ADEO CONTROL SGDD-C4-4

SERVER GATEWAY DMX & DALI2

for Control4 integrations

CONTROL4 INTEGRATION MANUAL

V2

Firmware version: 1.0.81

December 2023

Summary

1. Relese Note

Dashboard version	Firmware version	TCP/IP stack version
0.0.81	1.0.34	TCP/IP version 2.1.2

News

- New web interface
- Fix commands tunable white
- Fix fade DALI
- Local input configuration

WARNING: The update will return the gateway to factory settings (e.g. IP address)

2. Application

The new Adeo Server Gateway SGDD-C4-4 is a multi-output device that operates at the network level and allows data packets to be routed to fieldbus communication systems such as DMX512A and DALI to provide advanced lighting control. Once the IP address is assigned on the Composer Pro, the SGDD-C4-4, through specific drivers, is able to manage the individual channel or RGB through DMX or DALI. Communication is bidirectional, so from the Control4 interface we will always have the updated status of the lights.

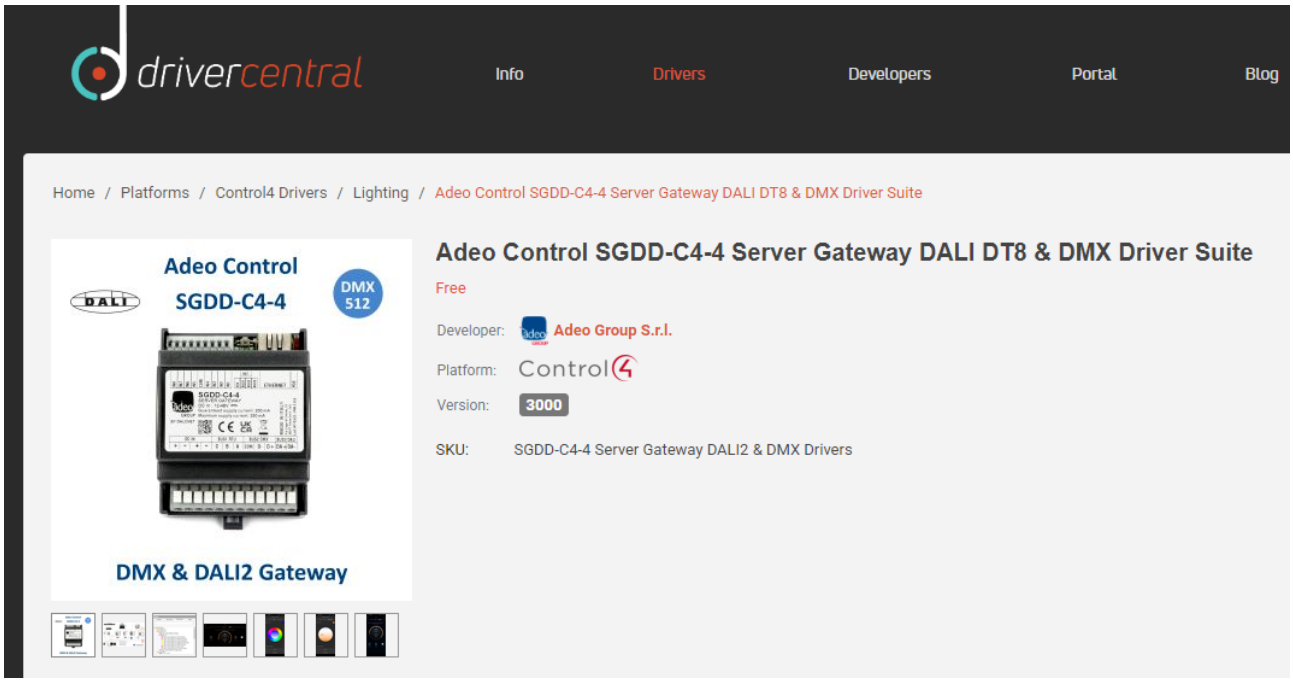
The SGDD-C4-4 device stores information from the configured receiver buses in a buffer and transmits it to the configured transmitter buses. In the default configuration, a single buffer, corresponding to a DMX universe, is managed and controlled via the Ethernet interface. On the DMX bus, all of the 512 channels of the buffer are transmitted; on the DALI bus, the first 64 channels of the buffer (64 short addresses) are transmitted according to an algorithm that updates the fastest changing channels more frequently. This default configuration allows a total of 512 levels of light intensity to be managed through any control unit with an Ethernet connection, and to control different devices without the need to know in detail how the relevant protocols (DMX or DALI) work.

Specifically, DMX/DALI conversion is possible in installations where DMX and DALI are used simultaneously. The supply voltage is between 12 and 48V DC and is fitted with DALI short-circuit and overload protection.

The SGDD-C4-4 provides, via its incorporated flash memory, a Web Server interface on which a standard application is loaded that allows real-time data setting or monitoring from a PC, Tablet or Smart Phone. With the SGDD-C4-4, advanced lighting control is possible at network level, with the advantage of intelligent communication through different communication buses. Indeed, SGDD-C4-4 manages the data and bus interface in a transparent way, allowing easier system configuration.

3. Control4 Integration

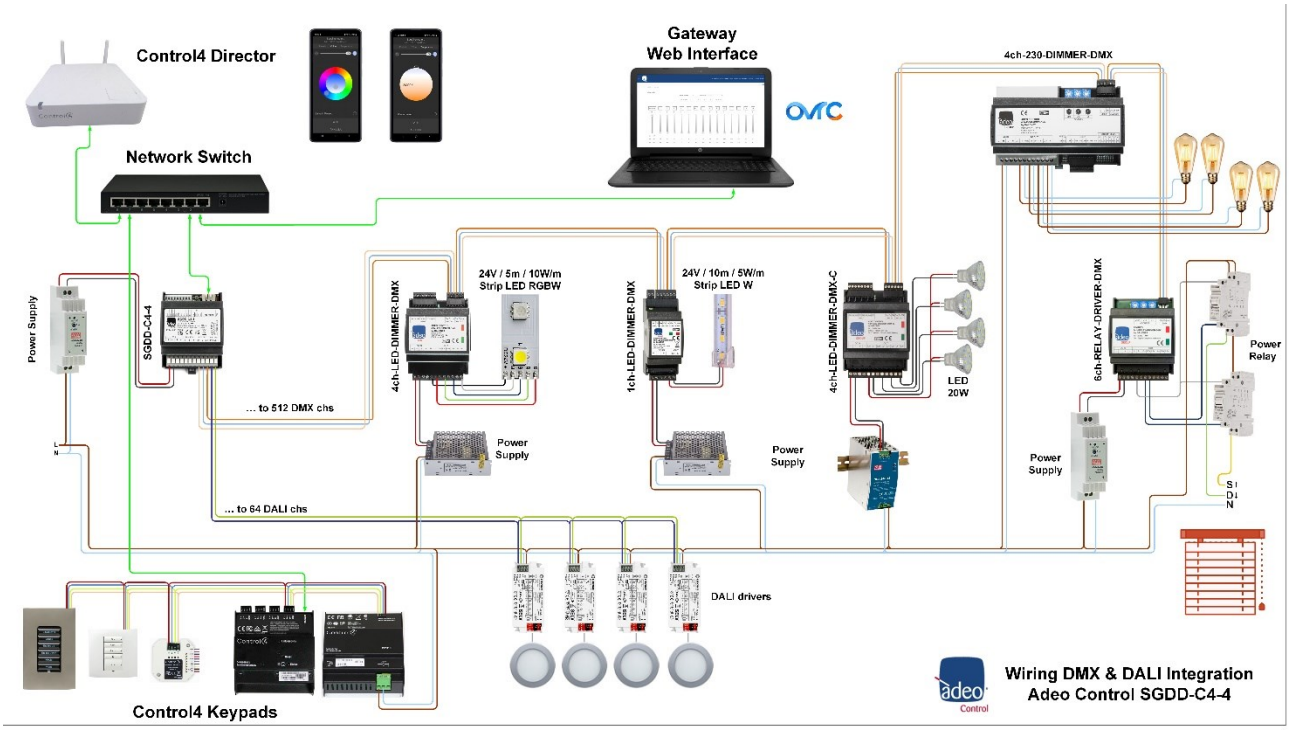
- The gateway comes with a free driver and only works with the SGDD-C4-4.
- The gateway manages DMX and DALI buses simultaneously, showing 512 channels in Connections.
- The gateway supports RampToLevel directly via hardware.
- The 512 channels are combined with the light/relay drivers in Connections.
- Broadcast commands can be sent directly from the gateway driver.
- The light drivers support the Advanced Lighting.
- The drivers support the OS3 and soon the OS3.3 too.
- Through specific drivers the gateway can control DALI2 type devices:
  - DT4, Control gear for phase dimmers
  - DT6, Control gear for LEDs
  - DT8, Control gear for colour converters
  - DT255[1], Multi-device types



Updated drivers can be downloaded free of charge from
https://drivercentral.io/platforms/control4-drivers/lighting/adeo-control-server-gateway-DALI-and-dmx-driver-suite/

[1] Device Type 255: Multi-device type. They include at least two types of devices, in our case just think that they can be configured in DT6 or DT8 depending on practical use. The gateway will always find the device as DT255, just know how the DALI driver is configured.

