

# iSMA-B-AAC20D

User Manual

## DALI Network



Powered by  
**sedona**  
FRAMEWORK™

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## 1 Sedona DALI

What DALI is?

DALI is an abbreviation for Digital Addressable Lighting Interface.

DALI is a protocol, in which DALI devices communicate with each other.

In other words, Dali is the language in which DALI – devices talk to each other.

DALI (digital addressable lighting interface) is a two-way communication system that brings digital technology to lighting. An international standard for communication, DALI defines the commands that ballasts need to recognize in order to be considered DALI ballasts. The system allows individual ballasts to “talk” to the user ... and allows the user to “talk” back via DALI controllers, computers equipped with appropriate software, or building management systems (BMS).

**Warning!** Before programming Sedona DALI kit please check if you are using the latest kit version. The latest kits are available on GC5 support web site [www.support.gc5.pl](http://www.support.gc5.pl)

### 1.1 Revision history

Rev	Date	Description
1.0	28.08.2015	First edition
1.1	03.06.2016	Enable/Disable DALI bus power supply
1.2	05.02.2018	Added lights control components

## 2 Installing iSMA DALI kit

AAC20-D controller has one independent DALI kit.

To install Sedona DALI kit, import the kit to the WorkPlace software (possibly as part of the package of various kits in a zip file). To do this, use an application from the Tools menu -> Sedona Installer.

After successful import of the files, upload the files to your device using the Kit Manager Application from the Sedona Tools package.

**Warning!** Before programming Sedona DALI Network please check if you are using the latest kit version. The latest kit is available on GC5 support web site

[www.support.gc5.pl](http://www.support.gc5.pl)

