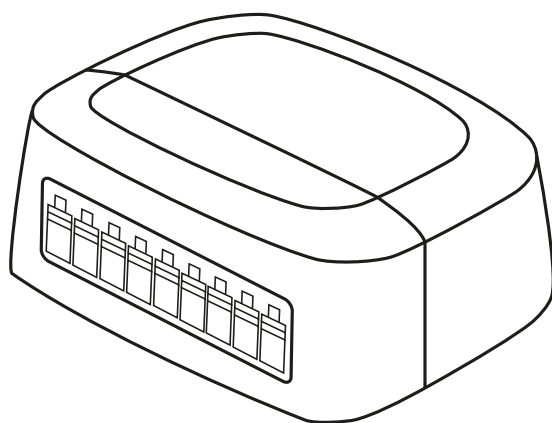




FIBARO
ROLLER SHUTTER 4
FGR-224

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1: 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.

DANGER OF ELECTROCUTION!

 The device is designed to operate in electrical home installation. Faulty connection or use may result in fire or electric shock.

 All works on the device may be performed only by a qualified and licensed electrician. Observe national regulations.

 Even when the device is turned off, voltage may be present at its terminals. Any maintenance introducing changes into the configuration of connections or the load must be always performed with disabled fuse.

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

Do not modify!

 Do not modify this device in any way not included in this manual.

Other devices

 The manufacturer, Fibar Group S.A. will not be held responsible for any damage or loss of warranty privileges for other connected devices if the connection is not compliant with their manuals.

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!

 It is 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.

Not a toy!

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

2: Description and features

2.1: Description

FIBARO ROLLER SHUTTER 4 is a device designed to control roller blinds, awnings, venetian blinds, curtains and pergolas.

FIBARO ROLLER SHUTTER 4 allows precise positioning of roller blinds or venetian blind slats. The device is equipped with energy monitoring. It allows to control connected devices either via the Z-Wave™ network or via a switch connected directly to it.

2.2: Main features

- Can be used with:
 - » roller blinds,
 - » venetian blinds,
 - » pergolas,
 - » curtains,
 - » awnings,
 - » blind motors with electronic or mechanical limit switches.
- Active energy metering.
- Supports Z-Wave network Security Modes: S0 with AES-128 encryption and S2 Authenticated with PRNG-based encryption.
- Works as a Z-Wave signal repeater (all non-battery operated devices within the network will act as repeaters to increase reliability of the network).
- May be used with all devices certified with the Z-Wave Plus™ certificate and should be compatible with such devices produced by other manufacturers.
- Works with different types of switches; for comfort of use, it is recommended to use switches dedicated to the roller shutter operation (monostable, roller shutter switches).

NOTE

The device is a Security Enabled Z-Wave Plus product and a Security Enabled Z-Wave Controller must be used in order to fully utilize the product.

3: Specifications

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.

Power supply	100-240V~ 50/60 Hz
Rated load current	2A for motors with compensated power factor (inductive loads)
Compatible load types	(M) single-phase AC motors
Required limit switches	electronic or mechanic
Recommended external overcurrent protection	10A type B circuit breaker (EU) 13A type B circuit breaker (Sweden)
For installation in boxes	Ø = 50mm, depth ≥ 60mm
Recommended wires	cross-section area between 0.75-1.5 mm ² stripped 8-9 mm of insulation
Operating temperature	0-35°C
Ambient humidity	10-95% RH without condensation
Radio protocol	Z-Wave (800 series chip)
Radio frequency band	908.4 MHz, 916MHz
Max. transmitting power	+6dBm
Range	up to 100m outdoors up to 30m indoors (depending on terrain and building structure)
Dimensions (Height x Width x Depth)	46 x 36 x 19.9 mm
Compliance with EU directives	RoHS 2011/65/EU RED 2014/53/EU

4: Installation

4.1: Before installation

⚠ Connecting the device in a manner inconsistent with this manual may cause risk to health, life or material damage.

- **Do not** power the device before fully assembling it in the mounting box,
- Connect only in accordance with one of the diagram,
- Install only in flush mounting boxes compliant with a relevant national safety standards and with depth no less than 60mm,
- **Do not** connect devices which are not compliant with the specification or relevant safety standards,
- **Do not** connect heating devices,
- **Do not** connect SELV or PELV circuits,
- Electrical switches used in installation should be compliant with the relevant safety standards,
- Length of wires used to connect the control switch should not exceed 20m,
- Connect roller blind AC motors with electronic or mechanical limit switches only.

