RGBW-Control

CE

Universal remote control for RGB/RGBW and other LEDs

Compatible with Yubii® ECOSYSTEM

EN - Instructions and warnings for installation and use

Nice

v 1.2

1 WARNINGS AND GENERAL PRECAUTIONS

- **This manual contains important instructions and warnings for personal safety.** Carefully read all parts of this manual. If in doubt, suspend installation immediately and contact Nice Technical Assistance.
- **Using this product for different purposes than specified in this manual is strictly forbidden!**
- **All installation and connection operations must be performed exclusively by suitably qualified and skilled personnel with the unit disconnected from the mains power supply.**
- The product packaging materials must be disposed of in full compliance with local regulations.
- Never apply modifications to any part of the device. Operations other than those specified can cause malfunctions. The manufacturer declines all liability for damage caused by makeshift modifications to the product.
- Never place the device near the sources of heat or expose to naked flames. These actions can damage the product and cause malfuntions.
- Don't use the product in damp or wet locations, near a bathtub, sink, shower, swimming pool, or anywhere else where water or moisture are present.
- Make sure children don't play with the product.
- This product isn't intended for use by people (including children) with reduced physical, sensory or mental capabilities or who lack experience and knowledge, unless they have been given supervision or instruction concerning the use of the product by a person responsible for their safety.
- This product is designed for indoor use only. Do not use outside!
- Connect only in accordance with one of the figures presented in the manual. Incorrect connection may cause risk to health, life or material damage.
- RGBW-Control and the load connected to its output must be powered by 12VDC or 24VDC stabilized power supply with short circuit protection. Connecting higher voltage or voltage not matching the load voltage may cause damage to the device.
- Connecting long RGBW/RGB/LED strips may cause voltage drops, resulting in lower light brightness further from R/G/B/W outputs. To eliminate this effect it's recommended to connect few shorter strips in parallel connection instead of one long strip connected serially.
- The device is designed for installation in a wall switch box of depth not less than 60 mm. The switch box and electrical connectors needs to be compliant with the relevant national safety standards.

2 PRODUCT DESCRIPTION

RGBW-Control is a universal, Z-Wave Plus® compatible RGB/RGBW controller.

The device uses PWM output signal, which enables controlling LED, RGB, RGBW strips, halogen lights and other resistive loads. It can also measure active power and energy consumed by the load. Controlled devices can be powered by 12 or 24V DC.

Inputs support momentary/toggle switches, potentiometers, and 0 - 10 V analog sensors, such as temperature sensors, humidity sensors, light sensors.

2.1 - Main features

- Is compatible with any Z-Wave® or Z-Wave Plus® hub
- Is controlled by Yubii Home or any other Z-Wave application
- Can control:
  - » RGB/RGBW LED strip
  - » One-color LED strips
  - » Halogen lights
  - » Other compliant resistive loads

2.2 - Full compatibility with Z-Wave Plus® devices

This device can be used with all devices accredited with the Z-Wave® Plus certificate and is compatible with such devices produced by other manufacturers. All non-battery operated devices within the network act as repeaters to increase reliability of the network. The device is a Security Enabled Z-Wave® Plus product and a Security Enabled Z-Wave® Controller must be used to fully utilize the product.

3 TECHNICAL SPECIFICATIONS

RGBW-Control is produced by Nice S.p.A. (TV).

Note
All technical specifications stated in this section refer to an ambient temperature of 20 °C (± 5 °C).
Nice S.p.A. reserves the right to apply modifications to the product at any time when deemed necessary, while maintaining the same functionalities and intended use.

Table 1 - RGBW-Control - Hardware parameters

Parameter	Values / types
Power supply	12V/24V DC ±10%
Rated load current	6 A for channel, 12 A total for all outputs
Power output	144 W combined for 12 V, 288 W combined for 24 V
Inputs	4 inputs, 0 - 10 V (configurable pull-up) or binary
Outputs	4 outputs, PWM
PWM frequency	244Hz
Overvoltage category	OVC I
Rated impulse voltage	330 V
Maximum length of wires	2 m
Operating temperature	0 - 40°C (32 - 104°F)
Shipping and storage temperature	-40 – 60°C (-40 – 140°F)
Recommended wire cross-section area	0.2 – 2.0 mm^2 (24 – 14 AWG), depending on load current
Dimensions (Length x Width x Height)	42.35 x 36.90 x 17.5 mm (1.67” x 1.5” x 0.69”)
Device type	Type 1.C Action
Pollution degree	2
Software class	Class A
Maximum phase to ground voltage of the supply source	Supplied by external SELV source up to 24V DC
Protection against electric shock class	Class III control
Classification of installation and use	Independently, Flush Mounted operating control (lighting control)
Supply Connection	Permanent connection
Radio protocol	Z-Wave (500 series chip)
Radio frequency band	• 868.4 or 869.8 MHz EU • 908.4 or 916.0 MHz US • 921.4 or 919.8 MHz ANZ
Max. transmitting power	EIRP up to 5 dBm
Range	• up to 50 m outdoors, • up to 40 m indoors Depending on the terrain and building structure. The transceiver range is strongly influenced by other devices operating at the same frequency with continuous transmission, such as alarms and radio headphones which interfere with the control unit transceiver.