4. DALI and DMX integration example



5. Difference between DALI Type 6 and DALI Type 8

DT6, 'Single-Channel' commands use a single address to control a single channel. DALI type 6 multi-channel commands use X number of addresses to control X number of channels.
For example, if we need to control an RGB LED strip, we will use 3 addresses (out of 64) to control the 3 colours individually. If the device provides for it, we could also control the intensity (Master), so we will have to provide an additional address.

DT8 commands use one address to control two or more channels.
For example, if we need to control a Tunable White (or Dynamic White) LED strip, we can use a single address (out of 64) and send many more commands, which obviously include controlling the intensity and temperature of the light.

6. DALI & DMX Comparison

Design considerations for a DALI ecosystem

N°	Fixture	DALI Type	DALI Address	N° SGDD-C4-4
10	RGB	DT6	(10x3) 30	1 (30/64)
20	RGBW	DT6	(20x4) 80	2 (80/128)
40	TW	DT6	(40x2) 80	2 (80/128)
10	RGB	DT8	10	1 (10/64)
20	RGBW	DT8	20	1 (20/64)
40	TW	DT8	40	1 (40/64)

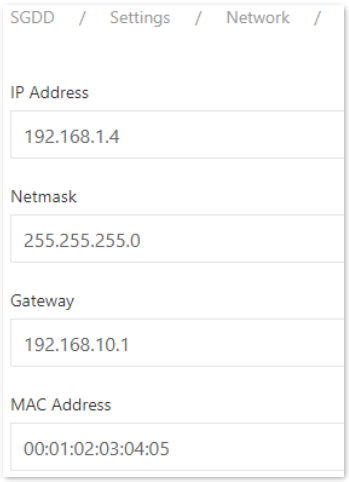
Design considerations for a DMX ecosystem

N°	Fixture	DMX Address	N° SGDD-C4-3
512	White	512	1
170	RGB	(170x3) 510	1
128	RGBW	(128x4) 512	1
128	TW	(120x2) 252	1

It goes without saying that the technology best suited to the purpose is the one that best meets the performance/price ratio. It is not a given, however, for the market:

	DALI	DMX
BUS speed	-	+
Ease of wiring	+	-
Market availability	+	-
Versatility	-	+
Know How	+	-
Address/Channels	-	+

7. Before programming



Check that the Network settings are correct.

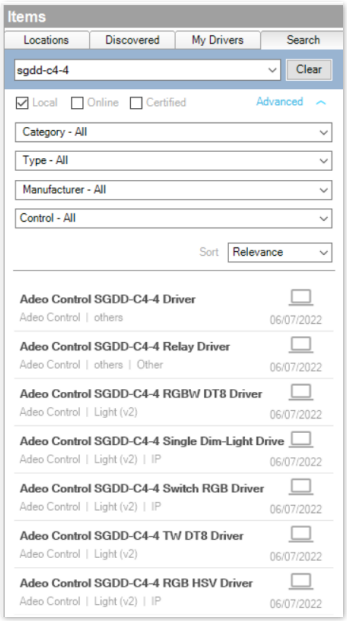
Note down the IP Address, which is required for settings in Composer.

Also check the communication between the gateway and the field buses, DMX and/or DALI, from **Channels**. In the case of DALI, ensure that all addresses are correctly assigned.

Communication between the driver and the gateway takes place through Telnet protocol.

Verify that Telnet is enabled on the gateway

8. Drivers



The drivers are free of charge and were developed by StArt Project for Adeo Group.

The entire driver suite can be downloaded free of charge at:

https://drivercentral.io/platforms/control4-drivers/lighting/adeo-control-sgddc44-server-gateway-dali2-and-dmx-driver-suite/

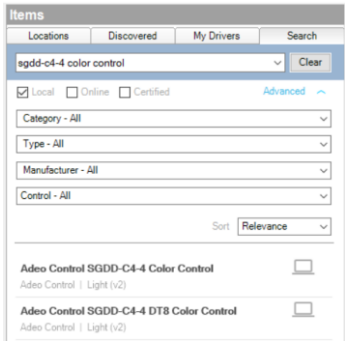
Drivers for releases up to OS 3.2.4 are:

Name	Device File
Adeo Control SGDD-C4-4 Driver	Adeo_Control_SGDD-C4-4_Gateway.c4z
Adeo Control SGDD-C4-4 RGBW DT8 Driver	Adeo_Control_SGDD-C4-4_RGBW-DT8.c4z
Adeo Control SGDD-C4-4 TW DT8 Driver	Adeo_Control_SGDD-C4-4_TW-DT8.c4z
Adeo Control SGDD-C4-4 Single Dim-Light Driver	Adeo_Control_SGDD-C4-4_Single_Dimmable_Light.c4z
Adeo Control SGDD-C4-4 RGB HSV Driver	Adeo_Control_SGDD-C4-4_RGB_HSV.c4z
Adeo Control SGDD-C4-4 Switch RGB Driver	Adeo_Control_SGDD-C4-4_SW_RGB.c4z
Adeo Control SGDD-C4-4 Relay Driver	Adeo_Control_SGDD-C4-4_Relay.c4z

Copy drivers to folder Documents/Control4/Drivers created by Composer Pro. Using the 'Search' tab in System Design, add the drivers to the device list in your project. Flag 'Local'

Latest Version: 3000

9. Color Control Driver



The Drivers for releases from OS 3.3 and beyond are:

Name	Device File
Adeo Control SGDD-C4-4 Color Control*	**Adeo_Control_SGDD-C4-4_Color-Control.c4z***
Adeo Control SGDD-C4-4 DT8 Color Control	**Adeo_Control_SGDD-C4-4_DT8_CC.c4z**

Copy drivers to folder Documents/Control4/Drivers created by Composer Pro. Using the 'Search' tab in System Design, add the drivers to the device list in your project. Flag 'Local'
Latest Version: 3100

*this driver must be used in combination with the Adeo Control SGDD-C4-4 Single Dim-Light Driver (Adeo_Control_SGDD-C4-4_Single_Dimmable_Light.c4z).