Notes for the diagrams:

O1 - 1st output terminal for shutter motor

O2 - 2nd output terminal for shutter motor

S1 - terminal for 1st switch
(used to add/remove the device)

S2 - terminal for 2nd switch
(used to add/remove the device)

N - terminals for the neutral lead (connected internally)

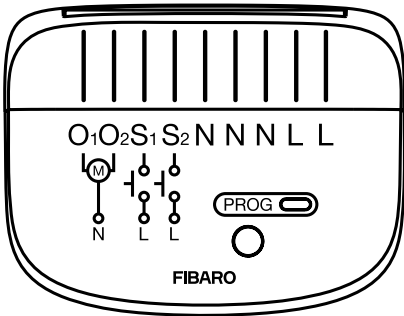
L - terminals for live lead (connected internally)

PROG - service button (used to add/remove the device and navigate the menu)

ATTENTION ! Proper wiring and wire removal guidelines

Place wires ONLY into terminal slot(s) of the device.

To remove any wires, press the release button, located over the slot(s)



4.2: Installation

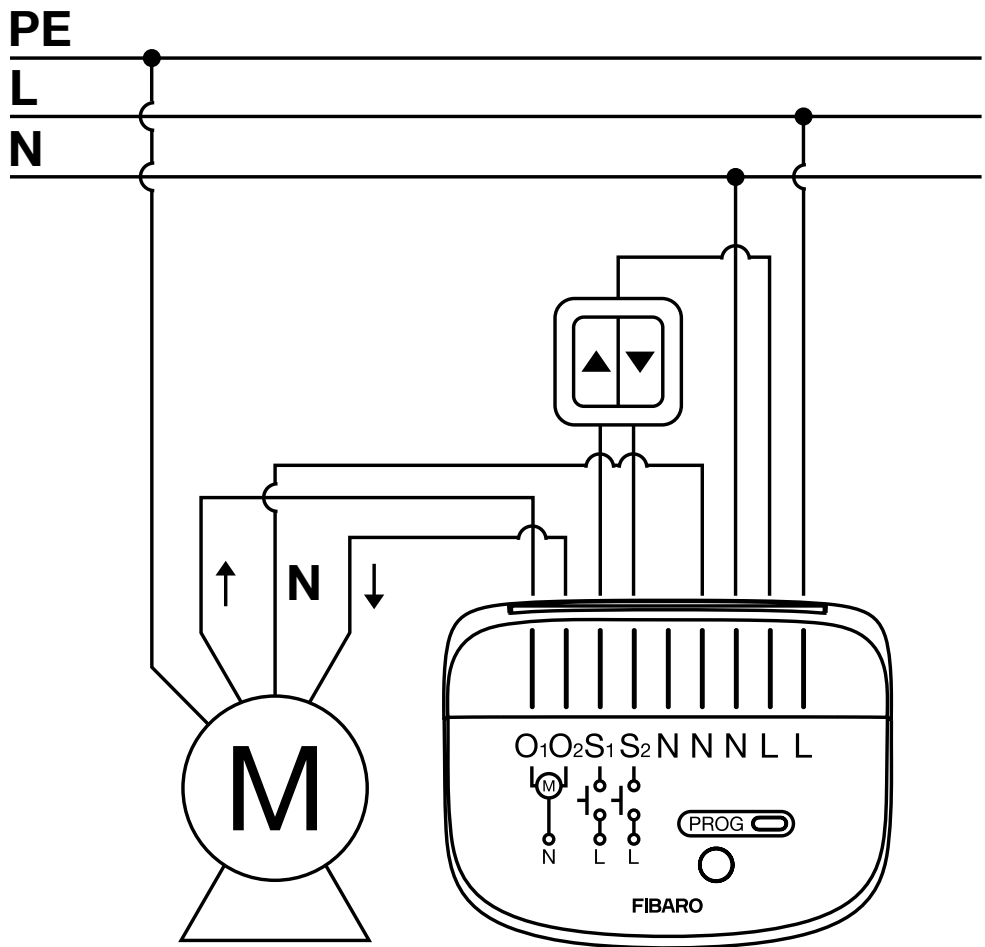
i NOTE

If you are using Yubii Home, HC3L or HC3 Hub, you don't have to concern about connecting the directions correctly. You can change the directions in the the wizzard and de-vice settings in the mobile app.

i NOTE

To connect ex-ternal switch/ switches use supplied jumper wires if necessary.

1. Switch off the mains voltage (disable the fuse).
2. Open the wall switch box.
3. Connect with the following diagram.



Wiring diagram – connection with AC motor

4. Verify if the device is connected correctly.
5. Arrange the device in a wall switch box.
6. Close the wall switch box.
7. Switch on the mains voltage.