Note
Radio frequency of individual device needs to be the same as your Z-Wave hub. Check information on the box or consult your dealer if you aren't sure.

4 INSTALLATION

⚠ ⚠ Connecting the device in a manner inconsistent with this manual may cause risk to health, life or material damage.

- The purpose of control is operating control (lighting control) for LED, RGB, RGBW strips, halogen lights and other resistive loads.
- The construction of control: independently mounted control for flush mounting.
- Connect only in accordance with one of the figures.
- The device is powered with secure voltage; nevertheless, the user should be extra careful or should commission the installation to a qualified person.
- Don't connect devices which aren't compliant with the specification.
- Every connected device should be compliant with the relevant safety standards.
- RGBW-Control and the load connected to its output needs to be powered by 12VDC or 24VDC stabilized power supply (SELV) with short circuit protection. Connecting higher voltage or voltage not matching the load voltage may cause damage to the device.
- Connecting long RGBW/RGB/LED strips may cause voltage drops, resulting in lower light brightness further from R/G/B/W outputs. To eliminate this effect it is recommended to connect few shorter strips in parallel connection instead of one long strip connected serially.
- RGBW-Control has 0 - 10 V inputs. There is no 0 - 10 V output. Output is controlled by PWM at 244Hz.
- We recommend using momentary switches for comfortable light control.
- Field-installed conductors needs to be separated from uninsulated or bare live parts of a different circuit.

4.1 - Notes for the figures

P – 12/24V DC power supply connector
GND – ground connector
IN1 – input connector for controlling OUT1 output
IN2 – input connector for controlling OUT2 output
IN3 – input connector for controlling OUT3 output
IN4 – input connector for controlling OUT4 output
OUT1 – output connector controlled by IN1 input (red LED color recommended)
OUT2 – output connector controlled by IN2 input (green LED color recommended)
OUT3 – output connector controlled by IN3 input (blue LED color recommended)
OUT4 – output connector controlled by IN4 input (white LED color recommended)
B – service button (used to add/remove the device)

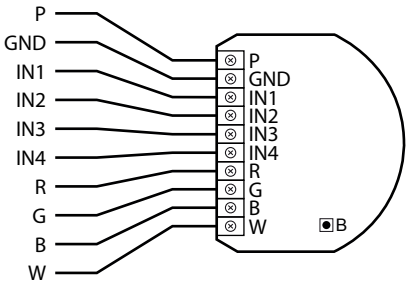


Figure 1: Connectors

4.2 - Connection with RGBW/RGB LED strip

We recommend connecting LED strip channels in the same order as in Figure 2 (R - OUT1, G - OUT2, B - OUT3, W - OUT4). If you want to connect RGB strip, use the same figure, but don't connect OUT4 channel.

1. Disconnect the power.
2. Connect in accordance with Figure 2.
3. Verify correctness of connection.
4. Power the device.
5. Add the device to the Z-Wave network.

Note

The device works in RGBW mode by default. To enable HSB mode change parameter 150 to 1.

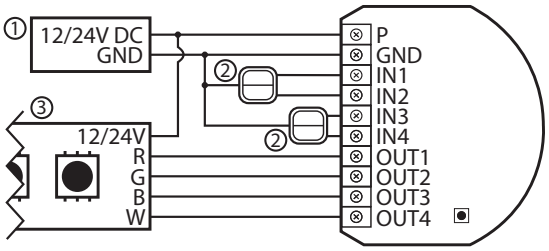


Figure 2: Connection with RGBW/RGB LED strip

4.3 - Connection with one-color LED strips

1. Disconnect the power.
2. Connect in accordance with Figure 3.
3. Verify correctness of connection.
4. Power the device.
5. Add the device to the Z-Wave network.

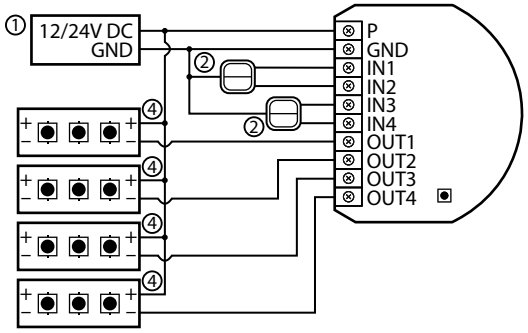


Figure 3: Connection with one-color LED strips

4.4 - Connection with halogen lights

1. Disconnect the power.
2. Connect in accordance with Figure 4.
3. Verify correctness of connection.
4. Power the device.
5. Add the device to the Z-Wave network.

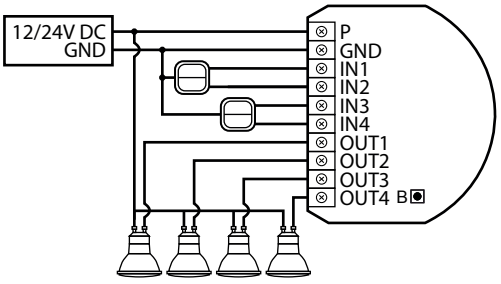


Figure 4: Connection with halogen lights

4.5 - Connection with 0-10V analog sensors

The 2-wire analog sensor requires pull-up resistor.

You can connect up to 4 analog sensors to IN1/IN2/IN3/IN4 terminals.

