

FIBARO WALL PLUG

Type A

FGWPA-111

CONTENTS

v1.0

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Important safety information



Read this manual before attempting to install the device!

Failure to observe recommendations included in this manual may be dangerous or cause a violation of the law. The manufacturer, Fibar Group S.A. will not be held responsible for any loss or damage resulting from not following the instructions of operating manual.



This product is intended for indoor use only in dry locations.

Do not use in damp or wet locations, near a bathtub, sink, shower, swimming pool, or anywhere else where water or moisture are present.



Caution!

To avoid risk of electrical shock, do not operate the device with wet or moist hands.

This product is not a toy. Keep away from children and animals!

General information about the FIBARO System

FIBARO is a wireless smart home automation system, based on the Z-Wave protocol. All of available devices can be controlled through a computer (PC or Mac), smartphone or tablet. Z-Wave devices are not only receivers, but can also repeat the signal, increasing the Z-Wave network's range. It gives advantage over traditional wireless systems that require direct link between transmitter and receiver, as a result the construction of the building could affect network's range negatively.

Every Z-Wave network has its unique identification number (home ID). Multiple independent networks can exist in the building without interfering. Transmission security of FIBARO System is comparable to wired systems.

Z-Wave technology is the leading solution in smart home automation. There is a wide range of Z-Wave devices that are mutually compatible, independently of manufacturer. It gives the system the ability to evolve and expand over time. For more information visit: www.fibaro.com.

#1: Description and features

FIBARO Wall Plug is a remotely controlled plug-in switch with the ability to measure power and energy consumption.

It uses a LED frame to visualize the current load and operating mode with color changing illumination.

Our smart plug makes it possible to control electrical devices in a convenient and maintenance-free way.

Main features of FIBARO Wall Plug:

- Compatible with type A sockets and plugs.
- Compatible with any Z-Wave or Z-Wave Plus Controller.
- Supports Z-Wave network Security Modes: S0 with AES-128 encryption and S2 with PRNG-based encryption.
- Extremely easy installation - simply plug the device into the mains socket.
- Works as a Z-Wave signal repeater.
- Active power and energy consumption metering for plugged device.
- Current value of the load and operating mode are indicated by the multi-color LED frame.



FIBARO Wall Plug is a fully compatible Z-Wave Plus device.

i NOTE

This device may be used with all devices certified with Z-Wave Plus certificate and should be compatible with such devices produced by other manufacturers.

i NOTE

Z-Wave Controller must support Z-Wave Security Mode in order to fully utilize the product.

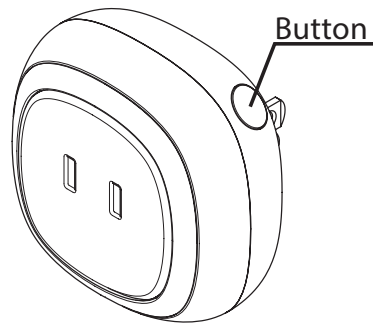
#2: Basic activation

i NOTE

When powered, the device will indicate Z-Wave status with color of LED frame:

- **Green** - the device is already added to the Z-Wave network.
- **Red** - the device is not added to any Z-Wave network.

1. Plug the device into a socket nearby the main Z-Wave controller.
2. Set the main controller in (Security/non-Security Mode) add mode (see the controller's manual).
3. Quickly, triple click the button located on the casing.



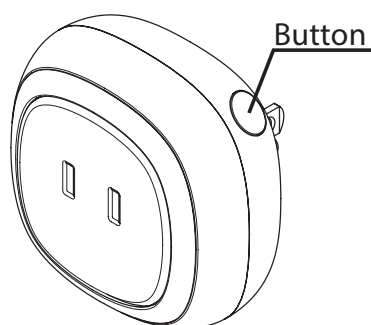
4. Wait for the device to be added to the system.
5. Successful adding will be confirmed by the controller.
6. Plug a device you want to control into the Wall Plug.
7. Test the device by turning it on and off using the button.

#3: Adding the device

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

To add the device to the Z-Wave network:

1. Plug the device into a socket nearby the main Z-Wave controller.
2. The LED frame will glow red signaling not being added (reset or remove the device otherwise).
3. Set the main controller in (Security/non-Security Mode) add mode (see the controller's manual).
4. Quickly, triple click the button located on the casing.