5: Adding to Z-Wave™ network

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

5.1: Adding manually

To add the device to the Z-Wave network **manually**:

1. Power the device.
2. Identify the PROG button or the S1/S2 switches.
3. Set the main controller in (Security/non-Security Mode) add mode (see the controller's manual).
4. Quickly, click PROG button three times. Optionally, click S1 or S2 three times.
5. If you are adding in Security S2 Authenticated, input the PIN Code (label on the device, also underlined part of the DSK on the label on the bottom of the box).
6. Wait for the LED indicator to blink yellow.
7. Successful adding will be confirmed by the Z-Wave controller's message and the device's LED indicator:
 - Green – successful (non-secure, S0, S2 non-authenticated),
 - Magenta – successful (Security S2 Authenticated),
 - Red – not successful.

NOTE

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

5.2: Adding using SmartStart

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. SmartStart product will be added automatically within 10 minutes of being switched on in the network range.

To add the device to the Z-Wave network **using SmartStart**:

1. To use SmartStart your controller needs to support Security S2 (see the controller's manual).
2. Enter the full DSK string code to your controller. If your controller is capable of QR scanning, scan the QR code placed on the label on the bottom of the box.
3. Power the device (turn on the mains voltage).
4. LED will start blinking yellow, wait for the adding process to end.
5. Successful adding will be confirmed by the Z-Wave controller's message and the device's LED indicator:
 - Green – successful (non-secure, S0, S2 non-authenticated),
 - Magenta – successful (Security S2 Authenticated),
 - Red – not successful.

6: Removing from Z-Wave network

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. Make sure the device is powered.
2. Identify the PROG button or the S1/S2 switches.
3. Set the main controller in remove mode (see the controller's manual).
4. Quickly, click PROG button three times. Optionally, click S1 or S2 three times within 10 minutes of powering up the device.
5. Wait for the removing process to end.
6. Successful removing will be confirmed by the Z-Wave controller's message and the device's LED indicator - Red.
7. Removing the device from the Z-Wave network doesn't cause factory reset.

7: Calibration

Calibration is a process during which a device learns the position of the limit switches and a motor characteristic.

Calibration is mandatory in order for the device to correctly recognize a roller blind position.

The procedure consists of an automatic, full movement between the limit switches (up, down, and up again).

i

NOTE

If you are using Yubii Home, HC3L or HC3 Hub, you can perform calibration from the wizard or device settings in the mobile app.

i

NOTE

You can stop the calibration process at any moment by clicking PROG button or external keys.

i

NOTE

If the calibration is failed, you can manually set times of up and down movements (parameters **156** and **157**).

Automatic calibration using the menu

1. Press and hold PROG button to enter the menu.
2. Release button when the device glows blue.
3. Quickly click the button to confirm.
4. The device will perform the calibration process, completing full cycle – up, down and up again. During the calibration the LED blinks blue.
5. If the calibration is successful, the LED indicator will glow green, if the calibration is failed, the LED indicator will glow red.
6. Test whether the positioning works correctly.

Automatic calibration using the parameter

1. Set parameter 150 to 3.
2. The device will perform the calibration process, completing full cycle – up, down and up again. During the calibration the LED blinks blue.
3. If the calibration is successful, the LED indicator will glow green, if the calibration is failed, the LED indicator will glow red.
4. Test whether the positioning works correctly.

Manual positioning of slats in venetian blinds mode

1. Set parameter 151 to 1 (90°) or 2 (180°), depending on the rotation capability of the slats.
2. By default, time of transition between extreme positions is set to 15 (1.5 seconds) in parameter 152.
3. Turn slats between extreme positions using ▲ or ▼ switch:
 - If after full cycle a blind starts moving up or down - decrease value of parameter 152,
 - If after full cycle the slats does not reach end positions - increase value of parameter 152,
4. Repeat previous step until satisfactory positioning is achieved.
5. Test whether the positioning works correctly. Correctly configured slats should not force the blinds to move up or down.

8: Operating the device

The device allows for connecting switch to the S1 and S2 terminals. These may be monostable or bistable switches.

Switch buttons are responsible for managing the blind’s movement.

Description:

- ▲ – Switch connected to the **S1** terminal
- ▼ – Switch connected to the **S2** terminal

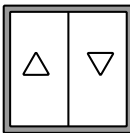
General tips:

- You can perform/stop movement or change direction using switch/es
- If you set flowerpot protection option the down movement action will perform only to defined level
- If you control only a venetian blind position (not slats rotation) the slats will back to their previous position (in aperture level 0-95%).

