



## Z-Wave Plus<sup>®</sup> RGBW Dimmer Controller Module

P/N 36511

### User's Manual

# CONTENTS

SAFETY WARNINGS AND GUIDELINES .....	3
INTRODUCTION .....	3
CUSTOMER SERVICE .....	3
PACKAGE CONTENTS .....	4
PRODUCT OVERVIEW .....	4
INSTALLATION .....	5
LED INDICATIONS.....	6
SETUP.....	6
Auto Inclusion.....	6
Manual Inclusion.....	7
Manual Exclusion.....	7
Reset .....	7
EXTERNAL SWITCH OPERATIONS.....	7
Normal Input Operating Mode.....	7
Brightness Input Operating Mode.....	8
Scene Input Operating Mode.....	8
Four Dimmers Input Operating Mode.....	9
COMMAND CLASSES.....	10
Multilevel Switch Device Information .....	10
Multilevel Switch Command Classes.....	10
Detailed Descriptions .....	11
TECHNICAL SUPPORT .....	15
SPECIFICATIONS.....	16
REGULATORY COMPLIANCE.....	17
Notice for FCC .....	17
Radio Notice for FCC.....	18
Notice for Industry Canada .....	18
Radio Notice for Industry Canada.....	18

## SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This device is intended for indoor use only.
- Do not expose this device to water or moisture of any kind.
- This module is intended for use with low-voltage (12 VDC or 24 VDC) lighting systems. Do not use it with any other voltage level.
- This module must be powered by a 12 VDC or 24 VDC stabilized power supply without outputs load capacity matching to loads voltage.
- This module must be installed by an electrician or someone with experience installing electric devices.

## INTRODUCTION

This RGBW Controller is a universal, Z-Wave® compatible RGB/RGBW controller. It uses a PWM output signal, which allows it to control LED RGB/RGBW strips, and halogen lights remotely or manually using wall switches. Controlled devices may be powered by 12 VDC or 24 VDC voltage level. All IN and OUT terminals can be configured for LED control. The RGBW Controller features easy on/off, brightness control, and 6 different scene effects to set the mood of your home.

## CUSTOMER SERVICE

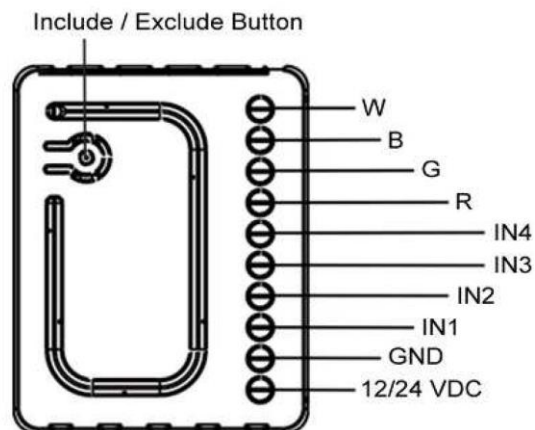
The Monoprice Customer Service department is dedicated to ensuring that your ordering, purchasing, and delivery experience is second to none. If you have any problem with your order, please give us an opportunity to make it right. You can contact a Monoprice Customer Service representative through the Live Chat link on our website [www.monoprice.com](http://www.monoprice.com) or via email at [support@monoprice.com](mailto:support@monoprice.com). Check the website for support times and links.

## PACKAGE CONTENTS

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact Monoprice Customer Service for a replacement.

- 1x RGBW controller module
- 1x 18 AWG wire lead (1" long)
- 1x Wire coupler
- 1x Double-sided adhesive tape
- 1x Quick user guide

## PRODUCT OVERVIEW



**12/24 VDC:** Power supply positive input.

**GND:** Power supply ground/negative input.

**IN1:** Switch input 1.

**IN2:** Switch input 2.

**IN3:** Switch input 3.

**IN4:** Switch input 4.

**R:** Output assigned to IN1.

**G:** Output assigned to IN2.

**B:** Output assigned to IN3.

**W:** Output assigned to IN4.

## INSTALLATION

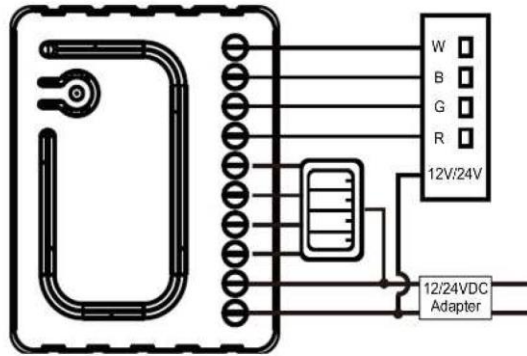
Before installation, please read and adhere to the following power requirements and recommendations.