1. Disconnect power.
2. Connect with the diagram on the right.
3. Verify correctness of connection.
4. Power the device.
5. Add the device to the Z-Wave network.
6. Change values of parameters:
   - Connected to IN1:
     - » Doesn't require pull-up: change parameter 20 to 0
     - » Requires pull-up: change parameter 20 to 1
   - Connected to IN2:
     - » Doesn' require pull-up: change parameter 21 to 0
     - » Requires pull-up: change parameter 21 to 1
   - Connected to IN3:
     - » Doesn't require pull-up: change parameter 22 to 0
     - » Requires pull-up: change parameter 22 to 1
   - Connected to IN4:
     - » Doesn't require pull-up: change parameter 23 to 0
     - » Requires pull-up: change parameter 23 to 1

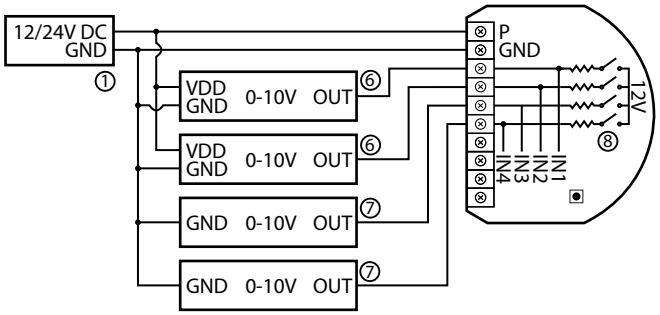


Figure 5: Connection with 0 - 10 V analog sensors

5 ADDING DEVICE TO Z-WAVE NETWORK

- The full device security key (DSK) code is present only on the box, make sure to keep it or copy the code.
- In case of problems with adding the device, please reset the device and repeat the adding procedure.

Adding (Inclusion) - Z-Wave device learning mode, enabling you to add the device to the existing Z-Wave network.

5.1 - Adding manually

To add the device to the Z-Wave network **manually**:

1. Power the device.
2. Set the main hub in the (Security/non-Security Mode) add mode. For more information, see the hub manual.
3. Quickly, three times click the service button.
4. If you are adding in Security S2 Authenticated, input the underlined part of the DSK, which is labelled on the box.
5. LED starts blinking yellow, wait for the adding process to end.
6. Adding result is confirmed with the Z-Wave hub message and the LED color:
   - Green – successful (non-secure, S0, S2 Unauthenticated)
   - Magenta – successful (Security S2 Authenticated)
   - Red – not successful

5.2 - Adding using SmartStart

With the SmartStart solution products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a hub providing SmartStart inclusion. The SmartStart product is added automatically within 10 minutes after being switched on in the network range.

Note

To use SmartStart your hub needs to support Security S2. For more information, see the hub manual.

To add the device to the Z-Wave network using **SmartStart**:

1. Enter the full DSK string code to your hub. If your hub is capable of QR scanning, scan the QR code placed on the label on the box.
2. Power the device.
3. Wait for the adding process to start (up to a few minutes), which is signalled with yellow LED blinking.
4. Adding result is confirmed with the Z-Wave hub message and the LED color:
   - Green – successful (non-secure, S0, S2 Unauthenticated)
   - Magenta – successful (Security S2 Authenticated)
   - Red – not successful

6 REMOVING DEVICE FROM Z-WAVE NETWORK

Removing (Exclusion) - Z-Wave device learning mode, enabling you to remove the device from existing Z-Wave network.

To remove the device from the Z-Wave network:

1. Power the device.
2. Set the main hub into the remove mode. For more information, see the hub manual.
3. Quickly, three times click the service button.
4. LED starts blinking yellow, wait for the removing process to end.

Successful removing is confirmed with the Z-Wave hub message and red LED color.

Note
Removing RGBW-Control from the Z-Wave network restores all the default parameters of the device, but doesn't reset power metering data.

7 OPERATING THE DEVICE

7.1 - Controlling connected loads in RGBW mode (default)

Input can control output with the same number. For example, switch connected to IN1 controls load connected to output OUT1. Perform actions on inputs listed in the table below to change state of the connected load:

Table 2 - RGBW-Control - Responses to button actions

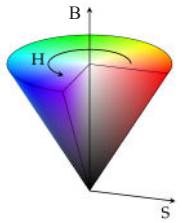
Action	Response
1 click	Change to the opposite one (ON/OFF)
2 clicks	Set color to 100%
Hold/release	Dimm/brighten color

Note
A single click switches between the OFF state and the last non-OFF state. It means it can set the colour back, but the light can't light up as it doesn’t change the brigthness.

7.2 - Controlling connected loads in HSB mode

HSB mode is enabled by setting parameter 150 to 1. Inputs correspond to different components in HSB color space: IN1 – Hue, IN2 – Saturation, IN3 – Brightness and IN4 input controls OUT4 output. Perform actions listed in the table below on inputs to change values of the components:

Table 3 - RGBW-Control - HSB mode

Action	Response
1 click when value is 0	Restore last set value
1 click when value isn't 0	Set value to 0
2 clicks	Set value to max
Hold/release	Increase/decrease value: • When you hold the button connected to IN1, you revolve around the cone on the H (Hue) axis. **Note** If the saturation is too low, you may not notice any changes while holding IN1. • When you hold the button connected to IN2, you change the saturation (S). • When you hold the button connected to the IN3, you change the brightness (B). 
Other actions: 1, 2, 3 x click/hold/release	Activate scene in the hub for a specific action, requires prior configuration

7.3 - Visual indications

The built-in LED light shows current device status.

