## OPERATING MANUAL
RELAY SWITCH
FGS-212-EN-A-v1.01

Remotely Controlled Relay Switch of Fibaro System is designed to operate in a wall switch box or in locations where the control of an electric device is needed.

It is also possible to send a signal to any system that is to be integrated with Fibaro system.

Specifications

Power supply:	110 - 240V ~ 50 - 60Hz
Power consumption:	to 0,8W
Operational temperature:	0 - 35°C
Dimensions (L x W x H):	42,50 x 38,25 x 20,30 mm
For installation in boxes:	Ø ≥ 50mm
Rated load current:	10A for resistive load*
Overcurrent protection:	required external 10A circuit breaker
Active element:	micro-gap relay switch μ
Device control:	remotely - radio waves directly - push buttons
Radio protocol:	Z-Wave
Radio signal power:	1mW
Radio Frequency:	868,4 MHz EU; 908,4 MHz US; 921,4 MHz ANZ; 869,2 MHz RU; 865,2 MHz IN;
Range:	up to 50 m outdoors up to 30 m indoors (depending on building materials)
Comply with EU directives:	RoHS 2011/65/EU LVD 2006/95/EC EMC 2004/108/EC R&TTE 1999/5/EC
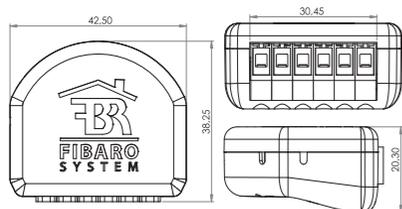
FGS-212	240 V~	120 V~
incandescent lamp load	10 A	

Technical Information

• Controlled by FIBARO system devices or any Z-Wave controller.
• Electronic switch is a remote control unit.
• Microprocessor control.
• Active element: electromagnetic, micro-gap relay switch.
• The device may be operated by momentary and toggle push-buttons.
• To be installed in wall switch boxes of dimensions allowing for installation, conforming to provisions of applicable regulations.

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. But the radio signal is weakened by various obstacles located on 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 receivers of signals, they are also a signal "duplicators". When a direct connection path between the transmitter and the receiver can not be established, the connection may be achieved through other intermediate devices.

FIBARO is a bi-directional wireless system. It 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 so to check whether they are active. Safety of the FIBARO system transmission is comparable to the safety of transmission in data bus wired systems.

FIBARO operates in the free band for data transmission. The frequency depends on radio regulations in individual country . 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 new technology, it has already become recognizable and officially 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.

The In-Wall Relay Switch is hereinafter referred to as Fibaro Switch. It is designed to switch on/off devices connected to its terminals using radio waves, controllers and a push button directly connected to Fibaro Switch.

II Assembling Fibaro Switch

CAUTION
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.

CAUTION
Product must be installed on a 10A line.

DANGER
Danger of electrocution! Electronic switch is designed to operate in electrical home installation. Faulty connection or use may result in fire or electric shock.

DANGER
Danger of electrocution! All works on the device may be performed only by a qualified and licensed electrician. Observe national regulations.

DANGER
Danger of electrocution! Even when the device is turned off, voltage may be present at its terminals. Any works introducing changes into the configuration of connections or the load must be always performed with disconnected voltage (disable the fuse).

CAUTION
Do not connect the device to loads exceeding recommended values. Connect only in accordance with the diagram presented in the manual. Improper connections may be dangerous.

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1. Before installation ensure that the voltage supply is disconnected.

2. Connect Fibaro switch as shown on the diagram.

3. Place the switch in the switch box.

4. Arrange the antenna (tips are presented further).

Single switch - mains electricity power connection
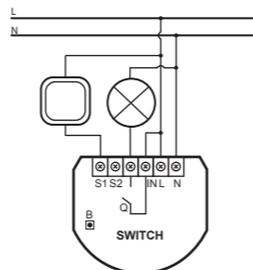
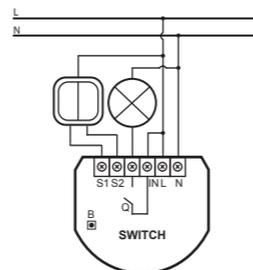**Double switch - mains electricity power connection**

Fig.1 Wiring diagrams for Fibaro Switch.

NOTES FOR THE DIAGRAM:
N - terminal for neutral lead
L - terminal for live lead
IN - input terminal for load power supply
Q - output terminal of the load
S2 - terminal for key no. 2
S1 – terminal for key no. 1 (has the option of entering the device in learning mode)
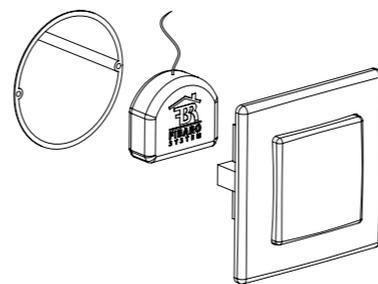**B**- service button (used to add or remove a device from the system)

Fig.2 Installation of Fibaro Relay Switch in wall switch box.

CAUTION
The switch box must be compliant with the relevant national safety standards and it's depth should not be less than 60mm.