- The controller must be operated in a low voltage, 12 VDC or 24 VDC, circuit. Using a different voltage level can damage the module.
- Use 18 AWG wire when connecting a high current LED strip. 22 AWG wire can be used in low current circuits.
- The controller must be powered with the same voltage level (12 VDC or 24 VDC) as is used to power the LED strip.
- The controller must be powered by a 12 VDC or 24 VDC stabilized power supply without outputs load capacity matching to loads voltage.
- When connecting a long LED strip, voltage drops may occur, resulting in lower brightness towards the end of the strip. To compensate for this, it is recommended to connect a few shorter strips in parallel, rather than one long strip. The maximum recommended length of LED strips is 16.4 feet (5 meters). Observe the manufacturer's wire gauge recommendations for connected loads.
- For the IN1-IN4 connections, it is suggested to connect the four inputs individually to the same type of switch. Supported switch types are Momentary, Toggle, and Toggle with Memory.

Perform the following steps to install this controller into your lighting system.

1. Disconnect the 12 VDC or 24 VDC power supply from its power source.
2. Pull the antenna wire out of the groove on the module, straighten it out, and extend it 90 degrees from the module surface.

3. Connect the module to your system according to the following diagram.



4. Connect the 12 VDC or 24 VDC power supply to its power source. If the module is installed properly, the LED strip will blink once and the module will automatically enter inclusion mode. Auto inclusion will time out after 2 minutes.

## LED INDICATIONS

The LED under the **Include/Exclude Button** indicates the status of the module, as shown in the following table.

LED INDICATION	STATUS
Flashing Red and Green	Not included in a Z-Wave® network
Solid Green	Included in a Z-Wave network
Flashing Green	In Inclusion or Exclusion mode, including Auto Inclusion

## SETUP

### Auto Inclusion

When you first connect the module to the power supply, after you exclude the module from your Z-Wave® network, or after the module is reset, the connected LED strip will blink once and the module will enter Auto Inclusion mode. Momentarily press the **Include/Exclude Button** on the module 3 times within 2 seconds to include the module in your Z-Wave network. Auto Inclusion mode will time out after 2 minutes.

## Manual Inclusion

1. Enable Inclusion Mode on your Z-Wave controller.
2. Momentarily press the **Include/Exclude Button** on the module 3 times within 2 seconds to include the module in your Z-Wave network.

## Manual Exclusion

1. Enable Exclusion Mode on your Z-Wave controller.
2. Momentarily press the **Include/Exclude Button** on the module 3 times within 2 seconds to exclude the module from your Z-Wave network. The module will enter Auto Inclusion mode.

## Reset

Press and hold the **Inclusion/Exclusion Button** for more than 10 seconds. The module will be excluded from your Z Wave network and will reset all settings to the factory default settings.

## EXTERNAL SWITCH OPERATIONS

The following tables list the various types of actions that can be performed with the three supported switch types.

### Normal Input Operating Mode

Switch Type	Switch Action	Result
Momentary	Momentary press	Single output turn ON to the last dimming value / Turn OFF
	Momentary double press	Single output turn ON to the MAX dimming value

Switch Type	Switch Action	Result
Momentary	Press and hold for more than 1 second	Single output increase or decrease brightness
Toggle	Change position	Single output turn ON to MAX dimming value / Turn OFF
Toggle with Memory	Position 1 to Position 2	Single output turn ON to MAX dimming value
	Position 2 to Position 1	Single output turn OFF

### Brightness Input Operating Mode

Switch Type	Switch Action	Result
Momentary	Momentary press	Four outputs simultaneously turn ON to the last dimming value / Turn OFF
	Momentary double press	Four outputs simultaneously turn ON to the MAX dimming value
	Press and hold for more than 1 second	Four outputs simultaneously increase or decrease brightness
Toggle	Change position	Four outputs simultaneously turn ON to MAX dimming value / Turn OFF
Toggle with Memory	Position 1 to Position 2	Four outputs simultaneously turn ON to MAX dimming value
	Position 2 to Position 1	Four outputs simultaneously turn OFF

### Scene Input Operating Mode

Switch Type	Switch Action	Result
Momentary	Momentary press	Turn ON the last scene or default scene / Turn OFF



Switch Type	Switch Action	Result
Momentary	Press and hold for more than 1 second	Changes the scene
Toggle	Change position	Turn ON the last scene or default scene / Turn OFF
Toggle with Memory	Position 1 to Position 2	Turn ON the last scene or default scene
	Position 2 to Position 1	Turn OFF

#### Four Dimmers Input Operating Mode

Switch Type	Switch Action	Result
Momentary	Momentary press	Single output turn ON to the last dimming value / Turn OFF
	Momentary double press	Single output turn ON to the MAX dimming value
	Press and hold for more than 1 second	Single output increase or decrease brightness
Toggle	Change position	Single output turn ON to MAX dimming value / Turn OFF
Toggle with Memory	Position 1 to Position 2	Single output turn ON to MAX dimming value
	Position 2 to Position 1	Single output turn OFF

# COMMAND CLASSES

This module supports the following Command Classes.