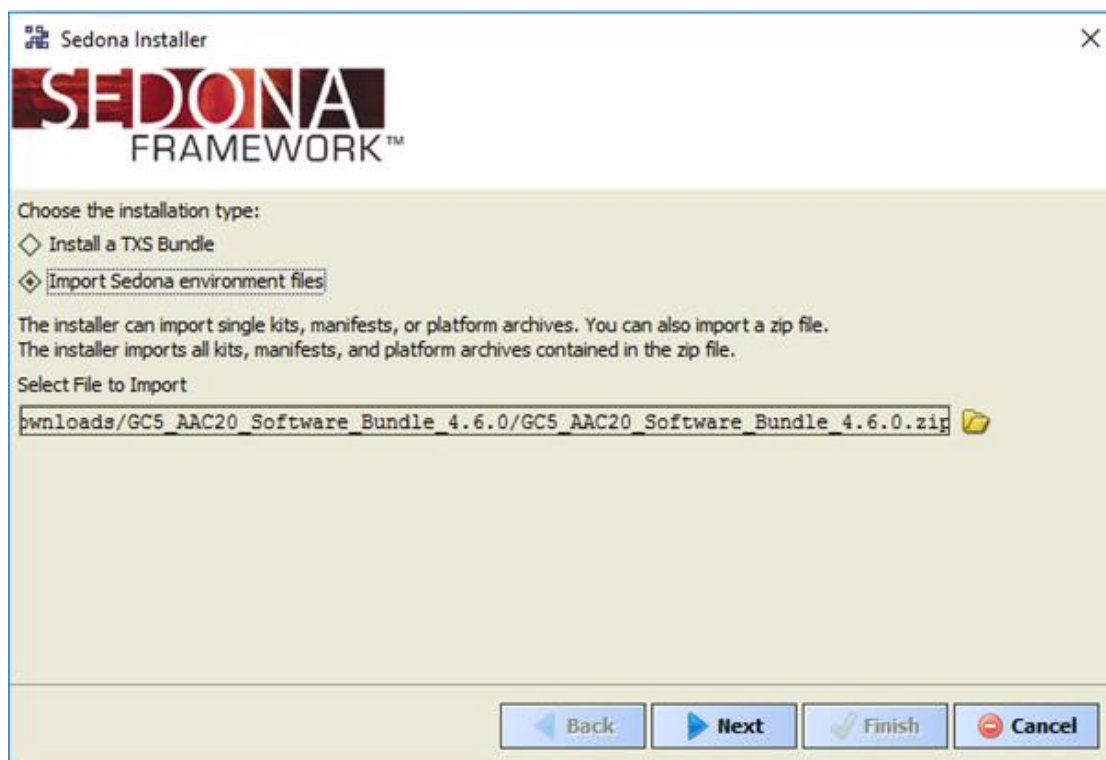


Figure 1 - Sedona Installer

## 2.1 Install kit on iSMA-B-AAC20 device

After successful import all packages, upload the files to your device using the Kit Manager Application from the Sedona Tools.

To install selected kit:

Step 1: Open Work Place, expand Sedona Application, then Sedona Tools and then choose double click Kit Manager;

Step 2: In the Kit Manager, you can manage your kits on the Sedona device;

Step 3: Select DALI kit, then you can click Next, Finish and Restart Device;

Step 4: Your components install successful.

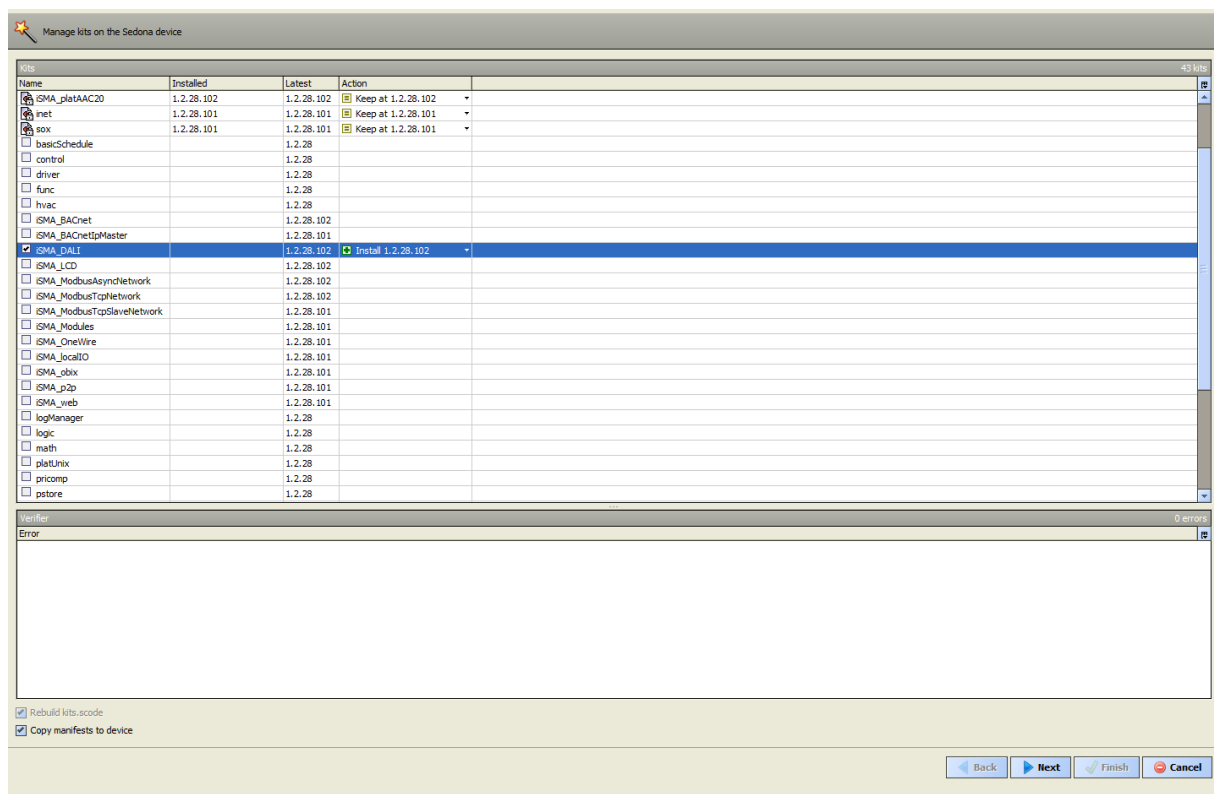


Figure 2 – Kit Manager installing DALI kit

## 2.2 Remove DALI kit from iSMA-B-AAC20 device

To remove selected kit:

