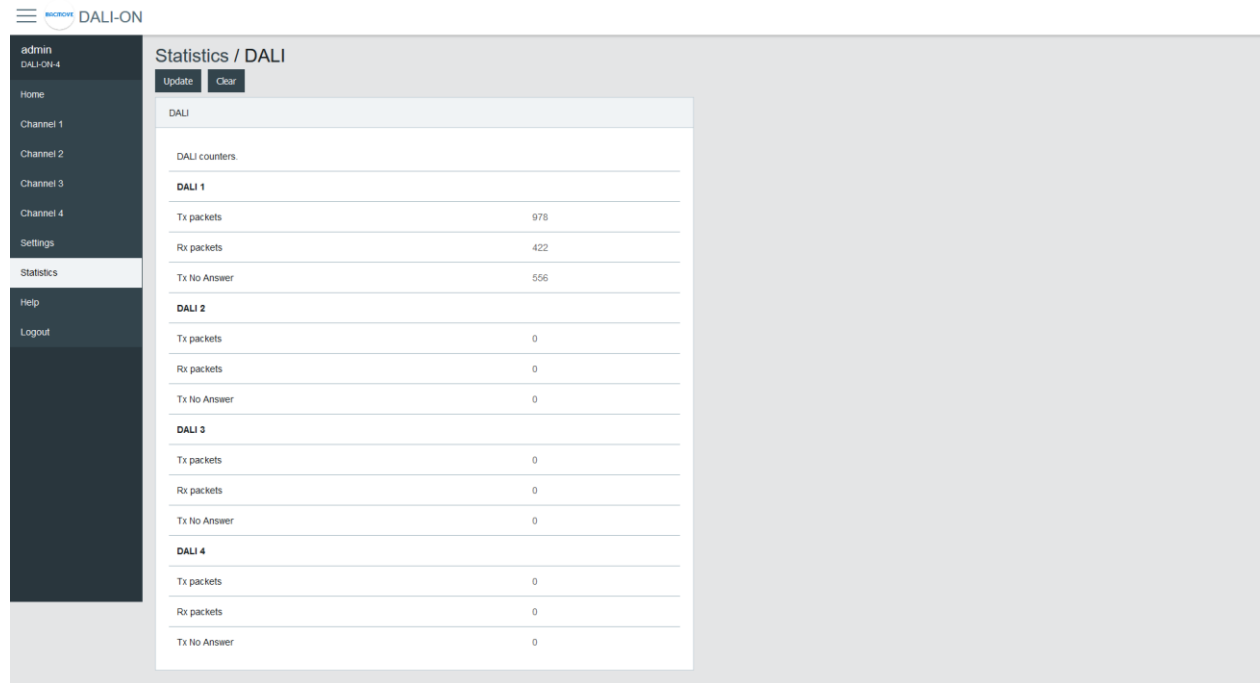
Many counters are available to help with the diagnostic of network problems for the DALI, BACnet and Ethernet interfaces.

4.7.1 System Log

Displays the system log file that records certain system events.

4.7.2 DALI

Many counters are available to help with the diagnostic of DALI related problems.



Name	Description
Tx Packets	The number of packets transmitted
Rx Packets	The number of packets received
Tx No Answer	The number of transmission with a missing answer
Rx Bit Timing Violation	The number of bit timing violation detected
Tx Collision Avoidance	The number of collisions avoided
Tx Collision Detection	The number of collisions detected

4.7.3 DALI protocol analyzer

The analyzer allows network troubleshooting and analysis of the DALI communication protocol. It displays in real time the received and transmitted DALI packets. It is possible to **Pause**, **Clear** or **Save** the data to the computer with the buttons.

admin DALION-4	Statistics / DA Analyzer / 1			
Home	DALI Analyzer			
Channel 1	DALI commands			
Channel 2				
Channel 3				
Channel 4				
Settings				
Statistics				
Help				
Logout				

Name	Description
Time	The time the packet was received or transmitted
Type	The packet type
Hex	Hexadecimal raw data of the packet
Address	The packet destination address
Command	The command

4.7.3.1 Packet Type

Name	Description
TXFW	Transmission of a forward frame
TXBW	Transmission of a backward frame
RXFW	Reception of a forward frame
RXBW	Reception of a backward frame

4.7.4 BACnet/IP

Many counters are available to help with the diagnostic of BACnet related problems.

Name	Description
Tx Packets	The number of packets transmitted
Rx Packets	The number of packets received
Dropped Packets	The number of dropped packets

4.7.5 BACnet Active COV Subscriptions

Displays the list of currently active COV-B subscriptions.

4.7.6 IP

Many counters are available to help with the diagnostic of problems with the IP (Internet Protocol) communication stack.

4.7.7 TCP

Many counters are available to help with the diagnostic of problems with the TCP (Transmission Control Protocol) communication stack.

4.7.8 UDP

Many counters are available to help with the diagnostic of problems with the UDP (User Datagram Protocol) communication stack.

4.7.9 ARP

Many counters are available to help with the diagnostic of problems with the ARP (Address Resolution Protocol) communication stack.

4.7.10 ICMP

Many counters are available to help with the diagnostic of problems with the ICMP (Internet Control Message Protocol) communication stack.

4.7.11 ARP Table

This page displays the current ARP (Address Resolution Protocol) cache where IP addresses are associated with Ethernet MAC addresses.

4.7.12 Ethernet

This page displays the current value of some Ethernet registers.

5 BACnet Interface

DALI's channels, groups, lamps, and scenes are accessible through BACnet standard objects such as Analog Output, Analog Input, Multi-State Output, etc. The light sensors and occupancy sensors are also accessible via objects of the Analog Input and Binary Input types.

5.1 Analog Output Object - Control of Lamp, Group, and Channel

To control the intensity of the lamps, use the Analog Output objects. Lamps parameters can also be modified with these objects.

5.1.1 Lamp Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Description	28	CharacterString	R
Device_Type	31	CharacterString	R
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Reliability	103	BACnetReliability	R
Out_Of_Service	81	BOOLEAN	W
Units	117	BACnetEngineeringUnits	R
Min_Pres_Value	69	REAL	R
Max_Pres_Value	65	REAL	W
Priority_Array	87	BACnetPriorityArray	R
Relinquish_Default	104	REAL	R
Power_On_Level	512	REAL	W
System_Failure_Level	513	REAL	W
Fade_Time	514	REAL	W
Ramp_Rate	515	REAL	W
Min_Level	516	REAL	W
Groups	517	BIT STRING	W
Dim_Mode	520	Enumerated	W
Colour_Temp	567	REAL	W
Command	900	Unsigned	W
Colour_Type	8000	Enumerated	W
Colour_XYC_X	8010	REAL	W
Colour_XYC_Y	8011	REAL	W
Colour_TC_TC	8020	REAL	W
Colour_PN_P0	8030	REAL	W
Colour_PN_P1	8031	REAL	W
Colour_PN_P2	8032	REAL	W
Colour_PN_P3	8033	REAL	W
Colour_PN_P4	8034	REAL	W

