

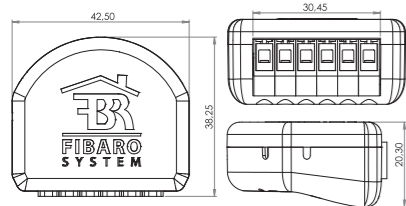
## OPERATING MANUAL FIBARO ROLLER SHUTTER 2 FGR-222-EN-A-v1.1

FIBARO Roller Shutter 2 is a universal, Z-Wave compatible, electric motor controller. The device allows for controlling motors of roller blinds, awnings, venetian blinds, gates and others, which are single phase AC powered. FIBARO Roller Shutter 2 allows for precise positioning of a roller blind or venetian blind slats. Precise positioning is available for the motors equipped with mechanic and electronic end switches.

The module may be controlled wirelessly, through the Z-Wave network main controller, or through the switch keys connected to it. It's also possible to combine few devices into groups of devices, which then can be controlled simultaneously. In addition, FIBARO Roller Shutter 2 is equipped with Power Metering.

### I. SPECIFICATIONS

Power supply:	110 - 240 V AC 50 - 60 Hz
Power consumption:	to 0,8 W
Operational temperature:	0 - 35°C
Dimensions (L x W x H):	42,5 x 38,25 x 20,3 mm
For installation in boxes:	Ø ≥ 50mm, depth ≥ 60mm
Rated load current:	4,2 A for lamps and resistive loads 1,7 A for motors with compensated power factor (inductive loads)
Active element:	micro-gap relay switch μ
Type of supported motor:	single-phase AC motors
Supported limit switches type:	electronic and mechanic
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; 869,0 MHz RU;
Range:	up to 50 m outdoors up to 30 m indoors (depending on building materials)
Comply with EU directives:	RoHS 2011/65/EU RED 2014/53/EU



### II. TECHNICAL INFORMATION

- Controlled by FIBARO system devices or any Z-Wave controller.
- FIBARO Roller Shutter 2 is an extension unit.
- Microprocessor control.
- Active element: electromagnetic, micro-gap relay switch.
- The device may be operated by momentary or toggle switches, and by dedicated roller blind control switches.
- Connected motor's current and historical power consumption measured.
- To be installed in wall switch boxes of dimensions allowing for installation, conforming to provisions of applicable regulations.

### III. SUPPORTED LOADS

FGR-222		110-240 V~
1	lamp and resistive load	4,2 A
2	inductive load	1,7 A

### IV. GENERAL INFORMATION ABOUT 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. 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 FIBARO 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](http://www.fibaro.com).

### V. ROLLER SHUTTER INSTALLATION

**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**  
Electrical system of the building must be protected with an overcurrent protection (fuse) with a value not higher than 10A.

**DANGER**  
**Danger of electrocution!** All works on the device may be performed only by a qualified and licensed electrician. Observe national regulations. Faulty connection or use may result in fire or electric shock.

**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).

**DANGER**  
Any maintenance work on controlled devices may be performed only after the power supply has been disconnected.

**CAUTION**  
It's not recommended to operate all of the roller blinds simultaneously. For safety reasons, at least one roller blind should be controlled independently, providing safe escape route in case of emergency.

**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.

- Before installation make sure the voltage supply is disconnected.
- Connect the Roller Shutter in accordance with the wiring diagram presented on Fig. 1 (roller blinds, venetian blinds) or Fig. 2 (gates).
- Place the device in a switch box.
- Arrange the antenna (tips presented below Fig. 3)
- Turn on the power supply keeping the necessary safety precautions.
- Include the module into the Z-Wave network, observing pt. VI description.
- If necessary, calibrate the module, observing pt. IX description.

