Z-Wave DIN Rail RGBW/PWM LED controller (Insert Fibaro FGRGBWM-441)

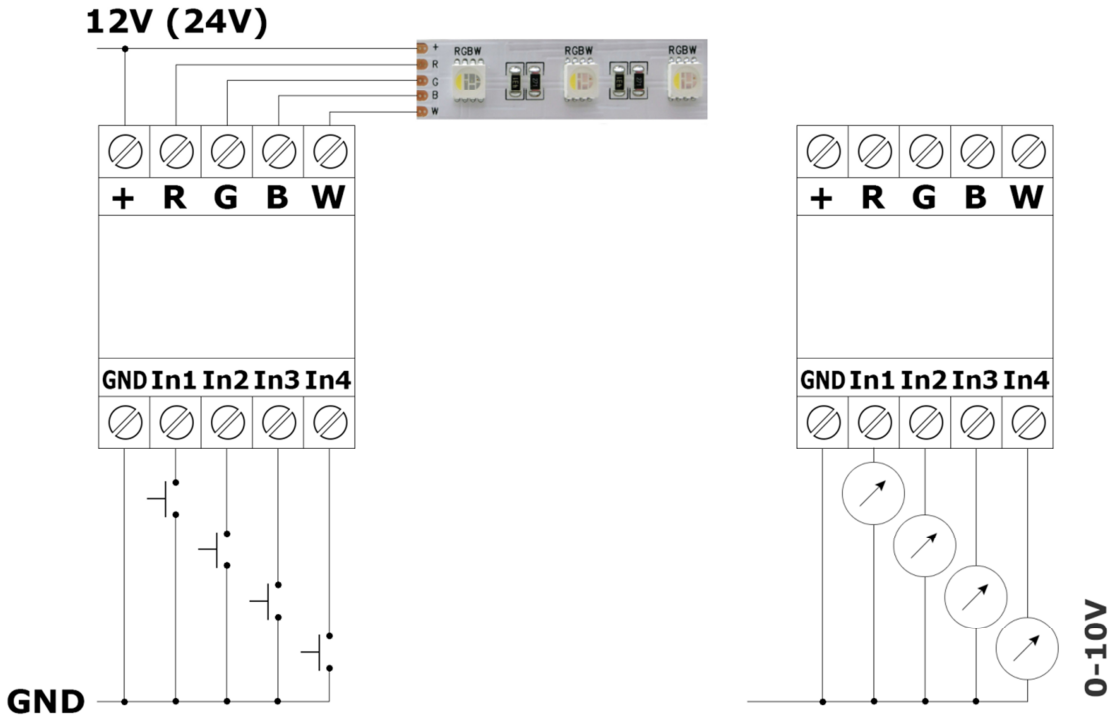
SPECIFICATIONS

- Ventilated DIN enclosure
- Fibaro FGRGBWM-441 RGBW Controller included

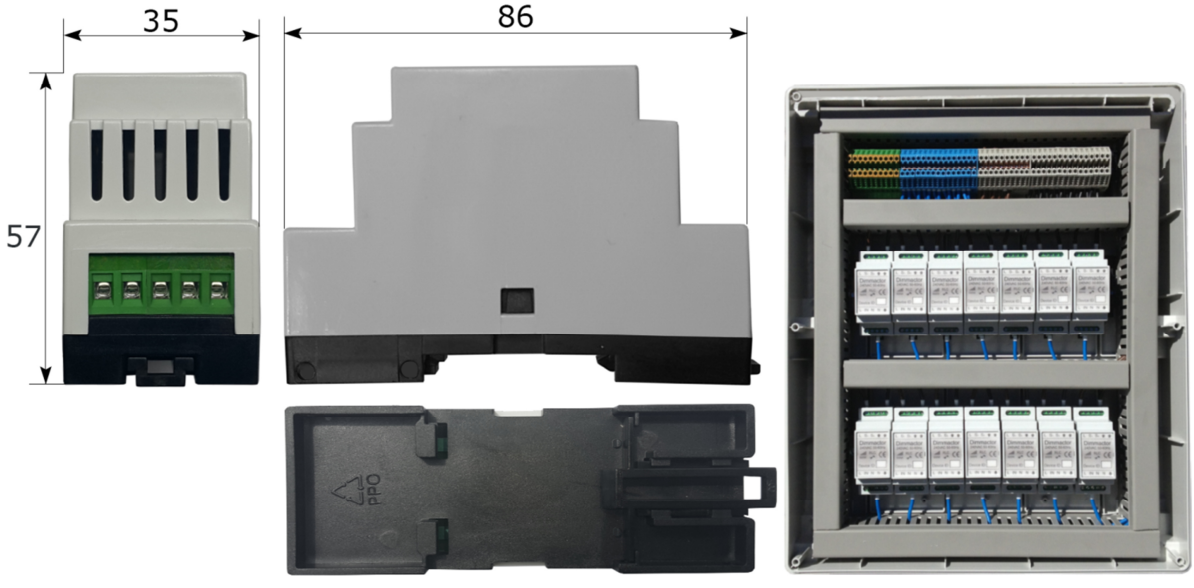
- RGBW Controller may control:
  - 12 / 24VDC powered RGB & RGBW strips
  - 12 / 24VDC powered LED bulbs, etc.
  - 12 / 24VDC powered halogen lights & low power fans

- Additional features:
  - 0-10V sensors signal readouts
  - 0-10V signal readouts, and managing outputs accordingly
  - Controlled by momentary or toggle switches

CONNECTION



DIMENSIONS



ENG

Operating Manual
FIBARO RGBW Controller
FGRGBWM-441 v2.1 - v2.3.