10. Color Control Driver use cases

Let's try to give some indications of use for the respective drivers:

A **Connection** for each function/channel/slider	One **Connection** for More Functions
Adeo Control SGDD-C4-4 Color Control	**Adeo Control SGDD-C4-4 DT8 Color Control**
DMX • RGB • RGBW • Master**+RGB • Master**+RGBW • Master**+Tunable White **DALI DT6** • RGB • RGBW • Master**+RGB • Master**+RGBW • Master**+Tunable White	**DALI DT8 ONLY** • Master**+RGB • Master**+RGBW • Master**+Tunable White

11. Best Practice

a. Before integration with the Control4, it must be ensured that the lighting system is working properly. Wiring errors or hardware malfunctions can affect driver programming and usage.

b. Using a diagram or a lighting project is always very useful to then reproduce in System Design the system to be controlled.

c. We recommend that you never use a single gateway to control all 64 DALI devices provided. Due to the excessive consumption of energy, of individual DALI devices on the bus, it may happen that there is no proper communication. This is because the integrated power supply fails to meet the energy demand of all 64 devices. It's best to provide multiple gateways.

d. It is important to understand what kind of lighting fixtures and the behavior they will have to have. If we have to carry out a control on a tunable white type lighting fixture (or dynamic white or white light temperature) we will have several options in front of us:

iv. **DALI DT6**, unlikely but feasible. The addressing will take away two channels associated with 2 **Adeo Control SGDD-C4-4 Single Dim-Light Driver**

v. **DALI DT8**, more plausible. The addressing will take away only one channel associated with the **Adeo Control SGDD-C4-4 TW DT8 Driver**

vi. **DMX**, recommended even if implausible. The addressing will take away two channels associated with 2 **Adeo Control SGDD-C4-4 Single Dim-Light Driver.** In this case we have 512 channels available. We recommend the use of the **ADEO CONTROL 4CH-LED-DIMMER-DMX.**

e. It is always recommended to deal with those who are in charge of providing the lighting control devices.

f. It is important to decide right away how to operate (see **DALI global settings** at pag. 13):

iv. **Address,** in this case we will have 64 **"Connections"** available in **Composer**

v. **Group,** in this case we will have 16 **"Connections"** available in **Composer**

vi. **Broadcast,** in this case we will have 1 **"Connections"** available in **Composer**

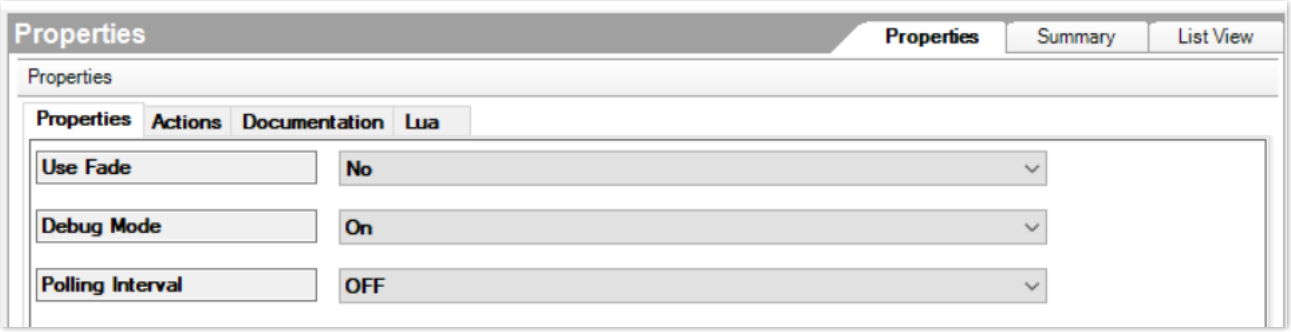
g. We invite you to use the Drivers in conjunction with the**Agent Advanced Lighting**

h. The **Color Control** driver aggregates multiple drivers that control the single function (see DMX or DALI DT6), for this we recommend using hardware dimmers such as 4ch-LED-DIMMER-DMX DMX 4ch constant voltage DMX dimmer which can provide different functions.

i. The DT8 Color Control driver **is able to send multiple commands to the single DALI DT8 device**

12. Adeo Control SGDD-C4-4 Driver (Adeo_Control_SGDD-C4-4_Gateway.c4z)

System Design



USE FADE

The need to introduce the direct 'set' command, without the use of a ramp, was necessary because some devices do not support the reception of continuous commands, typical of fade/ramping variations. Specifically, if such devices receive unsupported commands, they have uncontrolled behaviour and provide incorrect feedback to the physical gateway.
This property affects the communication protocol used between the Control4 driver-gateway and the SGDD-C4-3:

- yes: all commands sent from the driver to the physical gateway are fade/ramping commands with a minimum time of 100 ms.
- no: the driver sends 'set' commands (without fade/ramping) to the physical gateway

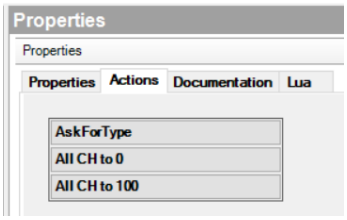
Debug Mode

Enable or disable debugging in Lua

Polling Interval

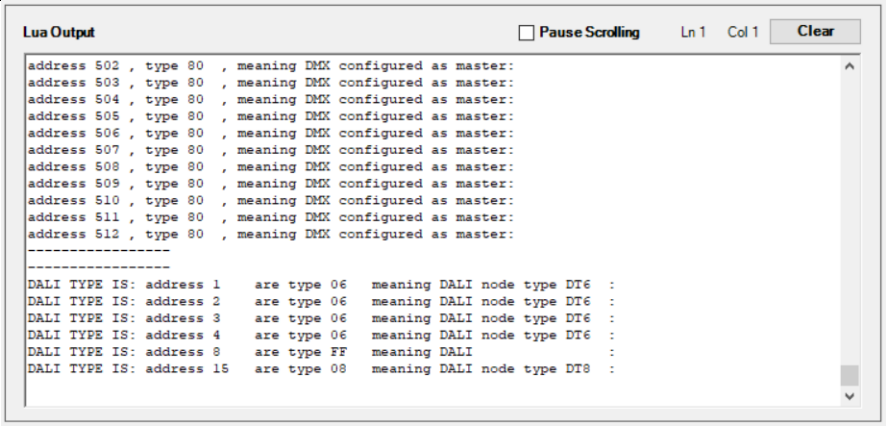
"**OFF**, **10** or **60**" sets the time in seconds for polling, i.e. to receive information from the gateway. The recommended value is always OFF, in order not to overload the communication channel.

Actions



AskForType

If **'Debug Mode'** is set to **'On'**, the driver asks the gateway for the type and channels 'addressed' on all available channels (512) The Gateway responds in the Lua tab with a list of useful information.
At the end of the list, the driver generates a report with the information about the identified/addressed channels.
Let us give an example:



In this case we have channels 1, 2, 3 and 4 assigned to a DT6 device, in fact, the hw is a 4-channel dimmer connected to an RGBW LED strip. Channels 5, 6 and 7 were not assigned. Channel 8 is assigned to a DT255 device (see page 19). We know that this dimmer is set in DT8 mode and is connected to an RGBW LED strip. Channel 15 is exclusively DT8 and connected to a Tuanble White LED strip.

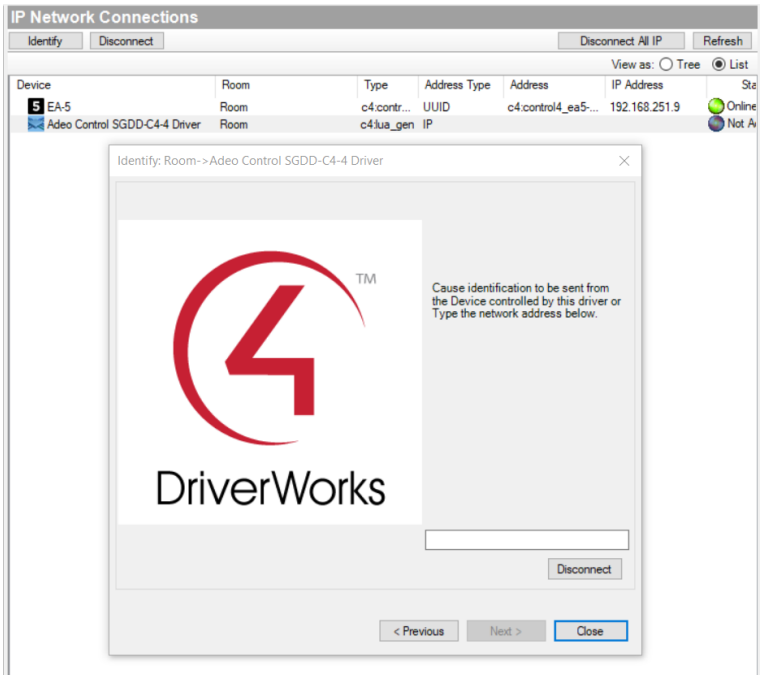
All CH to 0

The driver sends a broadcast-type command to all channels to set them to 0. It serves as a communication check between Control4 and the gateway.