8.1: Monostable switches – click to move

Parameter no. 20 value 0

Example of the switch design:



Roller blind, Awning, Pergola or Curtain

Parameter no. 151 value 0

- | | |
|--------------------|---|
| 1 x click ▲ switch | Initiate up movement to the limit position
Next click - stop |
| 1 x click ▼ switch | Initiate down movement to the limit position |
| 2x click ▲ or ▼ | Favorite position |
| Hold ▲ | Up movement until release |
| Hold ▼ | Down movement until release |

Venetian blind

Param no.151 value 1 or 2

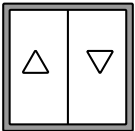
- | | |
|--------------------|---|
| 1 x click ▲ switch | Initiate up movement to the limit position
Next click - stop |
| 1 x click ▼ switch | Initiate down movement to the limit position |
| 2x click ▲ or ▼ | Favorite position |
| Hold ▲ | Turning slats up until release |
| Hold ▼ | Turning slats down until release |

✓ **Favorite position – available**

8.2: Monostable switches – hold to move

Parameter no. 20 value 1

Example of the switch design:



Roller blind, Awning, Pergola or Curtain

Parameter no. 151 value 0

- 1 x click ▲ switch 10% up movement
- 1 x click ▼ switch 10% down movement
- 2x click ▲ or ▼ Favorite position
- Hold ▲ Up movement until release
- Hold ▼ Down movement until release

Venetian blind

Param no. 151 value 1 or 2

- 1 x click ▲ switch Slats rotates up by the predefined step
- 1 x click ▼ switch Slats rotates down by the predefined step
- 2x click ▲ or ▼ Favorite position
- Hold ▲ Up movement until release
- Hold ▼ Down movement until release

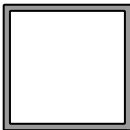
✓ Favorite position – available

If you hold down the switch longer than slats movement time + additional 4 seconds (default 1,5s+4s =5,5s) the device will go limit position. In that case releasing the switch will do nothing.

8.3: Single monostable switch

Parameter no. 20 value 2

Example of the switch design:



Roller blind, Awning, Pergola or Curtain

Parameter no. 151 value 0

- 1 x click Initiate movement to the limit position
Next click – stop
- One more click Initiate movement to the opposite limit position
- 2x click Favorite position
- Hold Initiate movement until release

Venetian blind

Param no. 151 value 1 or 2

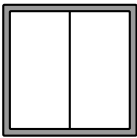
- 1 x click Initiate movement to the limit position
Next click – stop
- One more click Initiate movement to the opposite limit position
- 2x click Favorite position
- Hold Turning slats until release

✓ Favorite position – available

8.4: Bistabile switches

Parameter no. 20 value 3

Example of the switch design:



Roller blind, Awning, Pergola or Curtain

Parameter no. 151 value 0

- 1x click (circuit closed) Initiate movement to the limit position
- Next click on the same switch (circuit opened) Stop

Venetian blind

Param no.151 value 1 or 2

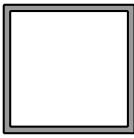
- 1x click (circuit closed) Initiate the slats rotation then blind movement to the limit position
- Next click on the same switch (circuit opened) Stop

✗ Favorite position – unavailable

8.5: Single bistabile switch

Parameter no. 20 value 4

Example of the switch design:



Roller blind, Awning, Pergola or Curtain

Parameter no. 151 value 0

- 1x click Initiate movement to the limit position
Next click – stop
- One more click Initiate movement to the opposite limit position
Next click - stop

Venetian blind

Param no. 151 value 1 or 2

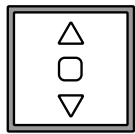
- 1x click Initiate the slats rotation then blind movement
Next click – stop
- One more click Initiate the slats rotation and blind movement to the opposite direction
Next click - stop

✗ Favorite position – unavailable

8.6: Three-state switch

Parameter no. 20 value 5

Example of the switch design:



Roller blind, Awning, Pergola or Curtain

Parameter no. 151 value 0

- 1x click Initiate movement to the limit position in the selected direction until the switch selects the stop command

Venetian blind

Param no.151 value 1 or 2

- 1x click Initiate slats rotation then blind movement to limit position into selected direction until the switch selects the stop command

✗ Favorite position – unavailable

8.7: Favorite position

Your device has a built-in mechanism for setting favorite positions. You can activate it by double-clicking on the monostable switch(es) connected to the device or from the mobile interface (mobile app).

Favorite roller blind position

You can define the favorite position of the blinds. It can be set in parameter 159. The default value is set to 50%.

Favorite slats position

You can define the favorite position of the slats angle. It can be set in parameter 160. The default value is set to 50%.

8.8: Pot protection

Your device has a built-in mechanism to protect, for example, flowers on the windowsill. This is the so-called virtual limit switch. You can set its value in parameter 158. The default value is 0 - this means that the roller blind will move between the maximum end positions.

8.9: LED indicators

The built-in LED shows the current status of the device. When the device is powered:

Colour	Description
Green	Device added to Z-Wave network (non-secure, S0, S2 not Authenticated)
Magenta	Device added to Z-Wave network (Security S2 Authenticated)
Red	Device not added to the Z-Wave network
Blinking cyan	Update in progress

9: Menu

Menu allows to perform actions. In order to use the menu:

1. Switch off the mains voltage (disable the fuse).
2. Remove the device from the wall switch box.
3. Switch on the mains voltage.
4. Press and hold the PROG button to enter the menu.
5. Wait for the LED to indicate the desired menu position with colour:
 - **BLUE** - autocalibration
 - **YELLOW** - factory reset
6. Quickly release and click the PROG button again.
7. After clicking the PROG button, the LED indicator will confirm the menu position by blinking.