5. If you are adding in S2 authenticated mode, type in the device pin code (underlined part of the public key available on the device or in the manual).
6. Wait for the adding process to end.
7. Successful adding will be confirmed by the Z-Wave controller's message.

i **NOTE**

In case of problems with adding the device, please reset the device and repeat the adding procedure.

#4: Removing the device

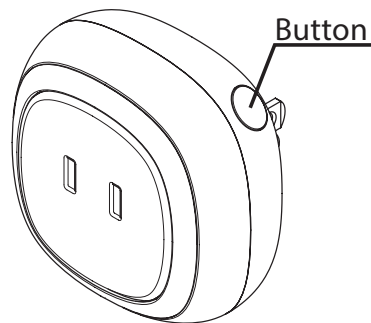
i NOTE

Removing the Wall Plug from the Z-Wave network restores all the default parameters of the device.

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

To remove the device from the Z-Wave network:

1. Plug the device into a socket nearby the main Z-Wave controller.
2. The LED frame will glow green signaling being added (removing is not necessary otherwise).
3. Set the main controller into remove mode (see the controller's manual).
4. Quickly, triple click the button located on the casing.



5. Wait for the removing process to end.
6. Successful removing will be confirmed by the Z-Wave controller's message.

#5: Operating the device

Controlling the Wall Plug using the button:

Wall Plug is equipped with a button, which allows to use the menu and additionally perform the following actions:

1x click: turn controlled device ON/OFF, confirm selected menu option (if menu is active)

3x click: add/remove the device to/from a Z-Wave network

Hold: enter/navigate through the menu

Visual indications:

The Wall Plug is equipped with a LED frame, signaling sensor's operating modes and current active power consumption. In addition the visual indicator may inform of the Z-Wave network range.

Visual indicator frame signaling modes:

Active power consumption – by default, when the device is turned ON, the color will vary depending on the current power.

Z-Wave network inclusion status – once plugged into a mains socket the device signals it with blink (green - added, red - not added).

Range of the Z-Wave network – signaled with color depending on type of communication or the lack of it (only in range tester mode)

Menu position – signaled with color assigned to position.

Ongoing software update – signaled with cyan blinking.

Hardware fault state – error in communication with radio chip, device secured, plug the device out and back into the socket.

Menu allows to perform Z-Wave network actions. In order to use the menu:

1. Press and hold the button.
2. Wait for the device to indicate desired position with a color:
 - **GREEN** - erase energy consumption memory
 - **VIOLET** - Z-Wave network's range test
 - **YELLOW** - device reset
3. Release the button.
4. Click the button to confirm selection.



CAUTION

To avoid risk of electrical shock, do not operate the device with wet or moist hands.



NOTE

Menu is preceded by white flashes of the LED frame - release the button if you want to disable/enable the LED frame.

i NOTE

Disabling the LED frame indications will also affect alarm signalization.

Disabling visual indicator:

Visual indication frame may be turned off for status signaling (turned ON/OFF, power consumption). That means each status change will be signaled by a short white blink of the frame. Disabling it will not change operation of the device. To disable the LED frame:

1. Insert the Wall Plug in a socket.
2. Press and hold the button for about 3 seconds.
3. Release the button after LED frame starts pulsing white.

To restore visual indications perform above procedure again.

Controlling the Wall Plug with FIBARO Home Center controller:

The Wall Plug after successful adding is represented in the Home Center interface with two icons. Device allows to turn on and off the device and displays current active power and cumulative energy consumption.

i NOTE

Resetting the device is not the recommended way of removing the device from the Z-Wave network. Use reset procedure only if the primary controller is missing or inoperable. Certain device removal can be achieved by the procedure of removing described in "Adding the device" on page 5.

Resetting the device to factory defaults:

Reset procedure allows to restore the device back to its factory settings, which means all information about the Z-Wave controller and user configuration will be deleted.

1. Make sure the device is powered.
2. Press and hold the button.
3. Wait for the LED frame to glow yellow (3rd menu position).
4. Release the button.
5. Click the button once to confirm selection.
6. After few seconds the device will restart with factory settings, which is signaled with the red frame color.

#6: Power and energy consumption

The Wall Plug allows to monitor the active power and energy consumption. Data is sent to the main Z-Wave controller, e.g. Home Center.