Table 4 - RGBW-Control - Responses to button actions		
Action	**Color**	**Meaning**
After powering the device:	Green	Device added to a Z-Wave network (without Security S2 Authenticated)
	Magenta	Device added to a Z-Wave network (with Security S2 Authenticated)
	Red	Device not added to a Z-Wave network
Update	Blinking cyan	Update in progress
	Green	Update successful
	Red	Update not successful
Menu	Blinking green	Entering the menu (added without Security S2 Authenticated)
	Blinking magenta	Entering the menu (added with Security S2 Authenticated)
	Blinking red	Entering the menu (not added to a Z-Wave network)
	Green	Resetting energy consumption memory
	Yellow	Resetting to factory defaults

7.4 - Menu

Menu enables performing the Z-Wave network actions.

To use the menu:

1. Press and hold the service button to enter the menu, device blinks to signal adding status. For more information, see 7.3 - Visual indications.
2. Release the service button when device signals desired position with color:
   - GREEN - reset energy consumption memory
   - YELLOW - reset to factory defaults
3. Quickly click the service button to select, 2 blinks of the same color confirms the selection.

7.5 Resetting to factory defaults

Reset procedure enables you to restore the device back to its factory settings, which means all information about the Z-Wave hub and user configuration are deleted. Resetting to factory defaults doesn't reset energy consumption memory.

1. Press and hold the service button to enter the menu.
2. Release service button when the device glows yellow.
3. Quickly click the service button to confirm.
4. After a few seconds the device is restarted, which is signalled with the red color.

Note

Resetting the device isn't a recommended way of removing the device from the Z-Wave network. Use reset procedure only if the primary hub is missing or inoperable. Certain device removal can be achieved by the procedure of removing device from Z-Wave network.

8 ACTIVATING SCENES

The device can activate scenes in the Z-Wave hub by sending scene ID and attribute of a specific action using Central Scene Command Class.

For this functionality to work, connect momentary or toggle switch to the IN1-IN4 inputs and set parameters 20-23 to 2, 3 or 4 (depending on type of switch).

Table 5 - RGBW-Control - Scene IDs for inputs	
Input	**Scene ID**
IN1	1
IN2	2
IN3	3
IN4	4

Table 6 - RGBW-Control -Attributes for actions	
Action	**Attribute**
Switch clicked once	Key Pressed 1 time
Switch clicked twice	Key Pressed 2 times
Switch clicked thrice	Key Pressed 3 times
Switch held*	Key Held Down
Switch released*	Key Released

* Not available for toggle switches.

9 ASSOCIATIONS

Association (linking devices) – direct control of other devices within the Z-Wave system network.

Associations enables:

- reporting the device status to the Z-Wave controller (using Lifeline group).
- creating simple automations by controlling other devices without participation of the main hub, using groups assigned to actions on the device.

Note

Commands send to the 2nd – 10th association groups reflect inputs operation according to device configuration. For example, turning the first channel on using input sends frame responsible for the same action.

Table 7 - RGBW-Control - Association groups

Association group	Name	Description
1st	Lifeline	Reports the device status and enables assigning a single device, the hub by default. Only one node can be assigned.
2nd	RGBW Sync	Enables synchronizing the state of other RGBW-Control devices
3rd	On/Off (IN1)	Used for turning the associated devices on/off reflecting IN1 operation
4th	Dimmer (IN1)	Used for changing the level of associated devices reflecting IN1 operation
5th	On/Off (IN2)	Used for turning the associated devices on/off reflecting IN2 operation
6th	Dimmer (IN2)	Used for changing the level of associated devices reflecting IN2 operation
7th	On/Off (IN3)	Used for turning the associated devices on/off reflecting IN3 operation
8th	Dimmer (IN3)	Used for changing the level of associated devices reflecting IN3 operation
9th	On/Off (IN4)	Used for turning the associated devices on/off reflecting IN4 operation
10th	Dimmer (IN4)	Used for changing the level of associated devices reflecting IN4 operation

Note

- Association groups 2 - 10 can be triggered only from buttons connected to IN1-IN4 and don't work for 0 - 10 V sensors.
- The device enables controlling 5 regular or multichannel devices per an association group, with the exception of “Lifeline” that is reserved solely for the hub and hence only 1 node can be assigned.