10: Resetting the device to factory defaults

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.

Please use this procedure **only** when the network primary controller is missing or otherwise inoperable.

1. Switch off the mains voltage (disable the fuse).
2. Remove the device from the wall switch box.
3. Switch on the mains voltage.
4. Press and hold the PROG button to enter the menu.
5. Wait for the LED indicator to glow yellow.
6. Quickly release and click the PROG button again.
7. During the factory reset, the LED indicator will blink yellow.
8. After few seconds the device will be restarted, which is signalled with the red LED indicator colour.

11: Energy metering

The device allows for the energy consumption monitoring. Data is sent to the main Z-Wave controller.

Measuring is carried out by the most advanced micro-controller technology, assuring maximum accuracy and precision (+/- 5% for loads greater than 10W).

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:

The device will erase energy consumption data on factory reset.

12: Configuration

12.1: Associations

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

Associations allow:

- reporting the device status to the Z-Wave controller (using Lifeline Group),
- creating simple automations by controlling other 4th devices without participation of the main controller (using groups assigned to actions on the device).

 Commands send to 2nd association group reflect button operation according to device configuration, e.g. starting the blinds movement using button will send frame responsible for the same action.

The device provides the association of 2 groups:

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

2nd association group – “Window Covering” is intended for curtains or blinds allowing the user to control the amount of light going through windows.

The device allows to control 5 regular or multichannel devices for 2nd association group, while “Lifeline” is reserved solely for the controller and hence only 1 node can be assigned.

To add an association:

1. Go to **Settings** 
2. Go to **Devices**.
3. Select the relevant device from the list.
4. Select the **Associations** tab.
5. Specify to which group and which devices to associate.
6. Save your changes.

Association Group 2: „Window Covering“**Window covering calibration status and command Id value.**

Id	Calibration status		Window Covering name	Window Covering id
Id_Roller	0	Device is not calibrated	OUT_BOTTOM_1	12 (0x0C)
	1	Autocalibration successful	OUT_BOTTOM_2	13 (0x0D)
	2	Autocalibration failed	OUT_BOTTOM_1	12 (0x0C)
	4	Manual calibration	OUT_BOTTOM_2	13 (0x0D)
Id_Slat	0	Device is not calibrated	HORIZONTAL_SLATS_ANGLE_1	22 (0x16)
	1	Autocalibration successful	HORIZONTAL_SLATS_ANGLE_2	23 (0x17)
	2	Autocalibration failed	HORIZONTAL_SLATS_ANGLE_1	22 (0x16)
	4	Manual calibration	HORIZONTAL_SLATS_ANGLE_2	23 (0x17)

Operating mode: Roller blind, Awning, Pergola, Curtain (param 151 value = 0)

Switch type Parametr (20)		Switch	Single Click		Double Click	
Value	Name		Command	ID	Command	ID
0	Monostable switches – click to move	S1 or S2	Window Covering Start Level Change	Id_Roller	Window Covering Set Level	Id_Roller
1	Monostable switches – hold to move		Window Covering Stop Level Change			
2	Single monostable switch		-			
3	Bistable switches		-	-	-	-
5	Three-state switch		-	-	-	-

Switch type Parametr (20)		Switch	Hold		Release	
Value	Name		Command	ID	Command	ID
0	Monostable switches – click to move	S1 or S2	Window Covering Start Level Change	Id_Roller	Window Covering Stop Level Change	Id_Roller
1	Monostable switches – hold to move					
2	Single monostable switch					
3	Bistable switches					
5	Three-state switch					

Switch type Parametr (20)		Switch	Switch state change when roller is not moving		Switch state change when roller is not moving	
Value	Name		Command	ID	Command	ID
4	Single bistable switch	S1 or S2	Window Covering Start Level Change	Id_Roller	Window Covering Stop Level Change	Id_Roller

Operating mode: Venetian blind 90° (param 151 = 1) or Venetian blind 180° (param 151 = 2)

Switch type Parametr (20)		Switch	Single Click		Double Click	
Value	Name		Command	ID	Command	ID
0	Monostable switches – click to move	S1 or S2	Window Covering Start Level Change	Id_Roller	Window Covering Set Level	Id_Roller Id_Slat
1	Monostable switches – hold to move			Id_Slat		
2	Single monostable switch			Id_Roller		
3	Bistable switches		-	-	-	-
5	Three-state switch		-	-	-	-