Fibaro RGBW Controller is a universal, Z-Wave compatible RGB / RGBW controller. Fibaro RGBW Controller uses PWM output signal, which enables it to control LED, RGB, RGBW strips, halogen lights and fans. Controlled devices may be powered by 12 or 24 VDC. In addition the device supports up to four, 0V - 10V analog sensors, such as temperature sensors, humidity sensors, wind sensors, air quality sensors, light sensors etc. All IN and OUT terminals may be user configured for LED control or 0V-10V signal readouts.

Specifications

Power Supply:	12 V DC 24 V DC
Rated output power:	combined 12A (sum of all connected output channels); 6A for single output channel
PWM output frequency:	244 Hz
Electricity consumption:	0,3W
Radio signal power:	1mW
For installation in boxes:	Ø≥50 mm
Max load (e.g. halogen bulbs):	at 12V - 144W combined, at 24V - 288W combined.
In accordance with EU standards:	EMC 2004/108/EC R&TTE 199/5/WE
Radio protocol:	Z-Wave
Radio frequency:	868,4 MHz EU; 908,4 MHz US; 921,4 MHz ANZ; 869,2 MHz RU;
Range:	up to 50m outdoors / up to 30m indoors; depending on terrain and building structure
Operational temperature:	0 - 40°C
Dimensions (L x W x H):	42 x 37 x 17 mm

Technical Information

- Controlled by Fibaro System devices or any Z-Wave controller
- Microprocessor controlled
- Executive element: transistor
- Active and historic (average) power consumption measuring

I General Information About Fibaro System

Fibaro is a wireless system, based on Z-Wave technology. Fibaro provides many advantages when compared to similar systems. In general, radio systems create a direct connection between the receiver and transmitter. However, the radio signal is weakened by various obstacles located in its path (apartment walls, furniture, etc.) and in extreme cases it fails to transfer required data. The advantage of Fibaro System is that its devices, apart from being transmitters and signal receivers, also duplicate signal. When a direct connection path between the transmitter and the receiver cannot be established, the connection may be achieved through other intermediate devices.
Fibaro is a bi-directional wireless system. This means that the signal is not only sent to the receivers but also the receivers send the confirmation of its reception. This operation confirms their status, which checks whether they are active or not.
Safety of the Fibaro System transmission is comparable to the safety of transmission in data bus wired systems.
Fibaro operates in the free bandwidth for data transmission. The frequency depends on radio regulations in individual countries. Each Fibaro network has its own unique network identification number (home ID), which is why it is possible to co-operate two or more independent systems in a single building without any interference.
Although Z-Wave is quite a new technology, it has already become recognized and officially a binding standard, similarly to Wi-Fi. Many manufacturers in various industries offer solutions based on Z-Wave technology, guaranteeing their compatibility. This means that the system is open and it may be extended in the future. Find more information at www.fibaro.com.
Fibaro generates a dynamic network structure. After Fibaro System is switched on, the location of its individual components is automatically updated in real-time through status confirmation signals received from devices operating in a "mesh" network.

II Device Applications

Fibaro RGBW Controller may control:
- 12 / 24VDC powered RGB strips
- 12 / 24VDC powered RGBW strips
- 12 / 24VDC powered LED strips, bulbs, etc.
- 12 / 24VDC powered halogen lights
- 12 / 24VDC powered low output power fans

Additional features:
- 0-10V sensors signal readouts,
- 0-10V potentiometer signal readouts, and managing outputs accordingly,
- controlled by momentary or toggle switches

III Installing the device

1. Before installation ensure the voltage supply is disconnected.

2. Connect Fibaro RGBW Controller according to wiring diagram. First, connect outputs (R,G,B,W) RGB/RGBW/LED diodes or Halogen lights, or inputs (I1-I4). Second, connect voltage supply. Note the device must be powered by a dedicated stabilized power adapter.

3. Arrange the antenna (find tips below wiring diagrams).

4. Turn the voltage on.

5. Include the module into the Z-Wave network.

Warning!

1) Fibaro RGBW Controller is dedicated to operate in low voltage circuits of 12VDC or 24VDC. Connecting higher voltage load may result in Fibaro RGBW Controller damage.

2) Fibaro RGBW Controller must be powered by the same voltage as the connected light source. I.e. if controlling 12V LED strip, the module must be connected to 12V power supply. Similarly, if controlling 24V RGBW strip, Fibaro RGBW Controller must be powered by 24V voltage supply.

3) Fibaro RGBW Controller has 0-10V input. There is no 0-10V output. Output is controlled by PWM at 244Hz.

4) Fibaro RGBW Controller must be powered by 12VDC or 24 VDC stabilized power supply with outputs load capacity matched to loads voltage.