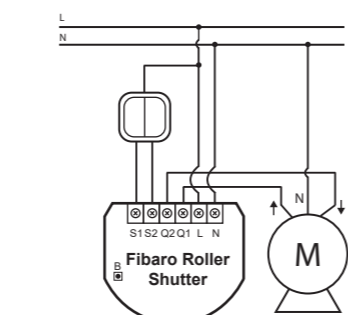


Fig. 1 Roller Shutter wiring diagram

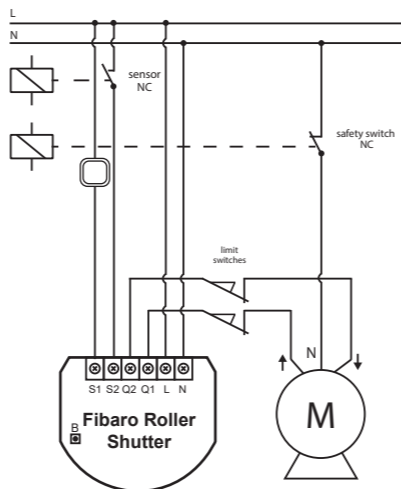


Fig. 2 Connecting Roller Shutter to GATE motor

#### NOTES FOR THE DIAGRAM:

- L - terminal for live lead
- N - terminal for neutral lead
- S1 - terminal for key no. 1 (has the option of entering the device in learning mode)
- S2 - terminal for key No. 2
- Q1 - output terminal no. 1 for shutter motor
- Q2 - output terminal no. 2 for shutter motor
- B - service button (used to add or remove a device from the system)

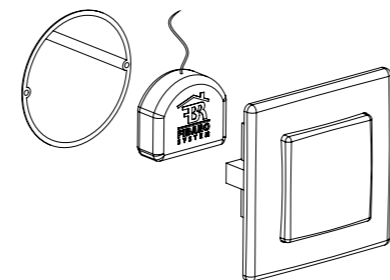


Fig.3 Installation of Fibaro Roller Shutter in wall switch box.

**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.

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

**WARNING**  
Fibaro Roller Shutter is dedicated to operate with AC powered electric motors. Connecting the device directly to DC powered motors may result in them being damaged.



**WARNING**  
It is recommended to monitor regulary operation of Fibaro Roller shutter in all modes. In case of gate control mode device, motor limit switches, infrared barriers and emergency stop should be monitored and maintained regulary .



**NOTE**  
A push button connected to S1 terminal operates the Q1 output, while the push button connected to S2 terminal operates the Q2 output. It's recommended to connect an UP button to S1 terminal and a wire, responsible of up movement, to Q1 output terminal. Respectively, a DOWN button should be connected to S2 terminal and a wire, responsible for down movement, to Q2 output terminal.

### TIPS FOR ARRANGING THE ANTENNA

- Locate the antenna as far from metal elements as possible (connection wires, bracket rings, etc.) in order to prevent interferences.
- Metal surfaces in direct vicinity of the antenna (e.g. metal switch boxes, door frames) may impair radio signal reception!
- Do not cut or shorten the antenna. Its length is perfectly matched to the band in which the system operates.

### VI. Z-WAVE NETWORK INCLUSION

Fibaro Roller Shutter may be included into the Z-Wave network via the B-button or a push button connected to the S1 terminal. In addition, the module may be included in auto inclusion mode, by simply connecting the power supply.

Automatic Z-Wave network inclusion:  
1) Make sure the power supply is disconnected and a Roller Shutter is located within a direct Z-Wave network's main controller communication range.

- Set the main controller into the learn mode (see main controllers operating manual).
- Connect the power supply to include the Roller Shutter in auto inclusion mode.

- Fibaro Roller Shutter will be automatically detected and included into the Z-Wave network.

To disable the auto inclusion mode, press the B-button briefly, after connecting the module to the power supply.

- Manual Z-Wave network inclusion:
- Connect the power supply.
  - Set the main controller into the learn mode (see main controllers operating manual).
  - Triple click the B-button or a push button connected to the S1 terminal.
  - Fibaro Roller Shutter will be detected and included into the Z-Wave network.

### VII. Z-WAVE NETWORK EXCLUSION

- Make sure the module is connected to the power supply.
- Set the main controller into the learn mode (see main controllers operating manual).
- Triple click the B-button or a push button connected to the S1 terminal.