Step 1: Open Work Place, expand Sedona Application, next Sedona Tools and then choose double click Kit Manager;

Step 2: In the Kit Manager, you can manage your kits on the Sedona device;

Step 3: Uncheck Dali kit, then you can click Next, Finish and Close;

Step 4: Your components uninstall successful.

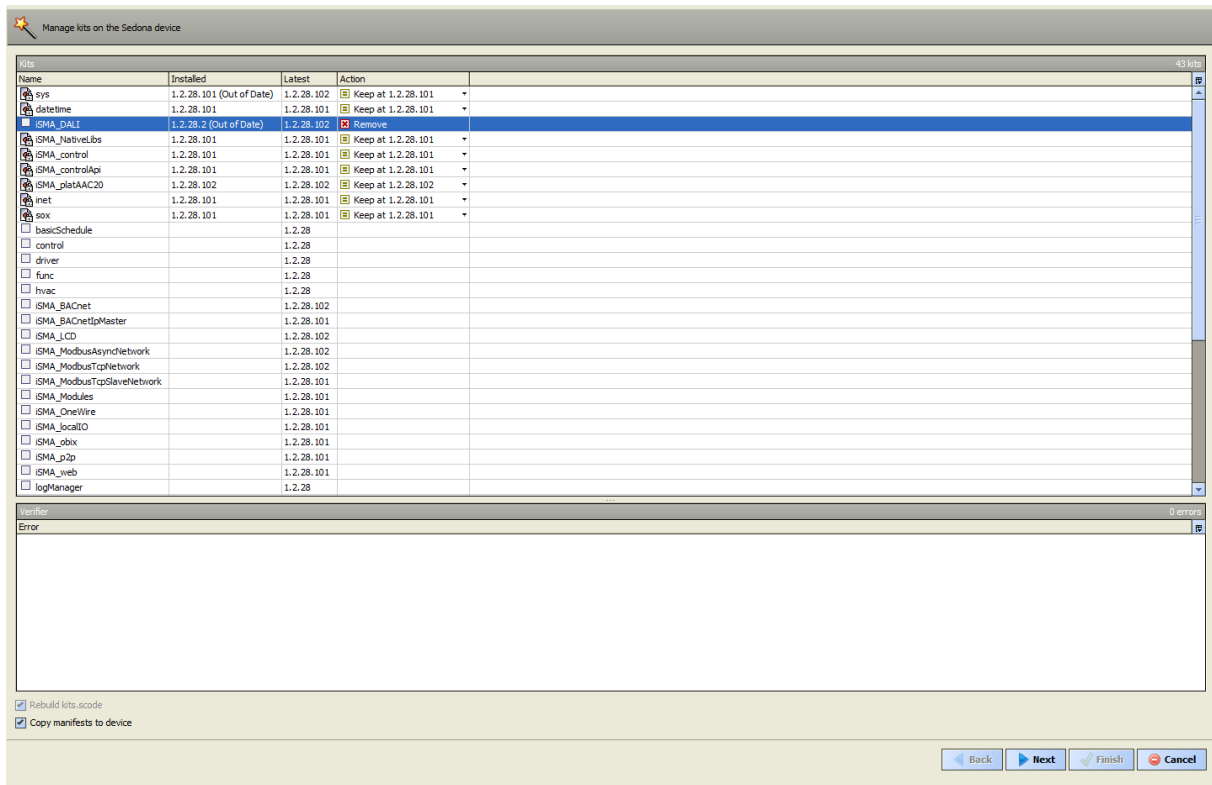


Figure 3 – Kit Manager removing DALI kit

### 3 DALI Network kit

This section provides a collection of procedures to use the iSMA-B-AAC20 DALI Network kit to build network of devices with DALI points.