All CH to 100

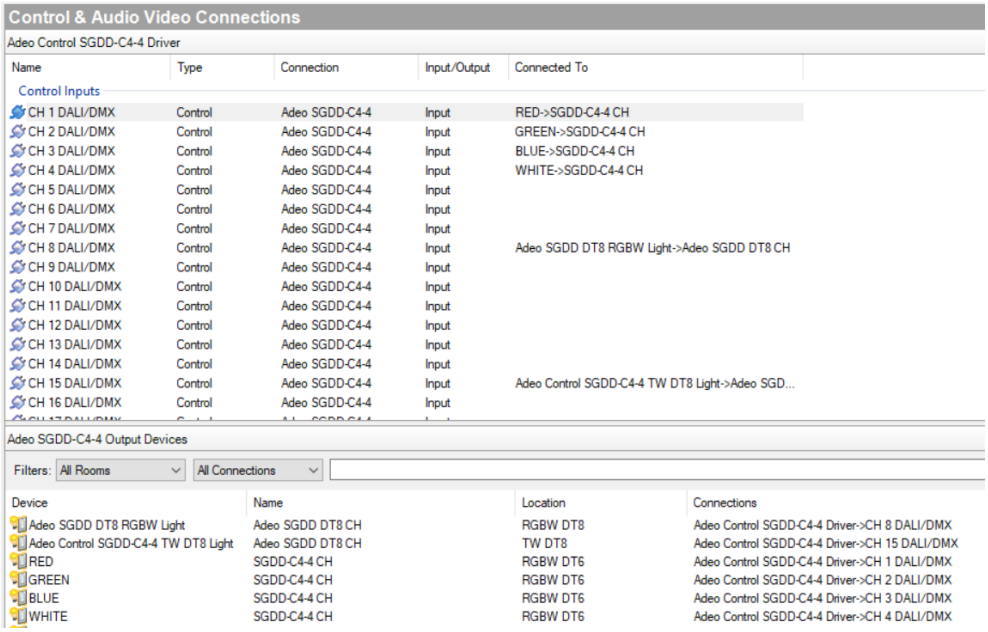
The driver sends a broadcast-type command to all channels to set them to 100. It serves as a communication check between Control4 and the gateway.

IP Network Connections



Enter the IP address of the gateway and click **Close**. **Status** will change to **Online**.

Control & Audio Video Connections



Gateway driver shows all available 512 channels. Assign channels to the Light Drivers (drag and drop).

The first 64 channels can be DALI/DMX. From 65 -> 512 DMX only.

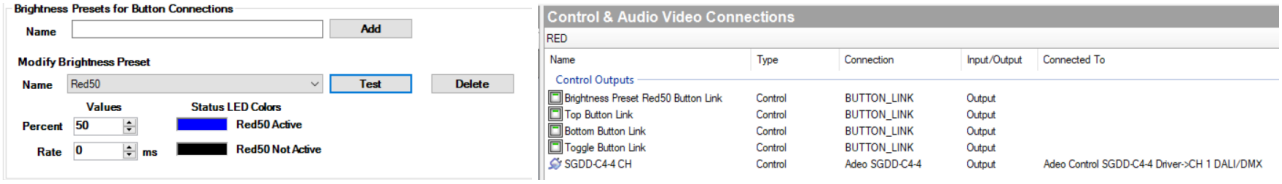
13. *Dimmer Driver with light_v2 Proxy*

All these drivers share the same (standard) **Properties** in **System Design**

Name	Device File
Adeo Control SGDD-C4-4 Color Control*	**Adeo_Control_SGDD-C4-4_Color-Control.c4z**
Adeo Control SGDD-C4-4 DT8 Color Control	**Adeo_Control_SGDD-C4-4_DT8_CC.c4z**

Used as a dimmable V2 light driver. Supports **Advanced Lighting** and **Keypad** command assignment.

It should be noted that the driver also supports **Brightness Presets for Button Connections**, for the creation of presets that can then be called up directly in **Connections**.

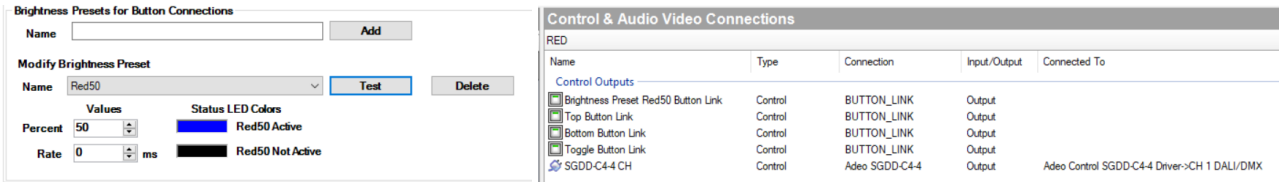


All these drivers share the same (standard) **Properties** in **System Design** and do not provide the color wheel in the **Navigator**

Name	Device File
Adeo Control SGDD-C4-4 RGBW DT8 Driver	**Adeo_Control_SGDD-C4-4_RGBW-DT8.c4z**
Adeo Control SGDD-C4-4 TW DT8 Driver	**Adeo_Control_SGDD-C4-4_TW-DT8.c4z**
Adeo Control SGDD-C4-4 Single Dim-Light Driver	**Adeo_Control_SGDD-C4-4_Single_Dimmable_Light.c4z**
Adeo Control SGDD-C4-4 RGB HSV Driver	**Adeo_Control_SGDD-C4-4_RGB_HSV.c4z**

Used as a dimmable V2 light driver. Supports **Advanced Lighting** and **Keypad** command assignment.

It should be noted that the driver also supports **Brightness Presets for Button Connections**, for the creation of presets that can then be called up directly in **Connections**.