Measuring is carried out by the most advanced micro-controller technology, assuring maximum accuracy and precision (+/- 1% for loads greater than 5W).

Power and energy are reported according to parameters 11-15.

For loads under 5W power is reported for every 0.3W change.

Electric active power - power that energy receiver is changing into a work or a heat. The unit of active power is Watt [W].

Electric energy - energy consumed by a device through a time period. Consumers of electricity in households are billed by suppliers on the basis of active power used in given unit of time. Most commonly measured in kilowatt-hour [kWh]. One kilowatt-hour is equal to one kilowatt of power consumed over period of one hour, 1kWh = 1000Wh.

Resetting consumption memory:

Wall Plug allows to erase stored consumption data (turning it off/on or removing it from the socket will not erase consumption):

1. Make sure the device is powered.
2. Press and hold the button.
3. Release the button when the LED frame glows green (1st menu position).
4. Press the button briefly.

#7: Association

i NOTE

Association ensures direct transfer of control commands between devices, is performed without participation of the main controller.

i NOTE

2nd association group commands are sent only in case of manual operation through the button.

3rd association group commands are sent automatically, depending on parameters 21 to 27.

i NOTE

Meter Report [0x02] in Lifeline Group reports energy by default.

Association (linking devices) - direct control of other devices within the Z-Wave system network e.g. Dimmer, Relay Switch, Roller Shutter or scene (may be controlled only through a Z-Wave controller).

The Wall Plug provides the association of three groups:


1st Association Group – “Lifeline” reports the device status and allows for assigning single device only (main controller by default).

2nd Association Group – “On/Off (Button)” devices in this group will be switched on or off when relay status is changed using the button (uses Basic command class).

3rd Association Group – “On/Off (Plug power)” devices in this group will be switched on or off depending on the current load of plugged device (uses Basic command class).

The Wall Plug in 2nd and 3rd group allows to control up to 5 regular or multichannel devices per an association group. “LifeLine” group is reserved solely for the controller and hence only 1 node can be assigned.

To add an association (using the Home Center controller):

1. Go to the device options by clicking the icon: 
2. Select the „Advanced” tab.
3. Click the “Setting Association” button.
4. Specify to which group and what devices are to be associated.
5. Save the changes.
6. Wait for the configuration process to end.

#8: Z-Wave range test

The Wall Plug has a built in Z-Wave network main controller's range tester.

Follow the below instructions to test the main controller's range:

1. Press and hold the button.
2. Wait for the LED frame to glow violet (2nd menu position).
3. Release the button.
4. Click the button once to confirm selection.
5. Visual indicator will indicate the Z-Wave network's range (range signaling modes described below).
6. To exit Z-Wave range test, press the button briefly.

Z-Wave range tester signaling modes:

Visual indicator pulsing green - the Wall Plug attempts to establish a direct communication with the main controller. If a direct communication attempt fails, the device will try to establish a routed communication, through other modules, which will be signaled by visual indicator pulsing yellow.

Visual indicator glowing green - the Wall Plug communicates with the main controller directly.

Visual indicator pulsing yellow - the Wall Plug tries to establish a routed communication with the main controller through other modules (repeaters).

Visual indicator glowing yellow - the Wall Plug communicates with the main controller through the other modules. After 2 seconds the device will retry to establish a direct communication with the main controller, which will be signaled with visual indicator pulsing green.

Visual indicator pulsing violet - the Wall Plug does communicate at the maximum distance of the Z-Wave network. If connection proves successful it will be confirmed with a yellow glow. It's not recommended to use the device at the range limit.

Visual indicator glowing red - the Wall Plug is not able to connect to the main controller directly or through another Z-Wave network device (repeater).



CAUTION

To make Z-Wave range test possible, the device must be added to the Z-Wave controller. Testing may stress the network, so it is recommended to perform the test only in special cases.



NOTE

Communication mode of the Wall Plug may switch between direct and one using routing, especially if the device is on the limit of the direct range.

#9: Z-Wave specification

Generic Device Class: GENERIC_TYPE_SWITCH_BINARY

Specific Device Class: SPECIFIC_TYPE_POWER_SWITCH_BINARY

Description: represents the main A type socket, allows to turn on/off connected device and measure its active power and energy consumption.