The iSMA-B-AAC20 device has one DALI interface which can be used to communicate with up to 64 DALI devices.

DALI Network kit consists of 10 types of components:

- DALI Command
- DALI Device
- DALI Device Folder
- DALI Logic Folder
- DALI Network
- DALI On Off
- DALI On Off Dimming 1 Switch
- DALI On Off Dimming 2 Switch
- DALI On Off Preset Value
- DALI On Off Recall Scene

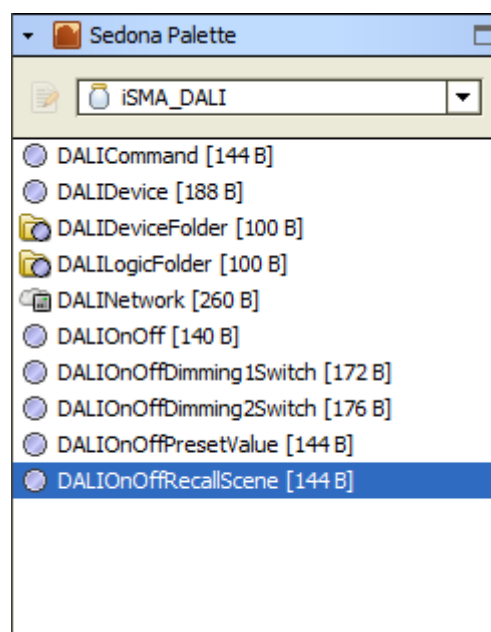


Figure 4 - iSMA DALI kit components

### 3.1 DALI license and limitation

In standard license there are available 64 DALI devices and this number cannot be expanded. iSMA-B-AAC20 has internal power supply (default switch off in network configuration) of 130mA which can be used to power up, up to 64 standard DALI ballasts ( $64 * 2\text{mA} = 128\text{mA}$  only ballasts). Even though if you want to connect devices where rated of total power consumption exceeds 130 mA ( some DALI sensors use more then 2mA), then you must switch off internal power supply and you need connect external power adapter.

### 3.2 DALI Network component

DALI network component is a main component which is response for servicing DALI physical interface. Component must be placed under Drivers folder.

DALI network component has the following slots:

- **Status** – Network status, available states:
  - OK – Network is working properly,
  - Disabled – Network is disable (Slot “Enable” is in false),
- **Fault Cause** – Fault cause description,
- **Power Supply** - Switches to on/off DALI network power supply.

DALINetwork (iSMA_DALI::DALINetwork)	
<input type="checkbox"/> Meta	Group [1] >>
<input type="checkbox"/> Status	Ok
<input type="checkbox"/> Fault Cause	None
<input type="checkbox"/> Power Supply	<input checked="" type="radio"/> On ▼
<input checked="" type="checkbox"/> Logic	iSMA_DALI::DALILogicFolder [Logic:283]
<input type="checkbox"/> Meta	Group [1] >>
<input type="checkbox"/> Description	
<input checked="" type="checkbox"/> DALIDevice	iSMA_DALI::DALIDevice [DALIDevice:284]
<input checked="" type="checkbox"/> DALICommand	iSMA_DALI::DALICommand [DALICommand:285]

Figure 5– DALI Network



### 3.2.1 DALI Network actions- Device Discover and New Initialization

DALI Network component has two actions (under right mouse button).

‘Discover’

This action will automatically searched and detect all devices connected to DALI port. It will also create Discover folder and place there all found devices. All devices have unique address assigned by manufacturer (slot Address). All devices can be moved and groped in to Device Folders (folders must be also placed under DALI Network component).