Colour_PN_P5	8035	REAL	W
Colour_RGBWAF_RED	8040	REAL	W
Colour_RGBWAF_GREEN	8041	REAL	W
Colour_RGBWAF_BLUE	8042	REAL	W
Colour_RGBWAF_WHITE	8043	REAL	W
Colour_RGBWAF_AMBER	8044	REAL	W
Colour_RGBWAF_FREECOLOUR	8045	REAL	W

5.1.2 Group Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Description	28	CharacterString	R
Device_Type	31	CharacterString	R
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Reliability	103	BACnetReliability	R
Out_Of_Service	81	BOOLEAN	W
Units	117	BACnetEngineeringUnits	R
Min_Pres_Value	69	REAL	R
Max_Pres_Value	65	REAL	W
Priority_Array	87	BACnetPriorityArray	R
Relinquish_Default	104	REAL	R
Power_On_Level	512	REAL	W
System_Failure_Level	513	REAL	W
Fade_Time	514	REAL	W
Ramp_Rate	515	REAL	W
Min_Level	516	REAL	W
Dim_Mode	520	Enumerated	W
Colour_Temp	567	REAL	W
Command	900	Unsigned	W
Colour_Type	8000	Enumerated	W
Colour_XYC_X	8010	REAL	W
Colour_XYC_Y	8011	REAL	W
Colour_TC_TC	8020	REAL	W
Colour_PN_P0	8030	REAL	W
Colour_PN_P1	8031	REAL	W
Colour_PN_P2	8032	REAL	W
Colour_PN_P3	8033	REAL	W
Colour_PN_P4	8034	REAL	W
Colour_PN_P5	8035	REAL	W

Colour_RGBWAF_RED	8040	REAL	W
Colour_RGBWAF_GREEN	8041	REAL	W
Colour_RGBWAF_BLUE	8042	REAL	W
Colour_RGBWAF_WHITE	8043	REAL	W
Colour_RGBWAF_AMBER	8044	REAL	W
Colour_RGBWAF_FREECOLOUR	8045	REAL	W

5.1.3 Channel Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Description	28	CharacterString	R
Device_Type	31	CharacterString	R
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Reliability	103	BACnetReliability	R
Out_Of_Service	81	BOOLEAN	W
Units	117	BACnetEngineeringUnits	R
Min_Pres_Value	69	REAL	R
Max_Pres_Value	65	REAL	W
Priority_Array	87	BACnetPriorityArray	R
Relinquish_Default	104	REAL	R
Power_On_Level	512	REAL	W
System_Failure_Level	513	REAL	W
Fade_Time	514	REAL	W
Ramp_Rate	515	REAL	W
Min_Level	516	REAL	W
Dim_Mode	520	Enumerated	W
Colour_Temp	567	REAL	W
Command	900	Unsigned	W
Colour_Type	8000	Enumerated	W
Colour_XYC_X	8010	REAL	W
Colour_XYC_Y	8011	REAL	W
Colour_TC_TC	8020	REAL	W
Colour_PN_P0	8030	REAL	W
Colour_PN_P1	8031	REAL	W
Colour_PN_P2	8032	REAL	W
Colour_PN_P3	8033	REAL	W
Colour_PN_P4	8034	REAL	W
Colour_PN_P5	8035	REAL	W

Colour_RGBWAF_RED	8040	REAL	W
Colour_RGBWAF_GREEN	8041	REAL	W
Colour_RGBWAF_BLUE	8042	REAL	W
Colour_RGBWAF_WHITE	8043	REAL	W
Colour_RGBWAF_AMBER	8044	REAL	W
Colour_RGBWAF_FREECOLOUR	8045	REAL	W

5.1.3.1 *Object_Identifier*

The object instance number is represented as TCLL.

- “T” is the type of object as follows, 0 for DALI lamps, 1 for DALI groups and 2 for DALI channels.
- “C” represents the DALI channel number, 0, 1, 2, or 3.
- “LL” represents for lamp objects, numbers 00-63, for group objects, numbers 00-15 and for channel objects, number 00.

5.1.3.2 *Object_Name*

The name of the DALI lamp, group or channel.

5.1.3.3 *Object_Type*

ANALOG_OUTPUT (1).

5.1.3.4 *Present_Value*

The light intensity in percentages for the DALI lamp, group or channel.

5.1.3.5 *Description*

A description of the DALI lamp, group or channel.

5.1.3.6 *Device_Type*

- For lamp objects, it is **DALI lamp**.
- For group objects, it is **DALI group**.
- For channel objects, it is **DALI channel**.

5.1.3.7 *Status_Flags*

This property indicates the general “reliability” of the object.

5.1.3.8 *Reliability*

This property indicates whether the operation of the DALI output is reliable. The values are as follows:

- NO_FAULT_DETECTED - No fault has been detected.
- NO_OUTPUT - No DALI device is connected to the output object.
- COMMUNICATION_FAILURE - DALI device is offline.

- UNRELIABLE_OTHER - An error has been reported by the DALI lamp.

5.1.3.9 Out_Of_Service

This property indicates whether the physical device represented by the object is in service.

5.1.3.10 Units

The unit for the Present_Value is percent.

5.1.3.11 Min_Pres_Value

The minimum value is always zero (0). It represents the lowest value for the property Present_Value.

5.1.3.12 Max_Pres_Value

For lamp objects, this is the DALI variable “MAX LEVEL” of the lamp. For Group and Channel objects, the value is always 100.

5.1.3.13 Priority_Array

This property is a read-only array of prioritized values.

5.1.3.14 Relinquish_Default

It is the default value used for the Present_Value property when all command priority values in the Priority_Array property have a NULL value.

5.1.3.15 Power_On_Level

It represents the DALI variable “POWER ON LEVEL” of the DALI lamp in percentages. A value of NaN represents the DALI “MASK” value. It is writable for lamps, groups and channels. For groups and channels, it always read as NaN.

5.1.3.16 System_Failure_Level

It represents the DALI variable “SYSTEM FAILURE LEVEL” of the DALI lamp in percentages. A value of NaN represents the DALI “MASK” value. It is writable for lamps, groups and channels. For groups and channels, it always read as NaN.

5.1.3.17 Fade_Time

Represents the DALI variable “FADE TIME” in seconds for the DALI lamp. It is writable for lamps, groups and channels. For groups and channels, it always read as NaN.

5.1.3.18 Ramp_Rate

Represents the DALI variable “FADE RATE” in percent per second for the DALI lamp. It is writable for lamps, groups and channels. For groups and channels, it always read as NaN.

5.1.3.19 Min_Level

It represents the DALI variable “MIN LEVEL” of the DALI lamp in percentages. It is writable for lamps, groups and channels. For groups and channels, it always read as NaN.

5.1.3.20 *Groups*

Only available for lamp objects, it represents the DALI variables “GROUP_0_8” and “GROUP_9_15” concatenated in a 16 bit.