## Multilevel Switch Device Information

GENERIC\_TYPE\_SWITCH\_MULTILEVEL

SPECIFIC\_TYPE\_POWER\_SWITCH\_MULTILEVEL

## Multilevel Switch Command Classes

COMMAND\_CLASS\_ZWAVEPLUS\_INFO\_V2

COMMAND\_CLASS\_VERSION\_V2

COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC\_V2

COMMAND\_CLASS\_DEVICE\_RESET\_LOCALLY\_V1

COMMAND\_CLASS\_POWERLEVEL\_V1

COMMAND\_CLASS\_BASIC\_V1

COMMAND\_CLASS\_SWITCH\_MULTILEVEL\_V2

COMMAND\_CLASS\_COLOR\_CONTROL\_V2

COMMAND\_CLASS\_CONFIGURATION\_V1

COMMAND\_CLASS\_ASSOCIATION\_V2

COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO\_V1

COMMAND\_CLASS\_SWITCH\_BINARY\_V2

COMMAND\_CLASS\_FIRMWARE\_UPDATE\_MD\_V2

## Detailed Descriptions

- **ZWAVEPLUS INFO** command class: The Z-Wave Plus Info Get Command is used to get additional information about the Z-Wave Plus® device in question.
- **VERSION** command class: You can get the version of the unit using the VERSION\_GET command. It will return the VERSION\_REPORT Command. Version Report Command: [Command Class Version, Version Report, Z-Wave Library Type, Z-Wave Protocol Version, Z-Wave Protocol Sub Version, Application Version, Application Sub Version].
- **MANUFACTURER SPECIFIC** command class: You can use the Manufacturer Specific Get Command to request manufacturer specific information from another node. Manufacturer Specific Report Command: [Command Class Manufacturer Specific, Manufacturer ID 1, Manufacturer ID 2, Product Type ID 1, Product Type ID 2, Product ID 1, Product ID 2].
- **DEVICE RESET LOCALLY** command class: The Device Reset Locally Command Class is used to notify central controllers that a Z-Wave® device is resetting its network specific parameters.
- **BASIC** command class: The device will be turned ON or OFF after receiving the BASIC\_SET command. To be turned on: [Command Class Basic, Basic Set, Basic Value = 0x01~0x63 in percentage; FF set to last value]. To be closed: [Command Class Basic, Basic Set, Basic Value = 0x00].
- **SWITCH MULTILEVEL** command class: The device will be turned ON or OFF after receiving the SWITCH\_MULTILEVEL\_SET command. To be turned on: [Command Class Multilevel, Multilevel Set, Basic Value = 0x01~0x63 in percentage; FF set to last value]. To be closed: [Command Class Multilevel, Multilevel Set, Basic Value = 0x00].

- **COLOR CONTROL** command class: This class is used for Color setting. Refer to the following table for the configuration variables.

Capability ID	Color	State Level
0 (0x00)	Warm White	0x00-0xFF
2 (0x02)	Red	0x00-0xFF
3 (0x03)	Green	0x00-0xFF
4 (0x04)	Blue	0x00-0xFF

- **CONFIGURATION** command class: This class is used for setting certain vendor specific configuration variables. Refer to the following table for the configuration variables.

Parameter	Name	Size (byte)	Range	Default Value	Description
1 (0x01)	Input IN1	1	1-9	1	1 NORMAL Mode: momentary switch type 2 NORMAL Mode: toggle switch type 3 NORMAL Mode: toggle with memory switch type 4. BRIGHTNESS Mode: momentary switch type 5 BRIGHTNESS Mode: toggle switch type 6 BRIGHTNESS Mode: toggle with memory switch type 7 SCENE Mode: momentary switch type 8 SCENE Mode: toggle switch type

Parameter	Name	Size (byte)	Range	Default Value	Description
1 (0x01)	Input IN1	1	1-9	1	9 SCENE Mode: toggle with memory switch type
2 (0x02)	Input IN2	1	1-9	1	Same as parameter 1
3 (0x03)	Input IN3	1	1-9	1	Same as parameter 1
4 (0x04)	Input IN4	1	1-9	1	Same as parameter 1
5 (0x05)	Auto Scene Mode Set	1	0-6	1	0: SCENE OFF 1: Ocean 2: Lightning 3: Rainbow 4: Snow 5: Sun 6: Dancing
6 (0x06)	Auto Scene Mode Duration	2	1-127 1001-1127	3	Adjust scene delay time: When value is 1-127, the duration is 1-127 seconds. When value is 1001-1127, the duration is 1-127 minutes. Note: This parameter has no effect on the Lightning and Dancing scenes.
7 (0x07)	Memorize Device Status at Power Cut	1	0-1	1	0: Device does not memorize its status at power cut. The load is disconnected. 1: Device memorizes its status at power cut. The load will be set to the status before power cut.

