

# Manual W Controller 1. v2.1 - v2.3.

rsal. Z-Wave compatible RGB / Controller uses PWM output no LED, RGB, RGBW strips, devices may be powered by 12 ; supports up to four, 0V - 10V ; humidity sensors, light sensors etc. All IN and OUT for LED control or 0V-10V signal

recognized and officially a binding standard, similarly to WH-I. 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](http://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 (RGB, W) RGB/RGBW/LED diodes or Halogen lights, or inputs (11-14). 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 connected 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 11 - 14. 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 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 11-14 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.

3. Triple click the B-button or any switch connected to 11-14 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 it 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 controlled by momentary or toggle switches. Fibaro RGBW Controller may serve as 0-10V input module and operate with any 0-10V sensors, 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 pt. VIII and IX for operating modes detailed description.

- 1) **RGB/RGBW** - controlling RGBW/RGB/LED strips or Halogen lights based on signals from switches connected to 11-14 inputs. User may precisely set illumination colour.
- 2) **IN/OUT** - all inputs and outputs may be freely configured by the user. All inputs 11 - 14 and outputs R, G, B, W may be independently configured by the user. Depending on configuration the device will be presented by the user. 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 11-14, configured by default to work with push buttons. Each input controls designated channel, i.e.:

- 11 controls R channel.
- 12 controls G channel.
- 13 controls B channel.
- 14 controls W channel.

Controlling 11-14 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 colour 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 11 - 14,



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, while 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: 11 configured as a light intensity sensor, 12 configured as a dimmer, e.g. controlling LED strip, 13 configured as a temperature sensor, 14 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. 0-500C 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 11-14 outputs only. Operation through the Z-Wave network doesn't trigger the associated devices.



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 11 input - sends control frame to associated devices each time the device state changes. (ON / OFF)
- II **association group** assigned to 12 input - sends control frame to associated devices each time the device state changes. (ON / OFF)
- III **association group** assigned to 13 input - sends control frame to associated devices each time the device state changes. (ON / OFF)
- IV **association group** assigned to 14 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 in 11-14 controller.

Fig. 2 Fibaro RGBW Controller control window

## Choose input / output

1. **Input** Nazwa: Light sensor  
Light sensor  
Start: 0 V 0 lux End: 5 V 100  
Momentary switch
2. **Output** Dimmer: Keys: Momentary switch
3. **Input** Nazwa: Temperature sensor  
Temperature sensor  
Jednostka: Unit  
Start: 0 V 0 °C End: 10 V 50  
Toggle switch with state
4. **Output** Dimmer: Keys: Toggle switch with state