5.1.3.21 *Dim_Mode*

Indicates if fading (0) or ramping (1) is used when controlling the light intensity with the Present_Value.

5.1.3.22 *Colour_Temp*

For DALI Type 8 (DT8) lamps, whose colour control is colour temperature Tc, the current colour in Kelvin (K) can be modified. The objects for lamps, groups and channels can modify the colour temperature of lamps.

5.1.3.23 *Command*

Allows to execute commands on the lamps.

5.1.3.23.1 NO COMMAND (1)

No command is executed.

5.1.3.23.2 GO TO SCENE (2-17)

Recall the scenes 1-15.

5.1.3.23.3 STORE SCENE (18-33)

Store the scenes 1-15.

5.1.3.23.4 REMOVE SCENE (34-49)

Delete the scenes 1-15.

5.1.3.23.5 RESET RUN HOURS (52)

Reset the run hours to zero.

5.1.3.23.6 EMERGENCY FUNCTION TEST START (54)

Start the function test for the lamps of the type “Self-contained emergency lighting (device type 1)”.

5.1.3.23.7 EMERGENCY DURATION TEST START (55)

Start the duration test for the lamps of the type “Self-contained emergency lighting (device type 1)”.

5.1.3.23.8 EMERGENCY TESTS STOP (56)

Stop the current test for the lamps of the type “Self-contained emergency lighting (device type 1)”.

5.1.3.24 *Colour_Type*

The current or requested colour control type.

The supported colour types are as follows.

Name	Value
xy-coordinate	1
colour temperature Tc	2
primary N	3
RGBWAF	4

5.1.3.25 Colour_XYC_X

For DALI Type 8 (DT8) lamps, whose colour control is xy-Coordinate, the x-coordinate of the current colour can be modified. The objects for lamps, groups and channels can modify the colour of lamps.

The valid values are from 0 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 / 65536. Therefore the maximum corresponding x-coordinate is 0,99997.

5.1.3.26 Colour_XYC_Y

For DALI Type 8 (DT8) lamps, whose colour control is xy-Coordinate, the y-coordinate of the current colour can be modified. The objects for lamps, groups and channels can modify the colour of lamps.

The valid values are from 0 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 / 65536. Therefore the maximum corresponding y-coordinate is 0,99997.

5.1.3.27 Colour_TC_TC

For DALI Type 8 (DT8) lamps, whose colour control is colour temperature Tc, the current colour temperature can be modified. The objects for lamps, groups and channels can modify the colour of lamps.

The valid values are from 1 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 Mirek. Therefore the minimum value is 1 Mirek (1000000 Kelvin) and the maximum value is 65534 Mirek (15.26 Kelvin).

Mirek = 1 000 000 / [Colour Temperature in Kelvin]

Kelvin = 1 000 000 / [value of Mirek]

5.1.3.28 Colour_PN_P0 to Colour_PN_P5

For DALI Type 8 (DT8) lamps, whose colour control is primary N, the current colour can be modified. The objects for lamps, groups and channels can modify the colour of lamps.

The valid values are from 0 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 / 65536. Therefore the maximum corresponding primary value is 0,99997.

5.1.3.29 *Colour_RGBWAF_RED*

For the lamps DALI Type 8 (DT8), whose colour control is RGBWAF, the current red colour can be modified. The objects for lamps, groups and channels can modify lamp colour.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.1.3.30 *Colour_RGBWAF_GREEN*

For the lamps DALI Type 8 (DT8), whose colour control is RGBWAF, the current green colour can be modified. The objects for lamps, groups and channels can modify lamp colour.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.1.3.31 *Colour_RGBWAF_BLUE*

For the lamps DALI Type 8 (DT8), whose colour control is RGBWAF, the current blue colour can be modified. The objects for lamps, groups and channels can modify lamp colour.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.1.3.32 *Colour_RGBWAF_WHITE*

For the lamps DALI Type 8 (DT8), whose colour control is RGBWAF, the current white colour can be modified. The objects for lamps, groups and channels can modify lamp colour.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.1.3.33 *Colour_RGBWAF_AMBER*

For the lamps DALI Type 8 (DT8), whose colour control is RGBWAF, the current amber colour can be modified. The objects for lamps, groups and channels can modify lamp colour.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.1.3.34 *Colour_RGBWAF_FREECOLOUR*

For the lamps DALI Type 8 (DT8), whose colour control is RGBWAF, the current freecolour colour can be modified. The objects for lamps, groups and channels can modify lamp colour.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.2 Analog Input Object - Feedback of Lamp, Group, and Channel

To obtain the intensity of the lamps, use the Analog Input objects.

5.2.1 Lamp, Group and Channel Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Device_Type	31	CharacterString	R
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Reliability	103	BACnetReliability	R
Out_Of_Service	81	BOOLEAN	W
Units	117	BACnetEngineeringUnits	R
Min_Pres_Value	69	REAL	R
Max_Pres_Value	65	REAL	W
COV_Increment	22	REAL	W
Channel_Battery_Failure	532	BIT STRING	R
Channel_Function_Test_Failure	533	BIT STRING	R
Channel_Duration_Test_Failure	534	BIT STRING	R
Emergency_Battery_Failure	1000	BOOLEAN	R
Emergency_Function_Test_Failure	1001	BOOLEAN	R
Emergency_Duration_Test_Failure	1002	BOOLEAN	R
Colour_Type	8000	Enumerated	R
Colour_XYC_X	8010	REAL	R
Colour_XYC_Y	8011	REAL	R
Colour_TC_TC	8020	REAL	R
Colour_PN_P0	8030	REAL	R
Colour_PN_P1	8031	REAL	R
Colour_PN_P2	8032	REAL	R
Colour_PN_P3	8033	REAL	R
Colour_PN_P4	8034	REAL	R
Colour_PN_P5	8035	REAL	R
Colour_RGBWAF_RED	8040	REAL	R
Colour_RGBWAF_GREEN	8041	REAL	R
Colour_RGBWAF_BLUE	8042	REAL	R

Colour_RGBWAF_WHITE	8043	REAL	R
Colour_RGBWAF_AMBER	8044	REAL	R
Colour_RGBWAF_FREECOLOUR	8045	REAL	R

5.2.1.1 Object_Identifier

The object instance number is the same as the associated Analog Output object and is also represented as TCLK.

- “T” is the type of object as follows, 0 for DALI Lamps, 1 for DALI groups and 2 for DALI channels.
- “C” represents the DALI channel number, 0, 1, 2, or 3.
- “LL” represents for lamp objects, numbers 00-63, for group objects, numbers 00-15 and for channel objects, number 00.

5.2.1.2 Object_Name

The Object_Name of the associated Analog Output object of the DALI lamp, group or channel ending with “Feedback”.

5.2.1.3 Object_Type

ANALOG_INPUT (0).

5.2.1.4 Present_Value

The current light intensity as a percentage for the DALI lamps, groups and channels.