Switch type Parametr (20)		Switch	Hold		Release	
Value	Name		Command	ID	Command	ID
0	Monostable switches – click to move	S1 or S2	Window Covering Start Level Change	Id_Slat	Window Covering Stop Level Change	Id_Slat
1	Monostable switches – hold to move			Id_Roller		Id_Roller
2	Single monostable switch			Id_Slat		Id_Slat
3	Bistable switches		Window Covering Start Level Change	Id_Roller	Window Covering Stop Level Change	Id_Roller
5	Three-state switch		Window Covering Start Level Change	Id_Roller	Window Covering Stop Level Change	Id_Roller

Switch type Parametr (20)		Switch	Switch state change when roller is not moving		Switch state change when roller is not moving	
Value	Name		Command	ID	Command	ID
4	Single bistable switch	S1 or S2	Window Covering Start Level Change	Id_Roller	Window Covering Stop Level Change	Id_Roller

13: Advanced parameters

The device allows customizing its operation to user’s needs using configurable parameters.

The settings can be adjusted via the Z-Wave controller to which the device is added. The way of adjusting them might differ depending on the controller.

In the FIBARO interface device configuration is available as a simple set of options in the Advanced Settings section.

To configure the device:

- 1. Go to **Settings** ⚙️
- 2. Go to **Devices**.
- 3. Select the relevant device from the list.
- 4. Select the **Advanced or Parameters** tab.
- 5. Change the appropriate settings or values.
- 6. Save your changes.

Available parameters:

20.	Switch type	
Description	This parameter determines with which switches types and in which mode the S1 and S2 inputs operate.	
Parameter size	1B	
Default value	0	
Available values	0 - Monostable switches – click to move	
	1 - Monostable switches – hold to move	
	2 - Single monostable switch	
	3 - Bistable switches	
	4 - Single bistable switch	
	5 - Three-state switch	

24.	Buttons orientation	
Description	This parameter allows reversing the operation of the buttons.	
Parameter size	1B	
Default value	0	
Available values	0 – default (1st button UP, 2nd button DOWN)	
	1 – reversed (1st button DOWN, 2nd button UP)	
25.	Outputs orientation	
Description	This parameter allows reversing the operation of O1 and O2 without changing the wiring (e.g. in case of invalid motor connection).	
Parameter size	1B	
Default value	0	
Available values	0 - default (O1 – UP, O2 – DOWN)	
	1 - reversed (O1 – DOWN, O2 – UP)	
40.	First button – scenes sent	
Description	This parameter determines which actions result in sending scene IDs assigned to them. Values can be combined (e.g. 1+2=3 means that scenes for single and double click are sent). Enabling scenes for triple click disables entering the device in learn mode by triple clicking.	
Parameter size	1B	
Default value	15 (All scenes active)	
Available values	0 - No scene active	
	1 – Key pressed 1 time	
	2 – Key pressed 2 times	
	4 – Key pressed 3 times	
	8 – Key hold down and key released	

41.	Second button – scenes sent
Description	This parameter determines which actions result in sending scene IDs assigned to them. Values can be combined (e.g. 1+2=3 means that scenes for single and double click are sent). Enabling scenes for triple click disables entering the device in learn mode by triple clicking.
Parameter size	1B
Default value	15 (All scenes active)
Available values	0 - No scene active
	1 - Key pressed 1 time
	2 - Key pressed 2 times
	4 - Key pressed 3 times 8 - Key hold down and key released
150.	Calibration
Description	To start automatic calibration, select the value 3. When the calibration process is successful, the parameter takes the value 1. When automatic calibration fails, the parameter takes the value 2. If the transitions times for the device are changed manually in the parameter (156/157), the parameter 150 will takes the value 4.
Parameter size	1B
Default value	0
Available values	0 - Device is not calibrated
	1 - Autocalibration successful
	2 - Autocalibration failed
	3 - Calibration process 4 - Manual calibration

151.	Operating mode
Description	This parameter allows you to adjust the operation, depending on the connected device. In the case of venetian blinds, the angle of rotation of the slats must also be selected.
Parameter size	1B
Default value	0
Available values	0 – Roller blind, Awning, Pergola, Curtain 1 – Venetian blind 90° 2 – Venetian blind 180°
152.	Venetian blind - slats full turn time
Description	For Venetian blinds the parameter determines time of full turn cycle of the slats. The parameter is irrelevant for other modes.
Parameter size	2B
Default value	15 (1.5 seconds)
Available values	0-65535 (0 - 6553.5s, every 0.1s) - time of turn
156.	Time of up movement
Description	This parameter determines the time it takes to reach full opening. The value is set automatically during the calibration process. It should be manually set in case of problems with the autocalibration.
Parameter size	2B
Default value	600 (60 seconds)
Available values	0-65535 (0 - 6553.5s, every 0.1s) - time of turn
157.	Time of down movement
Description	This parameter determines the time it takes to reach full closure. The value is set automatically during the calibration process. It should be manually set in case of problems with the autocalibration.
Parameter size	2B
Default value	600 (60 seconds)
Available values	0-65535 (0 - 6553.5s, every 0.1s) - time of turn