‘Discover New Initialization’

This action has the same functionality like ‘Discover’ but also is responsible for ‘Short Address’. After use this action ‘Short Address’ will be grouped from 0 – 63 and erase your previous addresses ( this action is recommend at first commission process).

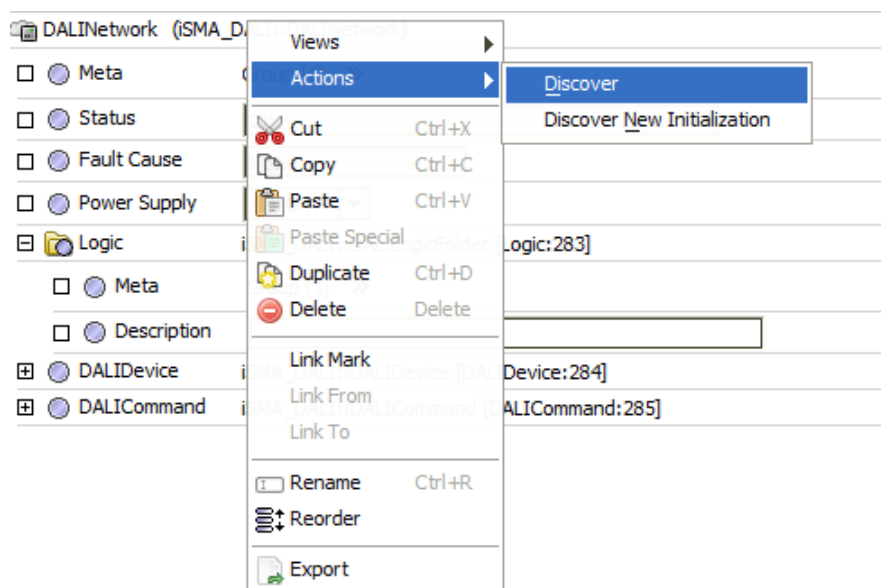


Figure 6 – Sedona DALI Discoverer and New Initialization

## 4 DALI Device

DALI Device is a component which is responsible for servicing physical device connected to DALI network. Each device is represented by a DALI device, and has a unique DALI address (0 to 63).

DALI Device component has the following actions:

- Read: reads the configuration data and the current status of the device
- Write: writes the configuration data and the current status of the device
- Blink: this area allows the light source(s) of the device to flash.

DALI Device component has the following slots:

- Status – device current status,
- Fault Cause – Fault cause description,
- Description – Additional description label,
- Device Type – Type of device,
- Short Address – In some installations it makes sense to define the address at the planning stage,
- Random Address – Hexadecimal address of device connected to the DALI input controller,
- Read actual level – Current brightness value of the ballast,
- Read device status – Show us actual status into device,
- Group (0-15) – A transition from false to true will cause associated 'Scene' selected command to be sent to the control gear,

Devices (iSMA\_DALI::DALIDeviceFolder)

<input type="checkbox"/> Meta	Group [1] >>
<input type="checkbox"/> Description	
<input checked="" type="checkbox"/> DALI_00	iSMA_DALI::DALIDevice [DALI_00:27]
<input checked="" type="checkbox"/> DALI_01	iSMA_DALI::DALIDevice [DALI_01:28]