### VIII. ROLLER SHUTTER RESET

Reset procedure clears the modules' EPROM memory, including all information about the Z-Wave network controller, calibration and power consumption data.

- Make sure the module is connected to the power supply.
- Press and hold the B-button for ca. 14 seconds.
- LED indicator will glow yellow.
- Release the B-button and press it again, briefly.
- The Roller Shutter memory is now empty.
- The module goes into the auto inclusion mode, until any button is pushed.



**CAUTION**  
Memory reset does not remove the module from the Z-Wave network main controller's memory. Prior to memory reset it's recommended to exclude the module from the Z-Wave network.



**TIP**  
After memory reset, the Roller Shutter goes into the auto inclusion mode and waits to be included into the Z-Wave network. To exit the auto inclusion mode press the B-button briefly.

### IX. POSITIONING CALIBRATION

Calibration is a process during which a Roller Shutter learns the position of the limit switches and a motor characteristic. Calibration is mandatory in order for the Roller Shutter to correctly recognize a roller blind position. The procedure consists of an automatic, full movement between the limit switches (up, down, and up again). There are separate procedures of calibrating roller blind and slats (venetian blind) positioning. Each time the calibration requires the completion of a full cycle (up and down).

### ROLLER BLIND POSITIONING CALIBRATION

There are 5 procedures of calibrating a Fibaro Roller Shutter to choose from. Each one gives the same results and the user may choose which one to execute.

- A. Calibration through a Fibar Home Center 2 interface
- Make sure the module is connected to the power supply, according to Fig.1
  - Include the module into the Z-Wave network, according to section VI of instructions.
  - In Home Center 2 interface choose Fibaro Roller Shutter's advanced settings.
  - Click CALIBRATE button in the devices advanced settings tab.
  - Roller Shutter performs the calibration process, completing full cycle - up, down and up again.
  - Using an interface test whether the positioning works correctly.

- B. Calibration through the Z-Wave network
- Make sure the module is connected to the power supply, according to Fig.1
  - Include the module into the Z-Wave network, according to section VI of instructions.
  - Set the parameter 29 value to 1.
  - Roller Shutter performs the calibration process, completing full cycle - up, down and up again.
  - The parameter 29 value will be automatically set to 0.
  - Using an interface test whether the positioning works correctly.

- C. Calibration through the switch keys
- Make sure the module is connected to the power supply, according to Fig.1, and to the switch keys as well (S1 and S2 inputs).
  - Include the module into the Z-Wave network, according to section VI of instructions.
  - Press and hold the switch key connected to S1 or S2 input terminal and release it after at least 3 seconds.
  - Press and hold the same switch key again, and release it after 3 seconds.
  - Now press and hold the same button, for 3 seconds, for the 3rd time.
  - After pressing and releasing the button for the third time, automatic calibration sequence will start.
  - Roller Shutter performs the calibration process, completing full cycle - up, down and up again.

- D. Calibration through Menu (B-button)
- Make sure the module is connected to the power supply, according to Fig.1
  - Include the module into the Z-Wave network, according to section VI of instructions.
  - Press and hold the B-button for ca. 6 seconds.
  - LED will glow blue.
  - Release the B-button and press it again, briefly.
  - Roller Shutter performs the calibration process, completing full cycle - up, down and up again.

E. Calibration through a Fibar Command Class control frame. It's possible to force the calibration process execution through sending a Fibar Command Class control frame through a Z-Wave network main controller.



**NOTE**  
To abort the calibration process press any key (connected to S1 or S2) or send a STOP control frame through the Z-Wave network controller. In Gate Controller mode the calibration process will be aborted after disconnecting the S2 terminal.

### CALIBRATING SLATS POSITIONING IN VENETIAN BLINDS

Apart from calibrating the roller blind position, it's possible to calibrate the position of venetian blinds slats. After correct calibration, in case of venetian blinds, it's possible to set the position between the limit switches, as well as the slats angle. By default, time of full turn of the slats is set to 1,5 seconds. If necessary, it can be modified following below instructions.

