Datasheet LED RGBW Z-Wave

RGB-201-Z-01

Grenton LED RGBW Z-Wave module allows for smooth control of LED lighting and halogen lighting using PWM signal. The module can serve as an RGBW LED lighting controller and operate as a four-channel LED dimmer. The module enables the connection of 2 digital inputs to the system, and supports the connection of one digital 1-Wire temperature sensor.

1. Parameters -ZWAVE LEDRGB

Features:	
Value	Brightness value as per the HSV model (range: 0.00-1.00)
Hue	Colour hue value as per the HSV model (0-360)
Saturation	Colour saturation value as per the HSV model (0.00-1.00)
RedValue	R component value (0-255) - Red
GreenValue	G component value (0-255) - Green
BlueValue	B component value (0-255) - Blue
RGB	Colour value as per the RGB model #RRGGBB (specified in HEX)
RampTime	Time value of increment of colour and brightness (in ms)
MaxValue	Maximum value which Value can adopt. Attempting to set a higher value will generate an error
MinValue	Minimum value which Value can adopt. Attempting to set a lower value will generate an error
RedCorrection	White correction - channel R (0-100), default 100%
GreenCorrection	White correction - G channel (0-100), default 100%
BlueCorrection	White correction - B channel (0-100), default 100%
OvercurrentProtection	Overcurrent protection state

Methods:	
SetValue	Sets output value (0.00-1.00)
SetHue	Sets hue value (0-360)
SetSaturation	Sets saturation value (0.00-1.00)
SetRedValue	Sets R component value (0-255)
SetGreenValue	Sets G component value (0-255)
SetBlueValue	Sets B component value (0-255)
SetRGBvalue	Sets RGB value using the #RRGGBB string
SwitchOn	Sets output value to MaxValue
SwitchOff	Sets output value to 0
Switch	Changes the output value from 0 to 1 or from 1 to 0. The first parameter is the time of change: 0 - switches output to continous mode, number - switches output for a time specified by a parameter (in milliseconds) The second parameter is the ramp (time of value increments) which is optional. If this parameter is not specified, the default ramp is used.
SetRampTime	Sets value of increment of colour and brightness (in ms)
SetMaxValue	Sets maximum value for Value
SetMinValue	Sets minimum value for Value
ClearOvercurrentProtection	Clear overcurrent protection flag

Events:	
OnValueChange	Event occurring when changing the output state
OnSwitchOn	Event occurring when the output state is changed from 0 to greater than 0
OnSwitchOff	Event occurring when 0 is set at the output
OnValueRise	Event occurring when the set value is higher than the current value
OnValueLower	Event occurring when the set value is lower than the current value
OnOutOfRange	Event occurring when setting a value which is higher than the maximum value or lower than the minimum value
OnOvercurrentProtection	Event occurring upon activation of overcurrent protection

2. Parameters - ZWAVE LED

Features:	
Value	Brightness value (0-255)
RampTime	Time value of increment of brightness (in ms)
MaxValue	Maximum value which Value can adopt. Attempting to set a higher value will generate an error
MinValue	Minimum value which Value can adopt. Attempting to set a lower value will generate an error
OvercurrentProtection	Overcurrent protection state

Methods:	
SeValue	Sets brightness value (0-255)
SwitchOn	Sets output value to MaxValue
SwitchOff	Sets output value to MinValue
Switch	Changes the output value from 0 to 1 or from 1 to 0. The first parameter is the time of change: 0 - switches output to continous mode, number - switches output for a time specified by a parameter (in milliseconds) The second parameter is the ramp (time of value increments) which is optional. If this parameter is not specified, the default ramp is used.
SetRampTime	Sets value of increment of brightness (in ms)
SetMaxValue	Sets maximum value for Value
SetMinValue	Sets minimum value for Value
HoldValue	Executes illumination/ dimming function
ClearOvercurrentProtection	Clear overcurrent protection flag

Events:	
OnValueChange	Event occurring when changing the output state
OnSwitchOn	Event occurring when the output state is changed from 0 to greater than 0
OnSwitchOff	Event occurring when 0 is set at the output
OnValueRise	Event occurring when the set value is higher than the current value
OnValueLower	Event occurring when the set value is lower than the current value
OnOutOfRange	Event occurring when setting a value which is higher than the maximum value or lower than the minimum value
OnOvercurrentProtection	Event occurring upon activation of overcurrent protection