5) Sensors using 0-10V interface use wire connection to inputs I1 - I4. Maximum length of 0-10V connection line is 10 m. Observe sensor's manufacturer recommendations towards 0-10V line diameter.

6) In case of connecting long RGBW/RGB/LED strips voltage drops may occur, 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 serial connection instead of one long strip connected parallel.
Maximum recommended wire length, used to connect R/G/B/W outputs with a RGBW/RGB/LED strip is 10 m. Observe connected loads manufacturer recommendations towards connection wire diameter.

IV Z-Wave network inclusion

Fibaro RGBW Controller may be included into Z-Wave network using B-button or any switch key connected to I1-I4 inputs. The device has an auto-inclusion function implemented and can be included into the Z-Wave network automatically, by simply connecting the voltage supply.

Adding Fibaro RGBW Controller to the Z-Wave network in auto-inclusion mode:

1. Make sure Fibaro RGBW Controller is not connected to voltage supply and located within direct range of the main controller.

2. Set the Z-Wave network main controller into learning mode (see Z-Wave network controller operating manual).

3. Connect voltage supply to auto-include Fibaro RGBW Controller.

4. Fibaro RGBW Controller will be automatically recognized and included in the Z-Wave network.
To disable auto-inclusion press the B-button briefly, after connecting Fibaro RGBW Controller to voltage supply.

Adding Fibaro RGBW Controller to the Z-Wave network in manual inclusion mode:

1. Connect Fibaro RGBW Controller to voltage supply.

2. Set the Z-Wave network main controller into learning mode (see Z-Wave network controller operating manual).

3. Triple click the B-button or any switch connected to I1-I4 inputs.

4. Fibaro RGBW Controller will be automatically recognized and included in the Z-Wave network.

V Z-Wave network exclusion

Excluding the Fibaro RGBW Controller from the Z-Wave network:

1. Connect Fibaro RGBW Controller to voltage supply.

2. Set the Z-Wave network main controller into learning mode (see Z-Wave network controller operating manual).

3. Triple click the B-button or any switch connected to I1-I4 inputs.

VI Resetting Fibaro RGBW Controller

Reset procedure clears the Fibaro RGBW Controller's memory, including Z-Wave network controller information, energy consumption data and 5 user-defined programs.

Resetting Fibaro RGBW Controller:

1. Disconnect voltage supply.
2. Press and hold the B-button located inside Fibaro RGBW Controller's casing.

3. Connect voltage supply still holding the B-button.
4. Release the B-button.

5. B channel will turn on (blue channel).

6. Disconnect power supply.

Warning!
Resetting the RGBW Controller does not mean is has been removed from Z-Wave network controller's memory. Remove the RGBW Controller from Z-Wave network controller's memory before carrying out the resetting procedure.

VII Fibaro RGBW Controller operating modes

The device may be controller by momentary or toggle switches. Fibaro RGBW Controller may serve as 0-10V input module and operate with any 0-10V sensor, e.g. temperature sensors, wind speed/direction sensors, air quality sensors, light sensors, etc.
Fibaro RGBW Controller offers fully configurable operating modes, described in pt. X, user defined in parameter 14. Operating mode is set during first configuration in Home Center 2 interface. Other main controllers require dedicated setting of parameter 14. Refer to p.VIII and IX for operating modes detailed description.
Fibaro RGBW Controller's operating modes:

1) RGB/RGBW - controlling RGBW/RGB/LED strips or Halogen lights based on signals from switches connected to I1-I4 inputs. User may precisely set illumination colour.

2) IN/OUT - all inputs and outputs may be freely configured by the user. All inputs I1 - I4 and outputs R, G, B, W may be independently configured by the user. Depending on configuration the device will be presented in Home Center 2 interface as sensors or dimmers. User defines sensor type and its operating range. If a given channel operates in OUT mode, user may control e.g. LED or Halogen lamp brightness.

All of the operating modes are described in fig. 5

VIII Manual RGB/RGBW operating mode

Fibaro RGBW Controller has 4 controllable inputs I1-I4, configured by default to work with push buttons. Each input controls designated channel, i.e.:

- I1 controls R channel.
- I2 controls G channel.
- I3 controls B channel.
- I4 controls W channel.

Controlling I1-I4 inputs is achieved by connecting ground wire (GND) to specified channel (see scheme).

Further, parameter's 14 settings allow for following type of manual control:

1) NORMAL mode - controlling output assigned to given input terminal. In this setting outputs will be controlled independently from one another, e.g. allowing for free adjusting each colours saturation. Double click will set a given channel's saturation to 100%. This operating mode works with momentary and toggle switches.

2) BRIGHTNESS mode - all outputs are controlled together, i.e. one switch controls brightness of all channels at the same time. This operating mode works with momentary and toggle switches.

3) RAINBOW mode - 3. mode - all outputs are controlled together giving a transition of full colours spectrum. RAINBOW mode works with momentary switches only.