5.2.1.5 Device_Type

A text description of the physical DALI device connected to the analog output, it is the DALI device type (ex. “**Fluorescent lamps**”, “**Conversion from digital signal into d.c. voltage**”, “**LED modules**”, “**Switching function**”). For group objects, it is “**DALI group**”. For channel objects, it is “**DALI channel**”.

5.2.1.6 Status_Flags

This property indicates the general “reliability” of an analog input object.

5.2.1.7 Reliability

This property indicates whether the operation of the DALI output is reliable. The values are as follows:

- NO_FAULT_DETECTED - No fault has been detected.
- NO_SENSOR - No physical device is connected to the input object.
- COMMUNICATION_FAILURE - DALI device is offline.
- UNRELIABLE_OTHER - A DALI error has been reported by the DALI lamp.

5.2.1.8 Out_Of_Service

It indicates whether the physical device that the object represents is in service.

5.2.1.9 Units

The unit for the Present_Value is percent.

5.2.1.10 Min_Pres_Value

The minimum value is always zero (0). It represents the lowest value for the property Present_Value.

5.2.1.11 Max_Pres_Value

The maximum value is always one hundred (100). It represents the highest value for the property Present_Value.

5.2.1.12 COV_Increment

This property specifies the minimum change of the Present_Value that issues a COVNotification.

5.2.1.13 Channel_Battery_Failure

Only available for channel objects, this property indicates whether a “Self-contained emergency lighting (device type 1)” is reporting a battery failure. Each 64 lamps of the channel are one bit of the 64-bit BIT STRING. When a battery failure is reported by a lamp, its associated bit is set.

5.2.1.14 Channel_Function_Test_Failure

Only available for channel objects, this property indicates whether a “Self-contained emergency lighting (device type 1)” is reporting a function test failure. Each 64 lamps of the channel are one bit of the 64-bit BIT STRING. When a function test failure is reported by a lamp, its associated bit is set.

5.2.1.15 Channel_Duration_Test_Failure

Only available for channel objects, this property indicates whether a “Self-contained emergency lighting (device type 1)” is reporting a duration test failure. Each 64 lamps of the channel are one bit of the 64-bit BIT STRING. When a duration test failure is reported by a lamp, its associated bit is set.

5.2.1.16 Emergency_Battery_Failure

Only available for lamp objects, this property indicates whether a “Self-contained emergency lighting (device type 1)” is reporting a battery failure. When a battery failure is reported by the lamp, the value is true.

5.2.1.17 Emergency_Function_Test_Failure

Only available for lamp objects, this property indicates whether a “Self-contained emergency lighting (device type 1)” is reporting a function test failure. When a function test failure is reported by the lamp, the value is true.

5.2.1.18 Emergency_Duration_Test_Failure

Only available for lamp objects, this property indicates whether a “Self-contained emergency lighting (device type 1)” is reporting a duration test failure. When a duration test failure is reported by the lamp, the value is true.

5.2.1.19 Colour_Type

The current colour control type.

The supported colour types are as follows.

Name	Value
xy-coordinate	1
temperature Tc	2
primary N	3
RGBWAF	4

[5.2.1.20 Colour_XYC_X](#)

The current x-coordinate value of DALI Type 8 (DT8) lamps, whose colour control is xy-Coordinate.

The valid values are from 0 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 / 65536. Therefore the maximum corresponding x-coordinate is 0,99997.

[5.2.1.21 Colour_XYC_Y](#)

The current y-coordinate value of DALI Type 8 (DT8) lamps, whose colour control is xy-Coordinate.

The valid values are from 0 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 / 65536. Therefore the maximum corresponding y-coordinate is 0,99997.

[5.2.1.22 Colour_TC_TC](#)

The current colour temperature of DALI Type 8 (DT8) lamps, whose colour control is colour temperature Tc.

The valid values are from 1 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 Mirek. Therefore the minimum value is 1 Mirek (1000000 Kelvin) and the maximum value is 65534 Mirek (15.26 Kelvin).

Mirek = 1 000 000 / [Colour Temperature in Kelvin]

Kelvin = 1 000 000 / [value of Mirek]

[5.2.1.23 Colour_PN_P0 to Colour_PN_P5](#)

The current primary N value of DALI Type 8 (DT8) lamps, whose colour control is primary N.

The valid values are from 0 to 65534 and a value of NaN represents the DALI “MASK” value.

The unit of the value is 1 / 65536. Therefore the maximum corresponding primary value is 0,99997.

[5.2.1.24 Colour_RGBWAF_RED](#)

The current red value of DALI Type 8 (DT8) lamps, whose colour control is RGBWAF.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.2.1.25 Colour_RGBWAF_GREEN

The current green value of DALI Type 8 (DT8) lamps, whose colour control is RGBWAF.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.2.1.26 Colour_RGBWAF_BLUE

The current blue value of DALI Type 8 (DT8) lamps, whose colour control is RGBWAF.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.2.1.27 Colour_RGBWAF_WHITE

The current white value of DALI Type 8 (DT8) lamps, whose colour control is RGBWAF.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.2.1.28 Colour_RGBWAF_AMBER

The current amber value of DALI Type 8 (DT8) lamps, whose colour control is RGBWAF.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.2.1.29 Colour_RGBWAF_FREECOLOUR

The current freecolour of DALI type 8 (DT8) lamps, whose colour control is RGBWAF.

The valid values are from 0 to 254 and a value of NaN represents the DALI “MASK” value.

5.3 Multi-State Output Object - Scene Control of Group and Channel

To control DALI scenes for the groups and channels, use Multi-State Output objects. Recall, store and delete scenes with these objects.

5.3.1 Group and Channel Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Reliability	103	BACnetReliability	R
Out_Of_Service	81	BOOLEAN	W
Number_Of_States	74	Unsigned	R
State_Text	110	BACnetARRAY[N]of CharacterString	R
Priority_Array	87	BACnetPriorityArray	R
Relinquish_Default	104	REAL	R

5.3.1.1 Object_Identifier

The object instance number is the same as the associated Analog Output object and is also represented as TCLL.

- “T” is the type of object as follows, 1 for DALI groups and 2 for DALI channels.
- “C” represents the DALI channel number, 0, 1, 2, or 3.
- “LL” represents for group objects, numbers 0-15 and for channel objects, number 00.

5.3.1.2 Object_Name

The **Object_Name** of the associated Analog Output object of the Group or Channel ending with “Scene”.

5.3.1.3 Object_Type

MULTISTATE_OUTPUT (14).

5.3.1.4 Present_Value

The Present_Value allows recalling, storing, and deleting the scenes. The available values are described below.

GO TO SCENE: - Values 1 to 16 allow sending the DALI command “GO TO SCENE” to the associated group or channel (broadcast).

STORE SCENE: - Values 17 to 32 allow sending the DALI command “STORE DTR AS SCENE” to the associated group or channel (broadcast).

REMOVE SCENE: - Values 33 to 48 allow sending the DALI command “REMOVE FROM SCENE” to the associated group or channel (broadcast).

5.3.1.5 Status_Flags

This property indicates the general “reliability” of the object.