Supported Command Classes:

Command Class	Version	Secure
ZWAVEPLUS_INFO [0x5E]	V2	
SWITCH_BINARY [0x25]	V1	YES
ASSOCIATION [0x85]	V2	YES
MULTI_CHANNEL_ASSOCIATION [0x8E]	V3	YES
ASSOCIATION_GRP_INFO [0x59]	V2	YES
TRANSPORT_SERVICE [0x55]	V2	
VERSION [0x86]	V2	YES
MANUFACTURER_SPECIFIC [0x72]	V2	YES
DEVICE_RESET_LOCALLY [0x5A]	V1	YES
POWERLEVEL [0x73]	V1	YES
SECURITY [0x98]	V1	
SECURITY_2 [0x9F]	V1	
SUPERVISION [0x6C]	V1	YES
METER [0x32]	V3	YES
APPLICATION_STATUS [0x22]	V1	
CONFIGURATION [0x70]	V1	YES
CRC_16_ENCAP [0x56]	V1	
NOTIFICATION [0x71]	V8	YES
PROTECTION [0x75]	V1	YES
FIRMWARE_UPDATE_MD [0x7A]	V4	YES
BASIC [0x20]	V1	YES

Notification Command Class:

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

Notification Type	Event	Event Parameters
Power Management [0x08]	Over-load detected [0x08]	
	Over-current detected [0x06]	
System [0x09]	System Hardware Failure [0x03]	Device overheat [0x01]

Protection CC:

Protection Command Class allows to prevent local or remote control of the device.

Type of protection	State	Description
Local	0	Unprotected - The device is not protected, and may be operated normally via the user interface.
Local	2	No operation possible – button can not change relay state, any other functionality is available (menu)
RF (remote)	0	Unprotected - The device accept and respond to all RF Commands.
RF (remote)	1	No RF control – command class basic and switch binary are rejected, every other command class will be handled

Meter Command Class:

Meter Type	Scale	Rate Type	Precision	Size
Electric [0x01]	Electric_kWh [0x00]	Import [0x01]	3	4
Electric [0x01]	Electric_W [0x02]	Import [0x01]	1	2


#10: Advanced parameters

i NOTE

Entering invalid value of parameter will result in not setting the value and response with Application Rejected or Supervision CC frame and (depending on the controller).

The Wall Plug allows to customize its operation to user's needs. The settings are available in the FIBARO interface as simple options that may be chosen by selecting the appropriate box.

In order to configure the Wall Plug (using the FIBARO Home Center controller):

1. Go to the device options by clicking the icon: 
2. Select the „Advanced“ tab.
3. Modify values of chosen parameters.
4. Save the changes.

GENERAL SETTINGS

2. Remember device status before the power failure

This parameter determines how the Wall Plug will react in the event of power supply failure (e.g. power outage or taking out from the electrical outlet).

After the power supply is back on, the Wall Plug can be restored to previous state or remain switched off.

Available settings:	0 - device remains switched off 1 - device restores the state from before the power failure		
Default setting:	1	Parameter size:	1 [byte]

3. Overload safety switch

This function allows to turn off the controlled device in case of exceeding the defined power.

Controlled device can be turned back on via button or sending a control frame. By default this function is inactive.

Available settings:	0 - function inactive 10-18000 (1.0-1800.0W, step 0.1W) - power threshold		
Default setting:	0	Parameter size:	2 [bytes]

POWER AND ENERGY MEASUREMENT

The default values of the parameters suit most types of devices. They were selected to show in real time the instantaneous power values, while not overloading the Z-Wave network in the process. In specific cases it may be necessary to modify default settings in order to optimize Z-Wave network's use. In extreme cases it is recommended to turn off reporting completely and configure power polling or period-

ic reports in the Z-Wave controller.

The Wall Plug reports the power load with specified frequency. Below configuration parameters allow to specify how frequently power load will be reported.

11. Power reporting

This parameter determines the minimum percentage change in active power consumption (in relation to the previously reported) that will result in sending new power report.

Available settings:	0 - power reports inactive		
	1-100 - power change in percent		
Default setting:	0	Parameter size:	1 [byte]

12. Energy reporting threshold

This parameter determines the minimum change in energy consumption (in relation to the previously reported) that will result in sending a new report.