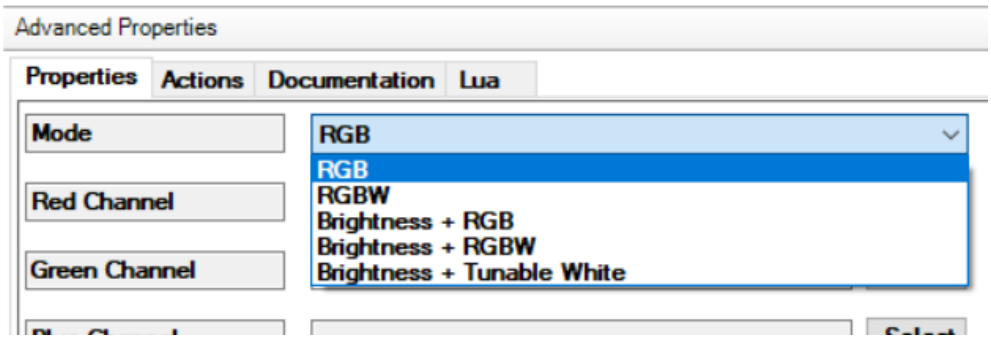


14. Adeo Control SGDD-C4-4 Color Control (Adeo_Control_SGDD-C4-4_Color-Control.c4z)

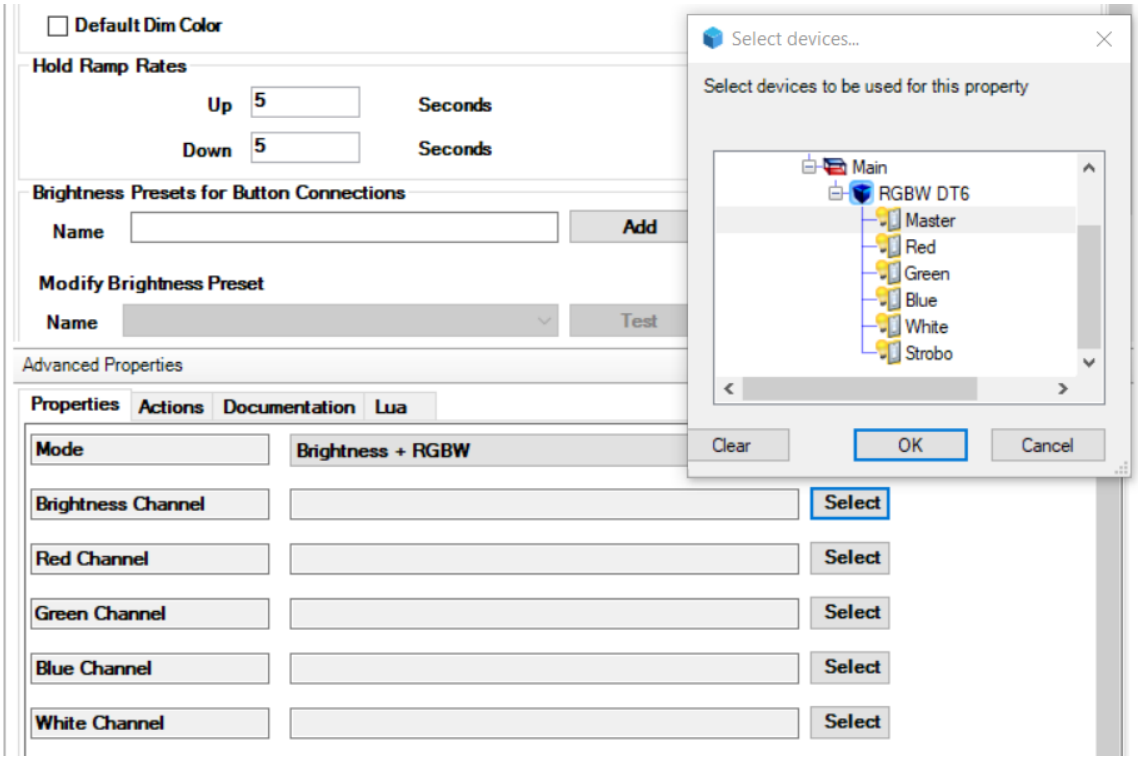
After Control4 announced the new interface for lighting color control, Adeo Control also developed a new driver capable of supporting the changes introduced with OS 3.3 +.

The driver has no connections because it actually controls the other drivers (Adeo_Control_SGDD-C4-4_Single_Dimmable_Light.c4z) present in the project. This Driver is suitable for the DMX and DALI DT6 bus.

System Design – Advanced Properties



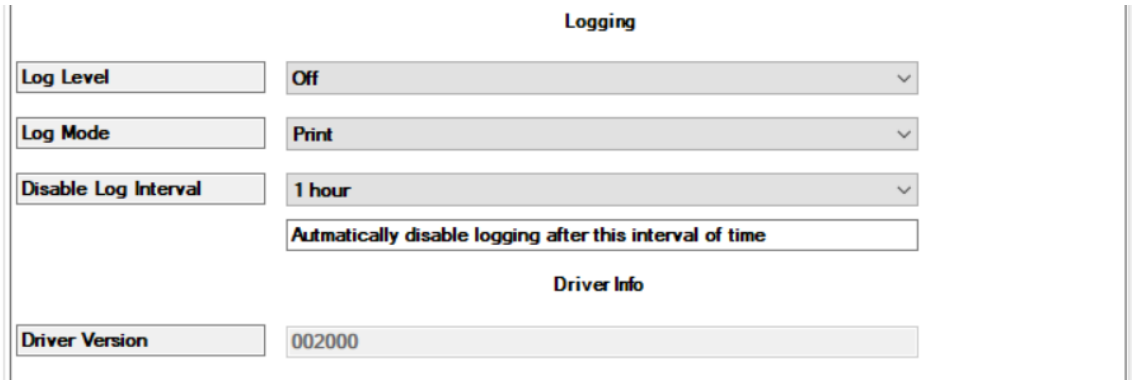
On Mode, select the type of load used. The related color fields will change accordingly.



By clicking on **Select** the new window will show all the drivers available to the control present in the project.

Assign respective channels to gain control on OS 3.3+. For the connections of the individual drivers see page 34.

The advantage is that you don't need to re-program once you switch to OS 3.3+



Logging

Log Level	**Off** to disable logging in Lua
	5 - Debug, 4 - Trace, 3 - Info, 2 - Warning, 1 - Error, 0 – Alert set the Log Level.
	The remote assistance requires **5 - Debug**
Log Mode	**Print, Log** and **Print and Log**
Disable Log Interval	it is possible to set an interval within which to disable logging, so as to save processing

Driver Info

Driver Version	Show Driver Version

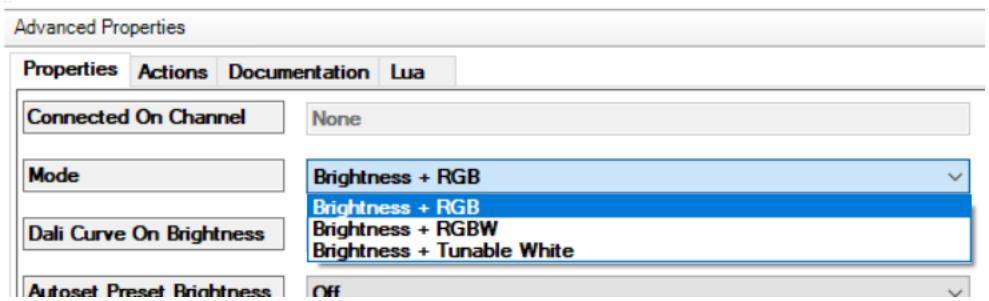
It should be noted that by its nature, this type of driver cannot manage the Brightness Rate in Advanced Lighting. It is recommended that you use the individual drivers that handle the individual functions.

15. Adeo Control SGDD-C4-4 DT8 Color Control (Adeo_Control_SGDD-C4-4_DT8_CC.c4z)

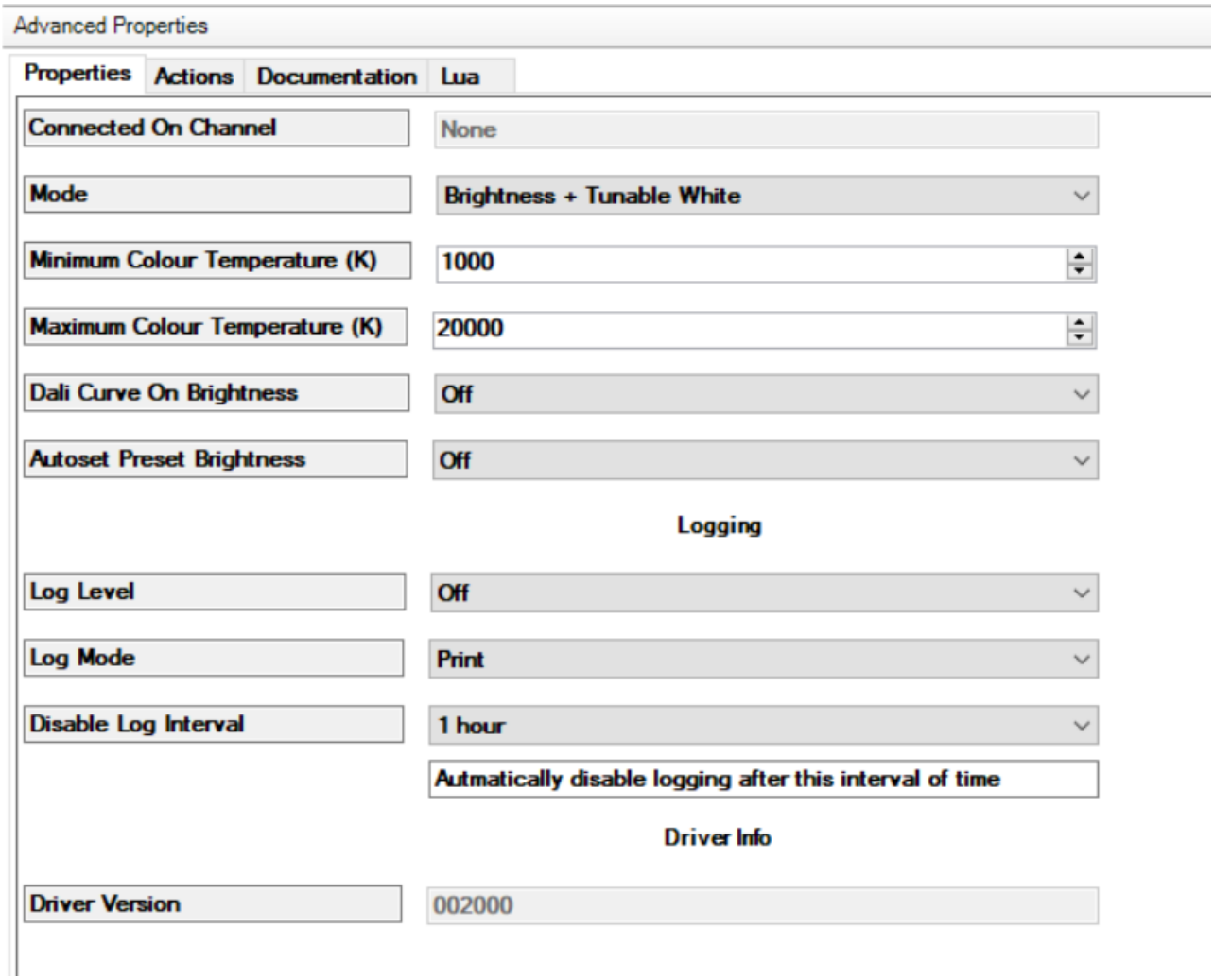
After Control4 announced the new interface for lighting color control, Adeo Control also developed a new driver capable of supporting the changes introduced with OS 3.3 +.