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

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



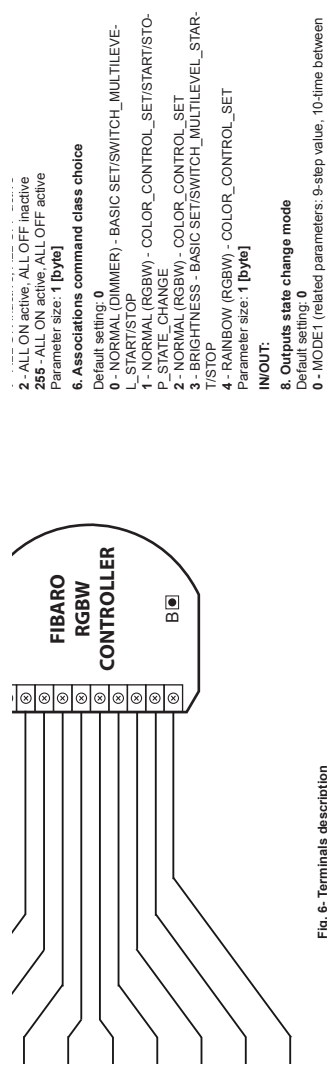


Fig. 6 - Terminals description

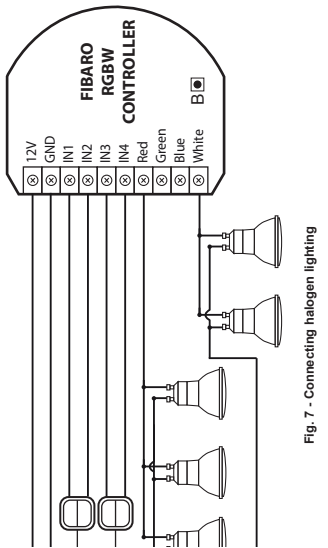


Fig. 7 - Connecting halogen lighting

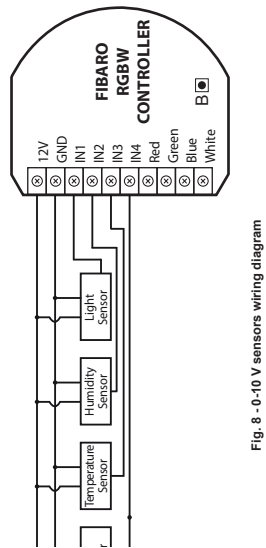


Fig. 8 - 0-10 V sensors wiring diagram

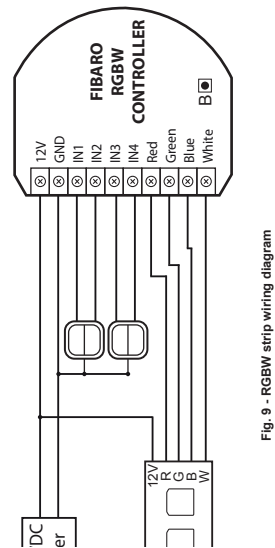


Fig. 9 - RGBW strip wiring diagram

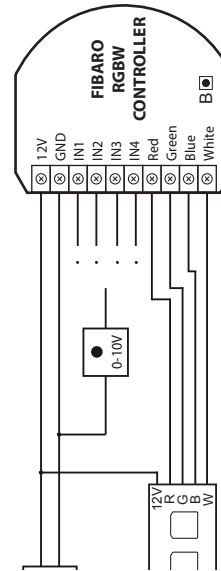


Fig. 10 - RGBW strip with 0-10 V potentiometer wiring diagram

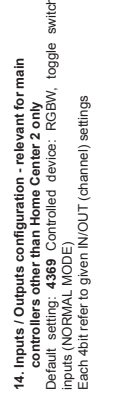
- 2- ALL ON active, ALL OFF inactive
- 255- ALL ON active, ALL OFF active
- Parameter size: 1 [byte]
- 6. Associations command class choice
- Default setting: 0
- 0 - NORMAL (DIMMER) - BASIC SET/SWITCH\_MULTILEV-
- L\_START/STOP
- 1 - NORMAL (RGBW) - COLOR\_CONTROL\_SET/START/STO-
- P\_STATE\_CHANGE
- 2 - NORMAL (RGBW) - COLOR\_CONTROL\_SET
- 3 - BRIGHTNESS - BASIC SET/SWITCH\_MULTILEVEL\_STAR-
- T/STOP
- 4 - RAINBOW (RGBW) - COLOR\_CONTROL\_SET
- Parameter size: 1 [byte]
- INOUT:

- 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
- Parameter 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: 4889 Controlled device, RGBW, toggle switch inputs (NORMAL MODE)
- Each 4-bit refer to given IN/OUT (channel) settings



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):

- 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 Poznań ul. Lotnicza 1, 60-421 Poznań 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 78-1165097, 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 is 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 return 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

**This Device is certified with 2: compatible with other manufacturer.**

Any device compatible with Fibaro system.

**FIBARGROUP**  
**FIBARO**

In case of any technical question in your country.

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- the Device was misused or the
- the Device was provided by accessories or handmade;
- it was determined that the fault is a material or manufacturing defect;
- the guarantee document is purchased.

- 13. The Manufacturer shall not be caused by defective device. The indirect, incidental, special, consequences for any damages, including, inter alia, loss of benefits, claims by third parties, personal injuries arising from or personal damages (cracks, deformations caused by impact on other object, improper use or not lighting, natural disasters, earth quakes, unforeseen accidents, battery spill, weather conditions, temperature, air pollution);
- damages caused by malfunction virus, or by failure to update the Manufacturer;
- damages resulting from communication network incompatibility with the operating devices not recommended by the Manufacturer;
- damages caused by operating adverse conditions, i.e. high humidity, high ambient temperature. The operating the Device are defined;
- damages caused by using accessories caused by faulty electrical connections;
- damages caused by the use of incorrect fuse including the use of incorrect fuses or
- damages caused by the Manufacturer's accessories or improper use of given alterations by unauthorized persons;
- defects caused by operating the

16. If a defect is not covered by reserves the right to remove or repairing the damaged or destroyed necessary for repair or replacement.

17. This guarantee shall not exclude rights when the provided product agreement.