Table 8 - RGBW-Control - Assocation groups mapping

Root	Endpoint	Association group in endpoint
Association Group 1	Endpoint 1 - 9*	Association Group 1
Association Group 2	Endpoint 1	Association Group 2
Association Group 3	Endpoint 2	Association Group 2
Association Group 4	Endpoint 2	Association Group 3
Association Group 5	Endpoint 3	Association Group 2
Association Group 6	Endpoint 3	Association Group 3
Association Group 7	Endpoint 4	Association Group 2
Association Group 8	Endpoint 4	Association Group 3
Association Group 9	Endpoint 5	Association Group 2
Association Group 10	Endpoint 5	Association Group 3

* max nodes supported: 0

Table 9 - RGBW-Control - Basic commands mapping

Command	Root	Endpoints	
		1 - 5	6 - 9
Basic Set	= EP1	Switch Multilevel Set	–
Basic Get	= EP1	Switch Multilevel Get	Sensor Multilevel Get
Basic Report	= EP1	Switch Multilevel Report	Sensor Multilevel Report

Table 10 - RGBW-Control - RGBW mode: commands sent to association groups for parameter 150 set to 0			
Input	**1 and 2 click**	**Hold**	**Release**
Input 1	Basic Set: 3rd, Multilevel Set: 4th, Switch Color Set: 2nd	Multilevel Start Level Change: 4th	Multilevel Stop Level Change: 4th, Switch Color Set: 2nd
Input 2	Basic Set: 5th, Multilevel Set: 6th, Switch Color Set: 2nd	Multilevel Start Level Change: 6th	Multilevel Stop Level Change: 6th, Switch Color Set: 2nd
Input 3	Basic Set: 7th, Multilevel Set: 8th, Switch Color Set: 2nd	Multilevel Start Level Change: 8th	Multilevel Stop Level Change: 8th, Switch Color Set: 2nd
Input 4	Basic Set: 9th, Multilevel Set: 10th, Switch Color Set: 2nd	Multilevel Start Level Change: 10th	Multilevel Stop Level Change: 10th, Switch Color Set: 2nd

Table 11 - RGBW-Control - HSB mode: commands sent to association groups for parameter 150 set to 1			
Input	**1 and 2 click**	**Hold**	**Release**
Input 1, 2, 3	Switch Color Set: 2nd	–	Switch Color Set: 2nd
Input 4	Basic Set: 9th, Multilevel Set: 10th, Switch Color Set: 2nd	Multilevel Start Level Change: 10th	Multilevel Stop Level Change: 10th, Switch Color Set: 2nd

9 ADVANCED PARAMETERS

The device enables customizing its operation to user's needs with configurable parameters. The settings can be adjusted using Z-Wave hub to which the device is added. The way of adjusting them might differ depending on the hub

Table12 - RGBW-Control - Advanced parameters				
Parameter	**Description**	**Available setting**	**Default setting**	**Length**
1. Remember device status before the power failure	Determines how the device reacts in case of power supply failure, such as power outage or taking out from the electrical outlet. After the power supply is back on, the device can be restored to previous state or remain switched off. The sequence isn't remembered after the power returns. After power failure, the last color set before the sequence is restored.	• **0** - device remains switched off • **1** - device restores the state from before the power failure	**0**	1B
20. Input 1 - operating mode	Enables choosing mode of the 1st input (IN1). Change it depending on connected device.	• **0** – Analog input without internal pull-up (Sensor Multilevel) • **1** – Analog input with internal pull-up (Sensor Multilevel) • **2** – Momentary switch (Central Scene) • **3** – Toggle switch: switch state on every input change (Central Scene) • **4** – Toggle switch: contact closed – ON, contact opened – OFF (Central Scene)	**2** (momentary switch)	1B
21. Input 2 - operating mode	Enables choosing mode of the 2nd input (IN2). Change it depending on connected device			
22. Input 3 - operating mode	Enables choosing mode of the 3rd input (IN3). Change it depending on connected device			
23. Input 4 - operating mode	Enables choosing mode of 4th input (IN4). Change it depending on connected device			
30. Alarm configuration - 1st slot	Determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification. X – channels summarized: 1/2/3/4 channel are equal to values 1/2/4/8. Y – sequence number: 1 - 10 (parameter 157)	• 1B [MSB] – Notification Type • 2B – Notification Status • 3B – Event/State Parameters • 4B [LSB] – action: 0x00 – no reaction, 0x0X – turn off selected channel, 0x1X – turn on selected channel, 0x2X – blink selected channel, 0x3Y – activate alarm sequence	**[0x00, 0x00, 0x00, 0x00]** (disabled)	4B
31. Alarm configuration - 2nd slot	Determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification. X – channels summarized: 1/2/3/4 channel are equal to values 1/2/4/8. Y – sequence number: 1-10 (parameter 157).		**[0x05, 0xFF, 0x00, 0x00]** (Water Alarm, any notification, no action)	4B