5.3.1.6 Reliability

This property indicates whether the operation of the Present_Value or the operation of the object is reliable. The values are as follows:

- NO_FAULT_DETECTED - No fault has been detected.

5.3.1.7 Out_Of_Service

It is an indication of whether or not the object is in service.

5.4 Analog Input Object - Light Sensor

To obtain the light sensors’ illuminance level, use the Analog Input objects.

5.4.1 Light Sensor Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Device_Type	31	CharacterString	R
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Reliability	103	BACnetReliability	R
Out_Of_Service	81	BOOLEAN	W
Units	117	BACnetEngineeringUnits	R
Min_Pres_Value	69	REAL	R
Max_Pres_Value	65	REAL	W
COV_Increment	22	REAL	W

5.4.1.1 Object_Identifier

The object instance number is represented as TCLL.

- “T” is the type of object as follows, 5 for DALI sensors.
- “C” represents the DALI channel number, 0, 1, 2, or 3.
- “LL” represents for sensor objects, numbers 00-31.

5.4.1.2 *Object_Name*

The name of the light sensor.

5.4.1.3 *Object_Type*

ANALOG_INPUT (0).

5.4.1.4 *Present_Value*

The current illuminance level.

5.4.1.5 *Device_Type*

A text description of the physical DALI device connected to the analog input. For light sensor objects, it is **“DALI sensor”**.

5.4.1.6 *Status_Flags*

This property indicates the general “reliability” of an analog input object.

5.4.1.7 *Reliability*

This property indicates whether the operation of the DALI sensor is reliable. The values are as follows:

- NO_FAULT_DETECTED - No fault has been detected.
- NO_SENSOR - No physical device is connected to the input object.
- COMMUNICATION_FAILURE - DALI device is offline.
- UNRELIABLE_OTHER - A DALI error has been reported by the DALI sensor.

5.4.1.8 *Out_Of_Service*

It indicates whether the physical device that the object represents is in service.

5.4.1.9 *Units*

The unit for the Present_Value is luxes.

5.4.1.10 *Min_Pres_Value*

The minimum value is always zero (0). It represents the lowest value for the property Present_Value.

5.4.1.11 *Max_Pres_Value*

The maximum value is always infinity. It represents the highest value for the property Present_Value.

5.4.1.12 *COV_Increment*

This property specifies the minimum change of the Present_Value that issues a COVNotification.

5.5 Binary Input Object - Occupancy Sensors

To obtain the occupancy state, use the Binary Input objects.

5.5.1 Occupancy Sensor Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	Enumerated	W

5.5.1.1 *Object_Identifier*

The object instance number is represented as TCLL.

- “T” is the type of object as follows, 5 for DALI sensors.
- “C” represents the DALI channel number, 0, 1, 2, or 3.
- “LL” represents for sensor objects, numbers 00-31.

5.5.1.2 *Object_Name*

The name of the occupancy sensor.

5.5.1.3 *Object_Type*

BINARY_INPUT (3).

5.5.1.4 *Present_Value*

The current occupancy state.

5.6 Multi-State Input Object - Scene Feedback of Group and Channel

To obtain the latest DALI scenes for the groups and channels, use Multi-State Input objects.

5.6.1 Group and Channel Object

List of available properties for these objects.

Property Identifier	Property ID	Property Datatype	Conformance Code
Object_Identifier	75	BACnetObjectIdentifier	R
Object_Name	77	CharacterString	R
Object_Type	79	BACnetObjectType	R
Present_Value	85	REAL	W
Description	28	CharacterString	R
Status_Flags	111	BACnetStatusFlags	R
Event_State	36	BACnetEventState	R
Out_Of_Service	81	BOOLEAN	W
Number_Of_States	74	Unsigned	R
State_Text	110	BACnetARRAY[N]of CharacterString	R

5.6.1.1 Object_Identifier

The object instance number is the same as the associated Analog Output object and is also represented as TCLL.

- “T” is the type of object as follows, 1 for DALI groups and 2 for DALI channels.
- “C” represents the DALI channel number, 0, 1, 2, or 3.
- “LL” represents for group objects, numbers 0-15 and for channel objects, number 00.

5.6.1.2 Object_Name

The **Object_Name** of the associated Analog Output object of the Group or Channel ending with “Scene Feedback”.

5.6.1.3 Object_Type

MULTISTATE_INPUT (13).

5.6.1.4 Present_Value

The Present_Value represents the latest scene recalling. The available values are described below.

NO COMMAND: - Values 1 for the initial value.

GO TO SCENE: - Values 2 to 17 for the DALI command “GO TO SCENE” to the associated group or channel (broadcast).

5.6.1.5 Description

The **Object_Name** of the associated Analog Output object of the Group or Channel ending with “Scene Feedback”.

5.6.1.6 Status_Flags

This property indicates the general “reliability” of the object.