3. Parameters - ZWAVE DIN

Features:	
HoldDelay	Time in milliseconds after which, when pressing and holding a button, the OnHold event occurs
HoldInterval	Cyclical interval in milliseconds after which, when pressing and holding a button, the OnHold event occurs
Value	Returns input state as 0 or 1

Methods:	
SetHoldDelay	Sets HoldDelay value
SetHoldInterval	Sets HoldInterval value

Events:	
OnValueChange	Occurs when a change in the input state takes place (regardless of the value)
OnSwitchOn	Occurs when the high state is set at input
OnSwitchOff	Occurs when the low state is set at input
OnShortPress	Occurs after pressing the button for 500-2000ms
OnLongPress	Occurs after pressing the button for at least 2000ms
OnHold	Occurs for the first time after HoldDelay time and then cyclically every HoldInterval value
OnClick	Occurs after pressing the button for less than 500ms

[1] less then 200ms transition

4. Parameters - ZWAVE 1-WIRE SENSOR

Features:	
Value	Input value
MinValue	Minimum value of the Value characteristic after exceeding which the OnOutOfRange event is generated
MaxValue	Maximum value of the Value characteristic after exceeding which the OnOutOfRange event is generated
Status	Sensor status: 0 - disconnected; 1 - connected

Events:	
OnValueChange	Event resulting from changing input state
OnValueRise	Event resulting from exceeding the upper threshold of hysteresis
OnValueLower	Event resulting from exceeding the lower threshold of hysteresis
OnOutOfRange	Event resulting from exceeding any range
OnInRange	Event occurring when setting a value which is lower than the maximum value or higher than the minimum value
OnConnect	Event resulting from connection with sensor
OnDisconnect	Event resulting from disconnection with sensor

5. Parameters - ZWAVE CONFIG

Features:	
Register	Register (parameter) number
Value	Register (parameter) value
NodeID	Module's number (node) in the Z-Wave network
Banned	Returns information about communication with module: 0 - communication with the module is not blocked, 1 - blocked communication with the module (module banned)
FailCount	The number of failed communication attempts with the Z-Wave module
Repeaters	Number of devices intermediating communication between the CLUZ and a given module
RepeatersList	List of devices (NodeID) intermediating in communication between CLUZ and the module
Standalone	Setting the internal connection between the device's inputs and outputs

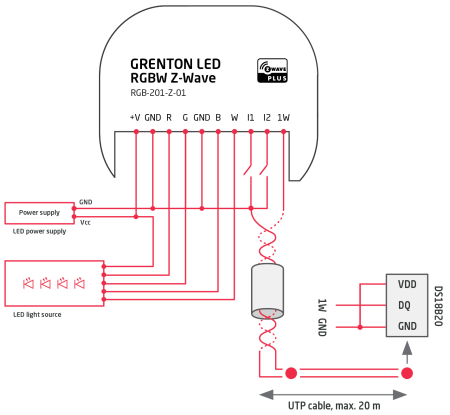
Methods:	
Set	Sets the value of the register (parameter)
Get	Gets the value of a given register (parameter)
SetDefault	Sets the default value for register (parameter)
RemoveBan	Removes the blockade of communication with the Z-Wave module
ClearFailCount	Cleans the number of failed communication attempts
UpdateNeighbours	Triggers the action of updating and rebuilding the Z-Wave network (number of neighbouring modules, method of communication with CLUZ) for a given module

Events:	
OnBanned	Occurs when Z-Wave device is banned

6. Technical data

Device power supply	12-24V_{dc}
Maximum power consumption	0,096W
Maximum device current	4mA (for 24V_{dc})
LED power supply (Vcc)	up to 24V_{dc}
Maximum load current RGBW	12A (total for all channels)
Maximum channel load current	4A
PWM output frequency	600Hz
Maximum number of 1-Wire sensors	1
Maximum wire cross section	1,5mm^2
Z-wave frequency	EU: 868,4MHz
Weight	22g
Fixing	flush mounted
Dimensions (H/W/D)	22/46/37mm
Operating temperature range	0 to +45°C

7. Wiring diagram



+V	Device power supply
GND	GND for +V, and "Red" and "Green" outputs
R	"Red" output
G	"Green" output
GND	GND for digital inputs, 1-Wire, and "Blue" and "White" outputs
B	"Blue" output
W	"White" output
I1	first digital input
I2	second digital input
1W	1-Wire input

8. Module Inclusion

To add the device to the Z-Wave network:

1. Connect the module according to the diagram above.
2. Set your Z-Wave controller into inclusion mode.
3. Generate quickly[1] 6 pulses on I1 input. The status LED starts blinking with a period of 500ms.
4. The status LED turns off at the end of the Inclusion process.