CAUTION
The device is designed for installation in wall switch boxes and can work only with the electrical connectors compliant with the relevant safety standards.

NOTE
Durability of the device depends on applied load. For resistive load (light bulbs, etc.) and 6,5A current per channel, the durability exceeds 200 000 switches.

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.

NOTE
It should be noted that only the push-button connected to S1 terminal and service push-button B enables "learning" mode (Include/ Exclude).

DICTIONARY:

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

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

• **Association (linking devices)** - direct control of other devices within the Z-Wave system network.

• **Multi-channel association** - controlling other multi-channel devices within the Z-Wave network.

III Activating Fibaro Switch

1. Installing the Fibaro Switch

STEP 1
Connect the device in accordance with the wiring diagram presented in Figure 1. Switch on the mains voltage.

[Adding/Removing] Fibaro Switch [to/from] Z-wave network

STEP 2
Fibaro Switch must be placed within the range of Home Center controller, as adding mode requires direct communication with the controller.

STEP 3
Find key no. 1 which allows to switch circuit 1 on, in accordance with the diagram

STEP 4
Set the Home Center controller in add/remove mode (see the controller's manual)

STEP 5
Add Fibaro Switch to the network by pushing three times key no. 1 or push-button B located inside the housing of the device. For toggle switch perform 3 position changes.

During the installation it is recommended to use a momentary key connected to S1.

STEP 6
The controller indicates when the device is correctly added to the network, (see the manual of Home Center controller).

CAUTION
Fibaro Switch cancels the "learning" mode after key no. 1 is pressed once. Therefore, pressing key no. 1 four times will not add the devices to the network. The same applies to push-button B.

CAUTION
Fibaro Switch is set by default to operate with momentary switches (i.e. single-pole switch or bell switch). While adding Fibaro Switch to the network with toggle switches, ensure that all switch contacts are open (off), because closing them results in activating the push-button and this will prevent adding the device to the network.

2. Resetting Fibaro Switch

Fibaro Switch provides two methods for resetting.

Method I : Reset by removing Fibaro Switch from the existing Z-Wave network. The device may be removed using the controller that has the ability to include/exclude devices from/to Z-Wave network (see the manual of controller).

Method II : Reset by holding B button for 3 sec. after connecting mains voltage to the Switch

3. Controlling Fibaro Switch by momentary or toggle switches.

Momentary switch (after releasing the push-button a spring automatically pushes back and disconnects the button)

- Turning on/off circuit 1 or 2 - briefly press the push-button corresponding to a chosen circuit (see diagram).

Toggle switch (operates as a two-position switch, it has no spring that would push back the device after releasing manual pressure)

- Turning on/off the circuit - change the position of selected push-button from the current position.

4. Controlling Fibaro Switch using a command: ALL ON / ALL OFF

Fibaro Switch responds to commands ALL ON / ALL OFF that may be sent by the controller. ALL ON / ALL OFF commands are usually implemented in Z-Wave remote control.

By default, Fibaro Switch accepts both active commands ALL ON and ALL OFF. Settings may be changed by entering an appropriate value into configuration register no. 1 (see configuration)

5. Controlling Fibaro Switch using Home Center controller

After adding Fibaro Switch to the network, it will be represented in

Home Center by the following icon:

Fig.3 Icon of Fibaro Switch shown by Home Center controller

By default, FGS-212 device has a second hidden icon.
It represents the second, virtual channel of the device triggered by the second key. The user may add the association to this channel or trigger a scene.

Turning on/off the device connected to Fibaro Switch is performed by pressing ON/OFF icon.

IV Association

Association enables Fibaro Switch to directly control a device included in Z-Wave network e.g. Dimmer, Switch (ON-OFF), Roller Shutter or scene (scene may be controlled only through the Home Center controller).

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

Fibaro Switch provides association of three groups.

1st group is assigned to key no. 1

2nd group is assigned to key no. 2

3rd group reports state of devices. Only one device can be associated to this group.

Fibaro Switch enables user to control up to 5 normal devices, and 5 MultiChannel devices in group no. 1 and no. 2, group no. 3 has only one field. One field is reserved for the network controller.

To add an association (using the Home Center controller), go to

device options by clicking 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 associated groups may take even a few minutes.

WARNING
When Fibaro Switch sends control commands and a new command is issued, then the current one command transmission is interrupted to send new commands.

FGS-212 Fibaro Switch supports the operation of multi-channel devices. Multichannel devices are devices that include two or more circuits inside one physical unit.

V Configuration

The following settings are available in the Fibaro interface as simple options that may be chosen by selecting the appropriate box.

In order to configure Fibaro Switch (using the Home Center controller), go to device options by clicking the following icon:

Select „Advanced" tab.

Parameter No. 1 - Activate / deactivate functions ALL ON / ALL OFF.
Default value: 255

Options for changing parameter 255, 0, 1, 2

Available configuration parameters:
255 - ALL ON active, ALL OFF active.
0 - ALL ON is not active ALL OFF is not active
1 - ALL ON is not active ALL OFF active
2 - ALL ON active ALL OFF is not active

Parameter No. 3 - Auto off relay after specified time, with the possibility of manual override - immediate Off after button push.
Default value: 0

Available settings:
0 - manual override disabled. After single button push the relay turns on and automatically turns off after specified time.
1 - manual override enabled. After single button push the relay turns on and automatically turns off after specified time. Another button push turns the relay off immediately.