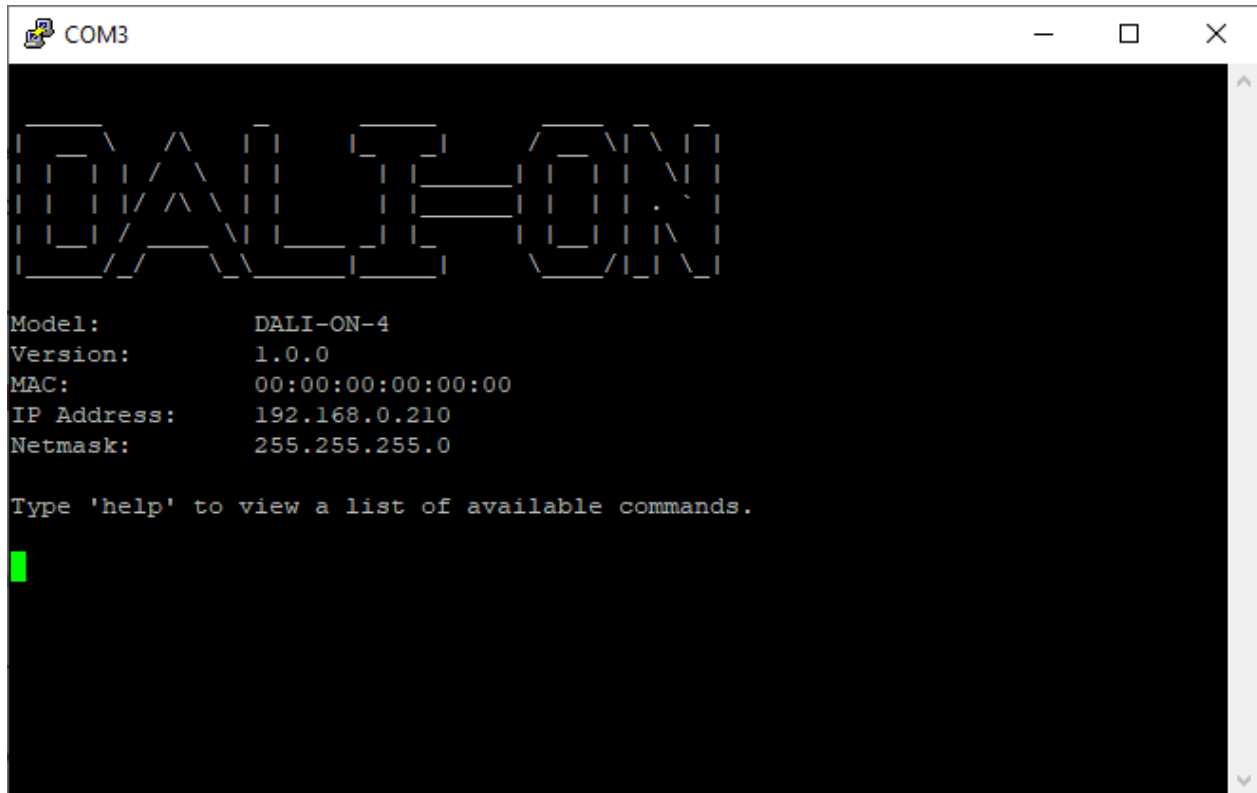
5.6.1.7 *Out_Of_Service*

It is an indication of whether or not the object is in service.

6 USB Console

6.1 USB Connector

The DALION has a Mini-B USB connector. Once connected to a computer, access to a serial command-line interface is available.



The command-line interface is accessible with serial console software such as PuTTY on a computer.

Several commands are available to view and change the settings, as well as to view system statistics.

Please note that strings cannot contain spaces.

6.2 Serial Console Settings

Name	Value
Speed (baudrate)	115200
Data bits	8
Stop bits	1
Parity	None

6.3 Commands General

6.3.1 help

Lists the available commands.

6.3.2 version

Displays the system version.

6.3.3 reboot

Reboots the system.

6.3.4 factorydefault

Clears all settings and commissioning data.

6.3.5 date

Displays the date and time of the system.

6.3.6 ping

Pings an IPv4 address. Follow this command with an IPv4 address.

6.3.7 status

Displays the status of the system.

6.3.8 ip [addr|a]

Displays the IP network information.

Ex.: `ip a`

6.4 Commands Statistics

6.4.1 stip

Displays the statistics of the IP network.

6.4.2 stbacnetip

Displays the statistics of the BACnet/IP.

6.4.3 stdali

Displays the statistics of the DALI.

6.4.4 `stdalianalyzer channel`

Displays the statistics of the DALI analyzer for the specified channel.

Ex.: `stdalianalyzer 1`

6.4.5 `sttcp`

Displays the statistics of the TCP network.

6.4.6 `studp`

Displays the statistics of the UDP.

6.4.7 `starp`

Displays the statistics of the ARP.

6.4.8 `sticmp`

Displays the statistics of the ICMP protocol.

6.4.9 `starptable`

Displays the ARP table.

6.4.10 `steth`

Displays the Ethernet registers.

6.4.11 `logread`

Displays the system log.

6.5 Commands System Settings

6.5.1 `setsystem`

Modifies the system settings. Follow this command with one of the following parameters. Follow the parameter with the value to assign.

Ex.: `setsystem username admin`

6.5.1.1 *username*

Username (16 characters maximum).

6.5.1.2 *password*

Password (16 characters maximum).

6.6 Commands IP Settings

6.6.1 `setip`

Modifies the IP settings. Follow this command with one of the following parameters. Follow the parameter with the value to assign.

Ex.: `setip source static`

6.6.1.1 *source [static/dhcp]*

IP source, DHCP or static.

Ex.: `setip source static`

6.6.1.2 *address*

IPv4 address.

Ex.: `setip address 192.168.0.100`

6.6.1.3 *netmask*

Netmask.

Ex.: `setip netmask 255.255.255.0`

6.6.1.4 *gateway*

Default gateway.

Ex.: `setip gateway 192.168.0.1`

6.6.1.5 *speed [Auto/10F/10H/100F/100H]*

Link speed.

Ex.: `setip speed auto`

6.6.1.6 *dns1*

First domain name server.

Ex.: `setip dns1 8.8.8.8`

6.6.1.7 *dns2*

Second domain name server.

6.6.1.8 *hostname*

Hostname (32 characters maximum).

6.7 Commands BACnet/IP Settings

6.7.1 *setbacnetip*

Modifies the BACnet/IP settings. Follow this command with one of the following parameters. Follow the parameter with the value to assign.

Ex.: `setbacnetip deviceid 1000`

6.7.1.1 *deviceid*

The BACnet Device ID.

Ex.: `setbacnetip deviceid 1000`

6.7.1.2 *devicename*

The BACnet Device name (32 characters maximum).

Ex.: `setbacnetip devicename DALION`

6.7.1.3 devicedescription

The BACnet Device description (32 characters maximum).

6.7.1.4 devicelocation

The BACnet Device location (32 characters maximum).

6.7.1.5 apdtimeout

APDU timeout in milliseconds (default: 3000).

6.7.1.6 apduretries

The number of APDU retries (default: 3).

6.7.1.7 udpport

UDP Port (default: 47808).

6.7.1.8 bbmdip

BBMD IPv4 address.

6.7.1.9 bbmdport

BBMD UDP port.