<input type="checkbox"/> Meta	Group [1] >>
<input type="checkbox"/> Status	Ok
<input type="checkbox"/> Fault Cause	None
<input type="checkbox"/> Description	
<input type="checkbox"/> Device Type	LEDModule
<input type="checkbox"/> Short Address	1 [0 - 63]
<input type="checkbox"/> Random Address	0x 44b4c8
<input type="checkbox"/> Read Actual Level	<input checked="" type="radio"/> false
<input type="checkbox"/> Read Device Status	<input checked="" type="radio"/> false
<input type="checkbox"/> Group0	<input checked="" type="radio"/> false
<input type="checkbox"/> Group1	<input checked="" type="radio"/> false
<input type="checkbox"/> Group2	<input checked="" type="radio"/> false
<input type="checkbox"/> Group3	<input checked="" type="radio"/> false
<input type="checkbox"/> Group4	<input checked="" type="radio"/> false
<input type="checkbox"/> Group5	<input checked="" type="radio"/> false
<input type="checkbox"/> Group6	<input checked="" type="radio"/> false
<input type="checkbox"/> Group7	<input checked="" type="radio"/> false
<input type="checkbox"/> Group8	<input checked="" type="radio"/> false
<input type="checkbox"/> Group9	<input checked="" type="radio"/> false
<input type="checkbox"/> Group10	<input checked="" type="radio"/> false
<input type="checkbox"/> Group11	<input checked="" type="radio"/> false
<input type="checkbox"/> Group12	<input checked="" type="radio"/> false
<input type="checkbox"/> Group13	<input checked="" type="radio"/> false
<input type="checkbox"/> Group14	<input checked="" type="radio"/> false
<input type="checkbox"/> Group15	<input checked="" type="radio"/> false

Figure 7 – Sedona DALI Device

Device Component has the following data points:

- Scene (0-15) - These registers are where the brightness values for the individual scenes are stored,
- Max Level - Maximum brightness value – this value cannot be exceeded when fading up,
- Min Level - Minimum brightness value – this value cannot be undershot when fading down,
- Power On Level - Brightness value to which the Dali ballast switches when the power supply is switched on,
- System Failure Level - Brightness value to which the Dali ballast switches when a fault is detected in the Dali circuit,
- Fade Time - Time in seconds for fading from the current brightness value to the new brightness value,
- Fade Rate - Fade steps per second that are performed in response to an indirect fade command,

<input type="checkbox"/> <input checked="" type="radio"/> Scene0 Level	254	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene1 Level	243	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene2 Level	229	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene3 Level	203	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene4 Level	170	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene5 Level	144	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene6 Level	60	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene7 Level	0	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene8 Level	255	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene9 Level	255	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene10 Level	255	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene11 Level	255	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene12 Level	0	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene13 Level	170	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene14 Level	0	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Scene15 Level	0	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Max Level	254	[0 - 254]
<input type="checkbox"/> <input checked="" type="radio"/> Min Level	85	[0 - 254]
<input type="checkbox"/> <input checked="" type="radio"/> Power On Level	254	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> System Failure Level	254	[0 - 255]
<input type="checkbox"/> <input checked="" type="radio"/> Fade Time	0	[0 - 15]
<input type="checkbox"/> <input checked="" type="radio"/> Fade Rate	7	[1 - 15]

Figure 8 – Sedona DALI Device

## 4.1 DALI Scenes and Groups

DALI Scenes (Figure 8 above)

With DALI device it is possible to store 16 different lighting scenarios in each DALI device so that predefined lighting moods can be called up for a room (for example the "presentation" scene in a conference room, or a "morning" scene in a wellness centre). The values of the 16 scenes are stored in the control gear.

DALI Groups (Figure 7 above)

With DALI device it is possible to define 16 groups in a DALI circuit. A group is a meaningful collection of devices. Group assignment can be edited in DALI. It is possible for one DALI device to belong to several groups. This reduces the amount of wiring needed and greatly increases flexibility compared with non-addressable systems because in these systems the groupings are hard-wired.

## 5 DALI light control components

### 5.1 DALI Command

Defining the function, further parameters can be set to select the destination address for which the function is intended (group or individual address) and the type of Sedona DALI command to be performed.

Sedona DALI Protocol allows addressing of individual 'control gear' (ballasts, relays, dimming circuits, etc.) without needing to refer to a parent device.

Sedona DALI Command is used for triggering Sedona DALI commands. Individual in slots are provided for various Sedona DALI commands. A transition from 'false' to true will cause the associated Sedona DALI command to be sent to the control gear.