Table12 - RGBW-Control - Advanced parameters

Parameter	Description	Available setting	Default setting	Length
32. Alarm configuration - 3rd slot	Determines to which alarm frames and how the device should react. The parameters consist of 4 bytes, three most significant bytes are set according to the official Z-Wave protocol specification. X – channels summarized: 1/2/3/4 channel are equal to values 1/2/4/8. Y – sequence number: 1 - 10 (parameter 157).	• 1B [MSB] – Notification Type • 2B – Notification Status • 3B – Event/State Parameters • 4B [LSB] – action: 0x00 – no reaction, 0x0X – turn off selected channel, 0x1X – turn on selected channel, 0x2X – blink selected channel, 0x3Y – activate alarm sequence	**[0x01, 0xFF, 0x00, 0x00]** (Smoke Alarm, any notification, no action)	4B
33. Alarm configuration - 4th slot			**[0x02, 0xFF, 0x00, 0x00]** (CO Alarm, any notification, no action)	
34. Alarm configuration - 5th slot			**[0x04, 0xFF, 0x00, 0x00]** (Heat Alarm, any notification, no action)	
35. Duration of alarm signalization	Determines the duration of alarm signaling (flashing mode and/or alarm sequence).	**0** – infinite signalization **1 - 32400** (1s-9h, 1s step)	**600** (10 min)	2B
40. Input 1 - sent scenes	Defines which actions result in sending scene ID and attribute assigned to them. This parameter is relevant only if parameter 20 is set to 2, 3 or 4. Actions can be summed up, e.g. 1+2+4+8=15 and entered as a value for the parameter.	**1** – Key pressed 1 time **2** – Key pressed 2 times **4** - Key pressed 3 times **8** – Key hold down and key released	**15**	1B
41. Input 2 - sent scenes	Defines which actions result in sending scene ID and attribute assigned to them. This parameter is relevant only if parameter 21 is set to 2, 3 or 4. Actions can be summed up, e.g. 1+2+4+8=15 and entered as a value for the parameter.			
42. Input 3 - sent scenes	Defines which actions result in sending scene ID and attribute assigned to them. This parameter is relevant only if parameter 22 is set to 2, 3 or 4. Actions can be summed up, e.g. 1+2+4+8=15 and entered as a value for the parameter.			
43. Input 4 - sent scenes	Defines which actions result in sending scene ID and attribute assigned to them. This parameter is relevant only if parameter 23 is set to 2, 3 or 4. Actions can be summed up, e.g. 1+2+4+8=15 and entered as a value for the parameter.			
62. Power reports - periodic	Determines in what time intervals the periodic power reports are sent to the main hub. Periodic reports do not depend of power change (parameter 61).	**0 -** periodic reports are disabled **30 - 32400** (30 - 32400 s) - report interval	**3600** (1h)	2B
63. Analog inputs reports and output change on input change	Defines minimal change (from the last reported) of analog input voltage that results in sending new report and change in the output value. This parameter is relevant only for analog inputs (parameter 20, 21, 22 or 23 set to 0 or 1).	**0** - reporting on change disabled **1 - 100** (0.1 - 10 V, 0.1 V step)	**5** (0.5 V)	2B
64. Analog inputs reports - periodic	Defines reporting period of analog inputs value. Periodical reports are independent from changes in value (parameter 63). The parameter is relevant only for analog inputs (parameter 20, 21, 22 or 23 set to 0 or 1).	**0 –** periodical reports disabled **30 - 32400** (30 - 32400 s, 1 s step)	**0**	2B
65. Energy reports - on change	Determines the minimum change in consumed energy that results in sending new energy report to the main hub. Energy reports are sent no often than every 30 seconds.	**0** - reports are disabled **1 - 500** (0.01 - 5 kWh) - change in energy	**10** (0.1 kWh)	2B
66. Energy reports - periodic	Determines in what time intervals the periodic energy reports are sent to the main hub. Periodic reports don't depend of energy change (parameter 65)	**0** - periodic reports are disabled **30 - 32400** (30 - 32400 s) - report interval	**3600** (1h)	2B
150. Inputs - LED colour control mode	Determines how connected switches control LED strips	• **0** – RGBW mode (every input controls output with the same number, IN1-OUT1, IN2-OUT2, IN3-OUT3, IN4-OUT4) • **1** – HSB and White mode (inputs works in HSB color model, IN1-H (Hue), IN2-S (Saturation), IN3-B (Brightness), IN4-White (OUT4)	**0** (RGBW mode)	1B
151. Local control - transition time	Determines time of smooth transition between 0% and 100% when controlling with connected switches.	**0** – instantly **1 - 127** (1s - 127s, 1s step) **128 - 254** (1min - 127 min, 1min step)	**3** (3 s)	2B
152. Remote control - transition time	Determines time needed to change the state between current and target values when controlling through Z-Wave network.			

Table12 - RGBW-Control - Advanced parameters				
Parameter	**Description**	**Available setting**	**Default setting**	**Length**
154. ON frame value for single click	Defines value sent to devices in association groups. The parameters consist of 4 bytes, each byte reserved for separate channel, from least significant (IN1) to most significant (IN4). Applicable for Basic Set and Switch Multilevel Set commands.	For every byte: 0 - 99, 255	4294967295 (0xFF FF FF FF – 255 for all channels)	4B
155. OFF frame value for single click			0 (0x00 00 00 00 – 0 for all channels)	
156. ON frame value for double click			0 (0x63 63 63 63 – 99 for all channels)	
157. Start programmed sequence	Setting this parameter starts programmed sequence with selected number. User can define own sequences using hub. While the sequence is active, the menu is unavailable.	**0** – sequence inactive **1 - 5** – user-defined sequence **6** – Fireplace sequence **7** – Storm sequence **8** – Rainbow sequence **9** – Aurora sequence **10** – Police siren sequence (red-white-blue)	**0** (sequence inactive)	1B