IX IN/OUT mode - 0-10V inputs, PWM outputs

Fibaro RGBW Controller has 4 controllable, analog inputs I1 - I4, allowing for 0-10V analog signal interpretation. This functionality may be used in operation with analog sensors and potentiometers. What's more, in IN/OUT mode all inputs and outputs may be configured independently, e.g. I1 may be configured as 0-10V sensor input and I2-I4 may control LED strip or Halogen lamps.

Another option is to configure I1 as 0-10V input and connect 0-10V potentiometer to it, and connecting Halogen lamps to R output. At the same time, other inputs may work with 0-10V sensors.

X First configuration. Operating through the Z-Wave network

After inclusion to the Z-Wave network, Home Center 2 interface will present the module as un-configured device.

Fig 1 - Un-configured RGB device icon

To configure the device please follow the steps below:

1) Specify controlled device - RGBW, RGB, IN/OUT (further described in pt. IX)

If RGBW/RGB mode is chosen, device icon will be as follows:
Control window description:

1 - Currently chosen colour.

2 - ON/OFF button.

3 - Colours slider - allows for choosing any colour in RGB scale, white colour saturation and all colours brightness.

4 - Favourite colours section.

5 - Predefined colour programs.

2) 2. As described in pt. IX IN/OUT mode allows for configuring each IN/OUT independently.

Fig 3 shows an example configuration: I1 configured as a light intensity sensor; I2 configured as a dimmer, e.g. controlling LED strip; I3 configured as a temperature sensor; I4 configured as a dimmer, e.g. controlling halogen lamp.

As shown in Fig.3 inputs set to work in analog mode require following configuration:
- Actual voltage range (e.g. 0-10V, 1-10V, 0-5V)
- Measured unit range (e.g. 0-50oC for temperature sensor)
Above information can be found in sensor's operating manual.

Device icons in the main controllers interface will reflect the above configuration settings, e.g. light sensor, temperature sensor, two OUT devices i.e. LED strips or Halogen bulbs, as shown in fig.4.

XI Associations

Through an association Fibaro RGBW Controller may control another Z-Wave network device, e.g. another RGBW Controller, Wall Plug, Dimmer, Relay Switch or Roller Shutter. Such a control is done via switch keys connected to I1-I4 outputs only. Operation through the Z-Wave network doesn't trigger the associated devices.

Note!
Association allows for direct communication between Z-Wave network devices. Main controller does not take part in such communication. Using this mechanism, Fibaro RGBW Controller may communicate with other devices even when the main controller is damaged, e.g. in fire.

Fibaro RGBW Controller provides five association groups:

I association group assigned to I1 input - sends control frame to associated devices each time the device state changes. (ON / OFF)

II association group assigned to I2 input - sends control frame to associated devices each time the device state changes. (ON / OFF)

III association group assigned to I3 input - sends control frame to associated devices each time the device state changes. (ON / OFF)

IV association group assigned to I4 input - sends control frame to associated devices each time the device state changes. (ON / OFF)

V association group reports device status. Only one device may be assigned to this group, main controller by default. It's not recommended to modify this group's settings.

Fibaro RGBW Controller allows for controlling up to 5 regular devices (opposed to multi channel devices) per each association group, out of which 1 field is reserved for the main controller.
To add an association, (using Home Center 2 interface) go to device settings and click the following icon:

Select the "device options" tab. Then specify to which group and what devices are to be associated. Sending relevant information to devices added to association groups may take even a few minutes.

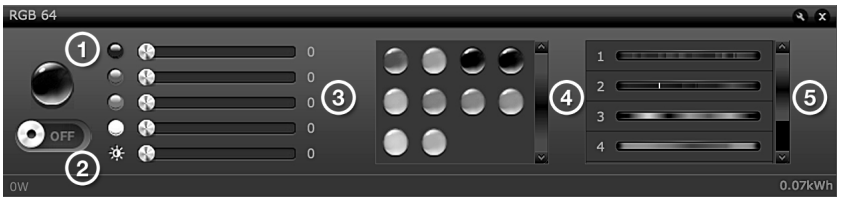


Fig. 2 Fibaro RGBW Controller control window

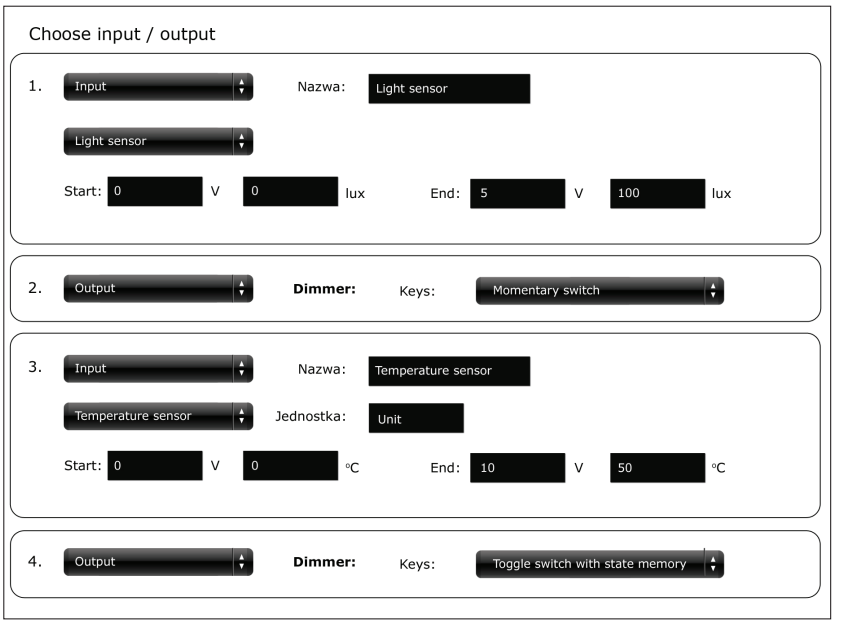


Fig 3 - IN / OUT mode settings screen

Fig 4 - IN / OUT controlled devices icons

Home Center 2 controller allows for choosing command frame sent to associated devices:

Normal (Dimmer) - synchronization with dimmer

Normal (RGBW) - synchronization with other producers RGBW controllers

Normal (RGBW-FIBARO) - synchronization with Fibaro RGBW Controllers

XII Current load and energy consumption

1) Fibaro RGBW Controller allows for the current load and power consumption monitoring. Data is sent to the main controller, e.g. Home Center 2. Measuring is carried out by an independent microprocessor dedicated exclusively for the purpose, assuring maximum accuracy and precision. The microprocessor is factory calibrated.

Electric power - power consumed by an electric device in an instant, in Watts (W).

Electric energy - energy consumed by a device through a time period. Most commonly measured in kilowatt-hours (kWh). One kilowatt-hour is equal to one kilowatt of power consumed over a period of one hour, 1kWh = 1000 Wh.

Note!
1) Please contact your local supplier for the current rates.
2) Fibaro RGBW Controller stores consumed electricity data on its memory, which means disconnecting the module from voltage supply does not erase the data.

Resetting electricity consumption memory - reset the device (see pt. VI) or choose reset electricity consumption memory option from the main controller's menu.

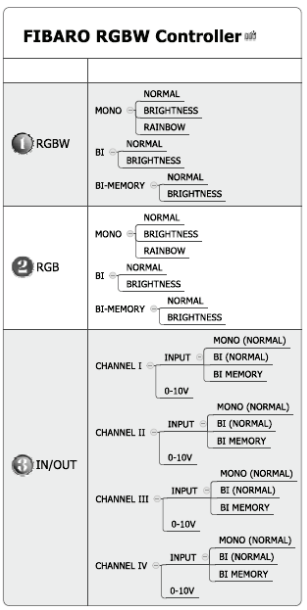


Fig 5 - Modes of operation

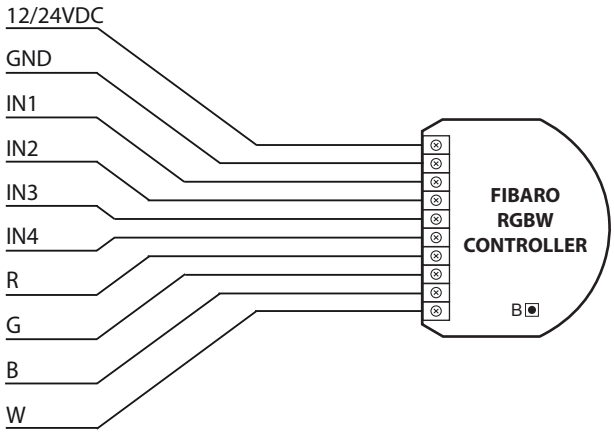


Fig. 6- Terminals description

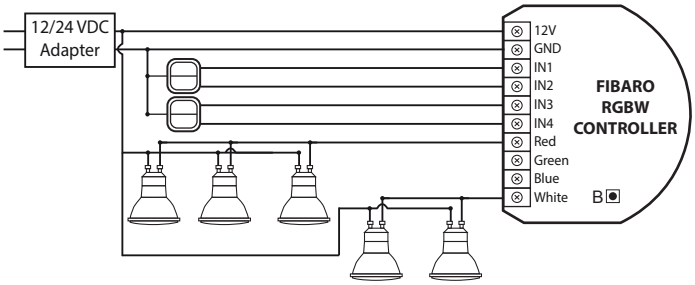


Fig. 7 - Connecting halogen lighting

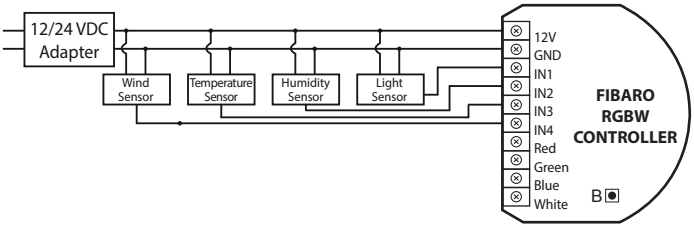


Fig. 8 - 0-10 V sensors wiring diagram

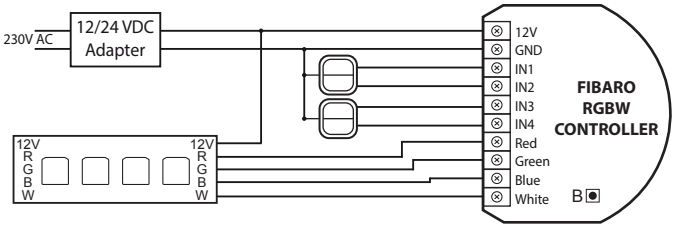


Fig. 9 - RGBW strip wiring diagram

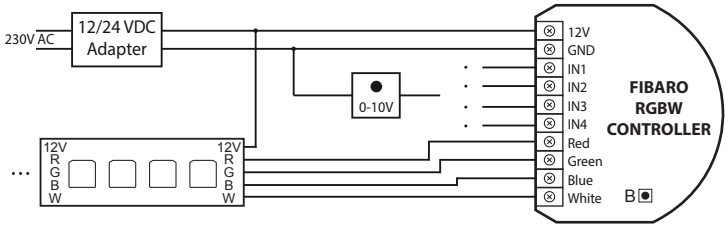


Fig 10. - RGBW strip with 0-10 V potentiometer wiring diagram

NOTES FOR THE DIAGRAM

12/24VDC - power supply signal
GND - power supply ground signal
IN1 - potential free / 0-10V input 1
IN2 - potential free / 0-10V input 2
IN3 - potential free / 0-10V input 3
IN4 - potential free / 0-10V input 4
R - output assigned to IN1
G - output assigned to IN2
B - output assigned to IN3
W - output assigned to IN4

XIII Advanced configuration

GENERAL:

1. ALL ON / ALL OFF function activation

Default setting: **255**
0 - ALL ON inactive, ALL OFF inactive
1 - ALL ON inactive, ALL OFF active
2 - ALL ON active, ALL OFF inactive
255 - ALL ON active, ALL OFF active
Parameter size: **1 [byte]**

6. Associations command class choice

Default setting: **0**
0 - NORMAL (DIMMER) - BASIC SET/SWITCH_MULTILEVEL_START/STOP
1 - NORMAL (RGBW) - COLOR_CONTROL_SET/START/STOP_STATE_CHANGE