Available settings:	0 - energy reports inactive		
	1-500 (0.01-5kWh, step 0.01kWh) - threshold		
Default setting:	0	Parameter size:	2 [bytes]

13. Periodic power reporting

This parameter defines time period between independent reports sent when changes in power load have not been recorded or if changes are insignificant. By default reports are sent every hour.

Available settings:	0 - periodic reports inactive		
	30-32400 (in seconds)		
Default setting:	1800	Parameter size:	2 [bytes]

14. Periodic energy reporting

This parameter defines time period between independent reports sent when changes in power load have not been recorded or if changes are insignificant. By default reports are sent every hour.

Available settings:	0 - periodic reports inactive		
	30-32400 (in seconds)		
Default setting:	1800	Parameter size:	2 [bytes]

15. Measuring energy consumed by the Wall Plug itself

This parameter determines whether power metering should include the amount of power consumed by the Wall Plug itself. Results are being added to the value of power consumed by controlled device.

Available settings:	0 - function inactive		
	1 - function active		
Default setting:	0	Parameter size:	1 [byte]

i NOTE

Parameter 11 is not relevant for loads under 5W.

i NOTE

In extreme cases, reports may be sent every second if rapid and significant load power changes occur. Frequent reporting may overload the Z-Wave network so these parameter's settings should reflect significant changes in power load only.

„ON/OFF” ASSOCIATION GROUPS

21. UP value - „On/Off (Power)” association group (3)

Upper power threshold, used in parameter 23. UP value cannot be lower than a value specified in parameter 22.

Available settings:	100-18000 (10.0-1800.0W, step 0.1W)		
Default setting:	500 (50W)	Parameter size:	2 [bytes]

22. DOWN value - „On/Off (Power)” association group (3)

Lower power threshold, used in parameter 23. DOWN value cannot be higher than a value specified in parameter 21.

Available settings:	0-17900 (0.0-1790.0W, step 0.1W)		
Default setting:	300 (30W)	Parameter size:	2 [bytes]

23. Controlling „On/Off (Power)” association group (3)

This parameter defines the way that 3rd association group devices are controlled. Depends on the actual measured power (according to parameters 21 and 22 settings).

Available settings:	1 - send frame (with value set in parameter 26) only if power exceeded value of parameter 21 2 - send frame (with value set in parameter 27) only if power dropped below value of parameter 22 3 - send frame in both cases		
Default setting:	3	Parameter size:	1 [byte]

24. SWITCH ON value - „On/Off (Button)” association group (2)

The value of BASIC SET command frame sent to the devices associated in 2nd group „On/Off (Button)” when turning the device ON using the button.

Available settings:	0-99 or 255		
Default setting:	255	Parameter size:	2 [bytes]

25. SWITCH OFF value - „On/Off (Button)” association group (2)

The value of BASIC SET command frame sent to the devices associated in 2nd group „On/Off (Button)” when turning the device OFF using the button.

Available settings:	0-99 or 255		
Default setting:	0	Parameter size:	2 [bytes]

i NOTE

Setting parameters 24, 25, 26, 27 to appropriate value will result in:

0 - turning off associated devices

1-99 - forcing level of associated devices

255 - setting associated devices to the last remembered state or turning them on

26. THRESHOLD UP value - „On/Off (Power)” association group (3)

The value of BASIC SET command frame sent to the devices associated in 3rd group „On/Off (Power)” if power exceeded value of parameter 21.

Available settings:	0-99 or 255		
Default setting:	255	Parameter size:	2 [bytes]

27. THRESHOLD DOWN value - „On/Off (Power)” association group (3)

The value of BASIC SET command frame sent to the devices associated in 3rd group „On/Off (Power)” if power dropped below value of parameter 22.

Available settings:	0-99 or 255		
Default setting:	0	Parameter size:	2 [bytes]

ALARMS

30. Active alarms

Define Z-Wave network alarms to which the Wall Plug will respond.

Available settings:	1 - general alarm 2 - smoke alarm 4 - CO alarm 8 - CO2 alarm 16 - high temperature alarm 32 - flood alarm		
Default setting:	63 (all)	Parameter size:	1 [byte]

31. Response to alarm frames

This parameter defines how the Wall Plug will respond to alarms (device's status change).

In case of values 1 or 2 the Wall Plug is operating normally and LED frame signals an alarm through time defined in parameter 32 or until the alarm is canceled.