DALI Device component has the following actions:

- Send – This action will send DALI command to DALI devices

Meta	Group [1] >>
Status	Ok
Description	
Command	DirectPowerControl
Address	0 [0 - 63]
Address Type	Single
Value	0 [0 - 255]
Trigger	null

Figure 9 – Sedona DALI Command

Sedona DALI command has the following slots:

- Status – Component current status,
- Description – User description up to 32 characters,
- Command – Parameter to a control gear,
- Address – Short DALI device address or DALI group address,
- Address Type – You can manage single device, group or all DALI devices,
- Value – Intensity values for scenes,
- Trigger – rising edge will send DALI command to DALI devices,

## 5.2 DALI On Off

This component has built-in DALI command which will be send to DALI device/devices on slots On and Off rising edge

The component has the following actions:

- Send On – This action will send to DALI device/devices command “On”
- Send Off – This action will send to DALI device/devices command “Off”

The screenshot shows the configuration window for the 'DALIOnOff' component. The title bar reads 'DALIOnOff (iSMA\_DALI::DALIOnOff)'. The interface includes a 'Meta' section with a 'Group [1]' dropdown. Below this are several configuration fields: 'Status' (set to 'Ok'), 'Description' (empty), 'Address' (set to '0' with a range '[0 - 63]'), 'Address Type' (set to 'Single'), 'On' (set to 'false'), and 'Off' (set to 'false'). Each field has a small icon to its left and a dropdown arrow to its right.

Figure 10 – iSMA DALI On Off

The component has the following slots:

- Status – Component current status,
- Description – User description up to 32 characters,
- Address – Short DALI device address or DALI group address,
- Address Type – You can manage single device, group or all DALI devices,
- On – rising edge will send switch On command to device/devices
- Off – rising edge will send switch Off command to device/devices

## 5.3 DALI On Off Dimming 1 Switch

This component has the built-in DALI command which allows to switch On and Off or to change DALI device/devices lighting level. This component was designed to work with single switch (one button connect to one digital input). The switch is working in two modes - short and long press. The short press (when Switch slot is in true mode for the time below parameter defined in Long Press slot), recall toggle function so each short press sends On / Off command to DALI device/devices. The long press is to increase or decrease lighting level. Each press toggle between increase or decrease function. Current lighting level is stored in the device in scene number defined in slot

Scene No For Last Level (in default scene no 15). The short press On command will recall lighting level stored in this scene.

The component has the following actions:

- Send Short Press – This action will toggle between On and Off command and send it to DALI device/devices

Figure 11 – iSMA DALI On Off Dimming 1 Switch

The component has the following slots:

- Status – Component current status,
- Description – User description up to 32 characters,
- Address – Short DALI device address or DALI group address,
- Address Type – You can manage single device, group or all DALI devices,
- Switch – Component input with will trigger DALI command sending,
- Long Press – Time parameter which will define time for long press function, (In default 500ms)
- Scene No For Last Level – Scene number which will store last level value (in default scene no 15)

## 5.4 DALI On Off Dimming 2 Switch

This component has the built-in DALI command which allows to switch On and Off or to change DALI device/devices lighting level. This component was designed to work with double switch (one button for switch on and dimm up, second for switch off and dimm down). The switch is working in two modes short and long press. The short press (when Switch slot is in true mode for the time below parameter defined in Long Press slot), recall On / Off command to DALI device/devices. The long press is for increasing

or decreasing the lighting level. Current lighting level is stored in the device in scene number defined in slot Scene No For Last Level (in default scene no 15). The short press On command will recall lighting level stored in this scene.