2 - NORMAL (RGBW) - COLOR_CONTROL_SET
3 - BRIGHTNESS - BASIC SET/SWITCH_MULTILEVEL_START/STOP
4 - RAINBOW (RGBW) - COLOR_CONTROL_SET
Parameter size: **1 [byte]**

IN/OUT:

8. Outputs state change mode
Default setting: **0**
0 - MODE1 (related parameters: 9-step value, 10-time between steps)
1 - MODE2 (related parameters: 11-time to change value, relevant for RGB/RGBW)
Parameter size: **1 [byte]**

MODE1

Example: change saturation level from 0% to 99%
Parameter 9: Step = 5
Parameter 10: Time between steps: 10ms

9. Step value (relevant for MODE1)

Default setting: **1**
Available settings: **1 - 255**
Parameter size: **1[byte]**

10. Time between steps (relevant for MODE1)
Default setting: **10 (10ms)**
0 - immediate change of state
1-60000 - (**1-60000 ms**)

MODE2

Example: change saturation level from 0% to 99%
Parameter 11: time for changing from start to end value = 500sec

11. Time for changing from start to end value

Default setting: **67 (3s)**
0 - immediate change
1-63 - 20-126- [ms] value*20ms
65-127 - 1-63 [s] [value-64]*1s
129-191 - 10-630[s] [value-128]*10s
193-255 - 1-63[min] [value-192]*1min
Parameter size: **1[byte]**

12. Maximum brightening level

Default setting: **255**
Available settings: **3-255**
Parameter size: **1[byte]**

13. Minimum dim level
Default setting: 2
Available settings: 3-255
Parameter size: 1[byte]

14. Inputs / Outputs configuration - relevant for main controllers other than Home Center 2 only
Default setting: **4369** Controlled device: RGBW, toggle switch inputs (NORMAL MODE)
Each 4bit refer to given IN/OUT (channel) settings

Note
The maximum leven cannot be lower than minimum level.

Channel 1 (4 bit)	Channel 2 (4 bit)	Channel 3 (4 bit)	Channel 4 (4 bit)
0000	0000	0000	0000
....	....	....	....
1111	1111	1111	1111

If RGB/RGBW mode is chosen, settings for all 4 channels are identical. Settings marked with X are forbidden and cannot be sent to the module.

Input type:
- **ANALOG -** sensor with analog, 0-10V interface. Impossible to control from main controllers interface.
- **MOMENTARY** - momentary switch,
- **TOGGLE -** toggle switch,
- **TOGGLE W/MEMORY** - toggle switch (ON active for closing switch terminals; OFF active for opening switch terminals)

Input operating mode (controlled with switch keys):
- **NORMAL -** each given switch key assigned to one output channel,
- **BRIGHTNESS -** all of the channels are controlled together,
- **RAINBOW -** transition through all colours spectrum (operates on 3 RGB channels only)