Parameter No. 4 - Auto off.
Default value: 0

Available settings:
[1- 65535] (0,1 s – 6553,5 s) Time period for auto off, in miliseconds
0 - Auto off disabled

Parameter No. 6 - Sending commands to control devices assigned to 1-st association group (key no. 1).
Default value: 0

Available configuration parameters:

0 - commands are sent when device is turned on and off

1 - commands are sent when device is turned off. Enabling device does not send control commands. Double-clicking key sends 'turn on' command, dimmers memorize the last saved state (e.g. 50% brightness).

2 - commands are sent when device is turned off. Enabling device does not send control commands. Double-clicking key sends 'turn on' command and dimmers are set to 100% brightness.

NOTE: Parameter 15 value must be set to 1 to work properly. This activates the double-click functionality - dimmer/roller shutter control.

Parameter No. 13 - Assigns bistable key status to the device status.
Default value: 0

Available configuration parameters:
0 - [On / Off] device changes status on key status change.
1 - Device status depends on key status: ON when the key is ON, OFF when the key is OFF.

Remote control from Fibaro System is still possible. This function is useful when you want display status of external devices, e.g. Motion Sensor, in Fibaro System.

Parameter No. 14 - Switch type connector, you may choose between momentary and toggle switches.
Default value: 1

Options for changing the parameter:
0 - momentary switch
1 - toggle switch

Parameter No. 15 - Operation of the Dimmer and Roller Shutter Controller - enabling this option allows the user to dim lighting/shut roller by associating Dimmer/Roller Shutter Controller and holding or double press of double switch (only mono-stable switch).
Default value: 0

Available configuration parameters:
0 - Dimmer/Roller Shutter Controller control is not active
1 - Dimmer/Roller Shutter Controller control is active

Parameter No. 16 - Saving the state of the device after a power failure. Fibaro Switch returns to the last position saved before a power failure.
Default value: 1

Options for changing the parameter 0-1

0 - Fibaro Switch does not save the state after a power failure, it returns to "off" position
1 - Fibaro Switch saves its state before power failure

Possibility to change the configuration of the following parameters [30 - 33].

0 - DEACTIVATION - the device does not respond to alarm data frames
1 - ALARM RELAY ON - the device turns on after detecting an alarm
2 - ALARM RELAY OFF - the device turns off after detecting an alarm
3 - ALARM FLASHING - the device periodically changes its status to the opposite, when it detects an alarm within 10 min.

Parameter No. 30 - General Alarm, set for relay no. 1.

Default value: 3[byte] ALARM FLASHING

Parameter No. 31 - Alarm of flooding with water, set for relay no. 1.
Default value: 2[byte] ALARM RELAY OFF

Parameter No. 32 - Smoke, CO, CO2 Alarm. Set for relay no. 1.

Default value: 3[byte] ALARM FLASHING

Parameter No. 33 - Temperature Alarm, set for relay no. 1.

Default value: 1[byte] ALARM RELAY ON

Parameter No. 39 - Active flashing alarm time.
Default value: 600

Available configuration parameters: [1-65535][ms]

VI Additional Functionality

Operating alarm data frames

Fibaro system allows user to set response of devices to alarm situations (response to data-frames ALARM_REPORT and SENSOR_ALARM_REPORT) Fibaro switch responds to the following types of alarms:

• General Purpose Alarm - GENERAL PURPOSE ALARM [0x00]
• Smoke Alarm - ALARM CO2 [0x02], ALARM CO [0x01], ALARM SMOKE [0x03]
• Water Flooding Alarm - ALARM WATER [0x05]
• Temperature Alarm - ALARM HEAT [0x04]

Alarm data-frames are sent by devices that are system sensors (e.g., flood sensors, smoke detectors, motion detectors, etc.).

The device may respond in the following manner to received data-frames (settings are configured in configuration parameters, see section V Configuration):

• 0 - DEACTIVATION - the device does not respond to alarm data frames
• 1 - ALARM ON - the device turns on after detecting an alarm
• 2 - ALARM OFF - the device turns off after detecting an alarm
• 3 - ALARM FLASHING - the device periodically changes its status to the opposite when it detects an alarm (lights on/off alternately)

VII Operating Fibaro Switch

Fibaro Switch may be operated using the following control elements:

− any controller compatible with the system (e.g. Home Center controller)
− a mobile phone (e.g. iPhone and phones from other manufacturers with appropriate software)
− tablet (such as iPad)
− PC, using a web browser
− push-buttons connected to inputs S1 and S2
− service button B, located inside the housing (activates learn mode)

VIII Procedures for malfunctions

The device does not respond to a pre-programmed transmitter:

• Make sure that the maximum range is not exceeded and the signal path is not obstructed by metal surfaces such as metal cabinets, etc.
• Make sure the device is not in the programming mode, or repeat the programming process.
• Or repeat the programming process.

IX Guarantee

i **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