The component has the following actions:

- Send Short Press On – This action will send On command and to DALI device/devices
- Send Short Press Off – This action will send Off command and to DALI device/devices

DALI On Off Dimming 2 Switch (ISMA_DALI::DALIOnOffDimming2Switch)	
<input type="checkbox"/> Meta	Group [1] >>
<input type="checkbox"/> Status	Ok
<input type="checkbox"/> Description	
<input type="checkbox"/> Address	0 [0 - 63]
<input type="checkbox"/> Address Type	Single
<input type="checkbox"/> Switch On	false
<input type="checkbox"/> Switch Off	false
<input type="checkbox"/> Long Press	500 ms [1 - max]
<input type="checkbox"/> Scene No For Last Level	15 [0 - 15]

Figure 12 - iSMA DALI On Off Dimming 2 Switch

The component has the following slots:

- Status – Component current status,
- Description – User description up to 32 characters,
- Address – Short DALI device address or DALI group address,
- Address Type – You can manage single device, group or all DALI devices,
- Switch On– Component input with trigger DALI On or Light level Increase command sending,
- Switch Off– Component input with trigger DALI Off or Light level decrease command sending,
- Long Press – Time parameter which will define time for long press function, (In default 500ms)
- Scene No For Last Level – Scene number which will store last level value (in default scene no 15)



## 5.5 DALI On Off Preset Value

This component has the built-in DALI command which sends direct lighting level to DALI device/devices. The component has defined two sending slots so different values for On and Off trigger can be defined.

The component has the following actions:

- Send Value On – This action will send to DALI device/devices direct level value assign to On trigger
- Send Value Off – This action will send to DALI device/devices direct level value assign to Off trigger

The screenshot shows the configuration window for the 'DALIOnOffPresetValue' component (iSMA\_DALI::DALIOnOffPresetValue). The interface includes a 'Meta' section with a 'Group [1]' button. Below this are several configuration fields:

- Status:** A text field containing 'Ok'.
- Description:** An empty text field.
- Address:** A text field containing '0' with a range indicator '[0 - 63]'.
- Address Type:** A dropdown menu set to 'Single'.
- On:** A radio button labeled 'false'.
- Value On:** A text field containing '0' with a range indicator '[0 - 255]'.
- Off:** A radio button labeled 'false'.
- Value Off:** A text field containing '0' with a range indicator '[0 - 255]'.

Figure 13 - iSMA DALI On Off Preset Value

The component has the following slots:

- Status – Component current status,
- Description – User description up to 32 characters,
- Address – Short DALI device address or DALI group address,
- Address Type – You can manage single device, group or all DALI devices,
- On– Component input trigger which will send direct lighting level from slot Value On
- Value On – On direct lighting level,
- Off– Component input trigger which will send direct lighting level from slot Value Off
- Value Off – Off direct lighting level,

## 5.6 DALI On Off Recall Scene

This component has the built-in DALI command which sends recall scene command to DALI device/devices. The component has defined two scenes number and trigger slots so define different scenes for On and Off trigger can be defined.

The component has the following actions:

- Send Scene On – This action will send to DALI device/devices recall scene number assign to On trigger
- Send Scene Off – This action will send to DALI device/devices recall scene number assign to Off trigger

The screenshot shows the configuration window for the 'DALIOnOffRecallScene' component. The title bar reads 'DALIOnOffRecallScene (iSMA\_DALI::DALIOnOffRecallScene)'. The interface includes several input fields and checkboxes:

- Meta:** A checkbox with a label 'Group [1] >>'.
- Status:** A text field containing 'Ok'.
- Description:** An empty text field.
- Address:** A text field containing '0' with a range indicator '[0 - 63]'.
- Address Type:** A dropdown menu currently set to 'Single'.
- On:** A radio button labeled 'false'.
- Scene On:** A text field containing '0' with a range indicator '[0 - 255]'.
- Off:** A radio button labeled 'false'.
- Scene Off:** A text field containing '0' with a range indicator '[0 - 255]'.

Figure 14 - iSMA DALI On Off Recall Scene

The component has the following slots:

- Status – Component current status,
- Description – User description up to 32 characters,
- Address – Short DALI device address or DALI group address,
- Address Type – You can manage single device, group or all DALI devices,
- On – Component input trigger which will send recall scene command
- Value On – Scene number recall by On trigger
- Off – Component input trigger which will send recall scene command
- Value Off – Scene number recall by Off trigger