158.	Virtual limit switch. The pot protection	
Description	This parameter allows you to set a fixed minimum level of lowering the shutter. For example, to protect a flowerpot located on a windowsill.	
Parameter size	1B	
Default value	0	
Available values	0-99	
159.	Favorite position - opening level	
Description	This parameter allows you to define your favorite aperture level.	
Parameter size	1B	
Default value	50	
Available values	0-99 0xFF - Functionality disabled	
160.	Favorite position - slat angle	
Description	This parameter allows you to define your favorite position of the slat angle. The parameter is used only for venetian blinds.	
Parameter size	1B	
Default value	50	
Available values	0-99 0xFF - Functionality disabled	

14: Z-Wave specification

Indicator CC - available indicators

Indicator ID – 0x50 (Identify)

Indicator CC - available properties

Property ID	Description	Values and requirements
0x03	Toggling, On/Off Periods	Starts toggling between ON and OFF Used to set the duration of an On/Off period. Available values: • 0x00 .. 0xFF (0 .. 25.5 seconds) If this is specified, the On/Off Cycles MUST also be specified.
0x04	Toggling, On/Off Cycles	Used to set the number of On/Off periods. Available values: • 0x00 .. 0xFE (0 .. 254 times) • 0xFF (indicate until stopped) If this is specified, the On/Off Period MUST also be specified.
0x05	Toggling, On time within an On/Off period	Used to set the length of the On time during an On/Off period. It allows asymetic On/Off periods. Available values • 0x00 (symmetric On/Off period – On time equal to Off time) • 0x01 .. 0xFF (0.1 .. 25.5 seconds) Example: 300ms ON and 500ms OFF is achieved by setting On/Off period (0x03) = 0x08 and On time within an On/Off Period (0x05) = 0x03 This value is ignored if On/Off periods is not defined. This value is ignored if On/Off periods value is less than this value.

Supported Command Classes

Command Class	Version	Secure
COMMAND_CLASS_APPLICATION_STATUS [0x22]	V1	
COMMAND_CLASS_ZWAVEPLUS_INFO [0x5E]	V2	
COMMAND_CLASS_WINDOW_COVERING [0x6A]	V1	YES
COMMAND_CLASS_SWITCH_MULTILEVEL [0x26]	V4	YES
COMMAND_CLASS_ASSOCIATION [0x85]	V2	YES
COMMAND_CLASS_MULTI_CHANNEL_ASSOCIATION [0x8E]	V3	YES
COMMAND_CLASS_ASSOCIATION_GRP_INFO [0x59]	V3	YES
COMMAND_CLASS_TRANSPORT_SERVICE [0x55]	V2	
COMMAND_CLASS_VERSION [0x86]	V3	YES
COMMAND_CLASS_MANUFACTURER_SPECIFIC [0x72]	V2	YES
COMMAND_CLASS_DEVICE_RESET_LOCALLY [0x5A]	V1	YES
COMMAND_CLASS_POWERLEVEL [0x73]	V1	YES
COMMAND_CLASS_SECURITY [0x98]	V1	
COMMAND_CLASS_SECURITY_2 [0x9F]	V1	
COMMAND_CLASS_METER [0x32]	V3	YES
COMMAND_CLASS_CONFIGURATION [0x70]	V4	YES
COMMAND_CLASS_NOTIFICATION [0x71]	V8	YES
COMMAND_CLASS_PROTECTION [0x75]	V2	YES
COMMAND_CLASS_CENTRAL_SCENE [0x5B]	V3	YES
COMMAND_CLASS_FIRMWARE_UPDATE_MD [0x7A]	V5	YES
COMMAND_CLASS_SUPERVISION [0x6C]	V1	
COMMAND_CLASS_INDICATOR [0x87]	V3	YES
COMMAND_CLASS_BASIC [0x20]	V2	YES

Basic CC

Command	Value	Mapping command	Mapping value
Basic Set	[0xFF]	Multilevel Switch Set	[0xFF]
Basic Set	[0x00]	Multilevel Switch Set	Multilevel Switch Set
Basic Set	[0x00] to [0x63]	Start Level Change (Up/Down)	[0x00], [0x63]
Basic Get		Multilevel Switch Get	
Basic Report*		Multilevel Switch Report	

* Current Value and Target Value MUST be set to 0xFE if not position aware.