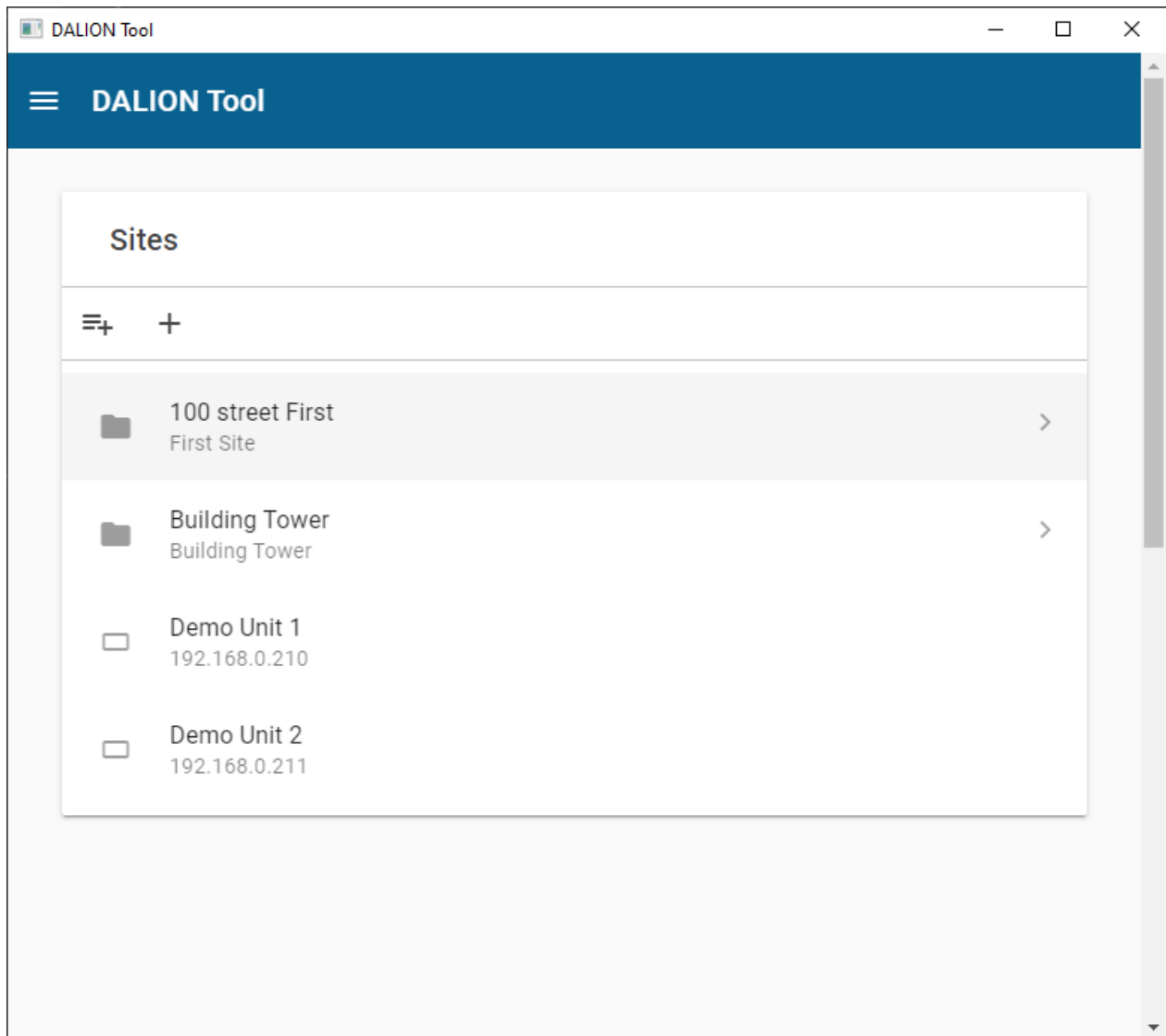
6.7.1.10 fddelay

Foreign device registration delay in seconds.

7 DALION Tool

7.1 Overview

The DALION Tool software for is a Windows graphic tool to help with configurations and setups of the DALION lighting controller.



7.1.1 Installation

- Download the DALION Tool from the website bacmove.com
- Install the DALION Tool on the computer by following the instruction in the installation setup software.

7.2 Menu

7.2.1 Home

The main window of the DALION Tool.

7.2.2 About

Displays the version of the DALION Tool.

7.3 Sites

The DALION Tool can keep the network configuration and credentials of several DALION for easier access later.

7.3.1 Folder

The folders allow storing similar DALION together. For example, folders can be created for each floor of a building.

7.3.1.1 *Add folder*

This button allows to create a new folder in the current folder.

7.3.1.2 *Rename folder*

This button allows renaming the current folder.

7.3.1.3 *Delete folder*

This button allows deleting the current folder.

7.3.1.4 *Name*

A friendly name for the folder.

7.3.1.5 *Description*

A description of the folder and displayed below its name.

7.3.2 Device

The DALION device. Multiple DALION can be present in a folder. A device defines the network configuration and credentials to access a DALION.

7.3.2.1 *Add device*

This button allows to create a new device.

7.3.2.2 *Name*

A friendly name for the DALION.

7.3.2.3 *Description*

A description of the DALION and displayed below its name.

7.3.2.4 *IP Address*

The network IP address of the DALION.

7.3.2.5 Username

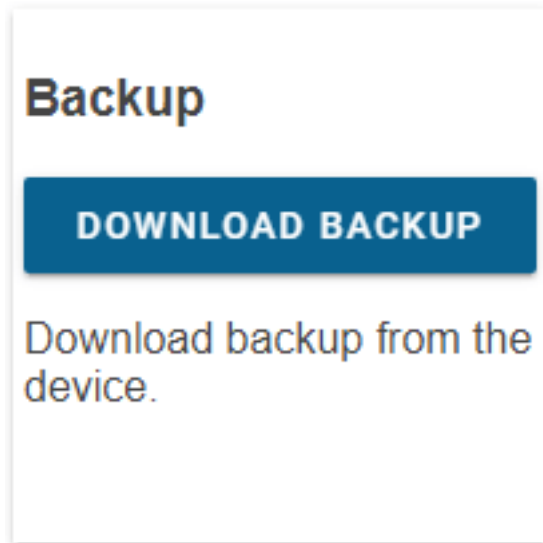
The username used to connect to the DALION.

7.3.2.6 Password

The password used to connect to the DALION.

7.4 Download Backup

The Download Backup allows downloading to the computer a backup file of the DALION settings and assignments from a DALION.



7.4.1 Preparations

- Download and install the latest version of the DALION Tool.
- Connect the computer with DALION Tool to the same network as the DALION to download backup from.

7.4.2 Download

- Press the **Download Backup** button in the DALION Tool.
- Select a folder on the computer where the backup file will be downloaded to.
- Wait for the download to complete.

7.5 Restore Backup

The Restore Backup allows uploading from the computer a backup file of the DALION settings and assignments to a DALION.

Restore

RESTORE BACKUP

Download backup to the device.

7.5.1 Preparations

- Download and install the latest version of the DALION Tool.
- Connect the computer with DALION Tool to the same network as the DALION to upload the backup to.

7.5.2 Restore

- Press the **Restore Backup** button in the DALION Tool.
- Select a DALION backup file on the computer that will be uploaded to the DALION.
- Wait for the upload to complete.

7.6 Firmware Upgrade

The firmware upgrades are intended to provide security and functional updates to ensure that the DALION is always up to date. With the DALION Tool, it is possible to supply the DALION with the new firmware.

Firmware Upgrade

FIRMWARE UPGRADE

Upgrade the device
firmware.

7.6.1 Preparations

- Download and install the latest version of the DALION Tool.
- Download the latest version of the DALION firmware.
- Connect the computer with DALION Tool to the same network as the DALION to upgrade.

7.6.2 Upgrade

- Press the **Firmware Upgrade** button in the DALION Tool.
- Select the previously downloaded DALION firmware from the computer.
- Wait for the upgrade to complete.

7.7 Pre-Commissioning

This option is not yet available.

Pre-commissioning

PRE-COMMISSIONING

Perform lamps pre-commissioning from CSV
file.

8 Remote CLI Tool

8.1 Overview

The DALION Remote CLI (command-line interface) Tool is a Windows tool to help with multiple configurations and setups of the DALION lighting controller.

8.2 Commands

A list of the available commands and parameters.

8.2.1 help

Lists the available commands and parameters.

Example

```
--help
```

8.2.2 version

Displays the tool version.

Example

```
--version
```

8.2.3 ip

IP address of the DALION controller.

Example

```
--ip 192.168.0.210
```

8.2.4 channel

DALI channel number between 1 and 4. It is possible to use a single channel or have multiple channels.