This Driver is dedicated for lighting bodies (RGBW and TW) controlled by DALI DT8 devices.

System Design – Advanced Properties



On Mode, select the type of load used. The related color fields will change accordingly.



Connected On Channel	Automatically shows the channel assigned in **Connections**
Only in Brightness + Tunable mode	
Min Temperature In Kelvin	Set the minimum value in Kelvin
Max Temperature In Kelvin	Set the maximum value in Kelvin
DALI Curve on Brightness	**Off** to maintain a linear dimming (DMX type)
	On to use the logarithmic dimming of DALI
Auto Preset on Brightness	**Off** to exclude the storage of the last light status before switch-off
	On to store the last light status before switch-off

Logging

Log Level	**Off** to disable logging in Lua
	5 - Debug, 4 - Trace, 3 - Info, 2 - Warning, 1 - Error, 0 – Alert set the Log Level.
	The remote assistance requires **5 - Debug**
Log Mode	**Print, Log** and **Print and Log**
Disable Log Interval	it is possible to set an interval within which to disable logging, so as to save processing

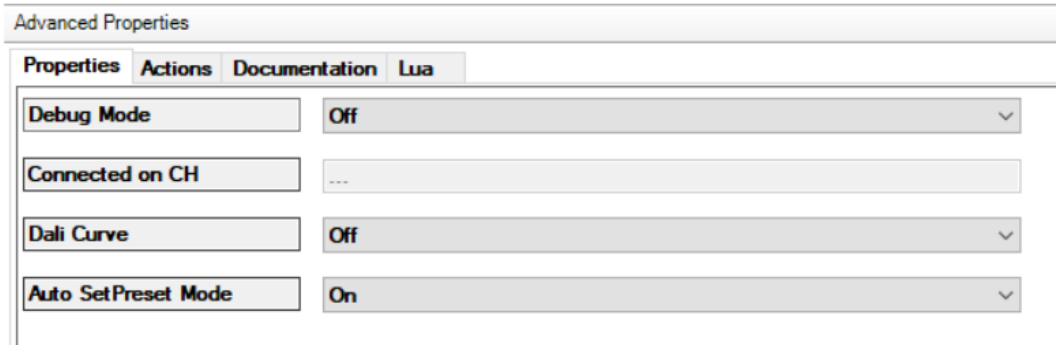
Driver Info

Driver Version	Show Driver Version

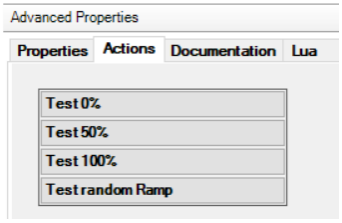
It has no particular limitations in **Advanced Lighting**.

16. Adeo Control SGDD-C4-4 Single Dim-Light Driver (Adeo_Control_SGDD-C4-4_Single_Dimmable_Light.c4z)

System Design – Advanced Properties



Debug Mode	Turn Debugging on or off in Lua
Connected on CH	Automatically shows the channel assigned in **Connections**
DALI Curve	**Off** to maintain a linear dimming (DMX type)
	On to use the logarithmic dimming of DALI
Auto SetPreset Mode	**Off** to exclude the storage of the last light status before switch-off
	On to store the last light status before switch-of



In **Actions** you can test the connection and the correct response of the associated channel.

17. Adeo Control SGDD-C4-4 RGBW DT8 Driver (Adeo_Control_SGDD-C4-4_RGBW-DT8.c4z)

Introduction

With the introduction of DT8 management, specific drivers had to be developed. They expose a single connection in **Connections**, just as the DT8 protocol provides a single channel for RGBW management.

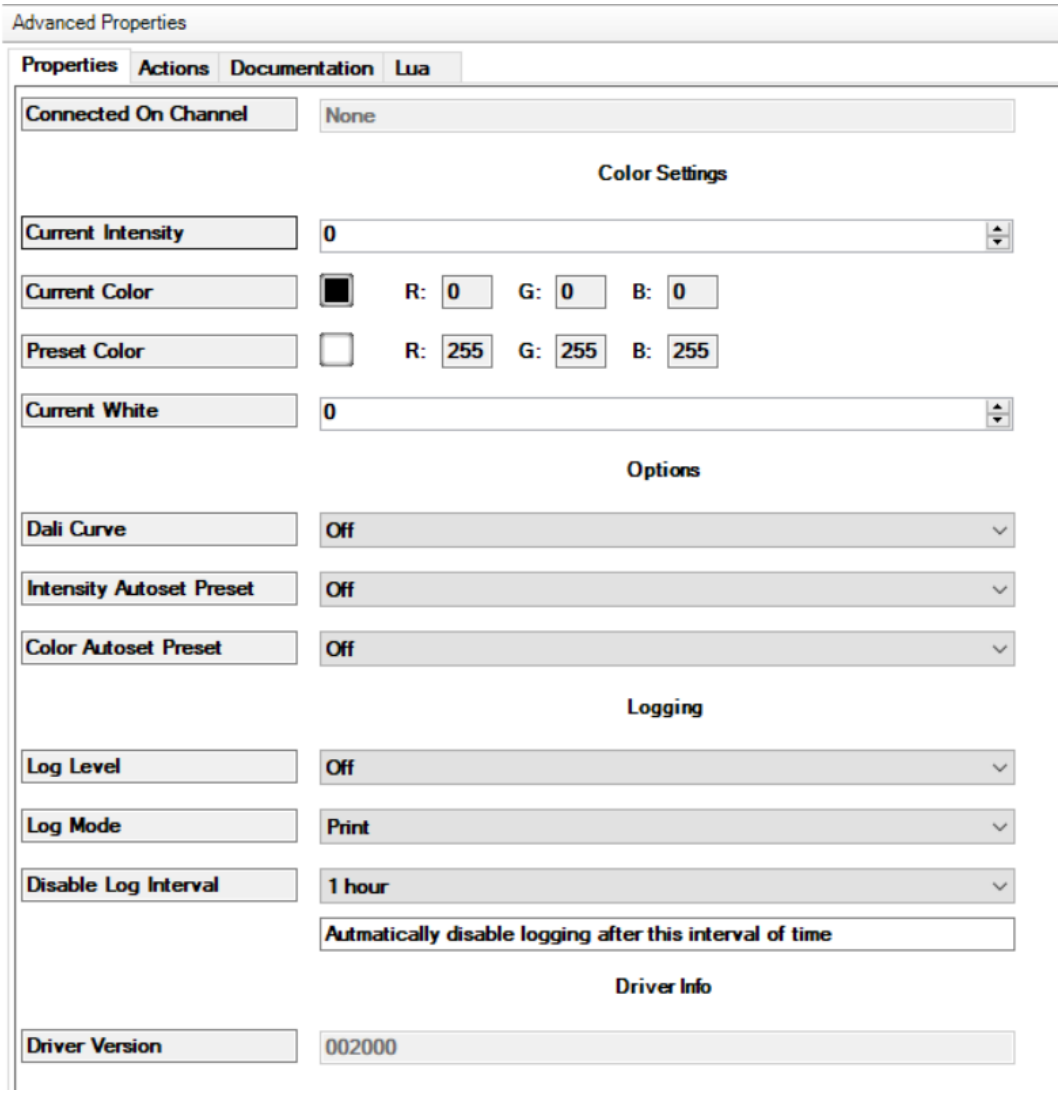
This Driver, once imported into the project, automatically adds 5 Light Drivers (1+4):

Main -> Intensity

Slave -> Red, Green, Blue, White

In this way, we will have 5 drivers/sliders in the Control4 GUI. With OS 3.3, a new driver will be released that will have only one driver/slider.