If you are connecting this unit to a Z-Wave Controller that utilizes the S2 security protocol, you may be asked to enter the first 5 digits of Device Specific Key (DSK). You can find it on the label with QR code on the back of the unit.

The device supports SmartStart function. SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity. The device provides DSK representation on the product, so you can add it manually to the controller.

9. Module Exclusion

To remove the device from the Z-Wave network:

1. Connect the module according to the diagram above.
2. Set your Z-Wave controller into exclusion mode.
3. Generate quickly[1] 6 pulses on I1 input. The status LED starts blinking with a period of 500ms.
4. The status LED turns off at the end of the Exclusion process.

10. Factory Reset

To restore factory configuration:

1. Connect the module according to the diagram above.
2. Generate quickly[1] 6 pulses on I2 input. The status LED turns on.
3. Generate quickly[1] 6 pulses on I1 input. The status LED turns off.

11. Standalone Mode

Standalone mode is the default operating mode of the module, in which the button (monostable) connected to the input I1 controls the RGB channels in HSV mode as follows:

- single click - toggles the output using the last brightness value,
- 2x click - turns on the output using the maximum brightness value,
- hold - smoothly changes the brightness value,
- click + hold - changes the hue value,
- 2x click + hold - changes the saturation value.

The button (monostable) connected to the input I2 controls the white channel (W) as follows:

- single click - toggles the channel using the last brightness value,
- 2x click - turns on the channel using the maximum brightness value,
- hold - smoothly changes the brightness value.

This mode can be enabled / disabled using the Standalone feature of the ZWAVE_CONFIG object.

To manually enable / disable standalone mode:

1. Connect the module according to the diagram above.
2. Generate quickly[1] 6 pulses on I2 input. The status LED turns on.
3. Generate quickly[1] 4 pulses on I1 input. The status LED turns off.

12. Warnings and Cautionary Statements

ATTENTION !

- Before proceeding with the assembly, read the installation schematics and full instructions available at www.grenton.com. Failure to follow the guidelines contained in the instructions and other requirements of due care valid as a result of the nature of the equipment (device) may be dangerous to life / health, damage the device or installation to which it is connected, damage other property or violate other applicable regulations. The manufacturer of the device, Grenton Sp. z o. o. does not bear any responsibility for the damage (property and non-property related) resulting from the assembly and / or use of the equipment not in accordance with the instructions and / or due diligence in handling the equipment (device).
- Device power supply, permissible load or other characteristic parameters have to be in accordance with the device specification, described in particular in the "Technical data" section.
- The product is not intended for children and animals.
- If you have technical questions or comments about the device operation, contact Grenton Technical Support.
- Answers to frequently asked questions can be found at: www.support.grenton.com.

DANGER !

- Danger to life caused by electric current!
- The components of the installation (individual devices) are designed to work in a home electrical installation or directly in its vicinity. Incorrect connection or use may cause a fire or electric shock.
- All work related to the installation of the device, in particular works involving interference in the electrical installation, may be performed only by a person with appropriate qualifications or licences.
- When installing the device, make sure that the power supply voltage is disconnected from the circuit in which the device is connected or near which the assembly takes place.

13. CE Marking

The manufacturer declares that the device is in full compliance with the requirements of EU legislation that includes the directives of a new approach appropriate for this equipment. In particular, Grenton Sp. z o. o. declares that the device fulfills the requirements on safety, specified by law, and that it conforms to the national regulations that implement the appropriate directives: The Radio Equipment Directive (RED - 2014/53/UE) and the Directive on the limitation of the use of specific substances in electrical and electronic equipment (RoHS II - 2011/65/UE).

14. Warranty

Warranty available at www.grenton.com/warranty.

15. Manufacturer Contact Details

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