Parameter size: **2[byte]**

Settings available for single channel

	MSB			LSB	Controlled device	
0	0	0	0	0	(RGBW)	X
1	0	0	0	**1**	(RGBW)	MOMENTARY (NORMAL MODE)
2	0	0	**1**	0	(RGBW)	MOMENTARY (BRIGHTNESS MODE)
3	0	0	**1**	**1**	(RGBW)	MOMENTARY (RAINBOW MODE)
4	0	**1**	0	0	(RGBW)	TOGGLE (NORMAL MODE)
5	0	**1**	0	**1**	(RGBW)	TOGGLE (BRIGHTNESS MODE)
6	0	**1**	**1**	0	(RGBW)	TOGGLE W. MEMORY (NORMAL MODE)
7	0	**1**	**1**	**1**	(RGBW)	TOGGLE W. MEMORY (BRIGHTNESS MODE)
8	**1**	0	0	0	(IN)	ANALOG 0-10V (SENSOR)
9	**1**	0	0	**1**	(OUT)	MOMENTARY (NORMAL MODE)
10	**1**	0	**1**	0	(OUT)	X
11	**1**	0	**1**	**1**	(OUT)	X
12	**1**	**1**	0	0	(OUT)	TOGGLE (NORMAL MODE)
13	**1**	**1**	0	**1**	(OUT)	X
14	**1**	**1**	**1**	0	(OUT)	TOGGLE W/MEMORY (NORMAL MODE)
15	**1**	**1**	**1**	**1**	(OUT)	X

Note!
Parameter 14 recommended settings, for controllers other than Home Center 2, are available under the following link:

http://manual.rgbw.fibaro.co.uk/ras-rgbw-controller-en.pdf

16. Memorize device status at power cut. Device will be set to status memorized before power cut.

Default setting: **1**
0 - device does not memorize its status at the power cut. Load is disconnected.
1 - device memorizes its status at the power cut. Load will be set to the status from before power cut (parameters, current outputs status, energy)
Parameter size: **1[byte]**

ALARM:

30. Alarm of any type (general alarm, flood alarm, smoke alarm: CO, CO2, temperature alarm).

Default setting: 0
0 - INACTIVE - the device doesn't respond to alarm frames
1 - ALARM ON - the device turns on once alarm is detected (all channels set to 99%)
2 - ALARM OFF - the device turns off once alarm is detected (all channels set to 0%)
3 - ALARM PROGRAM - alarm sequence turns on (program selected in parameter 38)
Parameter size: 1[byte]

38. Alarm sequence program

Default setting: **10**
1 - 10 (1-10 specifies alarm program number)
Parameter size: **1[byte]**

39. Active PROGRAM alarm time
Default setting: **600**
1-65534 (1s-65534s)
Parameter size: **2[byte]**

REPORTS:

42. Command class reporting Outputs status change

Default setting: 0
0 - reporting as a result of inputs and controllers actions (SWITCH MULTILEVEL)
1 - reporting as a result inputs actions (SWITCH MULTILEVEL)
2 - reporting as a result of inputs actions (COLOR CONTROL)
Parameter size: **1[byte]**

43. Reporting 0-10v analog inputs change threshold.
Parameter defines a value by which input voltage must change in order to be reported to the main controller. New value is calculated based on last reported value:
Default setting: **5 (0,5V)**
1-100 - (0,1 - 10V)
Parameter size: **1[byte]**

44. Power load reporting frequency (if last reported value differs from the current value). Reports will also be sent in case of polling.
Default setting: **30 (30s)**
1 - 65534 (1s-65534s) - time between reports,
0 - reports are not sent. Reports will only be sent in case of polling or at turning OFF the device.
Parameter size: **2[byte]**

45. Reporting changes in energy consumed by controlled devices. New, reported energy value is calculated based on last reported value.
Default setting: **10 (0,1 kWh)**
1 - 254 (0,01kWh - 2,54kWh)
0 - changes in consumed energy will not be reported. Reports will be sent only in case of polling.
Parameter size: **1[byte]**

OTHER:

71. Response to BRIGHTNESS set to 0%
Default setting: **1**
0 - illumination colour set to white (all channels controlled together)
1 - last set colour is memorized
Parameter size: **1[byte]**

72. Starting predefined program when device set to work in RGB/RGBW mode (parameter 14) - relevant for main controllers other than Home Center 2 only.

Default setting: **1**
1-10 animation program number
Parameter size: **1[byte]**

73. Triple click action
Default setting: **0**
0 - NODE INFO control frame is sent,
1 - starting favourite program
Parameter size: **1[byte]**

TIPS FOR ARRANGING THE ANTENNA:

Locate the antenna as far from metal elements as possible (connecting wires, bracket rings, etc.) in order to prevent interferences.

Metal surfaces in the direct vicinity of the antenna (e.g. flush mounted metal boxes, metal door frames) may impair signal reception!

Do not cut or shorten the antenna - its length is perfectly matched to the band in which the system operates

EPILEPSY WARNING:

Stroboscope effect and rapid light changes may potentially trigger seizures for people with photosensitive epilepsy!

XIV Guarantee

1. The Guarantee is provided by FIBAR GROUP Sp. z o.o. (hereinafter "Manufacturer"), based in Poznan, ul. Lotnicza 1; 60-421 Poznan, entered in the register of the National Court Register kept by the District Court in Poznań, VIII Economic Department of the National Court Register, no. 370151, NIP 7811858097, REGON: 301595664.