10 Z-WAVE SPECIFICATION

Table 13 - RGBW-Control - Supported Command Classes			
	Command Class	**Version**	**Secure**
1.	COMMAND_CLASS_ZWAVEPLUS_INFO [0x5E]	V2	
2.	COMMAND_CLASS_SWITCH_MULTILEVEL [0x26]	V4	YES
3.	COMMAND_CLASS_ASSOCIATION [0x85]	V2	YES
4.	COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION [0x8E]	V3	YES
5.	COMMAND_CLASS_ASSOCIATION_GRP_INFO [0x59]	V2	YES
6.	COMMAND_CLASS_VERSION [0x86]	V2	YES
7.	COMMAND_CLASS_MANUFACTURER_SPECIFIC [0x72]	V2	YES
8.	COMMAND_CLASS_MULTI_CHANNEL [0x60]	V4	YES
9.	COMMAND_CLASS_TRANSPORT_SERVICE [0x55]	V2	
10.	COMMAND_CLASS_CRC_16_ENCAP [0x56]	V1	
11.	COMMAND_CLASS_SUPERVISION [0x6C]	V1	
12.	COMMAND_CLASS_SECURITY [0x98]	V1	
13.	COMMAND_CLASS_SECURITY_2 [0x9F]	V1	
14.	COMMAND_CLASS_DEVICE_RESET_LOCALLY [0x5A]	V1	YES
15.	COMMAND_CLASS_APPLICATION_STATUS [0x22]	V1	
16.	COMMAND_CLASS_POWERLEVEL [0x73]	V1	YES
17.	COMMAND_CLASS_FIRMWARE_UPDATE_MD [0x7A]	V4	YES
18.	COMMAND_CLASS_CONFIGURATION [0x70]	V1	YES
19.	COMMAND_CLASS_PROTECTION [0x75]	V2	YES
20.	COMMAND_CLASS_NOTIFICATION [0x71]	V8	YES
21.	COMMAND_CLASS_COLOR_SWITCH [0x33]	V3	YES
22	COMMAND_CLASS_METER [0x32]	V3	YES
23.	COMMAND_CLASS_CENTRAL_SCENE [0x5B]	V3	YES
24.	COMMAND_CLASS_SENSOR_MULTILEVEL [0x31]	V11	YES
25.	COMMAND_CLASS_BASIC [0x20]	V1	YES

Table 14 - RGBW-Control - Multichannel Command Class	
ROOT (Endpoint 1)	
Generic Device Class	GENERIC_TYPE_SWITCH_MULTILEVEL
Specific Device Class	SPECIFIC_TYPE_COLOR_TUNABLE_MULTILEVEL
Command Classes	COMMAND_CLASS_ZWAVEPLUS_INFO [0x5E]
	COMMAND_CLASS_SWITCH_MULTILEVEL [0x26]
	COMMAND_CLASS_ASSOCIATION [0x85]
	COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION [0x8E]
	COMMAND_CLASS_ASSOCIATION_GRP_INFO [0x59]
	COMMAND_CLASS_SUPERVISION [0x6C]
	COMMAND_CLASS_SECURITY [0x98]
	COMMAND_CLASS_SECURITY_2 [0x9F]
	COMMAND_CLASS_APPLICATION_STATUS [0x22]
	COMMAND_CLASS_PROTECTION [0x75]
	COMMAND_CLASS_NOTIFICATION [0x71]
	COMMAND_CLASS_COLOR_CONTROL [0x33]
	COMMAND_CLASS_METER [0x32]
Description	Color Controller
Endpoint 2, 3 ,4 and 5	
Generic Device Class	GENERIC_TYPE_SWITCH_MULTILEVEL
Specific Device Class	SPECIFIC_TYPE_POWER_SWITCH_MULTILEVEL
Command Classes	COMMAND_CLASS_ZWAVEPLUS_INFO [0x5E]
	COMMAND_CLASS_SWITCH_MULTILEVEL [0x26]
	COMMAND_CLASS_ASSOCIATION [0x85]
	COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION [0x8E]
	COMMAND_CLASS_ASSOCIATION_GRP_INFO [0x59]
	COMMAND_CLASS_SUPERVISION [0x6C]
	COMMAND_CLASS_SECURITY [0x98]
	COMMAND_CLASS_SECURITY_2 [0x9F]
	COMMAND_CLASS_APPLICATION_STATUS [0x22]
Description	EP2 controlls directly Output 1 [Red] EP3 controlls directly Output 2 [Green] EP4 controlls directly Output 3 [Blue] EP5 controlls directly Output 4 [White]
Endpoint 6, 7, 8 and 9	
Generic Device Class	GENERIC_TYPE_SENSOR_MULTILEVEL
Specific Device Class	SPECIFIC_TYPE_ROUTING_SENSOR_MULTILEVEL
Command Classes	COMMAND_CLASS_ZWAVEPLUS_INFO [0x5E]
	COMMAND_CLASS_ASSOCIATION [0x85]
	COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION [0x8E]
	COMMAND_CLASS_ASSOCIATION_GRP_INFO [0x59]
	COMMAND_CLASS_SUPERVISION [0x6C]
	COMMAND_CLASS_SECURITY [0x98]
	COMMAND_CLASS_SECURITY_2 [0x9F]
	COMMAND_CLASS_SENSOR_MULTILEVEL [0x31]
	COMMAND_CLASS_APPLICATION_STATUS [0x22]
Description	EP6 reports the Voltage measured on Input 1 EP7 reports the Voltage measured on Input 2 EP8 reports the Voltage measured on Input 3 EP9 reports the Voltage measured on Input 4

Notification Command Class:

The device uses Notification Command Class to report different events to the controller ("Lifeline" group).