In case of values 5 to 50 the Wall Plug does not report status change, power changes, ignores BASIC SET command frames. After time defined in parameter 32 or after the alarm cancellation, connected device is set to the previous state.

Available settings:	0 - no reaction, 1 - turn connected device on 2 - turn connected device off 5-50 (0.5-5.0s, step 0.1s) - cyclically change device state with set period		
Default setting:	0	Parameter size:	1 [byte]

i NOTE

The alarm may be canceled by pressing and holding the button.

32. Alarm state duration

This parameter specifies the duration of alarm state. If a device sending an alarm frame through the Z-Wave network sets alarm duration as well, this settings are ignored.

Available settings:	1-32400 (in seconds)		
Default setting:	600 (10min)	Parameter size:	2 [bytes]

COLOR SETTINGS**40. Power load for violet color**

This parameter determines maximum active power value, which when exceeded, causes the LED frame to flash violet. Function is active only when parameter 41 is set to 1 or 2.

Available settings:	1000-18000 (100.0-1800.0W, step 0.1W)		
Default setting:	18000 (1800W)	Parameter size:	2 [bytes]

41. LED frame color when controlled device is on

When set to 1 or 2, LED frame color will change depending on active power and parameter 40. Other colors are set permanently and do not depend on power consumption.

Available settings:	0 - illumination turned off completely 1 - color changes smoothly depending on active power 2 - color changes in steps depending on active power 3 - white, 4 - red, 5 - green, 6 - blue, 7 - yellow 8 - cyan, 9 - magenta		
Default setting:	1	Parameter size:	1 [byte]

42. LED frame color when controlled device is off

This parameter defines the illumination color after turning off.

Available settings:	0 - illumination turned off completely 1 - LED frame is illuminated with a color corresponding to the last measured power, before the controlled device was turned off 3 - white, 4 - red, 5 - green, 6 - blue, 7 - yellow 8 - cyan, 9 - magenta		
Default setting:	0	Parameter size:	1 [byte]

43. LED frame color at the Z-Wave network alarm detection

This parameter defines the illumination color in case of Z-Wave alarm.

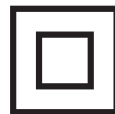
Available settings:	0 - illumination turned off completely 1 - no change in color. LED frame color is determined by settings of parameters 41 or 42 2 - LED frame flashes red/blue/white 3 - white, 4 - red, 5 - green, 6 - blue, 7 - yellow 8 - cyan, 9 - magenta		
Default setting:	2	Parameter size:	1 [byte]

#11: Specifications

Power supply:	100-120V AC, 50/60 Hz
Rated load (continuous load):	Resistive loads: 15A Incandescent loads: 8A Inductive general purpose ($\cos\phi = 0.75-0.8$): 15A Pilot duty ($\cos\phi < 0.35$): 360VA Motor: 373W Electronic ballasts: 3A
Rated impulse voltage:	1.5kV
Maximum inrush current:	80A (20ms)
To be used with A type sockets:	NEMA 1-15 - max load 15A (non-polarized plugs)
IEC Protection Class	Class II
Active element:	Micro-gap relay switch μ
Pollution Degree:	2 (home and office use, indoor only)
Radio protocol:	Z-Wave (500 series chip)
Radio frequency:	922.5, 923.9 or 926.3 MHz
Range:	up to 50m outdoors up to 40m indoors (depending on terrain and building structure)
Operating temperature:	0-40°C
Dimensions (Height x Width x Depth):	59 x 59 x 46.9 mm

i NOTE

Radio frequency of individual device must be same as your Z-Wave controller. Check information on the box or consult your dealer if you are not sure.



#12: Regulations

Legal Notices


All information, including, but not limited to, information regarding the features, functionality, and/or other product specification are subject to change without notice. Fibaro reserves all rights to revise or update its products, software, or documentation without any obligation to notify any individual or entity.

FIBARO and Fibar Group logo are trademarks of Fibar Group S.A. All other brands and product names referred to herein are trademarks of their respective holders.


Warning

This product is not a toy. Keep away from children and animals!

Declaration of conformity

 Hereby, Fibar Group S.A. declares that the device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.manuals.fibaro.com

WEEE Directive Compliance

 Device labelled with this symbol should not be disposed with other household wastes. It shall be handed over to the applicable collection point for the recycling of waste electrical and electronic equipment.



この装置は、クラスB機器です。この装置は、住宅環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

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