System Design – Advanced Properties



Connected On Channel	It automatically shows the channel assigned in **Connections**

Color Settings

Current Intensity	Send and receives the intensity value. Click Set to send the value
Current Color	Send and receive the colour value. Click on Set to send the value
Preset Color	Set the colour preset at switch-on
Current White	Sends and receives the value of White. Click on Set to send the value

Options

DALI Curve	**Off** to maintain linear dimming (DMX type)
	On to take advantage of the logarithmic dimming of DALI
Intensity Auto Preset	**Off** to exclude the storage of the last light status before switch-off
	On to store the last state of the light before switch-off
Color Autoset Preset	**Off** to exclude the storage of the last color state before switch-off
	On to store the last color status before switch-off

Logging

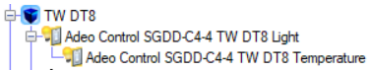
Log Level	**Off** to disable logging in Lua
	5 - Debug, 4 - Trace, 3 - Info, 2 - Warning, 1 - Error, 0 – Alert set the Log Level.
	The remote assistance requires **5 - Debug**
Log Mode	**Print, Log** and **Print and Log**
Disable Log Interval	it is possible to set an interval within which to disable logging, so as to save processing

Driver Info

Driver Version	Show Driver Version

18. Adeo Control SGDD-C4-4 TW DT8 Driver (Adeo_Control_SGDD-C4-4_TW-DT8.c4z)

Introduction



With the introduction of DT8 management, specific drivers had to be developed. These have a single connection in Connections, just as the DT8 protocol has a single channel for tunable white (TW) management.

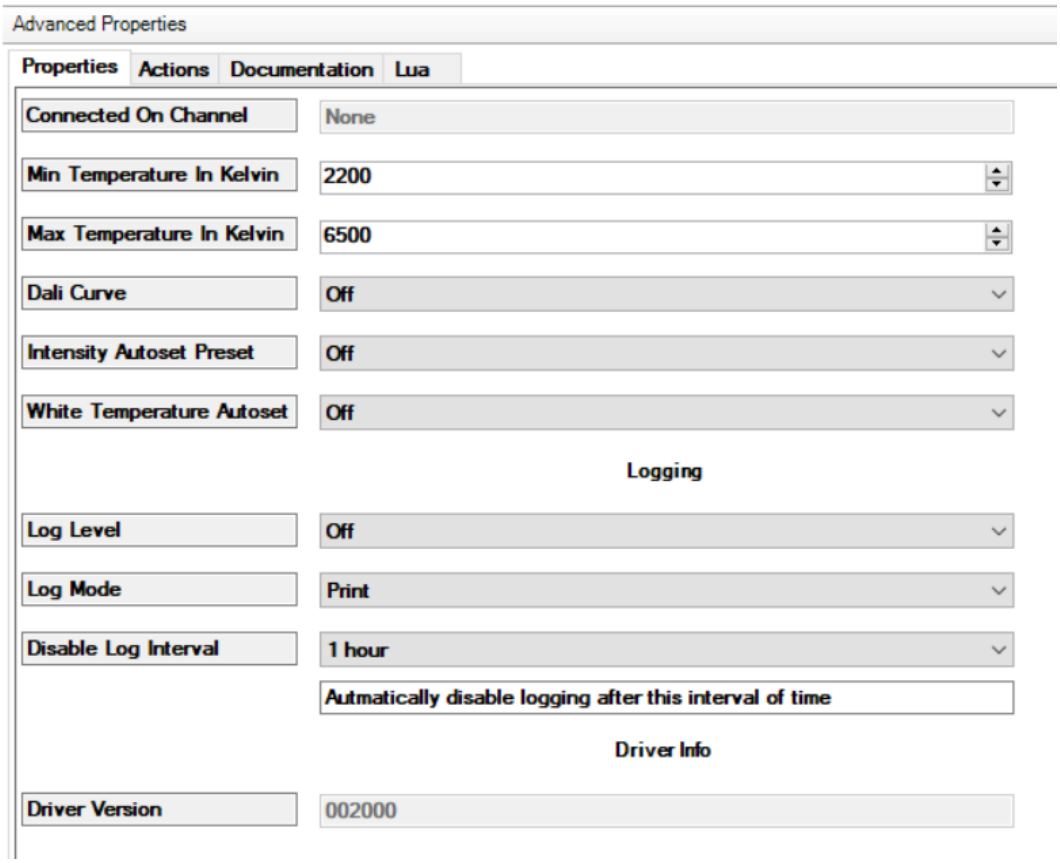
This Driver, once imported into the project, automatically adds 2 Light Drivers (1+1):

Main -> Intensity

Slave -> Temperature

In this way, we will have 2 drivers/sliders in the Control4 GUI. With OS 3.3, a new driver will be released that will have only one driver/slider.

System Design – Advanced Properties



Connected On Channel	Automatically shows the channel assigned in **Connections**
Min Temperature In Kelvin	Set the minimum value in Kelvin
Max Temperature In Kelvin	Set the maximum value in Kelvin
DALI Curve	**Off** to maintain a linear dimming (DMX type)
	On to use the logarithmic dimming of DALI
Intensity Auto Preset	**Off** to exclude the storage of the last light status before switch-off
	On to store the last light status before switch-off
White Temperature Autoset	**Off** to exclude the storage of the last temperature status before switch-off
	On to store the last temperature status before switch-off

Logging

Log Level	**Off** to disable logging in Lua
	5 - Debug, 4 - Trace, 3 - Info, 2 - Warning, 1 - Error, 0 – Alert set the Log Level.
	The remote assistance requires **5 - Debug**
Log Mode	**Print, Log** and **Print and Log**
Disable Log Interval	it is possible to set an interval within which to disable logging, so as to save processing

Driver Info

Driver Version	Show Driver Version

19. Adeo Control SGDD-C4-4 RGB HSV Driver (Adeo_Control_SGDD-C4_RGB_HSV.c4z)

Introduction

The Driver allows you to have the RGB color variation on a single slider. This image should simulate the behavior from 0% to 100% of an RGB strip, where at 0% we will have dark, at 1% we will have red and at 100% red again

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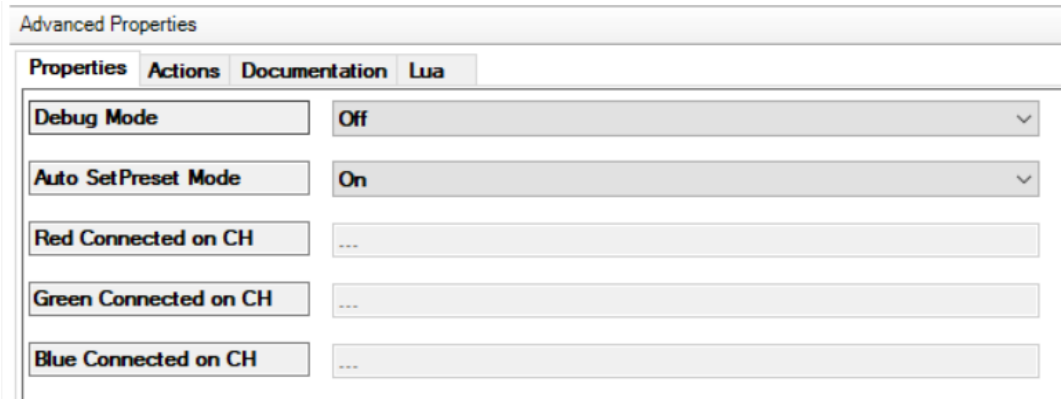
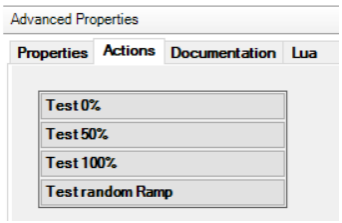
1%		50%	
17%		67%	
33%		83%	