Table 15 - RGBW-Control - Notification Command Class - ROOT (Endpoint 1)			
Notification Type	**Event**	**Status**	**Parameter**
Power Management [0x08]	Over-current detected [0x06/V3]	0xFF – enable (non-changeable)	—
System [0x09]	System hardware failure with manufacturer proprietary failure code [0x03]	0xFF – enable (non-changeable)	Device Overheat [0x01]

Protection CC:

Protection Command Class allows to prevent local (via inputs) or remote control of the outputs.

Table 16 - RGBW-Control - Protection Command Class			
Type	**State**	**Description**	
Local	0	Unprotected - The device isn't protected, and may be operated normally with the user interface.	Inputs connected with outputs.
Local	2*	No operation possible – state of outputs cannot be changed by any of the Inputs	Inputs disconnected from outputs.
RF	0	Unprotected - The device accept and respond to all RF Commands.	Outputs can be controlled with Z-Wave
RF	1	No RF control – command class Basic, Switch Multilevel and Color Switch are rejected, every other command class is handled	Outputs can't be controlled with Z-Wave.

* only Central Scene Notifications can be triggered in this state.

Table 17 - RGBW-Control - Meter CC - ROOT - Endpoint 1				
Meter Type	**Scale**	**Rate Type**	**Precision**	**Size**
Electric [0x01]	Electric_kWh [0x00] (default)	Import [0x01]	2	4B
Electric [0x01]	Electric_W [0x02]	Import [0x01]	1	2B

Table 18 - RGBW-Control - Sensor Multilevel CC - Endpoint 6, 7, 8 and 9				
Sensor Type	**Scale**	**Precision**	**Size**	**Description**
VOLTAGE	V	1	2B	Analog input 1-4

Table 19 - RGBW-Control - Lifeline reports	
Endpoint	**Command Class**
ROOT	• COMMAND_CLASS_DEVICE_RESET_LOCALLY [0x5A] • DEVICE_RESET_LOCALLY_NOTIFICATION [0x01] • COMMAND_CLASS_SWITCH_MULTILEVEL [0x26] • SWITCH_MULTILEVEL_REPORT [0x03] • COMMAND_CLASS_COLOR_SWITCH [0x33] • COLOR_SWITCH_REPORT [0x04] • COMMAND_CLASS_CENTRAL_SCENE [0x5B] • CENTRAL_SCENE_NOTIFICATION [0x03] • COMMAND_CLASS_METER [0x32] • METER_REPORT [0x02] • COMMAND_CLASS_NOTIFICATION [0x71] • NOTIFICATION_REPORT [0x05] • COMMAND_CLASS_CONFIGURATION [0x70] • CONFIGURATION_REPORT [0x06]
Endpoint 1	• COMMAND_CLASS_SWITCH_MULTILEVEL [0x26] • SWITCH_MULTILEVEL_REPORT [0x03] • COMMAND_CLASS_METER [0x32] • METER_REPORT [0x02] • COMMAND_CLASS_NOTIFICATION [0x71] • NOTIFICATION_REPORT [0x05] • COMMAND_CLASS_COLOR_SWITCH [0x33] • COLOR_SWITCH_REPORT [0x04]
Endpoints 2 – 5	• COMMAND_CLASS_SWITCH_MULTILEVEL [0x26] • SWITCH_MULTILEVEL_REPORT [0x03]
Endpoints 6 – 9	• COMMAND_CLASS_SENSOR_MULTILEVEL [0x31] • SENSOR_MULTILEVEL_REPORT [0x05]

11 REGULATIONS

This device complies with Part 15 of the FCC Rules
Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation. This equipment has beentested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
   - Reorient or relocate the receiving antenna.
   - Increase the separation between the equipment and receiver.
   - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
   - Consult the dealer or an experienced radio/TV technician for help.

Note
Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission's rules.

Industry Canada (IC) Compliance Notice

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux normes d'exemption de licence RSS d'Industry Canada. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

12 PRODUCT DISPOSAL

This product is an integral part of the automation and therefore must be disposed together with the latter. At the end of the product lifetime, the disassembly and scrapping operations must be performed by qualified personnel.
This product is made of various types of material, some of which can be recycled while others must be scrapped. Seek information on the recycling and disposal systems envisaged by the local regulations in your area for this product category.

As indicated by the symbol alongside, disposal of this product in domestic waste is strictly prohibited. Separate the waste into categories for disposal, according to the methods envisaged by current legislation in your area, or return the product to the retailer when purchasing a new version.

⚠ CAUTION!
- Some parts of the product may contain pollutant or hazardous substances which, if disposed of into the environment, may cause serious damage to the environment or physical health.
- Local legislation may envisage serious fines in the event of abusive disposal of this product.

13 DECLARATION OF CONFORMITY

Hereby, Nice S.p.A., declares that the radio equipment type RGBW-Control (FGRGBW-442-US) is in compliance with Directive 2014/53/EU.
The full text of the EU Declaration of Conformity is available at: http://www.niceforyou.com/en/support.

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