2. The Manufacturer is responsible for equipment malfunction resulting from physical defects (manufacturing or material) of the Device for 12 months from the date of its purchasing.

3. During the Guarantee period, the Manufacturer shall remove any defects, free of charge, by repairing or replacing (at the sole discretion of the Manufacturer) any defective components of the Device with new or regenerated components, that are free of defects. When the repair impossible, the Manufacturer reserves the right to replace the device with a new or regenerated one, which shall be free of any defects and its condition shall not be worse than the original device owned by the Customer.

4. In special cases, when the device cannot be replaced with the device of the same type (e.g. the device is no longer available in the commercial offer), the Manufacturer may replace it with a different device having technical parameters similar to the faulty one. Such activity shall be considered as fulfilling the obligations of the Manufacturer. The Manufacturer shall not refund money paid for the device.

5. The holder of a valid guarantee shall submit a guarantee claim through the guarantee service. Remember: before you submit a guarantee claim, contact our technical support using telephone or e-mail. More than 50% of operational problems is resolved remotely, saving time and money spent to initiating guarantee procedure. If remote support is insufficient, the Customer shall fill the guarantee claim form (using our website - www.fibargroup.com) in order to obtain claim authorization.
When the guarantee claim form is submitted correctly, the Customer shall receive the claim confirmation with an unique number (Return Merchandise Authorization -RMA).

6. The claim may be also submitted by telephone. In this case, the call is recorded and the Customer shall be informed about it by a consultant before submitting the claim. Immediately after submitting the claim, the consultant shall provide the Customer with the claim number (RMA-number).

7. When the guarantee claim form is submitted correctly, a representative of the Authorised Guarantee Service (hereinafter as "AGS") shall contact the Customer.

8. Defects revealed within the guarantee period shall be removed not later than 30 days from the date of delivering the Device to AGS. The guarantee period shall be extended by the time in which the Device was kept by AGS.

9. The faulty device shall be provided by the Customer with complete standard equipment and documents proving its purchase.

10. Parts replaced under the guarantee are the property of the Manufacturer. The guarantee for all parts replaced in the guarantee process shall be equal to the guarantee period of the original device. The guarantee period of the replaced part shall not be extended.

11. Costs of delivering the faulty device shall be borne by the Customer. For unjustified service calls, the Service may charge the Customer with travel expenses and handling costs related to the case.

12. AGS shall not accept a complaint claim only when:
• the Device was misused or the manual was not observed,
• the Device was provided by the Customer incomplete, without accessories or nameplate,
• it was determined that the fault was caused by other reasons than a material or manufacturing defect of the Device
• the guarantee document is not valid or there is no proof of purchase,

13. The Manufacturer shall not be liable for damages to property caused by defective device. The Manufacturer shall not be liable for indirect, incidental, special, consequential or punitive damages, or for any damages, including, inter alia, loss of profits, savings, data, loss of benefits, claims by third parties and any property damage or personal injuries arising from or related to the use of the Device.

14. The guarantee shall not cover:
• mechanical damages (cracks, fractures, cuts, abrasions, physical deformations caused by impact, falling or dropping the device or other object, improper use or not observing the operating manual);
• damages resulting from external causes, e.g.: flood, storm, fire, lightning, natural disasters, earthquakes, war, civil disturbance, force majeure, unforeseen accidents, theft, water damage, liquid leakage, battery spill, weather conditions, sunlight, sand, moisture, high or low temperature, air pollution;
• damages caused by malfunctioning software, attack of a computer virus, or by failure to update the software as recommended by the Manufacturer;
• damages resulting from: surges in the power and/or telecommunication network, improper connection to the grid in a manner inconsistent with the operating manual, or from connecting other devices not recommended by the Manufacturer.
• damages caused by operating or storing the device in extremely adverse conditions, i.e. high humidity, dust, too low (freezing) or too high ambient temperature. Detailed permissible conditions for operating the Device are defined in the operating manual;
• damages caused by using accessories not recommended by the Manufacturer
• damages caused by faulty electrical installation of the Customer, including the use of incorrect fuses;
• damages caused by Customer's failure to provide maintenance and servicing activities defined in the operating manual;
• damages resulting from the use of spurious spare parts or accessories improper for given model, repairing and introducing alterations by unauthorized persons;
• defects caused by operating faulty Device or accessories.

15. The scope of the guarantee repairs shall not include periodic maintenance and inspections, in particular cleaning, adjustments, operational checks, correction of errors or parameter programming and other activities that should be performed by the user (Buyer). The guarantee shall not cover natural wear and tear of the Device and its components listed in the operating manual and in technical documentation as such elements have a defined operational life.

16. If a defect is not covered by the guarantee, the Manufacturer reserves the right to remove such defect at its sole discretion, repairing the damaged or destroyed parts or providing components necessary for repair or replacement.

17. This guarantee shall not exclude, limit or suspend the Customer rights when the provided product is inconsistent with the purchase agreement.

This Device may be used with all devices certified with Z-Wave certificate and should be compatible with such devices produced by other manufacturers.
Any device compatible with Z-Wave may be added to Fibaro system.

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In case of any technical questions contact customer service centre in your country.

www.fibargroup.com