Notification CC

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

Notification Type	Event / State	Parameter	Status	In endpoints
Power Management [0x08]	Idle [0x00]		0xFF – enable (non-changeable)	Root
	Over-current detected [0x06]			
System [0x09]	Idle [0x00]	MP code: 0x01 [device overheat]	0xFF – enable (non-changeable)	Root
	System hardware failure with manufacturer proprietary failure code [0x03]			

Protection CC

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

Type	State	Description	Hint
Local	0	Unprotected - The device is not protected, and may be operated normally via the user interface.	Buttons connected with outputs.
Local	2	No operation possible – button can not change relay state, any other functionality is available (menu).	Buttons disconnected from outputs.
RF	0	Unprotected - The device accept and respond to all RF Commands.	Outputs can be controlled via Z-Wave.
RF	1	No RF control – command class basic and switch binary are rejected, every other command class will be handled.	Outputs cannot be controlled via Z-Wave.

Meter CC

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

Altering capabilities

FGR-224 uses different set of Window Covering Parameter IDs depending on the values of the 2 parameters:

- Calibration status (parameter 150),
- Operating mode (parameter 151).

Calibration status (parameter 150)	Operating mode (parameter 151)	Supported Window Covering Parameter IDs
0 - Device is not calibrated or 2 - Autocalibration failed	0 – Roller blind, Awning, Pergola, Curtain	out_bottom (0x0C)
0 - Device is not calibrated or 2 - Autocalibration failed	1 – Venetian blind 90° or 2 – Roller blind with built-in driver 180°	out_bottom (0x0C) Horizontal slats angle (0x16)
1 - Autocalibration successful or 4 - Manual calibration	0 – Roller blind, Awning, Pergola, Curtain	out_bottom (0x0D)
1 - Autocalibration successful or 4 - Manual calibration	1 – Venetian blind 90° or 2 – Roller blind with built-in driver 180°	out_bottom (0x0D) Horizontal slats angle (0x17)

If any of the parameters 150 or 151 changes, the controller should perform rediscovery procedure in order to update the set of Supported Window Covering

Parameter IDs. If the controller does not have any capability rediscovery option, it is necessary to re-include the node in the network.

Association Group Information CC

Group	Profile	Command Class & Command	Group Name
1	General: Lifeline (0x00: 0x01)	DEVICE_RESET_LOCALLY_NOTIFICATION [0x5A 0x01]	Lifeline
		NOTIFICATION_REPORT [0x71 0x05]	
		SWITCH_MULTILEVEL_REPORT [0x26 0x03]	
		WINDOW_COVERING_REPORT [0x6A 0x04]	
		CONFIGURATION_REPORT [0x70 0x06]	
		INDICATOR_REPORT [0x87 0x03]	
		METER_REPORT [0x32 0x02]	
		CENTRAL_SCENE_CONFIGURATION_REPORT [0x5B 0x06]	
2	Control: KEY01 (0x20: 0x01)	WINDOW_COVERING_SET [0x6A 0x05]	Window Covering
		WINDOW_COVERING_START_LVL_CHANGE [0x6A 0x06]	
		WINDOW_COVERING_STOP_LVL_CHANGE [0x6A 0x07]	

15: 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.

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.



FCC Caution.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

IC Warning

This device complies with Innovation, Science and Economic Development Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux normes RSS sans licence d'innovation, sciences et développement économique Canada. Les opérations sont soumises aux deux conditions suivantes:

- (1) Cet appareil ne peut pas causer d'interférences, et
- (2) Cet appareil doit accepter toute interférence, y compris celles qui pourraient entraîner un fonctionnement accidentel de l'appareil.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Tout changement ou modification non expressément approuvé par la partie responsable de la réglementation de l'OCDE peut faire perdre à l'utilisateur le droit d'utiliser l'appareil.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Remarque: cet appareil a été testé pour répondre aux limites des appareils numériques de classe B conformément à la partie 15 des règles de la Federal Communications Commission des États - Unis. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences nuisibles dans les installations résidentielles. L'appareil génère de l'énergie RF utilisée et rayonne, ce qui peut causer des interférences nocives pour les communications radio s'il n'est pas installé et utilisé conformément aux instructions. Cependant, aucune Garantie contre les interférences dans une installation spécifique. Si l'appareil cause des interférences nuisibles à la réception de la radio ou de la télévision, qui peuvent être déterminées en éteignant et en allumant l'appareil, l'utilisateur est encouragé à tenter de corriger les

interférences par une ou plusieurs des mesures suivantes:

- redirection ou repositionnement de l'antenne de réception.
- augmenter l'espacement entre l'appareil et le récepteur.
- Connecter l'appareil à une prise sur un circuit différent de celui auquel le récepteur est connecté.
- consultez votre revendeur ou un technicien radio / tv expérimenté pour obtenir de l'aide.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

L'appareil est conforme aux limites d'exposition aux radiations spécifiées par la FCC pour les environnements non contrôlés. La distance entre le radiateur et le corps doit être d'au moins 20 cm lors de l'installation et du fonctionnement de l'appareil.