Parameter	Name	Size (byte)	Range	Default Value	Description
10 (0x0A)	MAX Dimming Value	1	2-99	99	2-99 = 2%-99%
11 (0x0B)	MIN Dimming Value	1	1-98	1	1-98 = 1%-98%
12 (0x0C)	Dimming Time (Soft ON/OFF)	1	5-25	10	5-25 = 0.5-2.5 seconds 10 = 1 second
13 (0x0D)	Dimming Time When Key is Pressed	1	1-127	5	1-127 = 1-127 seconds
14 (0x0E)	Dimmer Mode	1	0-3	0	0: 4 dimmers mode disabled 1: 4 dimmers mode enabled - momentary switch type 2: 4 dimmers mode enabled - toggle switch type 3: 4 dimmers more enabled - toggle with memory switch type Note 1: If this is enabled, parameters 1-4 have no effect. Note 2: After you enable or disable 4 dimmer mode, the device should be first excluded from the controller, then included again.

The **CONFIGURATION** class is also used to enable Remote Exclusion using the following parameter:

Parameter	Size	Value
0xF0	1 byte	1

- **ASSOCIATION** command class: The device can be set 1 auto-report ID in Group 1. The device will send BASIC\_REPORT to the device associated in Group 1 when the corresponding device is activated.
- **ASSOCIATION GRP INFO** command class: The device will report the Lifeline group information.
- **SWITCH\_BINARY** command class: The device will be turned ON or OFF after receiving the SWITCH\_BINARY command. To be turned on: [Command Class SWITCH\_BINARY, Set, Value = 0x01~0x63 in percentage; FF set to last value]. To be closed: [Command Class SWITCH\_BINARY, Set, Basic Value = 0x00].
- **FIRMWARE UPDATE META DATA** command class: Supports the OTA (On-The-Air) firmware update function.

## TECHNICAL SUPPORT

Monoprice is pleased to provide free, live, online technical support to assist you with any questions you may have about installation, setup, troubleshooting, or product recommendations. If you ever need assistance with your new product, please come online to talk to one of our friendly and knowledgeable Tech Support Associates. Technical support is available through the online chat button on our website [www.monoprice.com](http://www.monoprice.com) or through email by sending a message to [tech@monoprice.com](mailto:tech@monoprice.com). Check the website for support times and links.

## SPECIFICATIONS

Model	36511
Input Power	12 VDC or 24 VDC
Rated Output Power	1. 13 amps (sum of all 4 connected outputs). 2. 7 amps for a single output. When all 4 output channels are connected, it is suggested to use 3.25A for each output channel.
Maximum Load (e.g. halogen bulbs)	156 watts at 12 VDC 312 watts at 24 VDC
PWM Output Frequency	488Hz
Power Consumption	0.48 watts at 12 VDC 0.72 watts at 24 VDC
Radio Protocol	Z-Wave®
Radio Frequency	908.4 / 916 MHz
Data Rates	9.6kbps, 40kbps, 100kbps
Radio Signal Power	1mW
LED Indicator Colors	Red/Green
Button	Inclusion/Exclusion
Operating Temperature	+32 ~ +104°F (0 ~ +40°C)
Storage Temperature	-4 ~ +158°F (-20 ~ +70°C)
Dimensions	1.6" x 1.3" x 0.6" (41 x 32 x 15 mm)



# REGULATORY COMPLIANCE

## Notice for FCC



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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Modifying the equipment without Monoprice's authorization may result in the equipment no longer complying with FCC requirements for Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

This equipment has been tested 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.

## Radio Notice for FCC



### Caution

This FCC Part 15 radio device operates on a non-interference basis with other devices operating at this frequency. Any changes or modification to said product not expressly approved by Monoprice, including the use of non-approved antennas, could void the user's authority to operate this device.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Notice for Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

## Radio Notice for Industry Canada

### Caution

This IC RSS-210 radio device operates on a non-interference basis with other devices operating at this frequency. Any changes or modification to said product not expressly approved by Monoprice, including the use of non-approved antennas, could void the user's authority to operate this device.

This device complies with IC RSS-210. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

*Z-Wave® and Z-Wave Plus® are registered trademarks of Sigma Designs and its subsidiaries in the United States and other countries.*