System Design – Advanced Properties



Debug Mode	Turn Debugging on or off in Lua
Auto SetPreset Mode	**Off** to exclude the storage of the last light status before switch-off
	On to store the last light status before switch-of
XXX Connected on CH	Automatically shows the channel assigned in **Connections**

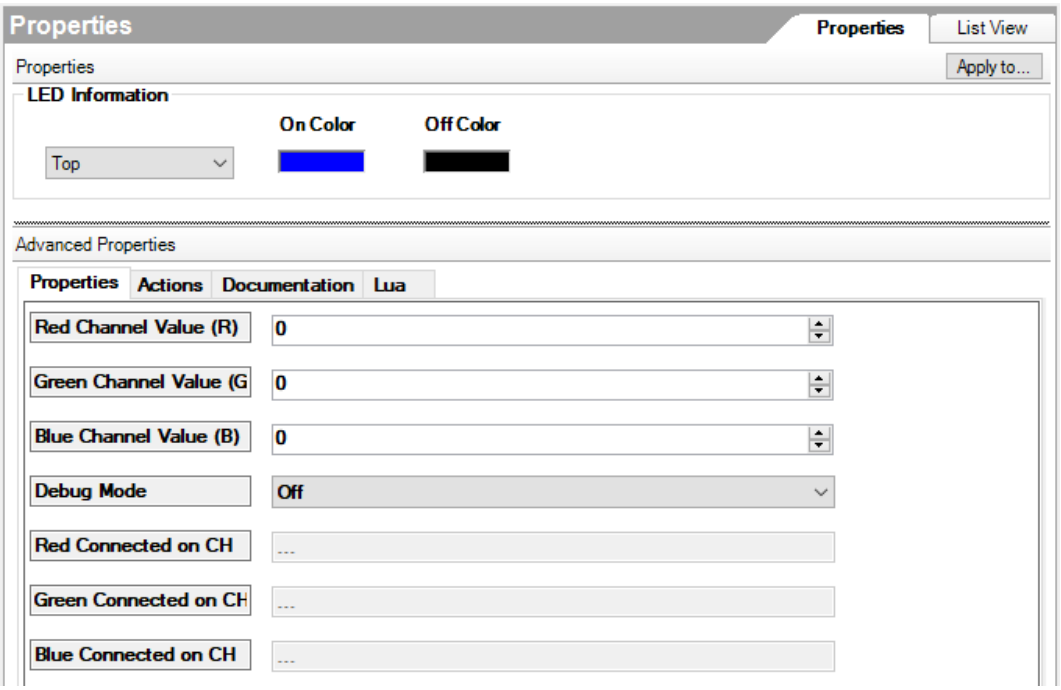
Actions



In **Actions** you can test the connection and the correct response of the associated channel.

20. Adeo Control SGDD-C4-4 Switch RGB Driver (Adeo_Control_SGDD-C4-4_SW_RGB.c4z)

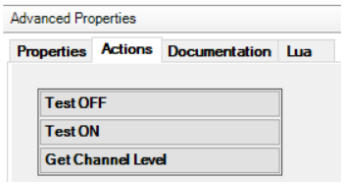
System Design



Used as a **non-dimmable light V2 driver**. Supports **Advanced Lighting** and **Keypad** Command Assignment.

XXX Channel Value	Select the combination of values to obtain the desired RGB color
Debug Mode	Turn Debugging on or off in Lua
XXX Connected on CH	Automatically shows the channel assigned in **Connections**

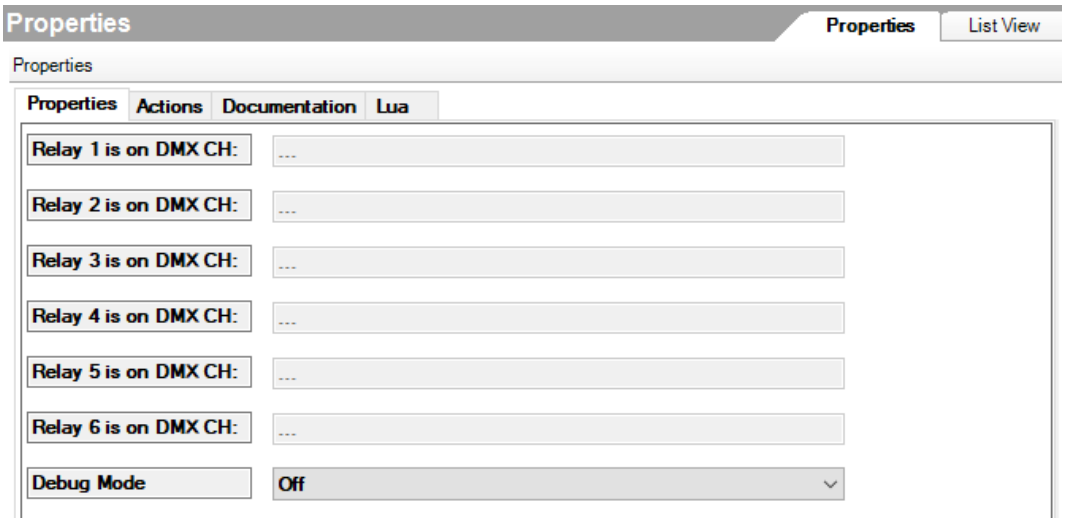
Actions



In **Actions** you can test the connection and the correct response of the associated channel.

21. Adeo Control SGDD-C4-4 Relay Driver (Adeo_Control_SGDD-C4-4_Relay.c4z)

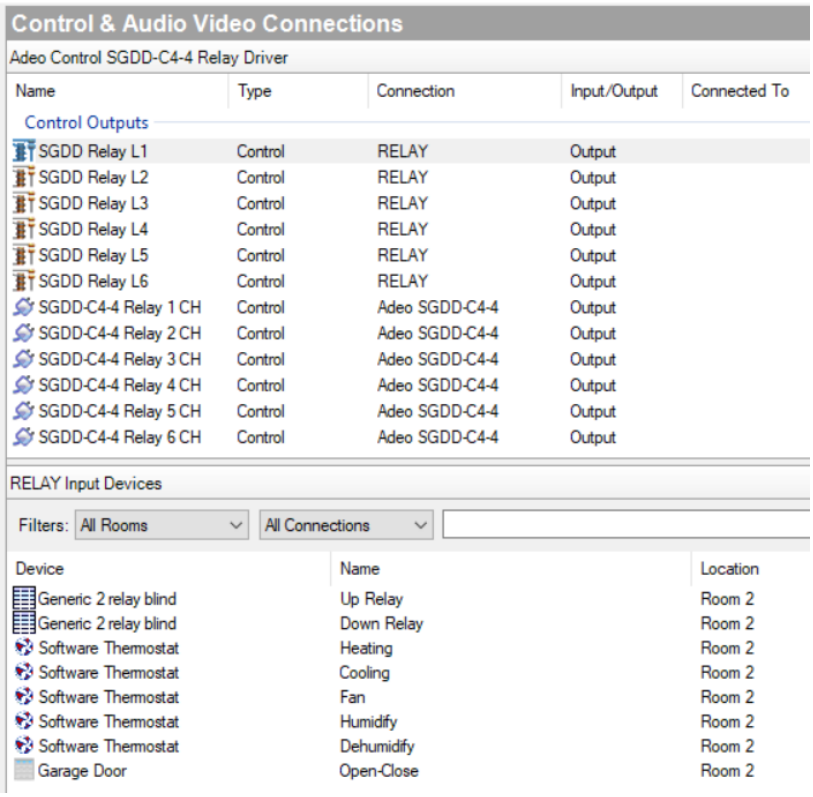
System Design



XXX Connected on CH	Automatically shows the channel assigned in **Connections**
Debug Mode	Turn Debugging on or off in Lua

Connections

Assign channels and then connect Drag and Drop Relay Output to the motorizations.



For more info

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