Example

```
# single channel  
--channel 1  
# multiple channels  
--channel [1, 2]
```

8.2.5 channelcsvfile

This parameter is a path to a CSV (comma-separated values) file. CSV file can be created in a spreadsheet software like Microsoft Excel or directly as a text file.

It is possible to use a single channel or have multiple channels.

Example

```
# single channel
--channelcsvfile "[\"C:\\channel1.csv\"]"
# multiple channels
--channelcsvfile "[\"C:\\channel1.csv\", \"C:\\channel2.csv\"]"
```

8.2.6 action

Action to perform on the DALION.

Action	Description
setup_channel	Pre-commissioning of DALI lamps
get_backup	Download backup files from the controller
put_backup	Upload backup files to the controller
push_firmware	Allows upgrading of the controller firmware

8.2.7 firmwarefile

Path to a firmware file.

8.2.8 backupfileouttype

Type of backup output; directory or zip. The default value is directory.

8.2.8.1 directory

Backup files are created in the directory.

8.2.8.2 zip

A ZIP file containing all the backup is created in the directory.

8.2.9 backupconfig

Select the backup. By default all backups are used. Multiple configurations can be passed.

Value	Description
systemconfig	Controller system configuration
dali1	Configuration and commissioning of DALI channel 1
dali2	Configuration and commissioning of DALI channel 2
dali3	Configuration and commissioning of DALI channel 3
dali4	Configuration and commissioning of DALI channel 4

Example

```
--backupconfig "[\"systemconfig\", \"dali2\"]"
```

8.2.10 backupfileout

The directory where the backup files are copied.

Example

backupfileout "C:\backup\"

8.2.11 backupfilein

The ZIP or TAR configuration file to upload to the controller.

Example

backupfilein "C:\backup\backup_DALION.zip"

8.3 Channel CSV File Format

The format of the CSV file is as follows.

```
#DALION DALI CHANNEL CSV,,,,,,,,,
#dali-channel-csv-version: 1,,,,,,,,,
#channel,lampIndex,shortAddress,name,groups,powerOnLevel,systemFailureLevel,m
inLevel,maxLevel,fadeRate,fadeTime,scenes
4,1,1,AABBCC,"[1,4]",10,30,0.1,100,4,2,"[100, 20, null, 80]"
```

8.3.1 First line

File description.

```
#DALION DALI CHANNEL CSV,,,,,,,,,
```

8.3.2 Second line

File content version. The version number should be 1.

```
#dali-channel-csv-version: 1,,,,,,,,,
```

8.3.3 Third line

File content header. Should have the following columns.

```
#channel,lampIndex,shortAddress,name,groups,powerOnLevel,systemFailureLevel,m
inLevel,maxLevel,fadeRate,fadeTime,scenes
```

Column
channel
lampIndex
shortAddress
name
groups
powerOnLevel
systemFailureLevel
minLevel
maxLevel
fadeRate
fadeTime
scenes

8.3.4 Columns

The lamp data columns.

8.3.4.1 *channel*

The DALI channel number of the DALION, starting at zero (0).

8.3.4.2 *lampIndex*

The DALI lamp index in the DALION starting at zero (0). Number between 0 and 63.

8.3.4.3 *shortAddress*

The DALI lamp short address between 0 and 63. A value of `null` can be used not to modify the short address.

8.3.4.4 *name*

The name of the DALI lamp that will appear in the DALION and BACnet network.

8.3.4.5 *groups*

The DALI groups that the lamp takes part of. The format is “[GROUP_NUMBER, GROUP_NUMBER]”. Replace GROUP_NUMBER by any group number between 0 and 15.

DALI default value is “[]”.

8.3.4.6 *powerOnLevel*

The DALI lamp parameter “POWER ON LEVEL” in percent. For DALI MASK use the value `null`.

To request the information from the DALI lamps uses `false`.

DALI default value is **100**.

8.3.4.7 *systemFailureLevel*

The DALI lamp parameter “SYSTEM FAILURE LEVEL” in percent. For DALI MASK use the value null.

DALI default value is **100**.

8.3.4.8 *minLevel*

The DALI lamp parameter “MIN LEVEL” in percent. For DALI MASK use the value null.

8.3.4.9 *maxLevel*

The DALI lamp parameter “MAX LEVEL” in percent. For DALI MASK use the value null.

DALI default value is **100**.

8.3.4.10 *fadeRate*

The DALI lamp parameter “FADE RATE”. Should be a number between 1 and 15.

DALI default value is **7**.

Value	Fade Rate (steps/seconds)
1	358
2	253
3	179
4	127
5	89.4
6	63.3
7	44.7
8	31.6
9	22.4
10	15.8
11	11.2
12	7.9
13	5.6
14	4.0
15	2.8

8.3.4.11 *fadeTime*

The DALI lamp parameter “FADE TIME”. Should be a number between 0 and 15.

DALI default value is **0**.

Value	Fade Time (seconds)
0	No fade
1	0.7
2	1.0
3	1.4
4	2.0
5	2.8
6	4.0
7	5.7
8	8.0
9	11.3
10	16.0
11	22.6
12	32.0
13	45.3
14	64.0
15	90.5

8.3.4.12 *scenes*

The values in percent of the different light intensity scenes of the lamp. For DALI MASK use the value null. The format is "[SCENE_VALUE, SCENE_VALUE]". Replace SCENE_VALUE by the scene value in percent. Each index represents the value of the scene X for that index.

DALI default value is "[]".

8.4 Example of command

8.4.1 DALI Pre-comminising configuration

To perform offline pre-commissioning of DALI lamps of a channel the following parameters are used.

Parameters	Value
action	setup_channel
ip	IP address of the controller
channel	Channel to modify
channelcsvfile	CSV file for the channel

Example

```
lwgwu-cli.exe --action setup_channel --ip 192.168.0.210 --channel 1 --
channelcsvfile "[\"C:\\channel1.csv\"]"
```

8.4.2 Download Backup

To download the backup files from the controller the following parameters are used.

Parameters	Value
action	get_backup
ip	IP address of the controller
backupfileouttype	Type of backup output
backupconfig	Backup config files to download
backupfileout	Directory where the backup is copied

Example

```
lwgwu-cli.exe --action get_backup --ip 192.168.0.210 --backupfileouttype zip  
--backupfileout "C:\\backup\\"
```

8.4.3 Upload Backup

To upload a backup file to the controller the following parameters are used.

Parameters	Value
action	put_backup
ip	IP address of the controller
backupfilein	Path to the backup file to upload

Example

```
lwgwu-cli.exe --action put_backup --ip 192.168.0.210 --backupfilein  
"C:\\backup\\backup_DALI-ON.zip"
```

8.4.4 Firmware Upgrade

To upgrade the firmware of the controller the following parameters are used.

Parameters	Value
action	push_firmware
ip	IP address of the controller
firmwarefile	Path to the firmware file to upload

Example

```
lwgwu-cli.exe --action push_firmware --ip 192.168.0.210 --firmwarefile  
"C:\\firmware\\DALION_1.0.0.bin"
```