- Make sure the module is connected to the power supply, according to Fig.1
- Include the module into the Z-Wave network, according to section VI of instructions.
- Calibrate the Roller Shutter, according to the instructions provided in sections IX.A, IX.B, IX.C, IX.D or IX.E.
- Set the parameter 10 value to 2 or choose in HC2 interface: Device Type - Venetian Blind
- Another device icon, responsible for slats operation, will show up in Home Center 2 interface. In case of any other Z-Wave network controllers managing the slats position is achieved through pressing and holding a switch key (up or down).
- By default, time of transition between extreme positions is set to 1 500 ms (1,5 seconds).
- Turn slats between extreme positions. If after full cycle a blind starts moving up or down, then parameter's 12 value must be modified, e.g. to 1 000ms (1 second). Correctly configured slats should not force the blind to move up or down.



**CAUTION**  
Roller Shutter needs to be calibrated to work with any given motor.



**CAUTION**  
In Venetian Blind mode, slats need to be calibrated to work with any given motor.



**CAUTION**  
Venetian blind slats may be only operated by momentary switches.

### X. OPERATING THROUGH THE Z-WAVE NETWORK

After including into the Z-Wave network, Fibaro Roller Shutter will be presented in a Home Center 2 interface as a roller blind icon (see fig. below). After choosing Venetian Blind device type, a second icon will show up, responsible for managing slats position.



Fig. 4 Roller Shutter icons in Home Center interface

User can choose from the following operating modes:

- Roller Blind Mode, without positioning
- Roller Blind Mode, with positioning
- Venetian Blind Mode
- Gate Mode, without positioning
- Gate Mode, with positioning

After choosing one of the above operating modes, device will be represented in Home Center 2 interface by icons shown in Fig.4. In addition, each operating mode affects certain parameters settings:

- Roller blind without positioning (parameter 10 set to 0)
- Roller blind with positioning (parameter 10 set to 1)
- Venetian blind (parameter 10 set to 2; parameter 13, set to 2)
- Gate without positioning (parameter 10 set to 3; parameter 12 set to 0; parameter 17 set to 0)
- Gate with positioning (parameter 10 set to 4; parameter 12 set to 0; parameter 17 set to 0)



**NOTE**  
Above operating modes and their default settings are modified automatically only in Home Center 2 controller. In case of the Z-Wave network controllers from other manufacturers, these settings need to be manually adjusted (see section XVIII).

Opening / Closing a blind is achieved through moving a slider or pushing a button shown in Fig. 4.

In Venetian Blind mode, setting slats angle is achieved through moving a slider or pushing a button shown in Fig. 4.

### XI. MANUAL OPERATION

Fibaro Roller Shutter allows for connecting push buttons to S1 and S2 terminals. These may be momentary or toggle switches, alternatively. Push buttons are responsible for managing the blind's movement.

Using momentary switches:  
**Clicking ▲ button** connected to S1 terminal, initiates up movement.

**Clicking ▼ button** connected to S2 terminal, initiates down movement.

If the blind is moving, each click, of any button, will stop the movement. In addition a button click sends a command frame to l-st association group devices.

In case of venetian blinds, it's possible to manage the slats angle. Operating Mode - Venetian Blind, or Parameter 10 value set to 2.

**Holding ▲** connected to S1 terminal initiates slats rotation up.

**Holding ▼** connected to S2 terminal initiates slats rotation down. In addition a button hold sends a Fibar Command Class control frame to ll-nd association group devices.

Using toggle switches:

**Changing ▲ switch key** position, connected to S1 terminal, initiates up movement.

**Changing ▼ switch key** position, connected to S2 terminal, initiates down movement.

Choosing a middle position stops the blind.

### XII. ASSOCIATIONS

Through an association Fibaro Roller Shutter may control another Z-Wave network device, e.g. another Roller Shutter, Wall Plug, Dimmer, Relay Switch, RGBW Controller.



**NOTE**  
Association allows for direct communication between Z-Wave network devices. Main controller does not take part in such communication.

